Attachment A

Coastal Policy Assessment

- **New York State Coastal Consistency**
- **New York City Waterfront Revitalization Program Consistency Assessment**
- **Long Island Sound Coastal Consistency Assessment**
- **New York State Department of State Coastal Consistency Assessment**
- **Smithtown Local Waterfront Revitalization Assessment Form**
- **Southhold Local Waterfront Revitalization Assessment Form**

The NYSDEC's Artificial Reef Program (Program) maintains a series of reef sites in the waters of New York's Marine and Coastal District (MCD). Program goals are to administer and manage artificial reef habitat as part of a fisheries management program, provide fishing and diving opportunities, and enhance or restore fishery resources and associated habitat through the selective placement of artificial reef habitat (i.e. natural rock, concrete and steel) in the MCD under Programmatic guidelines. In 1993, NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the MCD, and adjacent Federal waters. As the Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan.

The proposed action includes the assessment of previously permitted sites, the expansion of seven existing sites (Fire Island, Hempstead, McAllister Grounds/Fishing Line, Moriches, Rockaway, Shinnecock, and Smithtown Reefs) and the addition and creation of four new sites (Sixteen Fathoms, Huntington/Oyster Bay, Port Jefferson/Mount Sinai and Mattituck). Artificial reefs are developed using the patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This method results in a smaller disruption of the site's benthic footprint thereby reducing impacts to the benthic community. Materials are transported to the reef site either by barge (i.e. natural stone and concrete) or towed out by vessel (i.e. steel barges or vessels) under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. This configuration increases the enhancement of the local natural habitat by introducing profiled hard structure for colonization and reef development while maintaining areas of natural bottom habitat between patch reef structures. The different structures attract a variety of marine life including recreationally important finfish and crustacean (i.e. lobster) species sought by anglers and divers.

Included herein are the New York State Coastal Zone Program policies relevant to the proposed activities that have been assessed based on completion of the New York State Department of State Federal Consistency Assessment Form policy questions. The additional information provided demonstrates how the proposed Project would be consistent with the goals of the policies. An assessment of coastal zone consistency for each reef site related to local waterfront revitalization programs (LWRP) and coastal management programs is included herein. Table 1 provides the reef sites and which program they fall under for this consistency assessment. Figure 1 below provides the location of the New York artificial reef sites.

Table 1. New York Artificial Reef Sites – Coastal Zone Consistency Programs

Reef	Coastal Zone Consistency Program[1]	Acreage	Development Status (%)	Proposed Modification
Rockaway	New York City CMP	413	80%	Expand to 635 Acres
McAllister Grounds	NYS CMP	115	75%	Expand to 425 Acres
Fire Island	NYS CMP	744	70%	Expand to 850 Acres
Moriches	NYS CMP	14	90%	Expand to 850 Acres
Shinnecock	NYS CMP	35	85%	Expand to 850 Acres
Atlantic Beach	NYS CMP	413	87%	None
Hempstead	NYS CMP	744	60%	Expand to 850 Acres
Sixteen Fathom	NYS CMP	850	Undeveloped	New Site
Twelve Mile	NYS CMP	850	5%	None
Yellowbar	NYS CMP	7	60%	None
Kismet	NYS CMP	10	85%	None
Matinecock	LIS CMP	41	10%	None
Huntington / Oyster Bay	LIS CMP	50	Undeveloped	New Site
Smithtown	LIS CMP	3	80%	Expand to 31 Acres
Port Jefferson / Mount Sinai	LIS CMP	50	Undeveloped	New Site
Mattituck	LIS CMP	50	Undeveloped	New Site

[1]NYS CMP = New York State Coastal Management Program
LIS CMP = Long Island Sound Coastal Management Program

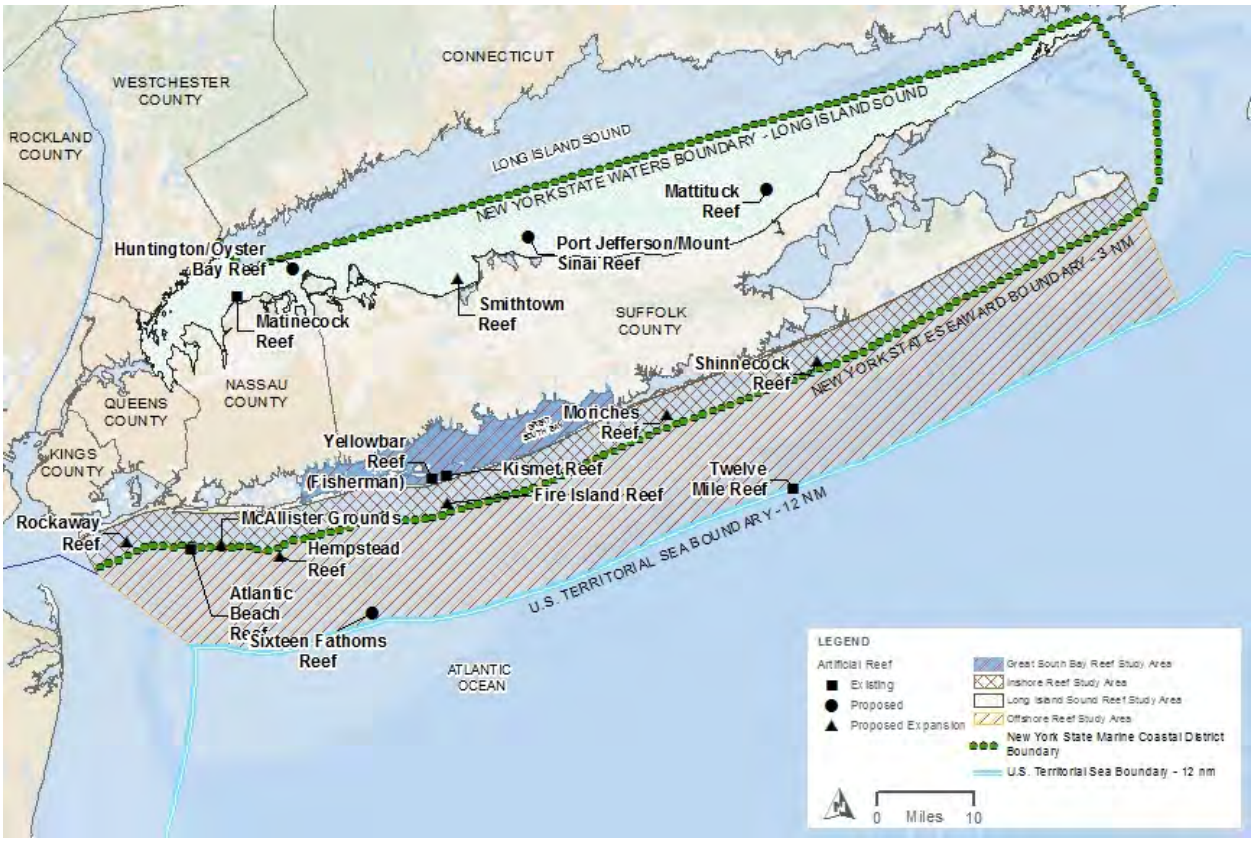

Figure 1. New York State Artificial Reef Sites

Local Waterfront Revitalization Program Assessments

One reef site is located within the New York City LWRP boundary. This reef site is identified as Rockaway Reef and is located within the Atlantic Ocean off the coast of the Rockaway Peninsula. Approximately 310 acres of this reef have already been developed and up to an additional 103 acres can be developed in the future. This reef is proposed to expand to 635 acres, providing an additional 222 acres that can be built upon. The 325 acres that can be developed at the Rockaway Reef site is the focus of this consistency assessment with the New York City LWRP. Included in this appendix is the completed NYC Consistency Assessment Form followed by an assessment of the Waterfront Revitalization Program (WRP) policies relevant to the proposed activities. The additional information provided demonstrates how the proposed Project would be consistent with the goals of the WRP polices. This assessment reflects the City Council approved revisions to the WRP dated October 2013, which were approved by the New York State Department of State and the U.S. Department of Commerce February 2016.

Long Island Sound Coastal Management Program Assessment

Five reef sites are located within Long Island Sound (LIS) including Matinecock, Smithtown, Huntington/Oyster Bay, Port Jefferson/Mount Sinai, and Mattituck reefs. Matinecock was previously permitted for 41 acres off the coast of Glen Cove and Smithtown was previously permitted for 3 acres. The Huntington/Oyster Bay, Port Jefferson/Mount Sinai, and Mattituck sites

have been evaluated for potential development for new reef sites and are anticipated to be 50 acres in size. The Smithtown reef site has been proposed to expand to 31 acres. The potential future permitting and development of these sites is the focus of this assessment.

Below are the policies relevant to the proposed Project that have been assessed based on the Long Island Sound Coastal policy questions. The additional information provided demonstrates how the proposed Project would be consistent with the goals of the Long Island Sound coastal polices.

New York State Coastal Management Program

The remaining reef sites, as well as those requiring assessment under a LWRP and the Long Island Sound Coastal Management Program, have been evaluated for consistency with New York State Coastal Management Program. Included in this appendix are the New York State Coastal Zone Program policies relevant to the proposed activities that have been assessed based on completion of the New York State Department of State Federal Consistency Assessment Form policy questions. The additional information provided demonstrates how the proposed Project would be consistent with the goals of the policies. This assessment reflects the Coastal Zone Management Program approved in 1982 and all of its updates and changes up to 2017. The following information is provided in support of Section D.2 of the Federal Consistency Assessment Form (FCAF).

New York City Waterfront Revitalization Program Consistency Assessment

For Rockaway Reef

Located in New York City, Queens County, NY

FOR INTERNAL USE ONLY	WRP No. _____
Date Received: _____	DOS No. _____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's Coastal Zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)* which has been approved as part of the State's Coastal Management Program.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, the New York City Department of City Planning, or other city or state agencies in their review of the applicant's certification of consistency.

A. APPLICANT INFORMATION

Name of Applicant: New York State Department of Environmental Conservation

Name of Applicant Representative: James J. Gilmore

Address: 205 North Belle Mead Road, East Setauket, NY 11733

Telephone: (631) 444-0430 Email: james.gilmore@dec.ny.gov

Project site owner (if different than above): NYS Office of General Services / Underwater Lands

B. PROPOSED ACTIVITY

If more space is needed, include as an attachment.

1. Brief description of activity

The proposed Project includes the assessment of previously permitted reef sites, the expansion of existing reef sites and the creation of four new reef sites. Previously permitted reef sites are located in the Atlantic Ocean, Great South Bay, and Long Island Sound. One reef site is located within the New York City Local Waterfront Revitalization Program boundary. This reef site is identified as the Rockaway Reef and is located off the coast of the Rockaway Peninsula. Approximately 310 acres of this reef have already been developed and up to 103 additional acres can be developed in the future. This reef is proposed to expand to 635 acres, providing an additional 222 acres that can be built upon.
Artificial reefs are developed using a patch reef system. Materials are transported to the reef site either by barge or towed out by vessel (i.e. steel barges or vessels) under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. This configuration increases the enhancement of the local natural habitat by introducing profiled hard structure for colonization and reef development while maintaining areas of natural bottom habitat between patch reef structures. The different structures attract a variety of marine life including recreationally important finfish and crustaceans (i.e. lobster) species sought by anglers and divers.

2. Purpose of activity

The NYSDEC's Artificial Reef Program (Program) maintains a series of reef sites in the waters of New York's Marine and Coastal District (MCD). Program goals are to administer and manage artificial reef habitat as part of a fisheries management program, provide fishing and diving opportunities, and enhance or restore fishery resources and associated habitat through the selective placement of artificial reef habitat (i.e. natural rock, concrete and steel) in the MCD under Programmatic guidelines.
All of these uses ultimately share the common purpose of enhancing or increasing the marine habitat available for associated fishes and other organisms. Planned manmade reefs can provide local economic benefits because fish and benthic organisms utilize the structure provided at known locations and are often popular attractions for commercial and recreational fishermen, and divers.

C. PROJECT LOCATION

Borough: Queens Tax Block/Lot(s): N/A

Street Address: N/A

Name of water body (if located on the waterfront): Atlantic Ocean

D. REQUIRED ACTIONS OR APPROVALS

Check all that apply.

City Actions/Approvals/Funding

City Planning Commission ☐ Yes ☐ No

- ☐ City Map Amendment
- ☐ Zoning Map Amendment
- ☐ Zoning Text Amendment
- ☐ Site Selection – Public Facility
- ☐ Housing Plan & Project
- ☐ Special Permit
  (if appropriate, specify type: ☐ Modification ☐ Renewal ☐ other) Expiration Date: _____
- ☐ Zoning Certification
- ☐ Zoning Authorizations
- ☐ Acquisition – Real Property
- ☐ Disposition – Real Property
- ☐ Other, explain: _____
- ☐ Concession
- ☐ UDAAP
- ☐ Revocable Consent
- ☐ Franchise

Board of Standards and Appeals ☐ Yes ☐ No

- ☐ Variance (use)
- ☐ Variance (bulk)
- ☐ Special Permit
  (if appropriate, specify type: ☐ Modification ☐ Renewal ☐ other) Expiration Date: _____

Other City Approvals

- ☐ Legislation
- ☐ Rulemaking
- ☐ Construction of Public Facilities
- ☐ 384 (b) (4) Approval
- ☐ Other, explain: _____
- ☐ Funding for Construction, specify: _____
- ☐ Policy or Plan, specify: _____
- ☐ Funding of Program, specify: _____
- ☐ Permits, specify: _____

State Actions/Approvals/Funding

- ☑ State permit or license, specify Agency: NYSDEC Permit type and number: _____
- ☐ Funding for Construction, specify: _____
- ☐ Funding of a Program, specify: _____
- ☐ Other, explain: _____

Federal Actions/Approvals/Funding

- ☑ Federal permit or license, specify Agency: USACE Permit type and number: _____
- ☐ Funding for Construction, specify: _____
- ☐ Funding of a Program, specify: _____
- ☐ Other, explain: _____

Is this being reviewed in conjunction with a Joint Application for Permits? ☑ Yes ☐ No

E. LOCATION QUESTIONS

1. Does the project require a waterfront site? ☐ Yes ☐ No
2. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land under water or coastal waters? ☐ Yes ☐ No
3. Is the project located on publicly owned land or receiving public assistance? ☑ Yes ☐ No
4. Is the project located within a FEMA 1% annual chance floodplain? *(6.2)* ☐ Yes ☐ No
5. Is the project located within a FEMA 0.2% annual chance floodplain? *(6.2)* ☐ Yes ☐ No
6. Is the project located adjacent to or within a special area designation? *See Maps – Part III of the NYC WRP. If so, check appropriate boxes below and evaluate policies noted in parentheses as part of WRP Policy Assessment (Section F).* ☐ Yes ☐ No

   ☐ Significant Maritime and Industrial Area (SMIA) (*2.1*)

   ☐ Special Natural Waterfront Area (SNWA) (*4.1*)

   ☐ Priority Maritime Activity Zone (PMAZ) (*3.5*)

   ☐ Recognized Ecological Complex (REC) (*4.4*)

   ☐ West Shore Ecologically Sensitive Maritime and Industrial Area (ESMIA) (*2.2, 4.2*)

F. WRP POLICY ASSESSMENT

Review the project or action for consistency with the WRP policies. For each policy, check Promote, Hinder *or* Not Applicable (N/A). *For more information about consistency review process and determination, see* ***Part I*** *of the NYC Waterfront Revitalization Program. When assessing each policy, review the full policy language, including all sub-policies, contained within* ***Part II*** *of the WRP. The relevance of each applicable policy may vary depending upon the project type and where it is located (i.e. if it is located within one of the special area designations).*

For those policies checked Promote *or* Hinder, *provide a written statement on a separate page that assesses the effects of the proposed activity on the relevant policies or standards. If the project or action promotes a policy, explain how the action would be consistent with the goals of the policy. If it hinders a policy, consideration should be given toward any practical means of altering or modifying the project to eliminate the hindrance. Policies that would be advanced by the project should be balanced against those that would be hindered by the project. If reasonable modifications to eliminate the hindrance are not possible, consideration should be given as to whether the hindrance is of such a degree as to be substantial, and if so, those adverse effects should be mitigated to the extent practicable.*

		Promote	Hinder	N/A
1	**Support and facilitate commercial and residential redevelopment in areas well-suited to such development.**	☐	☐	☐
1.1	Encourage commercial and residential redevelopment in appropriate Coastal Zone areas.	☐	☐	☐
1.2	Encourage non-industrial development with uses and design features that enliven the waterfront and attract the public.	☐	☐	☐
1.3	Encourage redevelopment in the Coastal Zone where public facilities and infrastructure are adequate or will be developed.	☐	☐	☐
1.4	In areas adjacent to SMIAs, ensure new residential development maximizes compatibility with existing adjacent maritime and industrial uses.	☐	☐	☐
1.5	Integrate consideration of climate change and sea level rise into the planning and design of waterfront residential and commercial development, pursuant to WRP Policy 6.2.	☐	☐	☐

		Promote	Hinder	N/A
2	**Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.**	☐	☐	☐
2.1	Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas.	☐	☐	☐
2.2	Encourage a compatible relationship between working waterfront uses, upland development and natural resources within the Ecologically Sensitive Maritime and Industrial Area.	☐	☐	☐
2.3	Encourage working waterfront uses at appropriate sites outside the Significant Maritime and Industrial Areas or Ecologically Sensitive Maritime Industrial Area.	☐	☐	☐
2.4	Provide infrastructure improvements necessary to support working waterfront uses.	☐	☐	☐
2.5	Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2.	☐	☐	☐
3	**Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.**	☐	☐	☐
3.1.	Support and encourage in-water recreational activities in suitable locations.	☐	☐	☐
3.2	Support and encourage recreational, educational and commercial boating in New York City's maritime centers.	☐	☐	☐
3.3	Minimize conflicts between recreational boating and commercial ship operations.	☐	☐	☐
3.4	Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses.	☐	☐	☐
3.5	In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses.	☐	☐	☐
4	**Protect and restore the quality and function of ecological systems within the New York City coastal area.**	☑	☐	☐
4.1	Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas.	☐	☐	☐
4.2	Protect and restore the ecological quality and component habitats and resources within the Ecologically Sensitive Maritime and Industrial Area.	☐	☐	☐
4.3	Protect designated Significant Coastal Fish and Wildlife Habitats.	☐	☐	☐
4.4	Identify, remediate and restore ecological functions within Recognized Ecological Complexes.	☐	☐	☐
4.5	Protect and restore tidal and freshwater wetlands.	☐	☐	☐
4.6	In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.	☑	☐	☐
4.7	Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.	☑	☐	☐
4.8	Maintain and protect living aquatic resources.	☑	☐	☐

		Promote	Hinder	N/A
5	**Protect and improve water quality in the New York City coastal area.**	☑	☐	☐
5.1	Manage direct or indirect discharges to waterbodies.	☐	☐	☐
5.2	Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.	☐	☐	☐
5.3	Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.	☑	☐	☐
5.4	Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands.	☐	☐	☐
5.5	Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies.	☐	☐	☐
6	**Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.**	☐	☐	☐
6.1	Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.	☐	☐	☐
6.2	Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in *New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms*) into the planning and design of projects in the city's Coastal Zone.	☐	☐	☐
6.3	Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit.	☐	☐	☐
6.4	Protect and preserve non-renewable sources of sand for beach nourishment.	☐	☐	☐
7	**Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to the environment and public health and safety.**	☐	☐	☐
7.1	Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.	☐	☐	☐
7.2	Prevent and remediate discharge of petroleum products.	☐	☐	☐
7.3	Transport solid waste and hazardous materials and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.	☐	☐	☐
8	**Provide public access to, from, and along New York City's coastal waters.**	☑	☐	☐
8.1	Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.	☐	☐	☐
8.2	Incorporate public access into new public and private development where compatible with proposed land use and coastal location.	☐	☐	☐
8.3	Provide visual access to the waterfront where physically practical.	☐	☐	☐
8.4	Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.	☐	☐	☐

		Promote	Hinder	N/A
8.5	Preserve the public interest in and use of lands and waters held in public trust by the State and City.	☑	☐	☐
8.6	Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship.	☐	☐	☐
9	**Protect scenic resources that contribute to the visual quality of the New York City coastal area.**	☐	☐	☐
9.1	Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.	☐	☐	☐
9.2	Protect and enhance scenic values associated with natural resources.	☐	☐	☐
10	**Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.**	☐	☐	☐
10.1	Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.	☐	☐	☐
10.2	Protect and preserve archaeological resources and artifacts.	☐	☐	☐

G. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: James J. Gilmore

Address: 205 North Belle Mead Road, East Setauket, NY 11733

Telephone: (631) 444-0430 Email: james.gilmore@dec.ny.gov

Applicant/Agent's Signature: _____

Date: _____

Submission Requirements

For all actions requiring City Planning Commission approval, materials should be submitted to the Department of City Planning.

For local actions not requiring City Planning Commission review, the applicant or agent shall submit materials to the Lead Agency responsible for environmental review. A copy should also be sent to the Department of City Planning.

For State actions or funding, the Lead Agency responsible for environmental review should transmit its WRP consistency assessment to the Department of City Planning.

For Federal direct actions, funding, or permits applications, including Joint Applicants for Permits, the applicant or agent shall also submit a copy of this completed form along with his/her application to the NYS Department of State Office of Planning and Development and other relevant state and federal agencies. A copy of the application should be provided to the NYC Department of City Planning.

The Department of City Planning is also available for consultation and advisement regarding WRP consistency procedural matters.

New York City Department of City Planning
Waterfront and Open Space Division
120 Broadway, 31st Floor
New York, New York 10271
212-720-3696
wrp@planning.nyc.gov
www.nyc.gov/wrp

New York State Department of State
Office of Planning and Development
Suite 1010
One Commerce Place, 99 Washington Avenue
Albany, New York 12231-0001
518-474-6000
www.dos.ny.gov/opd/programs/consistency

Applicant Checklist

- ☑ Copy of original signed NYC Consistency Assessment Form
- ☑ Attachment with consistency assessment statements for all relevant policies
- ☑ For Joint Applications for Permits, one (1) copy of the complete application package
- ☑ Environmental Review documents
- ☑ Drawings (plans, sections, elevations), surveys, photographs, maps, or other information or materials which would support the certification of consistency and are not included in other documents submitted. All drawings should be clearly labeled and at a scale that is legible.
- ☒ N/A Policy 6.2 Flood Elevation worksheet, if applicable. For guidance on applicability, refer to the WRP Policy 6.2 Guidance document available at www.nyc.gov/wrp

WRP Policy 4. Protect and restore the quality and function of ecological systems within the New York City coastal area.

WRP Policy 4.6: In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.

The Rockaway Reef would enhance habitat for epibenthic, benthic and fish species. These habitat improvements would enhance fishery resources and provide recreational fishing and diving opportunities for anglers and divers. As such, the reef would provide both environmental and societal benefits, in compliance with this policy.

WRP Policy 4.7: Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.

There are numerous Federal- and State-listed threatened, endangered, and special concern species that may occur in the vicinity of the Rockaway Reef site according to USFWS, NOAA, and the State of New York (USACE 2014 and 2016). These species are listed in Table 1.

Table 1. State and Federally Listed Protected Species Potentially Occurring in the Vicinity of the Rockaway Reef Site

Birds		
Common Name	**Scientific Name**	**Status**
common loon	*Gavia immer*	SSC
common tern	*Sterna hirundo*	ST
Cooper's hawk	*Accipiter cooperii*	SSC
least tern	*Sterna antillarum*	ST
osprey	*Pandion haliaetus*	SSC
peregrine falcon	*Falco peregrinus*	SE, FE
piping plover	*Charadrius melodus*	SE, FE
rufa red knot	*Calidris canutus*	FT
roseate tern	*Sterna dougallii*	SE, FT
Fish		
Atlantic sturgeon	*Acipenser oxyrinchus*	FE
Shortnose sturgeon	*Acipenser brevirostrum*	SE, FE
Reptiles		
loggerhead sea turtle	*Caretta caretta*	ST, FE
Hawksbill sea turtle	*Eretmochelys imbricate*	SE, FE
leatherback sea turtle	*Dermochelys coriacea*	SE, FE
Kemp's ridley sea turtle	*Lepidochelys kempii*	SE, FE
green sea turtle	Chelonia mydas	ST, FE
Marine Mammals		
finback whale	*Balaenoptera physalus*	SE, FE
sperm whale	*Physeter macrocephalus*	SE, FE
humpback whale	*Megaptera novaeangliae*	SE
North Atlantic right whale	*Eubalaena glacialis*	SE, FE
sei whale	*Balaenoptera borealis*	SE, FE
Status: ST – State Threatened, SE – State Endangered, SSC – State Special Concern, FT – Federally Threatened, FE – Federally Endangered. Sources: USACE 2014 and 2016, Kagueux, Wikgren, & Kenney 2010		

Temporary disruption of fish, marine mammal and reptile habitat is anticipated in the area of the reef site during reef construction. Because the species are mobile they will be able to avoid the construction area for the duration of construction and utilize adjacent reef areas that have already been constructed. Upon construction the new reef area would provide habitat for fish and crustaceans, providing new foraging areas and a greater abundance of prey for bird, fish, reptile, and mammal species. The Project would therefore benefit protected and vulnerable species and enhance the ecological community in compliance with this policy.

WRP Policy 4.8: Maintain and protect living aquatic resources.

The proposed Project would provide habitat for native aquatic species and thereby would enhance the aquatic resources and increase biodiversity in the area, in compliance with this policy. Enhancing aquatic resources would promote recreational fishing and diving. Species harvesting would be allowed in accordance with federal, local and state regulations that outline catch and

size limitations, in order to ensure that the reef is utilized in sustainable ways. No species stocking or aquaculture is proposed as part of the Project.

WRP Policy 5. Protect and improve water quality in the New York City Coastal area.

WRP Policy 5.3: Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.

Construction of the reef would involve the placement of clean fill material consisting of natural stone, concrete, or steel in navigable waters. Fill material would be towed to the predetermined location by vessel, which would then be placed in discrete drop locations. Submerging the clean reef material would result in temporary resuspension of the sandy sediments found in the reef area. The sediments are expected to settle onto the bottom shortly after the reef material is placed. In an effort to protect the existing reef and surrounding resources, placement would occur during fair weather to avoid excessive turbidity increases. Following a temporary decrease in water quality associated with the placement of reef material, the water quality in the area of the reef would improve as a result of filter feeding organisms migrating into the area and attaching to the new available substrate. The development or expansion of the community of filter feeders which could include species such as barnacles and mussels would have long-term benefits to the water quality in the region; therefore, the proposed Project is consistent with this policy.

WFP Policy 8. Provide public access to, from, and along New York City's coastal waters.

WRP Policy 8.5: Preserve the public interest in and use of lands and waters held in public trust by the State and City.

The proposed Project would preserve the public interest in and use of waters held in public trust by the City by creating an enhanced habitat for aquatic species and providing additional public recreation opportunities through recreational fishing and diving; therefore, the proposed Project is consistent with this policy.

Conclusion.

Based on the review of the New York City Waterfront Revitalization Program Consistency Assessment Form, and further discussion of specific policies above, the proposed addition to the Rockaway Reef is consistent with the WRP policies.

Literature Cited

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United States Army Corps of Engineers. (2014). *Fire Island Inlet to Moriches Inlet, Fire Island Stabilization Project; Evaluation of a Stabilization Plan for Coastal Storm Risk Mangement in Response to Huricane Sandy & Public Law 113-2.* New York District. New York: United States Army Corps of Engineers. Retrieved June 19, 2017, from http://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/ny/coast/fimp/FIMI_Docs/EA/A-Final_FIMI_EA.pdf

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Long Island Sound Coastal Consistency Assessment

For Matinecock, Smithtown, Huntington/Oyster Bay, Port Jefferson/Mount Sinai, and Mattituck Reefs

Located in Glen Cove, Nassau County, and Smithtown, Huntington, Port Jefferson, and Southold, Suffolk County, New York

Long Island Sound Coastal Policies

Developed Coast Policies

- *Policy #1 – "Foster a pattern of development in the Long Island Sound coastal area that enhances community character, preserves open space, makes efficient use of infrastructure, makes beneficial use of a coastal location, and minimizes adverse effects of development."*

  The proposed Project would provide additional hard-bottom habitat for marine flora and fauna, making beneficial use of a coastal location. Further, the Project would provide a beneficial water-dependent use of Long Island Sound's coastal resources. Therefore, the Project is consistent with this policy.

- *Policy #2 – "Preserve historic resources of the Long Island Sound coastal area."*

  The proposed Project does not involve disturbances to known historic resources and any resources would be protected to the greatest extent practicable. Geophysical surveys were conducted in the reef areas during siting to avoid potential cultural resources. Therefore, the Project is consistent with this policy.

- *Policy #3 – "Enhance visual quality and protect scenic resources throughout Long Island Sound."*

  The proposed Project involves the placement of hard structures underwater and would not affect scenic resources. Therefore, this policy is not applicable.

Natural Coast Policies

- Policy #4 – "*Minimize loss of life, structures, and natural resources from flooding and erosion.*"

  The proposed Project involves the construction of submerged reefs within open water areas along the coast of Long Island and does not include the construction of buildings or structures in upland areas subject to flooding and erosion. Therefore, this policy is not applicable.

- Policy #5 – "*Protect and improve water quality and supply in the Long Island Sound coastal area.*"

  Construction of the reefs would involve placement of fill material onto the bottom sediments within Long Island Sound. This activity would result in the short-term, temporary resuspension of sediment during construction. The sediments are anticipated to settle out of the water column quickly following construction activities. The placement of the materials would be completed in a manner that would place materials on the

sediments in discrete locations, avoiding the existing reef. Placement would be completed in fair weather conditions to ensure minimal disruption of benthos and to minimize resuspension of sediments. Following a temporary decrease in water quality associated with the placement of reef material, the water quality in the area of the reef would improve as a result of filter feeding organisms migrating into the area and attaching to the new available substrate. The development or expansion of the community of filter feeders which could include species such as barnacles and mussels would have long-term benefits to the water quality in the region. Therefore, the Project is consistent with this policy.

- Policy #6 – "*Protect and restore the quality and function of the Long Island Sound ecosystem*."

  The proposed Project would add hard bottom habitat, increase habitat diversity and improve the quality and function of the Long Island Sound ecosystem for marine flora and fauna. Therefore, the Project is consistent with this policy.

- Policy #7 – "*Protect and improve air quality in the Long Island Sound coastal area*."

  The proposed Project involves transporting reef material by barge to the proposed reef location. The use of barges and heavy equipment during the construction phase of the Project would be limited to the greatest extent practicable to protect air quality; therefore, the proposed Project is consistent with this policy.

- Policy #8 – "*Minimize environmental degradation in the Long Island Sound coastal area from solid waste and hazardous substances and wastes*."

  The proposed Project does not involve the discharge of solid waste and hazardous substances and waste. Only clean materials would be used for artificial reef development. Therefore, the Project is consistent with this policy.

Public Coast Policies

- Policy #9 – "*Provide for public access to, and recreational use of, coastal waters, public lands, and public resources of the Long Island Sound coastal area*."

  The proposed Project would enhance habitat for epibenthic, benthic and fish species. The development of artificial reefs enhances recreational use by providing additional opportunities for recreational fishing and diving. As such, the Project is in compliance with this policy.

Working Coast Policies

- Policy #10 – "*Protect Long Island Sound's water-dependent uses and promote siting of new water-dependent uses in suitable locations*."

The proposed Project has a water-dependent use and would enhance habitat for epibenthic, benthic and fish species. The reef is located near harbors and promote water-dependent use of these coastal facilities by fishermen and divers. These habitat improvements would enhance fishery resources and provide recreational fishing and diving opportunities for anglers and divers. Therefore, the Project is consistent with this policy.

- Policy #11 – "*Promote sustainable use of living marine resources in Long Island Sound*."

  The proposed Project would enhance habitat for epibenthic, benthic, and fish species. Further, this would meet the NYSDEC's Artificial Reef Program goals of enhancing or restoring fishery resources, and promoting sustainable use of living marine resources. Therefore, the Project is consistent with this policy.

- Policy #12 – "*Protect agricultural lands in the eastern Suffolk County portion of Long Island Sound's coastal area*."

  The proposed Project does not involve agricultural lands in the eastern Suffolk County of Long Island Sound's coastal area; therefore, this policy is not applicable.

- Policy #13 – "*Promote appropriate use and development of energy and mineral resources*."

  The proposed Project does not involve the use and development of energy and mineral resources; therefore, this policy is not applicable.

New York State Department of State Coastal Consistency Assessment

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. **APPLICANT** (please print)

1. Name: James J. Gilmore
2. Address: 205 North Belle Mead Road, East Setauket, New York 11733
3. Telephone: Area Code (631) 444-0430

B. **PROPOSED ACTIVITY:**

1. Brief description of activity:

The Project includes assessment of previously permitted sites, the expansion of 7 existing sites, and the addition and creation of four new artificial reef sites. Artificial reefs are developed using the patch reef system. Patch reef

2. Purpose of activity:

The purpose of the activity is to provide fishing and diving opportunities at the artificial reef sites, as well as enhance or restore fishery resources and

3. Location of activity:

Nassau, Suffolk, Qu	See attached map.	Waters of Long Island S
County	City, Town, or Village	Street or Site Description

4. Type of federal permit/license required: USACE and coordination with NOAA/NMFS, USC

5. Federal application number, if known: _____

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known:

See Attachment I - Environmental Assessment of the Joint Permit Application for

C. **COASTAL ASSESSMENT** Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

1. Will the proposed activity result in any of the following:	YES	NO
a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43)	☑	☐
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44)	☑	☐
c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1)	☐	☑
d. Reduction of existing or potential public access to or along coastal waters? (19, 20)	☐	☑
e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10)	☐	☑
f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29)	☐	☑
g. Siting of a facility essential to the generation or transmission of energy? (27)	☐	☑
h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35)	☐	☑
i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35)	☐	☑
j. Draining of stormwater runoff or sewer overflows into coastal waters? (33)	☐	☑
k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39)	☐	☑
l. Adverse effect upon land or water uses within the State's small harbors? (4)	☐	☑

2. Will the proposed activity affect or be located in, on, or adjacent to any of the following:	YES	NO
a. State designated freshwater or tidal wetland? (44)	☐	☑
b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17)	☐	☑
c. State designated significant fish and/or wildlife habitat? (7)	☑	☐
d. State designated significant scenic resource or area? (24)	☐	☑
e. State designated important agricultural lands? (26)	☐	☑
f. Beach, dune or Barrier Island? (12)	☐	☑
g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3)	☑	☐
h. State, county, or local park? (19, 20)	☐	☑
i. Historic resource listed on the National or State Register of Historic Places? (23)	☐	☑

3. Will the proposed activity require any of the following:	YES	NO
a. Waterfront site? (2, 21, 22)	☐	☑
b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5)	☐	☑
c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16)	☐	☑
d. State water quality permit or certification? (30, 38, 40)	☑	☐
e. State air quality permit or certification? (41, 43)	☐	☑

4. Will the proposed activity occur within and/or affect an area covered by a State-approved local waterfront revitalization program, or State-approved regional coastal management program? (see policies in program document*)	YES	NO
	☑	☐

D. **ADDITIONAL STEPS**

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.

2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. **CERTIFICATION**

The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: James J. Gilmore

Address: 205 North Belle Meade Road, East Setauket, New York 11733

Telephone: Area Code (631) 444-0430

Applicant/Agent's Signature: _____ Date: _____

F. **SUBMISSION REQUIREMENTS**

1. The applicant or agent shall submit the following documents to the **New York State Department of State, Office of Planning and Development, Attn: Consistency Review Unit, One Commerce Plaza-Suite 1010, 99 Washington Avenue, Albany, New York 12231.**

a. Copy of original signed form.
b. Copy of the completed federal agency application.
c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

Coastal Assessment

1. **The proposed activity will result in:**
   a. **Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement**
   - *Policy #11 – "Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion"*

     The proposed Project involves the construction of submerged reefs within open water areas along the coast of New York and does not include the construction of buildings or structures in upland areas; therefore, the proposed Project is consistent with this policy.

   - *Policy #22 – "Development when located adjacent to the shore will provide for water-related recreation whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development"*

     The proposed Project would enhance habitat for epibenthic and benthic marine life. The development of artificial reefs enhances recreational use by providing additional opportunities for recreational fishing and diving. As such, the reef would provide water-related recreation, in compliance with this policy.

   - *Policy #25 – "Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area."*

     The proposed Project involves the placement of hard structures underwater and would not affect scenic resources. Therefore, this policy is not applicable.

   - *Policy #32 – "Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities"*

     The proposed Project does not involve the use of sanitary waste systems; therefore, this policy is not applicable.

   - *Policy #37 – "Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics and eroded soils into coastal waters"*

     Construction of the reef would involve the placement of clean fill material consisting of natural stone, concrete, or steel in navigable waters. No stormwater or other run-off

containing nutrients, organics or eroded soils from uplands is proposed into coastal waters; therefore, this policy is not applicable.

- *Policy #38 – "The quality and quantity of surface water and groundwater supplies, will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply"*

  The proposed Project does not involve the use of surface water or groundwater supplies; therefore, this policy is not applicable.

- *Policy #41 – "Land use or development in the coastal area will not cause national or State air quality standards to be violated"*

  The proposed Project involves transporting reef material by barge to the proposed reef location. The use of barges and heavy equipment during the construction phase of the Project would be completed in compliance with the Clean Air Act and the State air quality requirements; therefore, the proposed Project is consistent with this policy.

- *Policy #43 – "Land use or development in the coastal area must not cause the generation of significant amounts of acid rain precursors: nitrates and sulfates"*

  The proposed Project does not involve the generation or emission of significant amounts of nitrates and sulfates; therefore, this policy is not applicable.

b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters

- *Policy #2 – "Facilitate the siting of water dependent uses and facilities on or adjacent to coastal waters"*

  The proposed Project has a water dependent use and is located within coastal waters; therefore, the proposed Project is consistent with this policy.

- *Policy #11 – "Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion"*

  See a. above.

- *Policy #12 – "Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs"*

The proposed Project involves the construction of submerged reefs within open water areas. Therefore, this policy is not applicable.

- *Policy #20 – "Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses"*

  The proposed Project does not involve the use of publicly-owned foreshore or lands at the water's edge; therefore, this policy is not applicable.

- *Policy #28 – "Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding"*

  The proposed Project does not involve ice management; therefore, this policy is not applicable.

- *Policy #35 – "Dredging and filling in coastal waters and disposal of dredged material will be undertaken in a manner that meets existing State dredging permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands"*

  In compliance with this policy, the placement of fill material consisting of natural rock, steel, or concrete to construct the reefs would be completed in accordance with all applicable federal and state regulations and permit conditions.

- *Policy #44 – "Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas"*

  The proposed Project does not involve activities within tidal and freshwater wetlands; therefore, this policy is not applicable.

h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters

- *Policy #15 – "Mining, excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land"*

  The proposed Project does not involve mining, excavation and dredging; therefore, this policy is not applicable.

- *Policy #35 – "Dredging and filling in coastal waters and disposal of dredged material will be undertaken in a manner that meets existing State dredging permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands"*

  While the Project involves placement of fill in coastal waters, the Project is within marine habitats and will create new habitat. Therefore, the Project is consistent with this policy.

2. The proposed activity will affect or be located in, on, or adjacent to:

c. State designated significant fish and/or wildlife habitat

- *Policy #7 – "Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats"*

  The Kismet and Yellowbar reef sites located within the Great South Bay of Long Island are within significant coastal fish and wildlife habitat (SCFWH). The name of this SCFWH area is Great South Bay-West. The Great South Bay-West SCFWH includes a habitat impairment test that must be applied to any activity that is subject to consistency review under federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. Any actions that would destroy the habitat or significantly impair the viability of the habitat shall not be undertaken.

  Portions of these reefs have already been developed in order to enhance the existing habitat for aquatic species. Placement would have localized temporary impacts to turbidity. Habitat will not be destroyed; there would be no significant impairments to vital resources; and the tolerance range of any organism would not be significantly altered. Therefore, the proposed Project is in compliance with this policy.

g. Major ports of Albany, Buffalo, Ogdensburg, Oswego, or New York

- *Policy #3 – "Further develop the State's major ports of Albany, Buffalo, New York, Ogdensburg, and Oswego as centers of commerce and industry, and encourage the siting, in these port areas, including those under the jurisdiction of State public authorities, of land use and development which is essential to, or in support of, the waterborne transportation of cargo and people"*

  Reef sites are located in Long Island Sound and Atlantic Ocean where there is active shipping from the Port of New York. Sites are located within the port district but outside of active shipping lanes and permitted "navigational depth clearances" to protect against deployed reef material interference with large vessels; therefore, the proposed Project is in compliance with this policy.

Attachment B

Site Specific Surveys

Project Title: Assess the most cost effective, repeatable, and appropriate biological assessment methods and sampling procedures to monitor Fishes, Crustaceans, and Epibenthic Organisms on Artificial Reefs on the Atlantic Beach and Hempstead Reefs.

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Summary

Monitoring biological life (fish, crustaceans, invertebrates) on artificial reefs requires several complementary methods in order to accurately assess all three types of organisms. A mix of remote and diver-based sampling techniques provides the most cost-effective approach for obtaining the required data. Species identification of pelagic and benthic organisms requires visual identification which for fish can be obtained via diver-conducted fish counts and baited video units. Benthic invertebrates and crustacean species identification requires diver-conducted surveys. These methods require several hours of boat time at each site which is sampled and are limited by water visibility and available light. Acoustic surveys using scientific echosounders and sidescan sonar can provide detailed information on the total abundance of pelagic and benthic fish (but not species identification) as well as the spatial (vertical and horizontal) extent of the reefs. Acoustic data are collected from a moving vessel which allows for sampling of multiple reefs over a larger spatial area. A combination of these methods can be done from a single vessel reducing ship-time costs. However, all of these sampling methods require additional data processing time on shore. The biological assessments of the artificial reefs are summarized below.

Key Findings

What factors determine success of artificial reefs ?

Material (rock, concrete, vessel), age (1 year to at least 26 years as several reef deployment dates are unknown), and size (volume of material deployed) of the reefs have an effect on the biological composition. However, these effects vary between fish and the benthic crustaceans and invertebrates. They are also VERY dependent on the in situ size and shape of the reef which in many cases can not be predicted by material type and total volume of material used because of variations in the deployment of the material by contractors. Measurements of the actual reefs that are produced on the bottom are critical in understanding their role in the ecosystem.

Do artificial reefs increase fish biomass and is there any halo effect ?

Fish aggregations were 8 times more likely to be observed acoustically when surveying on a reef than off reef. On-reef aggregations were 4 times as large (in terms of fish biomass) than off-reef aggregations. Any “halo” effect from the reefs was small (i.e. < 5 m horizontally), that is, fish aggregations were closely associated with the vertical relief of the reef from the bottom. Diver and BRUV surveys were conducted “on reef” with no “off reef” comparison.

How do artificial reefs vary with age ?

Younger reefs (those less than 5 years old) had higher total abundances of fish measured acoustically, although these differences were small (factor of 2 or less). Diver surveys found more blackfish and black sea bass on reefs less than 2 years old, but cunner abundance was higher on older reefs than on newer ones. The younger reefs tended to be smaller (in size), had surfaces dominated by barnacles with obvious foraging marks from fish, and were in early successional stages. The benthic community on reefs appears to develop over a period of 10-15 years with an initial community of barnacles, blue mussels, macroalgae, and bryozoans transitioning to a community (at the 10 year mark) composed of

these species and coral, tunicates, and sponges. After this, the coral, tunicates, sponge, and barnacles become the largest component of the composition of benthic coverage on rock substrate.

How do artificial reefs vary by material type ?

Acoustically-measured fish aggregations were significantly higher at reef sites composed of concrete than rock or vessel sites. One caveat of this result is that the acoustic measurements will likely underestimate fish abundances at vessel sites due to the large internal spaces in these structures containing fish which are not sampled (due to reflections from the structure itself) by the echosounder. Diver sampling found higher abundances of black sea bass and blackfish on concrete and vessel sites, however cunner were significantly higher at rock sites. The location of cunner close to the bottom may reduce their detectability by acoustic surveys.

How do artificial reefs vary with size ?

Acoustically-measured fish aggregations were highest at medium-sized rock reefs (3000-5000 m^3), followed by large-sized rock reefs (> 5000 m^3). Diver sampling found highest abundances of cunner, black sea bass, and blackfish at medium-sized reefs (2000-4000 m^3). Based on the volume of the rocks that were deployed, the diver data suggests that reefs smaller than 2000 m^3 had less available habitat for fish than larger reefs. While reef volume is an important factor, the more critical factors (based on our observations) are vertical relief and rugosity (i.e. interstitial space). Crustaceans (lobsters and rock crabs) were present only at reefs with medium to high rugosity, and thus were not found at concrete reef sites due to the structures present.

Other findings

1. Reef site location (Atlantic Beach, Hempstead) did not alter any of the patterns listed above. On reef fish aggregations were larger and more frequent at Hempstead than at Atlantic Beach. Environmental conditions (CTD, Secchi disk depth) were similar at both sites.

2. Diver-based sampling found the highest diversity of fish and invertebrates in August, which was true for both August 2014 (21 species) and August 2015 (22 species) compared to June 2015 (16 species) and July 2015 (17 species). Summer-time sampling provided the best conditions in terms of sea state, weather, and light availability; although this period also had the most recreational fishing activity on the reefs (see Table 2).

3. Passive acoustic recordings made during June 2015 at a vessel site at Atlantic Beach found that odontocetes (i.e. bottlenose dolphins) were feeding at the reef nightly. These species were not observed via any other sampling method.

4. Diver and remote video sampling observed 8 of the same species (Table 4). Divers saw an additional 5 species (not observed on video). Remote video sampling observed 9 additional species (not seen by divers). It should be noted that there were significant differences in sampling time between diver surveys (6 hrs total) and remote video sampling (~ 80 hrs).

5. All sampling methods (except for passive acoustics) used in this project occurred during daylight hours. Remote video and acoustic echosounder sampling could also be used at night to examine diurnal variability in fish activity.

Recommendations

1. Rock reefs that are 10+ years in the water have the greatest diversity in benthic cover community. These reefs also had the highest diversity of invertebrate and crustacean infauna. Fish aggregated to new reefs very rapidly (within a year). Benthic cover and invertebrate infauna did not noticeably differ between reef ages 1-3 years. Monitoring of reefs should commence immediately upon their construction, and be repeated every 2-3 years to monitor community development.

2. Reefs that are greater than 2000-3000 m^3 were functionally similar to those greater in size as long as the vertical relief and rugosity were moderate to high. Our recommendation is to have material dominated by pieces equal to or larger than a basketball.

3. Reef type had significant effect on specific fish species abundances, due to vertical relief and interstitial space. For all types of material (rock, vessel, concrete), fish abundances increased with vertical profile and rugosity. Blackfish abundance was most affected by vertical profile. It is the shape and structure of the reef in situ that drives increases in fish abundance, not necessarily the type or volume of material deployed. For future reef deployments, materials and the size of material used should be chosen to maximize the rugosity and interstitial space available to organisms. Equally important is to measure what in situ reef structure exists post-deployment. For example, deployments of equal amounts of material can produce very different reef habitat depending on the movement of the barge during the deployment period (i.e. the material is spread out over a larger area vs being piled up on the bottom).

4. Sampling costs for this project were roughly 40% ship time, 40% personnel time, and 20% equipment and supplies. Based on our experience, a smaller vessel can be used to do the acoustic, remote video, and diver sampling which would reduce ship costs by more than 50%. We recommend that longer sampling intervals and a selection of a smaller number of representative reef sites to monitor will reduce monitoring costs .

Introduction

The State of New York has had a program of marine artificial reef construction since 1962 utilizing available suitable material to build reefs for fishery enhancement. The goals and objectives of the New York State Department of Environmental Conservation's (NYSDEC's) Marine Artificial Reef Program are to: provide fishing and diving opportunities for reef associated fishery resources by selective placement of artificial habitat; enhance or restore fishery resources and associated habitat, to the maximum extent practicable, utilizing artificial habitat and administer and manage artificial habitat to ensure its prudent use as part of an overall fishery management program.

In order to accomplish these goals, NYSDEC needs to conduct evaluations of the effectiveness of reefs in achieving goals, establish a fishery survey/monitoring program to monitor fish and crustacean populations associated with reefs, and ensure compliance with federal state permits, rules and regulations and management strategies for reef associated stocks. In order to assess the Program goal of enhancing or restoring fishery resources and associated habitat utilizing artificial reefs, the Department is looking to conduct this sampling effort to assess reef resources and make recommendations on the most effective, repeatable and meaningful methods to assess biological resources on the reef community.

Methods

In order to evaluate how reefs of different material-type, age, and size attract marine life a suite of complementary methods was employed to provide multiple types of data. Our sampling comprised several methods including Baited Remote Underwater Video (BRUV) cameras, environmental sampling, sidescan surveys to locate and characterize bottom structure, diver surveys, acoustic echosounder surveys to measure pelagic and near-bottom fish abundance, and passive acoustics for long-term monitoring of unique species such as marine mammals.

Survey Effort

The surveys conducted in August 2014 and monthly from April to September 2015 provided data useful for quantifying biological productivity of artificial reefs. A total of twenty-three stations (i.e., sites) were sampled during each monthly cruise (Table 1). Information on all the reef sites (including those not sampled) can be found in Appendix A (Table A1, A2; Figures A1,A2). Diver surveys were only conducted in summer months (Jun, Jul, Aug). Acoustic surveys using sidescan sonar and fisheries echosounders were conducted at both Hempstead and Atlantic Beach Reefs each month.

Table 1. Overview of sampling effort by month. Due to a malfunction with the CTD, vertical depth profile data was unavailable for the Aug 2015 sampling.

Survey Date	Sites Visited	Diver Survey	BRUVs Deployed	Env. Sampling	Acoustic Data
August 2014	H1, H2, H4, A2, A3, A4, A6	Y	Y	Y	Y
April 2015	H1, H2, A4, A6	N	Y	Y	Y
May 2015	H1, H2, H4, A2, A3, A14	N	Y	Y	Y
June 2015	H1, H2, H5, H6, A2, A7	Y	Y	Y	Y
July 2015	H8, H9, H10, A4, A8, A9	Y	Y	Y	Y
August 2015	H11, H12, H13, A6, A11, A12	Y	Y	N*	Y
September 2015	H14, A13, A14	N	Y	Y	Y

Environmental Sampling

At each site where net tows and BRUV deployments were conducted, additional sampling to characterize the marine environment was completed. Hydrographic profiles (temperature, salinity, density, and fluorescence) of the water column are obtained with a Seabird 19+ CTD.

Vertical net tows using a ½ m ring net with 150 µm mesh are used to characterize the zooplankton in the water column. Specimens were preserved in formalin, and later identified in the lab using microscopes. Secchi disk casts were also done to measure water clarity.

The number of commercial and recreational fishing boats seen within 0.5 miles during surveys of Atlantic Beach and Hempstead sites were counted by eye during the acoustic surveys for every monthly trip. We did not record the location of these boats, just a total count over the course of the survey.

Sidescan Surveys

Sidescan data were collected during all acoustic transects to assist us in locating the reef sites and describe bottom features. Data were processed to visually identify reef sites and estimate their spatial extent on the seafloor.

Acoustic Echosounder Surveys

A towfish equipped with scientific echosounders at 38, 120, 200, and 710 Hz was deployed during each survey to measure the abundance and distribution of pelagic and near-bottom fish schools (and in some cases, individual fish) associated with reef sites. The nautical area scattering coefficient (NASC, m^2 nmi^{-2}) represents vertically integrated acoustic backscatter per unit area that is proportional to fish biomass (Figures 1-3). Acoustic backscatter data were binned into 5 m horizontal by 2 m vertical sections. Furthermore, only data within 6 m of the bottom were included for the reef analyses. Since a large proportion of analysis bins consisted of empty water a minimum threshold of 0.75 NASC was set, which is approximately equivalent to the acoustic backscatter of one fish. Between on- and off-reef samples, 92.4% and 99.2% were respectively below this NASC threshold.

Statistical Analysis of Acoustic Data

Statistical significances in mean NASC among reefs of different materials, volumes, ages, and location (i.e., Hempstead and Atlantic Beach Reefs) were tested using a Kruskal-Wallis one-way analysis of variance (KW-test, $\alpha = 0.05$). The KW-test is used to test whether or not mean NASC among groups are derived from the same underlying distribution and are therefore equal to one another (i.e., null hypothesis testing). This test was chosen instead of a traditional ANOVA since NASC data were not normally distributed. A two-sample Kolmogorov-Smirnov test (KS-test, $\alpha = 0.05$) was used to compare the distribution of NASC values from reefs with different characteristics. In addition to the KW-test, a Mann-Whitney-Wilcoxon test (MWW-test) was used to verify which pairwise differences were statistically significant. The MWW-test is a rank test that is commonly used for non-normally distributed data and is analogous to how a two-sample *t*-test operates with normally distributed data. The KS-test compares different cumulative density functions (CDFs) by calculating the largest difference between the two distributions. All mean NASC values were reported with their respective coefficient of variation (CV) which is a measure of how dispersed the data are relative to the sample mean; this is calculated via dividing the standard deviation by the sample mean.

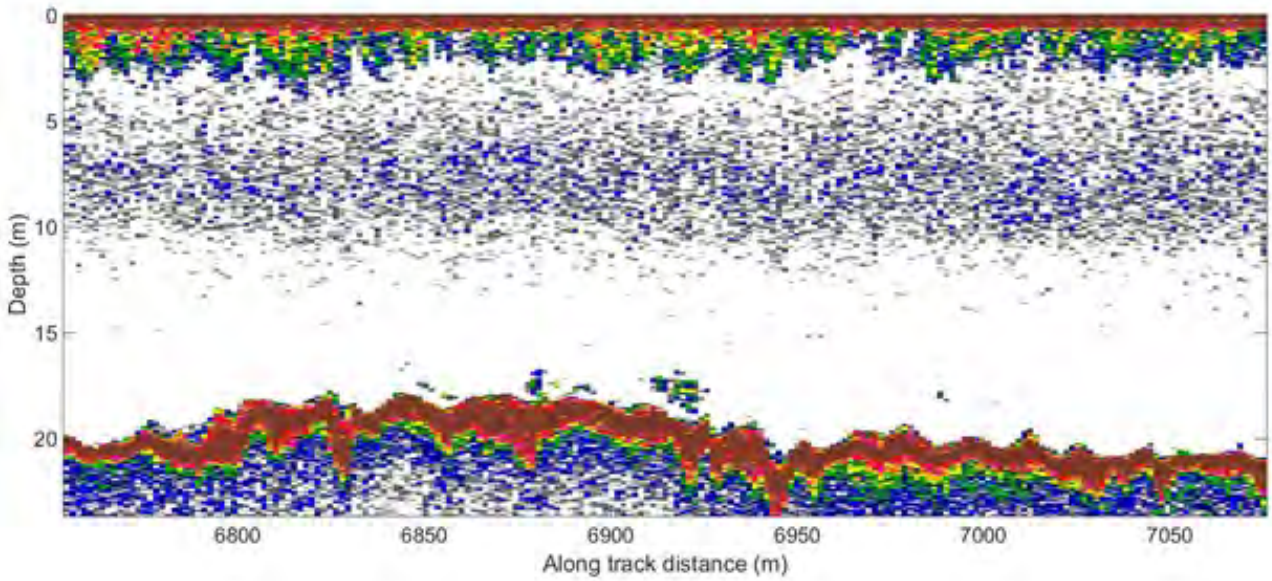

Figure 1. Sample echogram at 120 kHz illustrating a small fish aggregation on a reef which represents a NASC value on the order of 100 m^2nmi^{-2}.

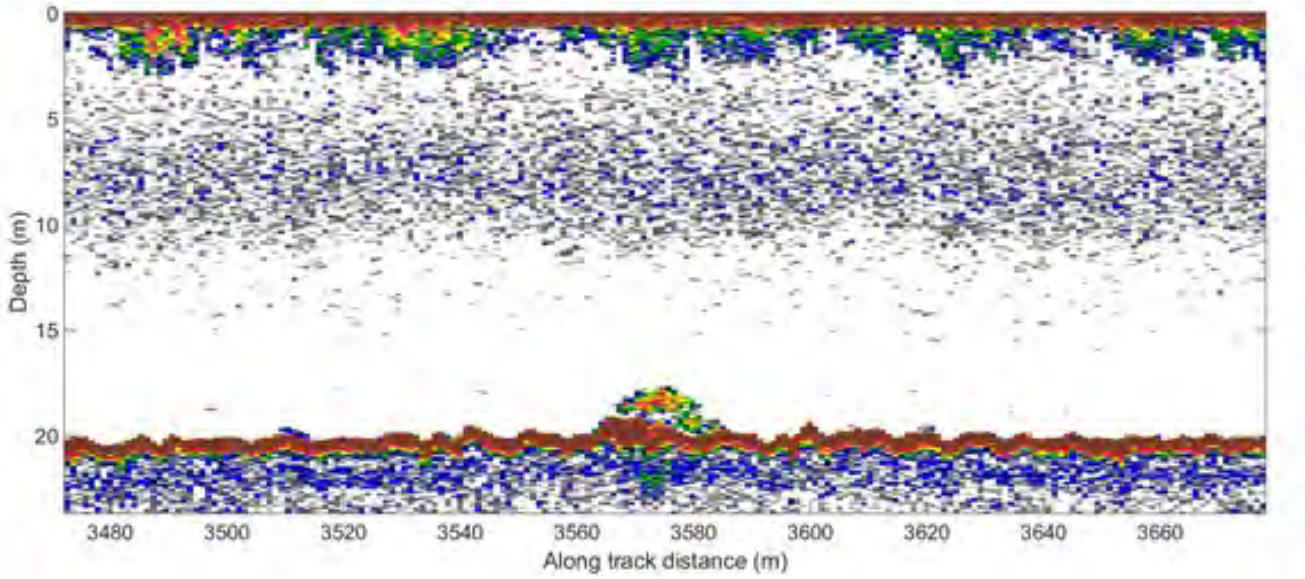

Figure 2. Sample echogram at 120 kHz showing a small near-bottom aggregation of fish that represent a NASC of approximately 1000 m^2nmi^{-2}.

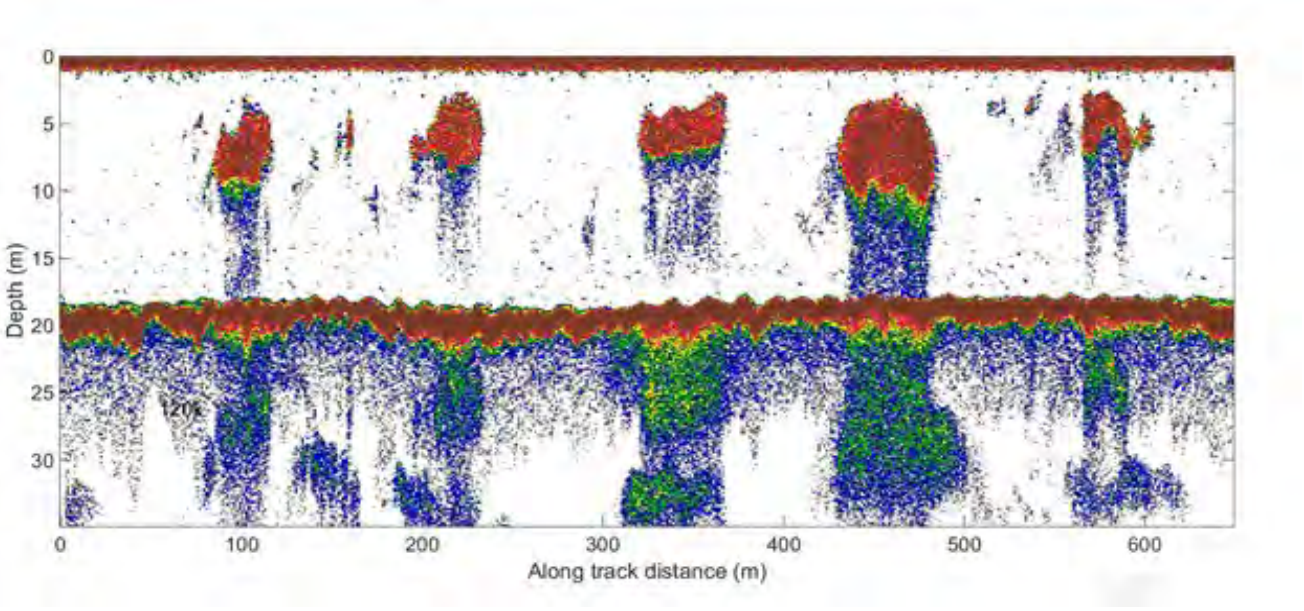

Figure 3. Sample echogram 120 kHz showing menhaden schools in July 2015 at the Atlantic Beach reef. Each large aggregation has a NASC on the order of >100,000 m^2nmi^{-2}.

Passive Acoustic Monitoring

A passive acoustic monitor (PAM) was placed at A2, a large barge reef located at the Atlantic Beach reef site. The PAM recorded 2 minutes for every 20 minutes of the soundscape (10% duty cycle). While programmed to record for several months, technical difficulties resulted in just over a week's worth of data.

Diver Fish Surveys and Video Transects

Two common visual census techniques were used to quantify treatment effects (reef size, age of reef, or material type) on fish and crustacean density and composition: point counts and video belt transects. A point count consists of standing in a specific location and counting fish. One counts the number of individual fish (of each species) within a circle of a certain radius. Observation radius was a function of water clarity which was always less than 5 m and rarely less than 2 m. Video belt transect consisted of a diver swimming along a transect tape, recording down-looking video with a field of view approximately 1 m in width. This allowed us to quantify benthic coveragage of macroalgae and benthic invertebrates. Additional video was taken on the return swim, the camera was set at an 45-degree downward angle to monitor the bottom and the near-bottom zone for diversity and relative abundance of fish.

SCUBA-equipped observers conducted visual counts of piscivore- and reef-associated fish composition and density at each artificial reef using a slightly modified version of the stationary point method of Bohnsack & Bannerot (1986). One diver at each end of a 25 m transect counted all of the fish that entered a visual cylinder of the water column 5 m in diameter for 5 minutes. On rare occasions the density of cunner reduced the fish count times to 2 minutes. When densities increase such that the counts are above 100 fish per minute it becomes difficult to track whether fish are being recounted so in these cases the time was reduced to ensure data integrity.

All data presented are calculated as fish density per (minute m^2). In addition to the diver fish surveys, Video Belt Transect surveys were conducted in conjunction with the fish point counts to provide a comparative estimate of the densities and compositions of fishes and to quantify invertebrates and fouling communities on the artificial reefs. In addition, at the end of each transect 1 m^2 of the rock matrix was excavated by hand to record invertebrate species present. We compare community structure (i.e., species identity and abundance) of the fish, crustaceans and fouling communities between all the sampling locations.

Benthic Cover Analysis

The benthic coverage data included in the diver surveys was analyzed using two software programs, Coral Point Count (CPC) and Image J. Images were extracted from the diver videos. Each image was imported into CPC and the scaling calibration was performed using the transect tape as a point of reference for distance. Total image area was obtained from this process. Before processing every image, images were assigned species codes for all organisms present in the image (Table 2)

Table 2. List of species code and what organism each represents in benthic cover analysis.

SPECIES CODE	**Species identification**
BARN	Barnacle
BLUE	Blue mussel (*Mytilus edulis*)
BRYO	Bryozoan
CCR	Crustose coralline remnant
CERA	Ceramic
CORAL	Coral
CREP	*Crepidula fornicata*
DARK	Too dark to see image or transect tape in the way
GAP	Interstitial space
MACR1	Macroalge
MACROBARN	Macroalgae and barnacle area, too difficult to tease them apart
SED	Sediment surface
SILT	Layer of silt above substrate
SKATE	Skate eggs
SPNG	Sponge
TUNI	Tunicate
WREC	Artificial wreck
UNK5	too difficult to ID from images

Once this list was created, each area in the image was outlined and given a specific species code. Coral point count automatically creates a table which lists each area outlined followed by the species code given. Areas which were too was dark to determine what was present and areas where the transect covered the bottom were labeled DARK. After exporting all data from the CPC analysis, this DARK area was removed from the total image area to obtain an accurate total image area based on the area of

the image that was visible. This value would then be used for percent cover estimation. ImageJ was used in specific cases in which the only organism present was for example coral and there were too many areas which had coral present to outline in CPC (the limit for outlined areas is 250). In order to standardize the image area, pixel/cm was obtained from CPC and the same pixel/cm number was imported into ImageJ to ensure that the total image area was identical. Using ImageJ, a black/white analysis was performed and the area of the coral from the image was extracted, without having to outline all coral colonies. Once all images were analyzed, data was exported to an excel file where it was manipulated to a form easy to use with R. All figures and analysis was done using R code.

Rugosity and Interstitial Space Analysis

After reviewing the video of transects at each site, it appeared that the size of the rock drop was not necessarily related to what we were observing underwater in terms of structure. In order to assess whether the qualities of the reef had an effect on fish and invertebrate diversity and abundance, we set out to quantify the relative amount of rugosity of each site. Rugosity is a unitless measure of the variation in the change of height of a surface over a horizontal distance. The interstitial space available was quantified using the video transects where images were taken and the void spaces were measured. This was done for rock and sunken vessel reefs. Videos of the different sites were compared several times to one another to obtain a relative rugosity between sites as well as a relative amount of interstial space amount. Sites were assigned categories for relative rugosity and interstitial space amount as “low”, “moderate”, and “high” (Figure 4). The relative rugosity of a site typically corresponded with the amount of interstitial space amount, however this was not always the case, especially if the size of the rock differed substantially between sites. These relative values were used in further analyses looking to see if they were related to the abundance and diversity of different species.

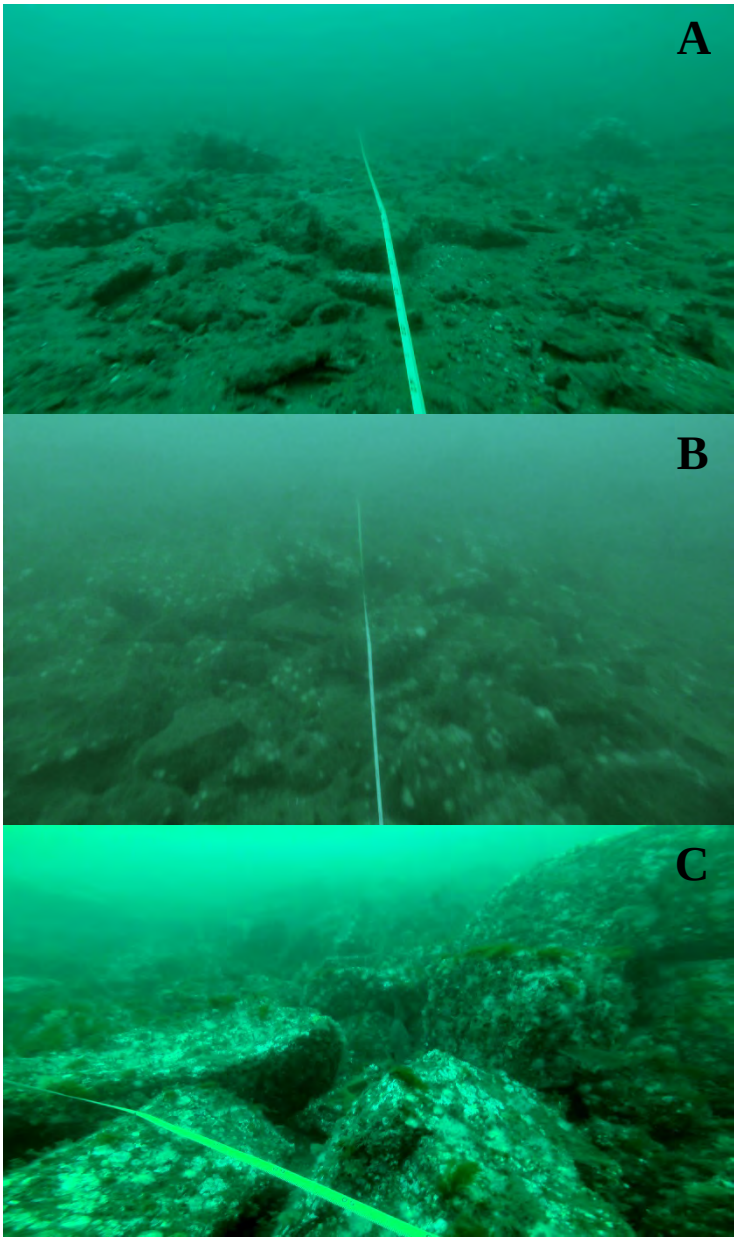

Figure 4. Rugosity categories: (A) Low, (B) Moderate, (C) High.

Baited Remote Underwater Video

Carnivorous fish were surveyed using baited remote underwater video (BRUV). Data from studies using BRUVs have previously been found to compare well with those obtained from underwater visual census techniques and from baited hook and lines methods for sampling relatively common species in both tropical and temperate reef ecosystems. At each reef site sampled by divers, 5 BRUVs were deployed on or adjacent to the reef. BRUVs were baited with 1 kg of frozen bunker and deployed for at least 90 minutes of recording time. BRUV footage was viewed and fish species time-logged. The BRUV data produced a list of species occurrence. We also examined the effect of reef material, size, and age on the number of BRUV observations of different categories of fish. Taxonomic categories used in the BRUV analysis were: skates (winter, little, clearnose); sharks (smooth dogfish, spiny dogfish, dusky shark); teleosts (Atlantic cod, red hake, black sea bass, cunner, scup, tautog, northern

sea robin, striped sea robin, striped bass, bluefish, conger eel, summer flounder, winter flounder); cunner; black sea bass; and tautog.

Results

Survey Effort

Typical cruise tracks are shown for both the sidescan and acoustic echosounder surveys at both the Atlantic Beach and Hempstead sites (Figures 5,6). Cruise tracks were generally identical from survey to survey with the exception of when deviations needed to occur to avoid other vessels or sample specific locations.

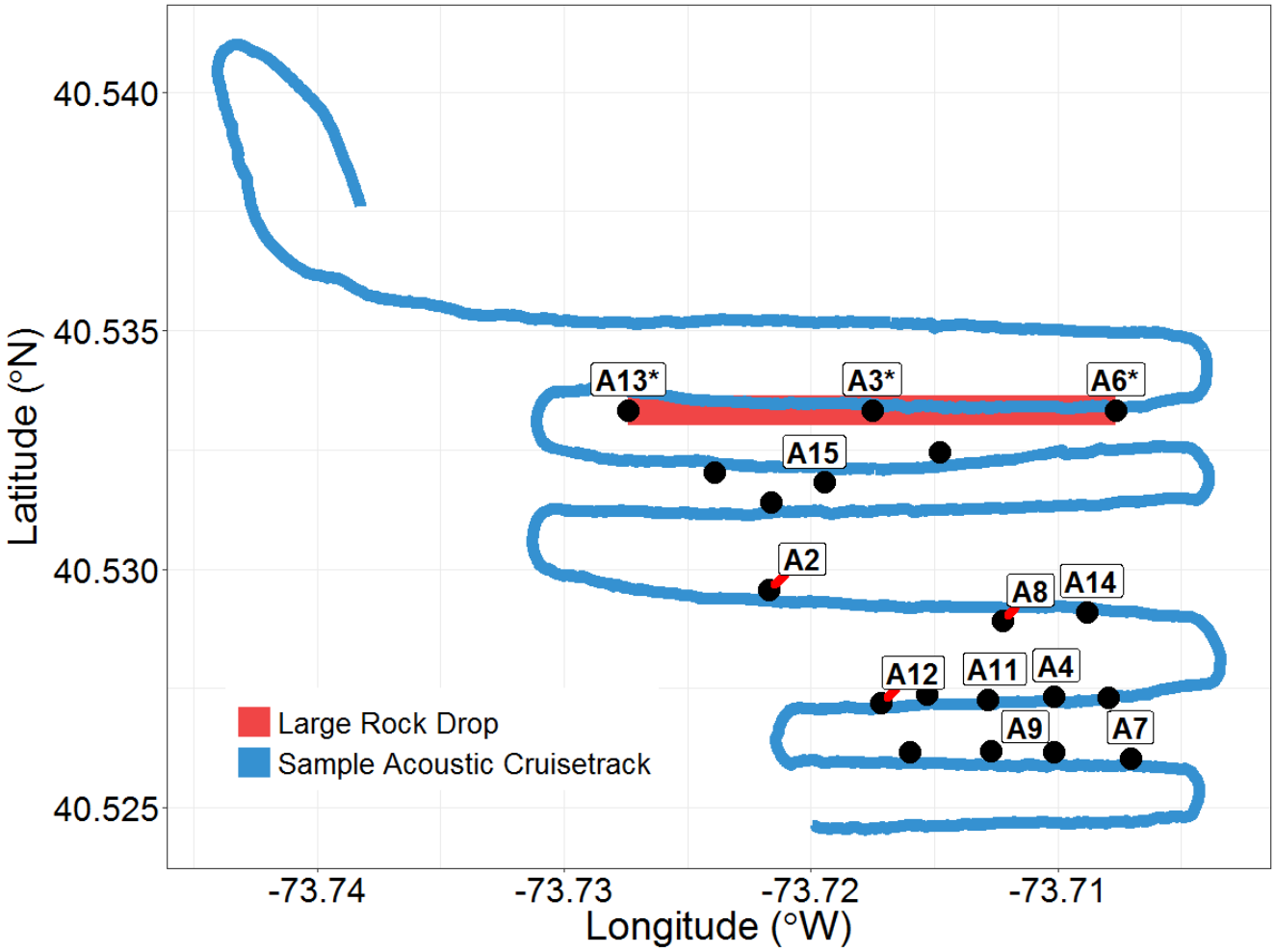

Figure 5. Overview plot of sampling effort at the Atlantic Beach Reef. Black point represent reef stations. Labeled points indicate stations where environmental, diver, and/or BRUV surveys were conducted. The solid red horizontal line indicates the large Atlantic Beach rock pile. The blue line represents a sample acoustic survey track. The '*' denotes reef stations that were part of the large Atlantic Beach rock pile as opposed to standalone sites.

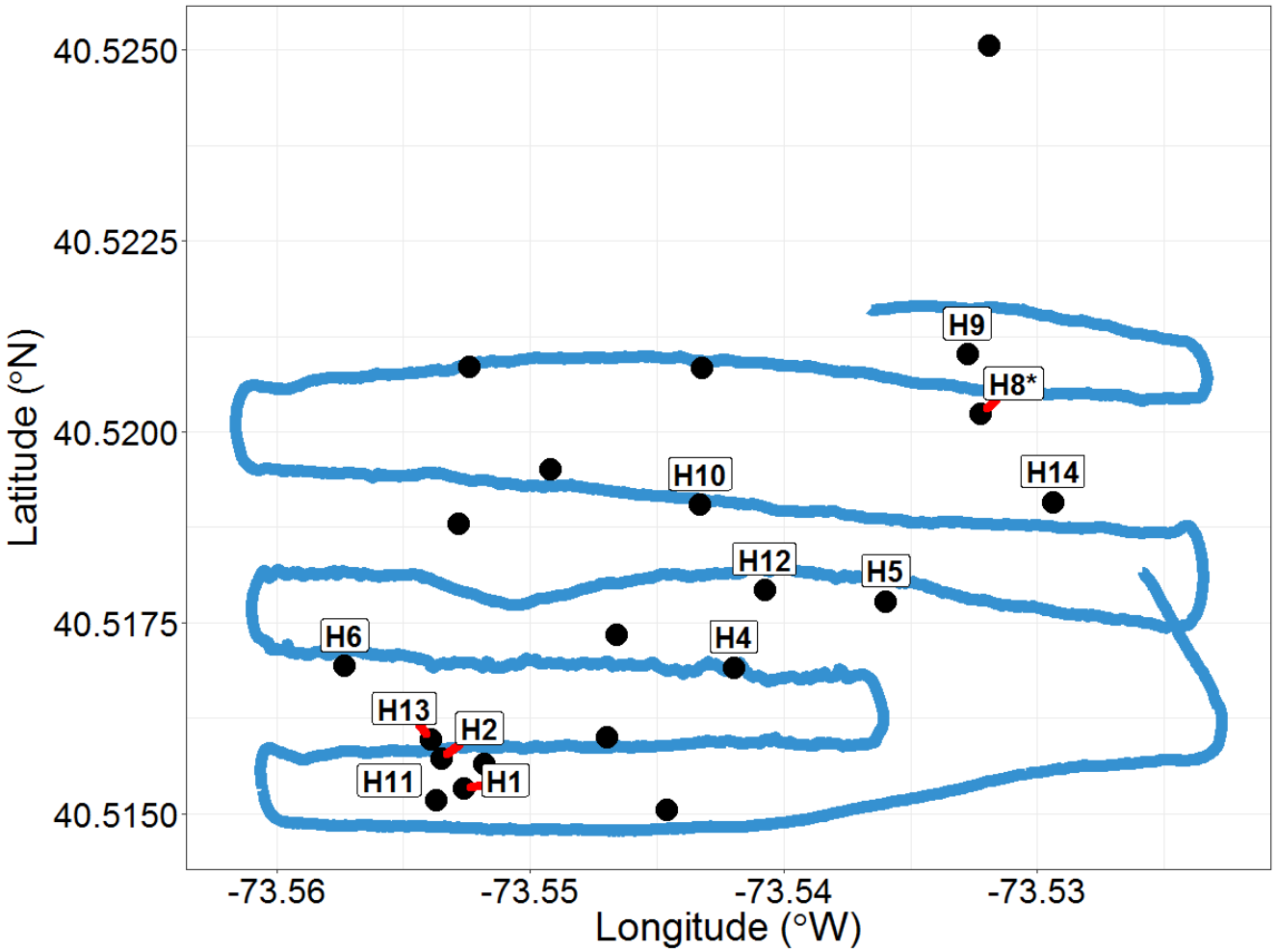

Figure 6. Overview plot of sampling effort at the Hempstead Reef. Black point represent reef stations. Labeled points indicate stations where environmental, diver, and/or BRUV surveys were conducted. The blue line represents a sample acoustic survey track. Station H8 (marked with an asterisk) was at the location of the Armored Personnel Carrier group in the station information from the DEC. However, when we dove on the site, we found no vehicles/vessels and instead think the site location that we observed acoustically is part of the rubble or debris field from the H9 drop which is located just north of H8.

Environmental Sampling

Hydrographic profiles (temperature, salinity, density, and fluorescence) of the water column are obtained with a Seabird 19+ CTD (Figure 7). When examining the CTD data, there were notable trends in the vertical temperature, density, and salinity profiles with time. Temperature gradually increased from April to September while both salinity and density decrease over the same time period. The fluorescence vertical profile did not yield any linear trend with time; however, there were significant peaks in both April and September which may line up with both spring and fall blooms of phytoplankton.

Analysis of net tows collected during each respective cruise were dominated (in terms of biovolume) by copepods, notably adult *Paracalanus parvus*, *Calanus finmarchicus*, and general cladocerans. Gelatinous zooplankton (i.e., salps, ctenophores, and cnidarians) were noticeably absent from tows between May and July 2015. Secchi disk casts showed turbid water nearly every trip with the exception of May 2015 (Figure 8).

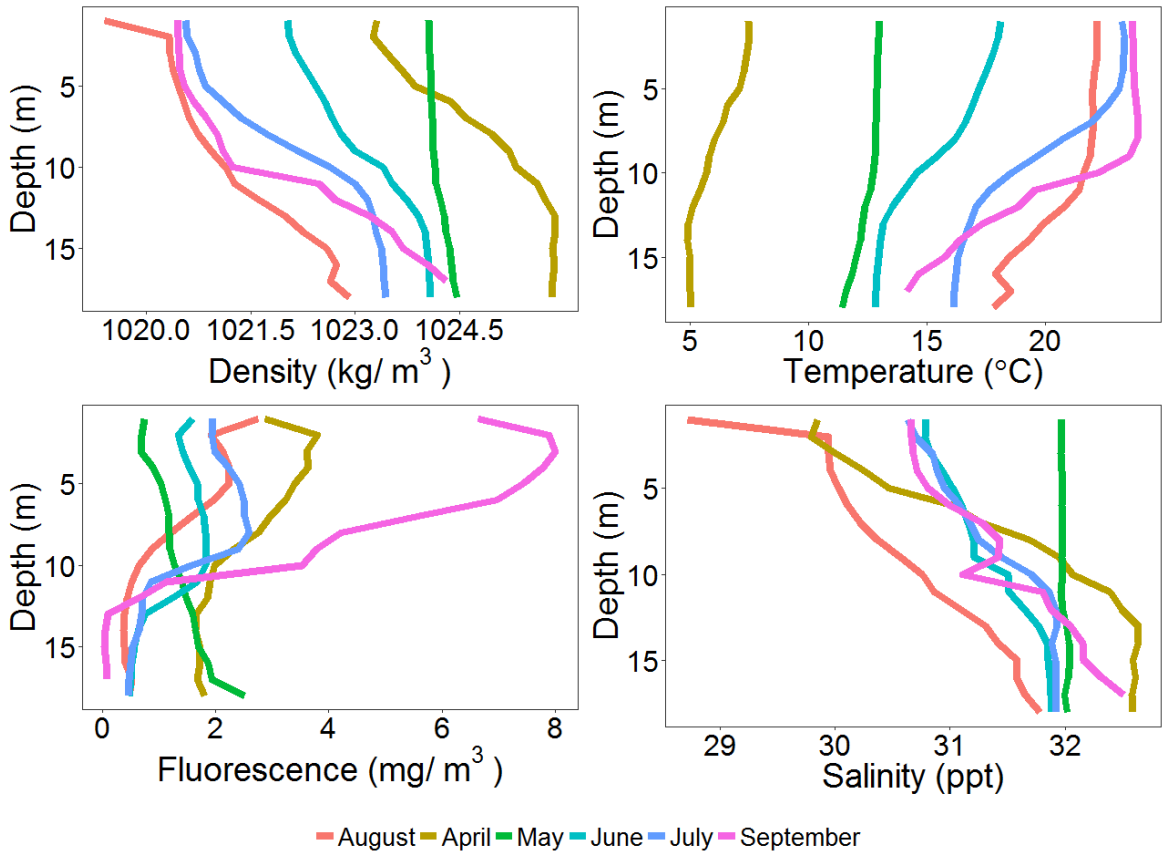

Figure 7. CTD vertical depth profiles showing density (top-left), temperature (top-right), fluorescence (bottom-left), and salinity (bottom-right). The August depth profile represents the August 2014 CTD; August 2015 CTD depth profiles were not available due to a malfunction.

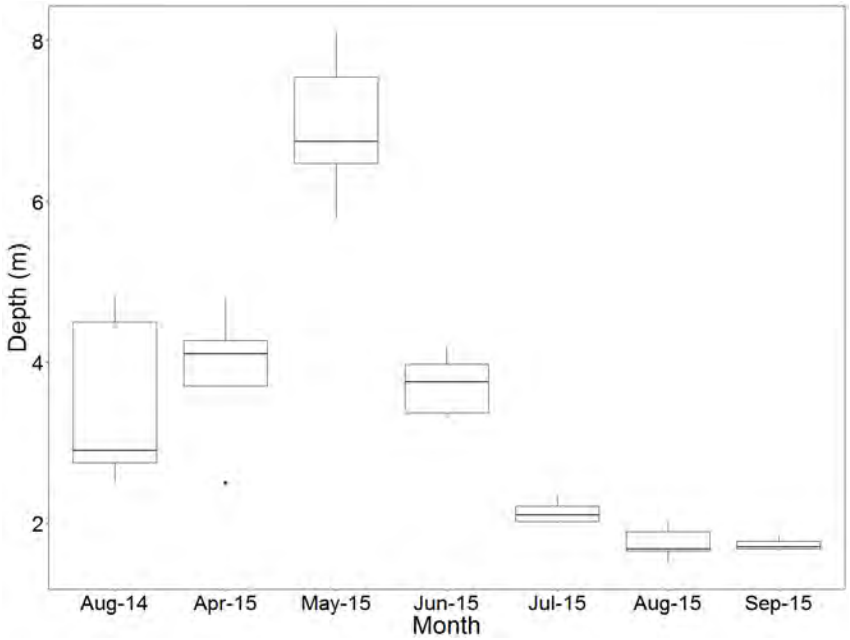

Figure 8. Secchi disk cast depths (m) for each survey month.

Recreational Reef Usage

The number of commercial and recreational fishing boats seen within 0.5 miles during surveys of Atlantic Beach and Hempstead sites were counted by eye during the acoustic surveys for every monthly trip (Table 3). There was an expected seasonal trend with fishing usage of reefs peaking during the summer months and waning during the early spring and into fall. There were also significantly more recreational fishing boats observed at the Atlantic Beach Reef; there was no substantial difference in the number of party boats observed at both reefs.

Table 3. Description of fishing usage at the Atlantic Beach and Hempstead Reefs. Letter codes next to each sampling date indicate the day of week (i.e., Monday – M, Tuesday – Tu, Wednesday – W, Thursday – Th, Friday – F, and Saturday – S).

	Atlantic Beach			Hempstead		
Date	**Time (EST)**	**Party**	**Recreational**	**Time (EST)**	**Party**	**Recreational**
08/15/2014 (F)	No Survey	-	-	07:04-16:11	0	0
08/16/2014 (S)	08:21-12:58	2	47	13:57-15:05	0	0
08/18/2014 (M)	09:59-12:27	0	7	No Survey	-	-
04/16/2015 (Th)	12:45-17:14	0	0	07:12-11:59	0	0
04/17/2015 (F)	07:16-09:47	0	0	No Survey	-	-
05/19/2015 (Tu)	07:21-11:17	0	0	12:25-15:46	0	5
05/20/2015 (W)	12:20-14:10	0	0	07:10-11:14	0	3
06/12/2015 (F)	07:22-13:20	0	7	14:37-17:43	0	0
06/16/2015 (Tu)	15:14-17:23	0	0	07:02-14:36	1	2
07/13/2015 (M)	07:04-12:03	0	19	12:56-17:50	0	2
07/14/2015 (Tu)	07:12-11:03	0	4	11:49-17:18	0	0
08/12/2015 (W)	07:12-11:47	0	25	12:25-16:43	2	3
08/13/2015 (Th)	07:24-11:00	0	13	11:44-16:45	0	0
09/10/2015 (Th)	07:15-12:02	0	1	13:14-16:46	0	0

Sidescan Surveys

Sidescan data were collected to assist us in locating the reef sites and describe bottom features. Although some reefs were not observed at their reported longitude/latitude coordinates, sidescan imagery provided more accurate estimates of location (Figure 9). Likewise, large debris fields not necessarily associated with reported reef deployments were observed (Figure 10). Other important information such as reef classification, height, and vertical relief can be approximated from sidescan images (Figures 11-13). All available sidescan images can be found in Appendix B.

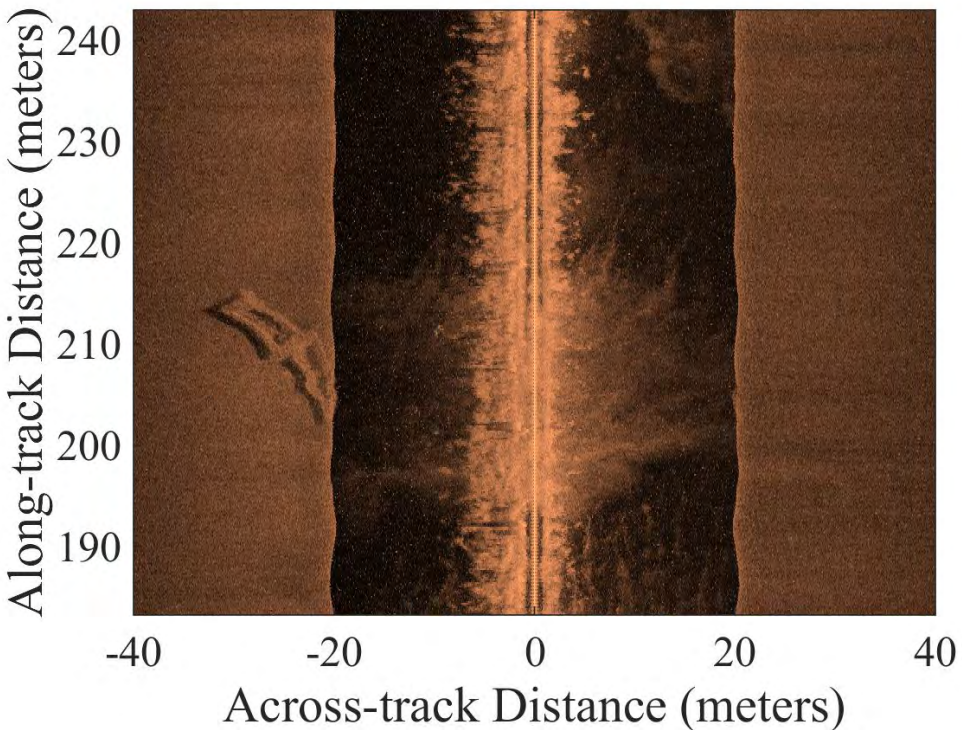

Figure 9. Sidescan image from Hempstead (H4, two linked steel barges) on 16 August 2014. The blackened region between -20 and 20 meters represents the nadir zone which is the unsampled water column directly underneath the sidescan transducer. The edges of this zone at -20 and 20 m of this zone represent the seabed. Black shading around the edge of the reef represents its respective vertical profile.

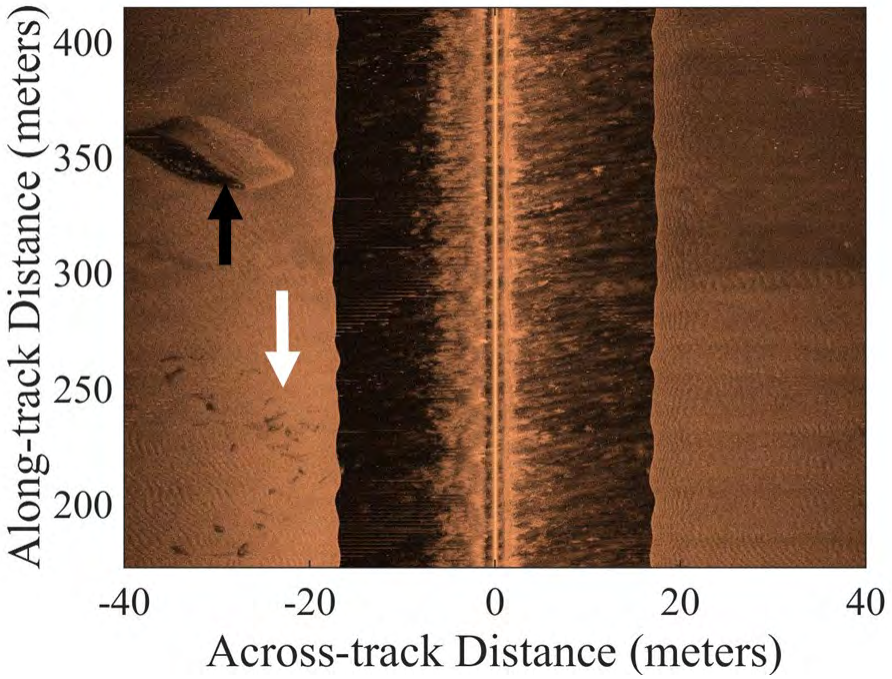

Figure 10. Sidescan image from Atlantic Beach (H5, 80 ft. barge) in August 2015. The black arrow indicates the barge and the white arrow indicates commonly observed debris fields which surrounded many of these reefs.

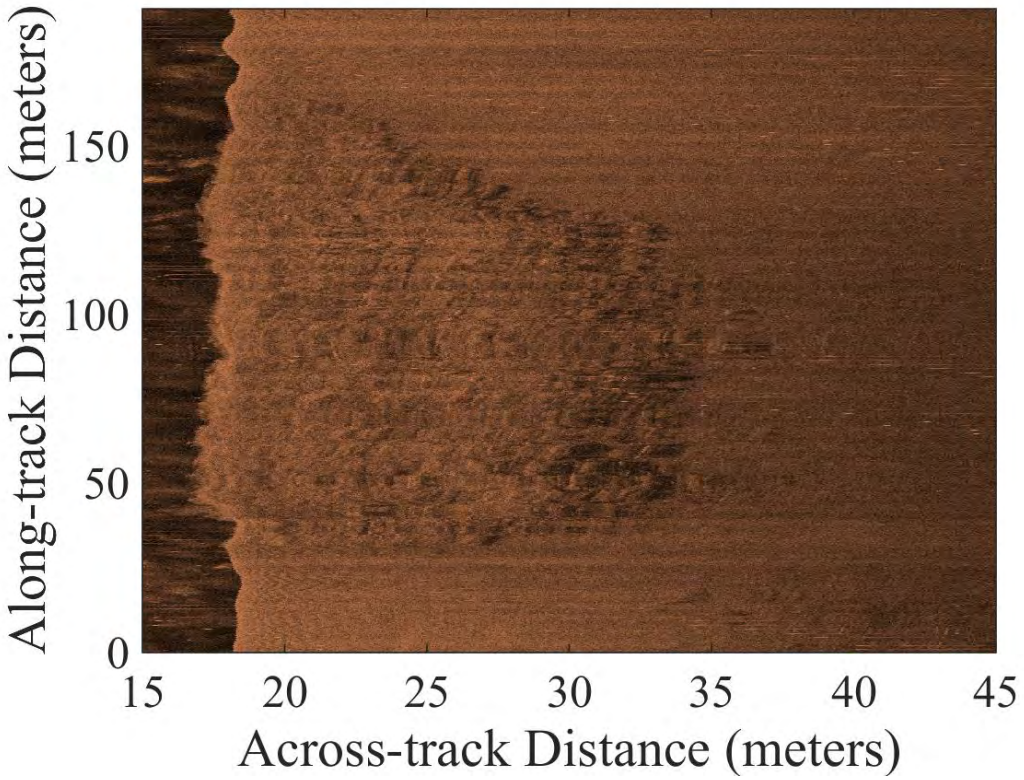

Figure 11. A zoomed-in sidescan image showing a 2014 rock deployment from 2014 at Hempstead (H2) from August 2015.

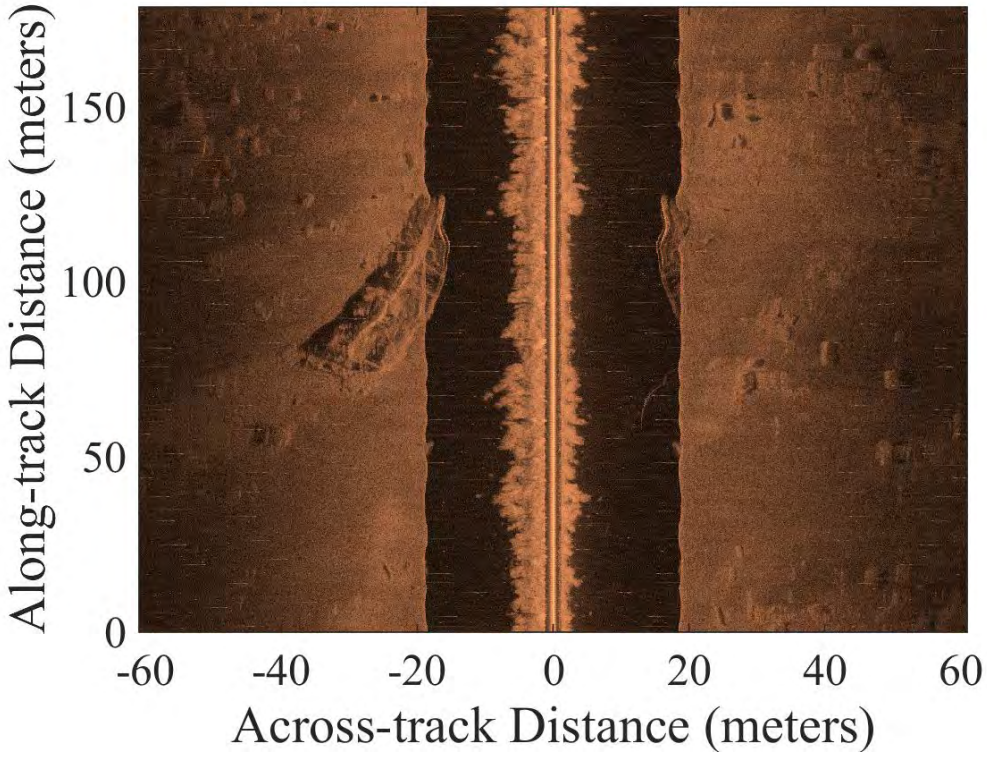

Figure 12. Sidescan image showing a 150 ft barge at Atlantic Beach (A2) during May 2015.

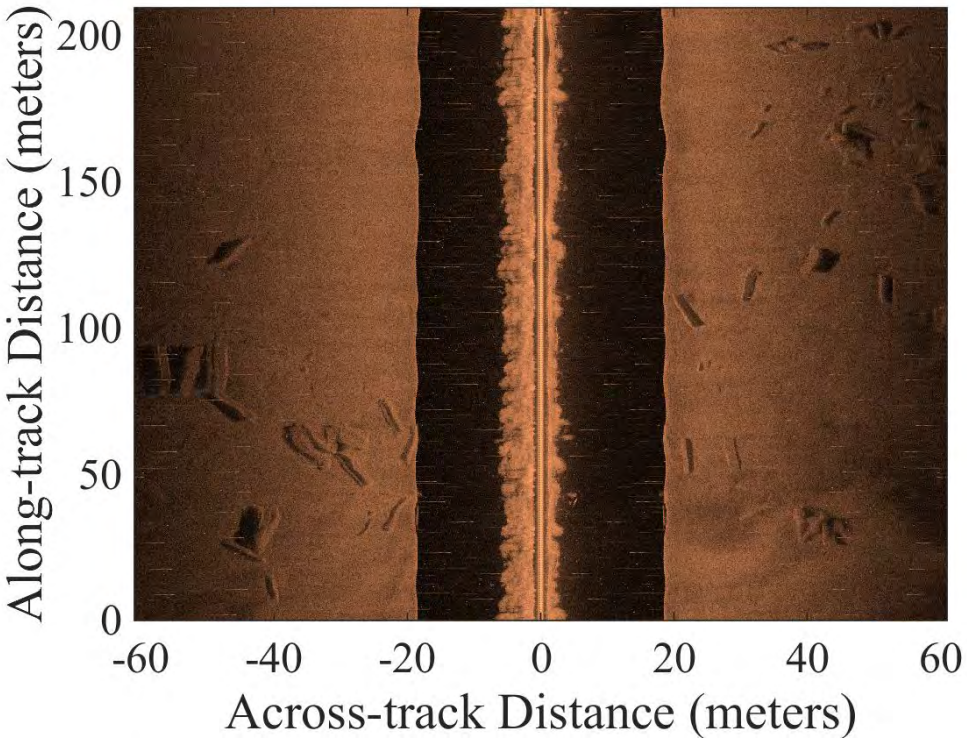

Figure 13. Sidescan image show concrete bridge slabs from Hempstead (H9) during May 2015. Visual observations during diver surveys indicated that other debris such as rock and metal were also present at H9. Both long-and-narrow and broad-and-flat rectangles are likely concrete slabs in different orientations relative to the seabed.

Species observed from Diver and BRUV sampling

There were differences in the species observed by divers and BRUVs, likely due to biases in the sampling methods (such as diver avoidance, observation duration). Divers and BRUVs both observed eight species of fish in common, divers observed an additional five species of fish not seen on BRUVs, and BRUVs saw nine species of fish not observed by the divers (Table 4). BRUV total survey time (80 hrs) was more than an order of magnitude more than the diver surveys (6 hrs).

BRUVs were not used to sample benthic infauna or invertebrates so diver surveys are the only source of observations of those organisms.

Table 4. A comparison of the species observed by the BRUVs versus divers.

Species	**Diver Surveys**	**BRUVs**
Cunner (*Tautogolabrus adspersus*)	X	X
Blackfish (*Tautoga onitis*)	X	X
Black Sea Bass (*Centropristis striata*)	X	X
Cod (*Gadus spp.*)	X	X
Northern Sea Robin (*Prionotus carolinus*)	X	
Goby (*Gobiosoma spp.*)	X	

Clearnose Skate (*Raja eglanteria*)	X	X
Gray Triggerfish (*Balistes capriscus*)	X	
Summer Flounder (*Paraclichthys dentatus*)	X	X
Butterfly Fish (*Chaetedon spp.*)	X	
Conger Eel (*Conger oceanicus*)	X	X
Striped Bass (*Morone saxatilis*)	X	X
Rock Gunnel (*Pholis gunnellus*)	X	
Winter (*Leucoraja ocellata*) or Little Skate (*Leucoraja erinacea*)		X
Scup (*Stenotomus chrysops)*		X
Smooth Dogfish (*Mustelus canis*)		X
Spiny Dogfish (*Squalus acanthias*)		X
Striped Sea Robin (*Prionotus evolans*)		X
Red Hake (*Urophycis chuss*)		X
Winter Flounder (*Pleuronectes americanus*)		X
Bluefish (*Pomatomus saltatrix*)		X
Dusky Shark (*Carcharhinus obscurus*)		X
American Lobster (*Homarus americanus*)	X	
Rock Crab (*Cancer irroratus)*	X	
Spider Crab (*Libinia* spp.)	X	
Common Sea Star (*Asterias rubens*)	X	
Blue Mussels (*Mytlius edulis*)	X	
Barnacles (Balanidae *spp.*)	X	
Northern Star Coral (*Astrangia poculata*)	X	
Sea Anemones (Actiniardia spp.)	X	
Purple-spined Sea Urchins (*Arbacia punctulata*)	X	
Orange tunicate spp.	X	
Yellow sponge spp.	X	
Branching Brown Macroalgae spp.	X	
Branching Red Macroalgae spp.	X	
Hydroid/Bryozoan spp.	X	
Skate/Dogfish Egg Case	X	
Brittle Star (*Ophiopholis spp.*)	X	
Waved Whelk (*Buccinum undatum*)	X	
Scale Worm (Polynoide spp.)	X	

For diver surveys, fish densities for each of the artificial reef sites visited in 2014 and 2015 varied greatly between sites (Figure 14). The most numerous fish species in the vast major of sites was cunner (Figure 15). Graphs of the total fish density reflected that of cunner density so the three most numerous species (cunner, black sea bass and blackfish) are presented individually. The presence of different diver observed species are reported for each summer month (i.e., June, July, and August) (Table 5). BRUV observations (reported as fraction of cameras that recorded the presence of the species) showed site to site variability as well for all taxonomic groups (Figures 16, 17).

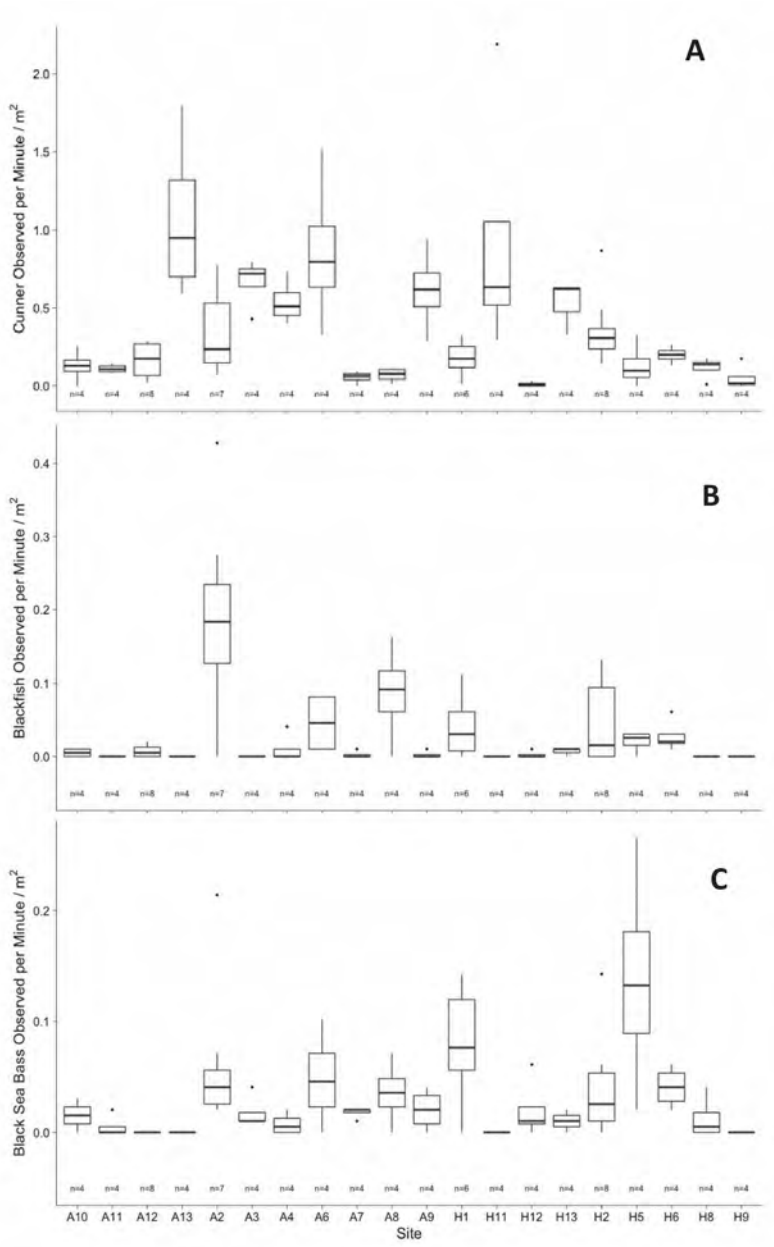

Figure 14. Fish density at each of the artificial reefs combining 2014 and 2015 count data.

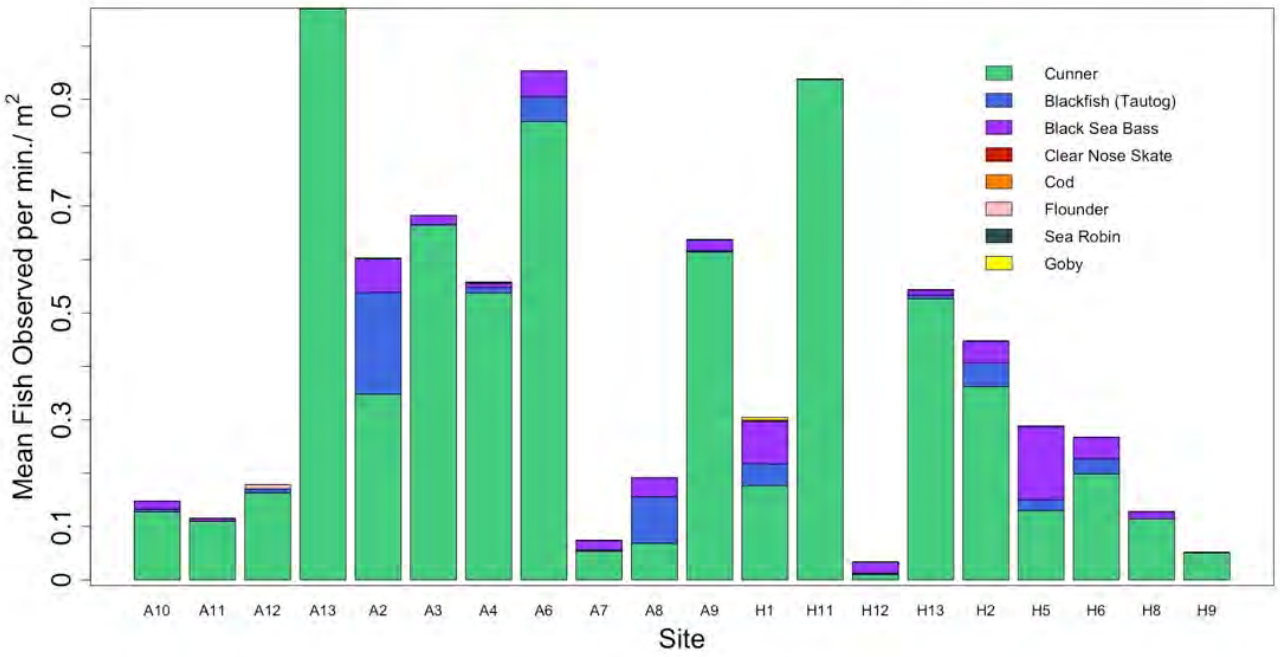

Figure 15. Fish density at each of the artificial reef sites broken down by species.

Table 5. Diver observed species list by summer sampling month.

Species	2015 June	2015 July	2014 & 2015 August	2014 August	2015 August
Cunner (*Tautogolabrus adspersus*)	X	X	X	X	X
Blackfish (*Tautoga onitis)*	X	X	X	X	X
Black Sea Bass (*Centropristis striata*)	X	X	X	X	X
Cod (*Gadus spp.*)	X				
Northern Sea Robin (*Prionotus carolinus*)			X	X	
Goby (*Gobiosoma spp.*)	X		X	X	
Clearnose Skate (*Raja eglanteria*)	X	X			
Gray Triggerfish (*Balistes capriscus*)			X	X	
Summer Flounder (*Paraclichthys dentatus*)			X	X	X
Butterfly Fish (*Chaetedon spp.*)			X	X	
Conger Eel (*Conger oceanicus*)			X	X	X
Striped Bass (*Morone saxatilis*)			X	X	
Rock Gunnel (*Pholis gunnellus*)		X			
American Lobster (*Homarus americanus*)		X	X	X	X
Rock Crab (*Cancer irroratus)*	X	X	X	X	X
Spider Crab (*Libinia* spp.)	X				
Common Sea Star (*Asterias rubens*)		X	X	X	X
Blue Mussels (*Mytlius edulis*)	X	X	X	X	X
Barnacles (Balanidae *spp.*)	X	X	X	X	X

Northern Star Coral (*Astrangia poculata*)	X	X	X	X	X
Sea Anemones (Actiniardia spp.)		X	X	X	
Purple-spined Sea Urchins (*Arbacia punctulata*)			X	X	X
Orange tunicate spp.	X	X	X	X	X
Yellow sponge spp.	X	X	X	X	X
Branching Brown Macroalgae spp.	X	X	X	X	X
Branching Red Macroalgae spp.			X	X	X
Hydroid/Bryozoan spp.	X		X		X
Skate/Dogfish Egg Case	X		X		X
Brittle Star (*Ophiopholis spp.*)		X	X		X
Waved Whelk (*Buccinum undatum*)			X		X
Scale Worm (Polynoide spp.)		X	X		X

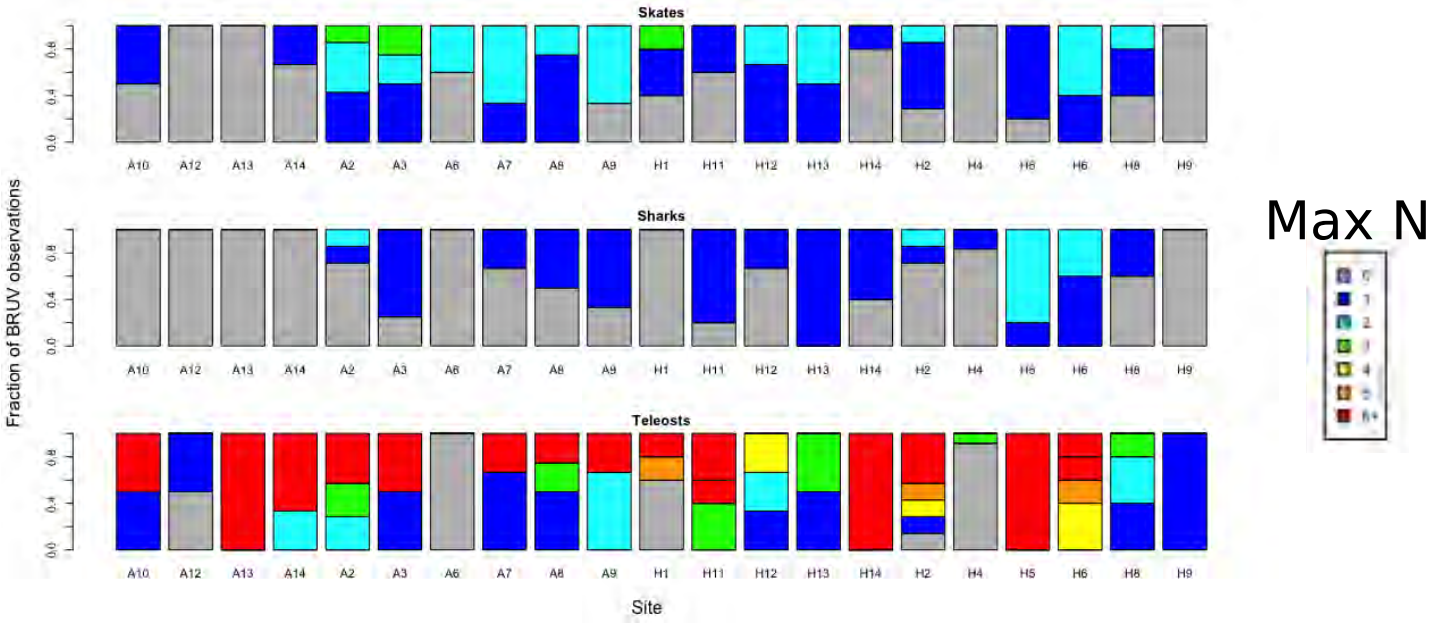

Figure 16. BRUV fish species fraction of observations for all sites for skates, sharks, and teleosts.

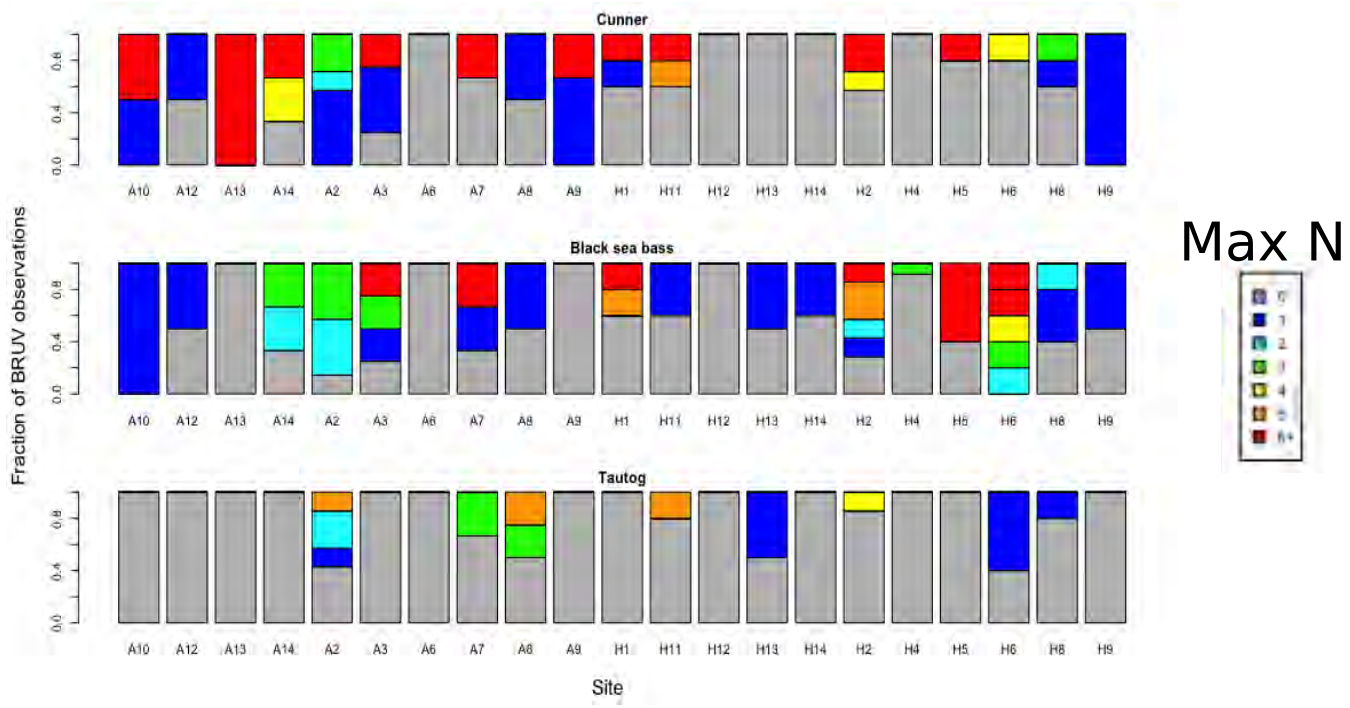

Figure 17. BRUV fish species fractional observations for all sites for cunner, black sea bass, and blackfish.

Passive Acoustic Monitoring

Passive acoustic monitoring on the A2 barge site identified the presence of odontocetes (likely dolphins), oyster toadfish, and weakfish. For oyster toadfish, 5 and 10% of the audio files recorded boat whistles and low frequency grunts respectively. For weakfish, a two hour chorusing event along with overlapping calls were recorded. Odontocetes were heard every night between 7pm and 4am; they were also heard during the daytime 6 out of 7 days (Figure 18). Vessel noise was more prevalent during daytime hours than at night. Approximately 33% of all audio files recorded odontocete clicks/whistles. The co-occurrence of odontocetes and boats at this reef site (Figure 19) suggests that there may be direct or indirect competition between odontocetes and human fishers at the artificial reef sites.

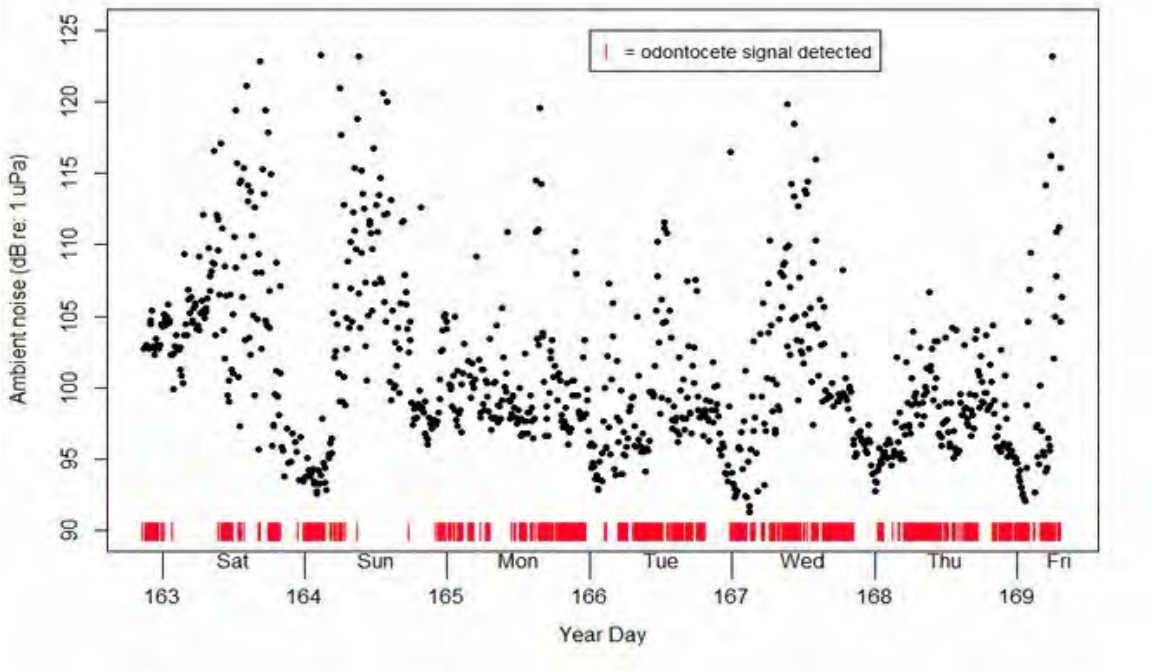

Figure 18. Broadband (100 - 12.5 kHz) sound pressure levels peaked at midday, and were highest on Saturday, Sunday, and Friday. Dolphin vocalizations (presence indicated by red vertical lines along the x-axis) were present during all days (and nights) sampled.

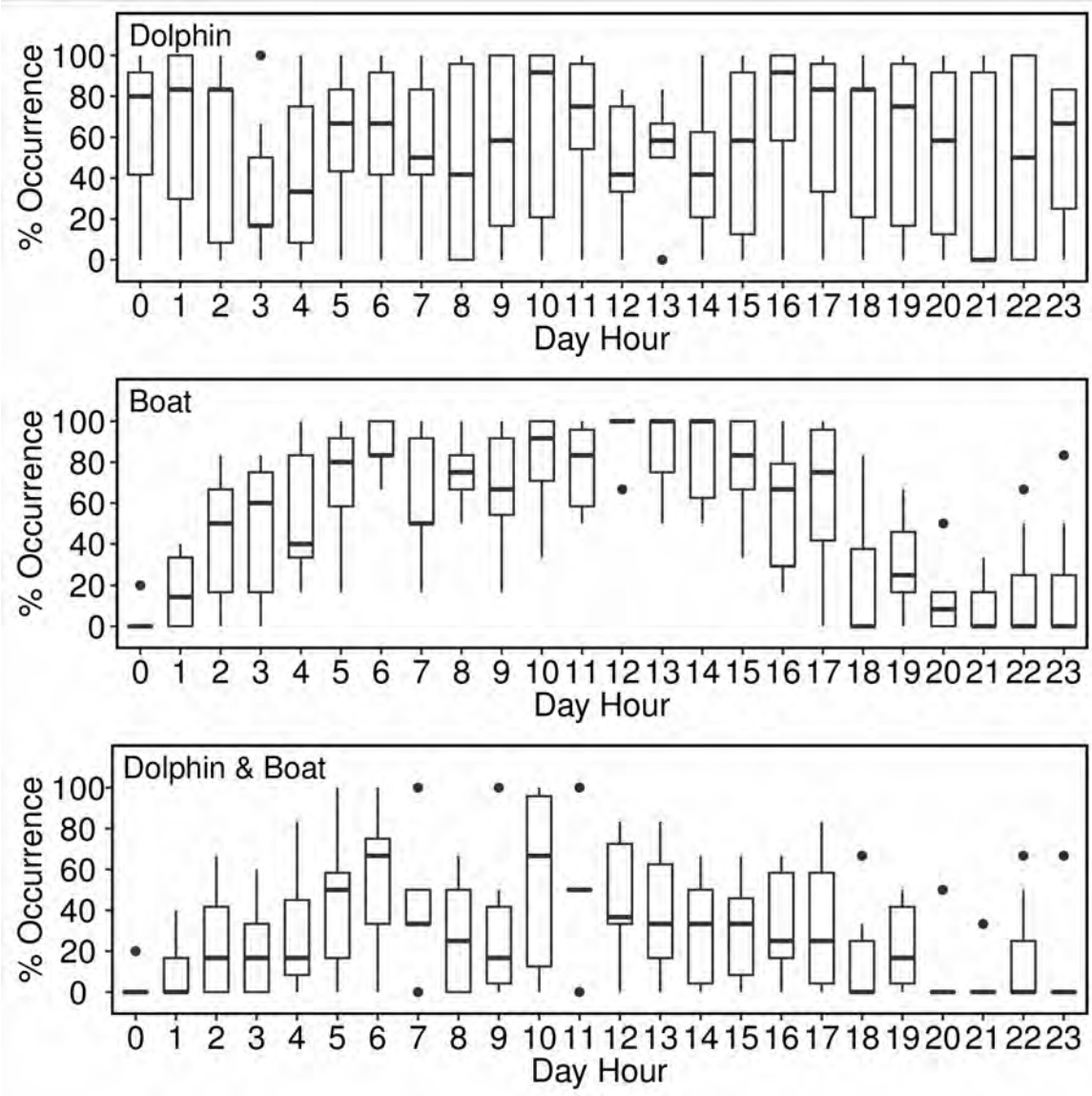

Figure 19. Dolphin detection (top) was evenly distributed throughout the 24 hours of the day while boat detection peaked during the middle of the day (middle). Overlap of boats and dolphins (bottom) was most frequent between sunrise and sunset, especially in the 6th and 10th hours.

Fish abundance at reefs vs off-reef sites and comparison between Atlantic Beach and Hempstead sites

For near-bottom NASC values (i.e., within 6m of the seabed) (Figure 20), mean on-reef NASC (460 m^2nmi^{-2}, *CV* = 3.6) was significantly higher and more consistent than off-reef (140 m^2nmi^{-2}, *CV* = 8.8; MWW-test, $p < 0.01$). This significant difference is further validated by a significant difference between the two distributions (KS-test, $D_{(2)} = 0.28$, $p < 0.01$; Figure 21). When broken up by each sampling site (i.e., Atlantic Beach and Hempstead Reefs; Figure 22), the mean on-reef NASC at Hempstead (670 m^2nmi^{-2}, *CV* = 3.4) was significantly higher than at Atlantic Beach (370 m^2nmi^{-2}, *CV* = 3.5; MWW-test, $p < 0.01$). Both sites also had a relatively similar amount of variation in NASC as well (*CV*s of 3.4 and 3.5 for Hempstead and Atlantic Beach respectively). Likewise, mean off-reef NASC at Hempstead (160 m^2nmi^{-2}, *CV* = 7.5) was significantly higher than at Atlantic Beach (120 m^2nmi^{-2}, *CV* = 10.0; MWW-test, $p < 0.01$; Figure 24). Mean on-reef NASCs at both Hempstead and Atlantic Beach were significantly higher than off-

reef at either site ($p < 0.01$) and had relatively less variability (Figure 23). These statistically significant pairwise differences were also reflected in the differences among the distributions which were also statistically significant (KS-test, $p < 0.01$; Figure 24).

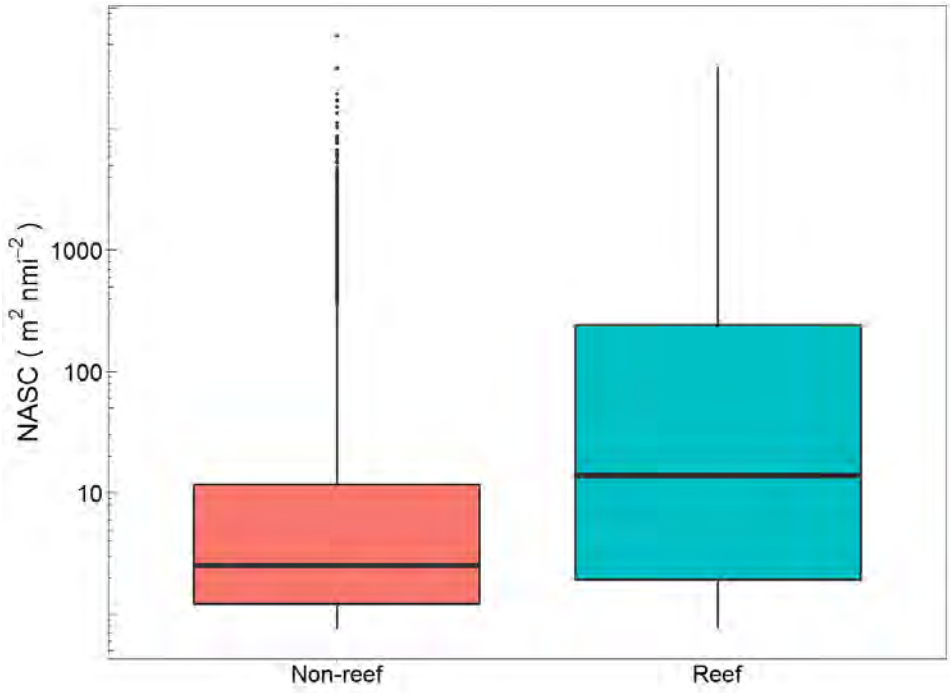

Figure 20. Observed NASC (m^2nmi^{-2}) on- (N = 5947) and off- (N = 2027) reefs. The solid line within each box represents the median. The extent of each vertical line represents the interquartile range.

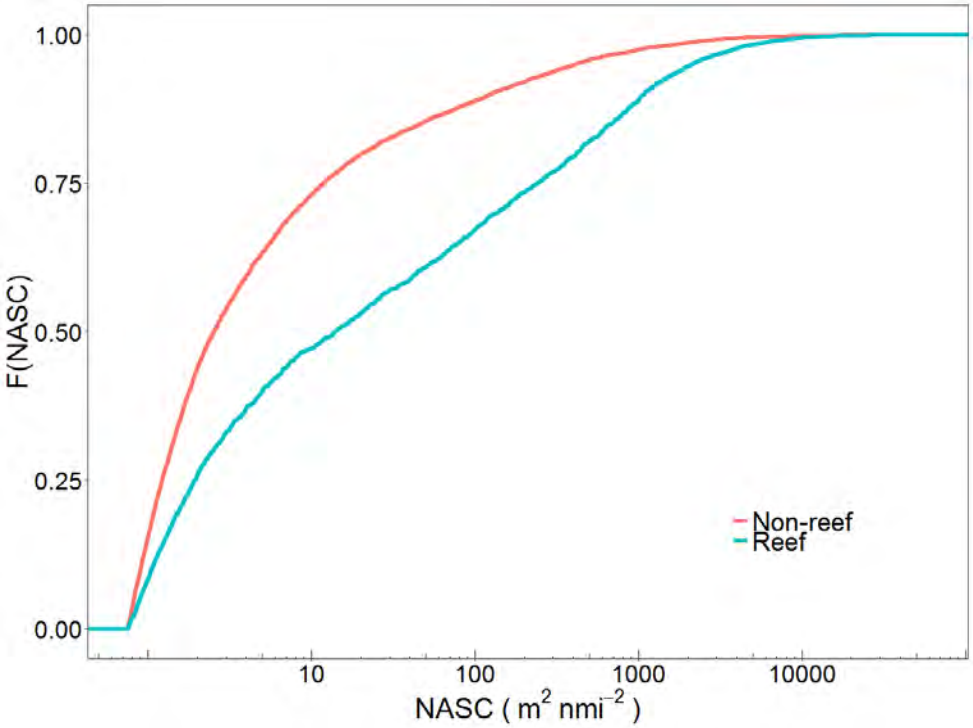

Figure 21. The empirical cumulative density functions of on- and off-reef NASC values (blue and red respectively).

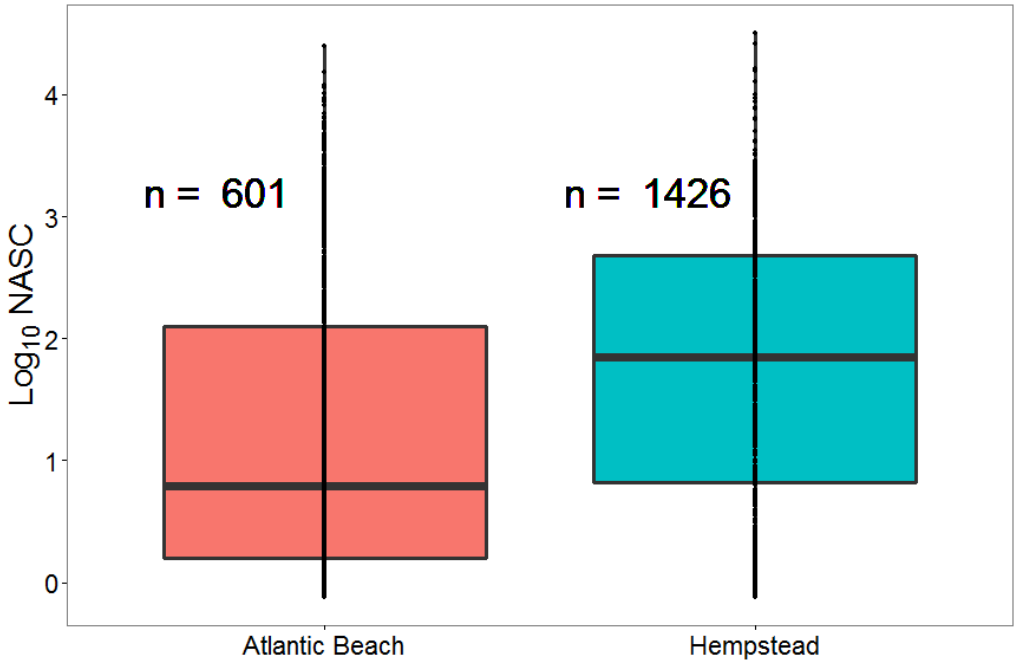

Figure 22. Observed log_{10}-transformed NASC (m^2nmi^{-2}) on on-reef sites at Atlantic Beach and Hempstead. The solid line within each box represents the median. The extent of each vertical line represents the interquartile range.

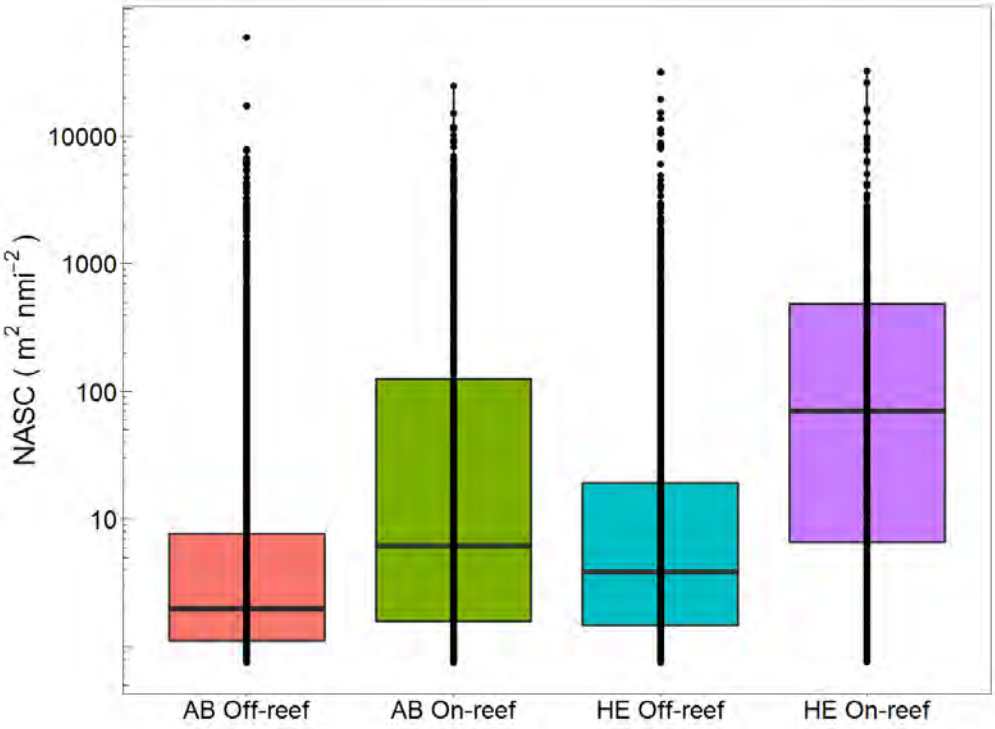

Figure 23. Observed NASC (m^2nmi^{-2}) off-reef at Atlantic Beach (*N* = 3485), on-reef at Atlantic Beach (*N* = 1426), off-reef at Hempstead (*N* = 2489), and on-reef at Hempstead (*N* = 601). The Atlantic Beach and Hempstead Reefs are denoted by "AB" and "HE" respectively. The solid line within each box represents the

median. The extent of each vertical line represents the interquartile range. Each point represents a single NASC value.

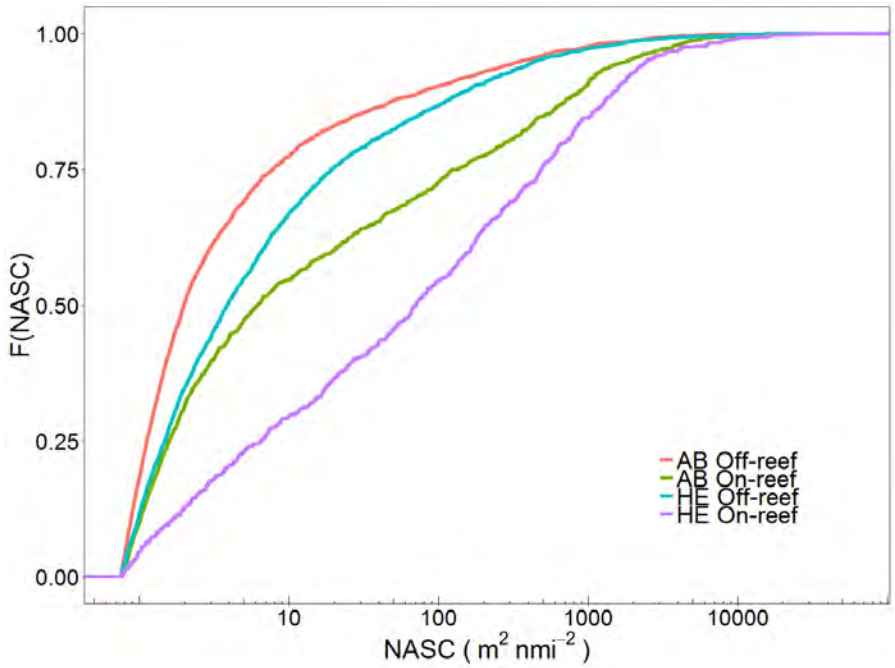

Figure 24. The empirical cumulative density functions of observed NASC for AB off-reef, AB on-reef, HE off-reef, and HE on-reef (red, green, blue, and magenta respectively).

However, BRUV data found that fish were more frequently observed (for all taxonomic groups except sharks) at the Atlantic Beach sites (Figure 25). It should be noted that the BRUVs (benthic) and acoustic echosounders (at least 0.5 m above bottom) are sampling different vertical locations of fish.

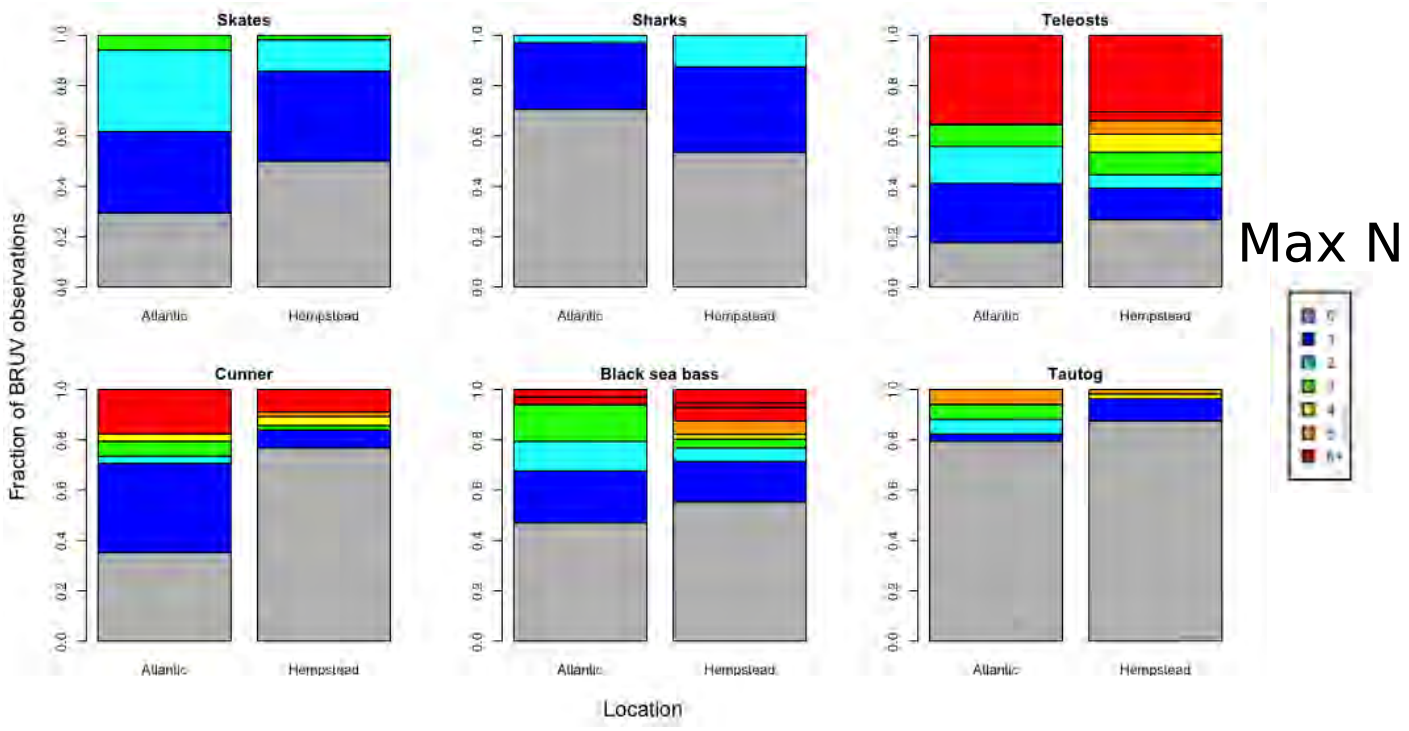

Figure 25. BRUV data found that fish were more frequently observed at the Atlantic Beach site than at Hempstead for all taxonomic groups except sharks (which were rare at both sites).

Halo effect of reefs

The area of influence (i.e. “Halo effect”) around each reef was also evaluated. There was little evidence for a strong reef effect in the surrounding waters around each reef. Although there were intermittent near-bottom fish aggregations that were off-reef, they appeared to be randomly distributed and were observed both near (< 10m) and far (> 100m) from the closest reef. Cross-sections of cruise track data (Figures 26-28) showed that the majority of fish aggregations (i.e., high NASC values) were found on-reef with sharp drop-offs as soon as one moves off-reef.

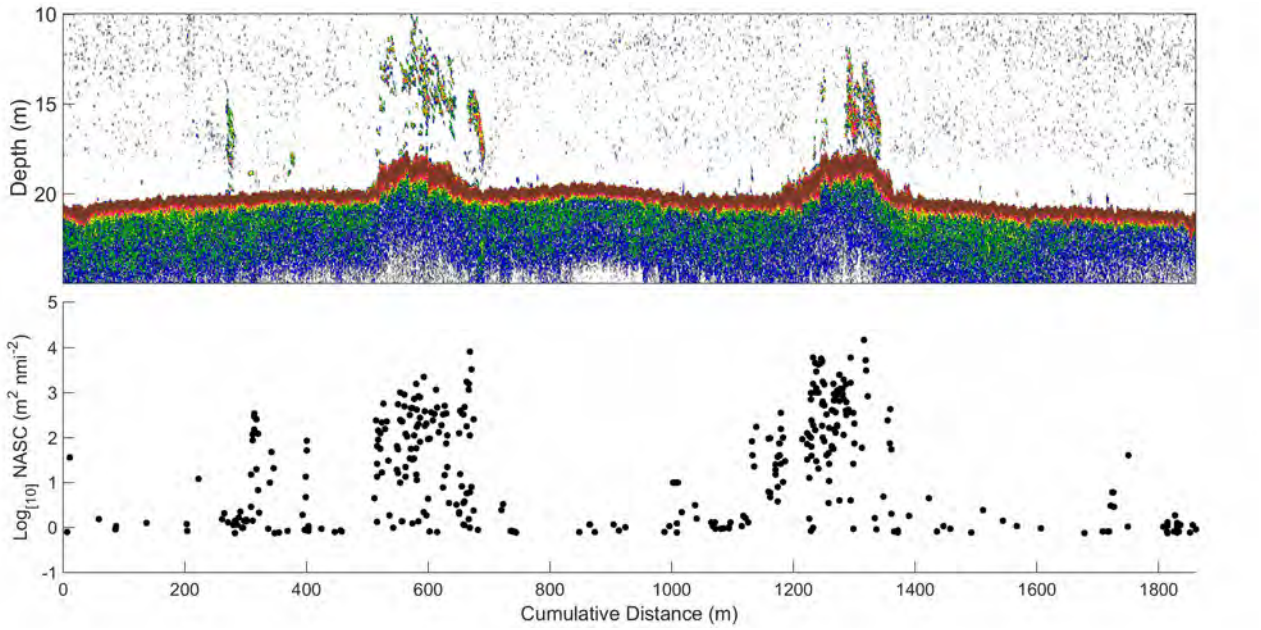

Figure 26. Along-track echogram (top) and NASC values (bottom) with cumulative distance on two rock reefs (deployed on Hempstead Reef during 2013/2014) on 18 August 2014. Both plots are lined up.

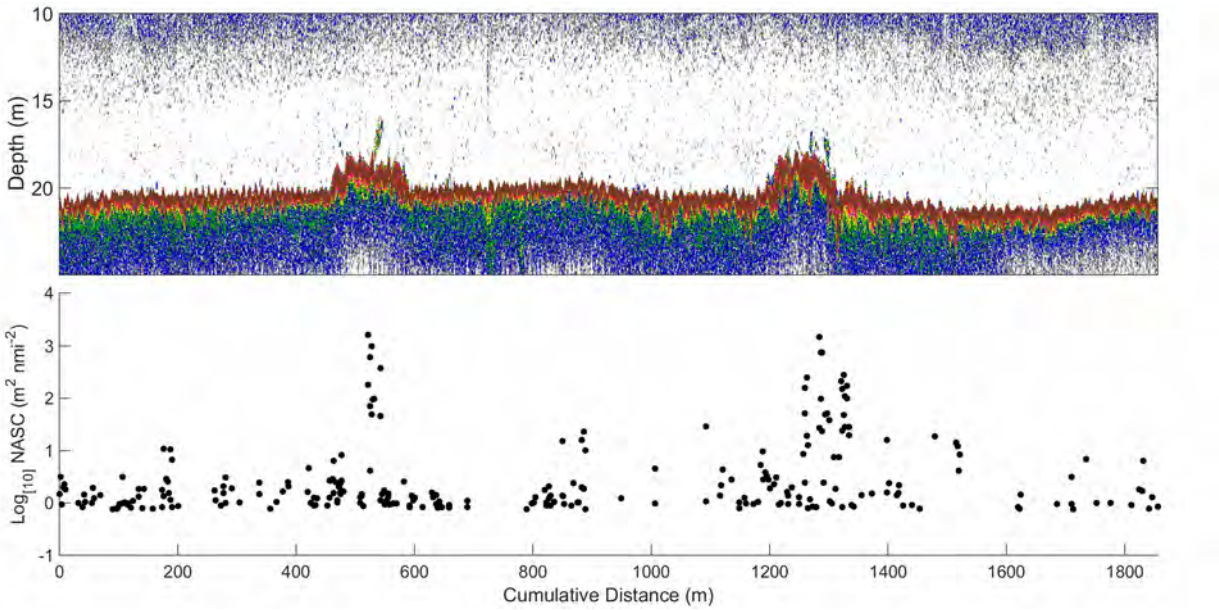

Figure 27. Along-track echogram (top) and NASC values (bottom) with cumulative distance on two rock reefs (deployed on Hempstead Reef during 2013/2014) on 15August 2014. Both plots are lined up.

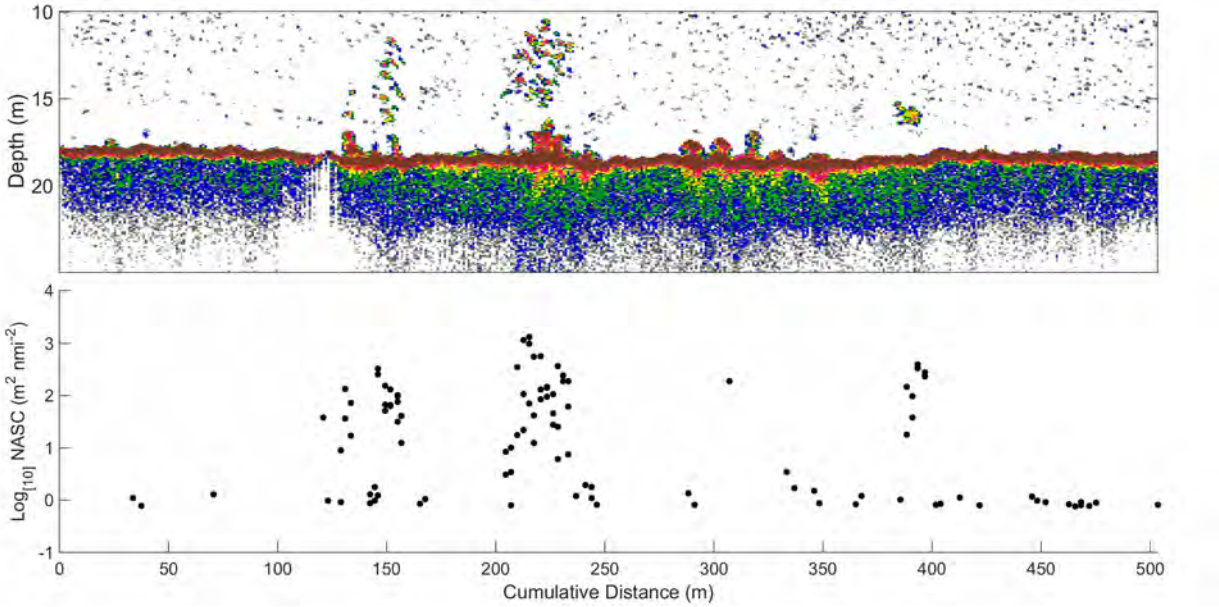

Figure 28. Along-track echogram (top) and NASC values (bottom) with cumulative distance on a concrete reef (deployed on Hempstead Reef during 1998) on 18 August 2014. Both plots are lined up.

Reef Material Comparisons

Each material type had a diverse community of benthic organisms (Table 6). Total coverage ranged from 5-78%. The entire benthic coverage was statistically greater on the sunken vessels due to higher coral coverage (Figure 29C). Another striking difference was the 8X greater tunicate coverage on the sunken vessels (Figure 29D). Overall, the rock had the greatest amount of bare space ($p<0.001$; Figure 30). We also wanted to assess how material type affected benthic coverage while controlling for time. When assessing materials of a similar age (1996-2003), the sunken vessels had greater coverage of corals ($p=0.001$; Figure 31C) and tunicates ($p=0.016$; Figure 31F). This suggests that the benthic

community on the sunken vessels may reach a climax community more quickly than the other material types.

Table 6. Species list observed by divers as a function of reef structure material.

Species	Rock	Sunken Vessel	Concrete
Cunner (*Tautogolabrus adspersus*)	X	X	X
Blackfish (*Tautoga onitis)*	X	X	X
Black Sea Bass (*Centropristis striata*)	X	X	X
Cod (*Gadus spp.*)		X	
Northern Sea Robin (*Prionotus carolinus*)	X		
Goby (*Gobiosoma spp.*)	X		
Clearnose Skate (*Raja eglanteria*)	X		
Gray Triggerfish (*Balistes capriscus*)	X		
Summer Flounder (*Paraclichthys dentatus*)	X	X	
Butterfly Fish (*Chaetedon spp.*)	X		
Conger Eel (*Conger oceanicus*)		X	
Striped Bass (*Morone saxatilis*)		X	
Rock Gunnel (*Pholis gunnellus*)	X		
American Lobster (*Homarus americanus*)	X	X	
Spider Crab (*Libinia* spp.)	X		
Rock Crab (*Cancer irroratus)*	X		
Common Sea Star (*Asterias rubens*)	X	X	
Blue Mussels (*Mytlius edulis*)	X	X	X
Barnacles (Balanidae *spp.*)	X	X	X
Northern Star Coral (*Astrangia poculata*)	X	X	X
Sea Anemones (Actiniardia spp.)		X	
Purple-spined Sea Urchins (*Arbacia punctulata*)	X		
Orange tunicate spp.	X	X	
Yellow sponge spp.	X		
Branching Brown Macroalgae spp.	X	X	X
Branching Red Macroalgae spp.	X		
Hydroid/Bryozoan spp.	X	X	X
Skate/Dogfish Egg Case	X	X	
Brittle Star (*Ophiopholis spp.*)	X		
Waved Whelk (*Buccinum undatum*)	X		
Scale Worm (Polynoide spp.)	X		

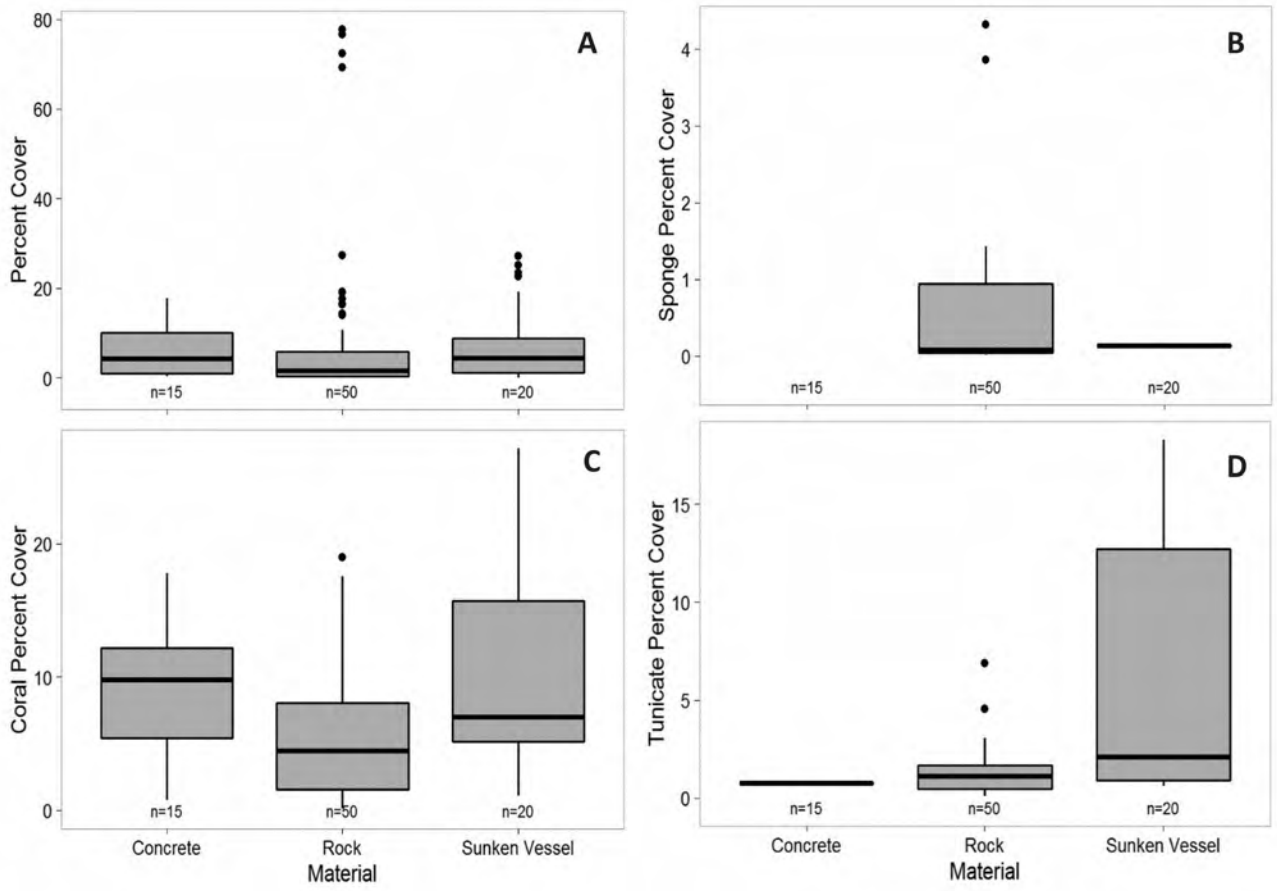

Figure 29. Benthic coverage as a function of material type for (A) All Organisms (including Barnacle, Blue Mussel, Bryozoan, Crustose Coralline Algae, Coral, *Crepidula* spp., Macroalgae, Sponge, and Tunicate percent coverage), (B) Sponges, (C) Corals, and (D) Tunicates. This included all years of deployed reefs.

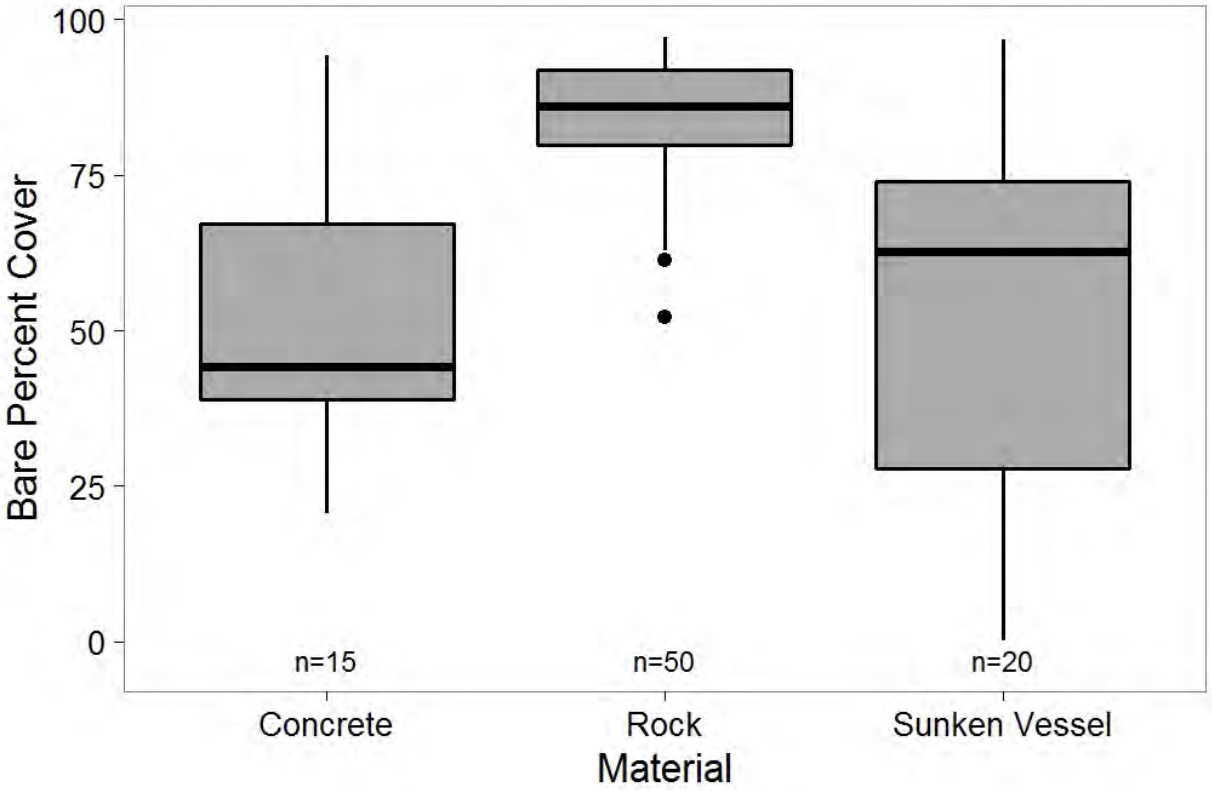

Figure 30. Bare space available by material type including all years of deployed reefs.

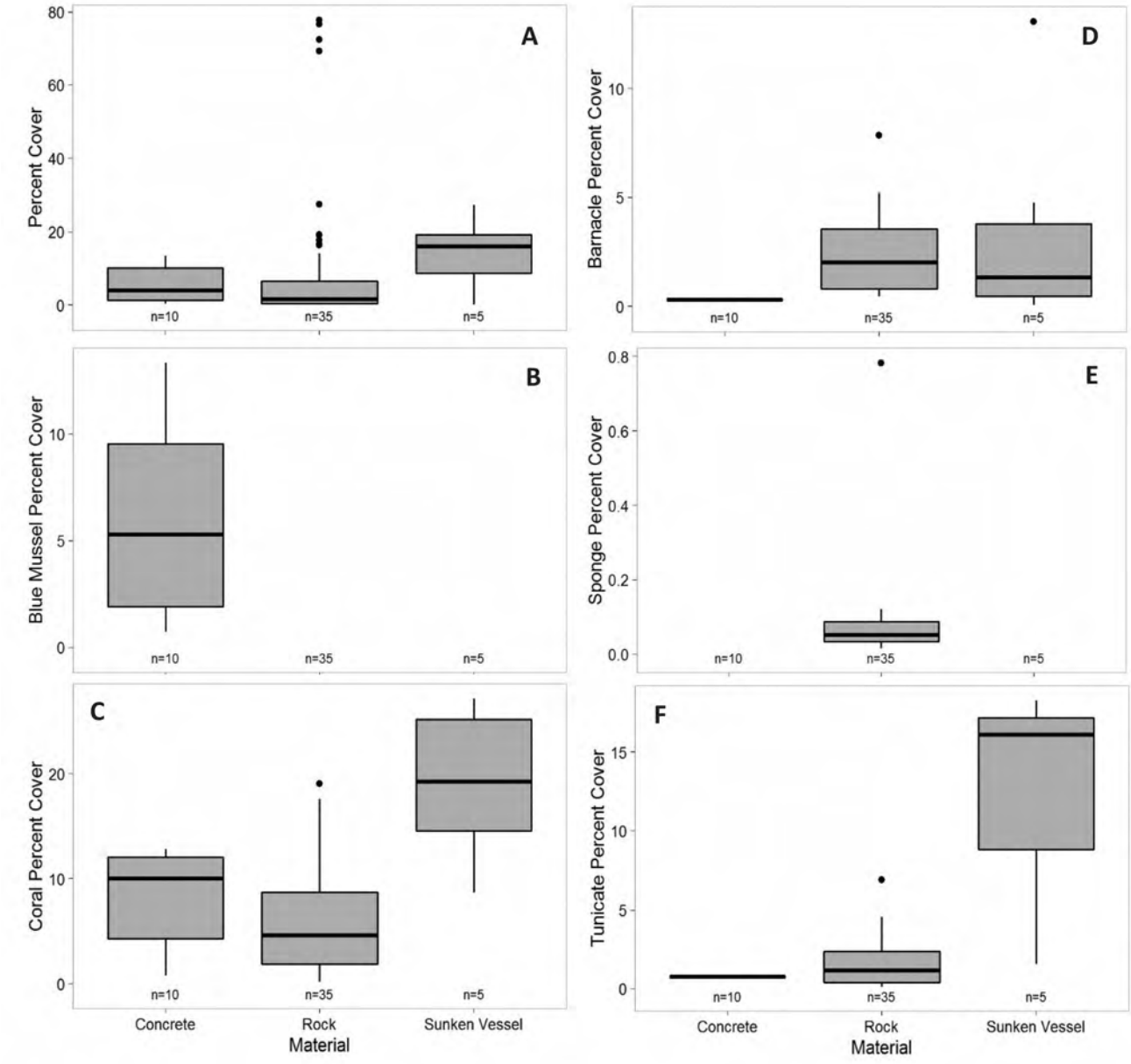

Figure 31. Benthic coverage on different material types controlling for age of material (1998 concrete, 2003 rock, and 1996 vessels) for (A) Total Coverage (including Barnacle, Blue Mussel, Bryozoan, Crustose Coralline Algae, Coral, *Crepidula* spp., Macroalgae, Sponge, and Tunicate percent coverage), (B) Blue Mussels, (C) Coral, (D) Barnacles, (E) Sponges, and (F) Tunicates.

Fish species presence information from the BRUVs showed that rock and vessel reefs had more species than concrete reefs (Table 7). Fractional presence data from the BRUVs however showed that teleosts (at least one fish) were always present at concrete sites which was not the case for the other material type (Figure 32).

Table 7. Presence of different species detected by BRUVs on reefs of different types of materials.

	Reef Material Type		
Species	Concrete	Rock	Sunken Vessel
Winter or little skate	X	X	X
Scup	X	X	X
Black sea bass	X	X	X
Cunner	X	X	X
Tautog		X	X
Striped sea robin		X	X
Northern sea robin		X	
Unidentified sea robin			X
Atlantic cod			
Red hake			
Unidentified gadiform			
Summer flounder		X	X
Winter flounder			
Unidentified flatfish		X	
Striped bass		X	
Bluefish			
Conger Eel		X	
Clearnose Skate		X	
Smooth dogfish	X	X	X
Spiny dogfish	X	X	X
Unidentified dogfish			
Dusky Shark			
Unidentified fish		X	

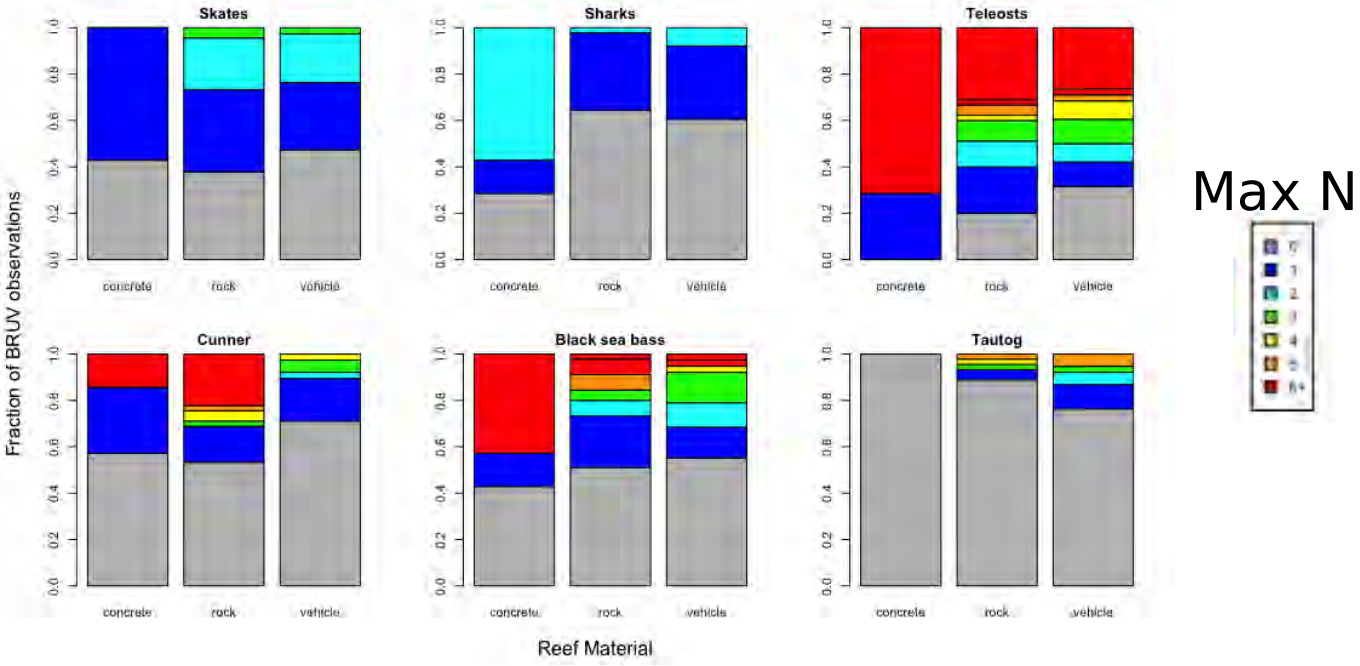

Figure 32. Fraction of BRUV deployments were various fish taxa were observed grouped by material type (all ages).

For diver surveys. fish density was significantly different on the reefs of different materials (Figure 33). Cunner were more abundant on the rock reefs than either the concrete or sunken vessels ($p=0.02$). This may be a preference for the interstitial spaces provided by the rock material or a result of a predation depression on these reefs due to the higher densities of black sea bass and blackfish on the concrete and sunken vessels. It was apparent that the blackfish densities were correlated with the height profile of the reef (Figure 34). When we compared the rugosity (vertical height) of the sunken vessels, the blackfish increased until they were as numerous as the cunner on these sunken vessels. Therefore, we believe that it is the vertical height more than the material type that is increasing the blackfish densities.

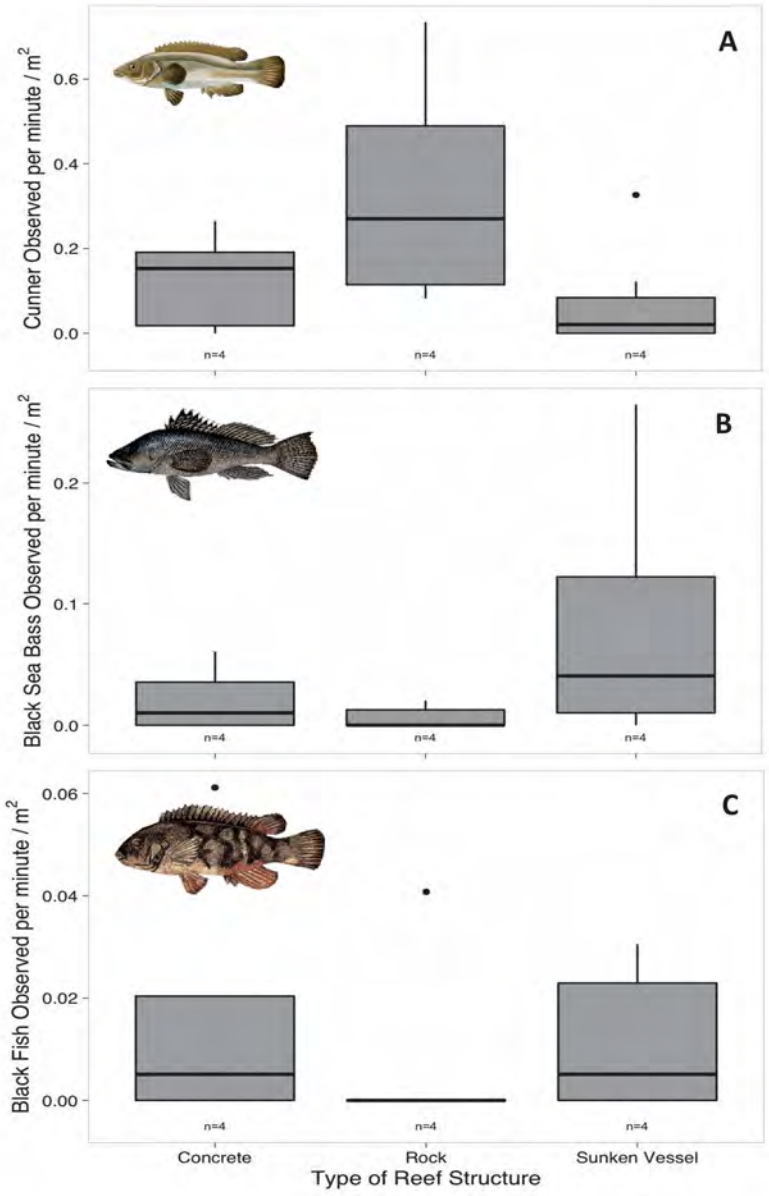

Figure 33. Fish density by structure type controlling for age of material (1998 concrete, 2003 rock, and 1996 vessels) for (A) cunner, (B) black sea bass, and (C) blackfish.

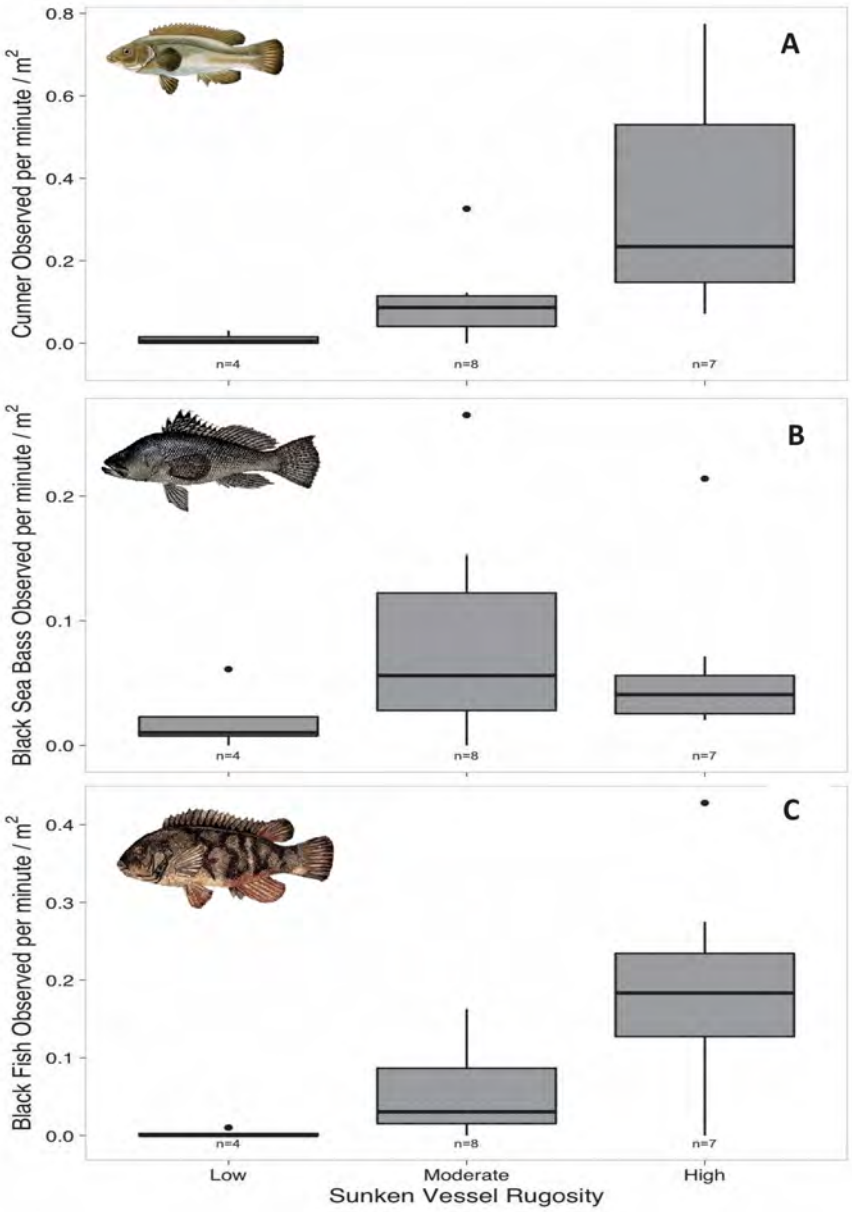

Figure 34. Fish density as a function of vessel profile for (A) cunner, (B) black sea bass, and (C) blackfish.

Acoustic observations of fish biomass (as measured by NASC) on concrete, rock, and vessel reefs were 380 (*CV* = 1.4), 150 (*CV* = 1.9), and 30 (*CV* = 1.5) m^2nmi^{-2} respectively (Figure 35). Statistically significant differences in mean NASC among the different material-types were detected (KW-test; $\chi^2_{(2)} = 18.2$, $p < 0.01$). The mean concrete NASC was significantly larger than those observed on rock ($p < 0.01$) and vessels ($p < 0.01$); however, no significant differences were detected in mean NASC between rock and vessel reefs ($p = 0.46$). In terms of the distributions for each reef-type (Figure 36), concrete reefs were also significantly different from rock (KS-test; $D_{(2)} = 0.32$, $p < 0.01$) and vessels ($D_{(2)} = 0.50$, $p < 0.01$). Since the active acoustic data could not see into the interior space of these reefs where many fish hide, the amount of void space may have a significant impact on measured NASC. This potential undersampling may explain why mean NASC on solid concrete blocks (i.e., relatively low interstitial space) were significantly higher than rocks and vessels which have increased internal space.

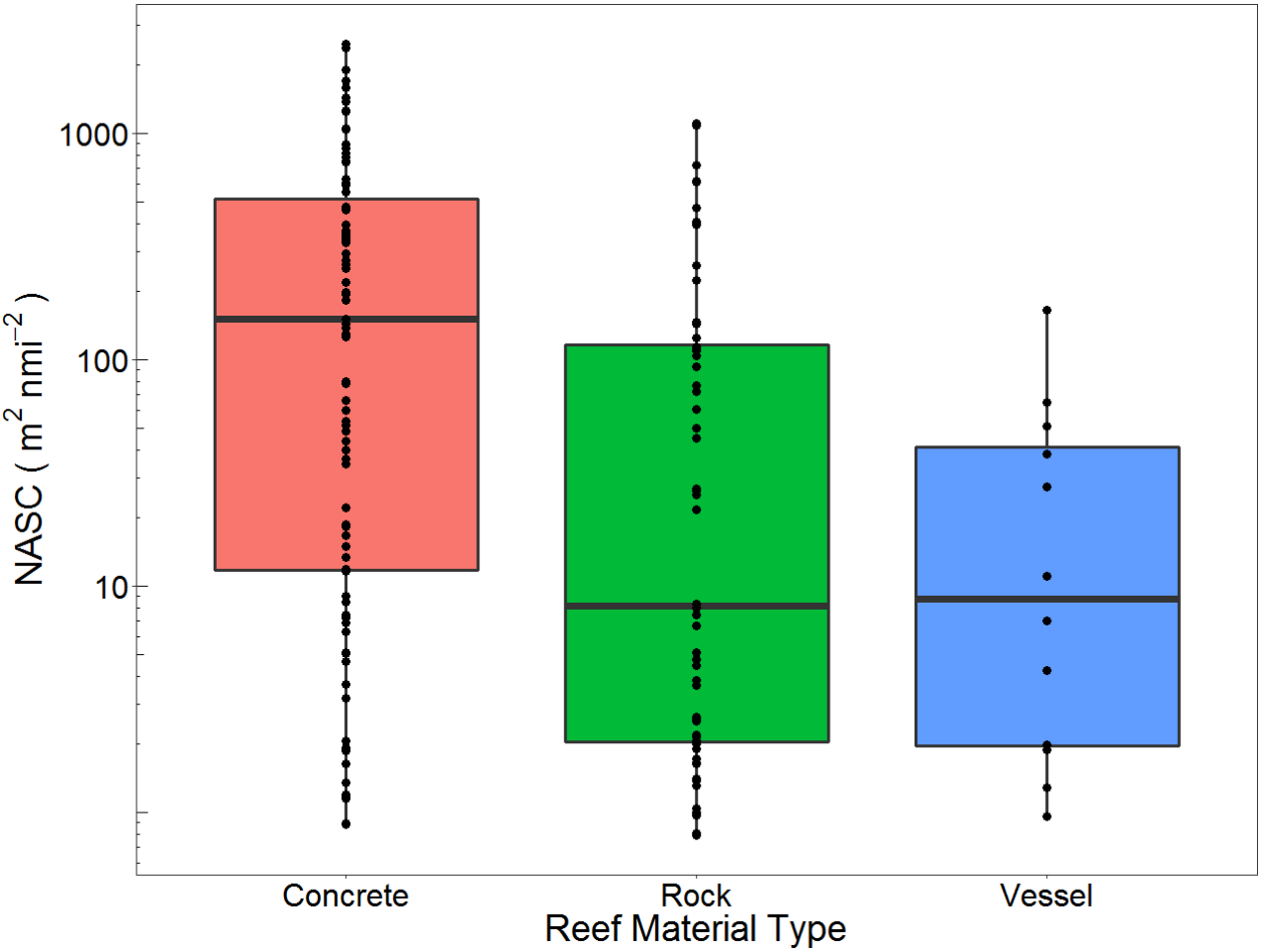

Figure 35. Observed NASC on concrete (*N* = 91), rock (*N* = 60), and vessel (*N* = 12) reefs. The solid line within each box represents the median. The extent of each vertical line represents the interquartile range. Each individual point represents a single NASC measurement.

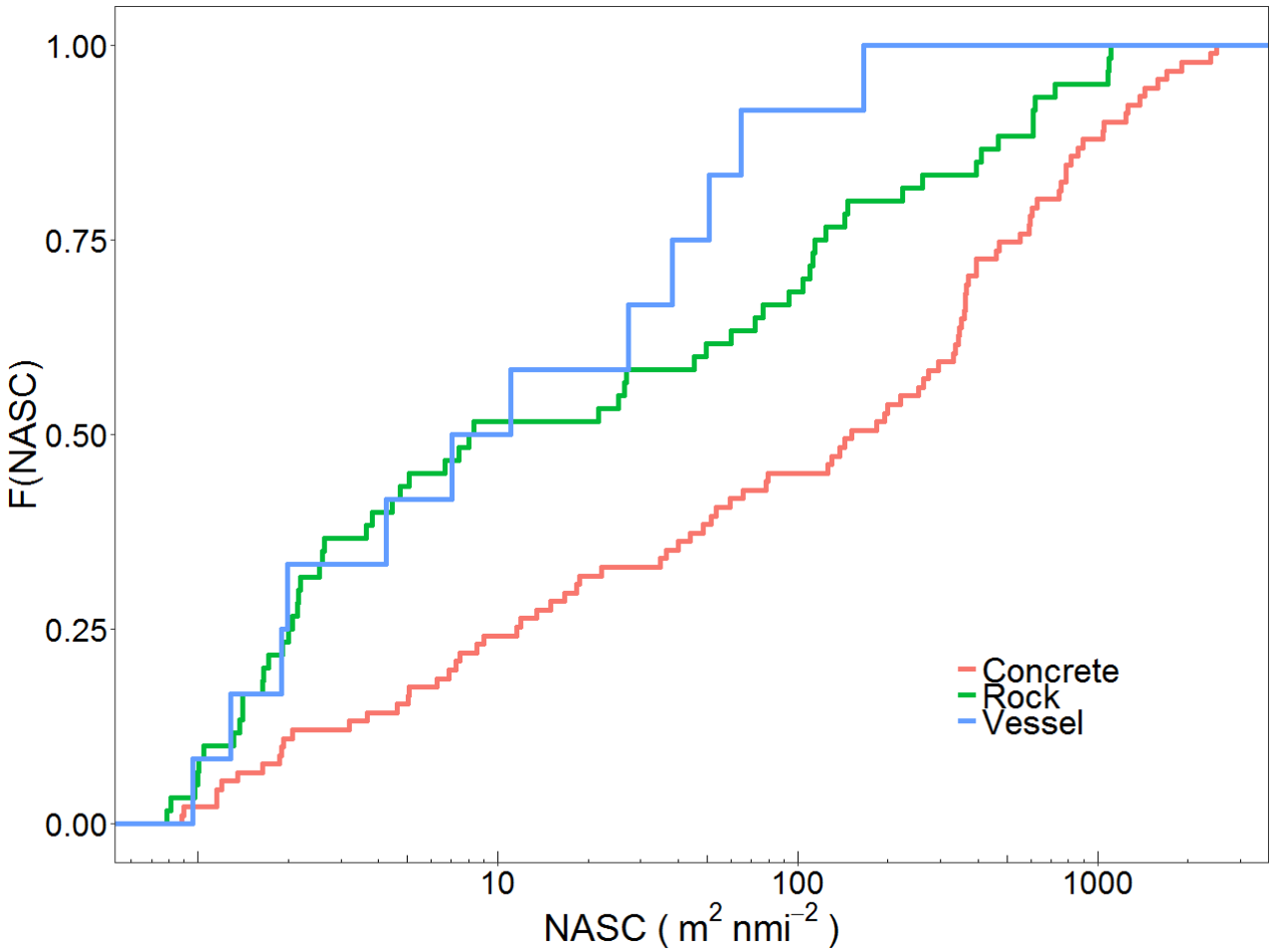

Figure 36. The empirical cumulative density functions of NASC values for concrete, rock, and vessel reefs (red, green, and blue respectively).

Reef Size Comparisons

To assess the size of the reef on fish density using diver survey data, we compared differing sizes of rock drops. Prior to analysis, we used the transect video to verify that the reefs were comparable. Two low rugosity sites were removed (A7 and A10) prior to analysis since these drops were spread over a large area and did not function as the other reefs of similar drop sizes but like those of the smallest volume size. The smallest rock drops only possessed cunner in any numbers. For both the cunner and the black sea bass there appeared to be a trend of decreasing density with increasing rock drop size (Figure 37). Although only the cunner densities were statistically different between reef sizes. We believe that this is reflected more by the congregating nature of the smaller reefs. Rock drops of 2000-3000 m^2 were sufficiently large to be utilized by both cunner and black sea bass. As the rock drops increased in size, the fish had a greater amount of space to utilize.

BRUV data showed a more uniform distribution of fractional presence of most taxonomic groups of fish across the range of reef sizes (Figure 38). The BRUV data in Figure 38 include all ages and material types which may account for this difference. When the BRUV data were controlled for age of reef (similar to the aforementioned diver analysis), the smaller reef sites had more species observed than the largest reef sites (Table 8).

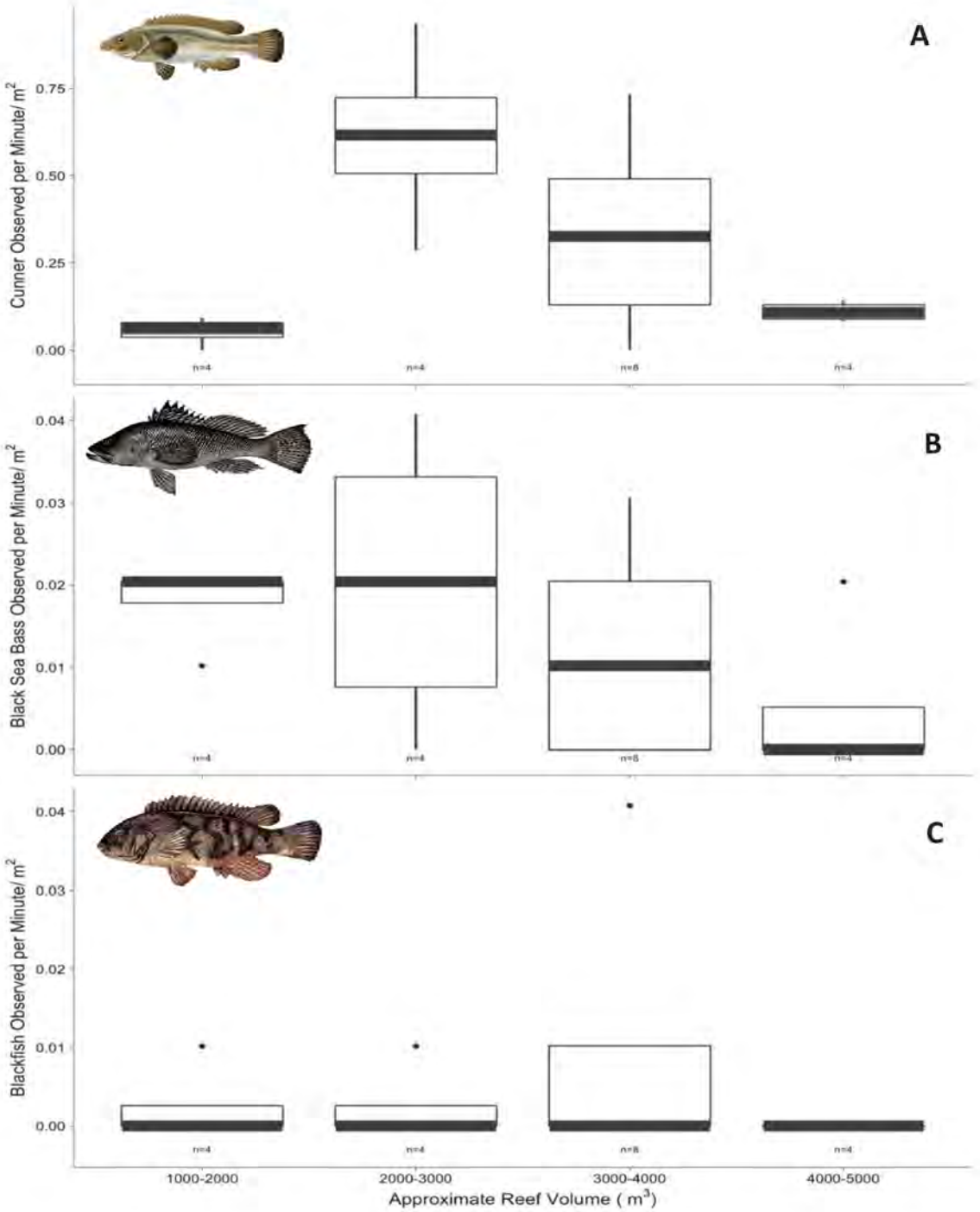

Figure 37. Fish density as a function of reef volume for (A) cunner density, (B) black sea bass density, and (C) blackfish density.

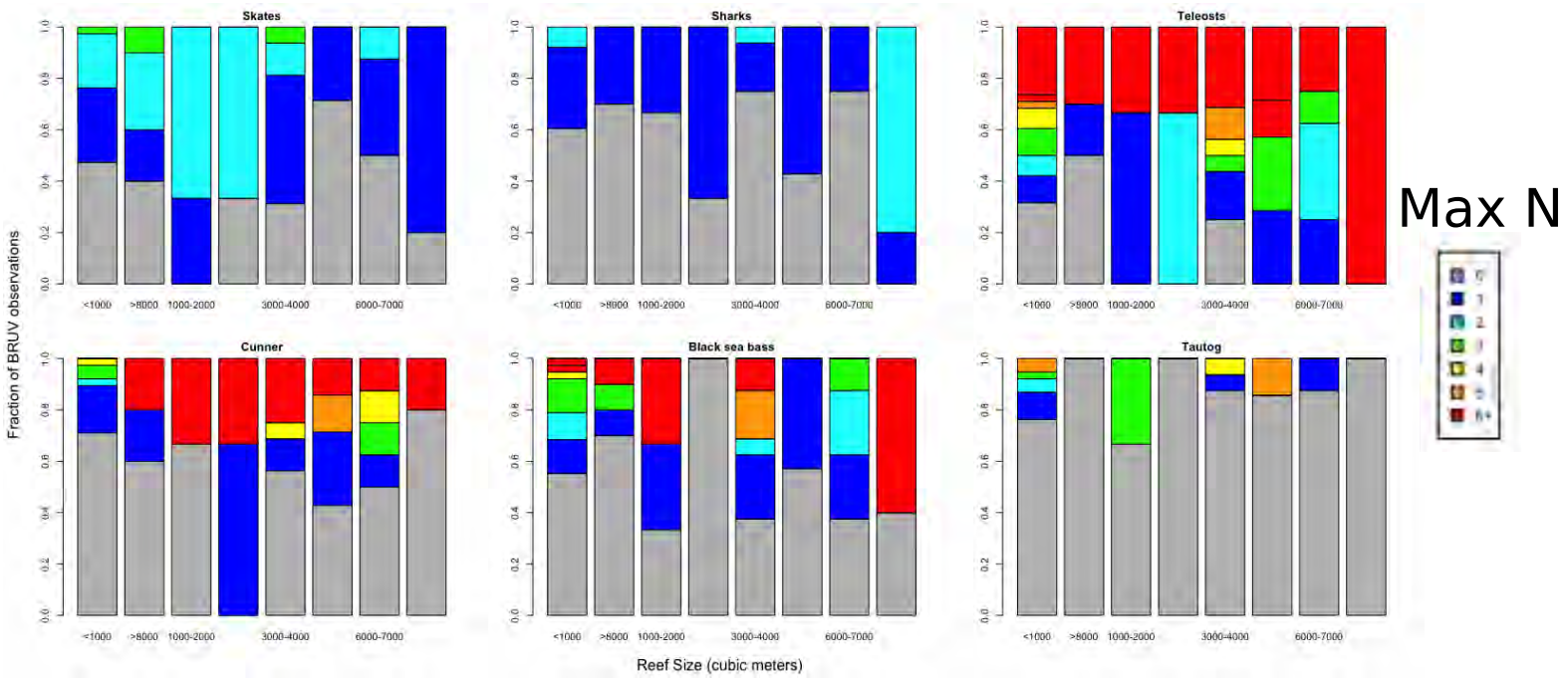

Figure 38. BRUV fractional presence of fish taxa as a function of reef size (all ages and materials included).

Table 8. A comparison of the species seen in BRUVs for rock piles in the volume range of 1000-3000 m^3, & 5000+ m^3. Unfortunately when we standardized for age, we were not left with any data for 3000-5000 m^3. NA = Not Available.

	Volume Range (m^3)		
Species	1000-3000	3000-5000	5000+
Winter or little skate	X	NA	X
Scup	X	NA	X
Black sea bass	X	NA	X
Cunner	X	NA	X
Tautog	X	NA	
Striped sea robin	X	NA	
Northern sea robin	X	NA	X
Unidentified sea robin		NA	
Atlantic cod		NA	X
Red hake		NA	
Unidentified gadiform		NA	
Summer flounder	X	NA	
Winter flounder		NA	
Unidentified flatfish		NA	X
Striped bass	X	NA	
Bluefish		NA	
Conger Eel	X	NA	
Clearnose Skate	X	NA	

Smooth dogfish	X	NA	X
Spiny dogfish	X	NA	X
Unidentified dogfish		NA	
Dusky Shark		NA	
Unidentified fish	X	NA	X

Mean NASC observed on reefs with volume ranges of 1000-3000, 3000-5000, and 5000+ m^3 were 60 (CV = 2.9), 200 (CV = 1.6), and 90 (CV = 1.7) m^2nmi^{-2} respectively (Figure 39). No significant differences in mean NASC were detected among the different size ranges (KW-test; $\chi^2_{(2)} = 5.53$, $p = 0.06$). However, there was a statistically significant difference between the distributions of NASC on 1000-3000 and 3000-5000 m^3 range reefs (KS-test; $D_{(2)} = 0.47$, $p = 0.02$, Figure 40). Although the neither distribution of NASC on 1000-3000 or 3000-5000 m^3 were not significantly different than 5000+ m^3 reefs, this is likely a consequence of the low sample size (N = 3) observed on the largest reefs.

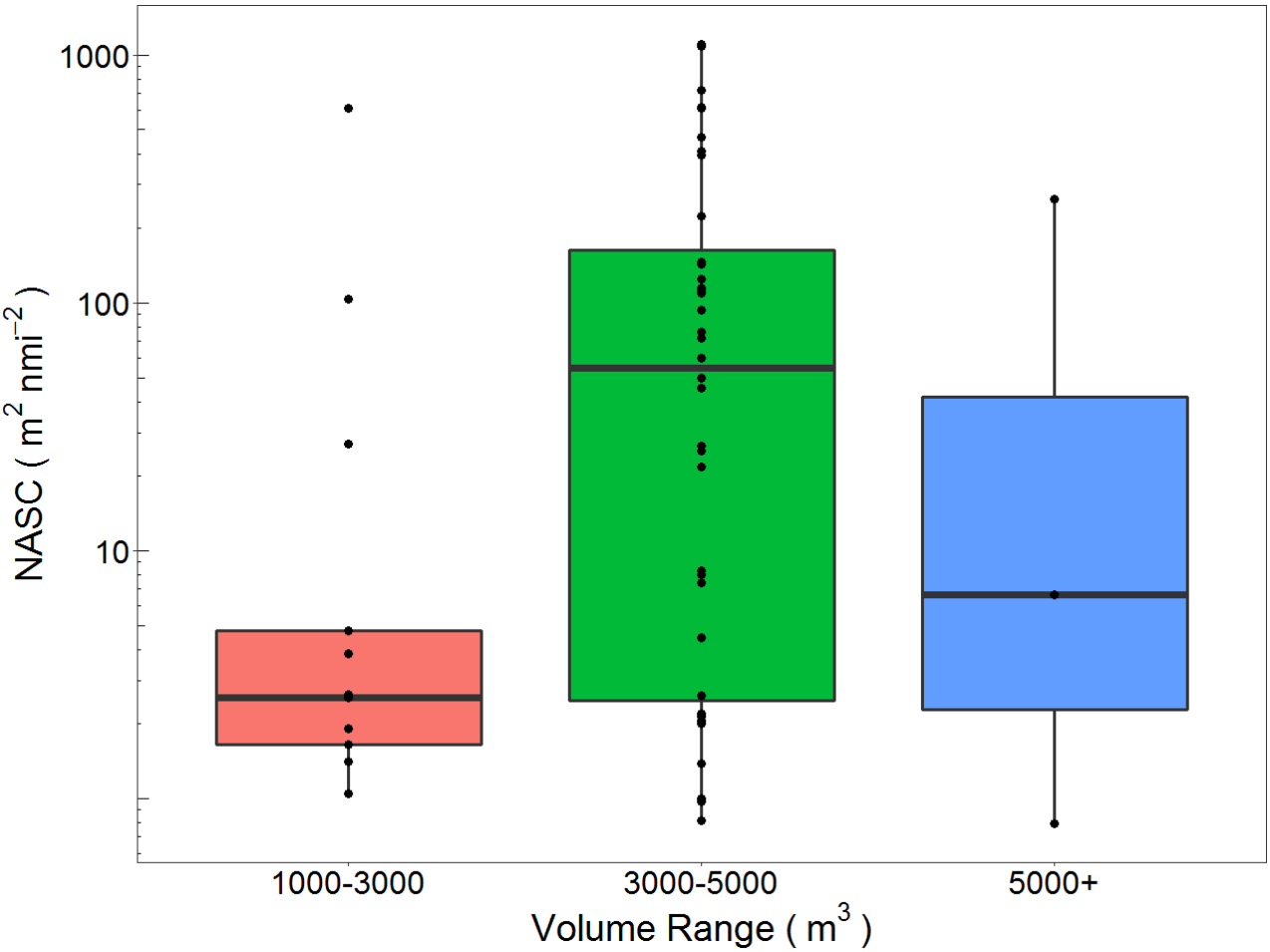

Figure 39. Observed NASC on reefs with size ranges of 1000-3000 m^3 (N = 13), 3000-5000 m^3 (N = 40), and 5000+ m^3 (N = 3). The solid line within each box represents the median. The extent of each vertical line represents the interquartile range. Each individual point represents a single NASC measurement.

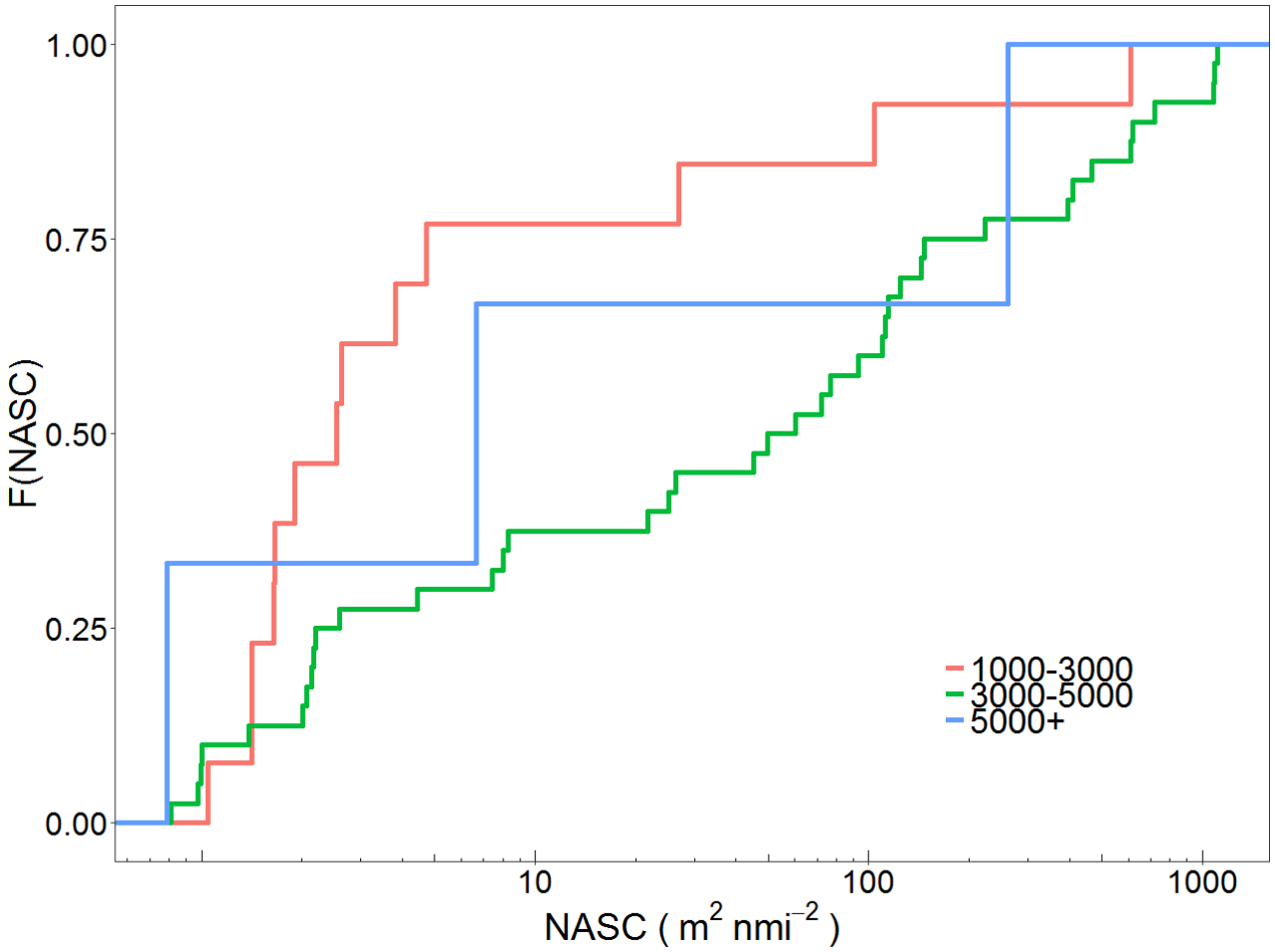

Figure 40. The empirical cumulative density functions of NASC values for 1000-3000, 3000-5000, and 5000+ m^3 reefs (red, green, and blue respectively).

Reef Age Comparisons

In order to assess the effect of reef age independently of the other variables, the diver analysis was performed on rock reefs of similar rugosity (moderate to high). Invertebrate species were different on the rock reefs of different ages (Table 9, Figure 41). The youngest reefs had 5-6 species. Those reefs that were a decade older had twice as many invertebrates present on the reef. The 1998-2001 rock reefs had the greatest invertebrate diversity (13 species). Overall percent bottom cover increased with age of reef. The oldest rock material had sponges and barnacles which were not present in younger reefs (Figure 42). For reefs younger than a decade, no tunicates and only a single coral were observed.

Table 9. Species list observed by divers by age of rock material compiled from diver surveys, limited to moderate and high rugosity.

	Rock Deployment Year (exclude low Rugosity)					
Species	**1989**	**1996**	**1998-2001**	**2003**	**2013**	**2014**
Cunner (*Tautogolabrus adspersus*)	X	X	X	X	X	X
Blackfish (*Tautoga onitis)*		X	X	X	X	X

Black Sea Bass (*Centropristis striata*)		X	X	X	X	X
Northern Sea Robin (*Prionotus carolinus*)				X		
Goby (*Gobiosoma spp.*)					X	X
Clearnose Skate (*Raja eglanteria*)					X	
Gray Triggerfish (*Balistes capriscus*)			X			
Summer Flounder (*Paraclichthys dentatus*)		X	X	X		
Butterfly Fish (*Chaetedon spp.*)				X		
Rock Gunnel (*Pholis gunnellus*)				X		
American Lobster (*Homarus americanus*)		X	X	X		
Rock Crab (*Cancer irroratus)*	X	X	X	X		X
Spider Crab (*Libinia* spp.)						X
Common Sea Star (*Asterias rubens*)	X	X		X	X	X
Blue Mussels (*Mytlius edulis*)	X	X	X	X	X	X
Barnacles (Balanidae *spp.*)	X	X	X	X	X	X
Northern Star Coral (*Astrangia poculata*)	X		X	X		
Purple-spined Sea Urchin (*Arbacia punctulata*)			X			
Orange tunicate spp.	X		X	X	X	
Yellow sponge spp.	X		X	X		
Branching Brown Macroalgae spp.	X	X	X		X	X
Branching Red Macroalgae spp.			X	X		
Hydroid/Bryozoan spp.	X				X	
Skate/Dogfish Egg Case	X	X				
Brittle Star (*Ophiopholis spp.*)			X	X		
Waved Whelk (*Buccinum undatum*)			X			
Scale Worm (Polynoide spp.)			X	X		

When comparing the total coverage of the benthic community on the rock, there was a trend of increasing coverage from initial deployment until approximately 15 yrs (Figure 42A). Then overall coverage began to decline. While the mechanism of this change in trajectory of total coverage can not be equivocally stated, this could be the result of community succession until competitive dominants begin to reduce species diversity. Interestingly, at the same time point (1998-2001) coral and tunicates where at their greatest density and following that older material had the greatest coverage of sponges (Figure 42B-D). All three of these species are competitive dominants for holding space and were essentially absent in the reefs that had been deployed within the last three years. When we examine what is happening with the bare space present on the rock material over time, it is apparent that at the point of the reversal in increasing benthic coverage there is the least amount of bare space and that bare space continues to increase from that point (Figure 43).

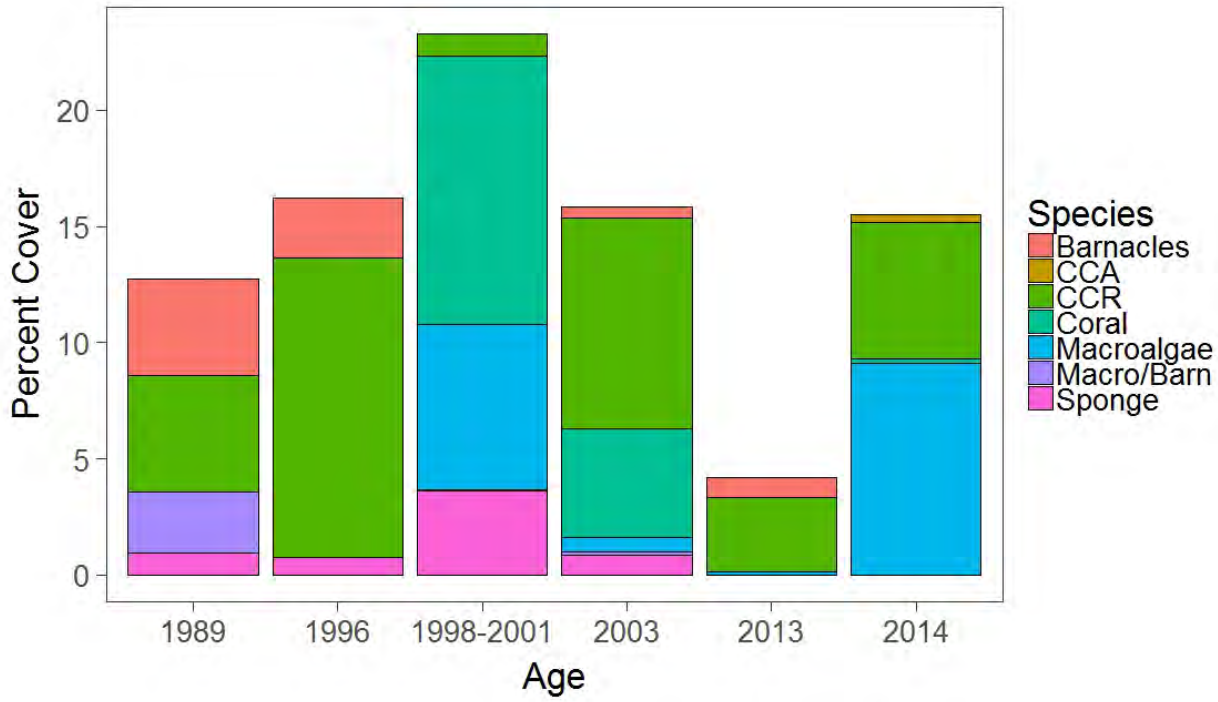

Figure 41. Benthic coverage varied with age of rock reefs (all volumes included) although the newest reefs were dominated by macroalgae and CCR. Benthic coverage categories were: Barnacles; CCA = Crustose Coralline Algae; CCR = Crustose Coralline Remnant; Coral; Macroalgae (all species); Macro/Barn = Macroalgae and barnacle area, where it was too difficult to discern; Sponge (all species); Tunicates (all species).

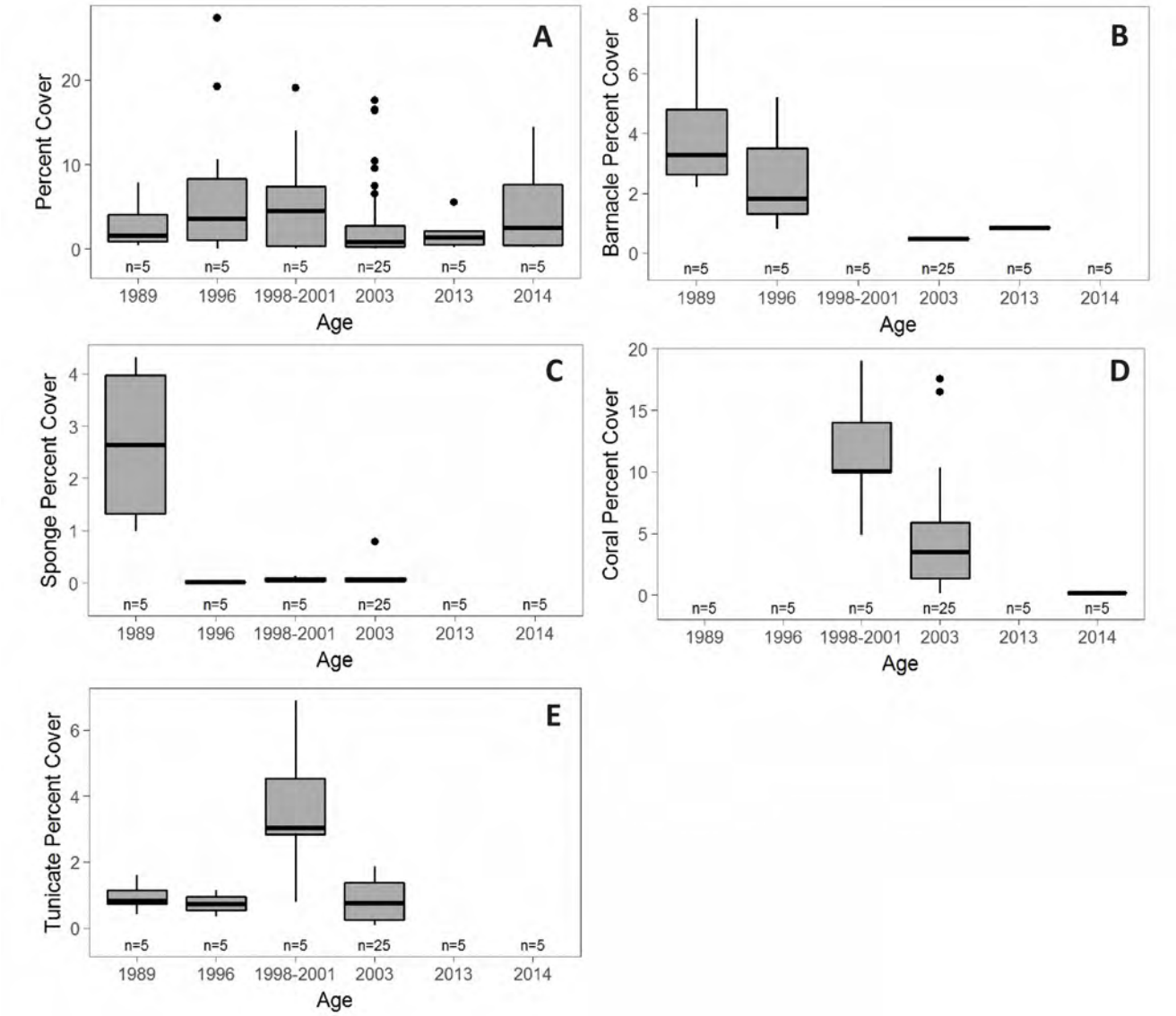

Figure 42. Benthic cover of rock (all volumes) over time of (A) Total Coverage (including Barnacle, Blue Mussel, Bryozoan, Crustose Coralline Algae, Coral, *Crepidula* spp., Macroalgae, Sponge, and Tunicate percent coverage), (B) Barnacle, (C) Sponge, and (D) Coral, and (E) Tunicate Coverage. This plot includes all reef volumes. Blue mussels were not plotted here since no blue mussels were picked up on rock during the video belt transects.

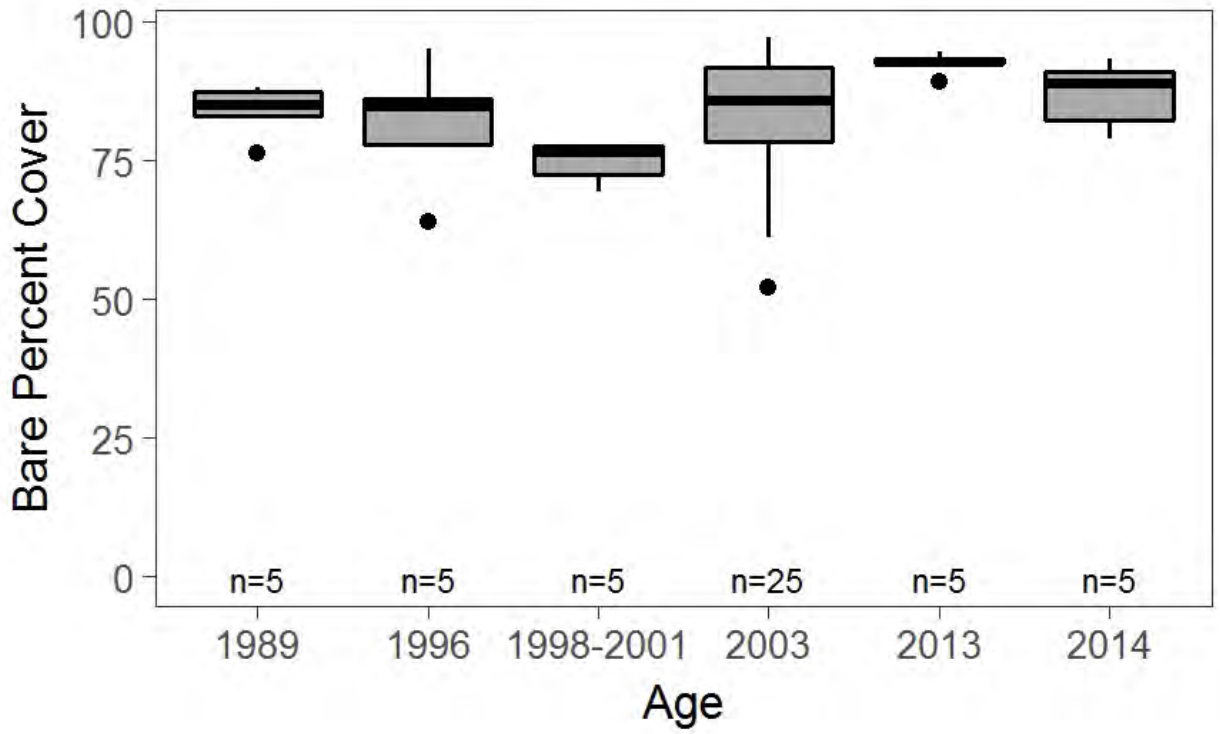

Figure 43. Percentage of bare space over time. This plot includes all rock reefs of all volumes of drops.

We deployed BRUVs to study the presence/absence of certain species based on age. However, visibility was poor on the 2003 rock drops when sampled and therefore we only had BRUV data for the 2013 and 2014 rock drops so no reef age analysis could not be completed.

We examined fish density on the different rock deployments over time regardless of the size of the deployment (Figure 44). This demonstrated that there appeared to be increasing densities of cunner over time, but significant decreases in black sea bass ($p=0.007$) and blackfish ($p=0.019$) after the first few years of deployment. This may be due to the initial and rapid coverage of the rock material by barnacles (H1 and H2) that were quickly reduced in density by the next time point (2003).

Next we wanted to control for the size of the rock drop over time to see if that changed the trends observed when grouping them all together. This however, did significantly reduce the number of time points that could be compared (Figure 45). While there was no trend for the cunner, a similar decrease in both black sea bass which was significant ($p=0.04$) and blackfish which was not significant over time was observed. One observation that is not apparent in these figures is that the black sea bass present on the youngest reefs were smaller than those present on the older reefs. This high density of smaller black sea bass on these younger reefs may explain the higher blackfish densities as well.

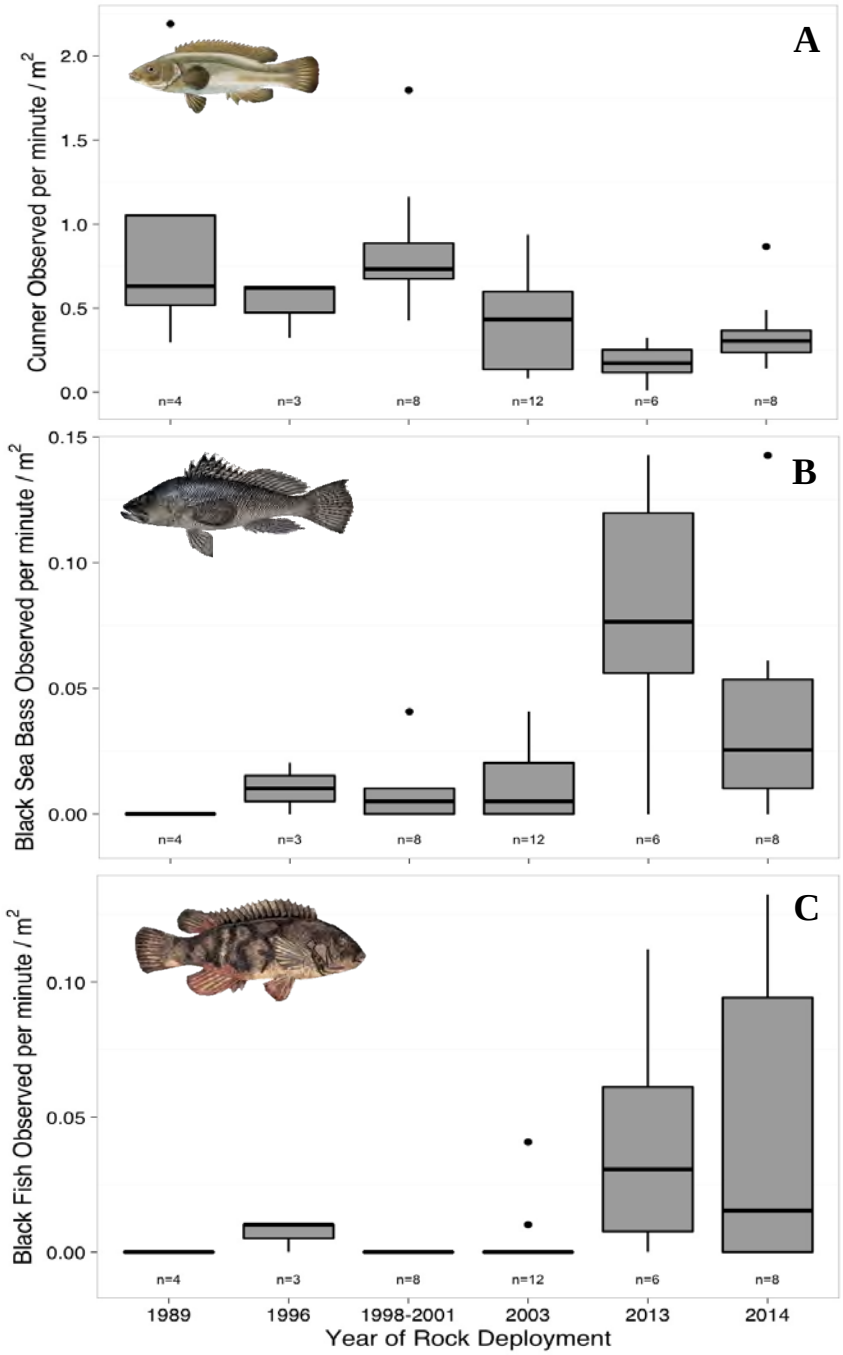

Figure 44. Fish density as a function of rock age of (A) cunner, (B) black sea bass, and (C) blackfish. (All reef volumes)

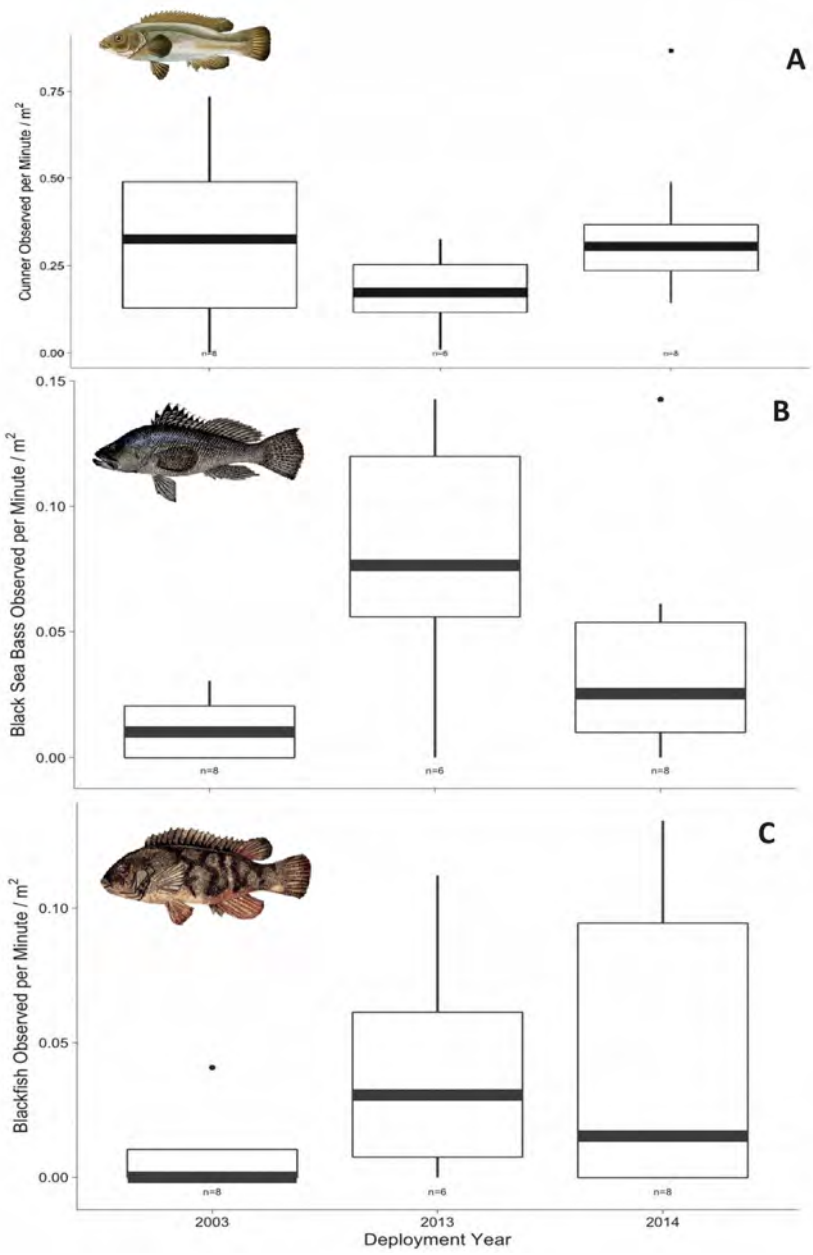

Figure 45. Fish density as a function of age of material controlling for rock dump size (3000-5000 m^2) for (A) cunner density, (B) black sea bass density, and (C) blackfish density.

Mean NASC observed on reefs deployed in 2003, 2013, and 2014 were 200 (*CV* = 3.4), 320 (*CV* = 2.0), and 470 (*CV* = 1.6) m^2nmi^{-2} respectively (Figure 46). However, no significant differences in mean NASC were detected among deployment years (KW-test; $p = 0.16$, $\chi^2_{(2)} = 3.6$). Likewise, there were no statistically significant pairwise differences among the distributions for each year ($D_{(2)} < 0.15$, $p > 0.05$; Figure 47). However, due to the relative proximity of two reefs deployed in 2013 and 2014 respectively and the difficulty in discriminating the two via echograms, it is likely that some NASC values are inappropriately labeled. To account for this potential error, the 2013 and 2014 reefs were pooled together (Figure 48). The grouped mean NASC on the 2013/2014 reefs was 420 (*CV* = 3.2) and was not statistically higher than the mean NASC on 2003 reefs (MWW test; $p = 0.93$).

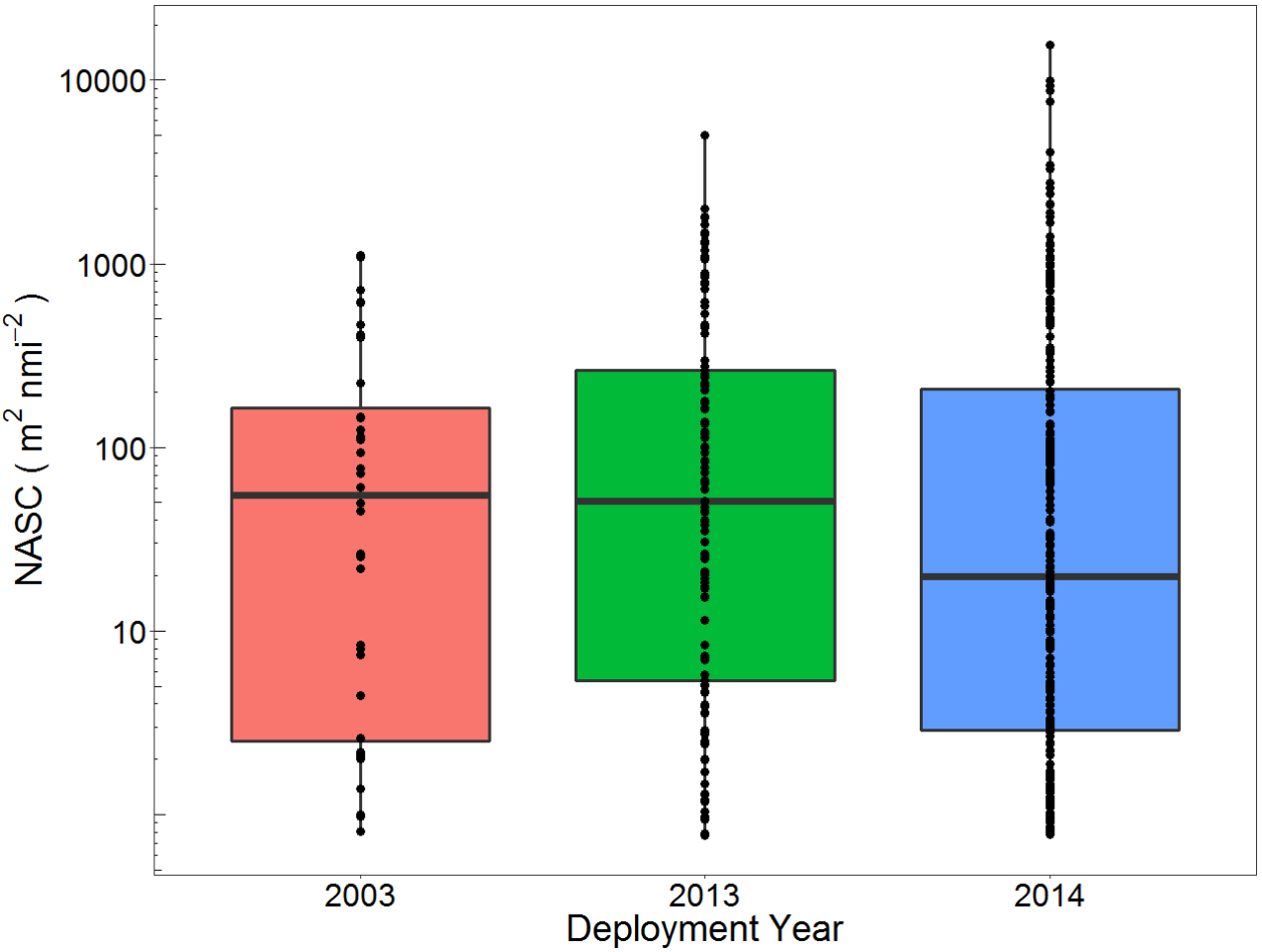

Figure 46. Observed NASC (m^2nmi^{-2}) on reefs deployed in 2003 (*N* = 40), 2013 (*N* = 113), and 2014 (*N* = 248). The solid line within each box represents the median. The extent of each vertical line represents the interquartile range. Each individual point represents a single NASC measurement.

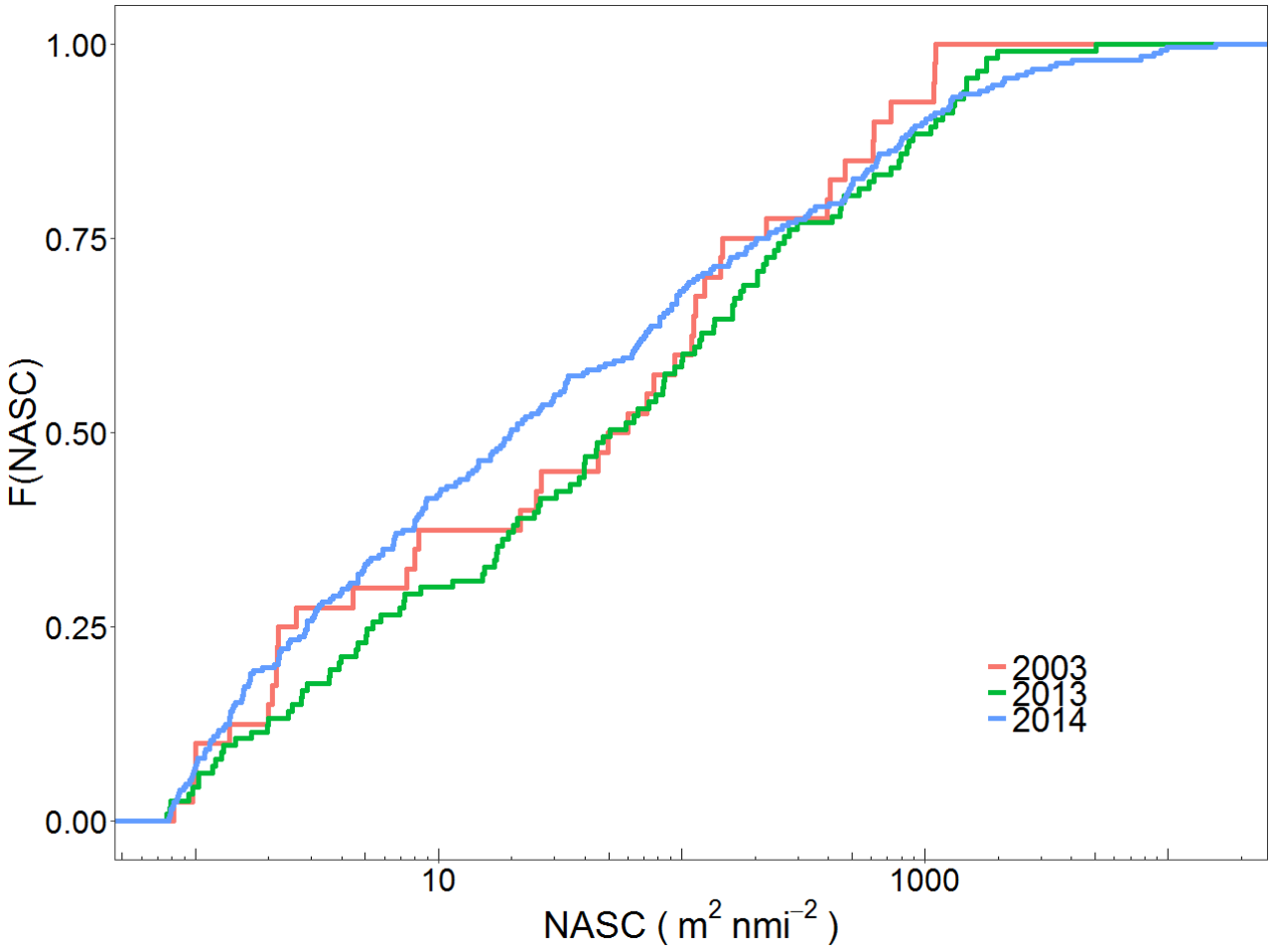

Figure 47. Empirical cumulative density function of NASC (m^2nmi^{-2}) among reefs deployed in 20013, 2013, and 2014 (red, green, and blue respectively).

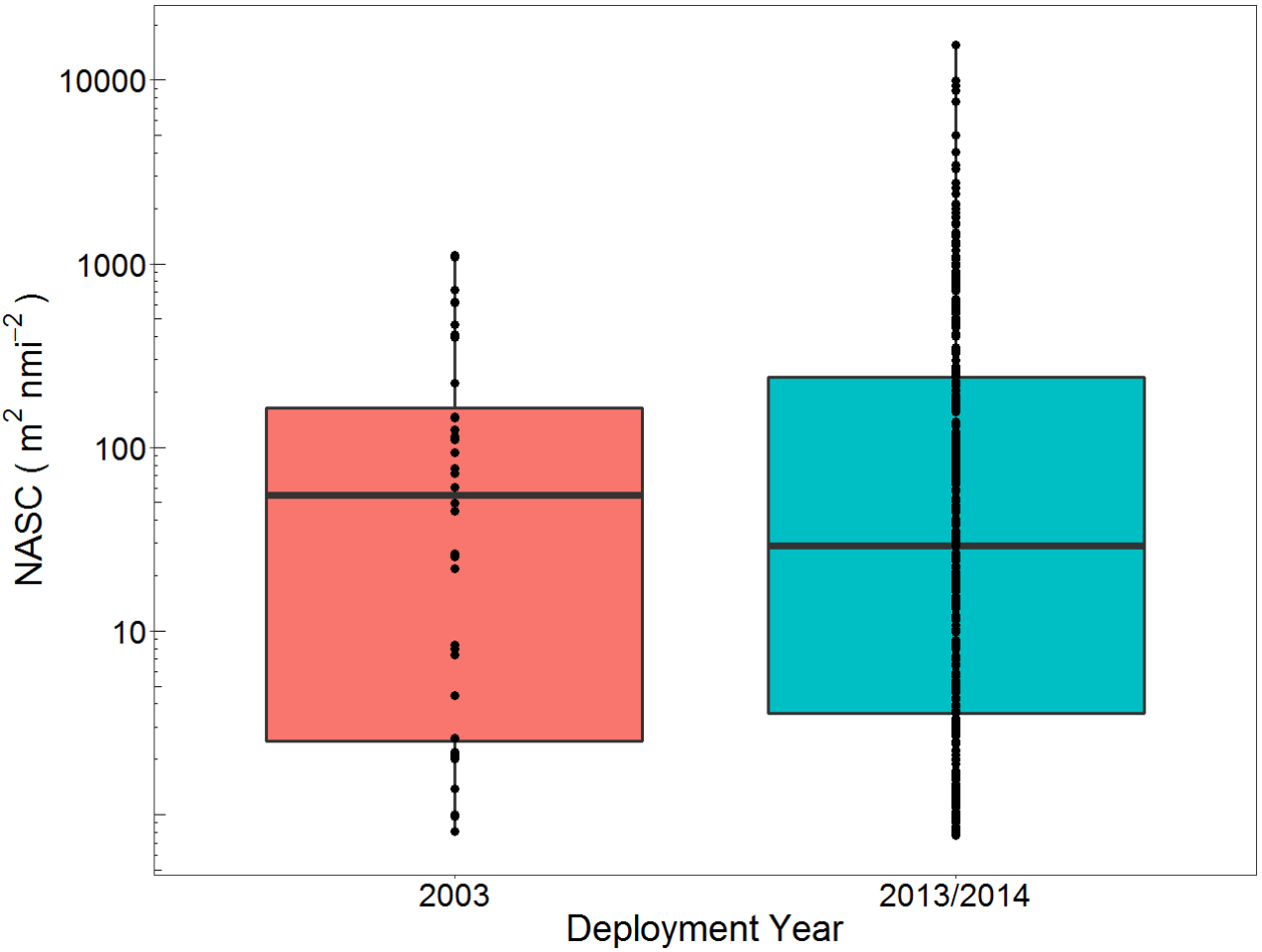

Figure 48. Observed NASC (m^2nmi^{-2}) on reefs deployed in 2003 (*N* = 40) and 2013/2014 (*N* = 361). The solid line within each box represents the median. The extent of each vertical line represents the interquartile range. Each individual point represents a single NASC measurement.

Rugosity and interstitial space

The effect of rugosity (change in height of the reef relative to the horizontal dimension– which is a function of size of rock material) on fish density was examined for rock reefs. Using the Video Belt Transects, each rock reef was designated qualitatively as either low, medium or high rugosity (Figure 49). There was a trend in increasing cunner and blackfish density with increasing rugosity (Figure 49). However, only the cunner density were statistically higher with higher rugosity. The largest density of blackfish observed on the rock reefs was where the rugoisty was high. Similarly we were interested in what impact interstitial space would have on fish density. There were statistically greater densities of cunner as the interstitial space increased on the reefs and the greatest blackfish densities were on the reefs with high interstitial space however, this was not significant (Figure 50). Species diversity was highest with moderate and high interstitial space as well (Table 10).

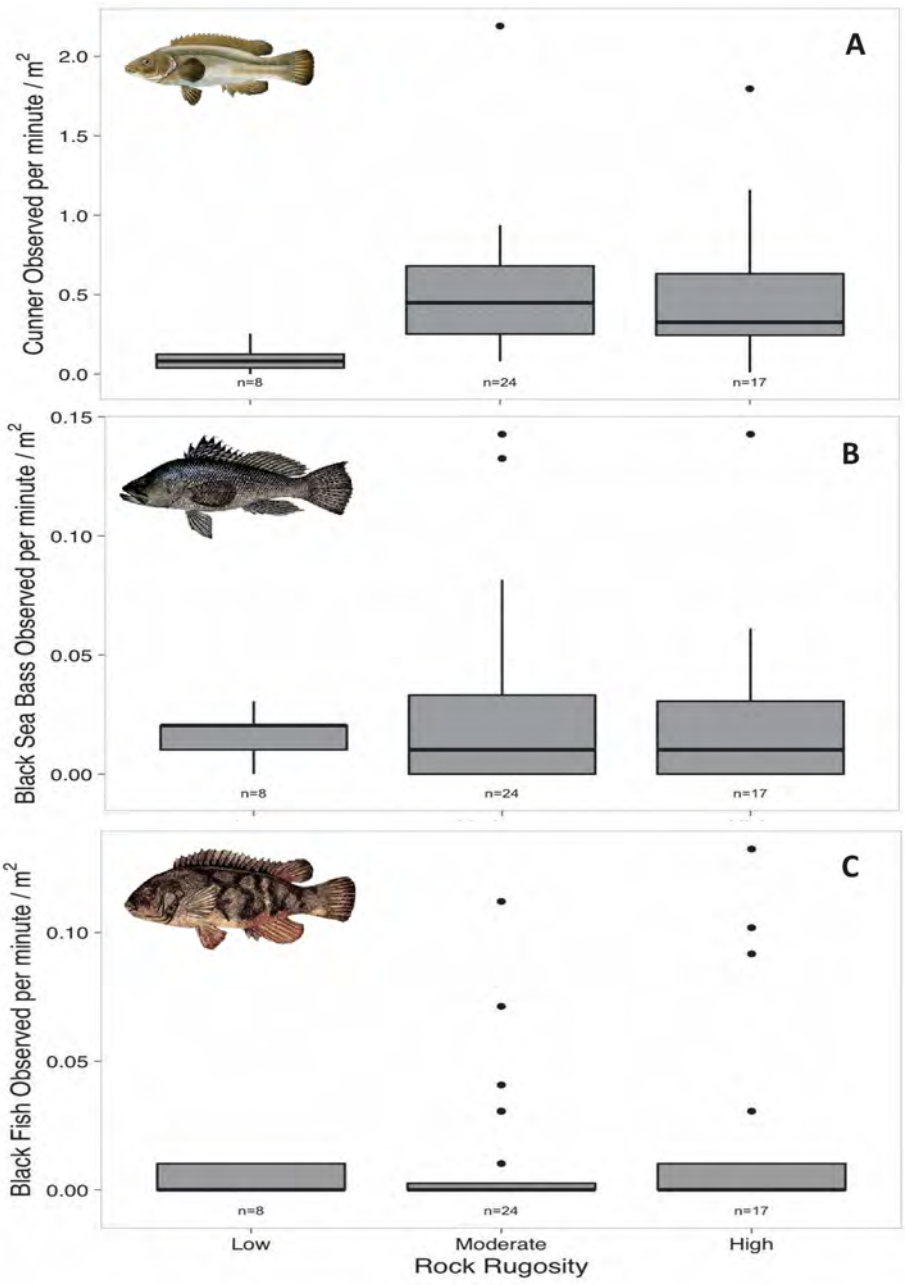

Figure 49. Fish density as a function of rock rugosity for (A) cunner, (B) black sea bass, and (C) blackfish.

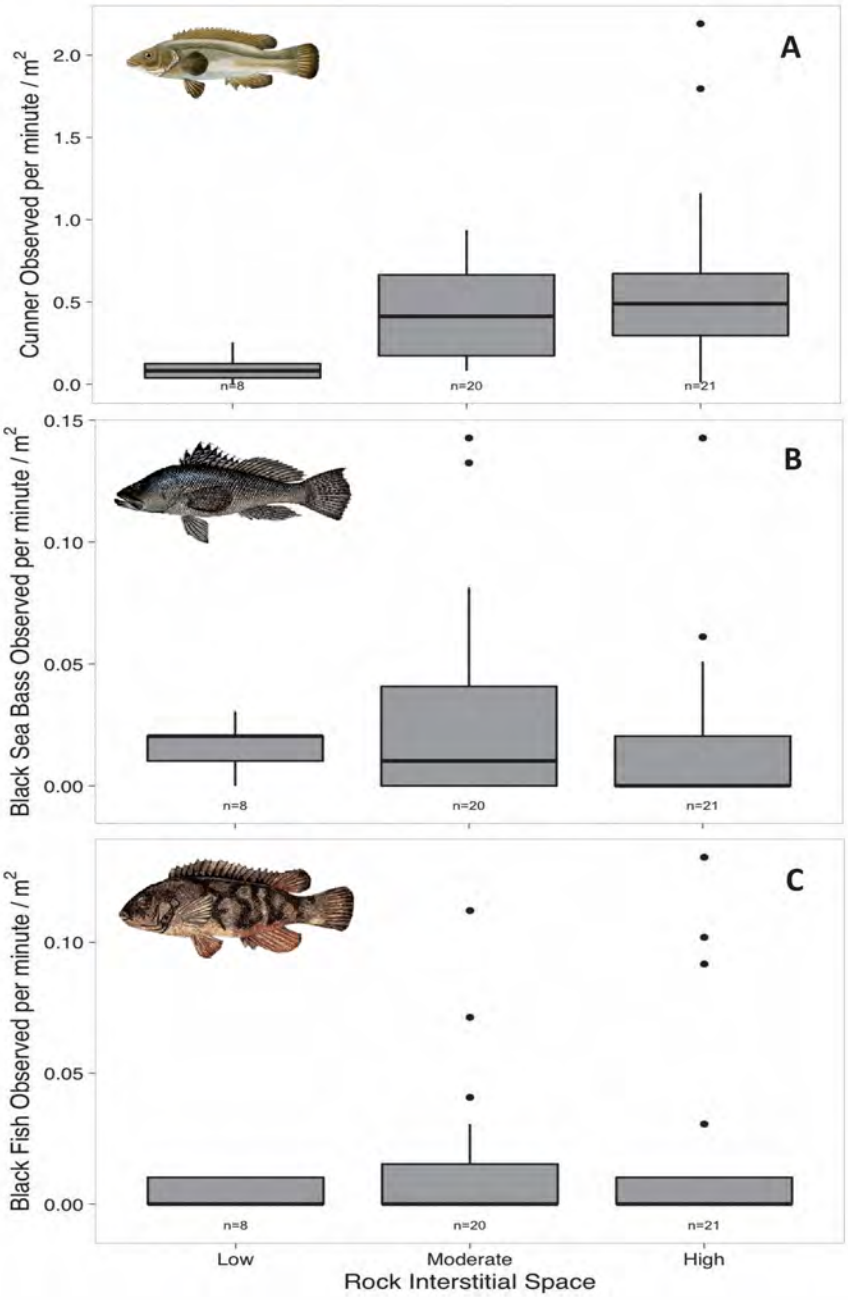

Figure 50. Fish density as a function of interstitial space for (A) cunner, (B) black sea bass, and (C) blackfish.

Table 10. Species list observed by divers as a function of interstitial space compiled from diver surveys.

	Rock Interstitial Space Amount		
Species	**Low**	**Moderate**	**High**
Cunner (*Tautogolabrus adspersus*)	X	X	X
Blackfish (*Tautoga onitis)*	X	X	X
Black Sea Bass (*Centropristis striata*)	X	X	X
Northern Sea Robin (*Prionotus carolinus*)		X	

Goby (*Gobiosoma spp.*)			X
Clearnose Skate (*Raja eglanteria*)	X		X
Gray Triggerfish (*Balistes capriscus*)		X	
Summer Flounder (*Paraclichthys dentatus*)		X	X
Butterfly Fish (*Chaetedon spp.*)		X	
Rock Gunnel (*Pholis gunnellus*)	X	X	
American Lobster (*Homarus americanus*)		X	X
Spider Crab (*Libinia* spp.)			X
Rock Crab (*Cancer irroratus)*		X	X
Common Sea Star (*Asterias rubens*)	X	X	X
Blue Mussels (*Mytlius edulis*)	X	X	X
Barnacles (Balanidae *spp.*)	X	X	X
Northern Star Coral (*Astrangia poculata*)	X	X	X
Purple-spined Sea Urchins (*Arbacia punctulata*)			X
Orange tunicate spp.	X	X	X
Yellow sponge spp.	X		X
Branching Brown Macroalgae spp.	X	X	X
Branching Red Macroalgae spp.		X	
Hydroid/Bryozoan spp.			X
Skate/Dogfish Egg Case			X
Brittle Star (*Ophiopholis spp.*)		X	X
Waved Whelk (*Buccinum undatum*)			X
Scale Worm (Polynoide spp.)		X	X

Conclusions

Multiple methods are needed for assessing the benthic community and fish associated with artificial reefs in New York coastal waters. Diver and camera surveys are needed to collect species-specific information, but active acoustic monitoring allows for quantitative comparisons to be more easily made due to the increased sampling capability. Passive acoustic monitoring provides a low-cost, high-temporal resolution sampling capability and also provided the only measurements of odontocete and human usage of the reef over day and night periods. Long-term monitoring of various reef sites would be useful as well as focused short-term studies investigating mesoscale or seasonal processes such as effect of fishing season on recreational or commercial species abundance at the reefs. Our recommendations and key findings are located at the beginning of the report.

Appendix A. Reef Sampling Overview

Table A1. Overview of sampled reef sites. Survey names started with “H” and “A” indicate Hempstead and Atlantic Beach Reefs respectively. “UID” stands for “unidentified” and represents any information that was not available and could not be derived from the study’s observations. Single asterisks indicate a sample site that was not a listed reef. Double asterisks indicate a sampling site that was part of the large Atlantic Beach rock pile.

Survey Name	Date(s)	Material	Deployment Year	Volume(m^3)
H1	August-2014,April-2015,May-2015,June-2015	Rock	2013	3400
H2	August-2014, April-2015, May-2015,June-2015	Rock	2014	3500
H4	August-2014, May-2015	Vessel	2000	144
H5	June-2015	Concrete	1998	7536
H6	Jun-2015	Vessel	2000	315
H8*	July-2015	Rubble/Debris	UID	6600
H9	July-2015	Concrete	1998	4239
H10	July-2015	APC(?)	1996	1.5
H11	August-2015	Rock	2013	4400
H12	August-2015	Vessel	UID	96
H13	August-2015	Rock	2014	3500
H14	September-2015	Vessel	UID	315
A2	August-2014,May-2015,June-2015	Vessel	UID	483
A3**	August-2014,May-2015	Rock	1998-2001	742500(west)
A4	August-2014,April-2015,July-2015	Rock	2003	3200
A6**	August-2014,April-2015,August-2015	Rock	1998-2001	742500(center)
A7	June-2015	Rock	2003	1100
A8	July-2015	Vessel	UID	322.5
A9	July-2015	Rock	2003	2100
A11	August-2015	Rock	2003	4300
A12	August-2015	Vessel	Vessel	300
A13**	September-2015	Rock	1998-2001	742500(east)
A14	May-2015,Sep-2015	Rock	2003	6400

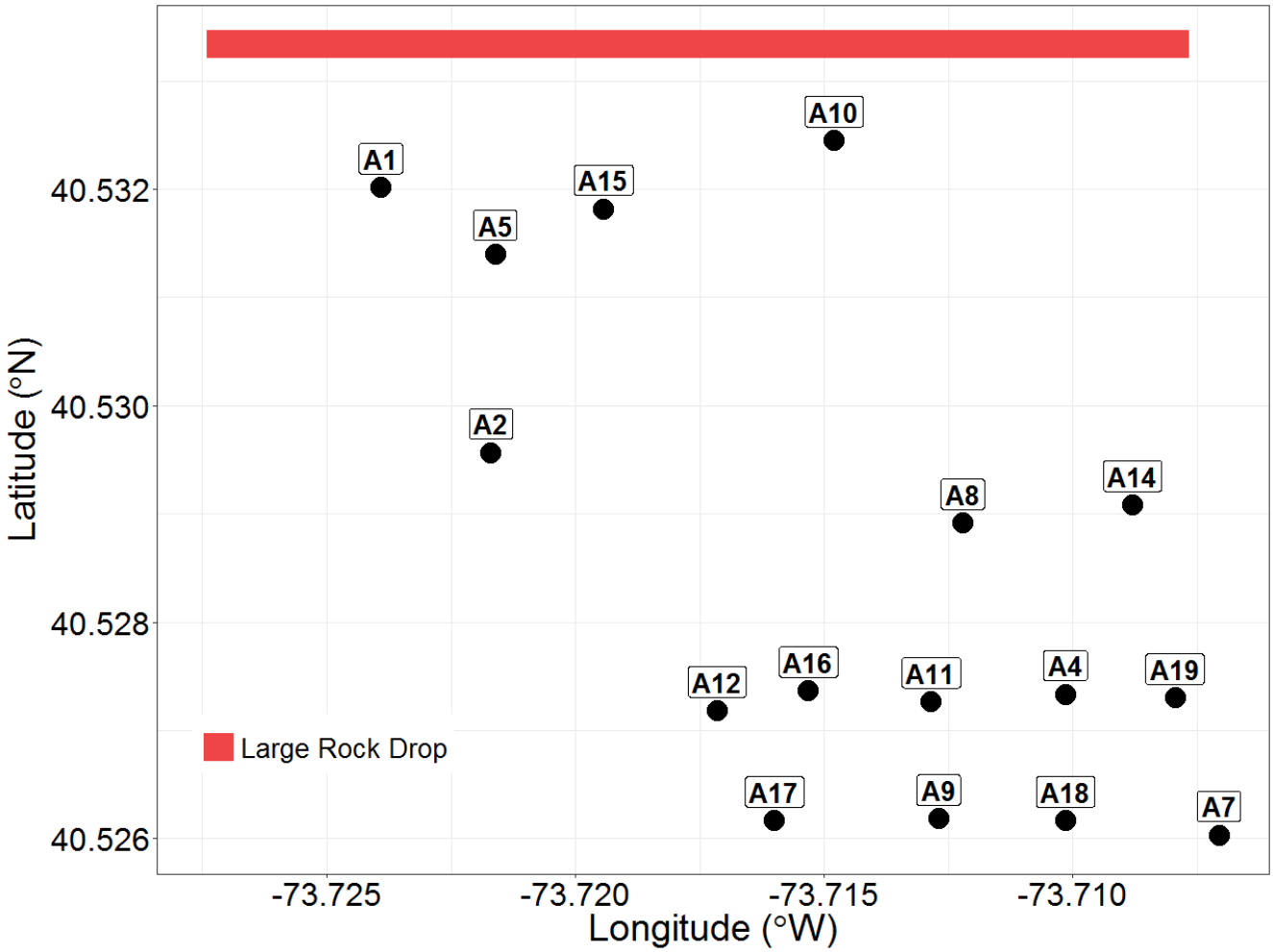

Figure A1. Overview map of all reef stations at the Atlantic Beach Reef.

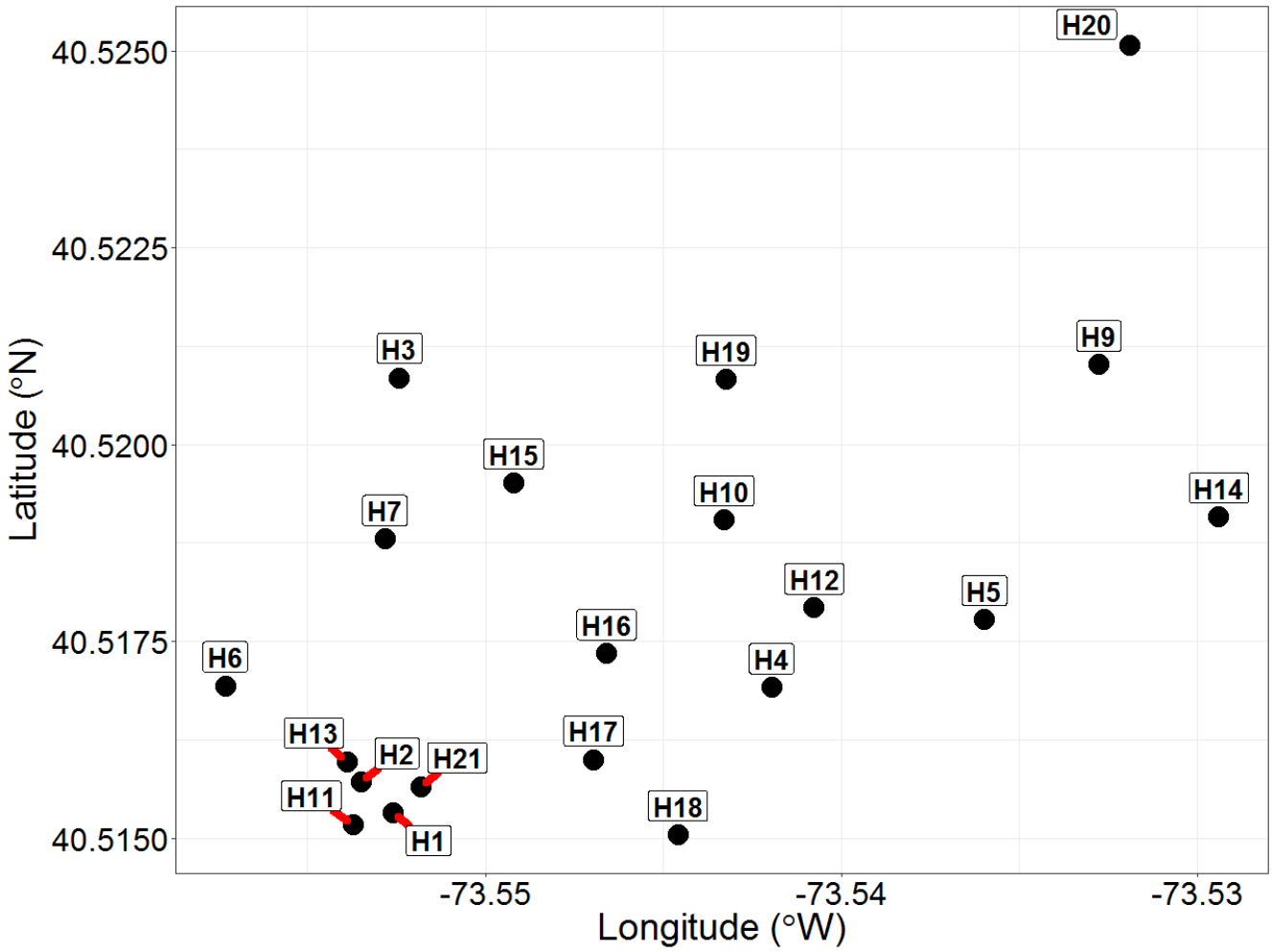

Figure A2. Overview map of all reef stations at the Hempstead Reef.

Table A4. Master list of all Atlantic Beach and Hempstead reef sites as provided to the project by the DEC.

DEC Reference Name	Survey Name	Lat (Deg.)	Lon (Deg.)	Year Drop	Material	Volume (m^3)
H1	H6	40.51693333	-73.55731667	1998	Trawler (metal?)	180
H2	H3	40.52085	-73.55241667	UID	"Rubble"	2.25
H3	H7	40.5188	-73.55283333	UID	"Rubble"	2.25
H4	H15	40.51951667	-73.54921667	UID	"Rubble"	2.25
H5	H16	40.51735	-73.5466	UID	"Rubble"	2.25
H6	H17	40.516	-73.54696667	UID	"Rubble"	2.25
H7	H18	40.51505	-73.5446	UID	"Rubble"	2.25
H8	H19	40.52083333	-73.54325	1996	APC Group (2?)	UID
H9	H10	40.51905	-73.5433	1996	APC Group (2?)	1.5
H10	H12	40.51793333	-73.54076667	UID	"Vessel"	96
H11	H4	40.51691667	-73.54196667	2000	2x Steel Barges (end-to-end)	144
H12	H5	40.51778333	-73.53598333	1998	Concrete (Bridge Slab)	7536
H13	H9	40.52101667	-73.53276667	1998	Concrete (Bridge Slab)	4239
H14	H20	40.52506667	-73.5319	1989	Wood (Drydock)	UID
H15	H14	40.51908333	-73.5294	UID	Steel Barge	315
H16	H11	40.515175	-73.553725	2013	Redrock	4400
H17	H1	40.515325	-73.5526	2013	Greyrock	3400
H18	H21	40.51565833	-73.55181667	2013	Greyrock	3700
H19	H13	40.515975	-73.5539	2014	80% Red Rock, 20% Red Gravel Sand	3500
H20	H2	40.51571667	-73.55349167	2014	Redrock	3500
A1	A1	40.53201667	-73.72391667	UID	Rock	UID
A2	A5	40.5314	-73.72161667	UID	Barge	144
A3	A2	40.52956667	-73.7217	UID	Barge	483
A4	A15	40.53181667	-73.71943333	UID	Barge	345
A5	A10	40.53245	-73.7148	UID	Barge	273
A6	A12	40.52718333	-73.71715	UID	Barge	30
A7	A16	40.52736667	-73.71531667	2003	Rock	1100
A8	A17	40.52616667	-73.716	2003	Rock	4300
A9	A8	40.52891667	-73.71221667	UID	Barge	322.5
A10	A11	40.52726667	-73.71285	2003	Rock	4300
A11	A9	40.52618333	-73.7127	2003	Rock	2100
A12	A4	40.52733333	-73.71015	2003	Rock	3200
A13	A18	40.52616667	-73.71015	2003	Rock	3200
A14	A14	40.52908333	-73.7088	2003	Rock	6400
A15	A19	40.5273	-73.70795	2003	Rock	2100
A16	A7	40.52603333	-73.70706667	2003	Rock	1100
ABROCK	A6*	40.53333333	-73.70765	1998-2001	Rock	1800 yd long
ABROCK	A3*	40.53333333	-73.717525	1998-2001	Rock	1800 yd long
ABROCK	A13*	40.53333333	-73.7274	1998-2001	Rock	1800 yd long

Appendix B. Sidescan images of reef sites at the Atlantic Beach and Hempstead Reefs. Note that the drydock (**H20**) is not present since it was not sampled during acoustic surveys. Likewise, a rubble reef (**H7**) is also missing due to no valid identification in any of the sidescan surveys.

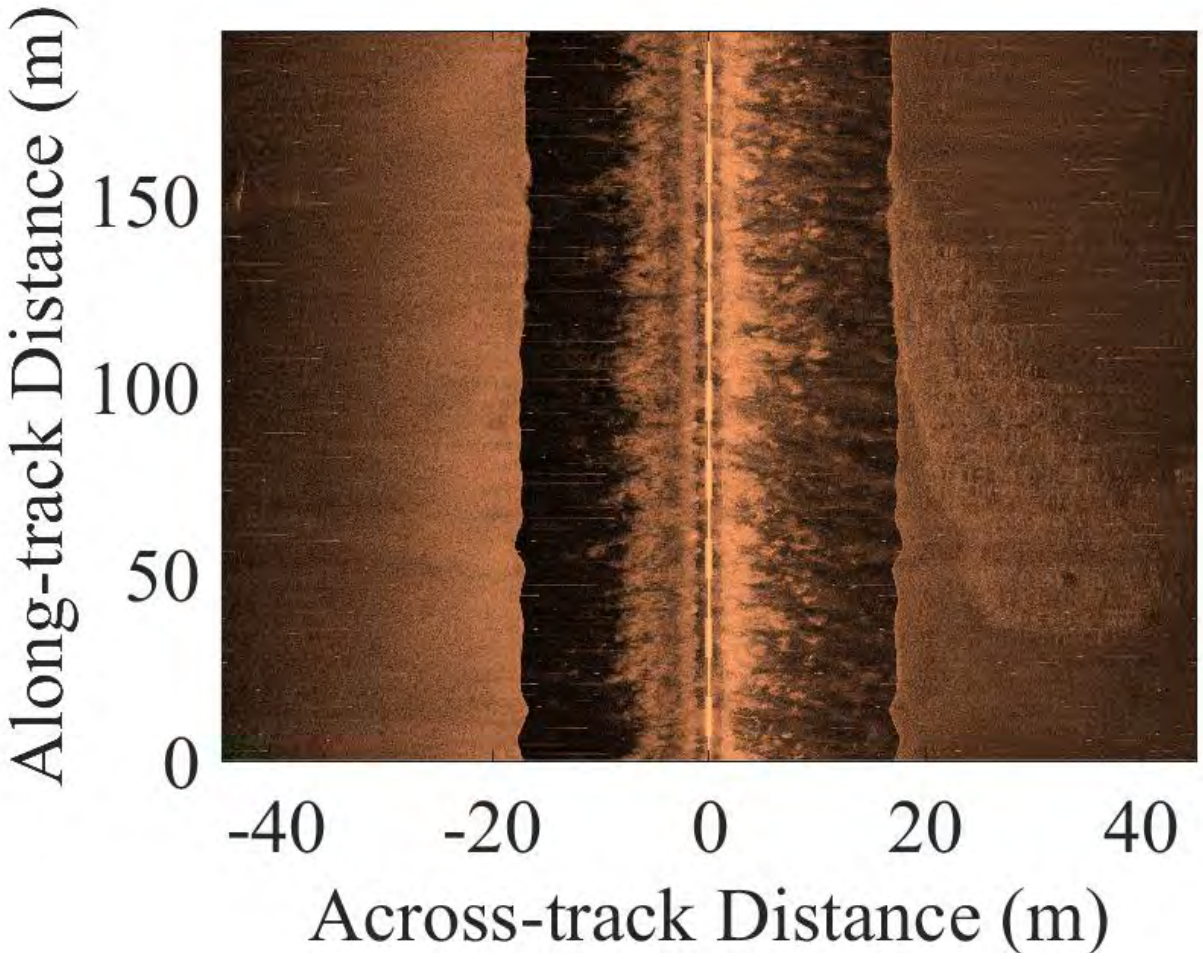

Figure B1. Rock reef (**A1**) at the Atlantic Beach Reef deployed at an unknown date.

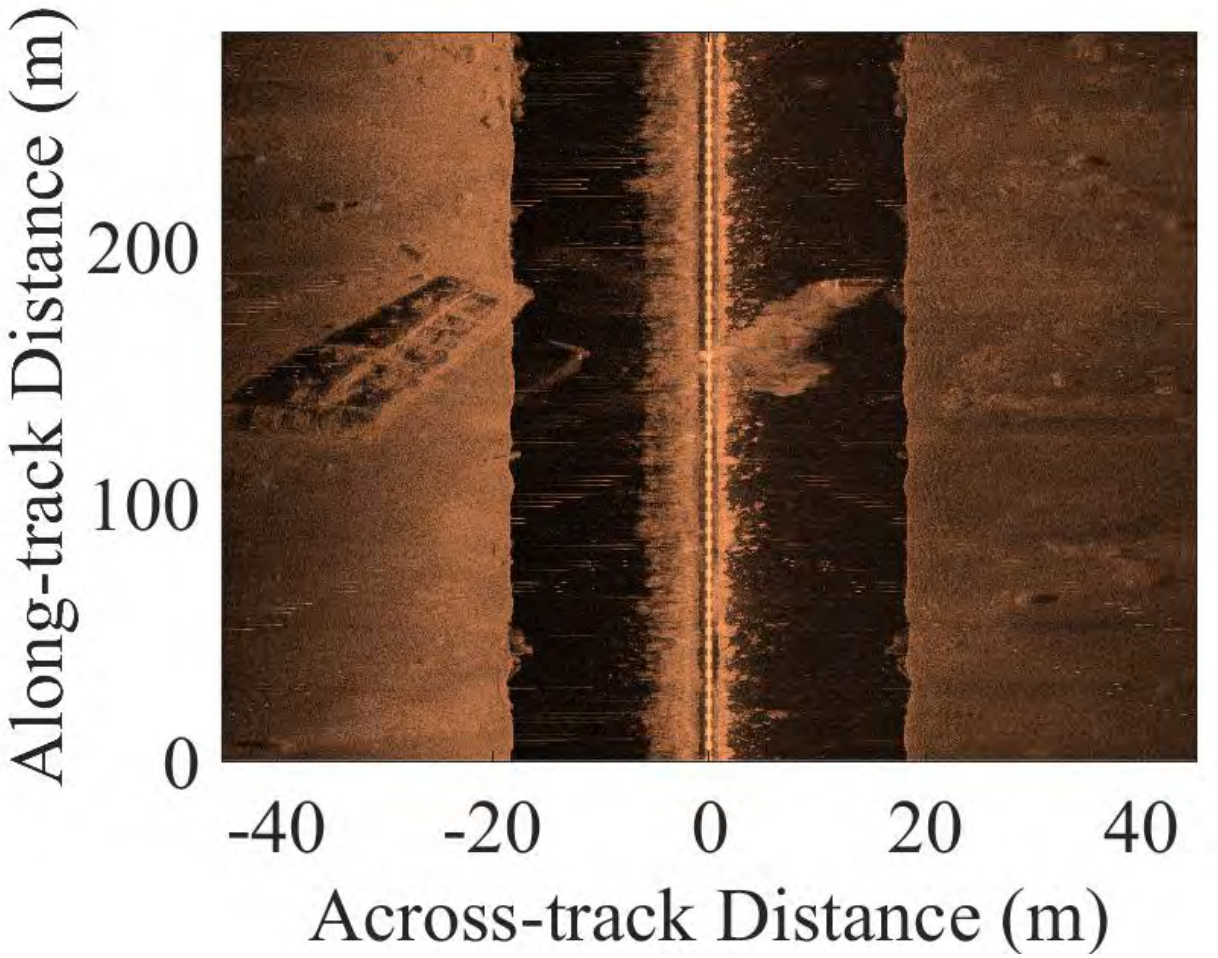

Figure B2. A 150 ft. barge (**A2**) at the Atlantic Beach Reef which was deployed at an unknown date.

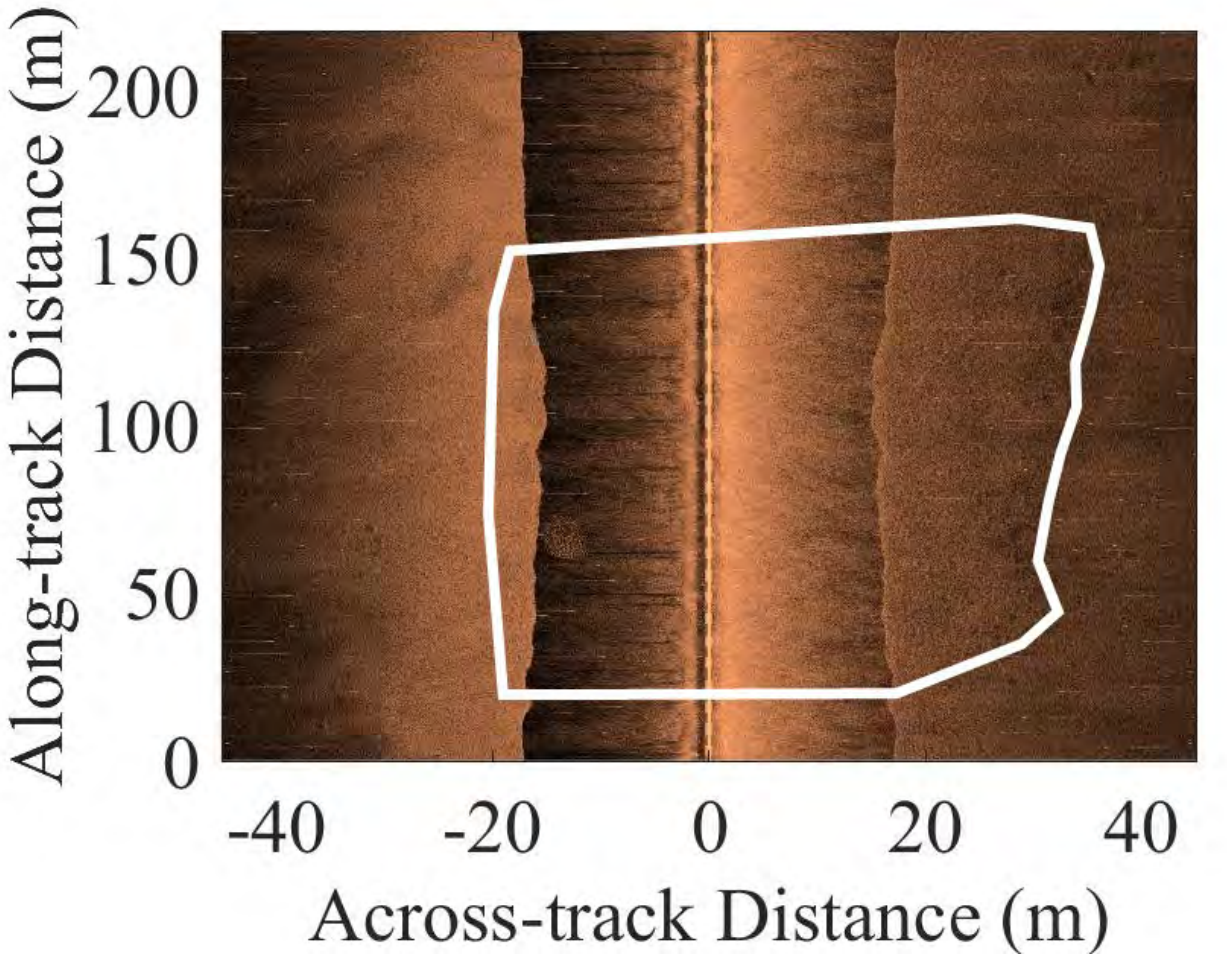

Figure B3. A rock reef (**A4**) deployed at the Atlantic Beach Reef which was deployed in 2003. The white box indicates the approximate area of the reef which was passed over directly by the boat in most surveys.

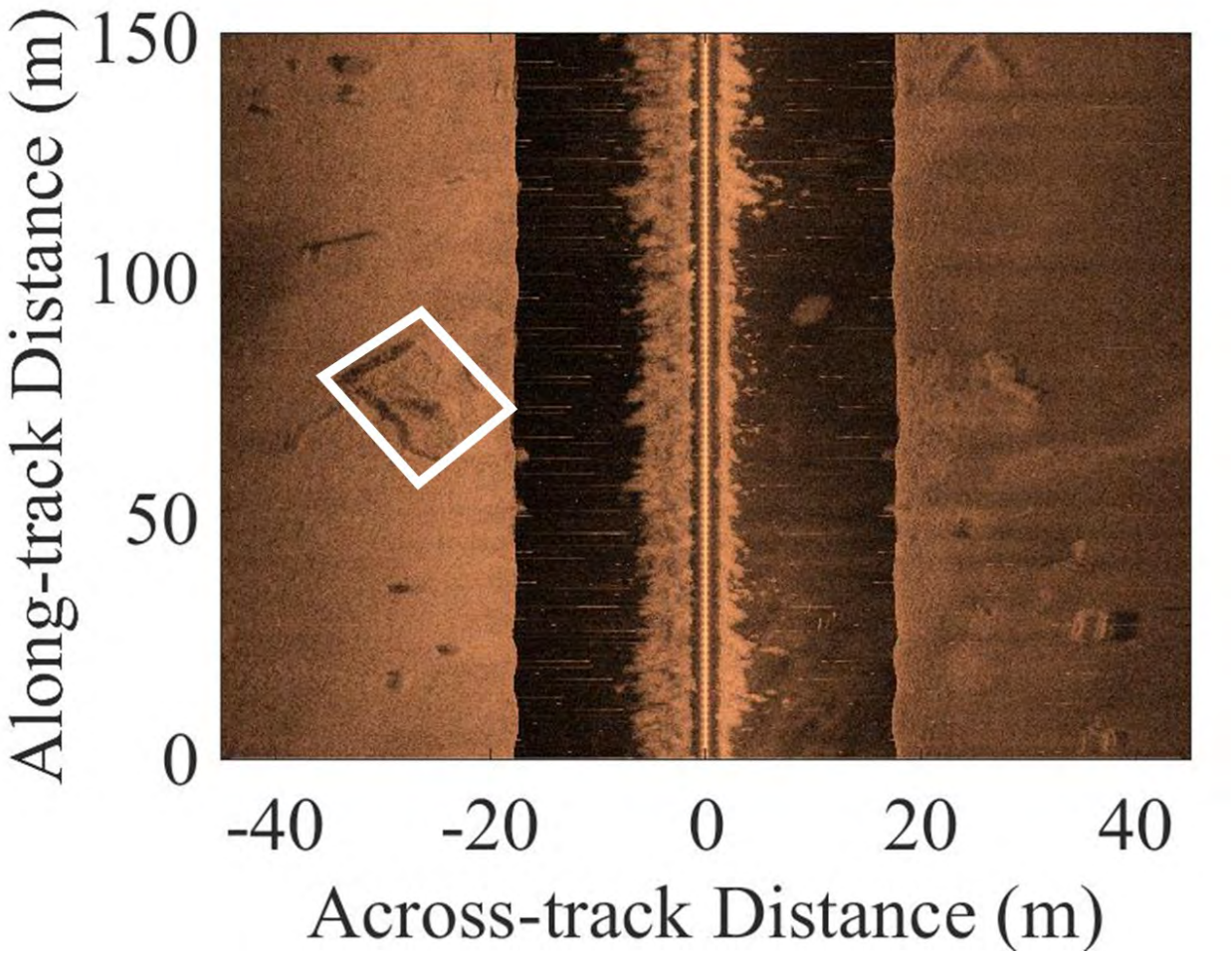

Figure B4. An 80 ft. barge (**A5**) at the Atlantic Beach Reef which was deployed at an unknown date. The white box indicates the outline of the barge.

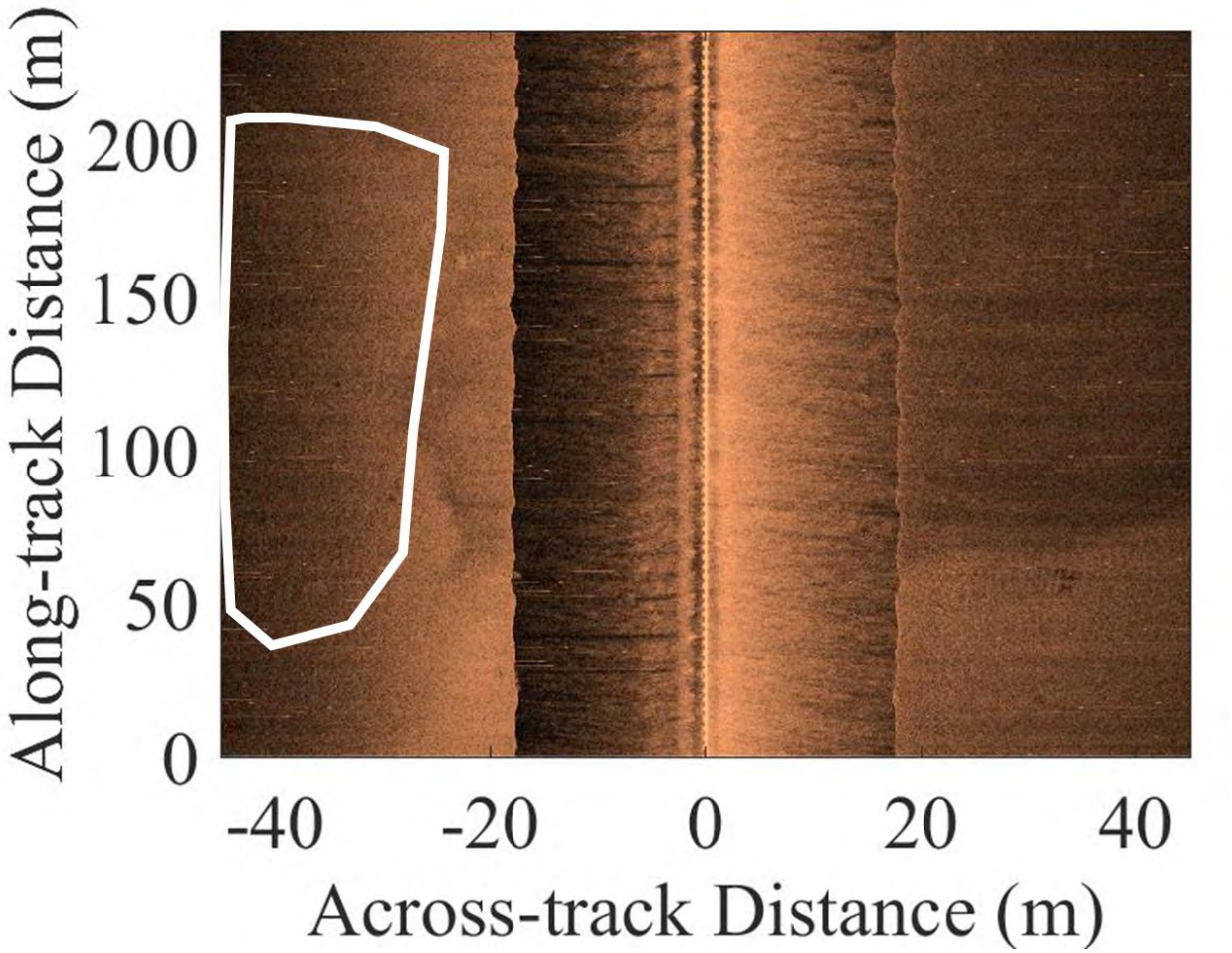

Figure B5. A rock reef (**A7**) located at the Atlantic Beach Reef which was deployed in 2003.

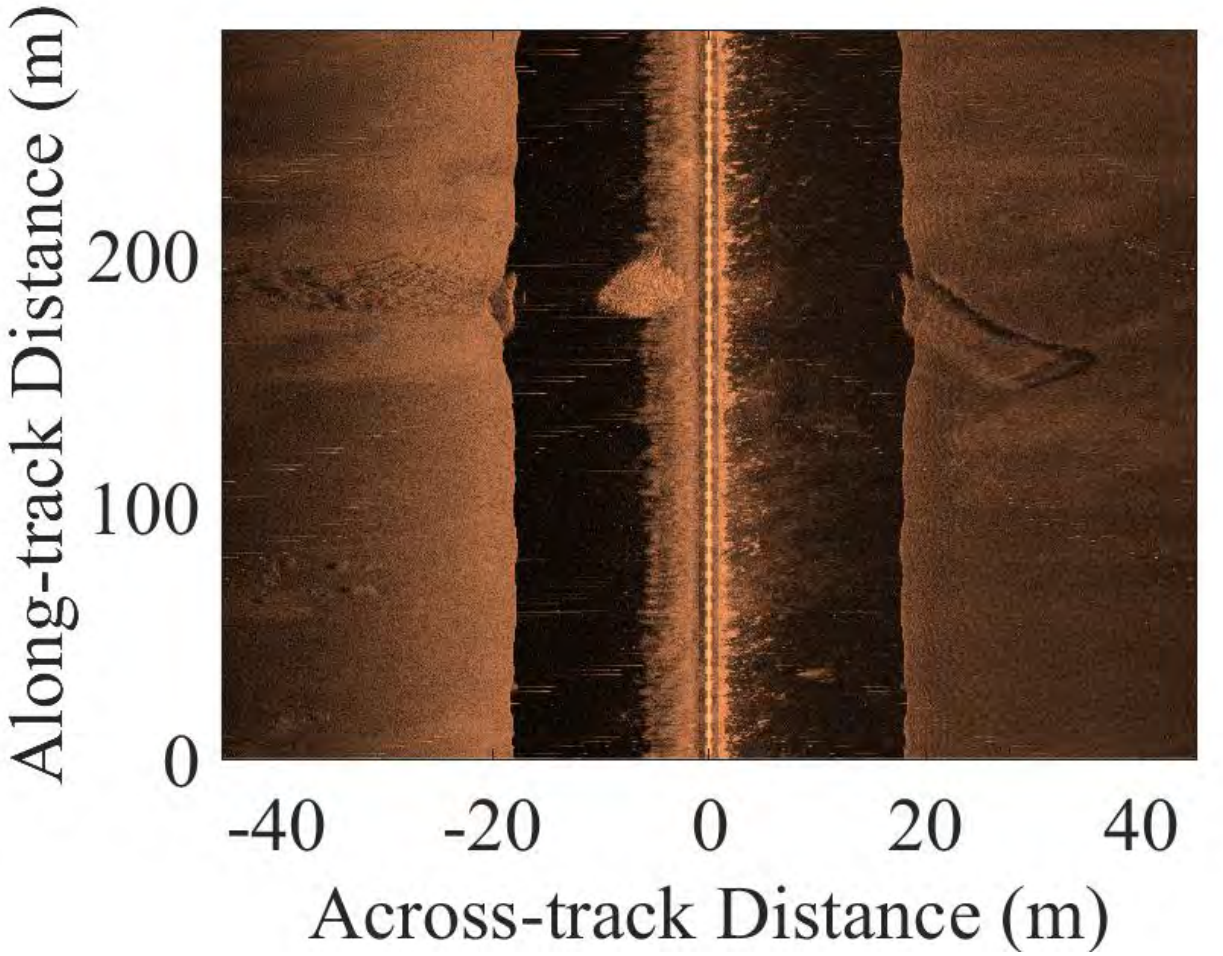

Figure B6. A 140 ft. barge (**A8**) at the Atlantic Beach Reef which was deployed at an unknown date.

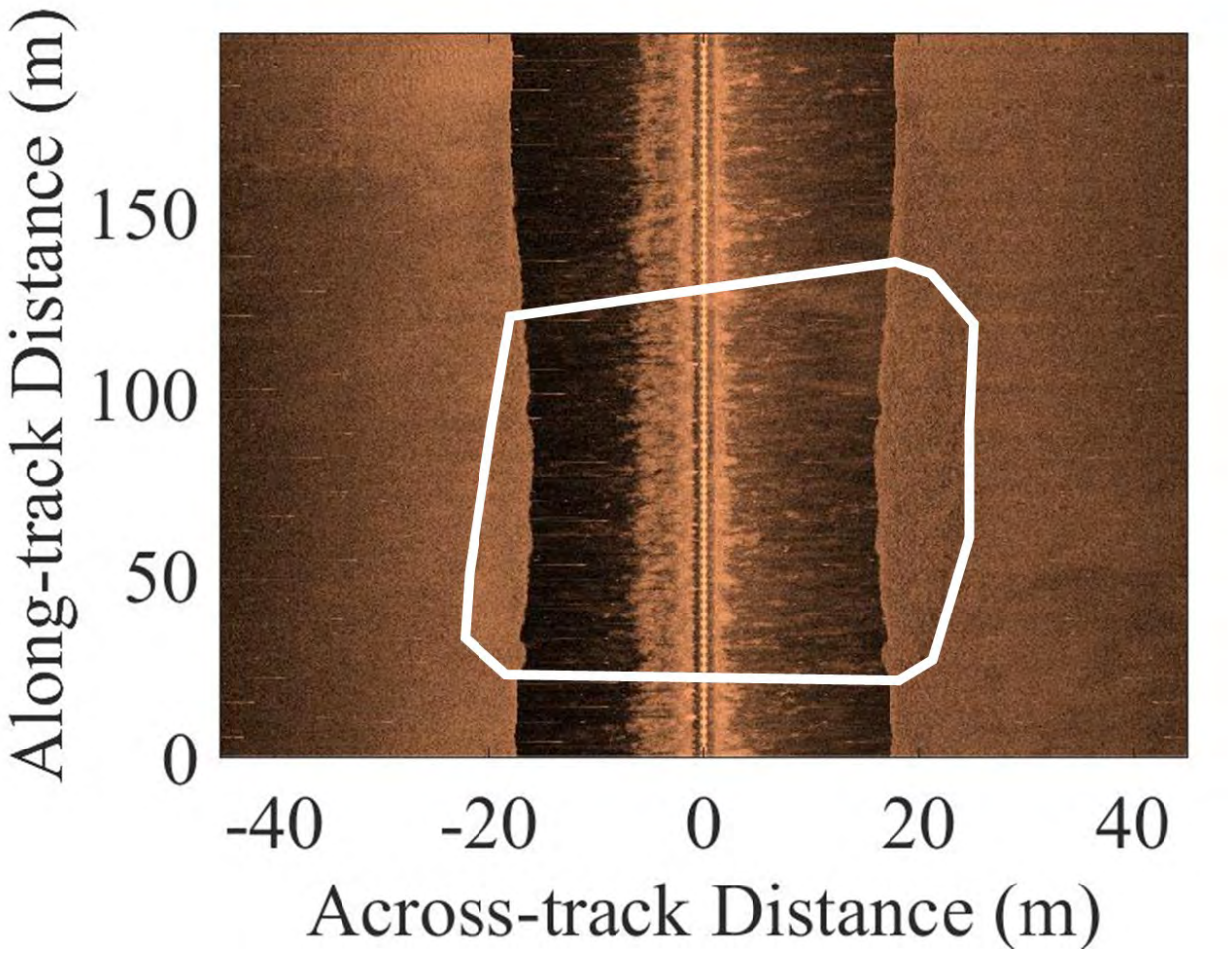

Figure B7. A rock reef (**A9**) at the Atlantic Beach Reef which was deployed in 2003.

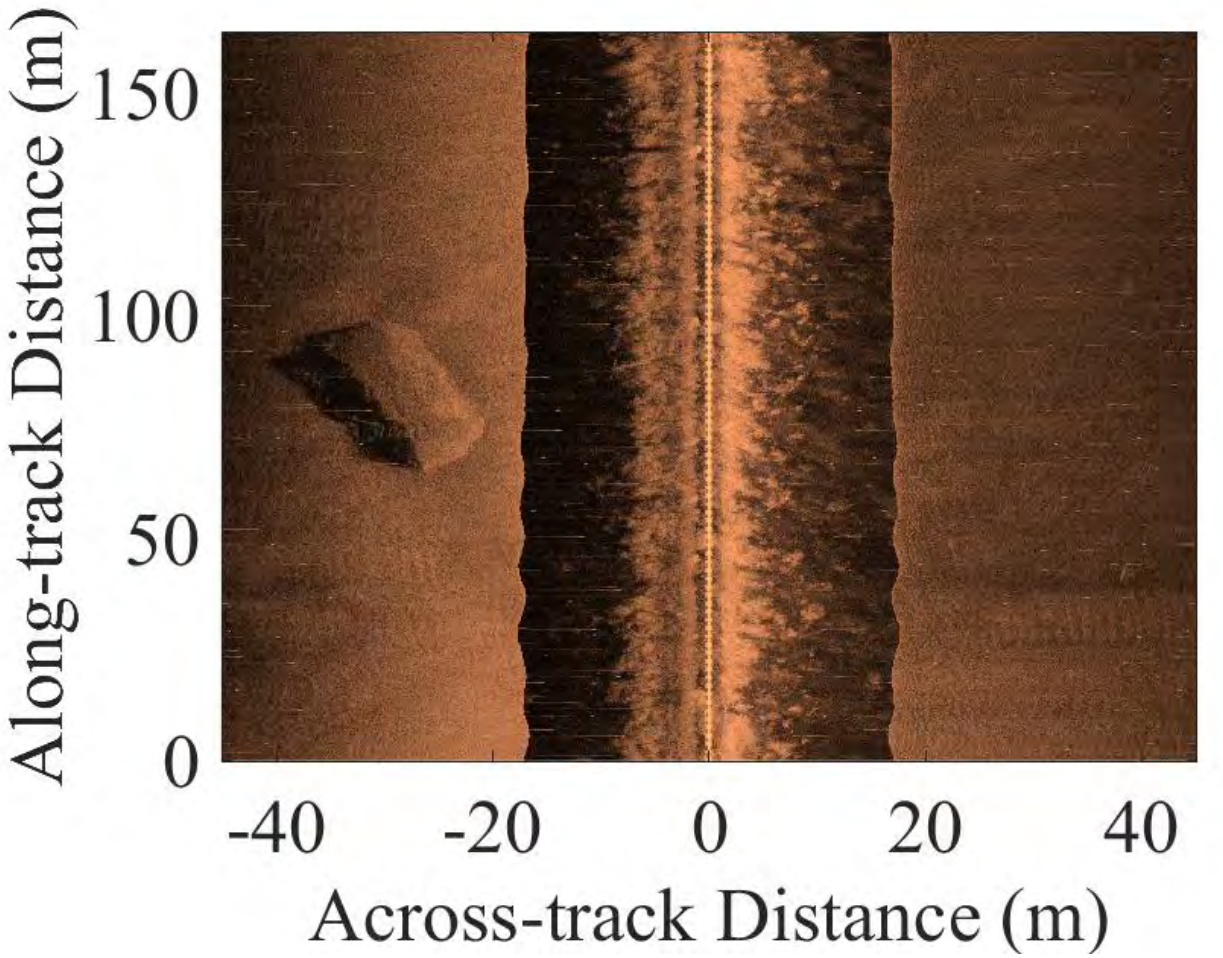

Figure B8. An 85 ft. barge (**A10**) at the Atlantic Beach Reef which was deployed at an unknown date.

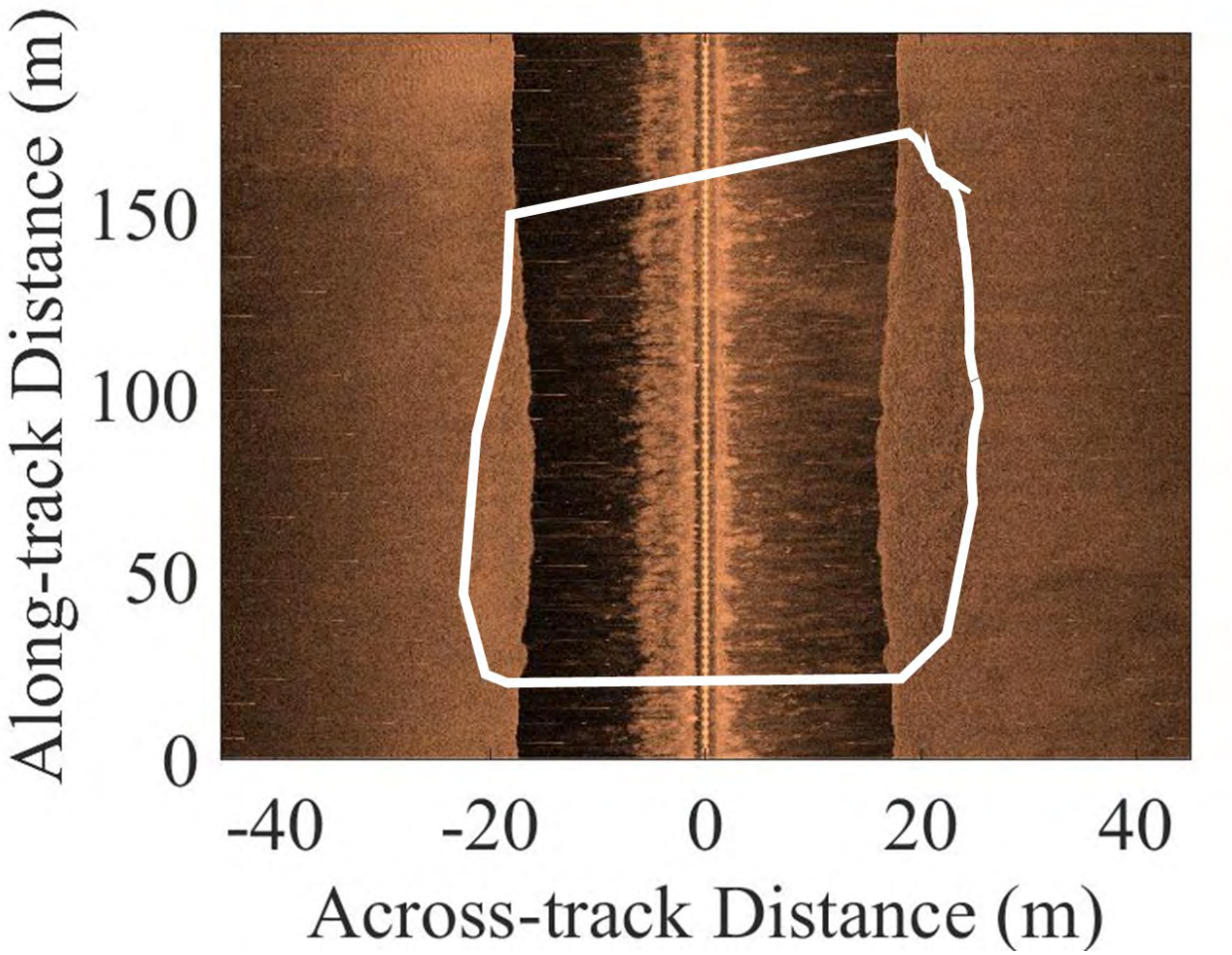

Figure B9. A rock reef (**A11**) at the Atlantic Beach Reef which was deployed in 2003.

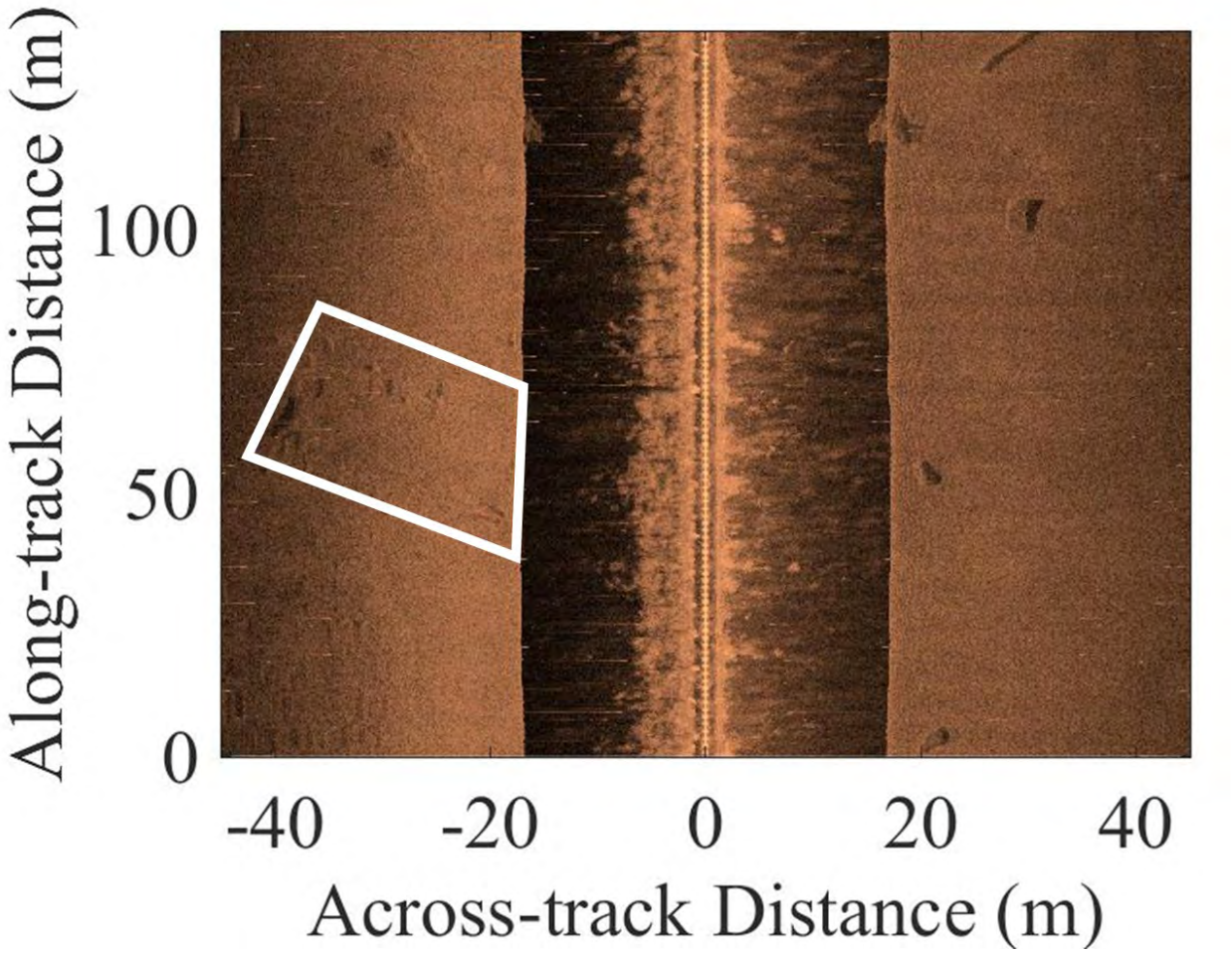

Figure B10. A 100 ft. barge (**A12**) at the Atlantic Beach Reef which was deployed at an unknown date. There is some uncertainty as to the identification of this reef; however, it is at the reported deployment coordinates and was mostly buried during the diver survey.

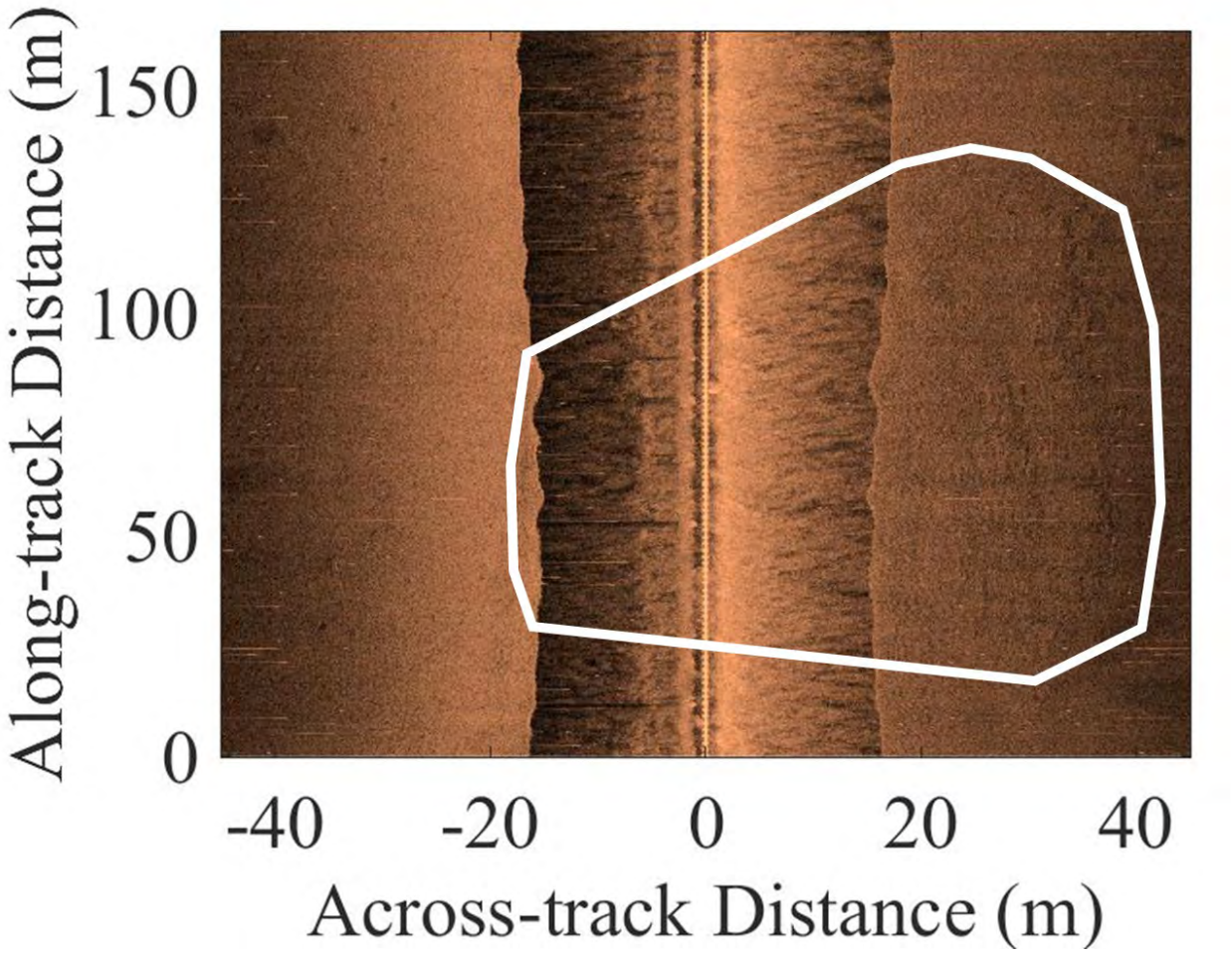

Figure B11. A rock reef (**A14**) at the Atlantic Beach Reef which was deployed in 2003.

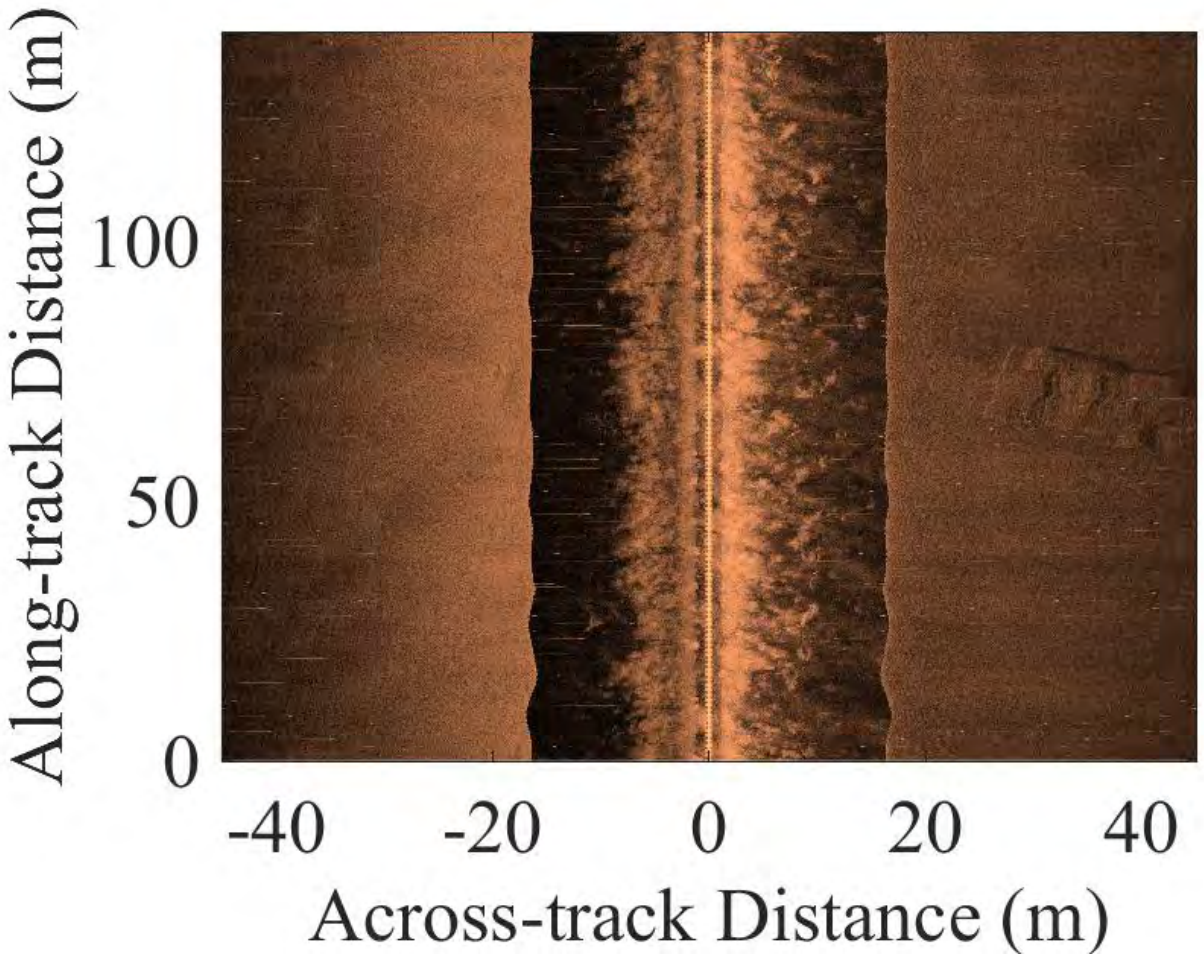

Figure B12. The edge of a 150 ft. barge (**A15**) at the Atlantic Beach Reef which was deployed at an unknown date.

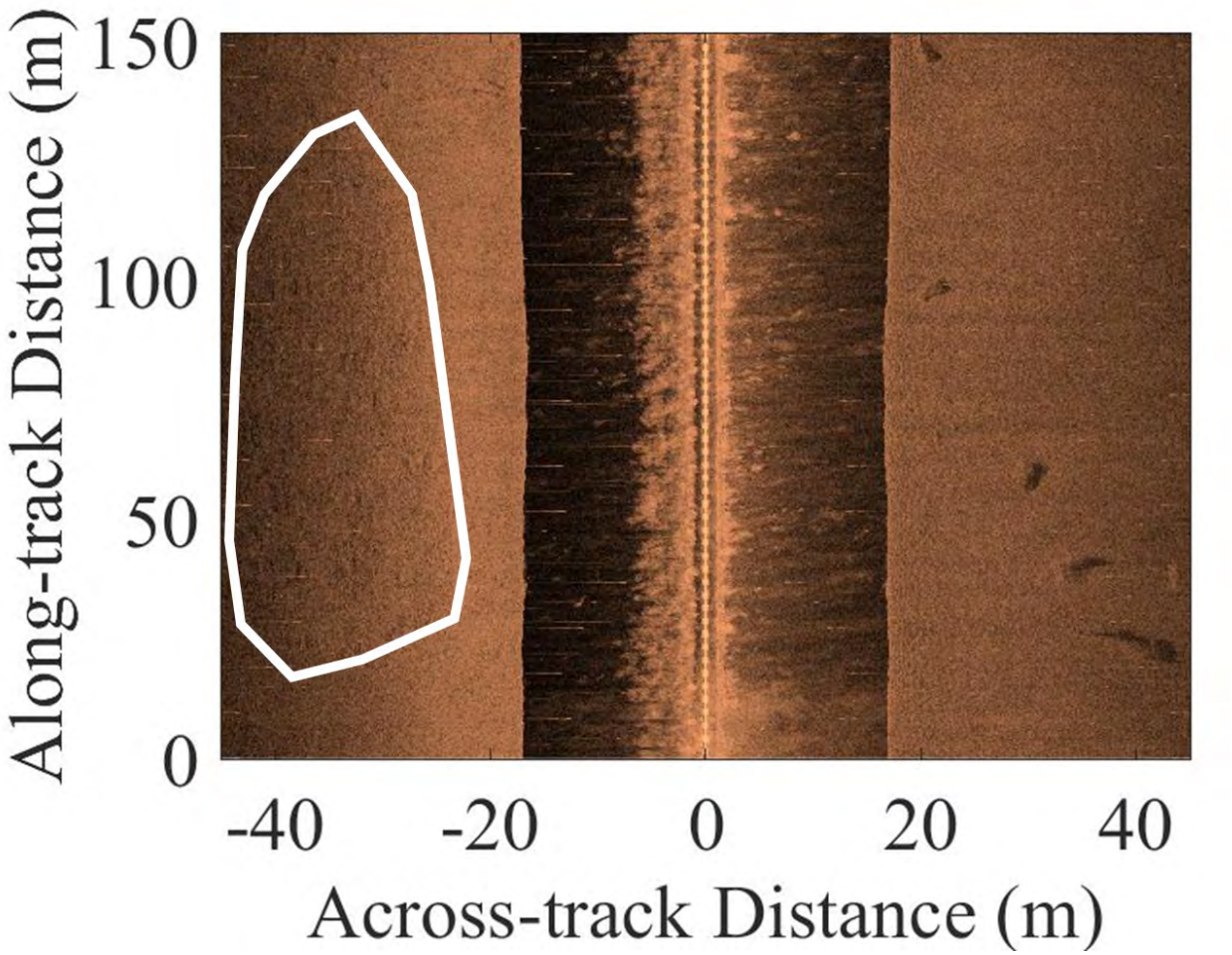

Figure B13. A rock reef (**A16**) at the Atlantic Beach Reef which was deployed in 2003.

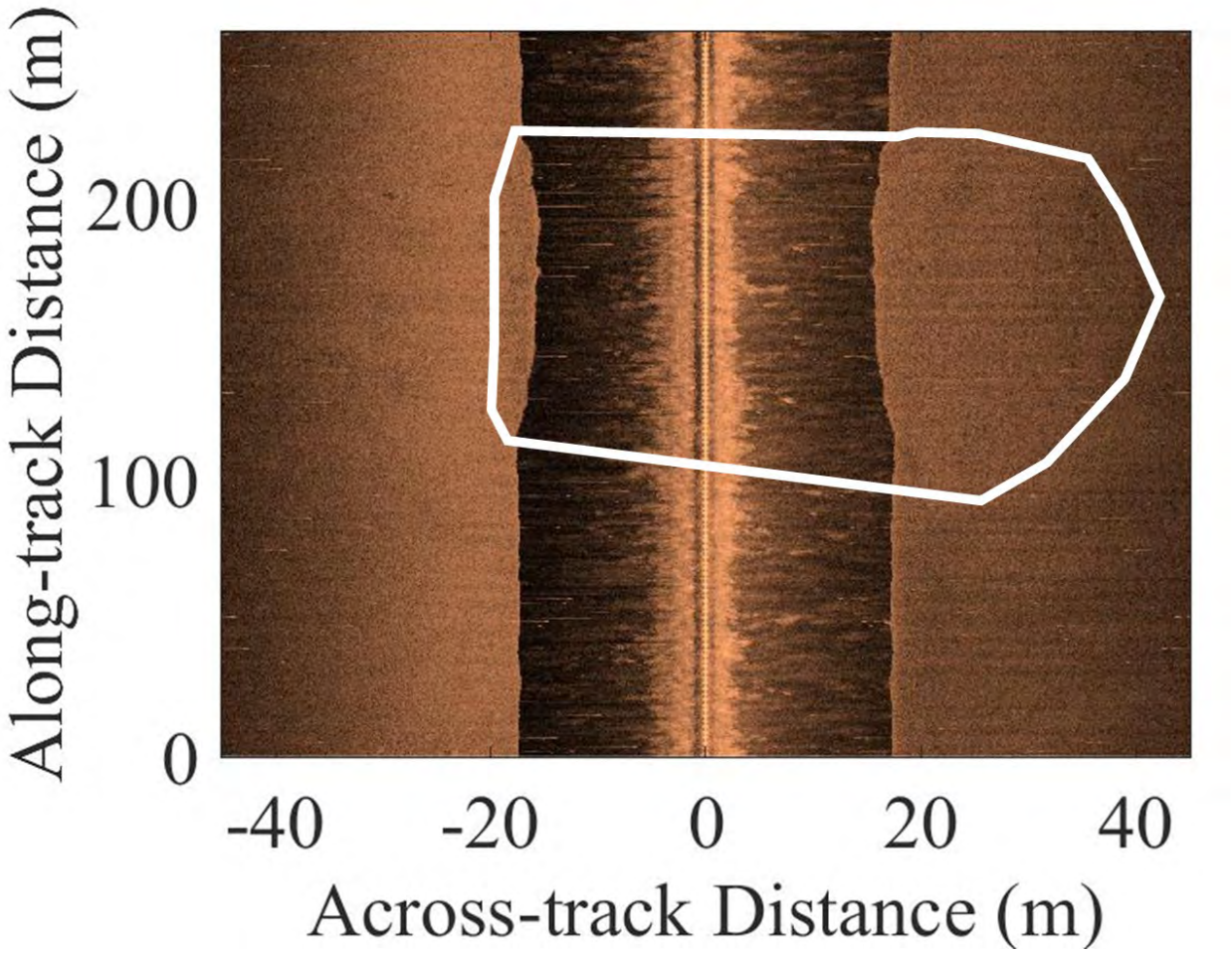

Figure B14. A rock reef (**A17**) at the Atlantic Beach Reef which was deployed in 2003.

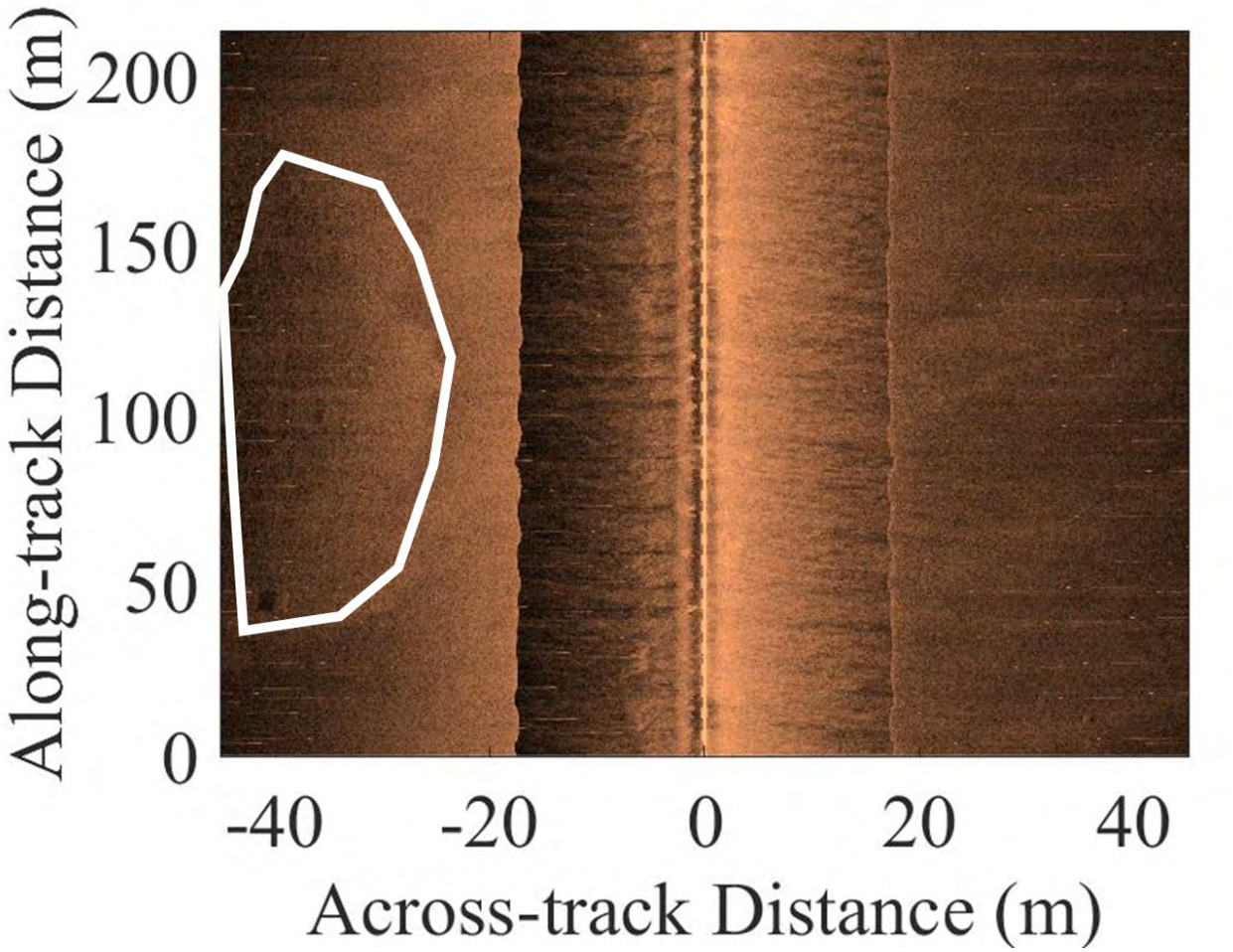

Figure B15. A rock reef (**A18**) at the Atlantic Beach Reef which was deployed in 2003.

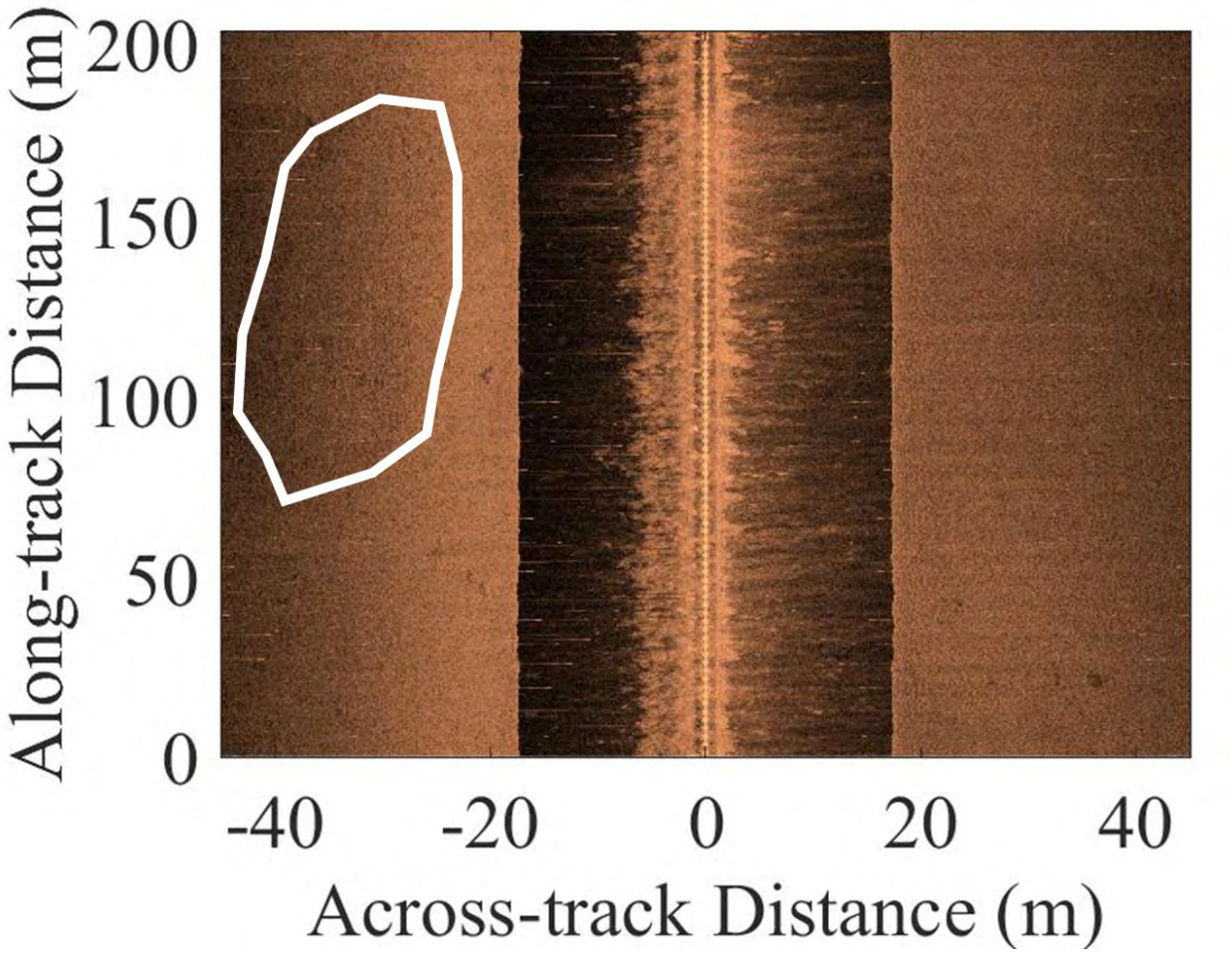

Figure B16. A rock reef (**A19**) at the Atlantic Beach Reef which was deployed in 2003.

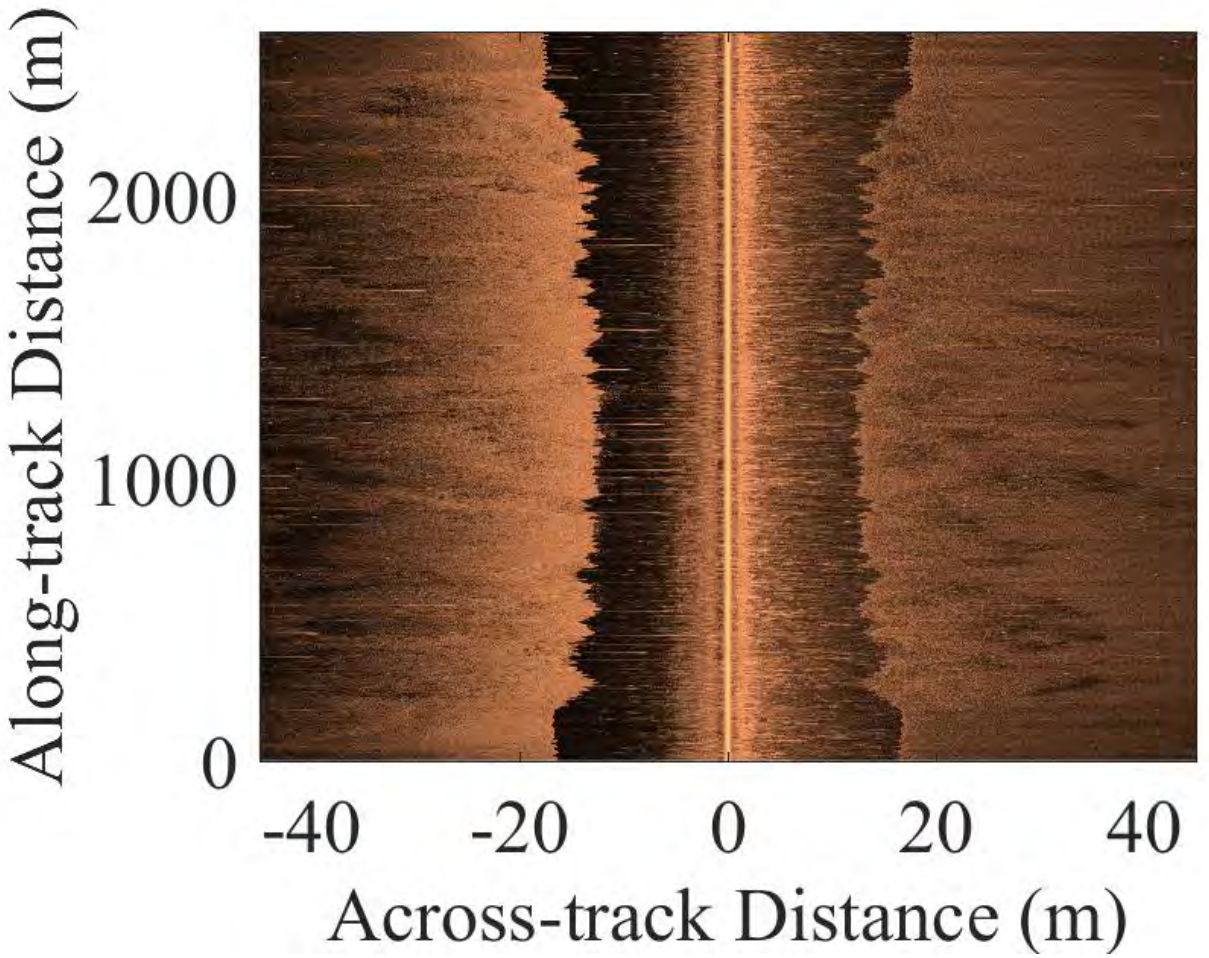

Figure B17. The large rock drop (**A3*, A6*, A13***) at the Atlantic Beach Reef which was deployed between 1998 and 2001.

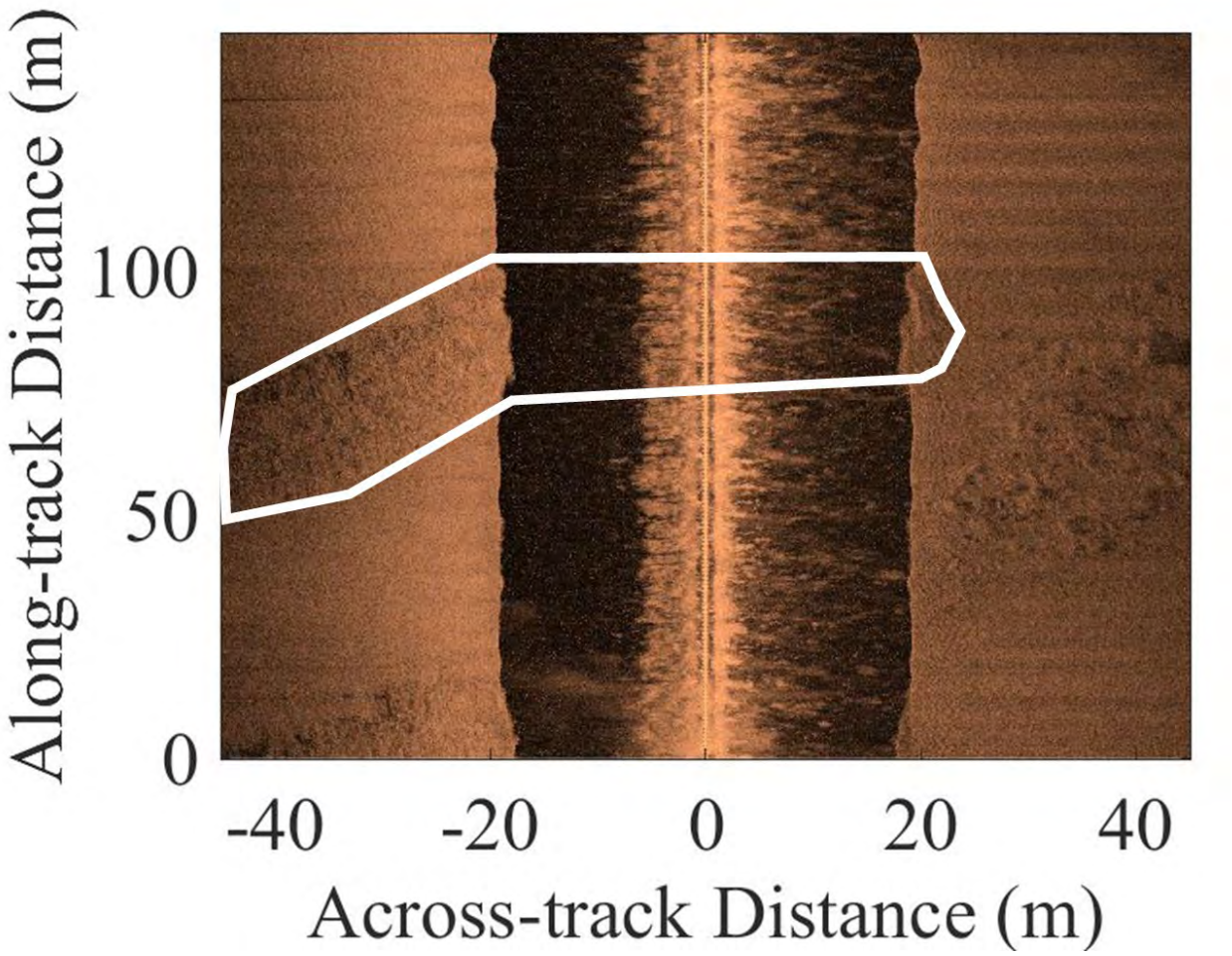

Figure B18. A greyrock reef (**H1**) at the Hempstead Reef which was deployed in 2013.

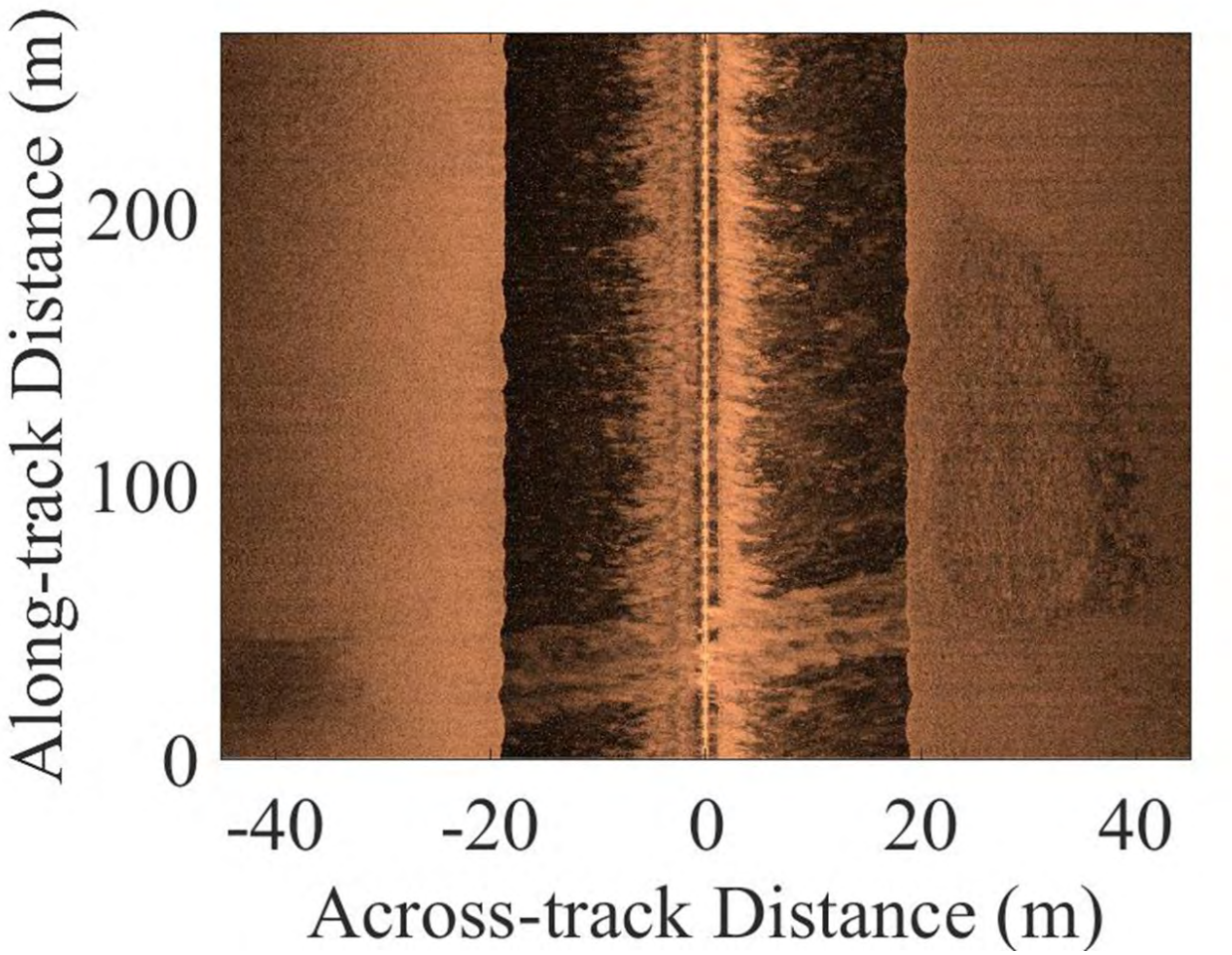

Figure B19. A redrock reef (**H2**) at the Hempstead Reef which was deployed in 2014.

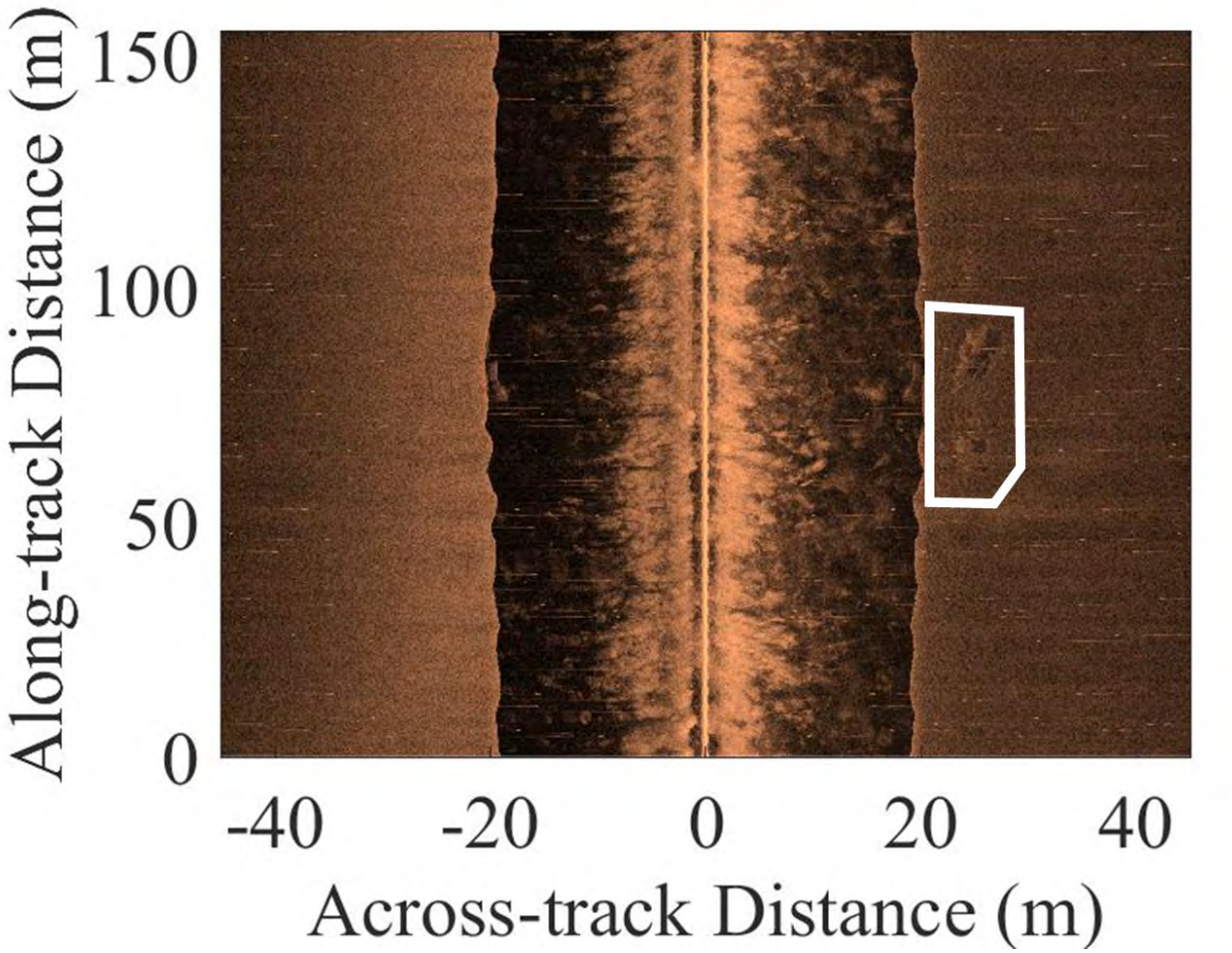

Figure B20. A rubble reef (**H3**) at the Hempstead Reef which was deployed at an unknown date.

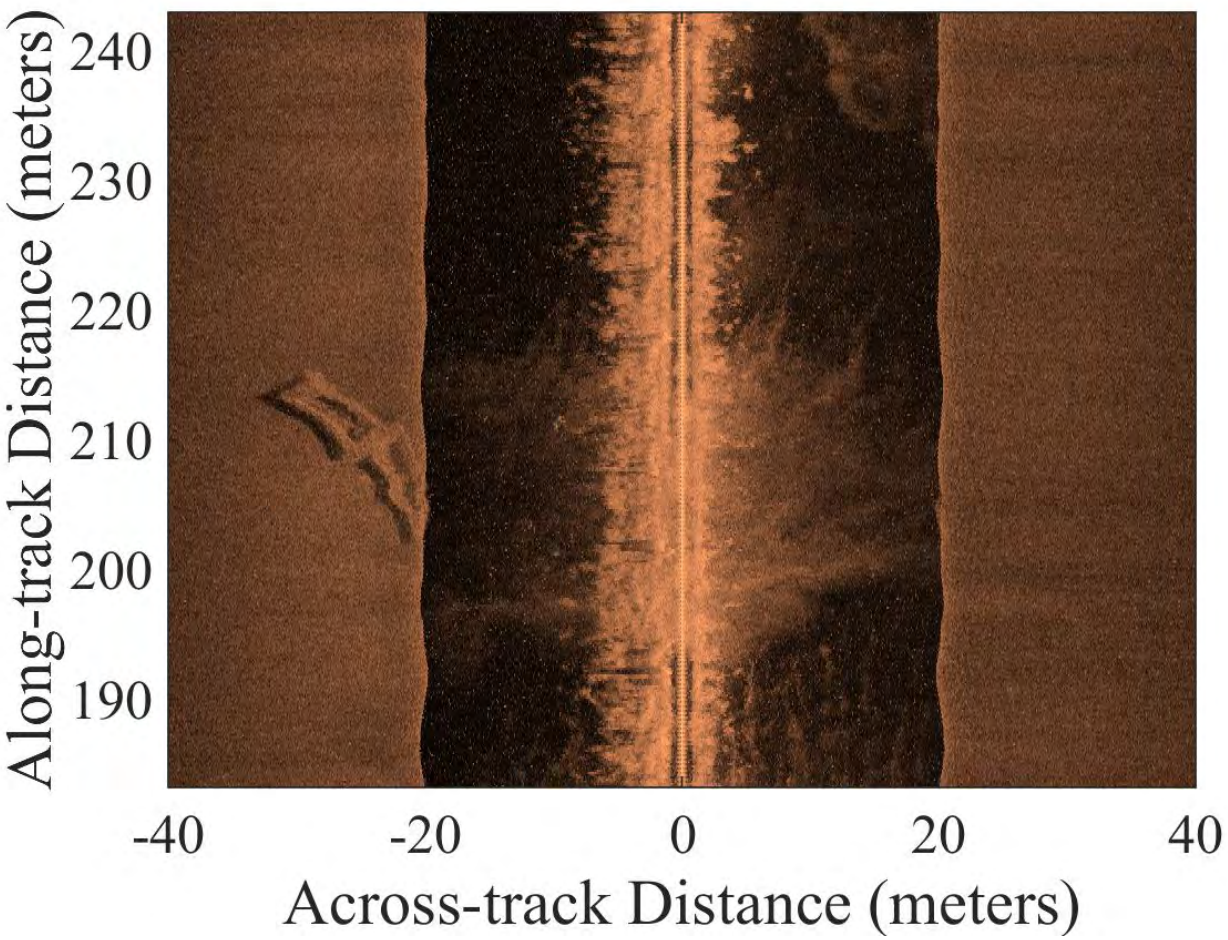

Figure B21. Two linked steel barges totaling 80 ft. in length (**H4**) at the Hempstead Reef which were deployed in 2000.

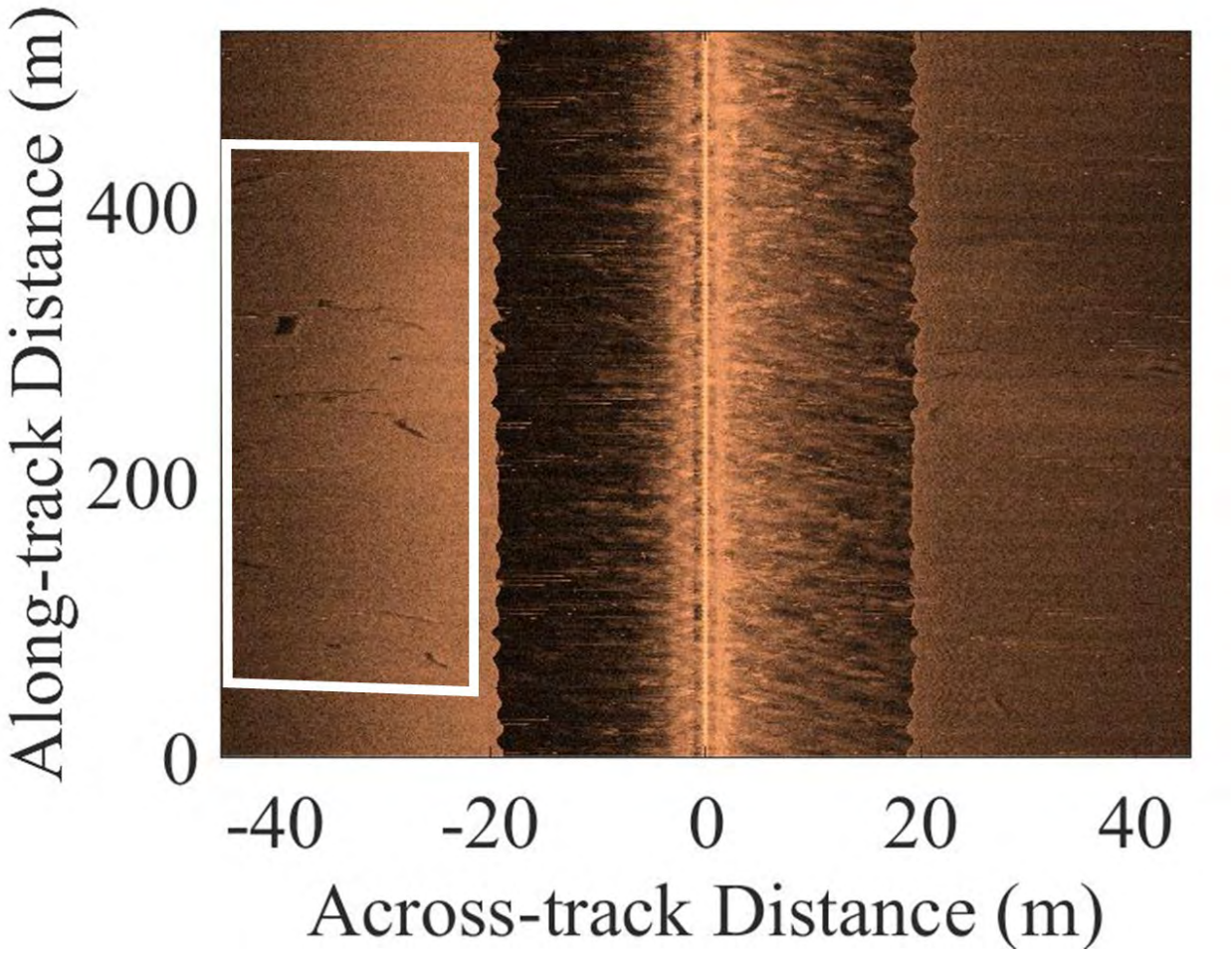

Figure B22. A concrete reef (**H5**) at the Hempstead Reef which was deployed in 1998. This reef was highly dispersed with non-concrete debris mixed with the deployed concrete bridge slabs.

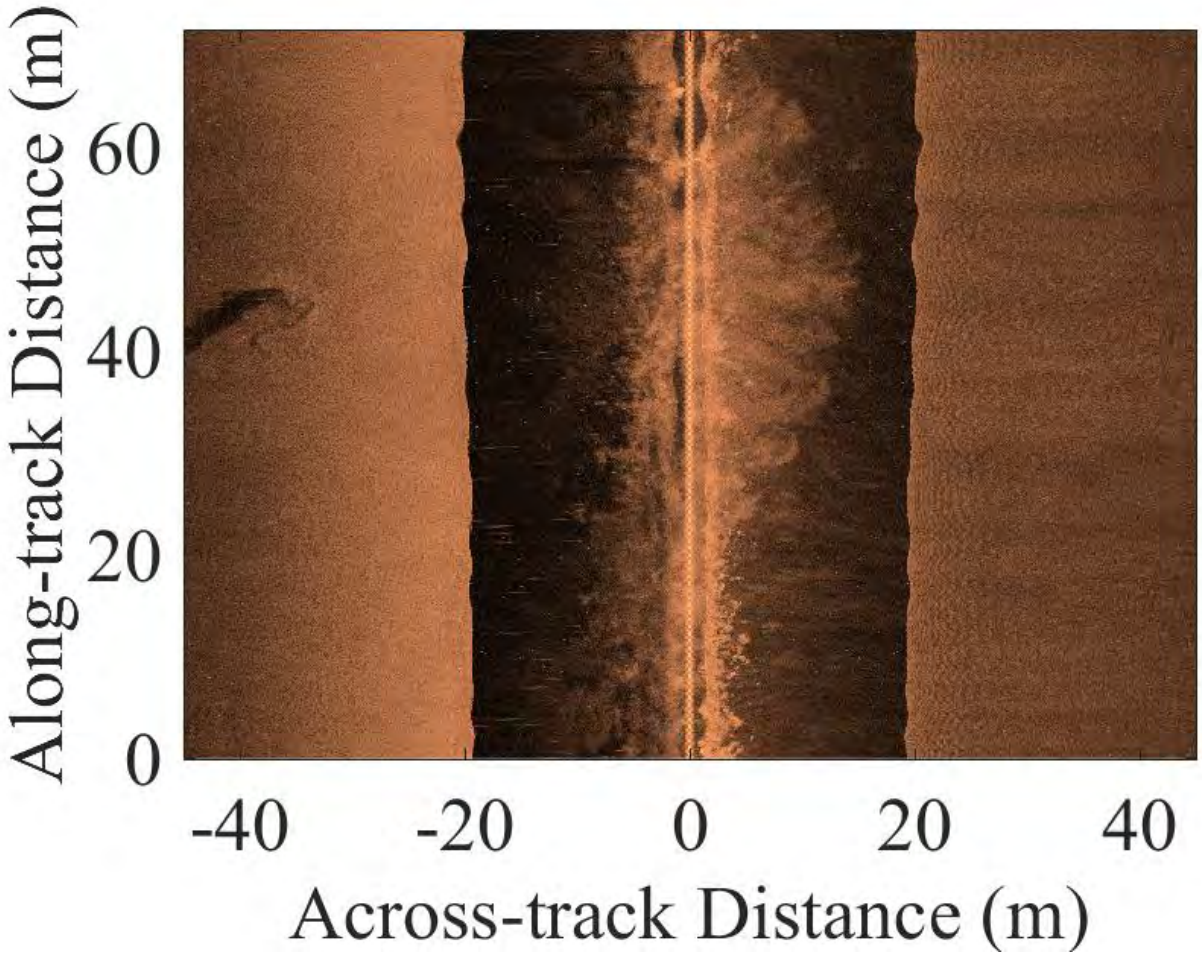

Figure B23. A 78 ft. trawler (the Lucisaura, **H6**) at the Hempstead Reef which was deployed in 1998.

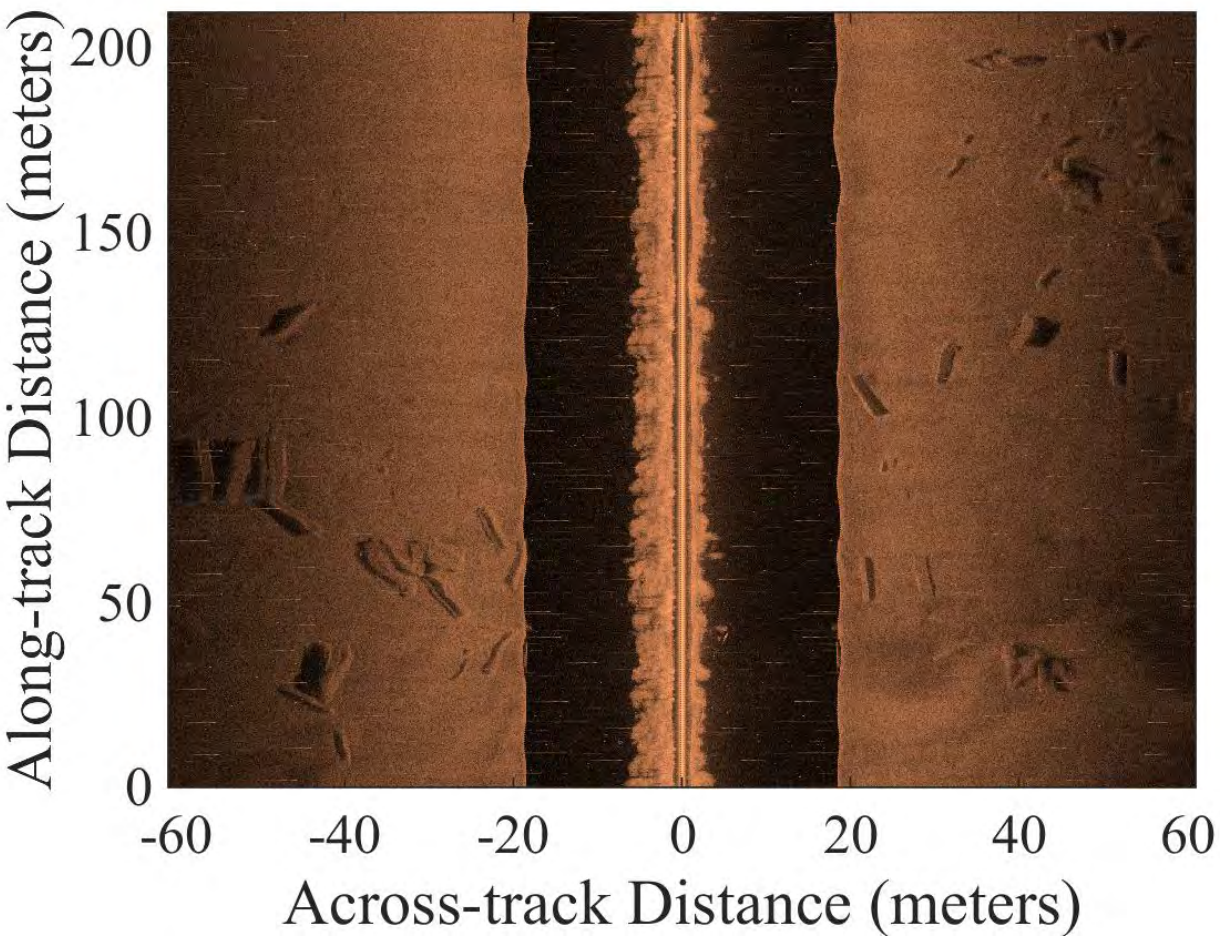

Figure B24. A concrete reef (**H9**) at the Hempstead Reef which was deployed in 1998. This reef was highly dispersed with non-concrete debris mixed with the deployed concrete bridge slabs.

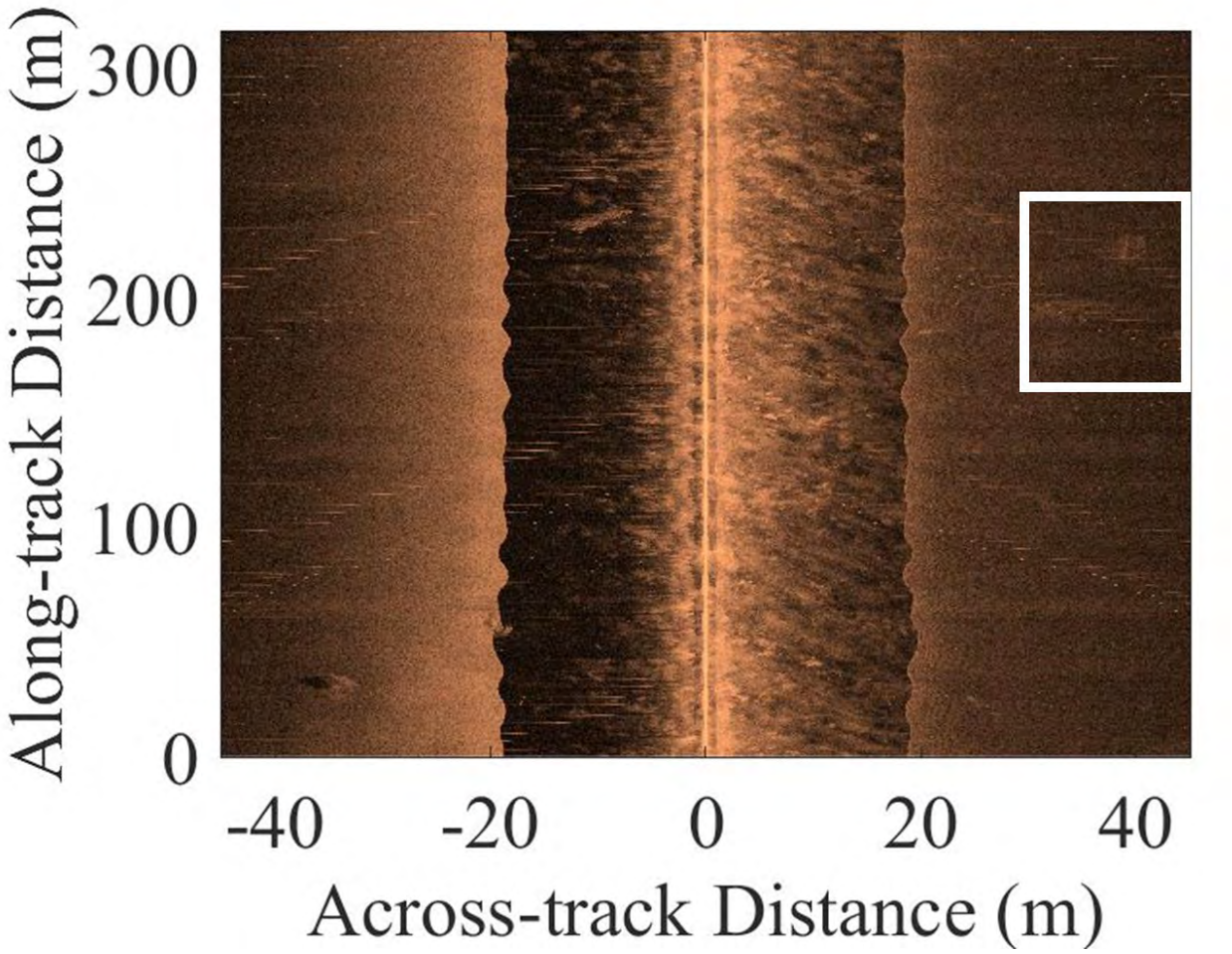

Figure B25. An APC group (**H10**) at the Hempstead Reef which was deployed in 1996. There were some identification issues due to other debris fields that are also present and not being at the reported coordinates.

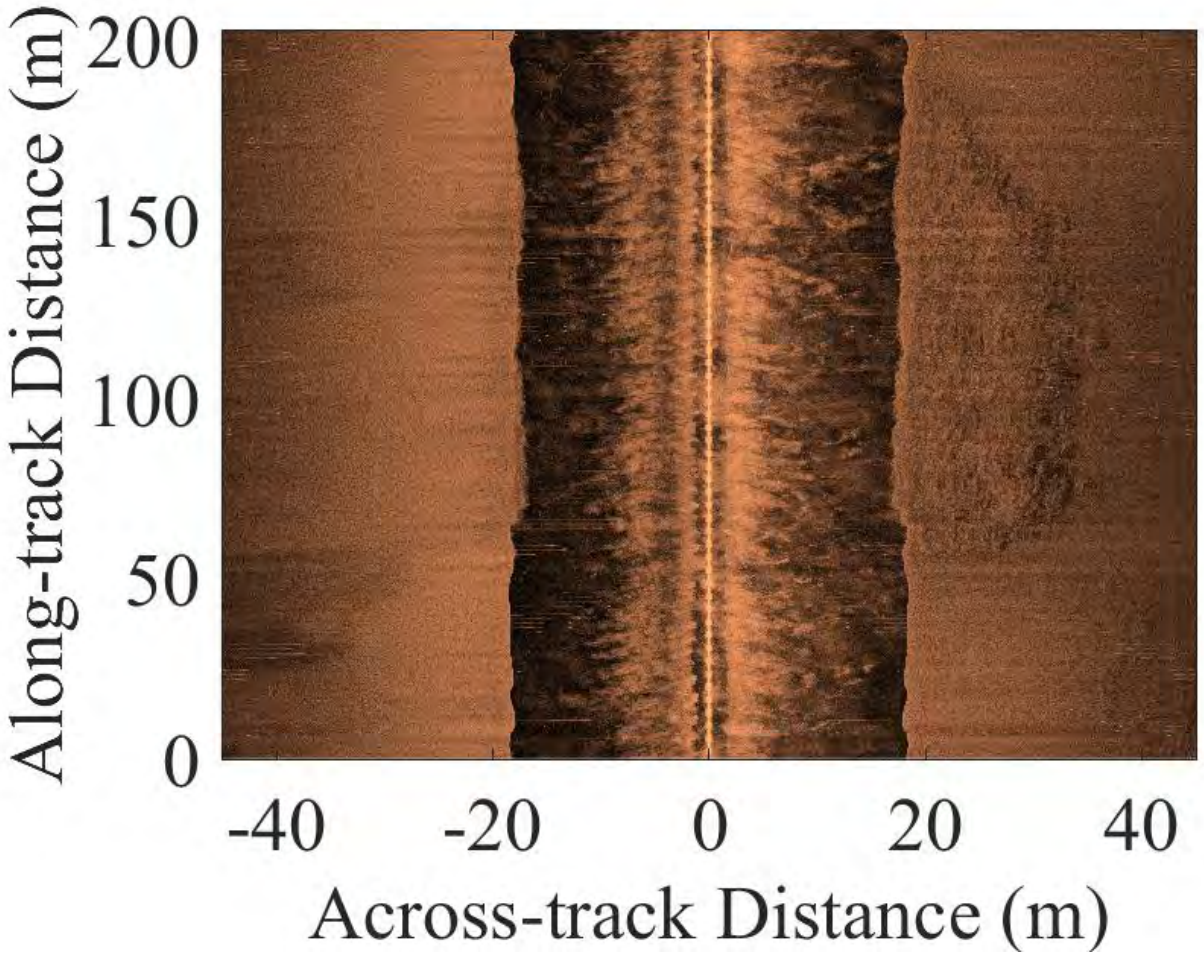

Figure B26. A redrock reef (**H11**) at the Hempstead Reef which was deployed in 2013.

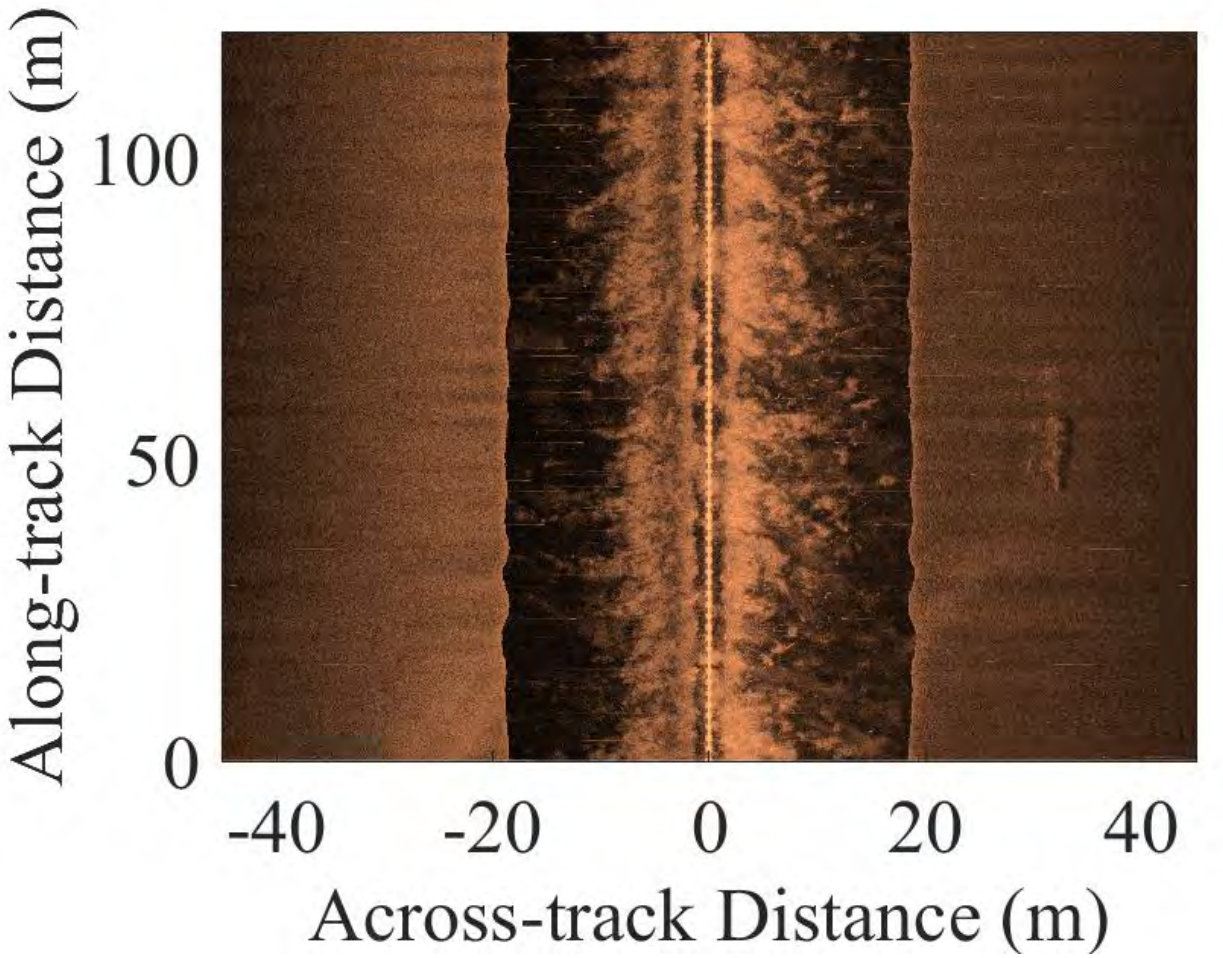

Figure B27. An unidentified, 40 ft. vessel (**H12**) at the Hempstead Reef which was deployed at an unknown date.

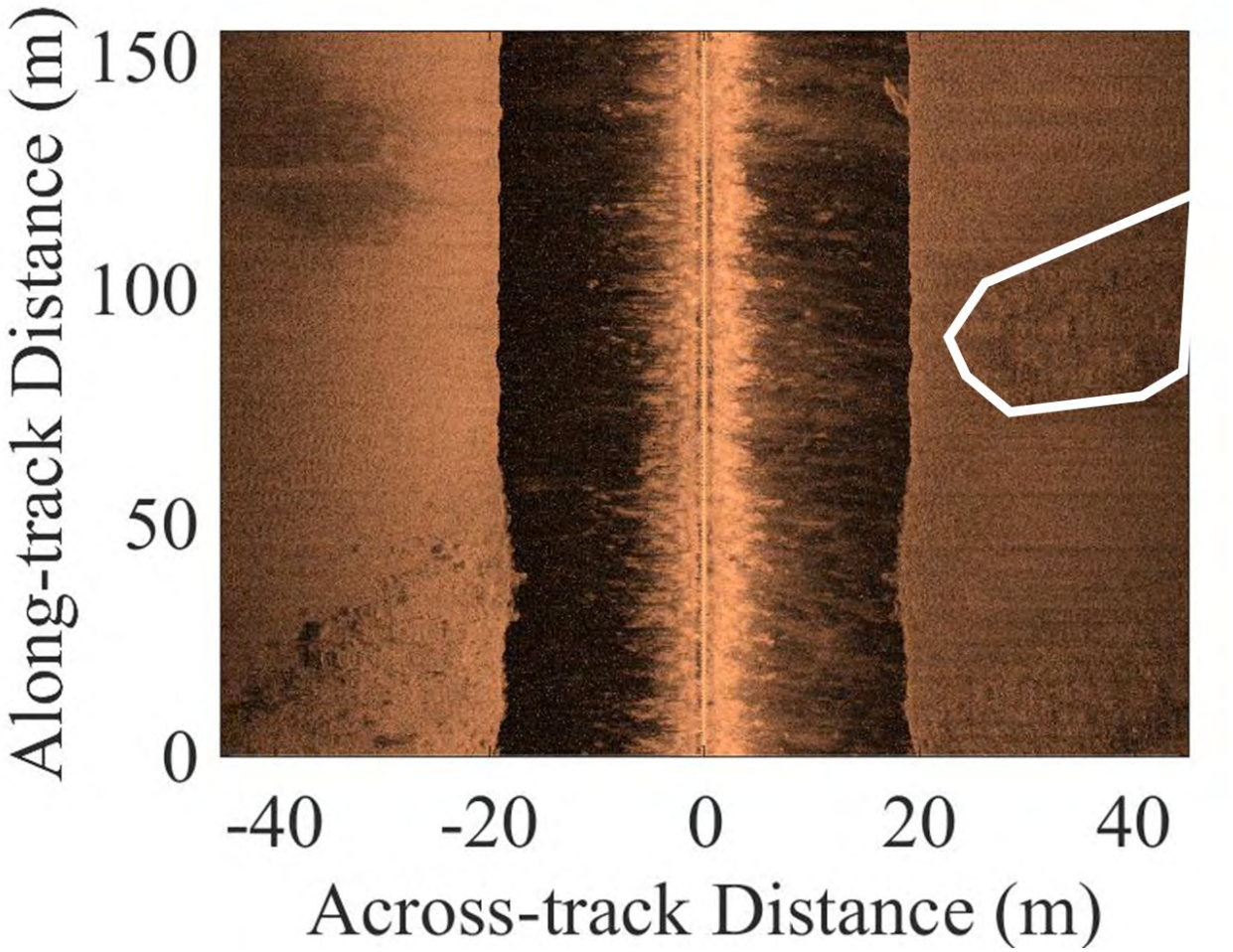

Figure B28. An 80% redrock, 20% red gravel sand reef (**H13**) at the Hempstead Reef which was deployed in 2014.

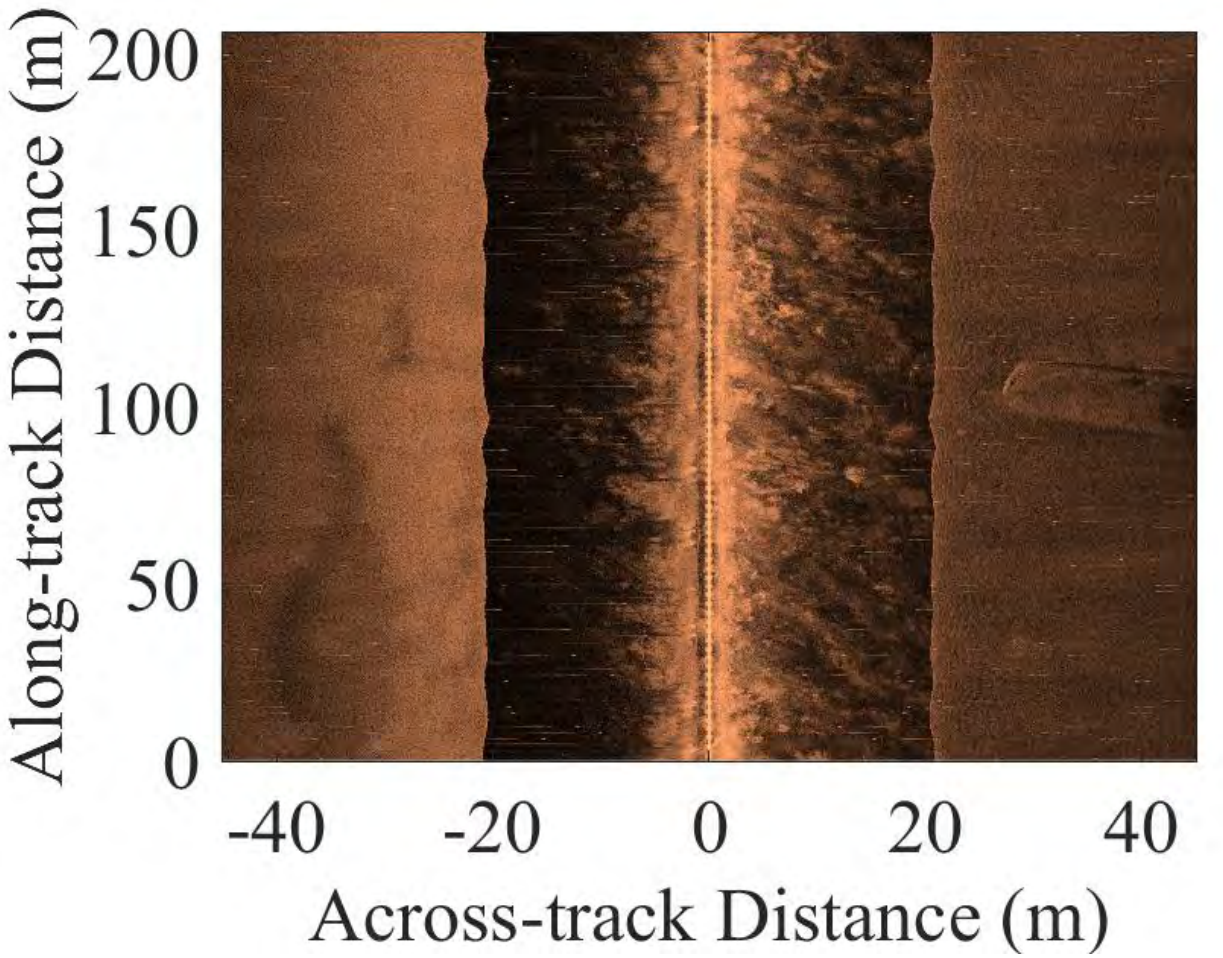

Figure B29. A 115 ft. steel barge (**H14**) at the Hempstead Reef which was deployed at an unknown date.

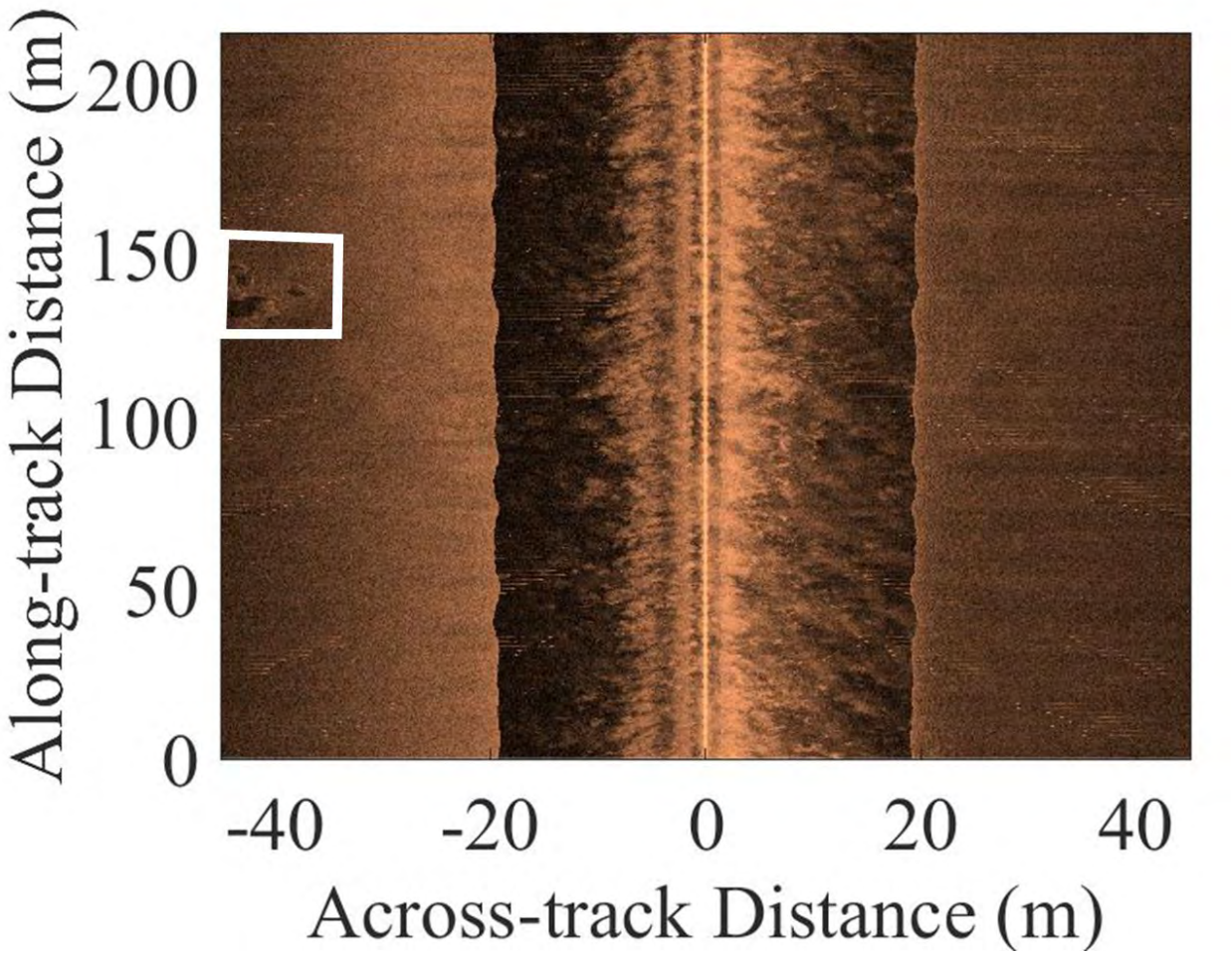

Figure B30. A rubble reef (**H15**) at the Hempstead Reef which was deployed at an unknown date.

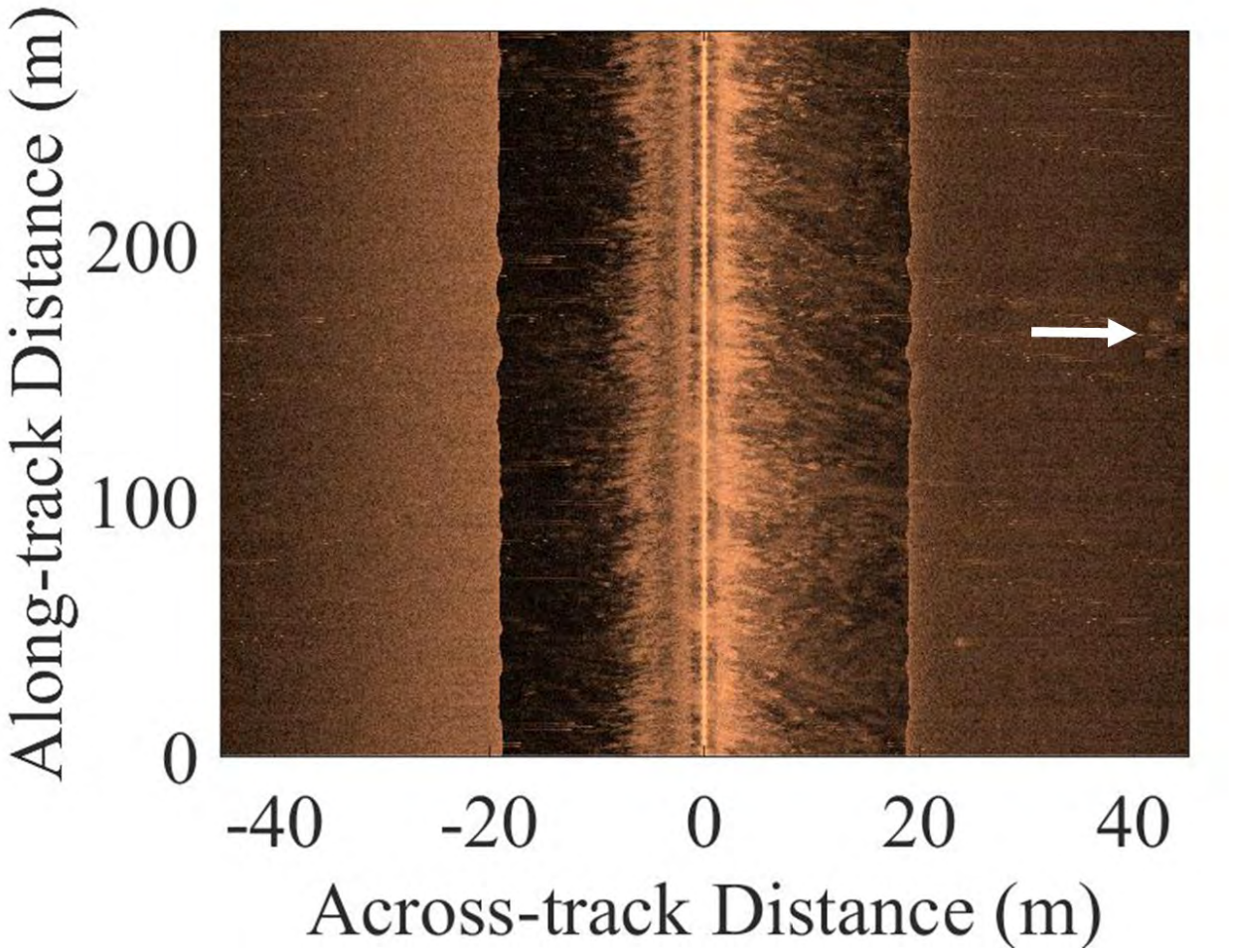

Figure B31. A rubble reef (**H16**) at the Hempstead Reef which was deployed at an unknown date. The white arrow points to the reef which sits at the edge of the sidescan image.

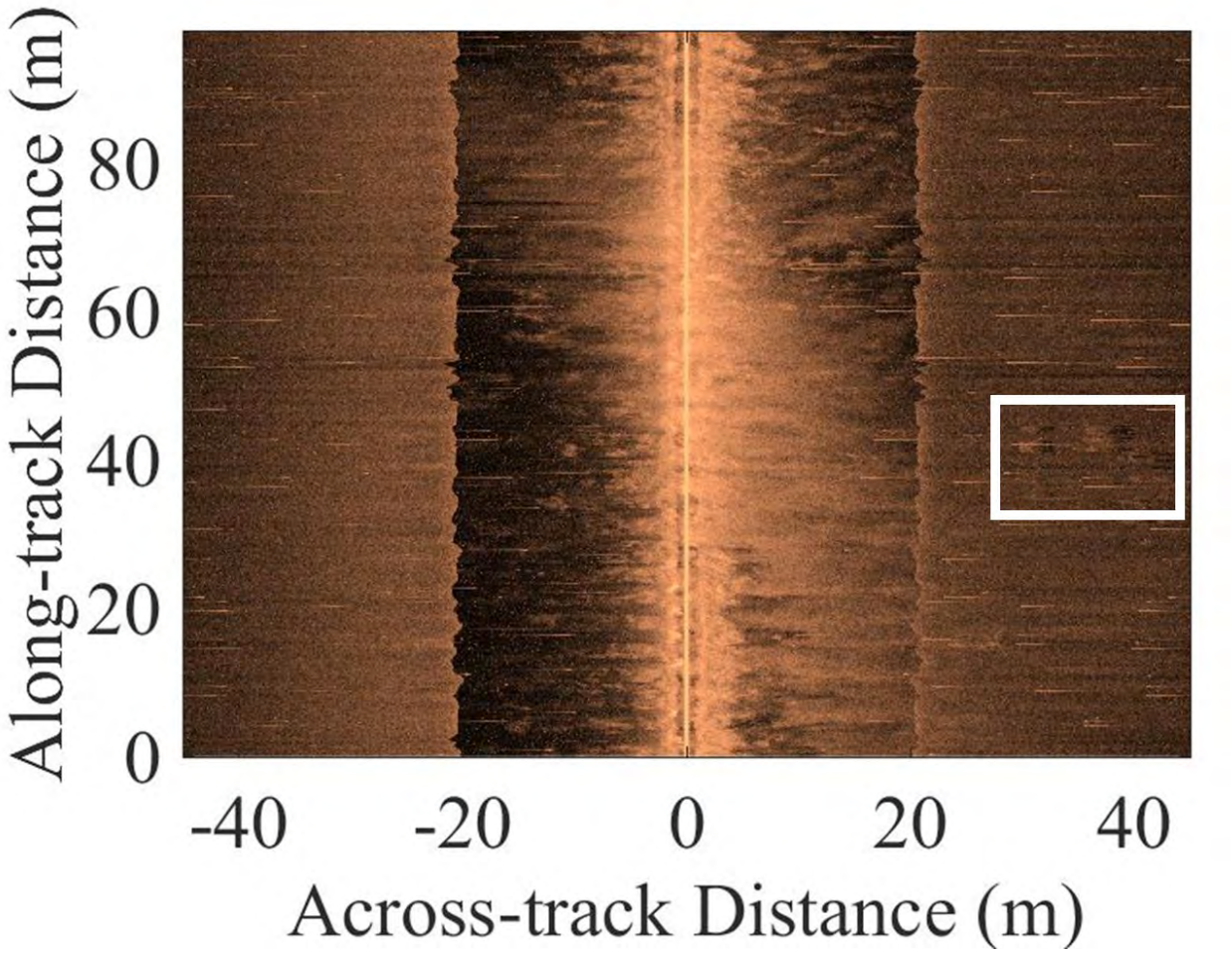

Figure B32. A rubble reef (**H17**) at the Hempstead Reef which was deployed at an unknown date.

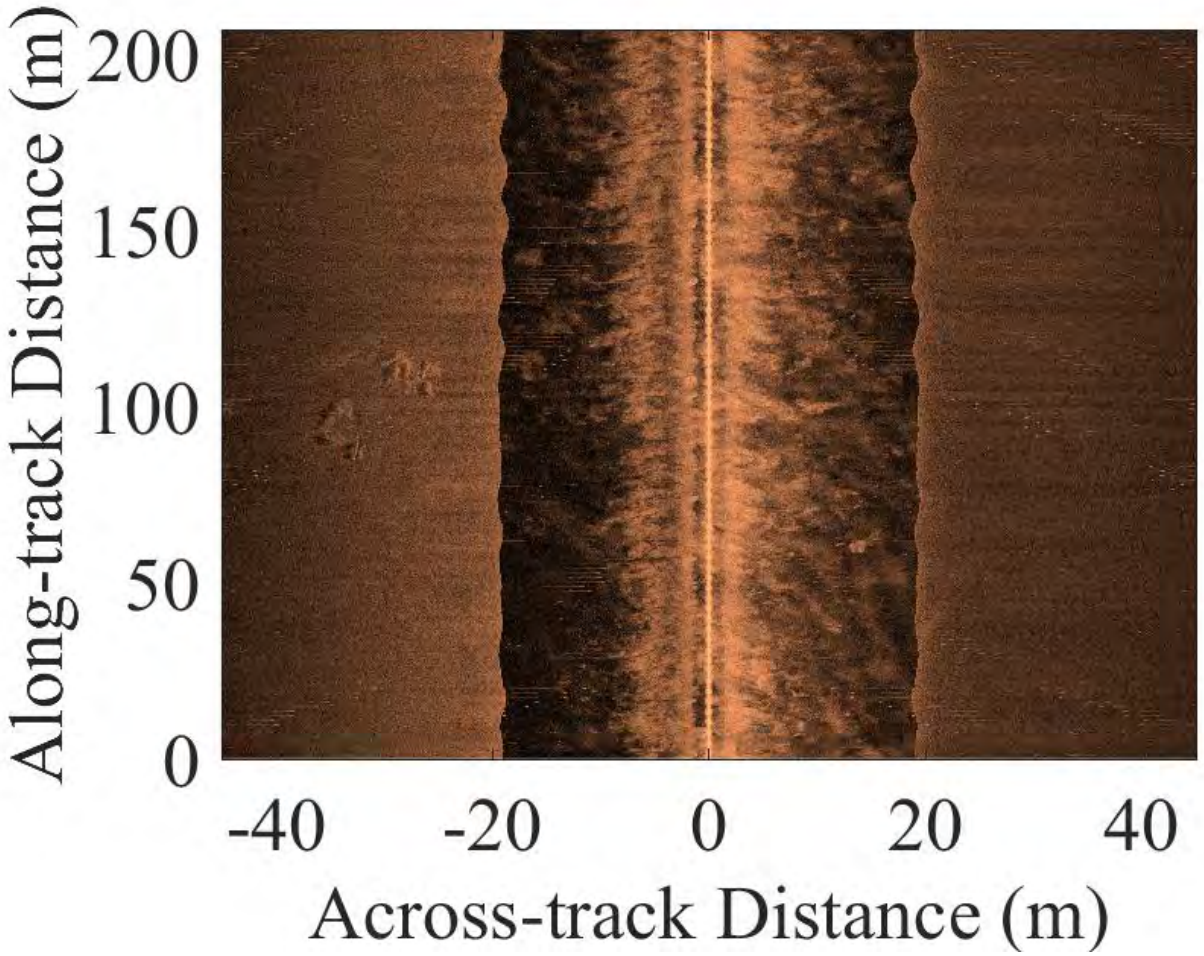

Figure B33. A rubble reef (**H17**) at the Hempstead Reef which was deployed at an unknown date.

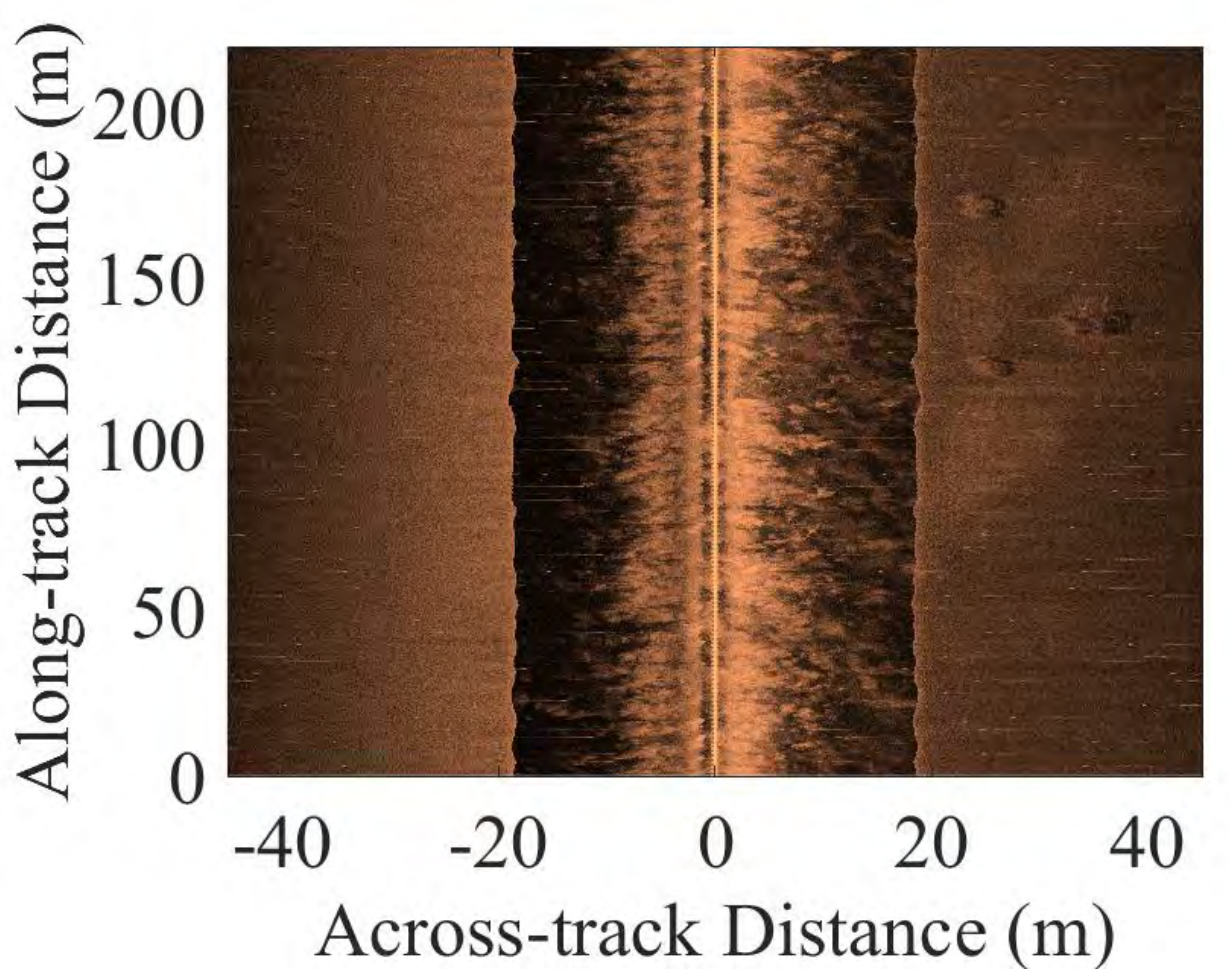

Figure B34. An APC group (**H19**) at the Hempstead Reef which was deployed in 1996. There were some identification issues due to other debris fields that are also present and not being at the reported coordinates.

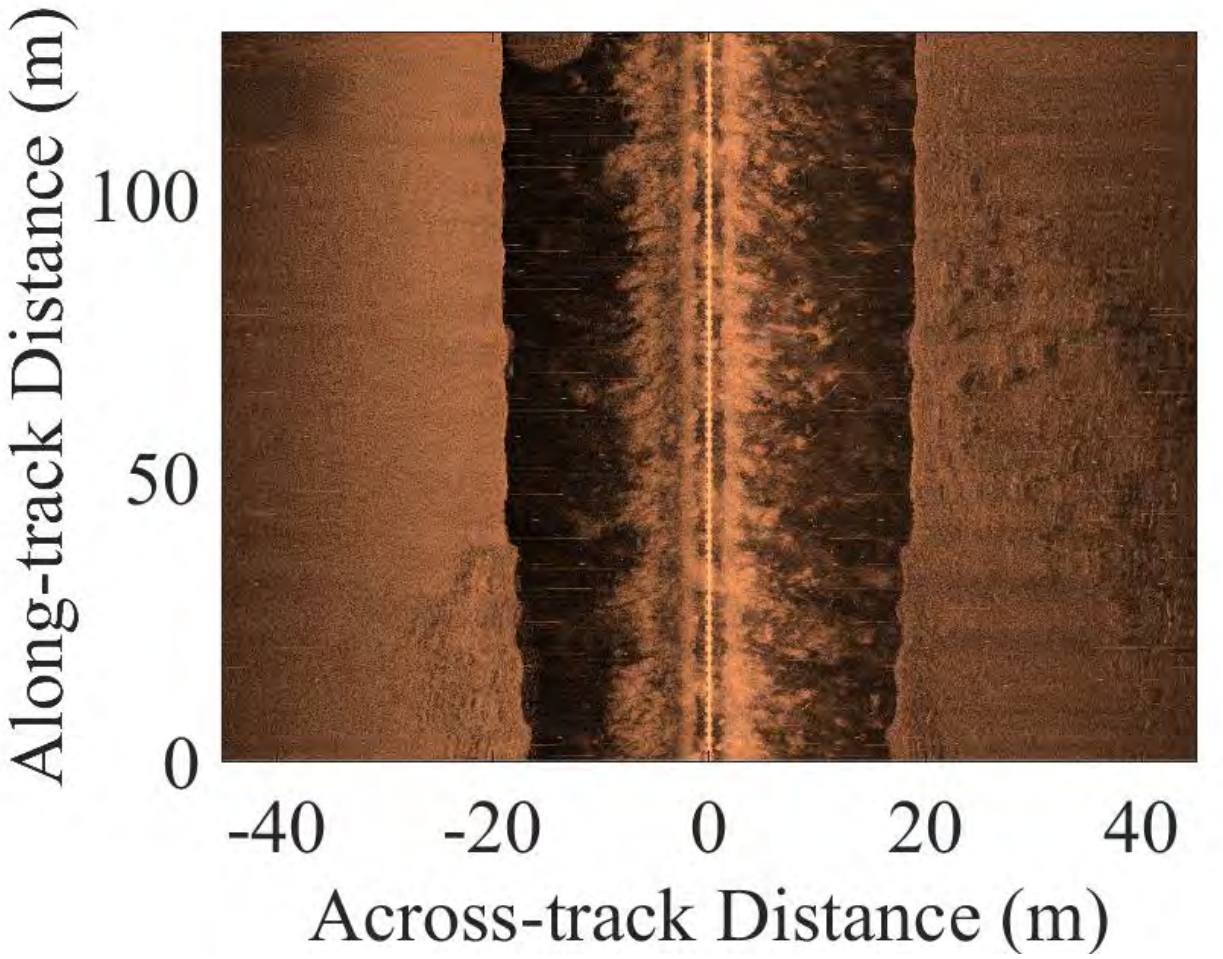

Figure B35. A greyrock reef (**H21**) at the Hempstead Reef which was deployed in 2013.

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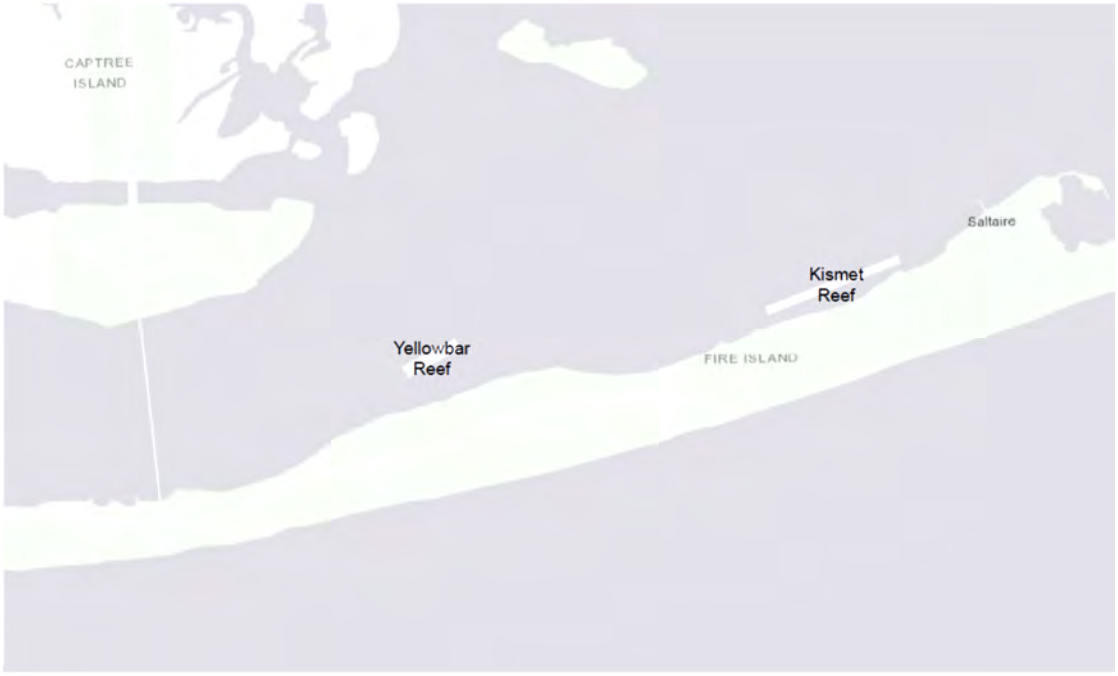
A preliminary investigation of the bathymetry and benthic characteristics of Kismet and Yellowbar artificial reefs



www.dec.ny.gov

Introduction/Methods:

In order to characterize the water depth/bathymetry, benthic substrate and infauna at Kismet and Yellowbar artificial reefs, surveys were conducted on 3/20/19 and 4/11/19.

Bathymetry:

Transects were overlaid on the reefs 100 feet apart with sample points every 250 feet along each transect (Figure 1 and 2). At each sample point the depth was recorded and adjusted for the tidal height. Some stations were unable to be collected on Kismet reef. Depth readings were interpolated in ArcGIS using the IDW spatial analyst tool to create bathymetry maps of the reefs.

Depth readings were also collected above previously deployed materials, except at two patch reefs on Yellowbar reef.

Benthic Sampling:

Two benthic samples were collected on each reef site using a ponar grab with a 6" x 6" sampling area (Figure 3 and 4). Locations for grabs were selected in a deep and shallower location based on the bathymetry maps. Sediment samples were photographed to characterize the sediment types and sieved through a 1mm sieve to collect benthic infauna. Animals collected were placed in jars with alcohol to preserve the samples. Samples were processed in the lab and animals were grossly characterized and enumerated.

Benthic Sediment Characteristics:

To further characterize the sediment types and current condition of the bottom habitat on each site, underwater photographs were taken at stations spaced 250 feet apart in a zig-zag pattern from west to east along each reef (Figure 3 and 4). Photos were collected by attaching a GoPro with a green water filter to the stem of a 25 lb mushroom anchor with the camera facing downward. The anchor was lowered to the bottom on each station and retrieved after 5 minutes.

Results/Discussion:

The depths at both sites (Figures 5 and 6) were similar to the depths reported on NOAA nautical charts for the area. Due to control depth restrictions (16 ft at Kismet, 20 ft at Yellowbar), materials at both sites would be limited to low lying structure with limited vertical profile. In addition, most of the eastern half of Kismet reef would be off limits from material deployments.

Previously deployed materials were all within the control depth limits except for a few materials on Kismet reef (Table 1 and 2). This may indicate that these materials have been buried over time. Due to the strong current at both locations, sediments are readily moved around and materials are known to become covered and uncovered from time to time.

Benthic grab samples on Kismet reef were mainly comprised of sand, gravel, stone, and shell hash. Gravel and stone made up approximately 25-50% of each sample. The bottom at Kismet reef was firmer than Yellowbar which made it harder to effectively sample with the ponar grab. Both grabs at Kismet reef were about 75% full.

Samples collected at Yellowbar reef were mainly sand, gravel, and shell hash. Each sample was about 95% or more sand.

The same sediment types at both reefs was also reported by the USGS USseabed project. The USGS study characterized the sediment in these areas as sand/gravelly sand.

Photos of the bottom at both reefs confirmed the results of the sediment collected in the grab samples. Sand, gravel/stone, and shell hash was the predominant material seen in the photos. The most notable finding was the presence of a sponges at two sites on Kismet reef. Photos of the benthic grabs and underwater shots can be viewed in the appendix.

Benthic infauna was comprised of copepods, shrimp, barnacles, molluscs (blue mussel, crepidula, other unknown molluscs), marine worms, a hermit crab and a hydroid (Table 3). Of note, was the greater total individual counts at Kismet reef (>200 individuals per sample) when compared to Yellowbar (<50 individuals per sample). This may be a result of the substrate or location of Kismet reef.

The types of animals observed were comparable to those documented in similar studies. For instance, a benthic invertebrate study conducted in sandy habitats found marine worms, molluscs, arthropods, and echinoderms to make up the majority of samples (ACOE, 2004). Although our samples lacked echinoderms, this may be due to differences in sample equipment, locations (i.e. ocean vs. bay), or the time of year sampling occurred.

References:

https://nauticalcharts.noaa.gov/rnconline/rnconline.html

https://pubs.usgs.gov/ds/2005/118/

US Army Corps of Engineers, 2004. Benthic Invertebrate Survey: East of Shinnecock Inlet to East of Fire Island Inlet. 94 pp.

Figures/Tables:

Figure 1: Kismet transects and depth stations.

Figure 2: Yellowbar transects and depth stations.

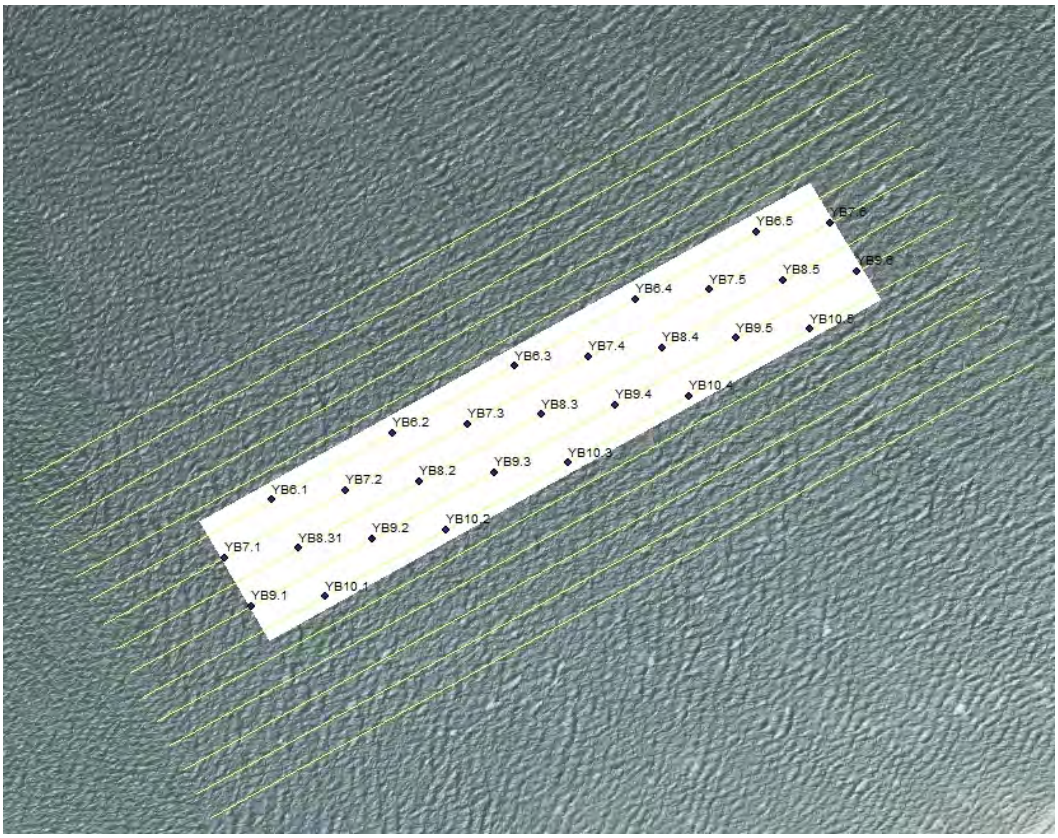


Figure 3: Benthic grab (yellow) and photo stations (red) on Kismet reef.

Figure 4: Benthic grab (yellow) and photo stations (red) on Yellowbar reef.

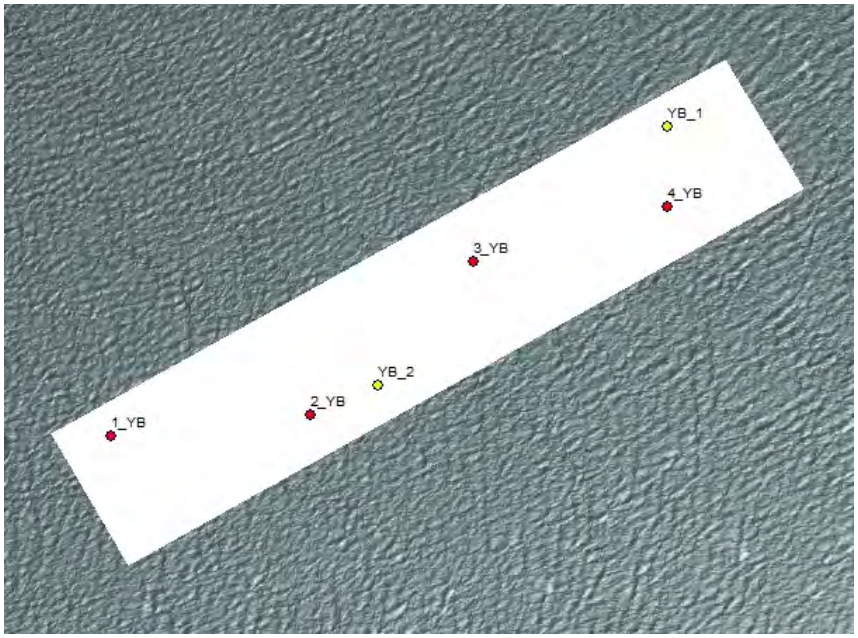


Figure 5: Kismet bathymetry

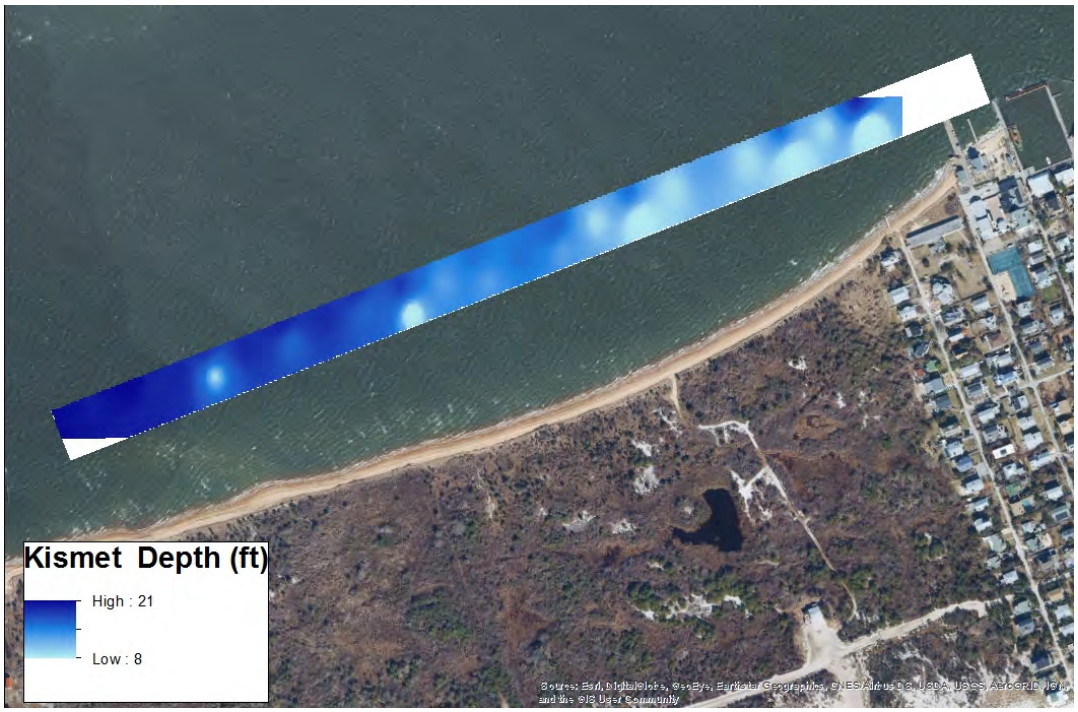


Figure 6: Yellowbar bathymetry

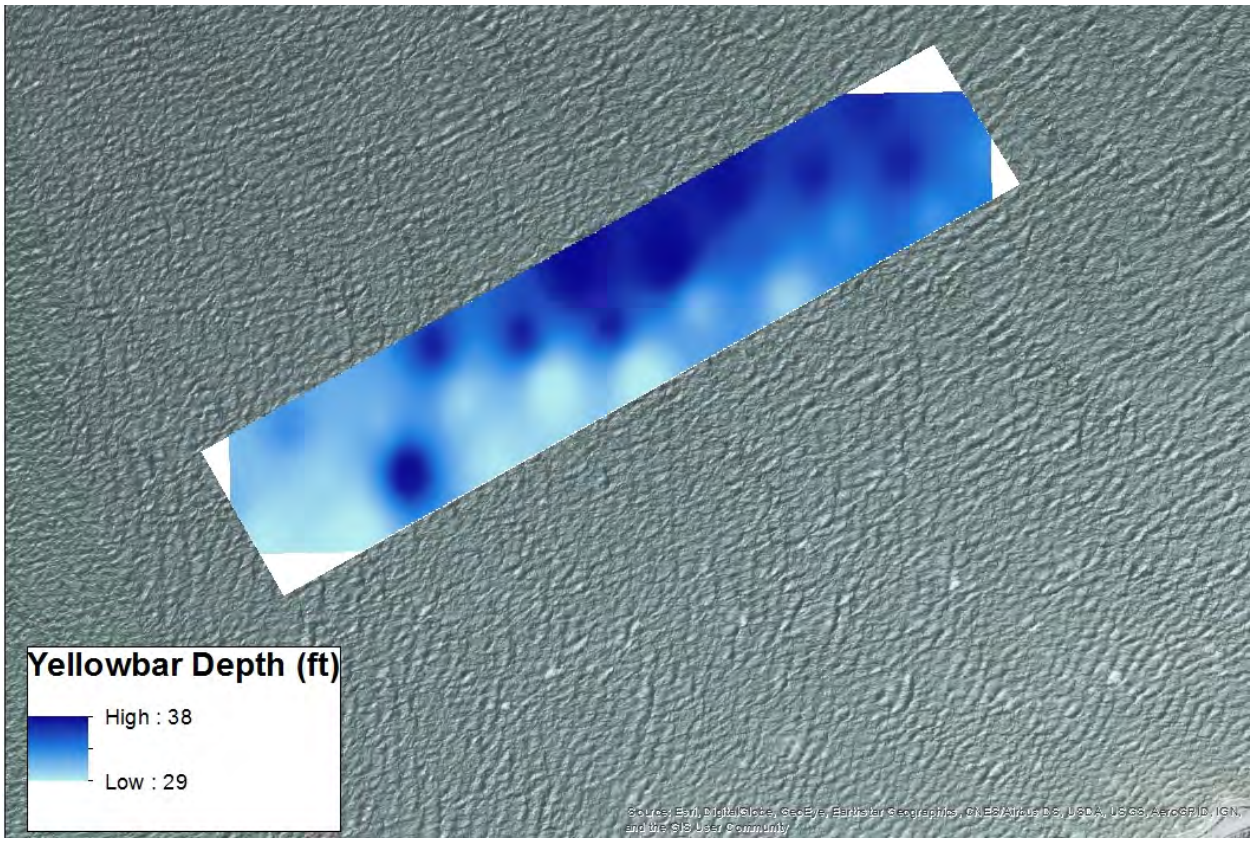


Table 1: Kismet previously deployed material depths

Material	Depth	Latitude	Longitude
Concrete Blocks	15.2	40°38.162	73°12.833
Concrete Blocks	16.9	40°38.179	73°12.810
Concrete Blocks	20.5	40°38.191	73°12.785
100' Barge	16.6	40°38.280	73°12.496
85' Barge	17.8	40°38.311	73°12.435
Concrete Ballasted Tires	18.4	40°38.213	73°12.671
Concrete Ballasted Tires	15.6	40°38.251	73°12.579
Concrete Culvert	18.4	40°38.208	73°12.725
Rubble Pile	15.9	40°38.152	73°12.880

Table 2: Yellowbar previously deployed material depths

Material	Depth	Latitude	Longitude
Unknown	26.9	40°38.058	73°14.204
Unknown	24	40°38.052	73°14.276
Unknown	23.5	40°38.079	73°14.316
Reef Balls		40°37.947	73°14.549
36' Steel Cruiser *Charade*	34.9	40°38.014	73°14.431
Concrete Culvert		40°38.008	73°14.431
62' Wooden Trawler *Connie F*	33.7	40°38.001	73°14.479
48' Wooden Vessel *Peregrine*	20.7	40°38.030	73°14.571
60' Steel Barge CorEW33	32.8	40°37.994	73°14.466

Table 3: Benthic invertebrate counts

	Station			
	K1	K2	YB1	YB2
Arthropods	13	9	1	24
Molluscs	107	186	2	
Worms	135	31	36	2
Hermit Crab		1		
Hydroid			1	

Appendix:

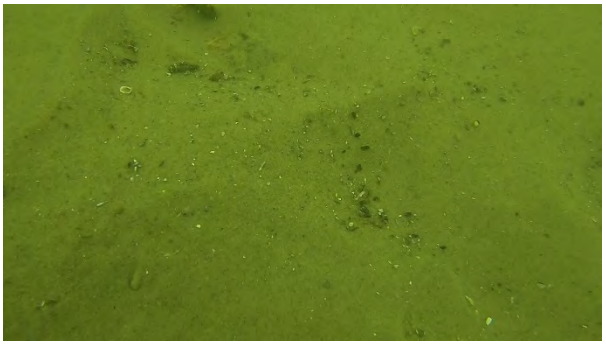
Kismet reef benthic grab samples

K1

K2

Kismet reef underwater photos

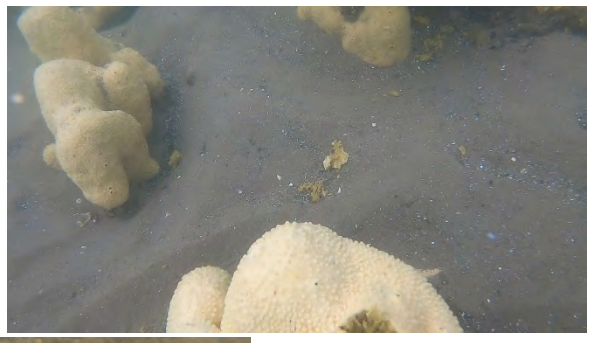
1K



3K

4K

5K



6K

Yellowbar reef benthic grab samples

YB1

YB2

Yellowbar reef underwater photos

1YB

2YB

3YB

4YB

Attachment C

Artificial Reef Bathymetry

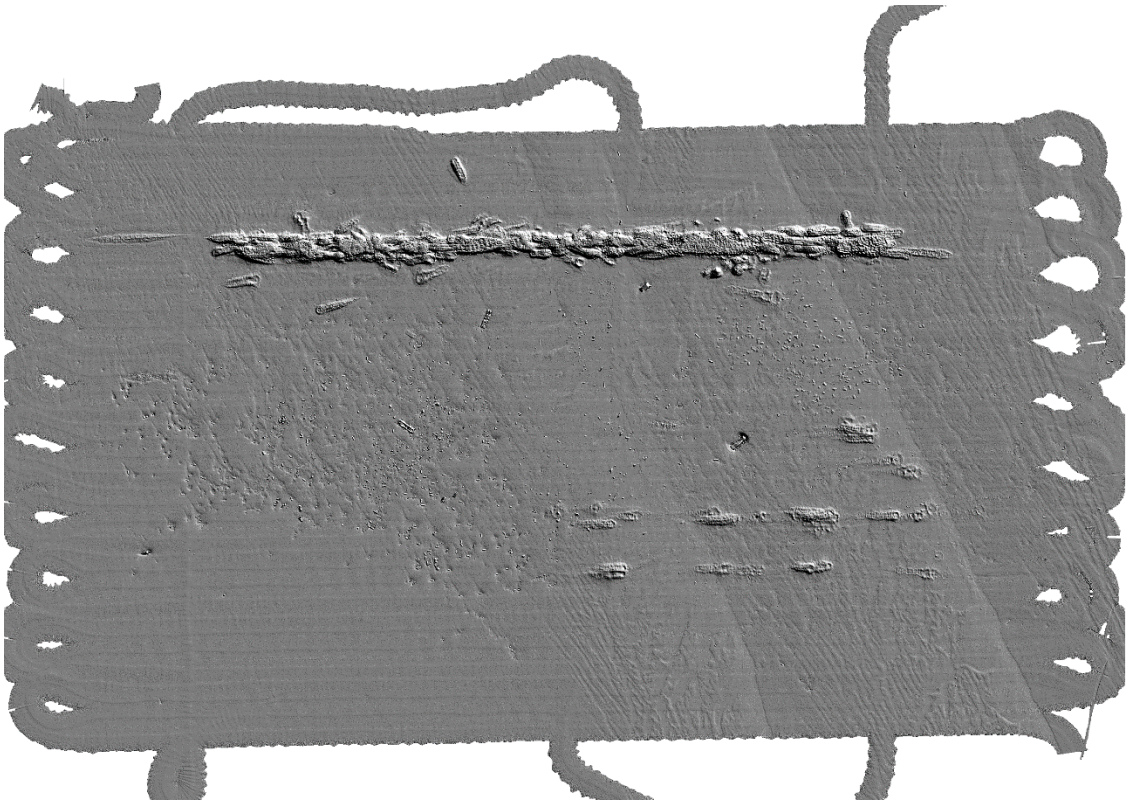


Photo 1. Side scan sonar of Atlantic Beach reef (2005).

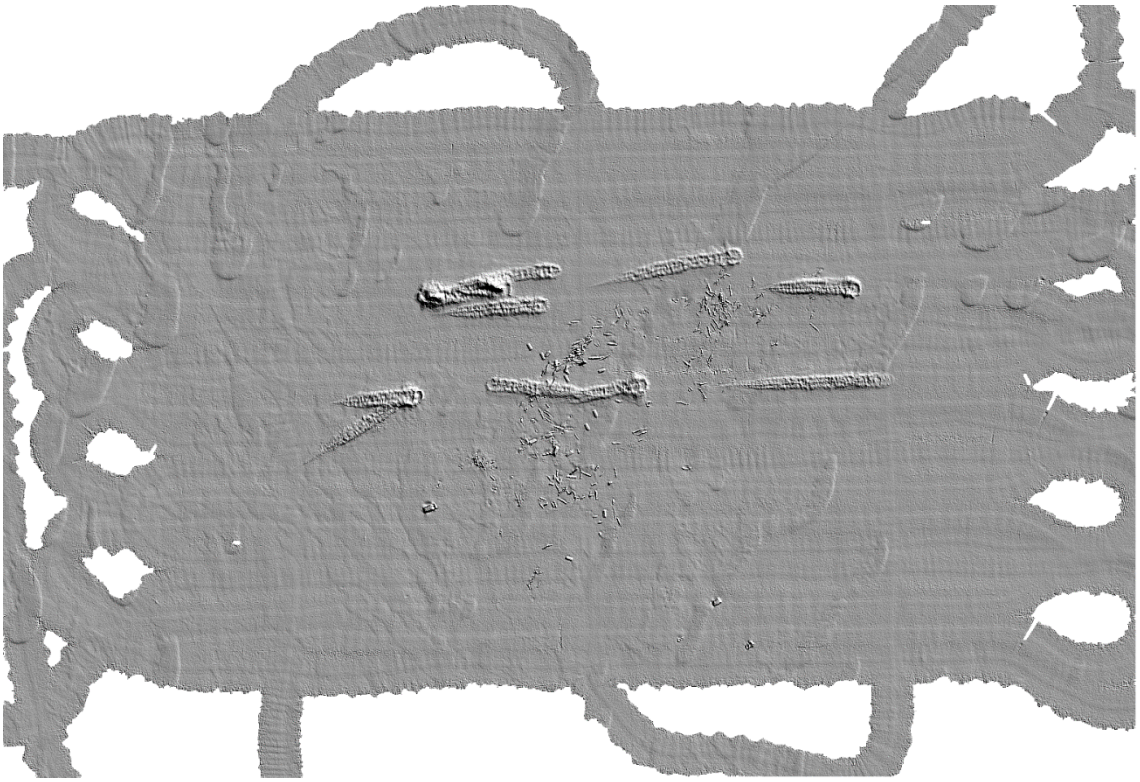


Photo 2. Side scan sonar of McAllister Ground reef (2005).

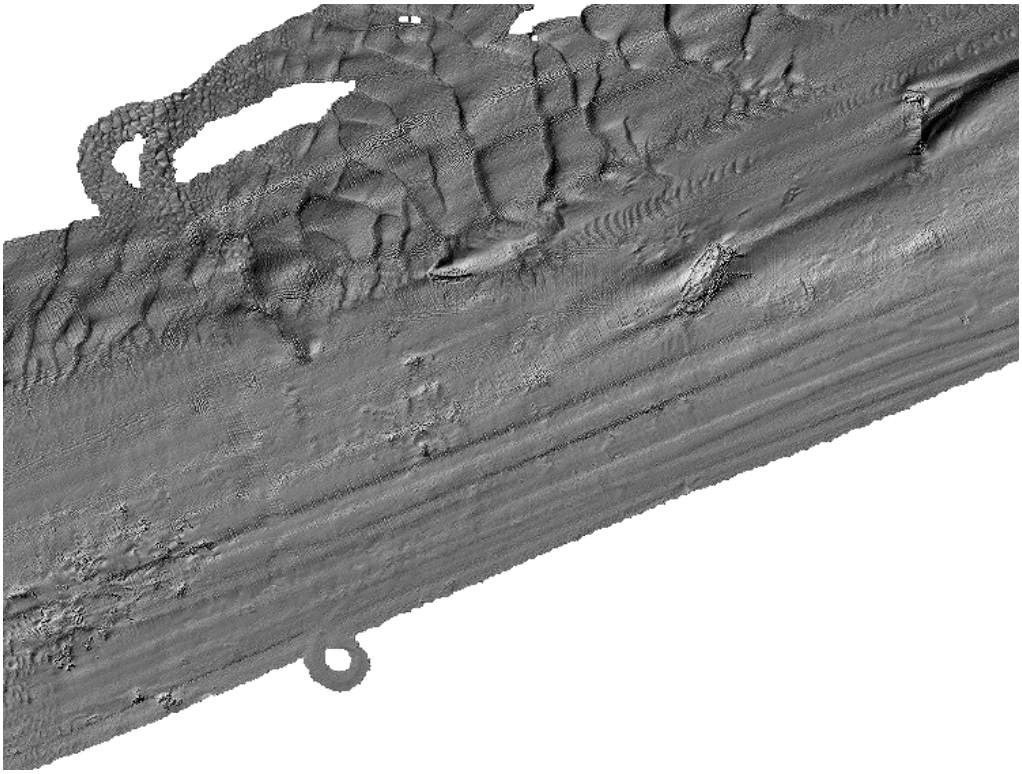


Photo 3. Side scan sonar of the eastern side of Kismet reef (2001).

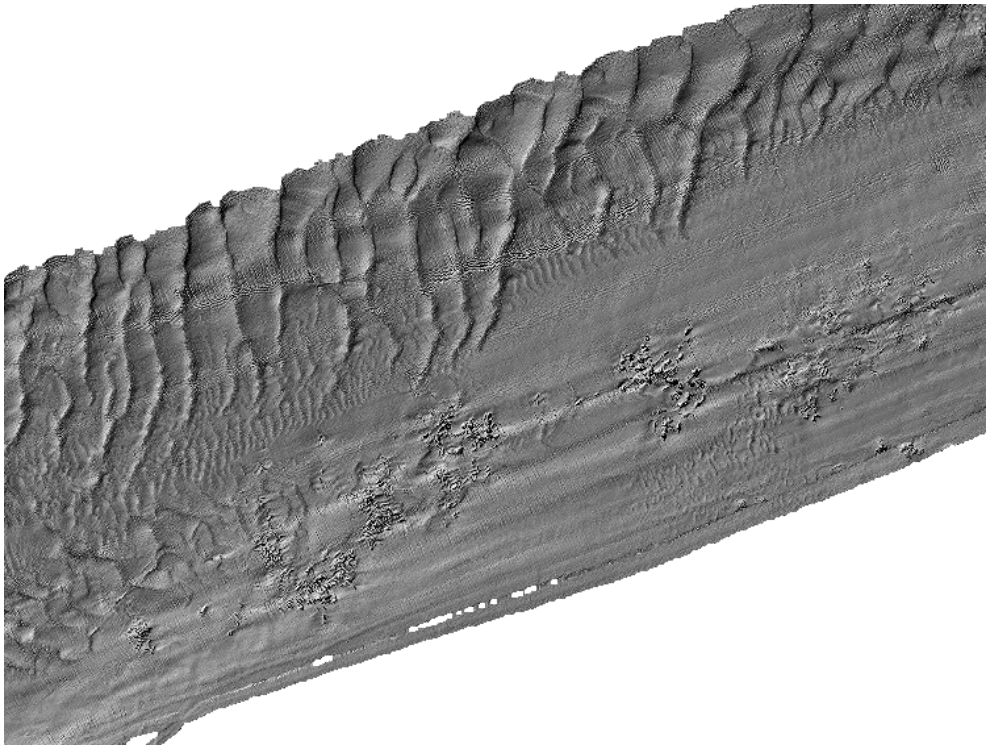


Photo 4. Side scan sonar of the western side of Kismet reef (2001).

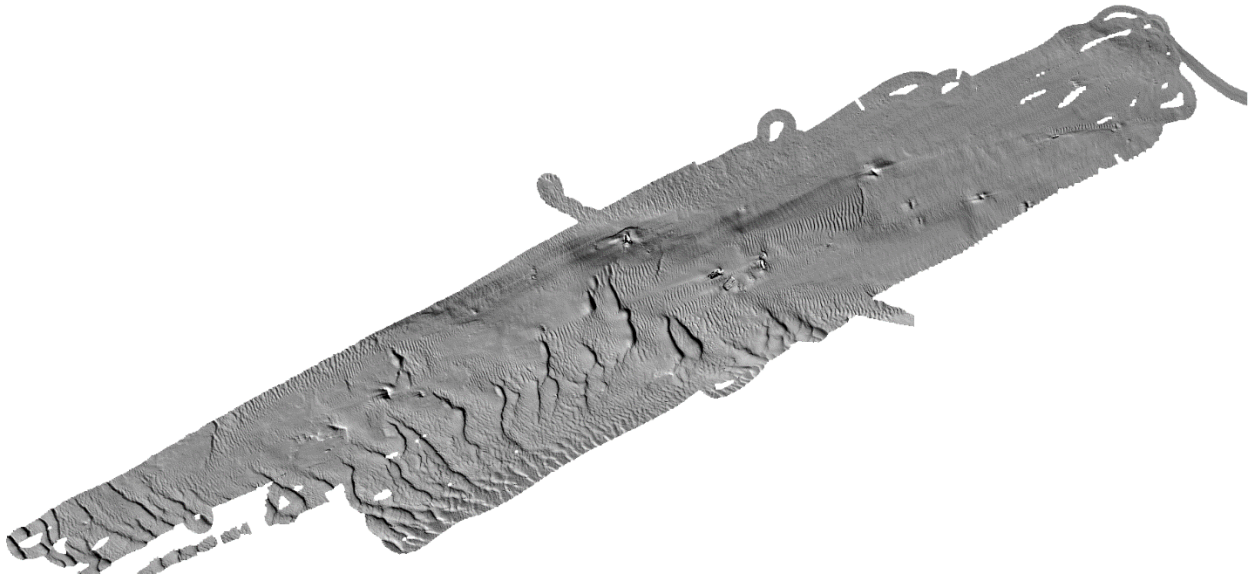


Photo 5. Side scan sonar of Yellowbar reef (2005).

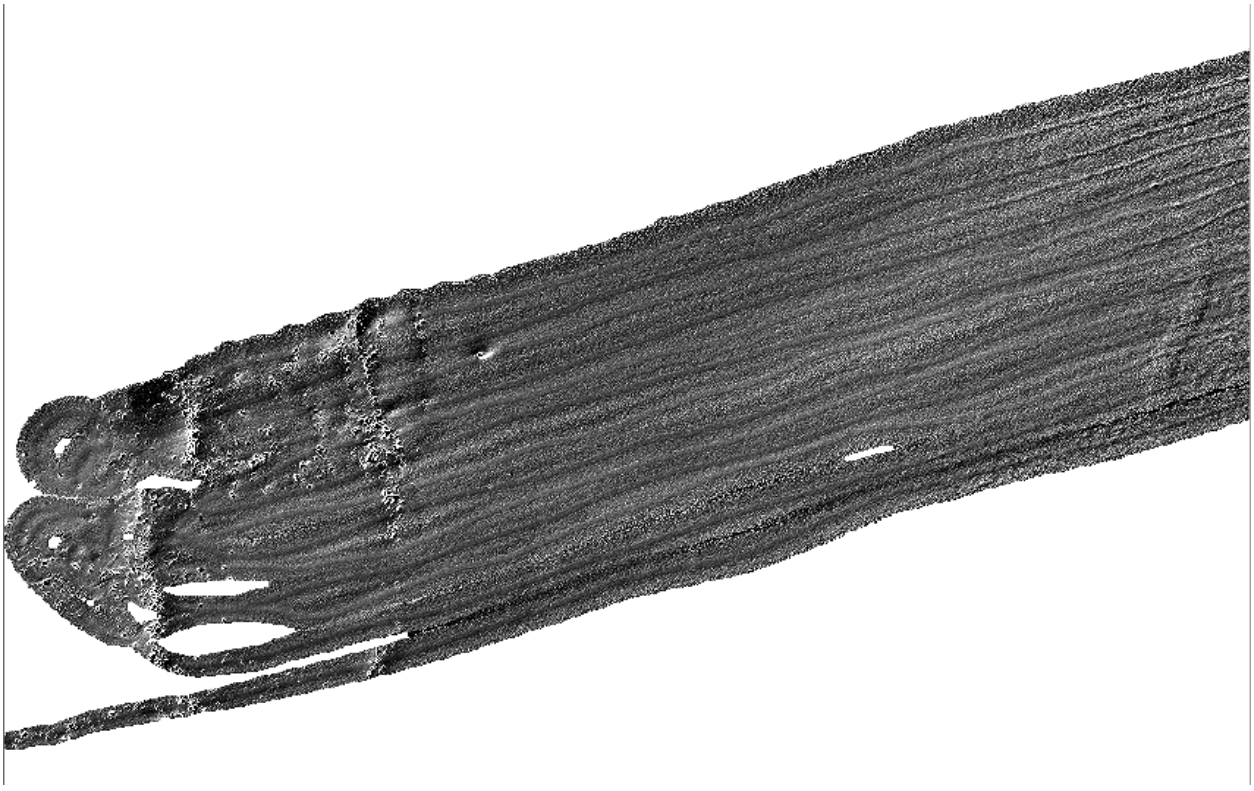


Photo 6. Side scan sonar of the western side of Matinecock reef (2001).

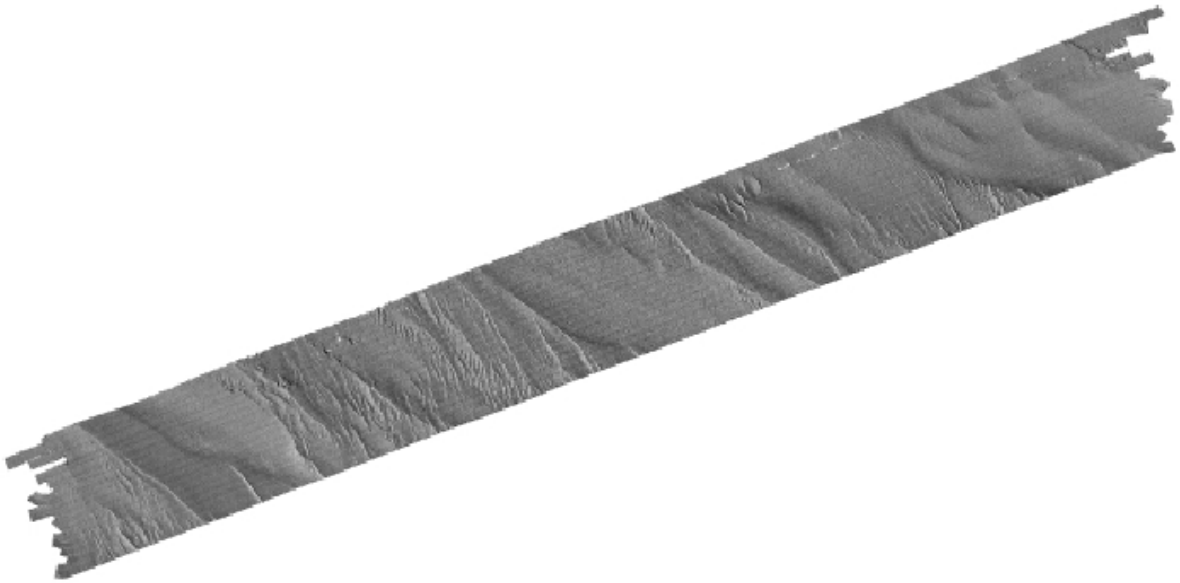


Photo 6: Side scan sonar of offshore Fire Island Inlet from USGS 1998 Survey. Fire Island Reef located on western portion of image.

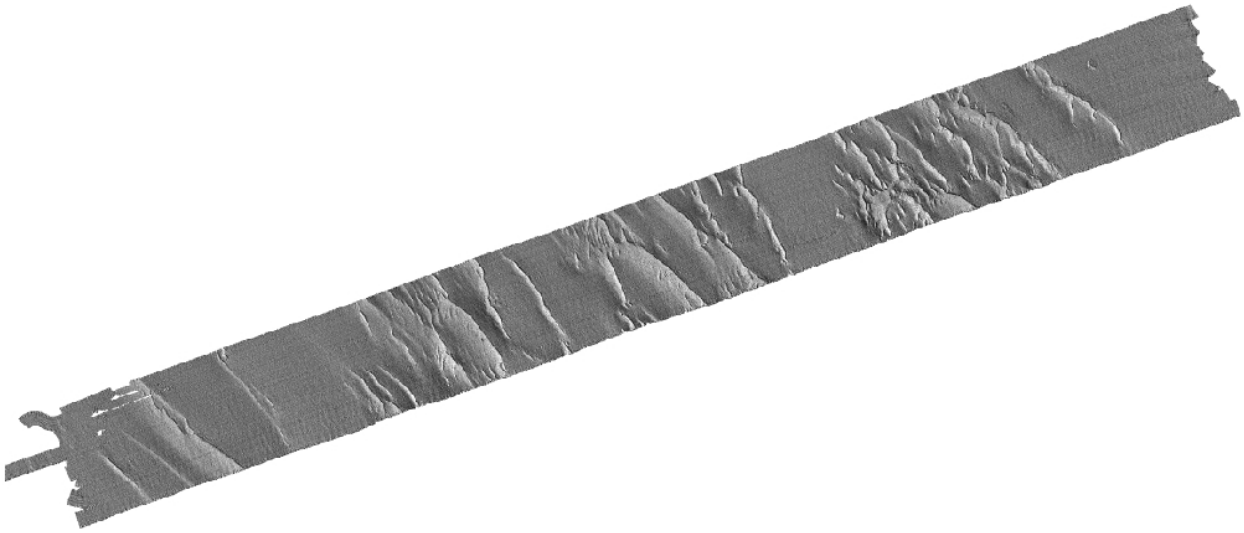


Photo 7: Side scan sonar of offshore Moriches Inlet from USGS 1998 Survey. A portion of the proposed Moriches Reef expansion is located on western portion of image.

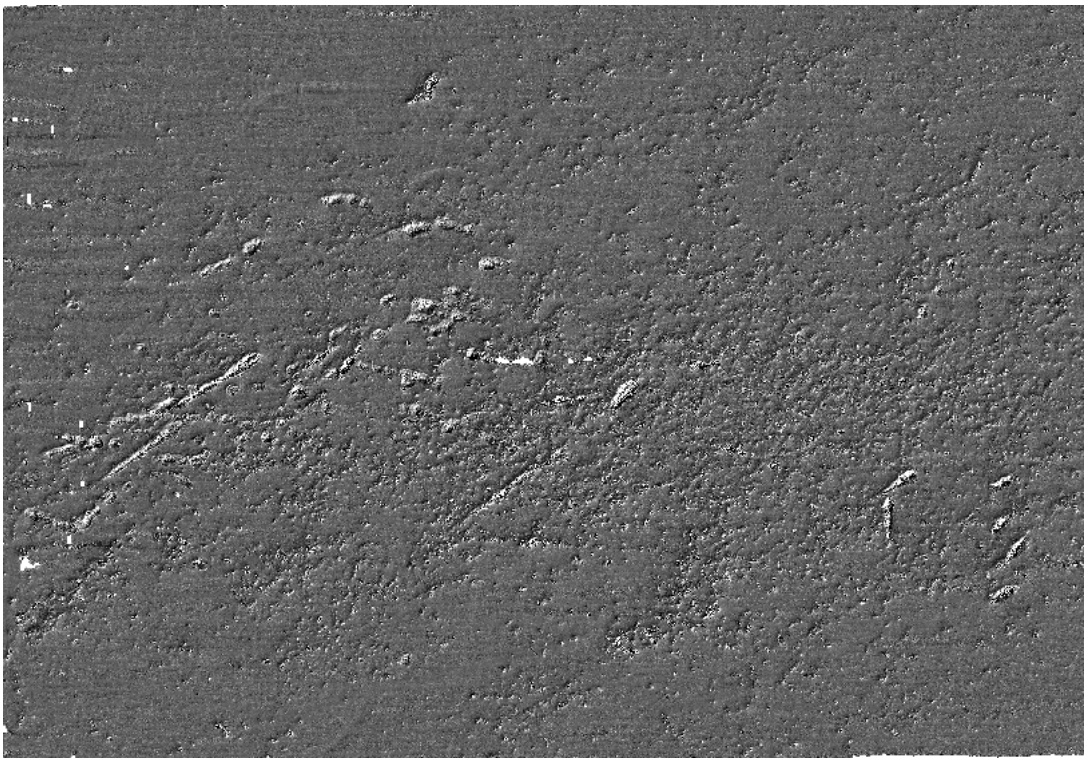


Photo 8. Side scan sonar of Rockaway Reef (2005).

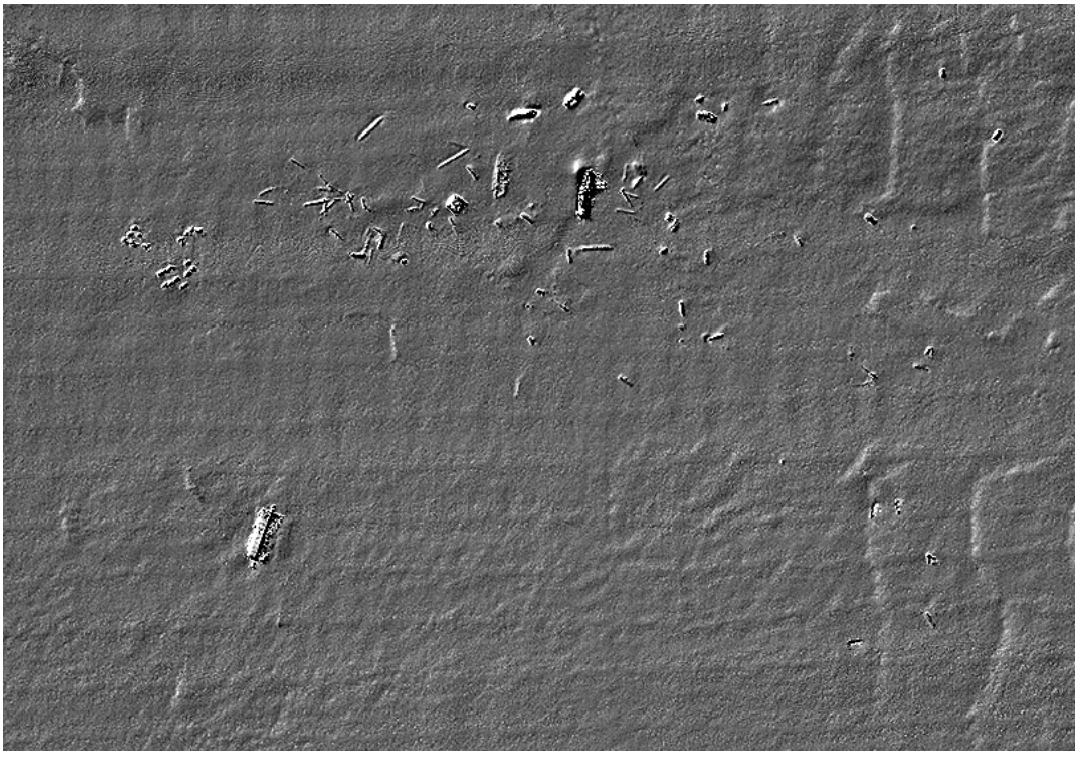


Photo 9. Side scan sonar of Shinnecock Reef (2005).

Photo 10. Side scan sonar of Smithtown Reef (2001).

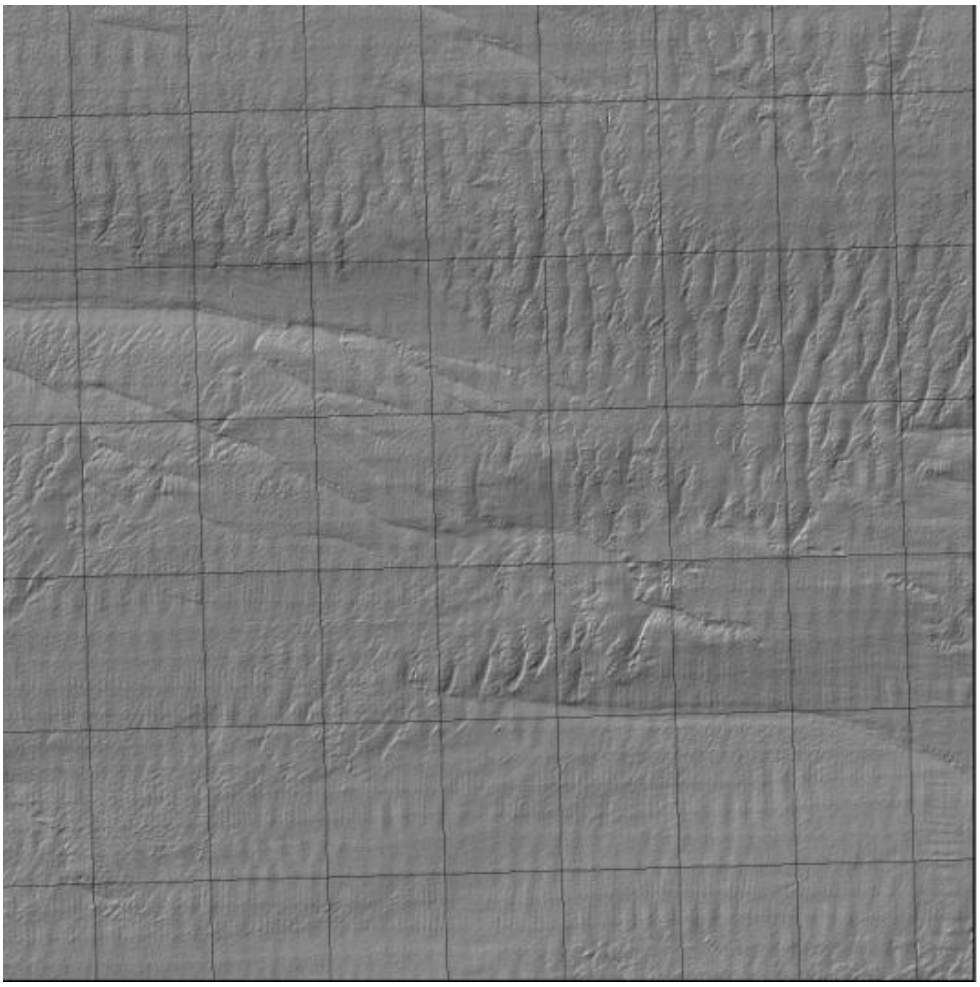


Photo 10. Side scan sonar of Twelve Mile Reef (2005).

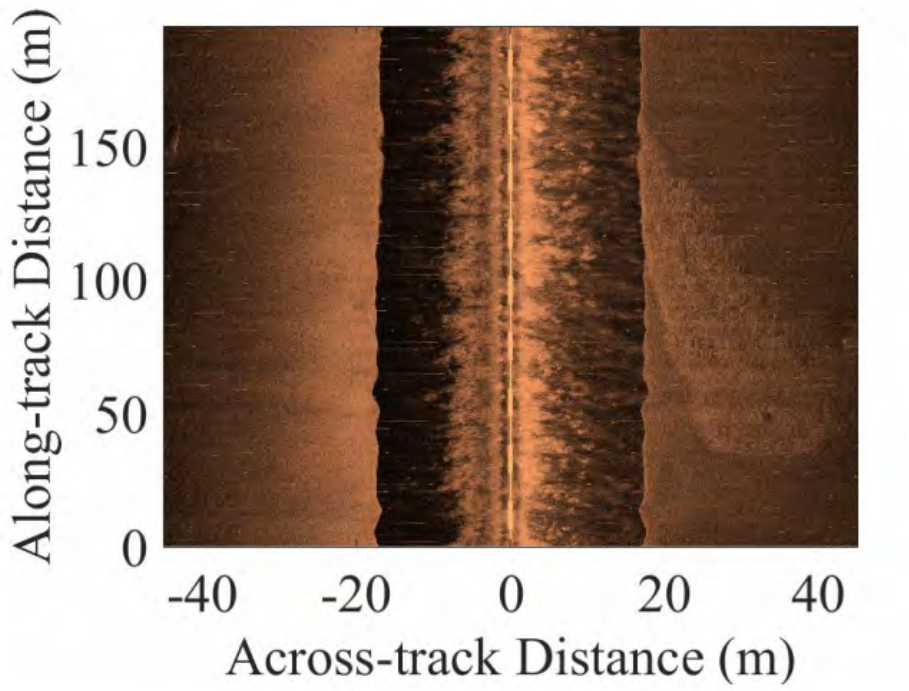


Figure 1. Sidescan image of the rock reef at the Atlantic Beach Reef (Warren, Peterson, and Chapman 2017).

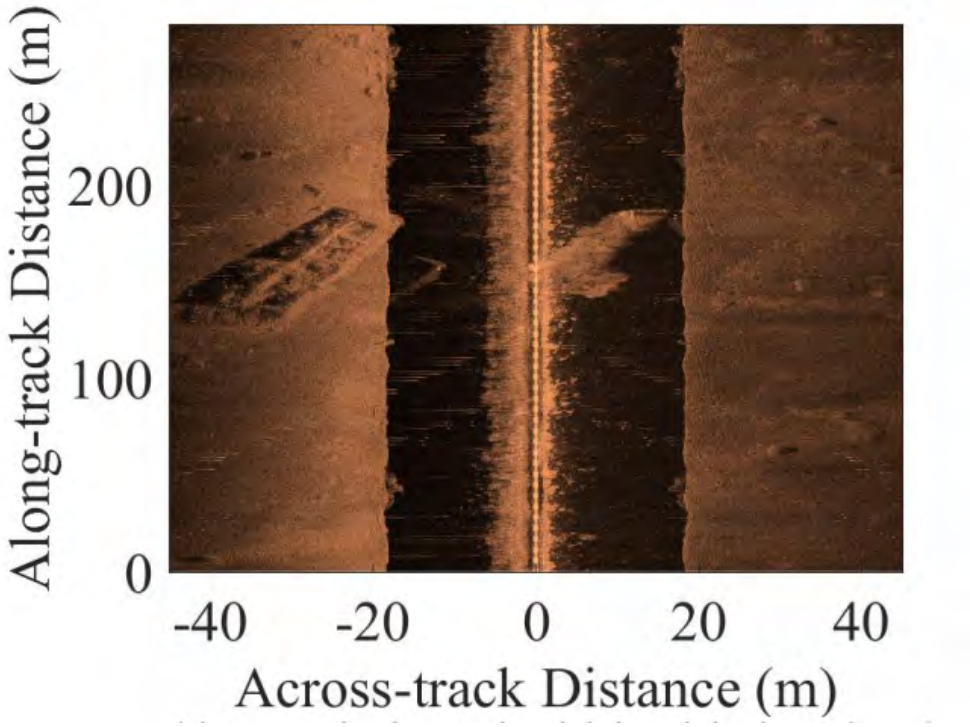


Figure 2. Sidescan image of 150 ft. barge at the Atlantic Beach Reef (Warren, Peterson, and Chapman 2017).

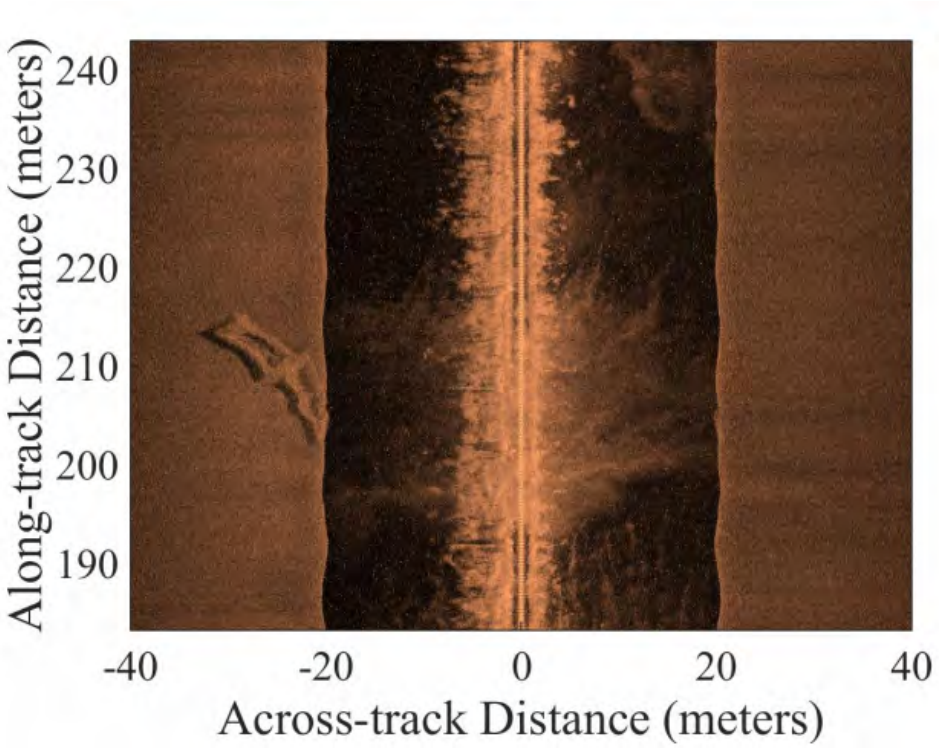


Figure 3. Sidescan image of two linked steel barges totaling 80 ft in length at the Hempstead Reef, which were deployed in 2000 (Warren, Peterson, and Chapman 2017).

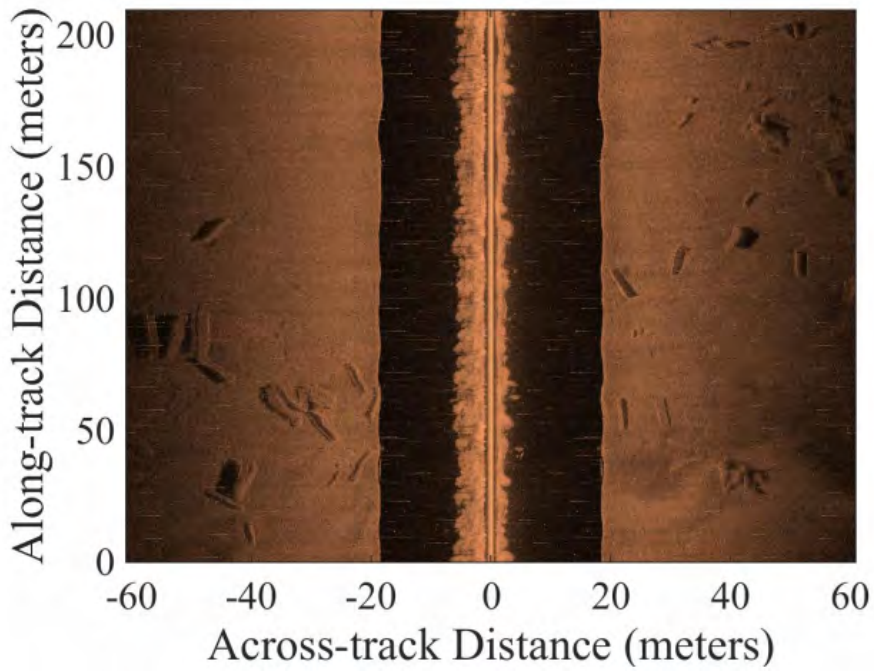


Figure 4. Sidescan image of concrete reef at the Hempstead Reef, which was deployed in 1998. Reef is characterized as highly dispersed with non-concrete debris mixed with the deployed concrete bridge slabs (Warren, Peterson, and Chapman 2017).

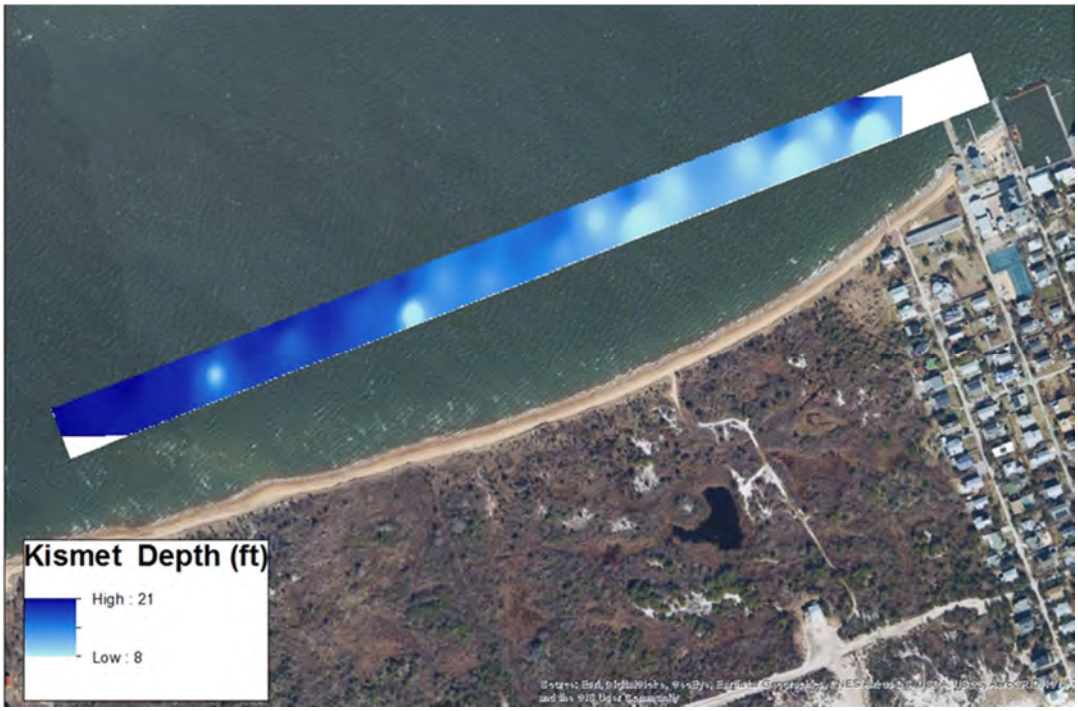


Figure 5. Interpolated Kismet Reef bathymetry following the NYSDEC 2019 site-specific survey.

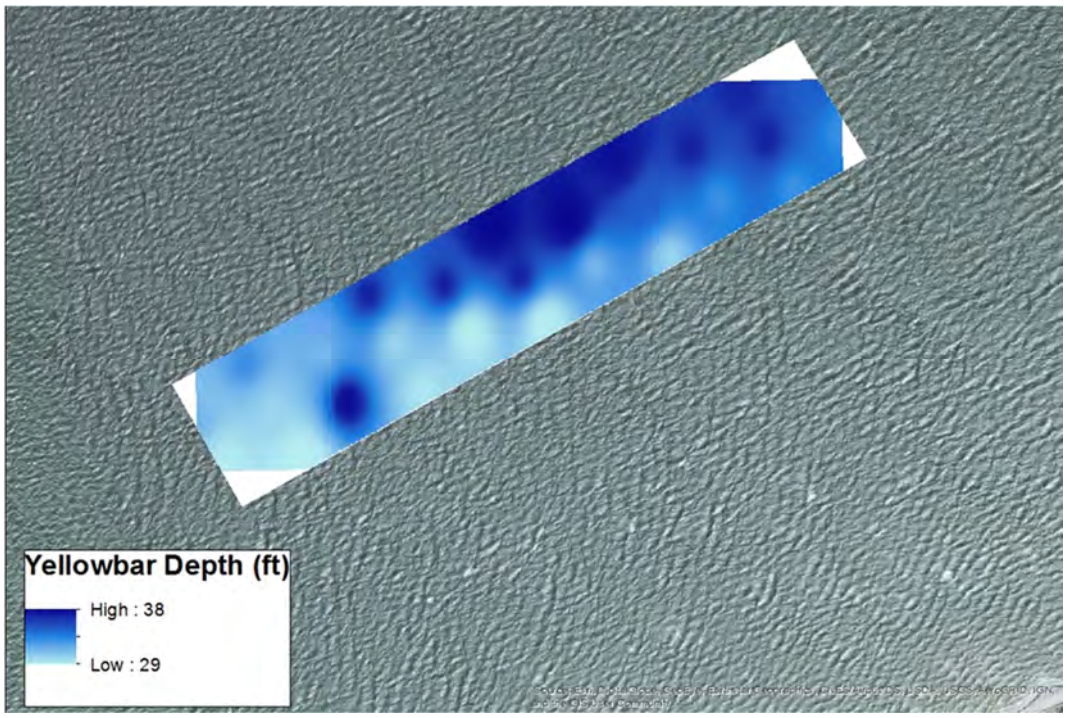


Figure 6. Interpolated Yellowbar Reef bathymetry following the NYSDEC 2019 site-specific survey.

Figure 7. Interpolated Yellowbar Reef bathymetry following the NYSDEC 2019 site-specific

Literature Cited

Butman, Bradford, Danforth, W.W., Clark, J.E.H., Signell, R.P., and Schwab, W.C. 2016. Bathymetry and backscatter intensity of the sea floor south of Long Island, New York: U.S. Geological Survey data release, doi:10.5066/F7Z899GG <https://doi.org/10.5066/F7Z899GG> .

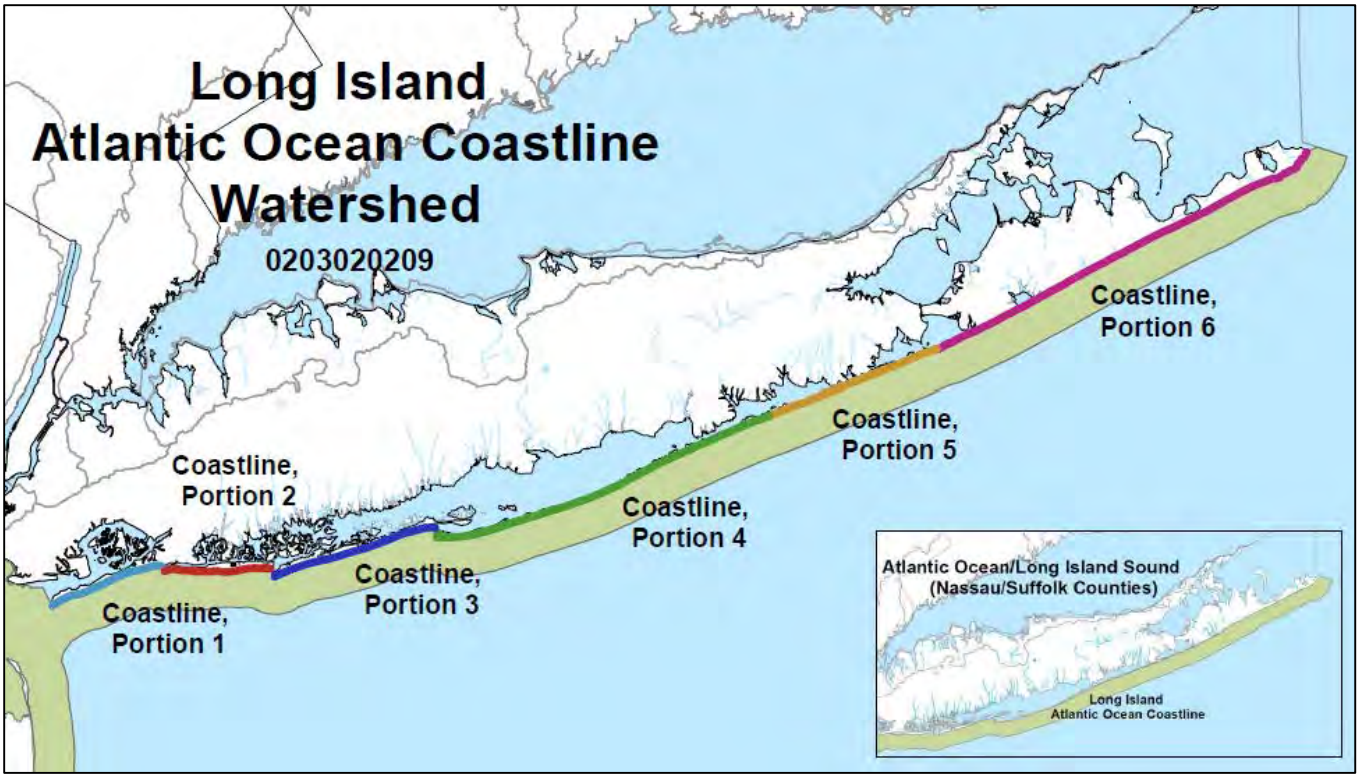
New York State Department of Environmental Conservation (NYSDEC). 2019. Artificial reef side scan sonar imagery. Provided by NYSDEC on March 8, 2019.

NYSDEC. 2019. A preliminary investigation of the bathymetry and benthic characteristics of Kismet and Yellowbar artificial reefs. Report provided by NYSDEC on April 17, 2019.

Warren, J.D., Peterson, B.J., and Chapman, D.D. 2017. Project title: assess the most cost effective, repeatable, and appropriate biological assessment methods and sampling procedures to monitor fishes, crustaceans, and epibenthic organisms on artificial reefs on the Atlantic Beach and Hempstead Reefs. Report to NYSDEC, Stony Brook University, School of Marine and Atmospheric Sciences.

Attachment D

NYSDEC Impaired Water Body Assessments and Water Quality Data



Long Island/Atlantic Ocean Coastline Watershed
(0203020209)

Water Index Number	Waterbody Segment	Category
(MW0.0) AO (portion 1)	Atlantic Ocean Coastline (1701-0014)	Impaired
(MW0.0) AO (portion 2)	Atlantic Ocean Coastline (1701-0198)	No Known Impact
(MW0.0) AO (portion 3)	Atlantic Ocean Coastline (1701-0351)	No Known Impact
(MW0.0) AO (portion 4)	Atlantic Ocean Coastline (1701-0350)	No Known Impact
(MW0.0) AO (portion 5)	Atlantic Ocean Coastline (1701-0349)	No Known Impact
(MW0.0) AO (portion 6)	Atlantic Ocean Coastline (1701-0348)	No Known Impact

Atlantic Ocean Coastline (1701-0014) Impaired

Waterbody Location Information

Revised: 12/21/2015

Water Index No:	(MW0.0) AO (portion 1)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020209 **Class:** SA		Atlantic Ocean
Water Type/Size:	Ocean Coast 10.2 Acres	**Reg/County:**	2/Queens (41)
Description:	coastline from Rockaway Point to Queens/Nassau line		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known: PATHOGENS
Suspected:
Unconfirmed:

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Combined Sewer Overflow (CSOs
Unconfirmed:

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: ext/WQCC
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview
This reach of the Atlantic Ocean shoreline is assessed as an impaired waterbody due to shellfishing use that is known to be impaired by pathogens from urban/stormwater runoff.

Use Assessment
This waterbody segment is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Much of this waterbody (included within Shellfish Growing Area #65) has been designated uncertified for the taking of shellfish for use as food.

Specifically the waters off the coast at the western end of the reach near Lower New York Bay and at the eastern end of the reach near East Rockaway Inlet are uncertified. The remainder of the reach has been certified as safe for the taking of shellfish. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed few if any elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include beaches at Breezy Point and a number of Rockaway Beaches that extend for about half this segment length. (NYSDOH BEACH Act monitoring results, 2015 and DEC/DFWMR, July 2014)

This waterbody is considered to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

From 1974 thru 2013 the USEPA Region II office has conducted regular summer season water quality monitoring and surveillance of the New York Bight, and New Jersey and Long Island coastal waters. Through 2006 this effort included collection of pathogen, phytoplankton, dissolved oxygen data and floatables monitoring. Sampling was discontinued in 2007; floatables monitoring contnued until the program ended in 2013. From 1997 through 2006, coliform results satisfied guidelines for bathing beaches in greater than 99% of the samples collected. (The Helicopter Monitoring Report, USEPA, Region II, February 2014)

Source Assessment

Based on surrounding land use and other knowledge of the watershed, urban/stormwater runoff is the primary source of pollutants to the waterbody. Combined sewer overflows may also be contributing sources.

Management Action

A Municipal Separate Storm Sewer System (MS4) program requires implementation of control measures to reduce pollutants into waterbodies. No additional specific management actions have been identified for the waterbody.

Section 303(d) Listing

This portion of the Atlantic coastline is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL

Waters. The waterbody is included on Part 2c of the List as an impaired shellfishing waterbody requiring a TMDL for pathogens. This waterbody was first listed on the 202012 List. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description:
This segment includes the ocean coastline between the tip of Rockaway point on the west and the Nassau–Queens county line at East Rockaway inlet on the east.

Atlantic Ocean Coastline (1701-0198) No Known Impacts

Waterbody Location Information

Revised: 12/21/2015

Water Index No:	(MW0.0) AO (portion 2)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020209 **Class:** SA		Atlantic Ocean
Water Type/Size:	Ocean Coast 9.3 Acres	**Reg/County:**	1/Nassau (30)
Description:	coastline from Queens/Nassau line to Jones Inlet		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This reach of the Atlantic Ocean shoreline is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

This waterbody segment is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included within Shellfish Growing Area #65) has been certified as safe for the taking of shellfish for use as food. These

shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed few if any elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include Atlantic Beach Club, Catalina Beach, Clearwater Cabana Beach, East Atlantic Beach, Lawrence Beach, Lido Beaches, Long City Beach, Pebble Cove Beach, Plaza Beach Club, Point Lookout Park Beach, Sands at Atlantic, Silver Point Beach Club, Sun and Surf Beach, Town Park Point Beach, and numerous other smaller beaches. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

This waterbody is considered to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

From 1974 thru 2013 the USEPA Region II office has conducted regular summer season water quality monitoring and surveillance of the New York Bight, and New Jersey and Long Island coastal waters. Through 2006 this effort included collection of pathogen, phytoplankton, dissolved oxygen data and floatables monitoring. Sampling was discontinued in 2007; floatables monitoring contnued until the program ended in 2013. From 1997 through 2006, coliform results satisfied guidelines for bathing beaches in greater than 99% of the samples collected. (The Helicopter Monitoring Report, USEPA, Region II, February 2014)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
This portion of the Atlantic Ocean coastline is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the ocean coastline between the Nassau–Queens county line at East Rockaway inlet on the west and Jones Inlet on the east.

Atlantic Ocean Coastline (1701-0351) No Known Impacts

Waterbody Location Information

Revised: 12/21/2015

Water Index No:	(MW0.0) AO (portion 3)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020209 **Class:** SA		Atlantic Ocean
Water Type/Size:	Ocean Coast 14.9 Acres	**Reg/County:**	1/Suffolk (52)
Description:	coastline from Jones Inlet to Fire Island Inlet		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This reach of the Atlantic Ocean shoreline is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

This waterbody segment is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. Most of this waterbody (included within Shellfish Growing Area #65) has been certified as safe for the taking of shellfish for use as food. The

only restrictions in this segment are precautionary advisories for limited areas around any portion of the sewer outfalls serving either the Cedar Creek or Suffolk County Sewer District No. 3 (Southwest) WPCPs. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed few if any elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include a number of primarily smaller beaches. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

This waterbody is considered to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

From 1974 thru 2013 the USEPA Region II office has conducted regular summer season water quality monitoring and surveillance of the New York Bight, and New Jersey and Long Island coastal waters. Through 2006 this effort included collection of pathogen, phytoplankton, dissolved oxygen data and floatables monitoring. Sampling was discontinued in 2007; floatables monitoring contnued until the program ended in 2013. From 1997 through 2006, coliform results satisfied guidelines for bathing beaches in greater than 99% of the samples collected. (The Helicopter Monitoring Report, USEPA, Region II, February 2014)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
This portion of the Atlantic Ocean coastline is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the ocean coastline between Jones Inlet on the west and Fire Island Inlet on the east.

Atlantic Ocean Coastline (1701-0350) No Known Impacts

Waterbody Location Information

Revised: 12/21/2015

Water Index No:	(MW0.0) AO (portion 4)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020209 **Class:** SA		Atlantic Ocean
Water Type/Size:	Ocean Coast 31.4 Acres	**Reg/County:**	1/Suffolk (52)
Description:	coastline from Fire Island Inlet to Moriches Inlet		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This reach of the Atlantic Ocean shoreline is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

This waterbody segment is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included within Shellfish Growing Area #65) has been certified as safe for the taking of shellfish for use as food. These

shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed few if any elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include Robert Moses State Park Beach, Fire Island National Seashore Beach, Watch Hill Beach, and numerous other smaller beaches. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

This waterbody is considered to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

From 1974 thru 2013 the USEPA Region II office has conducted regular summer season water quality monitoring and surveillance of the New York Bight, and New Jersey and Long Island coastal waters. Through 2006 this effort included collection of pathogen, phytoplankton, dissolved oxygen data and floatables monitoring. Sampling was discontinued in 2007; floatables monitoring contnued until the program ended in 2013. From 1997 through 2006, coliform results satisfied guidelines for bathing beaches in greater than 99% of the samples collected. (The Helicopter Monitoring Report, USEPA, Region II, February 2014)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
This portion of the Atlantic Ocean coastline is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the ocean coastline between Fire Island Inlet on the west and Moriches Inlet on the east.

Atlantic Ocean Coastline (1701-0349) No Known Impacts

Waterbody Location Information

Revised: 12/21/2015

Water Index No:	(MW0.0) AO (portion 5)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020209 **Class:** SA		Atlantic Ocean
Water Type/Size:	Ocean Coast 15.5 Acres	**Reg/County:**	1/Suffolk (52)
Description:	coastline from Moriches Inlet to Shinnecock Inlet		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This reach of the Atlantic Ocean shoreline is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

This waterbody segment is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included within Shellfish Growing Area #65) has been certified as safe for the taking of shellfish for use as food. These

shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed few if any elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include a number of primarily smaller beaches. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

This waterbody is considered to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

From 1974 thru 2013 the USEPA Region II office has conducted regular summer season water quality monitoring and surveillance of the New York Bight, and New Jersey and Long Island coastal waters. Through 2006 this effort included collection of pathogen, phytoplankton, dissolved oxygen data and floatables monitoring. Sampling was discontinued in 2007; floatables monitoring contnued until the program ended in 2013. From 1997 through 2006, coliform results satisfied guidelines for bathing beaches in greater than 99% of the samples collected. (The Helicopter Monitoring Report, USEPA, Region II, February 2014)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
This portion of the Atlantic Ocean coastline is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the ocean coastline between Moriches Inlet on the west and Shinnecock Inlet on the east.

Atlantic Ocean Coastline (1701-0348) No Known Impacts

Waterbody Location Information

Revised: 12/21/2015

Water Index No:	(MW0.0) AO (portion 6)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020209 **Class:** SA		Atlantic Ocean
Water Type/Size:	Ocean Coast 36.7 Acres	**Reg/County:**	1/Suffolk (52)
Description:	coastline from Shinnecock Inlet to Montauk Point		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This reach of the Atlantic Ocean shoreline is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

This waterbody segment is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included

within Shellfish Growing Area #65) has been certified as safe for the taking of shellfish for use as food. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed few if any elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include a number of primarily smaller beaches. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

This waterbody is considered to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

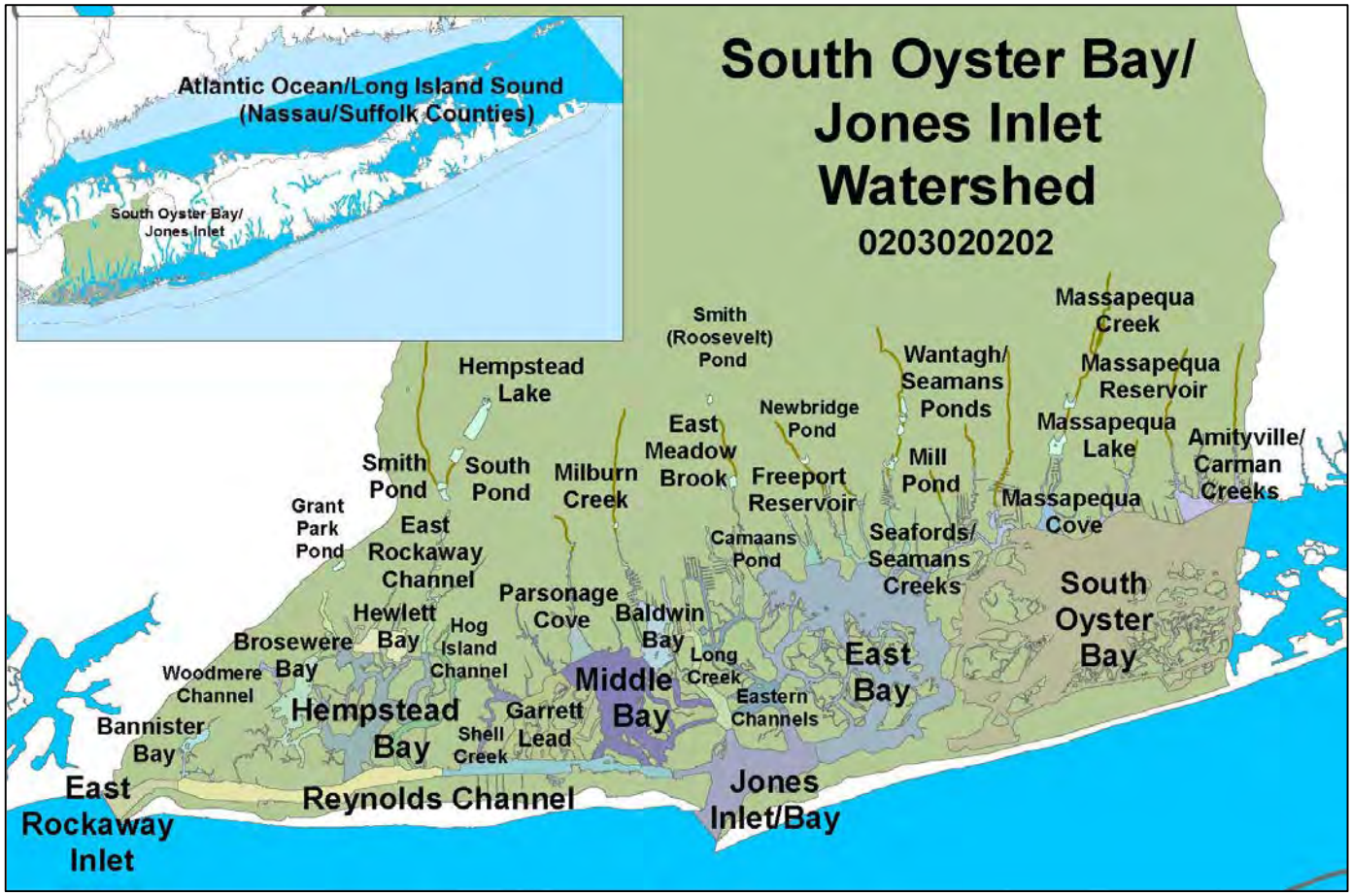
From 1974 thru 2013 the USEPA Region II office has conducted regular summer season water quality monitoring and surveillance of the New York Bight, and New Jersey and Long Island coastal waters. Through 2006 this effort included collection of pathogen, phytoplankton, dissolved oxygen data and floatables monitoring. Sampling was discontinued in 2007; floatables monitoring contnued until the program ended in 2013. From 1997 through 2006, coliform results satisfied guidelines for bathing beaches in greater than 99% of the samples collected. (The Helicopter Monitoring Report, USEPA, Region II, February 2014)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
This portion of the Atlantic Ocean coastline is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the ocean coastline between Shinnecock Inlet on the west and Montauk Point on the east.



South Oyster Bay/Jones Inlet Watershed

(0203020202)

Water Index Number	Waterbody Segment	Assessment Category
(MW8.1) SOB	South Oyster Bay (1701-0041)	Impaired
(MW8.1a) SOB-216 thru 219	Tidal Tribs to South Oyster Bay (1701-0200)	Impaired
(MW8.1a) SOB-216 thru 219	Amityville/Carman Creeks, Upper, and tribs (1701-0087)	Need Verification
(MW8.1a) SOB-220	Massapequa Cove, and tidal tribs (1701-0391)	Impaired
(MW8.1a) SOB-220	Massapequa Creek, Upper, and tribs (1701-0174)	Impaired
(MW8.1a) SOB-220-P968	Massapequa Lake (1701-0156)	Minor Impacts
(MW8.1a) SOB-220-P969	Massapequa Reservoir (1701-0157)	Impaired
(MW8.1a) SOB-221 thru 223	Seaford/Seaman Creeks, and tidal tribs (1701-0389)	Impaired
(MW8.1a) SOB-221 thru 223	Seafords/Seamans Creeks, Upper, and tribs (1701-0201)	Need Verification
(MW8.2) EB	East Bay (1701-0202)	Impaired
(MW8.2a) EB-224 thru 227 (selected)	Tidal Tribs to East Bay (1701-0203)	Minor Impacts
(MW8.2a) EB-224 thru 227 (selected)	Tribs (fresh) to East Bay (1701-0204)	Impaired
(MW8.2a) EB-224-P981	Mill (Jones) Pond (1701-0205)	Threatened
(MW8.2a) EB-224-P982,P983	Wantagh/Seamans Pond (1701-0159)	Impaired
(MW8.2a) EB-226-P986	Newbridge Pond (1701-0207)	Unassessed
(MW8.2a) EB-227-P987a	Camaans Pond (1701-0052)	Impaired

South Oyster Bay/Jones Inlet Watershed (con't)

(0203020202)

Water Index Number	Waterbody Segment	Assessment Category
(MW8.3) MDB (portion 1)	Middle Bay (1701-0208)	Impaired
(MW8.3) MDB (portion 2)/BB	Baldwin Bay/Milburn Cr and tidal tribs (1701-0385)	Minor Impacts
(MW8.3) MDB (portion 3)/PC	Parsonage Cove/Creek and tidal tribs (1701-0384)	Minor Impacts
(MW8.3) MDB (portion 4)	Garrett Lead/East Channel (1701-0386)	Impaired
(MW8.3) MDB (portion 5)/LC	Long Creek (1701-0214)	Minor Impacts
(MW8.3) MDB (portion 6)	Middle Bay, Eastern Channels (1701-0387)	Impaired
(MW8.3) MDB (portion 7)/JIJB	Jones Inlet/Jones Bay (1701-0373)	Impaired
(MW8.3) MDB (portion 8)/RC	Reynolds Channel, East (1701-0215)	Impaired
(MW8.3a) MDB-228	Freeport Creek/East Meadow Brook, Lower (1701-0388)	Impaired
(MW8.3a) MDB-228	East Meadow Brook, Upper, and tribs (1701-0211)	Need Verification
(MW8.3a) MDB-228-P989	Freeport Reservoir/East Meadow Pond (1701-0025)	Impaired
(MW8.3a) MDB-228-P989-P991	Smith (Roosevelt) Pond (1701-0136)	Impaired
(MW8.3a) MDB-230,231	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Impaired
(MW8.3a) MDB-232	Bedell Creek, and tidal tribs (1701-0210)	Minor Impacts
(MW8.3a) MDB-232a	Shell Creek/Barnums Channel (1701-0213)	Minor Impacts
(MW8.4) HB (portion 1)	Hempstead Bay, Broad Channel (1701-0032)	Impaired
(MW8.4) HB (portion 2)	Hewlett Bay (1701-0382)	Impaired
(MW8.4) HB (portion 3)	Brosewere Bay (1701-0383)	Impaired
(MW8.4) HB (portion 4)/HIC	Hog Island Channel (1701-0220)	Impaired
(MW8.4) HB (portion 4a)/IPC	Island Park Channel (1701-0374)	Minor Impacts
(MW8.4) HB (portion 5)/RC	Reynolds Channel, West (1701-0216)	Impaired
(MW8.4) HB (portion 6)/ERI	East Rockaway Inlet (1701-0217)	Impaired
(MW8.4a) HB-233	East Rockaway Channel (1701-0381)	Impaired
(MW8.4a) HB-234 thru 235	Tidal Tribs to Hempstead Bay (1701-0218)	Impaired
(MW8.4a) HB-233-P1005	Smith Pond (1701-0028)	Impaired
(MW8.4a) HB-233-P1005-	Tribs to Smith/Halls Ponds (1701-0221)	Impaired
(MW8.4a) HB-233-P1005-2-P1011	South Pond (1701-0223)	No Known Impacts
(MW8.4a) HB-233-P1005-2-P1012	Hempstead Lake (1701-0015)	Impaired
(MW8.4a) HB-235-P1017a	Grant Park Pond (1701-0054)	Impaired
(MW8.4a) HB-236	Woodmere Channel (1701-0219)	Impaired
(MW8.4a) HB-237, 237a	Bannister Creek/Bay (1701-0380)	Impaired

South Oyster Bay (1701-0041) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1) SOB			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	6,019.9	Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire bay, as delineated				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Impaired	Known
Public Bathing	Fully Supported	Known
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Stressed	Known
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (migratory species)
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DEC/FWMR
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

South Oyster Bay is assessed as impaired due to shellfishing use that is known to be impaired by pathogens from stormwater and urban nonpoint runoff. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

South Oyster Bay is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of portions of the area as year-round or seasonally uncertified for the taking of shellfish for use as food. Year-round closures are in place for several coves/tribs of the bay, and most of the near-shore waters along the north shore of the bay. Many of these

restrictions apply to Class SC waters which are listed separately. The areas within the segment boundaries where shellfishing is restricted include the northern near-shore waters (uncertified) and mid-bay and around the Jones Beach area in the western bay (seasonally uncertified). The South Oyster Bay Shellfish Growing Area (SGA #2) is among the most productive hard clam areas in the state. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing use is fully supported. Beach monitoring revealed no elevated bacteriological levels at beaches and the sampling resulted in few closures. Occasional beach closures that do occur are pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Jones Beach-Zachs Bay and Tobay Beach. General recreational use is also fully supported but evaluated as threatened, due to the restrictions on shellfishing and fish consumption. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

NYSDEC does not routinely collect water quality data in this waterbody. NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. The Town of Hempstead has conducted Bay sampling through 2010 which shows more favorable water quality than found in western Hempstead Bay waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in South Oyster Bay are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment,

sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

South Oyster Bay is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water. This waterbody was first listed on the 1998 Section 303(d) List. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes bay waters between the Wantaugh State Parkway (Jones Beach Causeway) and the Suffolk-Nassau County line, including Zachs Bay, State Boat Channel, eastern Sloop Channel, Stone Creek, Great Island Channel, Bulkhead Drain/Goose Creek.

Tidal Tribs to South Oyster Bay (1701-0200) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.1a) SOB-216 thru 219
Hydro Unit Code: 0203020202 **Class:** SC
Water Type/Size: Estuary 324.0 Acres
Description: total area of selected tidal tribs

Drain Basin: Atlantic-Long Island Sound
Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Stressed	Known
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PATHOGENS
Suspected: - - -
Unconfirmed: Algal/Plant Growth

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Other (waterfowl)
Unconfirmed: Other/Non-Permitted Sanitary Discharge

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

These Tidal Tribs to South Oyster Bay are assessed as an impaired waterbody due to recreational use that is known to be impaired by pathogens from stormwater and other urban nonpoint sources. Algal growth (brown tides) may also impact uses. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

The Tidal Tribs to South Oyster Bay segment is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not for shellfishing or public bathing.

Shellfish harvesting for consumption purposes in these tribs is restricted due to the year-round and seasonal designations of these waters (a portion within Shellfish Growing Area #3) as uncertified for the taking of shellfish for

use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, based on the shellfishing restrictions, other recreational uses are considered to be stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Recreational use is considered to be impaired based on monitoring at beaches in the segment and the shellfish advisory indicating somewhat elevated bacteriological levels. Beach monitoring revealed frequent elevated bacteriological levels at beaches. Occasional beach closures are the result of both bacteriological results and pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Phillip Healy Beach. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

NYSDEC does not routinely collect water quality data in this waterbody. NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. The Town of Hempstead has conducted Bay sampling through 2010 which shows more favorable water quality than found in western Hempstead Bay waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in these waters are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and

coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

These Tidal Tribs to South Oyster Bay are included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as a waterbody requiring TMDL development for pathogens. This waterbody was first listed on the 2012 List. (DEC/DOW, BWAM, July 2014)

Segment Description

This segment includes the tidal portions of Amityville Creek (-216), Narraskutuck (Unqua) Creek (-217), Carmans Creek (-218), Jones Creek (-219), and several marinas and boat basins. Massapequa Cove, including Lower (tidal) Massapequa Creek, and Seafords/Seamans Creek and tidal tribs – which were previously included within this segment – are now listed separately.

Amityville/Carman Creeks, Upper, and tribs (1701-0087) Need Verification

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-216 thru 219		**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:** C(T)		Southern Long Island
Water Type/Size:	River	3.5 Miles	**Reg/County:**	1/Nassau Co. (30)
Description:	total length of selected (freshwater) tribs			

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Unconfirmed
Aquatic Life	Stressed	Unconfirmed
Fish Consumption	Fully Supported	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: - - -
Suspected: NUTRIENTS, SILT/SEDIMENT, Algal/Plant Growth
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: URBAN/STORM RUNOFF
Unconfirmed: Other/Non-Permitted Sanitary Discharge

Management Information

Management Status: Verification of Problem Severity Needed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview

These freshwater Tribs to South Oyster Bay are assessed as needing verification of impacts due to recreational uses and aquatic life that may be impacted by pollutants from stormwater and other urban nonpoint sources. Aesthetics along the streams in these highly developed and densely populated suburban areas are also reported to be degraded. However, this assessment was conducted more than 10 years ago and more recent monitoring to verify current conditions is recommended.

Use Assessment

Upper Amityville and Carman Creeks are a class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply or for public bathing. Upper Amityville Creek is designated C(T), suitable for the support of a cold water trout fishery.

Aquatic life reflects impacts that may be the result of poor habitat conditions. Additional study is needed to determine if poor water quality is also influencing the biological community. Recreational uses are also influenced by habitat and aesthetic conditions. Additional sampling is necessary to determine if poor water quality also contributes to impacts to these uses. (DEC/DOW, BWAM, June 2014)

Fish consumption in this waterbody has not been assessed. There is currently no evidence of impacts to this use, however there are advisories for other nearby waters with similar surrounding land use. (DEC/DOW, BWAM, July 2014)

Water Quality Information
There is currently no available sampling data for this waterbody. (DEC/DOW, BWAR/SBU, November 2010)

Source Assessment
Based on surrounding land use and other knowledge of the waterbody, the most likely source(s) of possible pollutants to this waterbody are urban/storm runoff. (DEC/DOW, BWAM, June 2014)

Management Actions
No specific management actions have been identified for this waterbody.

Section 303(d) Listing
Upper Amityville/Carman Creeks is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. (DEC/DOW, BWAM, June 2014*)*

Segment Description
This segment includes the entire freshwater portions and tribs of Amityville Creek (-216) and Carman Creek (-218). It is not believed that there are any significant freshwater portions of Narraskatuck (Unqua) Creek (-217)

Massapequa Cove, and tidal tribs (1701-0391) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-220			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	020302002	**Class:**	SC		Southern Long Island
Water Type/Size:	Estuary	123.3 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total area of tidal cove and lower creek				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Stressed	Known
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	- - -
Unconfirmed:	Algal/Plant Growth

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other (waterfowl)
Unconfirmed:	Other/Non-Permitted Sanitary Discharge

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Massapequa Cove (including Lower Massapequa Creek) is assessed as an impaired waterbody due to recreational use that is known to be impaired by pathogens from stormwater and other urban nonpoint sources. Algal growth (brown tides) may also impact uses. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Massapequa Cove is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not for shellfishing or public bathing.

Shellfish harvesting for consumption purposes in these tribs is restricted due to the year-round and seasonal designations of these waters (a portion within Shellfish Growing Area #3) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, based on the shellfishing restrictions, other recreational uses are considered to be stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Recreational use is considered to be impaired based on monitoring at beaches in the segment and the shellfish advisory indicating somewhat elevated bacteriological levels. Beach monitoring revealed frequent elevated bacteriological levels at beaches. Occasional beach closures are the result of both bacteriological results and pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Biltmore Beach. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

NYSDEC does not routinely collect water quality data in this waterbody. NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. The Town of Hempstead has conducted Bay sampling through 2010 which shows more favorable water quality than found in western Hempstead Bay waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in these waters are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment,

sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Massapequa Cove is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was included as part of the Tidal Tribs to South Oyster Bay (1701-0200) segment on Part 1 of the List as a water requiring development of a TMDL for pathogens. This waterbody was first included on the List for pathogens in 2012. The Massapequa Cove segment was subsequently separated and is now assessed as a separate waterbody and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM/WQAS, May 2014)

Segment Description

This segment includes the tidal portions of Massapequa Cove, including Lower (tidal) Massapequa Creek and tidal tribs.

Massapequa Creek, Upper, and tribs (1701-0174) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-220			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	020302002	**Class:**	C		Southern Long Island
Water Type/Size:	River	3.6 Miles		**Reg/County:**	1/Nassau Co. (30)
Description:	stream above Massapequa Reservoir				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Stressed	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	NUTRIENTS (phosphorus), PATHOGENS
Suspected:	Low D.O./Oxygen Demand, Algal/Plant Growth (native)
Unconfirmed:	Pesticides, Priority Organics

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER/NON-PERMITTED SANITARY DISCHARGE
Suspected:	Other Source (waterfowl), Landfill/Land Disposal
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Massapequa Creek is assessed as an impaired waterbody due to recreation use and aquatic life that are known to be impaired by nutrients and pathogens from stormwater and other urban nonpoint sources. Aesthetics along the stream in this highly developed and densely populated suburban areas are also degraded.

Use Assessments

Massapequa Creek is a Class C waterbody, suitable for general recreation and support of aquatic life, but not as a water supply or public bathing.

Aquatic life is impaired by nutrient enrichment and other impacts. Biological sampling indicates a macroinvertebrate community dominated by tolerant species. (DEC/DOW, BWAM/SMAS, May 2011)

Recreational uses are also considered to be impaired based on the poor aquatic community and the presence of elevated levels of pathogens and other indicators of organic loads and possible sewage inputs to the creek. Waterfowl may also be a contributing source of pathogens. (DEC/DOW, BWAM/SMAS, May 2011)

Fish consumption is also stressed by impacts from an upstream abandoned plating plant that is now a superfund site which has contaminated groundwater with cadmium, chromium and volatile organics. This groundwater plume has reached Massapequa Creek. Fish sampling did not necessitate change in the health advisory. (DEC/FWMR, Region 1, 1998)

Water Quality Information

NYSDEC Rotating Integrated Basin Studies (RIBS) monitoring of Massapequa Creek in Massapequa was conducted in 2003 and 2004. Intensive Network sampling typically includes macroinvertebrate community analysis, water column chemistry, toxicity testing, sediment assessment and macroinvertebrate tissue analysis. Biological (macroinvertebrate) sampling indicated moderately impacted conditions. In such samples sensitive species are markedly reduced or missing and the distribution of major groups is significantly unbalanced relative to what would be expected. Samples are dominated by more tolerant species. The nutrient biotic index indicates some enrichment and impact source determination reveals the fauna to be most similar to communities influenced by point and nonpoint municipal and industrial sources as well as organic loads and low dissolved oxygen from sewage or animal wastes. Water column chemistry indicated nitrite and coliform to be present at levels that constitute parameters of concern. Toxicity testing using water from this location detected significant reproductive effects on the test organism. Sediment screening for acute toxicity indicated possible sediment toxicity. Bottom sediments analysis based on sediment quality guidelines developed for freshwater ecosystems revealed elevated levels of cadmium and PAHs, but overall sediment quality is not likely to cause chronic toxicity to sediment-dwelling organisms. Macroinvertebrate tissue was not collected at this site but small non-game fish analyzed for selected metals and PAHs showed mercury and chromium to be present in elevated levels. Based on the consensus of these established assessment indicators, water quality is considered to be poor and aquatic life is not fully supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/RIBS, May 2011)

A biological assessment of Massapequa Creek in Massapequa was also conducted in 1998 and 1999. Water quality was assessed as slightly impacted in 1998 and moderately impacted in 1999. Caddisflies were abundant at this site, and mayflies were present but limited; tolerant sowbugs were numerous. This site was assessed as slightly impacted in 1994. Impacts at this site may be caused in large part by flow-dependent urban runoff. (DEC/DOW, BWAR/SBU, January 2000)

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Massapequa Creek in Massapequa (at Clark Avenue) was conducted in 1999. Fecal and total coliform, ammonia and temperature values were found to be high. Other sampling results were typical of urban streams. (DEC/DOW, BWAR/SWAS, January 2001)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely source(s) of nutrients and pathogens in the waterbody are stormwater and other urban point and nonpoint sources. Unregulated sanitary discharges may be present. Contamination from a groundwater plume traced to an abandoned plating plant that is now a superfund site have also been documented. (DEC/DOW, BWAM and Reg 1, March 2011)

Management Actions

Nassau County DPW received state Clean Water/Clean Air Bond Act funding in 2001 to rehabilitate Massapequa Preserve, which includes the creek. These rehabilitation measures include construction of a stormwater treatment system, restoration of eroding pond/stream banks and construction of a flow augmentation system. Massapequa Creek had been regularly stocked with trout by the DEC. But declines in water quality and decreased baseflow (due to sewering in the area) prevent the stream from holding trout year-round. (DEC/DOW, Region 1, October 2001)

Section 303(d) Listing

Massapequa Creek is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL for nutrients and pathogens. This waterbody was first listed on the 2012 List. (DEC/DOW, BWAM, January 2014)

Segment Description

This segment includes the entire freshwater portion of the stream and all tribs above Massapequa Reservoir.

Massapequa Lake (1701-0156) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-220-P968	**Drain Basin:**	Atlantic-Long Island Sound Southern Long Island
Hydro Unit Code:	0203020202 **Class:** C		
Water Type/Size:	Lake 39.1 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Stressed	Unconfirmed
Fish Consumption	Stressed	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (native), AQUATIC INVASIVE SPECIES
Suspected:	NUTRIENTS (Phosphorus), Low D.O./Oxygen Demand
Unconfirmed:	Pesticides

Source(s) of Pollutant(s)

Known:	HABITAT ALTERATION, Urban/Storm Runoff
Suspected:	Other/Non-Permitted Sanitary Discharge
Unconfirmed:	Other (waterfowl)

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining Some Standards (IR Category 2)

Further Details

Overview

Massapequa Lake is assessed as having minor impacts due to recreational uses that are known to be stressed by algal and native and non-native/invasive plant growth. High nutrient loading from urban/storm runoff and other nonpoint sources are likely contributors to the problems.

Use Assessment

Massapequa Lake is a Class C waterbody, suitable for general recreation and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information

Massapequa Lake was sampling in 1999 as part of the NYSDEC Lake Classification and Inventory (LCI) lake monitoring program. Water quality analyses noted extremely high nitrate levels and low dissolved oxygen.

Extremely shallow water depths also limit development of a desirable recreation area or fishery. These conditions were noted during a 1998 Lake Classification and Inventory study by NYSDEC, but conditions need to be verified. (DEC/DOW, BWM/Lake Services, August 2000).

Fish consumption is also stressed. Fish flesh analyses show chlordane contamination in some species. However, at present, there is no health advisory. (DEC/FWMR, Region 1, 1998)

Management Actions

The lake is included in the Nassau County Suburban Pond Management Plan. The county received state Clean Water/Clean Air Bond Act funding in 2001 to rehabilitate Massapequa Preserve, which include the lake. These rehabilitation measures include construction of a stormwater treatment system, restoration of eroding pond/stream banks and construction of a flow augmentation system. (DEC/DOW, Region 1, October 2001)

Section 303(d) Listing

Massapequa Lake is currently included on the NYS 2010 Section 303(d) List of Impaired Waters. The lake is included among the waters listed in Appendix B - Waters Not Meeting Dissolved Oxygen Standards. This part of the List recognizes waterbodies where low dissolved oxygen in lake bottom waters may be the result of morphology and other natural conditions in thermally stratified lakes. Because NYS water quality standards for dissolved oxygen do not include an explicit exception for natural conditions or averaging of dissolved oxygen over lake depth, USEPA requires that the Section 303(d) List recognize such waters. (DEC/DOW, BWAM/WQAS, April 2011)

Segment Description

This segment includes the total area of the entire lake.

Massapequa Reservoir (1701-0157) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-220-P969	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** A		Southern Long Island
Water Type/Size:	Lake(R) 16.6 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Shellfishing	N/A	-
Public Bathing	Unassessed	-
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PESTICIDES (chlordane), Algal/Plant Growth (native)
Suspected:	Nutrients (Phosphorus)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	Urban/Storm Runoff
Suspected:	TOXIC/CONTAMINATED SEDIMENT
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Massapequa Reservoir is assessed as an impaired waterbody due to fish consumption that is known to be impaired by pesticide contamination. The source of this contamination is considered to be contaminated sediment, the result of past pesticide use. Recreation is considered to be stressed due to the fish consumption advisory, and the presence of nuisance native plant species.

Use Assessment

Massapequa Reservoir is a Class A waterbody, suitable for use as a water supply, public bathing beach, general recreation and support of aquatic life. The reservoir is no longer used as a public water supply.

Fish consumption in the waterbody is impaired due to a NYS DOH health advisory that recommends eating more than one meal per month of white perch because of elevated chlordane levels. The source of this contamination is

considered to be contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued in prior to 1998-99. (2013-14 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014).

Recreational uses are considered to be stressed due to the consumption advisory and by the presence of nuisance native plant species. However the pond supports a diverse fishery and is stocked for fishing use. (DEC/DOW, BWAM/LMAS, March 2011)

Aquatic life is fully supported. The Division of Fish Wildlife and Marine Resources has conducted 8 fisheries surveys on the reservoir since 1989. Each survey indicated that the reservoir supports a large diverse fish population that includes: largemouth bass, white perch, bluegill, pumpkinseed, brown bullhead, black crappie, golden shiners, common carp, banded killifish, American eel, as well as a small number of brown and rainbow trout. Their most recent survey in 2007 did not yield any white perch, the subject of the active fish consumption advisory. Although the lake is classified as a warmwater fishery, the lake is presently stocked in the spring and fall with rainbow and the county has proposed augmentation of the stream flow with cold water and dredging portions of the reservoir to make trout survival in the reservoir more likely in the future. (DEC/DFWMR, Bureau of Fisheries, September 2010)

The waterbody is not currently used as a water supply, nor is there a public bathing area located on the pond. Additional sampling is necessary to confirm conditions, but these uses are thought to experience no significant impacts. (DEC/DOW, BWAM, July 2014)

Water Quality Information

The reservoir was included in a joint DEC and Nature Conservancy aquatic plant sampling of waterbodies in Long Island in the summer of 2005. In addition, the reservoir was included in the NYSDEC 2009 intensive (monthly sampling) Lake Classification and Inventory (LCI) survey of the Atlantic Ocean/ Long Island Sound basin. During these sampling visits water quality conditions were evaluated through standard limnological indicators. Massapequa Reservoir can be characterized as mesoeutrophic, or moderately to highly productive. The water clarity readings typical of eutrophic waterbodies was expected given the average phosphorus readings that are typical of mesoeutrophic waterbodies, and the average chlorophyll a readings typical of mesoeutrophic waterbodies. These data indicate that nutrient levels are in the moderate to high range and may occasionally be high enough to produce algal blooms. It should be noted that Secchi disk transparency readings could not be accurately measured, since the disk was visible while sitting on the bottom of the reservoir. However, the phosphorus and chlorophyll a data suggest that the actual Secchi disk transparency readings are probably only slightly greater than those recorded during the LCI sampling sessions.

Massapequa Reservoir appeared to be typical of other shallow, hardwater, uncolored, alkaline waterbodies. Other waterbodies with similar water quality characteristics often support warmwater fisheries, although fisheries habitat cannot be fully evaluated through this monitoring program. Several common native rooted aquatic plants species were observed in the reservoir as well as two invasive species Myriophyllum aquaticum (parrot feather) and Potamogeton crispus (curlyleaf pondweed). Parrot feather and curlyleaf pondweed can outcompete native vegetation and grow to nuisance levels. However, the overall plant community is dominated by Ceratophyllum demersum (coontail), a nuisance native plant.

Source Assessment

The source of pesticide contamination is believed to be from contaminated sediments, the result of past pesticide use. Although Massapequa Reservoir is within confines of the forested preserve, much of the watershed is in the large residential developments on either side of the preserve. (DEC/DOW, BWAM/LMAS, March 2011)

Management Actions

No specific management actions have been identified for these ponds. The waterbody is the second largest waterbody in Massapequa Preserve Park, which is managed by Nassau County. Nassau County is currently working to improve water quality throughout the preserve. Additional background and fishing information for the reservoir can be found at http://www.dec.ny.gov/outdoor/24182.html. The reservoir was used as a drinking water source for New York City from the late 1800's to the mid 1900's, but is no longer used for potable water supply. (DEC/DOW, BWAM/LMAS, March 2011)

Section 303(d) Listing

Massapequa Lake is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2b of the List as a fish consumption water due to pesticide contamination. This waterbody was first listed on the 1998 Section 303(d) List. (DEC/DOW, BWAM, March 2011)

Segment Description

This segment includes the total area of the entire lake.

Seafords/Seamans Creeks, and tidal tribs (1701-0389) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-216 thru 219	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	02030202/050 **Class:** SC		Southern Long Island
Water Type/Size:	Estuary 199.2 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of selected tidal tribs to bay		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Stressed	Known
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	- - -
Unconfirmed:	Algal/Plant Growth

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other (waterfowl)
Unconfirmed:	Other/Non-Permitted Sanitary Discharge

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

These Tidal Tribs to South Oyster Bay are assessed as an impaired waterbody due to recreational use that is known to be impaired by pathogens from stormwater and other urban nonpoint sources. Algal growth (brown tides) may also impact uses. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

The Tidal Tribs to South Oyster Bay segment is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not for shellfishing or public bathing.

Shellfish harvesting for consumption purposes in these tribs is restricted due to the year-round and seasonal designations of these waters (a portion within Shellfish Growing Area #3) as uncertified for the taking of shellfish for

use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, based on the shellfishing restrictions, other recreational uses are considered to be stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Recreational use is considered to be impaired based on monitoring at beaches in the segment and the shellfish advisory indicating somewhat elevated bacteriological levels. Beach monitoring revealed frequent elevated bacteriological levels at beaches. Occasional beach closures are the result of both bacteriological results and pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Phillip Healy Beach. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

NYSDEC does not routinely collect water quality data in this waterbody. NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. The Town of Hempstead has conducted Bay sampling through 2010 which shows more favorable water quality than found in western Hempstead Bay waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in these waters are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and

coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Seafords/Seamans Creeks and tidal tribs is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was included as part of the Tidal Tribs to South Oyster Bay (1701-0200) segment on Part 1 of the List as a water requiring development of a TMDL for pathogens. This waterbody was first included on the List for pathogens in 2012. The Seafords/Seamans Creek segment was subsequently separated and is now assessed as a separate waterbody and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM/WQAS, May 2014)

Segment Description

This segment includes the tidal portions of Seaford Creek (-221), Seamans Creek (-222) and tidal tribs, including Island Creek and Lower Cedar Creek, and several marinas and boat basins. Massapequa Cove, including Lower (tidal) Massapequa Creek, is listed separately.

Seafords/Seamans Creeks, Upper, and tribs (1701-0201) Need Verification

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.1a) SOB-221 thru 223 (select)		**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:** C		Southern Long Island
Water Type/Size:	River	3.8 Miles	**Reg/County:**	1/Nassau Co. (30)
Description:	total length of selected (freshwater) tribs			

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Unconfirmed
Aquatic Life	Stressed	Unconfirmed
Fish Consumption	Fully Supported	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	- - -
Suspected:	NUTRIENTS, SILT/SEDIMENT, Algal/Plant Growth
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	URBAN/STORM RUNOFF
Unconfirmed:	Other/Non-Permitted Sanitary Discharge

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Seafords/Seamans Creeks is assessed as needing verification of impacts due to recreational uses and aquatic life that may be impacted by pollutants from stormwater and other urban nonpoint sources. Aesthetics along the streams in these highly developed and densely populated suburban areas are also reported to be degraded. However, this assessment was conducted more than 10 years ago and more recent monitoring to verify current conditions is recommended.

Use Assessment

Upper Seafords and Seamans Creeks are a class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life reflects impacts that may be the result of poor habitat conditions. Additional study is needed to determine if poor water quality is also influencing the biological community. Recreational uses are also influenced by habitat and aesthetic conditions. Additional sampling is necessary to determine if poor water quality also contributes to impacts to these uses. (DEC/DOW, BWAM, June 2014)

Fish consumption in this waterbody has not been assessed. There is currently no evidence of impacts to this use, however there are advisories for other nearby waters with similar surrounding land use. (DEC/DOW, BWAM, July 2014)

Water Quality Information
There is currently no available sampling data for this waterbody. (DEC/DOW, BWAR/SBU, November 2010)

Source Assessment
Based on surrounding land use and other knowledge of the waterbody, the most likely source(s) of possible pollutants to this waterbody are urban/storm runoff. (DEC/DOW, BWAM, June 2014)

Management Actions
No specific management actions have been identified for this waterbody.

Section 303(d) Listing
Upper Seafords/Seamans Creeks is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. (DEC/DOW, BWAM, June 2014*)*

Segment Description
This segment includes the entire freshwater portions and tribs of Seaford Creek (-221), Seamans Creek (-222) and Cedar Creek (-223). The lower (tidal) portions of these streams are listed separately. This segment was previously referred to as LI Tribs (fresh) to South Oyster Bay and included additional tribs that are now assessed separately.

East Bay (1701-0202) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.2) EB
Hydro Unit Code: 0203020202 **Class:** SA
Water Type/Size: Estuary 3028.1 Acres
Description: entire bay, as delineated

Drain Basin: Atlantic-Long Island Sound
Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Impaired	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PATHOGENS
Suspected: Priority Organics (PCBs/migratory fish)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Other Source (migratory species)
Unconfirmed: - - -

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: DEC/FWMR
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview
East Bay is assessed as impaired due to shellfishing use that is known to be precluded by pathogens from stormwater and urban nonpoint runoff. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment
East Bay is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Inlet is restricted due to the designation of much of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that

can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are thought to be stressed due to the restrictions on shellfishing and fish consumption. However, beach monitoring to verify any impacts is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

NYSDEC does not routinely collect water quality data in this waterbody. NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. The Town of Hempstead has conducted Bay sampling through 2010 which shows more favorable water quality than found in western Hempstead Bay waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in East Bay are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

East Bay is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water. This waterbody was first listed on the 2002 Section 303(d) List. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes all Class SA tidal waters between Meadowbrook Parkway and Wantagh State Parkway (Jones Beach Causeway), including channels and inlets. Class SC tributaries are listed separately.

Tidal Tribs to East Bay (1701-0203) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.2a) EB-224 thru 227 (selected)	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SC		Southern Long Island
Water Type/Size:	Estuary 260.0 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of selected tidal tribs to bay		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Fully Supported	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 2)

Further Details

Overview

The Tidal Tribs to East Bay segment is assessed as having minor impacts due to recreational uses that are known to be stressed by pathogens from urban/storm runoff and other nonpoint sources.

Use Assessment

The Tidal Tribs to East Bay segment is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water or for public bathing.

Recreational use is considered to experience minor impacts based on monitoring at beaches in the segment and the shellfish advisory indicating somewhat elevated bacteriological levels. Beach monitoring revealed no elevated bacteriological levels at beaches and few closures. Occasional beach closures that do occur are pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include

Merrick Estates Civic Association Beach. (from summary of local 2008 beach monitoring data as cited in Testing the Waters, NRDC, 2009)

Shellfishing harvesting for consumption purposes in these tribs is restricted due to the year-round and seasonal designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions indicate other recreational uses could be stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Water Quality Information

NYSDEC does not routinely collect water quality data in this waterbody. NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. The Town of Hempstead has conducted Bay sampling through 2010 which shows more favorable water quality than found in western Hempstead Bay waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants in the Tidal Tribs to East Bay are urban/storm runoff and other nonpoint sources from the highly developed watershed. (DEC/DOW, BWAM and Region 1, March 2010)

Management Actions

No specific management actions have been identified for these tribs.

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

The Tidal Tribs to East Bay segment is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. (DEC/DOW, BWAM, August 1, 2014)

Segment Description

This segment includes Class SC portions of tribs Wantaugh Canal (-224a), Bellmore Creek (-224), Newbridge Creek (-225), Baldwin Creek/Cedar Swamp Creek (-226), Simmond Creek (-227), Mud Creek (-227a).

Tribs (fresh) to East Bay (1701-0204) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.2a) EB-224 thru 227 (selected)		**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:** C		Southern Long Island
Water Type/Size:	River	3.6 Miles	**Reg/County:**	1/Nassau Co. (30)
Description:	total length of selected (freshwater) tribs			

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Suspected
Aquatic Life	Impaired	Known
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	NUTRIENTS (phosphorus), Other Pollutant (debris, trash)
Suspected:	SILT/SEDIMENT
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	OTHER/NON-PERMITTED SANITARY DISCHARGE
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

These freshwater tribs are assessed as an impaired waterbody due to recreation use and aquatic life that are known or thought to be impaired by nutrients and silt sediment from urban/storm runoff and other nonpoint sources. Other sanitary discharges in this highly developed watershed may also be a contributing sources.

Use Assessment

These freshwater tribs are Class C waterbodies, suitable for general recreation use and support of aquatic life, but not as a water supply, or for public bathing.

Additional bacteriological sampling is needed to more fully evaluate swimming use. Conditions suggest at least stresses to public bathing.

Aquatic life is considered to be impaired based on the results of biological sampling that reveals moderately impacted conditions. Recreational use is thought to be impaired as well. No additional sampling to evaluate recreational use specifically has been conducted. But the likely sources identified by the biological monitoring suggest significant impacts to recreational use. (DEC/DOW, BWAM, December 2010)

Water Quality Information

A biological (macroinvertebrate) assessment of Bellmore Creek in Bellmore (at Wantagh State Parkway) was conducted as part of the RIBS biological screening effort in 2003. Sampling results indicated moderately impacted conditions. In such samples sensitive species are markedly reduced or missing and the distribution of major groups is significantly unbalanced relative to what would be expected. Samples are dominated by more tolerant species. The nutrient biotic index indicates elevated enrichment and impact source determination reveals the fauna to be most similar to communities influenced by impoundment effects and organic loads and low dissolved oxygen from sewage or animal wastes. Water quality is considered to be poor and aquatic life is not fully supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, December 2010)

These results are consistent with results collected at the site in 1998. Sampling results at that time also indicated moderately impacted water quality conditions; municipal/industrial sources were indicated. The dominance of worms and sowbugs points to organic inputs. Filamentous algae was also heavy at this site. (DEC/DOW, BWAR/SBU, January 2000)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely source(s) of pollutants is urban/storm runoff and other nonpoint sources. The biological community indicates organic loads and sewage inputs may be present, suggesting possible unregulated sanitary discharges. (DEC/DOW, BWAM, July 2014)

Management Actions

No specific management actions have been identified for these trib waters.

Section 303(d) Listing

The Tribs (fresh) to East Bay segment is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring the development of a TMDL for phosphorus and silt/sediment. However the evidence of impairment based on silt/sediment is not clear and should be re-evaluated. This waterbody was first listed on the 2002 List. (DEC/DOW, BWAM/WQAS, January 2010)

Segment Description

This segment includes the upper (freshwater) portion of Bellmore Creek (-224), Newbridge Creek (-225), Cedar Swamp Creek (-226), Simmond Creek (-227).

Mill (Jones) Pond (1701-0205) Threatened

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.2a) EB-224-P981	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** A		Southern Long Island
Water Type/Size:	Lake 17.0 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Fully Supported	Unconfirmed
Public Bathing	Fully Supported	Unconfirmed
Recreation	Threatened	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: Aquatic Invasive Species
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Habitat Alteration
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: No Action Needed
Lead Agency/Office: ext/WQCC
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
Mill (Jones) Pond is assessed as threatened due to recreation uses that are threatened by aquatic invasive species. All other uses are considered to be fully supported.

Use Assessment
Mill (Jones) Pond is a Class A waterbody, suitable for use as a water supply, public bathing beach, general recreation and support of aquatic life.

Recreational use is considered to be threatened due to the presence of invasive aquatic plants, which have the potential to restrict recreational use. Swimming and boating are not currently permitting in the waterbody, and recreational use of the lake is limited to shoreline fishing and other passive enjoyment. (DEC/DOW, BWAM, July 2011)

Aquatic life is fully supported in the waterbody. The pond supports an active sports fishery, including largemouth bass, chain pickerel, bluegill, pumpkinseed sunfish, black crappie, yellow perch, white perch, carp, American eel, black bullhead, and brown bullhead. The state record and United Fishing Association all-tackle world record black bullhead (7lb 7oz) was caught in Mill Pond in 1993. (DEC/DOW, BWAM/LMAS, March 2011)

The waterbody is not currently used as a water supply, nor is there a public bathing area located on the pond. Additional sampling is necessary to confirm conditions, but these uses are thought to experience no significant impacts. (DEC/DOW, BWAM, July 2014)

Water Quality Information

Mill (Jones) Pond was surveyed monthly by the NYSDEC in 2004 as part of the Lake Classification and Inventory (LCI) survey. This survey work found extensive surface beds of water chestnut (Trapa natans), Eurasian watermilfoil (Myriophyllum spicatum) and brittle naiad (Najas minor), invasive exotic plant species, throughout the lake. The water chestnut finding was the first in Long Island, and the Eurasian watermilfoil finding occurred shortly after this exotic plant was first found in Long Island in Twin Lakes North and South (aka Seamens Pond and Wantagh Pond), a few miles north of the lake. The lake also suffers from extensive populations of spadderdock (Nuphar sp). (DEC/DOW, BWAM/LMAS, March 2011)

The pond can be characterized as mesotrophic, or moderately productive. The water clarity readings (trophic state index (TSI) = 70, representative of eutrophic lakes) were much lower than expected given the phosphorus readings (TSI = 48, representative of mesoeutrophic lakes), and much lower than expected given the chlorophyll a readings (TSI = 46, representative of mesotrophic lakes. However, water clarity readings are substantially compromised by the shallow (appx 1.2 meters) maximum depth of the lake, limiting the use of water clarity as a trophic indicator. These data indicate that the lake does not appear to be susceptible to algal blooms, although some shoreline blooms are commonly found in shallow ponds, particularly within weed beds. The depth profile is typical of shallow lakes, with oxygenated conditions to the lake bottom. The lake has a circumneutral pH with moderately hard water, elevated chloride and nitrogen levels (though below the state water quality standards) and low water color. These data did not indicate any significant water quality problems. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

The source of the impacts in the waterbody are attributed to habitat alteration.

Management Actions

The presence of invasive aquatic plants triggered a 1999 hydraulic dredging project involving several thousand cubic yards of sediment from the pond, aquatic harvesting of aquatic vegetation, and creation of new pond shoreline plantings, pathways, benches, and trash receptacles. The estimated project cost was $1.2 million, of which $300,000 were a NYS Clean Water/Clean Air Bond Act award. Jones Pond is part of the (Wantagh) Mill Pond County Park managed by Nassau County. (DEC/DOW, BWAM/LMAS, March 2011)

Section 303(d) Listing

Mill (Jones) Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. (DEC/DOW, BWAM/WQAS, January 2010)

Segment Description

This segment includes the total area of the entire lake.

Wantagh/Seamans Ponds (1701-0159) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.2a) EB-224-P982,P983	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** A		Southern Long Island
Water Type/Size:	Lake 29.6 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	Total area of both ponds		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	Fully Supported	Unconfirmed
Shellfishing	N/A	-
Public Bathing	Fully Supported	Unconfirmed
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Good	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PESTICIDES (chlordane), Aquatic Invasive Species
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	Habitat Alteration
Suspected:	TOX/CONTAMINATED SED
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Wantaugh/Seamans Ponds are assessed as an impaired waterbody due to fish consumption that is known to be impaired by pesticide contamination. The source of this contamination is considered to be contaminated sediment, the result of past pesticide use. Recreation is considered to be stressed due to the fish consumption advisory, and the presence of exotic invasive plant species.

Use Assessment

Seamans Pond is a Class A waterbody, suitable for use as a water supply, public bathing beach, general recreation and support of aquatic life. Wantagh Pond is a Class C waterbody, with uses limited to general recreation and support of aquatic life.

Fish consumption in the waterbody is impaired due to a NYS DOH health advisory that recommends eating more than one meal per month of carp and American eel because of elevated chlordane levels. The source of this contamination is considered to be contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued in 2005. (2013-14 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014).

Recreational uses are considered to be stressed due to the consumption advisory and by the presence of exotic invasive plant species. However the pond supports considerable fishing use, cited by NYSDEC FWMR as one of the most heavily fished lakes in Nassau County. (DEC/DOW, BWAM/LMAS, March 2011)

Aquatic life is fully supported. The fishery includes largemouth bass, bluegill, pumpkinseed sunfish, black crappie, carp, brown bullhead, and American eel. Brown trout and rainbow trout are stocked in the pond. (DEC/DOW, BWAM/LMAS, March 2011)

The Class A portion of the waterbody is not currently used as a water supply, nor is there a public bathing area located on the pond. Additional sampling is necessary to confirm conditions, but these uses are thought to experience no significant impacts. (DEC/DOW, BWAM, July 2014)

Water Quality Information

Wantaugh Pond was surveyed by the NYSDEC and the Long Island Nature Conservancy as part of a joint DEC -TNC aquatic plant survey of Long Island lakes in 2006. These lakes were surveyed in an attempt to identify the range of water chestnut (Trapa natans), found in Wantagh Mill Pond a few miles downstream from the lake. This survey work found extensive growth of native plants, particularly spadderdock (Nuphar sp) in Upper Twin/Seamans Pond, as well as Eurasian watermilfoil (Myriophyllum spicatum) and fanwort (Ceratophyllum demersum) in both lakes, and Brazilian elodea (Egeria densa) in Lower Twin/Wantaugh Pond. It is likely that Brazilian elodea is also found in Upper Twin/Seamans Pond, but the lake couldn't be fully surveyed due to the extensive spadderdock beds. Eurasian watermilfoil, fanwort, and Brazilian elodea are invasive exotic plant species. The Eurasian watermilfoil finding in these lakes represent the first documented sighting of this common exotic plant in Long Island. Water chestnut was not found in the lake. (DEC/DOW, BWAM/LMAS, March 2011)

No water quality survey work has been conducted on this waterbody.

Source Assessment

The source of pesticide contamination is believed to be from sediments, the result of past/historic use.

Management Actions

No specific management actions have been identified for these ponds. Nassau County oversees the management of recreational use. A range of general best management practices and other recommendations to restore and protect water quality in all lakes is outlined in the NYSDEC manual Diet for a Small Lake (NYSDEC/FOLA, 2009).

Segment Description

This segment includes the total area of both Wantagh (Lower Twin) Pond (P982) and Seamans (Upper Twin) Pond (P983), as well as a connecting smaller pond (P983a).

Newbridge Pond (1701-0207) Unassessed

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.2a) EB-226-P986
Hydro Unit Code: 0203020202 **Class:** C
Water Type/Size: Lake 8.3 Acres
Description: entire lake

Drain Basin: Atlantic-Long Island Sound Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Unassessed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview
Newbridge Pond is currently unassessed.

Camaans Pond (1701-0052) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.2a) EB-227-P987a	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** C		Southern Long Island
Water Type/Size:	Lake 6.0 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Impaired	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	NUTRIENTS, ALGAL/PLANT GROWTH
Suspected:	Low D.O./Oxygen Demand
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other (waterfowl)
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Camaans Pond is assessed as an impaired waterbody due to recreational uses and aquatic life that are thought to be be impaired by high nutrient loads and resulting excessive aquatic plant growth, occasional algal blooms and reduced water clarity. Urban stormwater runoff is considered the most significant source of pollutants to the waterbody. Impacts from waterfowl are also a concern.

Use Assessment

Camaans Pond is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Recreational use is limited by high nutrient levels that result in algal blooms, aquatic plant growth and reduced water clarity.

Aquatic life is thought to be limited by low dissolved oxygen as well as other pollutants in this small eutrophic urban pond. However a fishery assessment has not been conducted on this waterbody. The lake supports some fishing (white perch and American eel). (DEC/DOW, WAM/LMAS, March 2001)

Water Quality Information

Camaans Pond was included in the NYSDEC 2009 intensive (four sampling events between June and September) Lake Classification and Inventory (LCI) survey of the Atlantic Ocean/ Long Island Sound (AO/LIS) basin. During LCI sampling visits, water quality conditions were evaluated through standard limnological testing. From the data collected in 2009, Camaans Pond can be characterized as eutrophic, or highly productive, with reduced water clarity and chlorophyll a levels also typical of eutrophic waterbodies. The LCI data suggest that algal blooms were occurring in July and August of 2009 and that baseline nutrient levels support persistent algal blooms. Extreme algal densities are also possible, but it is not known if this potentially contributes toxic algae to the pond. The waterbody appears to have substantially degraded water quality compared to other small shallow urban ponds in Nassau County that were sampled as part of the 2009 LCI program. Substantial amounts of detritus and debris have accumulated along the southern shore near the fishing dock. (DEC/DOW, BWAM/LMAS, March 2011)

Sources Assessment

Nassau County indicated the pond was originally created for drainage purposes. The majority of the water in the pond is stormwater from the surrounding area. Urban runoff and stormwater is the likely source of pollutants to the waterbody as well. The pond's outlet flows into a small canal which empties into the East Bay.

Management Actions

No specific management actions have been identified for Camaans Pond. Nassau County manages a small parking area and walking path on the eastern shore of the pond, as well as a small fishing platform at the southern end of the pond.

Section 303(d) Listing

Camaans Pond is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 3a of the List as an impaired waterbody requiring verification of Impairment for phosphorus. The pond was previously included among the waters listed in Appendix B - Waters Not Meeting Dissolved Oxygen Standards. The water was added to Part 3a of the List for phosphorus – the likely cause of oxygen demand – in 2012. Moving the waterbody to listing on Part 1 of the List as a waterbody with impairment requiring a TMDL should be considered during the next listing cycle. (DEC/DOW, BWAM/WQAS, April 2011)

Segment Description

This segment includes the total area of the entire pond.

Middle Bay (1701-0208) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion 1)	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SA		Southern Long Island
Water Type/Size:	Estuary 1210.3 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire bay, as delineated		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	Priority Organics (PCBs/migratory fish), Nutrients (nitrogen), Algal/Plant Growth (ulva/sea lettuce)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (migratory fish species), Municipal, Habitat Alteration
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Middle Bay is assessed as impaired due to shellfishing use that is known to be precluded by pathogens from stormwater and urban nonpoint runoff. Public bathing and recreational uses are also thought to be affected by the presence of macroalgae in the Bay. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Middle Bay is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Inlet is restricted due to the designation of most of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels in the waters of adjacent western Hempstead Bay may contribute to damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in Middle Bay are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Middle Bay is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water. This waterbody was first listed on the 2002 Section 303(d) List. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes all Class SA tidal waters between Long Beach Boulevard and Meadowbrook Parkway; excluding Garrett Lead/East Channel, Reynolds Channel, Jones Inlet/Jones Bay and other Eastern Channels, which are listed separately. Baldwin Bay, Parsonage Cove, Long Creek, and Shell Creek/Barnums Channel are also separately listed Class Sb waters.

Baldwin Bay/Milburn Cr and tidal tribs (1701-0385) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion 2)/BB			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SB		Southern Long Island
Water Type/Size:	Estuary	309.8	Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of bay/creek, northeast of main Middle Bay				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: - - -

Suspected: ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (nitrogen), Pathogens, Priority Organics (PCBs/migratory fish),

Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff

Suspected: MUNICIPAL, HABITAT ALTERATION, Other Source (migratory fish species)

Unconfirmed: - - -

Resolution/Management Information

Management Status: Strategy Implementation Scheduled or Underway

Lead Agency/Office: DOW/Reg1

IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Baldwin Bay/Milburn Creek is thought to experience minor impacts due to public bathing and recreational uses that are thought to be affected by the presence of macroalgae in the Bay. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of Long Creek/Baldwin Bay/Parsonage Cove.

Use Assessment

Baldwin Bay/Milburn Creek is a class SB waterbody, classified for public bathing, general recreation uses and support of aquatic life, but not for shellfishing.

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels in the waters of adjacent western Hempstead Bay may contribute to damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in these waters are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Baldwin Bay/Milburn Creek is not included on the NYS Section 303(d) List of Impaired/TMDL Waters. However a proposed nitrogen TMDL for waters of the Western Bays is expected to provide water quality benefits to this adjacent waterbody. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes Class SB portions of the bay and creek northeast of the main portion of Middle Bay.

Parsonage Cove/Creek and tidal tribs (1701-0384) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion 3)/PC			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SB		Southern Long Island
Water Type/Size:	Estuary	131.8 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total area of cove/creek, northwest of main Middle Bay				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: - - -

Suspected: ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (nitrogen), Pathogens, Priority Organics (PCBs/migratory fish),

Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff

Suspected: MUNICIPAL, HABITAT ALTERATION, Other Source (migratory fish species)

Unconfirmed: - - -

Resolution/Management Information

Management Status: Strategy Implementation Scheduled or Underway

Lead Agency/Office: DOW/Reg1

IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Parsonage Cove/Creek is thought to experience minor impacts due to public bathing and recreational uses that are thought to be affected by the presence of macroalgae in the Bay. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of Long Creek/Baldwin Bay/Parsonage Cove.

Use Assessment

Parsonage Cove/Creek is a class SB waterbody, classified for public bathing, general recreation uses and support of aquatic life, but not for shellfishing.

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels in the waters of adjacent western Hempstead Bay may contribute to damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in these waters are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Parsonage Cove/Creek is not included on the NYS Section 303(d) List of Impaired/TMDL Waters. However a proposed nitrogen TMDL for waters of the Western Bays is expected to provide water quality benefits to this adjacent waterbody. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes Class SB portions of these tidal waters northwest of the main portion of Middle Bay.

Garrett Lead/East Channel (1701-0386) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion 4)		**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:** SA		Southern Long Island
Water Type/Size:	Estuary	538.6 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of channels, east of main Middle Bay			

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	Priority Organics (PCBs/migratory fish), Nutrients (nitrogen), Algal/Plant Growth (ulva/sea lettuce)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (migratory fish species), Municipal, Habitat Alteration
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Garrett Lead/East Channel is assessed as impaired due to shellfishing use that is known to be precluded by pathogens from stormwater and urban nonpoint runoff. Public bathing and recreational uses are also thought to be affected by the presence of macroalgae in the Bay. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Garrett Lead/East Channel is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Inlet is restricted due to the designation of most of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels in the waters of adjacent western Hempstead Bay may contribute to damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in Middle Bay are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Garrett Lead/East Channel is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was considered to be a part of the Middle Bay (1701-0208) segment which is included on Part 2c of the List as a shellfishing restricted water. The Garrett Lead/East Channel portion of Middle Bay was subsequently separated and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes Class SA tidal waters portions of these tidal waters west of the main portion of Middle Bay.

Long Creek (1701-0214) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion5)/LC		**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:** SB		Southern Long Island
Water Type/Size:	Estuary	232.1 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of channel, east of Main Middle Bay			

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: - - -
Suspected: ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (nitrogen), Pathogens, Priority Organics (PCBs/migratory fish),
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff
Suspected: MUNICIPAL, HABITAT ALTERATION, Other Source (migratory fish species)
Unconfirmed: - - -

Resolution/Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Long Creek is thought to experience minor impacts due to public bathing and recreational uses that are thought to be affected by the presence of macroalgae in the Bay. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of Long Creek/Baldwin Bay/Parsonage Cove.

Use Assessment

Long Creek is a class SB waterbody, classified for public bathing, general recreation uses and support of aquatic life, but not for shellfishing.

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels in the waters of adjacent western Hempstead Bay may contribute to damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in these waters are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Long Creek is not included on the NYS Section 303(d) List of Impaired/TMDL Waters. However a proposed nitrogen TMDL for waters of the Western Bays is expected to provide water quality benefits to this adjacent waterbody. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes Class SB portions of this channel east of the main portion of Middle Bay.

Middle Bay, Eastern Channels (1701-0387) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion 6)			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	394.8 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total area of tidal water, east of main Middle Bay/Long Creek				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	Priority Organics (PCBs/migratory fish), Nutrients (nitrogen), Algal/Plant Growth (ulva/sea lettuce)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (migratory fish species), Municipal, Habitat Alteration
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Middle Bay, Eastern Channels is assessed as impaired due to shellfishing use that is known to be precluded by pathogens from stormwater and urban nonpoint runoff. Public bathing and recreational uses are also thought to be affected by the presence of macroalgae in the Bay. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Middle Bay, Eastern Channels is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Inlet is restricted due to the designation of most of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels in the waters of adjacent western Hempstead Bay may contribute to damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in Middle Bay are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Middle Bay, Eastern Channels is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was considered to be a part of the Middle Bay (1701-0208) segment which is included on Part 2c of the List as a shellfishing restricted water. The Eastern Channels portion of Middle Bay was subsequently separated and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes all Class SA tidal waters between Long Creek and Meadowbrook Parkway; Long Creek, Baldwin Bay, and other portions of and East Middle Bays, as well as other Class SB, SC tidal waters are listed separately.

Jones Inlet/Jones Bay (1701-0373) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB (portion 7) JI/JB			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	1050.6 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	entire inlet/bay, btw Loop & Meadowbrook Pkwys				

Water Quality Problem/Issue Information

Use(s) Impacted	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Stressed	Known
Public Bathing	Stressed	Suspected
Recreation	Impaired	Known
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (ulva/sea lettuce), Pathogens
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	OTHER (macroalgae deposition), Urban/Storm Runoff
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water, Pollution, not Pollutant (IR Category 4c)

Further Details

Overview

Jones Inlet/Jones Bay is assessed as an impaired waterbody due to recreation uses that are considered to be impaired by excessive macroalgae that washes into the Bay/Inlet from other shallower parts of the western Hempstead Bays complex and deposits along the shorelines. Large municipal wastewater discharges to Reynolds Channel (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients (nitrogen) that feed algal growth in the shallower, warmer back bays and subsequently washes into other waterbodies and out through Jones Bay and Inlet. Shellfishing and public bathing are also considered to be stressed by pathogens from stormwater and urban nonpoint runoff. Fish consumption is also considered to be stressed due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Jones Inlet/Jones Bay is a class SA waterbody, suitable for use for shellfishing, public bathing, general recreation uses and support of aquatic life.

Recreational uses are considered to be impaired due to the routine occurrence of excessive macroalgae (ulva, or sea lettuce) that proliferates in the shallower back bays of the Western Bays complex and subsequently washes into the Bay/Inlet and onto shore. After washing on shore, the algal mats die, rot, and create odor and aesthetics issues that significantly affect the unsuitability of the beaches for recreation. Public bathing is also considered to be stressed by the deposited algae. However beach monitoring revealed no elevated bacteriological levels at beaches and no closures. Beaches within this reach include Rockaway Beach West. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

Shellfish harvesting for consumption purposes in the waterbody is restricted due to the designation of a portion of the area around Short Beach Boat Basin (included within Hempstead Bay Shellfish Growing Area #1) as only seasonally certified for the taking of shellfish for use as food. The remaining areas within the segment boundaries are open to shellfishing. As a result of the limited and seasonal nature of the restrictions, shellfishing use in the Bay/Inlet is listed as stressed. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are affected by excessive macroalgae that wash into the Bay/Inlet from adjacent waterbodies and is deposited on the shore. These conditions significantly and negatively impact recreational use. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

Monitoring data from the Town of Hempstead Bay Study has shown that nutrient levels in the Bay/Inlet are fairly low relative to other waters in the Hempstead Bay Complex. Mapping of bottom cover of ulva by SUNY SoMAS also shows that the bottom coverage of this rooted plant is limited (about 10%) in the Bay/Inlet, whereas bottom density is as high as 60% in the warmer, shallower western Hempstead Bay. (Town of Hempstead, 2000-2010 and SUNY SoMAS, 2011)

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae along the waterbody shore. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Current data and information regarding nitrogen levels and ulva cover in the Bay/Inlet indicate that the macroalgae that causes the recreational impact on the shores of Jones Bay/Jones Inlet are not originating in the Bay/Inlet, but are washing in from the shallower, warmer waters of Hempstead Bay where nitrogen concentrations and ulva growth are

very high. Hempstead Bay receives high nitrogen loads from wastewater discharges to adjacent waters, primarily Reynolds Channel. The most significant of these dischargers is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in the waterbody are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of Hempstead Bay as the primary cause of the macroalgae impairment throughout the Western Bays. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – is already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bays entirely and to the Atlantic Ocean. These resulting reductions of nitrogen loading are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas are regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Jones Inlet/Jones Bay was not included on the proposed 2014 NYS Section 303(d) List of Impaired Waters that was submitted by NYSDEC. EPA has questioned the decision to omit this waterbody from the List and indicated that a listing for this waterbody due to nitrogen should be considered. However, as noted above, data show that nitrogen levels in the Bay/Inlet are quite low and among the lowest within all of the western South Shore Estuary (Town of Hempstead, 2000-2010), and bottom coverage of ulva in the waters of the Bay/Inlet is less than 10% (SUNY-SoMAS, 2011). Based on this information, these waters are not violating the narrative standard for nitrogen ("none in amounts that will result in growths of algae…that will impair the waters for their best usages"). The information does support NYSDEC's contention that the ulva is proliferating in other areas of the Western Bays (which are listed) and is being transported by winds and tidal currents into the Bay/Inlet. (DEC/DOW, BWAM, August 2014)

Based on this assessment, NYSDEC has assessed the waterbody as an Integrate Reporting (IR) Category 4c water, and considers it to be impaired (by the macroalgae that washes on shore) but not requiring a TMDL for nitrogen because of the already low levels of nitrogen in the waterbody. Although a 303(d) Listing and TMDL is not appropriate for Jones Inlet/Jones Bay, a reduction in macroalgae limiting recreation along the shore of this segment is expected to be achieved through the western Hempstead Bays Nitrogen TMDL and other efforts to address macroalgae growth at its source. (DEC/DOW, BWAM, August 2014)

Segment Description

This segment includes all Class SA tidal waters east and south of Loop Parkway, and west of Meadowbrook State Parkway.

Reynolds Channel, East (1701-0215) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3) MDB-RC			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	476.7 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total channel area, from Jones Inlet to Long Beach Blvd				

Water Quality Problem/Issue Information

Use(s) Impacted	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Impaired	Suspected
Recreation	Impaired	Known
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (ulva/sea lettuce), PATHOGENS, NUTRIENTS (Nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, HABITAT ALTERATION, MUNICIPAL (Bay Park, other)
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Funding for Strategy Implementation Needed
Lead Agency/Office:	DOW/BWC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Reynolds Channel East is assessed as an impaired waterbody due to shellfishing, public bathing and recreation uses that are considered to be precluded/impaired by pathogens and nutrient loads that result in excessive macroalgae that washes through the channel from the shallower parts of the Western Bays complex and deposits along the shorelines. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Large municipal wastewater discharges to the channel and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients that feed algal growth in the shallower, warmer back bays and subsequently wash into the channel. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Reynolds Channel East is a class SA waterbody, suitable for use for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of most of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Recreational uses are considered to be impaired due to the routine occurrence of excessive macroalgae (ulva, or sea lettuce) that proliferates in the shallower back bays of the Western Bays complex and subsequently wash into the Channel. These algal mats cover surface waters for much of the summer and washes up on shore where it rots leaving beaches unsuitable for recreation. Public bathing and recreational use may also experience minor impacts from elevated bacteriological levels. However there are no designated beaches in this portion of the Channel and beach monitoring is not conducted at any location in the segment. (DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae that wash into the Channel from adjacent waterbodies. Additionally, high nitrogen levels damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The macroalgae that causes the use impairments in Reynolds Channel mostly originates in the shallower, warmer waters of Hempstead Bay; it is not certain that nitrogen levels are causing growth in the Channel. Hempstead Bay receives high nitrogen loads from wastewater discharges to adjacent waters, including Reynolds Channel. The most significant of these dischargers is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the macroalgae impairment throughout the Western Bays. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – is already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bays entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Reynolds Channel East is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water due to pathogens. This waterbody was first listed for this impairment on the 2002 Section 303(d) List. (DEC/DOW, BWAM/WQAS, May 2014)

Reynolds Channel East was also added to the List in 2014 for nitrogen; the waterbody is included in Part 3b of the List as a waterbody for which TMDL development may be deferred pending verification of the cause/pollutant/source of impairment. Because of the hydrology and bathemetry, nitrogen levels may not be causing macroalgae growth – or a water quality standards exceedence – in the Channel. However nitrogen discharges to the Channel support macroalgae growth in adjacent waters, significant amounts of which are pushed into the Channel by tides and prevailing winds and currents. Additionally the impact of the transported macroalgae into the Channel and deposits along the shore result in the impairment of uses. Although listed, the situation suggests that characterization of the waterbody as a 4c water (impaired but not requiring a TMDL because a TMDL cannot be developed for algal or aquatic weed impairment) was considered and may be more appropriate. Although a nitrogen TMDL specifically for Reynolds Channel is not planned, nitrogen levels and resulting macroalgae in the Channel will be addressed through the Western Bays Nitrogen TMDL and other efforts to restore water quality and coastal habitat in Hempstead Bay and other adjacent waters. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes the channel waters east of Bob Jones Canal in Long Beach.

Freeport Creek/East Meadow Brook, Lower (1701-0388) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3a) MDB-228			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	126.2 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total area of tidal waters, northwest of East Bay				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS
Suspected:	Priority Organics (PCBs/migratory fish), Nutrients (nitrogen), Algal/Plant Growth (ulva/sea lettuce)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (migratory fish species), Municipal, Habitat Alteration
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Freeport Creek/East Meadow Brook is assessed as impaired due to shellfishing use that is known to be precluded by pathogens from stormwater and urban nonpoint runoff. Public bathing and recreational uses are also thought to be affected by the presence of macroalgae. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of these waters with Middle and East Bays.

Use Assessment

Freeport Creek/East Meadow Brook is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Inlet is restricted due to the designation of most of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels may contribute to the macroalgae growth and damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in Middle Bay are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the Bay. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Freeport Creek/East Meadow Brook is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was considered to be part of the Middle Bay (1701-0208) and East Bay (1701-0202) segments which are included on Part 2c of the List as a shellfishing restricted water. The Freeport Creek/East Meadow Brook portion of these bays was subsequently separated and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes all Class SA tidal waters north of Middle and East (Merrick) Bays; Middle Bay, East Bay and Upper East Meadow Brook are listed separately.

East Meadow Brook, Upper, and tribs (1701-0211) Needs Verification

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3a) MDB-228			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	C		Southern Long Island
Water Type/Size:	River	1.0 Miles		**Reg/County:**	1/Nassau Co. (30)
Description:	stream and tribs above P989 (freshwater)				

Water Quality Problem/Issue Information

Use(s) Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Impaired	Unconfirmed
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	SILT/SEDIMENT
Suspected:	Water Level/Flow, Nutrients
Unconfirmed:	Algal/Plant Growth

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Roadbank Erosion
Unconfirmed:	Other/Non-Permitted Sanitary Discharge

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Upper East Meadow Brook is assessed as needing verification of impacts due to aquatic life that may be impaired by silt/sediment and/or other pollutants from urban storm runoff. Roadway runoff from Meadowbrook Parkway which runs along the stream also affects water quality.

Use Assessment

Upper East Meadow Brook is a class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life reflects impacts that may be the result of poor habitat conditions. Additional study is needed to determine if poor water quality is also influencing the biological community. Recreational uses are also influenced

by habitat and aesthetic conditions. Additional sampling is necessary to determine if poor water quality also contributes to impacts to these uses. (DEC/DOW, BWAM, June 2014)

Fish consumption in this waterbody has not been assessed. There is currently no evidence of impacts to this use, however there are advisories for other nearby waters with similar surrounding land use. (DEC/DOW, BWAM, July 2014)

Water Quality Information
A biological (macroinvertebrate) assessment of East Meadow Brook in Roosevelt was conducted in 1998. Sampling results indicated water quality to be moderately impacted. Poor substrate consisting of concrete pieces over gravel likely contributed to the limited fauna. This situation made it difficult to determine the extent of any water quality problems. Due to the uncertainty of the previous assessment and the lack of more recent data, additional monitoring is recommended to verify current conditions in the stream. (DEC/DOW, BWAR/SBU, November 2010)

Source Assessment
Based on surrounding land use and other knowledge of the waterbody, the most likely source(s) of silt/sediment and other pollutants in Upper East Meadow Brook are urban/storm runoff. (DEC/DOW, BWAM, June 2014)

Management Actions
Water levels and flows in the creek were cited as a concern if previous assessments. Nassau County has taken action to increase base flows by installing check dams to the stream. Siltation remains a water quality issues. (Nassau County WQCC, October 2000)

Section 303(d) Listing
Upper East Meadow Brook is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring TMDL development for silt/sediment. However the level of problem verification is insufficient for a listing in most cases and its continued listing should be re-evaluated during the next listing cycle. This waterbody was first listed on the 2002 List. (DEC/DOW, BWAM, June 2014*)*

Segment Description
This segment includes the entire freshwater portion of the stream and tribs.

Freeport Reservoir/East Meadow Pond (1701-0025) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3a) MDB-228-P989	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** A		Southern Long Island
Water Type/Size:	Lake(R) 20.3 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Use(s) Impacted	Severity	Confidence
Water Supply	Threatened	Suspected
Shellfishing	N/A	-
Public Bathing	Stressed	Suspected
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PESTICIDES (chlordane), Nutrients (Phosphorus), Algal/Plant Growth
Suspected: Silt/Sediment
Unconfirmed: D.O./Oxygen Demand

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff
Suspected: TOX/CONTAM. SEDIMENT
Unconfirmed: - - -

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Freeport Reservoir/East Meadow Pond is assessed as an impaired waterbody due to fish consumption that is known to be impaired pesticides. The source of the pesticide contamination is considered to be from past use and previously contaminated sediment. Public bathing and other recreational use is known to be stressed by excessive invasive and native aquatic plant and algal growth.

Use Assessment

Freeport Reservoir/East Meadow Pond is a Class A waterbody, suitable for use as a water supply, public bathing beach, general recreation and support of aquatic life.

Fish consumption in Freeport Reservoir/East Meadow Pond is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of carp because of elevated chlordane concentrations. The

source of this contamination is considered to be contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued in 1998-99. (2009-10 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2010).

Public bathing and other recreational uses of the waterbody are considered to be stressed by excessive aquatic plant and algal growth that restrict swimming and boating and make fishing difficult. Public bathing use impairment is assessed as suspected due to the lack of pathogen data. There is limited public access and use of the waterbody for bathing. (DEC/DOW, BWAM/LMAS, March 2011)

Freeport Reservoir is classified for use as a water supply; however it is not currently used for this purpose. Although available data are not sufficient to fully evaluate potable water use, elevated levels of iron, chloride, and manganese may impact potable water use. (DEC/DOW, BWAM/LMAS, March 2011)

Aquatic life is thought to be fully supported based on favorable assessment of the fishery. The lake provides fishing opportunities for largemouth bass, bluegill, pumpkinseed sunfish, black crappie, carp, brown bullhead, and American eel. Most of the fish are less than 12 inches, but there are good numbers of 12 to 15 inch fish present. The introduction of bluegills reduced the size of the pumpkinseed population, but both are plentiful enough to provide fast action for those that target them. Black Crappie provide a good spring time fishery. Large carp are reported to be caught every year from the reservoir, although there is an advisory restricting the consumption of carp to one fish per month. Although the reservoir is not classified as a trout water, it was stocked for a time but is no longer considered to be suitable as a cold water fishery. (DEC/DFWMR, Region 1, March 2011)

The aesthetics of the lake are considered to be poor, based on the excessive plant and weed growth. Habitat is considered to be fair, based on the presence of invasive plants. (DEC/DOW, BWAM/LMAS, March 2011)

Water Quality Information

Freeport Reservoir/East Meadow Pond was included in the 2009 NYSDEC Lake Classification and Inventory (LCI) survey of waterbodies in the Atlantic Ocean/ Long Island Sound (AO/LIS) basin. Only two samples were taken in the lake, one of the two revealed elevated high phosphorus levels. The recreational suitability of the western reservoir was described as "slightly impacted" due to reduced water clarity, definite algal greenness and the difficulty to access the reservoir. The recreational suitability of the eastern reservoir was described as "substantially impacted" due to the high densities of exotic and native aquatic plant species, definite algal greenness and the difficulty to access the reservoir. The invasive species Myriophyllum aquaticum (parrot feather) was observed to be growing throughout the eastern reservoir. High densities of parrot feather and other aquatic plants species may make boating and fishing difficult on the eastern reservoir. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Freeport Reservoir/East Meadow Pond is comprised of two hydrologically connected reservoirs that are on either side of the Meadowbrook Parkway. The land surrounding the reservoirs is owned by the state and is mostly forested. The course of the East Meadow Brook and the unnamed tributaries are mostly forested; however, much of the water in these streams comes from runoff associated with the large residential areas on either side of the Meadowbrook Parkway. Based on surrounding land use and other knowledge of the waterbody, the most likely source(s) of nutrients in the waterbody is/are urban/storm runoff from roadways and other impervious surfaces. The source of the pesticide contamination is considered to be from lake sediments contaminated by past pesticide use. (DEC/DOW, BWAM/LMAS, March 2011)

Management Actions

No specific management actions have been identified for this waterbody. A range of general best management practices and other recommendations to restore and protect water quality in all lakes is outlined in the NYSDEC manual Diet for a Small Lake. (NYSDEC/FOLA, 2009).

Section 303(d) Listing

Freeport Reservoir/East Meadow Pond is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2b of the List as a water impaired due to fish consumption restrictions due to chlordane. This waterbody was first listed on the 2002 List. (DEC/DOW, BWAM, July 2014)

Segment Description
This segment includes the total area of both basin of the entire lake.

Smith (Roosevelt) Pond (1701-0136) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3a) MDB-228-P989-P991	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** C		Southern Long Island
Water Type/Size:	Lake 6.1 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Use(s) Impacted	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Threatened	Suspected
Fish Consumption	Precluded	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PESTICIDES (chlordane), Algal/Plant Growth (vegetation), Nutrients
Suspected: - - -
Unconfirmed: Pathogens

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff, Other Sanitary Disch
Suspected: TOX/CONTAM. SEDIMENT
Unconfirmed: - - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Smith (Roosevelt) Pond is assessed as an impaired waterbody due to fish consumption that is known to be impaired by pesticides. The source of the pesticide contamination is considered to be from past use and previously contaminated sediment. Recreational use is known to be stressed by excessive invasive and native aquatic plant and algal growth, nutrients, and silt/sedimentation from urban stormwater runoff and other nonpoint sources.

Use Assessment

Smith (Roosevelt) Pond is a Class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply of for public bathing.

Fish consumption in Smith/Roosevelt Pond is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of carp or goldfish and eating no American eel because of elevated chlordane

concentrations. The source of this contamination is considered to be contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued prior to 1998-99. (2009-10 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2010).

Recreational use of the waterbody is somewhat limited by reduced water clarity and algal growth in this shallow, urban, eutrophic pond. (DEC/DOW, BWAM/LMAS, September 2009)

Aquatic life support is considered to fully supported, but threatened based on a mostly favorable fishery assessment. The Bureau of Fisheries conducted a few fisheries surveys in the 1990's. These surveys indicated that the pond supported: largemouth bass, golden shiners, goldfish, common carp, brown bullhead, black crappie, pumpkinseed, bluegill, and American eel. Discoloration and lesions were noted on some of the fish in the 1994 survey. A new fisheries survey would need to be conducted to verify the pond still supports a similar fish community (DEC/DFWMR, Bureau of Fisheries, October 2007).

Water Quality Information

Smith (Roosevelt) Pond was included in the NYSDEC 2009 intensive Lake Classification and Inventory (LCI) survey of the Atlantic Ocean/ Long Island Sound basin. During these sampling visits water quality conditions were characterized as eutrophic, or highly productive. The average water clarity reading is typical of eutrophic ponds and was expected given elevated phosphorus levels typical of eutrophic ponds. Clarity was less favorable than expected given chlorophyll a readings that were typical of mesoeutrophic ponds. These data suggest that baseline nutrient levels may support persistent algal blooms, although algae production does not appear to be limited by phosphorus. Phosphorus, iron, sodium and chloride were found to be at elevated concentrations in the pond. No invasive aquatic plants were observed, and submergent aquatic plant diversity was minimal. Sediment from the pond was found to have levels of lead, chrysene and pyrene above the Threshold Effect Concentration (TEC), the point at which adverse effects to sediment biota might be expected to occur. (DEC/DOW,BWAM/LMAS, September 2009)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely source of nutrients and other pollutants in the waterbody is urban/storm runoff from roadways and other impervious surfaces. The pond is located in a local park. Some of the surrounding area is forested, however East Meadow Brook which feeds the pond flows along the Meadowbrook Parkway and is influences by urban and roadway runoff. The source of the pesticide contamination is considered to be from lake sediments contaminated by past pesticide use. (DEC/DOW, BWAM/LMAS, March 2011)

Management Actions

No specific management actions have been identified for this waterbody. A range of general best management practices and other recommendations to restore and protect water quality in all lakes is outlined in the NYSDEC manual Diet for a Small Lake. (NYSDEC/FOLA, 2009).

Section 303(d) Listing

Smith (Roosevelt) Pond is included on the current (2014) Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2b of the List as a water impaired due to fish consumption restrictions due to chlordane. This waterbody was first listed on the 1998 List. (DEC/DOW, BWAM, July 2014)

Segment Description

This segment includes the total area of the entire lake.

Milburn/Parsonage Creeks, Upp, and tribs (1701-0212) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3a) MDB-230,231			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	C		Southern Long Island
Water Type/Size:	River	2.5 Miles		**Reg/County:**	1/Nassau Co. (30)
Description:	total length of (freshwater) portions of both streams				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: UNKNOWN POLLUTANT (Biological Impact), PESTICIDES (chlordane)
Suspected: D.O./Oxygen Demand, Nutrients, Algal/Plant Growth, Silt/Sediment
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF, TOX/CONTAM. SEDIMENT
Suspected: OTHER SANITARY DISCH
Unconfirmed: On-Site/Septic Syst

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Upper Millburn/Parsonage Creeks is assessed as an impaired waterbody due to recreational use, fish consumption and aquatic life that are known to be impaired. Recreational use and aquatic life are thought to be impaired by nutrient enrichment and organic waste loads from urban stormwater runoff and other unknown sources that result in algal and plant growth and other eutrophic conditions. The impairment to fish consumption is the result of pesticide contamination that results in a health advisory discouraging the consumption of fish taken from a small pond (lofts pond) within the segment. The source of the pesticide contamination is considered to be from past use and previously contaminated sediment.

Use Assessment

Upper Millburn/Parsonage Creeks is a Class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply of for public bathing.

Recreational use of the waterbody is impaired by reduced water clarity, excessive algal/plant growth and other eutrophic conditions in this shallow, urban, waterway. Aquatic life was also found to be impaired by nutrient enrichment and other pollutants cited as contributing to biological impacts. (DEC/DOW, BWAM/LMAS, September 2009)

Fish consumption in Smith/Roosevelt Pond is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of carp or goldfish and eating no American eel because of elevated chlordane concentrations. The source of this contamination is considered to be contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued prior to 1998-99. (2009-10 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2010).

Water Quality Information

A biological (macroinvertebrate) assessment of Milburn Creek in Baldwin (at end of Jayne Street) was conducted as part of the RIBS biological screening effort in 2003. Sampling results indicated moderately to severely impacted conditions. In such samples the fauna is extremely altered and comprised of tolerant species. Diversity and abundance of organisms is significantly reduced. The nutrient biotic index indicates highly elevated enrichment and impact source determination reveals a community that is most similar to those with impacts from municipal discharges or organic wastes. Water quality is considered to be very poor and aquatic life is not supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, December 2009)

Lofts Pond, located within this segment, was included in the NYSDEC 2009 intensive Lake Classification and Inventory (LCI) survey of the Atlantic Ocean/ Long Island Sound basin. During these sampling visits water quality conditions were characterized as eutrophic, or highly productive. The average water clarity reading is typical of eutrophic ponds but was better than expected given elevated phosphorus levels that were also typical of eutrophic ponds. Clarity was less favorable than expected given chlorophyll a readings that were typical of mesoeutrophic ponds. These data suggest that baseline nutrient levels support persistent algal blooms, although algae production is lower than expected. Milburn Pond, also in the watershed, was included in the 2004 LCI survey. (DEC/DOW, BWAM/LMAS, September 2009)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely source of nutrients and other pollutants in the waterbody is urban/storm runoff from roadways and other impervious surfaces. The biological community assessment suggests organic wastewater sources may also be present. The source of the pesticide contamination is considered to be from lake sediments contaminated by past pesticide use. (DEC/DOW, BWAM/LMAS, March 2011)

Management Actions

No specific management actions have been identified for this waterbody. However the Nassau County Parks website indicates that Lofts Pond was included in a capital improvement restoration effort that included dredging, harvesting of vegetation and planting native flora around the pond. Milburn Pond was included in the Nassau County Suburban Pond Management Plan. The county DPW is using capital funds and Clean Water/Clean Air Bond Act funding to dredge, install sediment traps and conduct streambank stabilization to control erosion. (Nassau County WQCC, 2005)

Section 303(d) Listing

The Upper Milburn/Parsonage Creeks segment is included on the current (2014) Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 3b of the List as an impaired waterbody where TMDL development may be deferred pending the verification of sources causing aquatic toxicity. Lofts Pond within this segment is included on Part 2b of the List as a water impaired due to fish consumption restrictions due to chlordane. This waterbody was first listed on the 1998 List. Milburn Pond is also included in Appendix B - Waters Not Meeting Dissolved Oxygen Standards. Updating of the List to reflect the combining of these waters into a single segment should be considered during the next listing cycle. (DEC/DOW, BWAM, July 2014)

Segment Description

This segment includes the entire stream above tidal waters and all freshwater tribs. The waters of the stream are Class C. Tribs to this reach/segment are also Class C. The segment also includes Silver Lake (P996) and Lofts Pond (P998) which had been assessed as a separate waterbody (1701-0029) but was incorporated into this segment in 2014. Similarly the segment also includes Milburn Pond (P994) which was previously assessed separately (as waterbody 1701-0053) but was also incorporated into this segment in 2014.

Bedell Creek, and tidal tribs (1701-0210) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.3a) MDB-232
Hydro Unit Code: 0203020202 **Class:** SC
Water Type/Size: Estuary 42.7 Acres
Description: total area of tidal portion of trib

Drain Basin: Atlantic-Long Island Sound Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: - - -
Suspected: ALGAL/PLANT GROWTH (ulva/sea lettuce), Nutrients (nitrogen), Pathogens
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff
Suspected: HABITAT ALTERATION, Municipal
Unconfirmed: - - -

Resolution/Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Water Attaining Some Standards (IR Category 2)

Further Details

Overview
Bedell Creek is thought to experience minor impacts due to recreational uses thought to be affected by the presence of macroalgae. Pathogens from stormwater and urban nonpoint runoff may also affect recreational uses.

Use Assessment
Bedell Creek is a class SC waterbody, classified for general recreation uses and support of aquatic life, but not for shellfishing or public bathing.

Recreational uses are thought to be stressed due to the presence of macroalgae (ulva, or sea lettuce) in the waterbody and on the shore. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

Both the habitat and aesthetic condition of the waterbody are thought to be stressed by the presence of macroalgae in the waterbody and deposits on the shore. Additionally, high nitrogen levels may contribute to the macroalgae growth and damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling in adjacent waters, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented presence of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Significant nitrogen loading from wastewater discharges to the Western Bay complex is thought to contribute to macroalgae growth in the tidal creek. Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in these back-bay tribs. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Bedell Creek is not included on the NYS Section 303(d) List of Impaired/TMDL Waters. However a proposed nitrogen TMDL for waters of the Western Bays is expected to provide water quality benefits to this adjacent waterbody. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes Class SC portions of Bedell Creek and tidal tribs.

Shell Creek/Barnums Channel (1701-0213) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.3a) MDB-SC, 232a	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SB		Southern Long Island
Water Type/Size:	Estuary 102.1 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	tidal portions of both streams/channels		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PATHOGENS, Algal/Plant Growth (ulva/sea lettuce)
Suspected: Priority Organics (PCBs/migratory fish), Nutrients (nitrogen)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Other Source (migratory fish species), Municipal
Unconfirmed: - - -

Resolution/Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
Shell Creek and Barnums Channel is assessed as having minor impacts due to public bathing and recreational uses that are thought to be stressed by pathogens from stormwater and urban nonpoint runoff. These uses are also affected by excessive macroalgae that washes through the channel from the shallower parts of the Western Bays complex and deposits along the shorelines. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment
Shell Creek and Barnums Channel is a class SB waterbody, suitable for use for public bathing, general recreation uses and support of aquatic life, but not classified for shellfishing.

Recreational uses are thought to be stressed due to the occurrence of excessive macroalgae (ulva, or sea lettuce) that proliferates in the shallower back bays of the Western Bays complex and subsequently wash into this waterbody. These algal mats cover surface waters for much of the summer and washes up on shore where it rots leaving beaches unsuitable for recreation. Public bathing and recreational use may also experience minor impacts from elevated bacteriological levels. However there are no designated beaches in this portion of the Channel and beach monitoring is not conducted at any location in the segment. (DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are stressed by excessive macroalgae that wash into the channel from adjacent waterbodies and deposits on the shore. Additionally, high nitrogen levels damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in the waterbody are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex contribute to macroalgae growth in the shallower back bays which is subsequently washed into adjacent waters, including Hog Island Channel. However it is not certain that nitrogen is causing algal growth in this waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing
Shell Creek and Barnums Channel is not included on the NYS Section 303(d) List of Impaired/TMDL Waters. However a proposed nitrogen TMDL for waters of the Western Bays is expected to provide water quality benefits to this adjacent waterbody. (DEC/DOW, BWAM, May 2014)

Segment Description
This segment includes all of Shell Creek and Barnum Island Channel. The western end of Barnums Channel (from the mouth to Shell Creek) is Class SC.

Hempstead Bay, Broad Channel (1701-0032) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.4) HB (portion 1)
Hydro Unit Code: 0203020202 **Class:** SA
Water Type/Size: Estuary 862.2 Acres
Description: total area of main bay

Drain Basin: Atlantic-Long Island Sound Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen), PATHOGENS, Oxygen Demand/Low D.O.
Suspected: Priority Organics (PCBs/migratory fish)
Unconfirmed: Ammonia

Source(s) of Pollutant(s)

Known: MUNICIPAL (Bay Park, Others), Urban/Storm Runoff
Suspected: Other Source (migratory fish species)
Unconfirmed: - - -

Management Information

Management Status: Funding for Strategy Implementation Needed
Lead Agency/Office: DOW/BWC
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview
Hempstead Bay is assessed as an impaired waterbody due to shellfishing, public bathing and recreation uses that are known to be precluded/impaired by pathogens and nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to the Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment
Hempstead Bay is a class SA waterbody, suitable for use for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. A year-round shellfishing closure applies to the all tidal waters of the bay. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody, largely attributed to excessive nitrogen levels. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Water Quality Information
NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment
The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to the Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at three (3) facilities Bay Park, Lawrence and Long Beach) that discharge to Hempstead Bay/Reynolds Channel waters. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Hempstead Bay is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 1 of the List as a water requiring development of a TMDL for nitrogen. The waterbody is also included on Part 2c of the List as a shellfishing restricted water due to pathogens. This waterbody was first listed on the 1998 Section 303(d) List for pathogens and was added to the 2006 List due to nitrogen. (DEC/DOW, BWAM/WQAS, May 2014)

Segment Description

This segment includes all Class SA tidal waters bounded by Brosewere Bay to the west, Hewlett Bay to the north, Hog Island Channel to the east and Reynolds Channel to the south. These other adjacent waterbodies are listed separately. Selected tributary waters to Hempstead Bay are also listed separately.

Hewlett Bay (1701-0382) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4) HB (portion 2)			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	197.0 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total area of bay, north of main Hempstead Bay				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen), PATHOGENS, Oxygen Demand/Low D.O.
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	Ammonia

Source(s) of Pollutant(s)

Known:	MUNICIPAL (Bay Park, Others), Urban/Storm Runoff
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Funding for Strategy Implementation Needed
Lead Agency/Office:	DOW/BWC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Hewlett Bay is assessed as an impaired waterbody due to shellfishing, public bathing and recreation uses that are known to be precluded/impaired by pathogens and nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to the Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of Hempstead Bay that included these waters.

Use Assessment

Hewlett Bay is a class SA waterbody, suitable for use for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. A year-round shellfishing closure applies to the all tidal waters of the bay. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody, largely attributed to excessive nitrogen levels. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Monitoring at beaches in the segment also indicate occasionally elevated bacteriological levels. Periodic beach closures that do occur are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Hewlett Beach. (from summary of local 2008 beach monitoring data as cited in Testing the Waters, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to the Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at three (3) facilities Bay Park, Lawrence and Long Beach) that discharge to Hempstead Bay/Reynolds Channel waters. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Hewlett Bay is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was considered included to be a part of the Hempstead Bay (1701-0032) segment on Part 1 of the List as a water requiring development of a TMDL for nitrogen. The waterbody is also included on Part 2c of the List as a shellfishing restricted water due to pathogens. This waterbody was first listed on the 1998 Section 303(d) List for pathogens and was added to the 2006 List due to nitrogen. The Hewlett Bay segment was subsequently separated and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM/WQAS, May 2014)

Segment Description

This segment includes all Class SA tidal waters north of the main Hempstead Bay and selected tidal tribs. Other trib waters to Hempstead/Hewlett Bays are listed separately.

Brosewere Bay (1701-0383) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4) HB (portion 3)			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	SA		Southern Long Island
Water Type/Size:	Estuary	376.3 Acres		**Reg/County:**	1/Nassau Co. (30)
Description:	total area of bay, west of main Hempstead Bay				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen), PATHOGENS, Oxygen Demand/Low D.O.
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	Ammonia

Source(s) of Pollutant(s)

Known:	MUNICIPAL (Bay Park, Others), Urban/Storm Runoff
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Funding for Strategy Implementation Needed
Lead Agency/Office:	DOW/BWC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Brosewere Bay is assessed as an impaired waterbody due to shellfishing, public bathing and recreation uses that are known to be precluded/impaired by pathogens and nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to the Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of Hempstead Bay that included these waters.

Use Assessment
Brosewere Bay is a class SA waterbody, suitable for use for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. A year-round shellfishing closure applies to the all tidal waters of the bay. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody, largely attributed to excessive nitrogen levels. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Water Quality Information
NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment
The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to the Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at three (3) facilities Bay Park, Lawrence and Long Beach) that discharge to Hempstead Bay/Reynolds Channel waters. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Brosewere Bay is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was considered included to be a part of the Hempstead Bay (1701-0032) segment on Part 1 of the List as a water requiring development of a TMDL for nitrogen. The waterbody is also included on Part 2c of the List as a shellfishing restricted water due to pathogens. This waterbody was first listed on the 1998 Section 303(d) List for pathogens and was added to the 2006 List due to nitrogen. The Brosewere Bay segment was subsequently separated and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM/WQAS, May 2014)

Segment Description

This segment includes all Class SA tidal waters west of the main Hempstead Bay, which is listed separately. Selected tributary waters to Hempstead/Brosewere Bays are also listed separately.

Hog Island Channel (1701-0220) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4) HB (portion 4)/HIC	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SB		Southern Long Island
Water Type/Size:	Estuary 202.0 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire channel		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PATHOGENS, ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (nitrogen)
Suspected: Priority Organics (PCBs/migratory fish), Oxygen Demand/Low D.O.
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF, MUNICIPAL (Bay Park, other)
Suspected: Other Source (migratory fish species)
Unconfirmed: - - -

Resolution/Management Information

Management Status: Funding for Strategy Implementation Needed
Lead Agency/Office: DOW/BWC
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Hog Island Channel is assessed as an impaired waterbody due to public bathing and recreation uses that are considered to be impaired by nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to Reynolds Channel and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Hog Island Channel is a class SB waterbody, suitable for use for public bathing, general recreation uses and support of aquatic life, but is not classified for shellfishing.

Public Bathing and recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody, largely attributed to excessive nitrogen levels. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Public bathing and recreational use may also experience minor impacts from elevated bacteriological levels. Public bathing and recreational use may also experience minor impacts from elevated bacteriological levels. Periodic beach closures that do occur are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Island Park Beach and Harbor Isle Beach. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009 and DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae that wash into the Channel from adjacent waterbodies. Additionally, high nitrogen levels damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Shellfish harvesting for consumption purposes in the channel is restricted due to the year round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to the Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at three (3) facilities Bay Park, Lawrence and Long Beach) that discharge to Hempstead Bay/Reynolds Channel waters. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Hog Island Channel is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 1 of the List as a water requiring development of a TMDL for nitrogen. This waterbody was added to the List in 2014. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes all of Hog Island Channel and selected tidal tribs, including unnamed channel (-232b), Reeds Channel (-232c).

Island Park Channel (1701-0374) Minor Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.4) HB (portion 4a)/IPC
Hydro Unit Code: 0203020202 **Class:** SC
Water Type/Size: Estuary 10.7 Acres
Description: entire channel

Drain Basin: Atlantic-Long Island Sound
Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: PATHOGENS, Algal/Plant Growth (ulva/sea lettuce)
Suspected: Priority Organics (PCBs/migratory fish)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Other Source (migratory fish species), Municipal
Unconfirmed: - - -

Resolution/Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
Island Park Channel is assessed as having minor impacts due to recreational uses that are known to be stressed by pathogens from stormwater and urban nonpoint runoff. These uses are also affected by excessive macroalgae that washes through the channel from the shallower parts of the Western Bays complex and deposits along the shorelines. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment
Island Park Channel is a class SC waterbody, suitable for use for general recreation uses and support of aquatic life, but not classified for shellfishing or public bathing.

Recreational uses are considered to be stressed due to occasionally elevated bacteriological levels. Periodic beach closures occur at nearby beaches and are thought to be reflective of conditions in this waterbody. These closures are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches in adjacent waters include and Island Park Beach and Harbor Isle Beach. Recreational uses are also limited by excess macroalgae (ulva, or sea lettuce) that accumulates on the waterbody shore where it rots leaving beaches unsuitable for recreation. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are stressed by excessive macroalgae that wash through the channel and deposits on the shore. Additionally, high nitrogen levels damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW, BWRM and Reg 1, May 2014),

Shellfish harvesting for consumption purposes in the channel is restricted due to the year round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in Island Park Channel are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex contribute to macroalgae growth in the shallower back bays which is subsequently washed into adjacent waters, including Island Park Channel. However it is not certain that nitrogen is causing algal growth in the Channel. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the wastewater loading to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas and then spread throughout the adjacent waters. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing
Island Park Channel is not included on the NYS Section 303(d) List of Impaired/TMDL Waters. A proposed nitrogen TMDL for waters of the Western Bays is expected to provide water quality benefits to this adjacent waterbody.

Segment Description
This segment includes all of Island Park Channel.

Reynolds Channel, West (1701-0216) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4) HB (portion 5)/RC		**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:** SB		Southern Long Island
Water Type/Size:	Estuary	680.3 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	channel, from Long Beach Blvd to Atlantic Beach Bridge			

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	Impaired	Suspected
Recreation	Impaired	Known
Aquatic Life	Unassessed	
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen)
Suspected:	Pathogens, Priority Organics (PCBs/migratory fish)
Unconfirmed:	Ammonia

Source(s) of Pollutant(s)

Known:	HABITAT ALTERATION, MUNICIPAL (Bay Park, other), Urban/Storm Runoff
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Funding for Strategy Implementation Needed
Lead Agency/Office:	DOW/BWC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Reynolds Channel West is assessed as an impaired waterbody due to public bathing and recreation uses that are considered to be impaired by excessive macroalgae that washes through the channel from the shallower parts of the Western Bays complex and deposits along the shorelines. Large municipal wastewater discharges to the channel and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients that feed algal growth in the shallower, warmer back bays and subsequently wash into the channel. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Reynolds Channel West is a class SB waterbody, suitable for use for public bathing, general recreation uses and support of aquatic life, but is not classified for shellfishing.

Recreational uses are considered to be impaired due to the routine occurrence of excessive macroalgae (ulva, or sea lettuce) that proliferates in the shallower back bays of the Western Bays complex and subsequently wash into the Channel. These algal mats cover surface waters for much of the summer and washes up on shore where it rots leaving beaches unsuitable for recreation. Public bathing and recreational use may also experience minor impacts from elevated bacteriological levels. However there are no designated beaches in this portion of the Channel and beach monitoring is not conducted at any location in the segment. (DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae that wash into the Channel from adjacent waterbodies. Additionally, high nitrogen levels damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Shellfish harvesting for consumption purposes in the channel is restricted due to the year round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The macroalgae that causes the use impairments in Reynolds Channel mostly originates in the shallower, warmer waters of Hempstead Bay; it is not certain that nitrogen levels are causing growth in the Channel. Hempstead Bay receives high nitrogen loads from wastewater discharges to adjacent waters, including Reynolds Channel. The most significant of these dischargers is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the macroalgae impairment throughout the Western Bays. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – is already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bays entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at three (3) facilities Bay Park, Lawrence and Long Beach) that discharge to Hempstead Bay/Reynolds Channel waters. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Reynolds Channel West was added to the List in 2014 for nitrogen; the waterbody is included in Part 3b of the List as a waterbody for which TMDL development may be deferred pending verification of the cause/pollutant/source of impairment. Because of the hydrology and bathemetry, nitrogen levels may not be causing macroalgae growth – or a water quality standards exceedence – in the Channel. However nitrogen discharges to the Channel support macroalgae growth in adjacent waters, significant amounts of which are pushed into the Channel by tides and prevailing winds and currents. Additionally the impact of the transported macroalgae into the Channel and deposits along the shore result in the impairment of uses. Although listed, the situation suggests that characterization of the waterbody as a 4c water (impaired but not requiring a TMDL because a TMDL cannot be developed for algal or aquatic weed impairment) was considered and may be more appropriate. Although a nitrogen TMDL specifically for Reynolds Channel is not planned, nitrogen levels in the Channel will be addressed through the Western Bays Nitrogen TMDL and other efforts to restore water quality and coastal habitat in Hempstead Bay and other adjacent waters. (DEC/DOW, BWAM, May 2014)

Segment Description
This segment includes the channel waters between the Atlantic Beach Bridge and Bob Jones Canal in Long Beach.

East Rockaway Inlet (1701-0217) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4) HB (portion 6)/ERI	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SA		Southern Long Island
Water Type/Size:	Estuary 178.9 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	channel, west of Atlantic Beach Blvd		

Water Quality Problem/Issue Information

Use(s) Impacted	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Known
Aquatic Life	Unassessed	-
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PATHOGENS, Algal/Plant Growth (ulva/sea lettuce)
Suspected:	Priority Organics (PCBs/migratory fish), Nutrients (nitrogen)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Habitat Alteration
Suspected:	Other Source (migratory fish species), Municipal
Unconfirmed:	- - -

Resolution/Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

East Rockaway Inlet is assessed as impaired due to shellfishing use that is known to be precluded by pathogens from stormwater and urban nonpoint runoff. Public bathing and recreational uses are also affected excessive macroalgae that washes through the channel from the shallower parts of the Western Bays complex and deposits along the shorelines. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

East Rockaway Inlet is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Inlet is restricted due to the designation of most of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are considered to be stressed due to the presence of macroalgae (ulva, or sea lettuce) that accumulate in the waterbody and along the shore. Beach monitoring revealed no elevated bacteriological levels at beaches and no closures. Beaches within this reach include Rockaway Beach from 15th to 22nd Street. (2008 beach monitoring data as cited in *Testing the Waters*, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are stressed by excessive macroalgae that wash into the channel from adjacent waterbodies and deposits on the shore. Additionally, high nitrogen levels damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of the Western Bays system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens in East Rockaway Inlet are stormwater and urban/nonpoint runoff from this highly developed watershed. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. Significant nitrogen loading from wastewater discharges to the Western Bay complex contribute to macroalgae growth in the shallower back bays which is subsequently washed into adjacent waters, including Hog Island Channel. However it is not certain that nitrogen is causing algal growth in the Inlet. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels in specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

East Rockaway Inlet is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water. This waterbody was first listed on the 2002 Section 303(d) List. A proposed nitrogen TMDL for waters of the Western Bays is also expected to provide water quality benefits to this adjacent waterbody. (DEC/DOW, BWAM, July 2010)

Segment Description

This segment includes all waters of the inlet west of the Atlantic Beach Bridge.

East Rockaway Channel (1701-0381) Impaired

Waterbody Location Information

Revised: 11/24/2015

Water Index No:	(MW8.4a) HB 233	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020202 **Class:** SC		Atlantic Ocean
Water Type/Size:	Estuary Waters 99.2 Acres	**Reg/County:**	1/Nassau (30)
Description:	total area of selected tidal tribs to bay		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	-
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s)

Known:	ALGAL/PLANT GROWTH (ULVA/SEA LETTUCE), NUTRIENTS (NITROGEN), Low D.O./Oxygen Demand, Pathogens
Suspected:	Ammonia, Priority Organics (PCBs)
Unconfirmed:	

Source(s) of Pollutant(s)

Known:	MUNICIPAL DISCHARGES (Bay Park, Other), Urban/Storm Runoff
Suspected:	Other Source
Unconfirmed:	

Management Information

Management Status:	Funding for Strategy Implementation Needed
Lead Agency/Office:	DOW/BWC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

This Hempstead Bay Tribs segment is assessed as an impaired waterbody due to recreational uses that are known to be impaired by nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to Hempstead Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment
The Tribs to Hempstead Bay segment is a class SC waterbody, suitable for use for general recreation use and support of aquatic life, but not classified for shellfishing or public bathing.

Recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Monitoring at beaches in the segment also indicate occasionally elevated bacteriological levels. Periodic beach closures that occur in adjacent waters are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the waters. (DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information
NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment
The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to Hempstead Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody.
Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions
There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at a facility (Lawrence) that discharges to tribs of Hempstead Bay. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing
The Tribs to Hempstead Bay segment is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 1 of the List as a water requiring development of a TMDL for nitrogen. This waterbody was added to the 2014 List due to nitrogen. (DEC/DOW, BWAM, May 2014)

Segment Description
This segment includes Class SC tidal portions of East Rockaway Channel and tidal tribs, including Mill River (-1). In previous assessment, this segment was grouped with other Tidal Tribs to Hempstead Bay (1701-0218), but was broken out and assessed as a separate segment in 2014.

Tidal Tribs to Hempstead Bay (1701-0218) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-234 thru 235	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SC		Southern Long Island
Water Type/Size:	Estuary 82.1 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of selected tidal tribs to bay		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen), Pathogens, Oxygen Demand/Low D.O.
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	Ammonia

Source(s) of Pollutant(s)

Known:	MUNICIPAL (Bay Park, Others), Urban/Storm Runoff
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Funding for Strategy Implementation Needed
Lead Agency/Office:	DOW/BWC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

The Hempstead Bay Tidal Tribs segment is assessed as an impaired waterbody due to recreational uses that are known to be impaired by nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to Hempstead Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

The Tidal Tribs to Hempstead Bay segment is a class SC waterbody, suitable for use for general recreation use and support of aquatic life, but not classified for shellfishing or public bathing.

Recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Monitoring at beaches in the segment also indicate occasionally elevated bacteriological levels. Periodic beach closures that occur in adjacent waters are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the waters. (DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Shellfish harvesting for consumption purposes in the channel is restricted due to the year-round designations of these waters (a portion within Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program, its class SB designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions support the evaluation of other recreational uses as stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM, July 2010)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to Hempstead Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody.

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at a facility (Lawrence) that discharges to tribs of Hempstead Bay. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

The Tidal Tribs to Hempstead Bay segment is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 1 of the List as a water requiring development of a TMDL for nitrogen. This waterbody was added to the 2014 List due to nitrogen. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes Class SC tidal portions of Thixton Creek (-234), Cauerbach Canel (-234a), and Macy Channel (-235).

Smith Pond (1701-0028) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-233-P1005	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** C		Southern Long Island
Water Type/Size:	Lake 22.2 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire pond		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Stressed	Unconfirmed
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PESTICIDES (chlordane), Aquatic Invasive Species, Nutrients (phosphorus)
Suspected:	Silt/Sediment, Low D.O./Oxygen Demand
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	TOX/CONTAM SED, Habitat Alteration, Urban/Storm Runoff
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Smith Pond is assessed as an impaired waterbody due to fish consumption that is known to be impaired by pesticides. The source of the pesticide contamination is considered to be from past use and previously contaminated sediment. Other recreational use is known to be stressed by excessive invasive aquatic plant and algal growth, nutrient enrichment and silt/sedimentation from urban stormwater runoff and other nonpoint sources.

Use Assessment

Smith Pond is a Class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply of for public bathing.

Fish consumption in Smith Pond is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of white perch because of elevated chlordane concentrations. The source of this

contamination is considered to be contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued prior to 1998-99. (2009-1[0] NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2010).

Recreational use of the waterbody is somewhat limited by reduced water clarity and algal growth in this shallow, urban, eutrophic pond. (DEC/DOW, BWAM/LMAS, September 2009)

Aquatic life support is considered to fully supported, but threatened based on a mostly favorable fishery assessment. The Bureau of Fisheries conducted a few fisheries surveys in the 1990's. These surveys indicated that the pond supported: largemouth bass, golden shiners, goldfish, common carp, brown bullhead, black crappie, pumpkinseed, bluegill, chain pickerel, yellow and white perch, and American eel. A new fisheries survey would need to be conducted to verify the pond still supports a similar fish community (DEC/DFWMR, Bureau of Fisheries, October 2007).

Water Quality Information

Smith Pond was included in the NYSDEC 2009 intensive (monthly sampling) Lake Classification and Inventory (LCI) survey of the Atlantic Ocean/ Long Island Sound basin. During these sampling visits water quality conditions were evaluated through standard limnological indicators. From the data collected in through the LCI in 2009, Smith Pond can be characterized as mesoeutrophic, or moderately to highly productive. The average water clarity reading is typical of eutrophic waterbodies) but was less favorable than expected given an average phosphorus reading that was typical of mesoeutrophic waterbodies), and an average chlorophyll a reading that was also typical of mesotrophic waterbodies. These data suggest that baseline nutrient levels may support persistent algae blooms; however, algal production may be limited by something other than phosphorus. Smith Pond appears to be typical of other shallow suburban/urban hardwater, uncolored, alkaline ponds. Like most shallow water bodies, Smith Pond does not exhibit thermal stratification. Spadderdock was observed to be growing in high densities throughout the pond, drastically reducing the amount of open water. Phosphorus, nitrate, iron, sodium and chloride were found to be at elevated concentrations in the pond. Dissolved oxygen levels in July and August of 2009 were very low even at the surface of the pond indicating possible stress to aquatic life. (DEC/DOW, BWAM/LMAS, March 2011)

The data collected through the LCI indicated that non-contact recreation is impacted by high densities of Nuphar sp. (spatterdock). The recreational suitability of the pond was described as "substantially impaired" to "enjoyment Impossible" due to reduced water clarity and high densities of spatterdock. Spatterdock covered nearly the entire pond with only small open water areas. The density of the spatterdock made boating nearly impossible for DEC field staff. In addition, the Bureau of Fisheries website indicates that the high densities of spatterdock make shoreline fishing difficult. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely source of nutrients and other pollutants in the waterbody is urban/storm runoff from impervious surfaces in the highly developed watershed. The pond is located in a local park (Morgan Days Park) and the immediate surrounding area is forested. The source of the pesticide contamination is considered to be from lake sediments contaminated by past pesticide use. (DEC/DOW, BWAM/LMAS, March 2011)

Management Actions

No specific management actions have been identified for this waterbody. A range of general best management practices and other recommendations to restore and protect water quality in all lakes is outlined in the NYSDEC manual Diet for a Small Lake. (NYSDEC/FOLA, 2009)

Section 303(d) Listing

Smith Pond is included on the current (2014) Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2b of the List as a water impaired due to fish consumption restrictions due to chlordane. This waterbody was first listed on the 2002 List. (DEC/DOW, BWAM, July 2014)

Segment Description

This segment includes the total area of Smith Pond and other lakes included in this segment, including Pines Pond (P1005a).

Tribs to Smith Pond/Halls Pond (1701-0221) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-233-P1005-			**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202	**Class:**	C		Southern Long Island
Water Type/Size:	River	3.3 Miles		**Reg/County:**	1/Nassau Co. (30)
Description:	total length of selected (freshwater) tribs				

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Unconfirmed
Aquatic Life	Stressed	Unconfirmed
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	PESTICIDES (chlordane),
Suspected:	Nutrients, Silt/Sediment, Algal/Plant Growth
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	TOX/CONTAM. SEDIMENT
Suspected:	Urban/Storm Runoff
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Tribs to Smith Pond/Halls Pond is assessed as an impaired waterbody due to fish consumption that is known to be impaired by pesticides. The source of the pesticide contamination is considered to be from past use and previously contaminated sediment. Other impacts to uses were noted in previous assessments but were not well documented and need to be verified.

Use Assessment

Tribs to Smith Pond/Halls Pond is a Class C waterbody, suitable for use for general recreation and support of aquatic life, but not as a water supply of for public bathing.

Fish consumption in Halls Pond is impaired due to a NYS DOH health advisory that recommends eating no carp or goldfish because of elevated chlordane concentrations. The source of this contamination is considered to be

contaminated sediment, the result of past pesticide use. The advisory for this lake was first issued prior to 1998-99. The other waters of this segment do not have advisories but the advisories for Halls Pond and Smith Pond downstream suggest impact to the streams as well. (2009-10 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2010).

Previous assessments indicated that aquatic life support may be limited by silt, sedimentation and nutrients from stormwater and urban nonpoint runoff and streambank erosion. Aesthetics in the stream are also a concern. (Nassau County WQCC, October 2000)

Water Quality Information
There is limited water quality data available for this waterbody.

Halls Pond, which was incorporated into this segment in 2014, was included in the NYSDEC 2009 intensive (monthly sampling) Lake Classification and Inventory (LCI) survey of the Atlantic Ocean/ Long Island Sound basin. From the data collected in 2009, Halls Pond can be characterized as eutrophic, or highly productive, with high algae levels, baseline nutrient levels that support persistent algal blooms, and low dissolved oxygen. Though these conditions suggest significant impacts, additional sampling on the larger waterbody is recommended in order to provide a more complete assessment of the segment. (DEC/DOW, BWAM/LMAS, July 2014)

Source Assessment
The source of the fish consumption impairment is considered to be contaminated sediment, the result of past pesticide use. Other specific sources of pollutants to this waterbody have not been fully confirmed, but based on surrounding land use are thought to include urban/stormwater runoff.

Management Actions
No specific management actions have been identified for this waterbody. Assessment to verify any possible impacts are present is appropriate. (DEC/DOW, BWAM, June 2014)

Section 303(d) Listing
Tribs to Smith Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Halls Pond is included on Part 2b of the current List as a fish consumption water due to pesticide contamination. The pond was first included on the List in 1998. Halls Pond has been assessed separately but was incorporated into this segment in 2014. Updating the List to reflect the combining of these assessments should be considered during the next listing cycle. (DEC/DOW, BWAM, March 2011)

Segment Description
This segment includes the total length of all tribs to Smith Pond, including Pines Stream (-1). The segment also include Halls Pond (P1008), which prior to 2014 was listed separately.

South Pond (1701-0223) No Known Impacts

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-233-P1005-2-P1011	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** C		Southern Long Island
Water Type/Size:	Lake 22.7 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	AQUATIC INVASIVE SPECIES
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	HABITAT ALTERATION
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

South Pond is assessed as having No Known Impacts; all evaluated uses are considered to be Fully Supported. Recreation use is evaluated as threatened based on the presence of aquatic invasive plants in the pond.

Use Assessment

South Pond is a Class C waterbody, suitable for general recreation and support of aquatic life, but not as a water supply or for public bathing.

Recreational use, primarily fishing, is supported. There is evidence of nutrient enrichment, but this does not appear to significantly impact uses. Shoreline access is available in a number of locations. (DEC/DOW, BWAM/LMAS, March 2011)

Aquatic life is considered to be fully supported. The lake is stocked in the fall with rainbow, brown and brook trout, and the lake actively supports a population of largemouth bass, chain pickerel, black crappie, pumpkinseed sunfish, carp, yellow perch, brown bullhead, and American eel. (DEC/DOW, BWAM/LMAS, March 2011)

Water Quality Information

South Pond was surveyed by the NYS Office of Parks, Recreation and Historic Preservation (OPR) as part of the OPR ambient lake monitoring program in 2000, 2001, 2003 and 2007. The 2007 survey found Brazilian elodea (Egeria densa), an invasive exotic plant species. The limited water quality data indicated the lake has a slightly brownish color (indicative of natural tannins), circumneutral pH and moderately hard water. Phosphorus readings were fairly high (typical of eutrophic, or highly productive, lakes), although this does not appear to have resulted in low water clarity or evidence of significant algal blooms. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

No significant sources of pollutants to this waterbody have been identified.

Management Actions

No specific management actions have been identified for this waterbody. The lake is within the Hempstead Lake State Park and the NYS Office of Parks and Recreation is responsible for its management. A range of general best management practices and other recommendations to restore and protect water quality in all lakes is outlined in the NYSDEC manual Diet for a Small Lake (NYSDEC/FOLA, 2009).

Section 303(d) Listing

South Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. (DEC/DOW, BWAM, July 2014)

Segment Description

This segment includes the total area of the entire lake.

Hempstead Lake (1701-0015) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-233-P1005-2-P1012	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	02030202/030 **Class:** C		Southern Long Island
Water Type/Size:	Lake 76.2 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Fully Supported	Suspected
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unassessed	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known:	NUTRIENTS (phosphorus)
Suspected:	Low D.O./Oxygen Demand
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/OPR
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Hempstead Lake is assessed as an impaired waterbody due to recreational uses that are known to be impaired by elevated levels of nutrients and associated algal blooms and weed growth. The source of the impacts is thought to be from urban/stormwater runoff and other nonpoint sources.

Use Assessment

Hempstead Lake is a Class C waterbody, suitable for general recreation and support of aquatic life, but not as a water supply or for public bathing.

Recreational use is considered to be impaired by elevated levels of nutrients and associated algal blooms and weed growth. Although conditions impair contact recreation, boating and fishing are supported activities. (DEC/DOW, BWAM/LMAS, March 2011)

Aquatic life is considered to be fully supported. The lake and surrounding lakes support an active shoreline fishery for largemouth bass, chain pickerel, bluegill, pumpkinseed sunfish, black crappie, yellow perch, carp, goldfish, and brown bullhead. (DEC/DOW, BWAM/LMAS, March 2011)

Water Quality Information

Hempstead Lake, as well as other smaller nearby ponds included in this segment, were surveyed by the NYS Office of Parks, Recreation and Historic Preservation (OPR) as part of the OPR ambient lake monitoring program in one or more of the years 2000, 2001, 2003, 2004, and 2007. Hempstead Lake was also sampled monthly by the NYSDEC Division of Water as part of the Lake Classification and Inventory (LCI) ambient lake monitoring program in the summer of 1999. Hempstead Lake can be characterized as eutrophic, or highly productive. The typical water clarity reading is representative of eutrophic lakes and was as expected given the typical phosphorus and chlorophyll a readings which were also representative of eutrophic lakes. These conditions suggest that the lake is susceptible to algal blooms. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely source of pollutants in the waterbody is urban/storm runoff from the surrounding watershed. (DEC/DOW, BWAM/LMAS, March 2011)

Management Actions

No specific management actions have been identified for this waterbody. The lake is within the Hempstead Lake State Park and the NYS Office of Parks and Recreation is responsible for its management. A range of general best management practices and other recommendations to restore and protect water quality in all lakes is outlined in the NYSDEC manual Diet for a Small Lake (NYSDEC/FOLA, 2009).

Section 303(d) Listing

Hempstead Lake is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as a waterbody with impairments requiring a TMDL due to phosphorus. This waterbody was first listed on the 2002 Section 303(d) List. (DEC/DOW, BWAM, March 2011)

Segment Description

This segment includes the total area of the entire lake, as well as other smaller ponds in the Hempstead Lake State Park: McDonald Pond, Schodack Pond, and unnamed ponds (P1012b, P1012c). (DEC/DOW, BWAM/LMAS, March 2011)

Grant Park Pond (1701-0054) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-235-P1017a	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	02030202/030 **Class:** C		Southern Long Island
Water Type/Size:	Lake 12.1 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	entire lake		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: NUTRIENTS (phosphorus), PRIORITY ORGANICS (PCBs), D.O./Oxygen Demand, Silt/Sediment
Suspected: Algal/Plant Growth (vegetation, algal blooms)
Unconfirmed: Pathogens

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF, Other Sanitary Disch
Suspected: TOX/CONTAM. SEDIMENT
Unconfirmed: - - -

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: ext/WQCC
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Grant Park Pond is assessed as an impaired waterbody due to recreational use and fish consumption that are known to be impaired. Recreation is limited by high nutrient levels that result in excessive algal and plant growth. Fish consumption is restricted due to PCB contamination. Urban/stormwater runoff, and past use of pesticides and contaminated sediments are the likely sources of pollutants to the waterbody.

Use Assessment

Grant Park Pond is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply, or as a public bathing beach.

Recreational use of the waterbody is limited by poor water clarity and other eutrophic conditions that are the result of elevated nutrient levels in this small, shallow, urban lake. (DEC/DOW, BWAM/LMAS, 2000)

Fish consumption in Grant Park Pond is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of carp because of elevated PCB levels. The advisory for this lake was first issued prior to 1998-99. (2009-10 NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2010).

Water Quality Information

Grant Park Pond was included in the 1999 Lake Classification and Inventory study by NYSDEC. Results of this monitoring study found elevated phosphorus and poor clarity in the lake throughout the summer. (DEC/DOW, BWAM/LMAS, 2000)

Source Assessment

Most of the impairment to recreational use in the waterbody is attributable to poor stormwater management practices which result in the direct input of stormwater runoff into the pond. The source of this contamination is considered to be contaminated sediment, the result of past industrial discharges. (DEC/DOW, BWAM/LMAS, 2000)

Management Actions

The lake was included in the Nassau County Suburban Pond Management Plan. However no additional specific management actions have been identified for the waterbody. (Nassau County WQCC, October 2000)

Section 303(d) Listing

Grant Park Pond is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL for phosphorus. The waterbody is also included on Part 2b of the List as impaired due to a fish consumption advisory due to chlordane contamination. This waterbody was first listed on the 1998 List for both of these pollutants. (DEC/DOW, BWAM/WQAS, July 2014)

Segment Description

This segment includes the total area of the entire lake.

Woodmere Channel (1701-0219) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No: (MW8.4a) HB-236
Hydro Unit Code: 02030202/030
Class: SA
Water Type/Size: Estuary 26.2 Acres
Description: entire channel
Drain Basin: Atlantic-Long Island Sound Southern Long Island
Reg/County: 1/Nassau Co. (30)

Water Quality Problem/Issue Information

Use(s) Impacted	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Impaired	Suspected
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen), PATHOGENS,
Suspected: Oxygen Demand/Low D.O., Priority Organics (PCBs/migratory fish)
Unconfirmed: Ammonia

Source(s) of Pollutant(s)

Known: MUNICIPAL (Bay Park, Others), Urban/Storm Runoff
Suspected: Other Source (migratory fish species)
Unconfirmed: - - -

Management Information

Management Status: Funding for Strategy Implementation Needed
Lead Agency/Office: DOW/BWC
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Woodmere Channel is assessed as an impaired waterbody due to shellfishing, public bathing and recreation uses that are known to be precluded/impaired by pathogens and nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to Hempstead Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels.

Use Assessment

Woodmere Channel is a class SA waterbody, classified for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the Channel is restricted due to the designation of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. A year round shellfishing closure applies to the all tidal waters of the bay. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Public bathing and recreational use may also experience minor impacts from elevated bacteriological levels. However there are no designated beaches in this portion of the Channel and beach monitoring is not conducted at any location in the segment. (DEC/DOW, BWAM and Reg 1, May 2014)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014)

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to the Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWAM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Woodmere Channel is included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody is included on Part 1 of the List as a water requiring development of a TMDL for nitrogen. The waterbody is also included on Part 2c of the List as a shellfishing restricted water due to pathogens. This waterbody was first listed on the 2002 Section 303(d) List for pathogens and was added to the 2014 List due to nitrogen. (DEC/DOW, BWAM, May 2014)

Segment Description

This segment includes the entire channel.

Bannister Creek/Bay (1701-0380) Impaired

Waterbody Location Information

Revised: 08/01/2014

Water Index No:	(MW8.4a) HB-237, 237a	**Drain Basin:**	Atlantic-Long Island Sound
Hydro Unit Code:	0203020202 **Class:** SA		Southern Long Island
Water Type/Size:	Estuary 72.7 Acres	**Reg/County:**	1/Nassau Co. (30)
Description:	total area of bay, north of Reynolds Channel		

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Shellfishing	Precluded	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: ALGAL/PLANT GROWTH (ulva/sea lettuce), NUTRIENTS (Nitrogen), PATHOGENS, Oxygen Demand/Low D.O.
Suspected: Priority Organics (PCBs/migratory fish)
Unconfirmed: Ammonia

Source(s) of Pollutant(s)

Known: MUNICIPAL (Bay Park, Others), Urban/Storm Runoff
Suspected: Other Source (migratory fish species)
Unconfirmed: - - -

Management Information

Management Status: Funding for Strategy Implementation Needed
Lead Agency/Office: DOW/BWC
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview
Bannister Creek/Bay is assessed as an impaired waterbody due to shellfishing, public bathing and recreation uses that are known to be precluded/impaired by pathogens and nutrients (nitrogen) and resulting excessive macroalgae growth. Large municipal wastewater discharges to the Bay and adjacent waterbodies (Bay Park WWTP, Long Beach WWTP and West Long Beach WWTP) have been identified as the primary source of nutrients. Stormwater and urban nonpoint runoff from this highly developed watershed are also sources of pathogens and other pollutants. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. This assessment is based on a previous combined assessment of Hempstead Bay that included these waters.

Use Assessment

Bannister Creek/Bay is a class SA waterbody, suitable for use for shellfishing, public bathing, general recreation uses and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of the area (included within Hempstead Bay Shellfish Growing Area #1) as uncertified for the taking of shellfish for use as food. A year round shellfishing closure applies to the all tidal waters of the bay. Shellfish that grow in contaminated waters can accumulate disease causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. The uncertified designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Public Bathing and recreational uses are considered to be impaired due to the proliferation of macroalgae (ulva, or sea lettuce) throughout the waterbody, largely attributed to excessive nitrogen levels. The ulva mats cover surface waters for much of the summer. Eventually the ulva dies and sinks to the bottom of the bays where it drains oxygen from the waters, or it washes up on shore where it rots leaving beaches unsuitable for recreation. Recreational uses are also affected by the restrictions on shellfishing. Beach monitoring is not routinely conducted at any location in the segment. (2008 beach monitoring data as cited in Testing the Waters, NRDC, 2009)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009 10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Both the habitat and aesthetic condition of the waterbody are significantly affected by the excessive macroalgae growth. In addition to feeding algae growth, high nitrogen levels also damage and degrade coastal marshlands, the loss of which negatively affects aquatic and coastal wildlife and reduced natural protection from erosion and shoreline storm damage. (DEC/DOW and DFWMR, May 2014),

Water Quality Information

NYSDEC, in partnership with NYSDOS, SUNY School of Marine and Atmospheric Sciences, and others, has contributed funding to support studies of this system, as well as the development of a nitrogen TMDL for these waters. Other water quality information supporting the assessment include bathing beach sampling, restrictions on shellfishing and a precautionary restriction on fish consumption, and the well documented proliferation of macroalgae. (DEC/DOW, BWAM and Reg 1, April 2014)

Source Assessment

The primary source of nutrient pollutant to the waterbody is large municipal wastewater discharges to the Bay and adjacent waterbodies. The most significant of these is the Bay Park WWTP, which discharges 50-plus MGD of wastewater into adjacent Reynolds Channel which tides, prevailing winds and currents then push into the shallow backwaters and marshes of Hempstead Bay. The discharges from the Bay Park facility, along with two other facilities (Long Beach WWTP and West Long Beach WWTP) contribute over 80% of the nitrogen pollution load to the Hempstead/Western Bays complex. Impacts from Bay Park were further exacerbated when the plant suffered considerable damage during Superstorm Sandy in 2012. (DEC/DOW, BWC and Reg 1, May 2014)

Stormwater and urban/nonpoint runoff from this highly developed watershed are the presumed sources of pathogens and other pollutants. Wildlife sources (waterfowl) may also contribute pathogens to the waterbody. (DEC/DOW, BWRM, May 2014)

Impacts to fish consumption due to elevated PCB levels is specific species is thought to be the result of the migratory range of these species, which are contaminated in other waters; there are no significant sources of contaminated sediments in the waters of this waterbody. (DEC/DOW, BWAM, May 2014)

Management Actions

There are significant efforts to reduce the nutrient loading from wastewater discharges to the Western Bays complex. These reductions are expected to reduce the growths of macroalgae in back bay areas that are subsequently spread throughout the adjacent waters. A number of studies by SUNY SoMAS and others have identified excessive nitrogen loads in the shallow, warm waters of the Bay as the primary cause of the impairment. These studies provide a foundation for the development of a Total Maximum Daily Load (TMDL) to address nitrogen impairment. However efforts to address the documented largest source of nitrogen load – the municipal wastewater discharges – are already underway. The efforts under consideration include consolidation of the multiple wastewater facilities, enhanced treatment to reduce nitrogen concentrations, and the relocation of the discharge out of the Western Bay entirely and to the Atlantic Ocean. (DEC/DOW, BWRM, May 2014)

Stormwater and nonpoint runoff from urbanized areas is regulated through the NYSDEC Municipal Separate Storm Sewer System (MS4) permit program. This general permit provides coverage for MS4 entities that develop and implement a stormwater management program to reduce runoff. (DEC/DOW, BWP, May 2014)

Recent changes to marine ammonia water quality standards necessary to protect resources resulted in the modification of SPDES permit limits for facilities that discharge to Hempstead Bay waters. These more stringent standards require changes to treatment processes and/or upgrades to existing treatment facilities at three (3) facilities Bay Park, Lawrence and Long Beach) that discharge to Hempstead Bay/Reynolds Channel waters. Final permit limits for these facilities will be established by the nitrogen TMDL currently being developed. (DEC/DOW, BWC and Reg 1, May 2014)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the draft Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. A council of local stakeholders led by the NYS Department of State directs the activities of the SSER. (DEC/DOW, Region 1, May 2014)

Section 303(d) Listing

Bannister Creek/Bay is not specifically included on the current (2014) NYS Section 303(d) List of Impaired Waters. The waterbody was considered included to be a part of the Hempstead Bay (1701-0032) segment on Part 1 of the List as a water requiring development of a TMDL for nitrogen. The waterbody is also included on Part 2c of the List as a shellfishing restricted water due to pathogens. This waterbody was first listed on the 1998 Section 303(d) List for pathogens and was added to the 2006 List due to nitrogen. The Bannister Creek/Bay segment was subsequently separated and should be considered for addition to the List during the next listing cycle. (DEC/DOW, BWAM/WQAS, May 2014)

Segment Description

This segment includes all Class SA waters of the creek and bay, north of Reynolds Channel.

Great South Bay/Fire Island Inlet Watershed
(0203020204)

Water Index Number	Waterbody Segment	Category
(MW7.3) AO-GSB (portion 2)	Great South Bay, Middle (1701-0040)	Impaired
(MW7.3) AO-GSB (portion 3)	Great South Bay, West (1701-0173)	Impaired
(MW7.6) AO-GSB (portion 6)	Nicoll Bay (1701-0375)	Impaired
(MW7.6) AO-GSB-191 thru 192	Tidal Tribs to Nicoll Bay (1701-0392)	Minor Impacts
(MW7.6) AO-GSB-193	Connetquot River, Lower, and tribs (1701-0337)	Minor Impacts
(MW7.6) AO-GSB-193	Connetquot River, Upper, and tribs (1701-0095)	No Known Impacts
(MW7.6) AO-GSB-193-2-P903	West Brook Pond (1701-0339)	Threatened
(MW7.7) AO-GSB-193..P304	Lake Ronkonkoma (1701-0020)	Impaired
(MW7.8) AO-GSB (portion 7)	Great Cove (1701-0376)	Impaired
(MW7.8) AO-GSB-193a thru 204 (sel)	Tidal Tribs to Great South Bay, Middle (1701-0338)	Minor Impacts
(MW7.8) AO-GSB-194	Champlin Creek, Upper, and tribs (1701-0019)	Impaired
(MW7.8) AO-GSB-194-P910,P911,P912	Winganhauppauge, Knapp Lakes (1701-0340)	Unassessed
(MW7.8) AO-GSB-196	Orowoc Creek, Upper, and tribs (1701-0094)	Impaired
(MW7.8) AO-GSB-196-P915,P916	Pardees, Orowoc Lakes (1701-0341)	Unassessed
(MW7.8) AO-GSB-197	Awixa Creek, Upper, and tribs (1701-0093)	Impaired
(MW7.8) AO-GSB-198	Penataquit Creek, Upper, and tribs (1701-0092)	Impaired

Water Index Number	Waterbody Segment	Category
(MW7.8) AO-GSB-201-P924	Cascade Lake (1701-0342)	Unassessed
(MW7.8) AO-GSB-204 thru 216	Tidal Tribs to Great South Bay, West (1701-0372)	Minor Impacts
(MW7.8) AO-GSB-205	Willets Creek, Upper, and tribs (1701-0091)	Unassessed
(MW7.8) AO-GSB-205-P934	Lake Capri (1701-0175)	Impaired
(MW7.8) AO-GSB-207	Sampawams Creek, Upper, and tribs (1701-0090)	Impaired
(MW7.8) AO-GSB-207-P938,P939	Guggenheim Lakes (1701-0343)	Unassessed
(MW7.8) AO-GSB-208	Carlls River, Upper, and tribs (1701-0089)	Threatened
(MW7.8) AO-GSB-208-P943	Argyle Lake (Memorial Pond) (1701-0344)	No Known Impacts
(MW7.8) AO-GSB-208-P946	Southards Pond (1701-0345)	Threatened
(MW7.8) AO-GSB-208-P947	Elda Lake (1701-0346)	Threatened
(MW7.8) AO-GSB-208-P949	Belmont Lake (1701-0021)	Minor Impacts
(MW7.8) AO-GSB-210	Santapogue Creek, Upper, and tribs (1701-0016)	Unassessed
(MW7.8) AO-GSB-211	Neguntatogue Creek, Upper, and tribs (1701-0088)	Needs Verification

Great South Bay, Middle (1701-0040) Impaired

Waterbody Location Information

Revised: 04/01/2016

Water Index No: (MW7.3) AO-GSB (portion 2)
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Estuary Waters 30812 Acres
Description: portion of bay, as described below

Water Class: SA
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Stressed	Known
Public Bathing	Stressed	Known
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: ALGAL/PLANT GROWTH (BROWN TIDE), NUTRIENTS (NITROGEN), Pathogens
Suspected: Priority Organics (PCBs/migratory fish), Low D.O./Oxygen Demand
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Municipal Discharges, ON-SITE/SEPTIC SYST, OTHER SOURCE (migratory fish species)
Unconfirmed: - - -

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DEC/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

This portion of Great South Bay is assessed as an impaired waterbody due to recreational uses that are known to be impaired by nutrient loadings that result in algal blooms (including brown tide). Urban stormwater runoff and impacts from onsite wastewater treatment in this densely developed area are considered the more significant sources. Impacts from wildlife/waterfowl are also concerns, as are recreational boating impacts, though a vessel no discharge zone has been established for these waters. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. These advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. Shellfishing and recreational uses including public bathing are considered to be supported, but with minor impacts due to shellfishing restrictions in small portions of these waters and the periodic occurrence of brown tides. Aquatic life is impacted by low D.O. thought to be the result of nitrogen loads to the stream.

Use Assessment

This portion of Great South Bay is a Class SA waterbody, suitable for shellfishing, public bathing, general recreation use

and support of aquatic life.

Much of this portion of Great South Bay (Shellfish Growing Area #4) has been certified as safe for the taking of shellfish for use as food. The remaining areas within the segment boundaries where shellfishing is restricted are limited by year-round restrictions adjacent to Great Cove and at the outlet of the Ocean Beach STP outfall. Seasonal restrictions apply in the northeastern portion of the segment, and adjacent Ocean Beach, Clam Pond and other Fire Island communities and marinas along the southern shore. These year-round or seasonally uncertified waters are quite small relative to the size of the Bay (less than 10%). These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. Although more than 90% of the waters of the Bay are certified for the taking of shellfish, this use is considered to be stressed due to the smaller areas that remain uncertified and the impact of brown tide on the shellfish population. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered to be stressed based on monitoring at beaches in shellfishing waters in the segment. Beach monitoring revealed occasional elevated bacteriological levels that occurred in more than ten percent of the samples and resulted in closures at a number of beaches. Other occasional beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches with higher frequency of elevated bacteria and/or sampling-based closures include Point O'Woods Association Bay, Atlantique Beach (Bay), Sayville Marina Park Beach and Bayport Beach . Other regularly sampled beaches within this reach that report few if any water quality problems or closures include Seaview Beach, Ocean Beach (Bay), Dunewood POA Beach, Fair Harbor Community Association Beach and Saltaire Beach. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Aquatic life in the waterbody is considered to be stressed due to periodic low dissolved oxygen, the result of elevated nitrogen loadings. Nitrogen source including residential wastewater, urban/storm runoff and atmospheric deposition promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen in the bottom waters of the Bay. The resulting low dissolved oxygen conditions impact the fishery and other aquatic life. (DEC/DOW and FWMR, Region 1, August 2015)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

A Long Island dissolved oxygen monitoring effort led by The Nature Conservancy in collaboration with SUNY Stony Brook SoMAS and USGS began continuous monitoring of dissolved oxygen in a number of marine embayments in 2014. This sampling documented significant diurnal swings in dissolved oxygen during some summer periods. The initial results of this sampling are consistent with this assessment that aquatic life is known to be stressed by nutrients and the resulting episodic low dissolved oxygen. (DEC/DOW, BWAM, April 2016)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary

sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute.

Since 1985, algal blooms resulting in extensive brown tide events have occurred periodically in this waterbody. The brown tide reduces light penetration, causing a die–off of seagrass beds, which in turn affects scallops, larval fish, and other species for which the seagrass provides critical habitat. There is evidence the algae may also generate some associated toxicity as be a poor nutrition source for desired species. Chronic brown tides are a likely impediment to ecosystem and fishery recovery efforts on Long Island's south shore. The tides are a known impairment to recreational uses in these waters. The conditions that promote algal growth and the resulting brown tide are the result of multiple factors, but elevated nitrogen loading is considered to be a key component. The primary source of nitrogen loads to the South Shore Estuary waters is thought to come from is onsite wastewater treatment (septic) systems delivered through groundwater.

Management Action
The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

Great South Bay has been identified by NYSDEC a a priority for the development of a TMDL/Clean Water Plan over the next few years. (DEC/DOW, BWRM, January 2016)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing
This portion of Great South Bay is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL to address nitrogen and resluting low dissolved oxygen. This waterbody was first listed on the 2010 List. (DEC/DOW, BWAM, April 2016)

Segment Description
This segment includes bay waters between the Robert Moses Causeway Bridge and Blue Point. Nicoll Bay and Great Cove waters are listed separately.

Great South Bay, West (1701-0173) Impaired

Waterbody Location Information

Revised: 04/01/2016

Water Index No: (MW7.3) AO-GSB (portion 3)
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Estuary Waters 11513.5 Acres
Description: portion of bay, as described below

Water Class: SA
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Stressed	Known
Public Bathing	Stressed	Known
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: ALGAL/PLANT GROWTH (BROWN TIDE), NUTRIENTS (NITROGEN), Pathogens
Suspected: Priority Organics (PCBs/migratory fish), Low D.O./Oxygen Demand
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Municipal Discharges, ON-SITE/SEPTIC SYST, OTHER SOURCE (migratory fish species)
Unconfirmed: - - -

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DEC/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

This portion of Great South Bay is assessed as an impaired waterbody due to recreational uses that are known to be impaired by nutrient loadings that result in algal blooms (including brown tide). Urban stormwater runoff and impacts from onsite wastewater treatment in this densely developed area are considered the more significant sources. Impacts from wildlife/waterfowl are also concerns, as are recreational boating impacts, though a vessel no discharge zone has been established for these waters. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. These advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. Shellfishing and recreational uses including public bathing are considered to be supported, but with minor impacts due to shellfishing restrictions in small portions of these waters and the periodic occurrence of brown tides. Aquatic life is impacted by low D.O. thought to be the result of nitrogen loads to the stream.

Use Assessment

This portion of Great South Bay is a Class SA waterbody, suitable for shellfishing, public bathing, general recreation use

and support of aquatic life.

Much of this portion of Great South Bay (Shellfish Growing Area #3) has been certified as safe for the taking of shellfish for use as food. Many of these restrictions apply to Class SA, SC waters which are listed separately. Year-round restrictions apply to the northern near-shore waters and area around Oak Island. Seasonal closures apply to areas adjacent to Fire Island communities and boat basins. These year-round or seasonally uncertified waters are quite small relative to the size of the Bay (less than 10%). These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. Although more than 90% of the waters of the Bay are certified for the taking of shellfish, this use is considered to be stressed due to the smaller areas that remain uncertified and the impact of brown tide on the shellfish population. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered to be stressed based on monitoring at beaches in shellfishing waters in the segment. Beach monitoring revealed occasional elevated bacteriological levels that occurred in more than ten percent of the samples, however this sampling is limited to a single beach within the segment. Regularly sampled beaches within this segment is limited to Tanner Park Beach, while two other beaches - Amityville Beach and Venetians Shores Beach - are located in tribs to the Bay. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Aquatic life in the waterbody is considered to be stressed due to periodic low dissolved oxygen, the result of elevated nitrogen loadings. Nitrogen source including residential wastewater, urban/storm runoff and atmospheric deposition promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen in the bottom waters of the Bay. The resulting low dissolved oxygen conditions impact the fishery and other aquatic life. (DEC/DOW and FWMR, Region 1, August 2015)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

A Long Island dissolved oxygen monitoring effort led by The Nature Conservancy in collaboration with SUNY Stony Brook SoMAS and USGS began continuous monitoring of dissolved oxygen in a number of marine embayments in 2014. This sampling documented significant diurnal swings in dissolved oxygen during some summer periods. The initial results of this sampling are consistent with this assessment that aquatic life is known to be stressed by nutrients and the resulting episodic low dissolved oxygen. (DEC/DOW, BWAM, April 2016)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute.

Since 1985, algal blooms resulting in extensive brown tide events have occurred periodically in this waterbody. The

brown tide reduces light penetration, causing a die–off of seagrass beds, which in turn affects scallops, larval fish, and other species for which the seagrass provides critical habitat. There is evidence the algae may also generate some associated toxicity as be a poor nutrition source for desired species. Chronic brown tides are a likely impediment to ecosystem and fishery recovery efforts on Long Island's south shore. The tides are a known impairment to recreational uses in these waters. The conditions that promote algal growth and the resulting brown tide are the result of multiple factors, but elevated nitrogen loading is considered to be a key component. The primary source of nitrogen loads to the South Shore Estuary waters is thought to come from is onsite wastewater treatment (septic) systems delivered through groundwater.

Management Action
The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

Great South Bay has been identified by NYSDEC a a priority for the development of a TMDL/Clean Water Plan over the next few years. (DEC/DOW, BWRM, January 2016)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing
This portion of Great South Bay is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL to address nitrogen and resluting low dissolved oxygen. This waterbody was first listed on the 2010 List. (DEC/DOW, BWAM, April 2016)

Segment Description
This segment includes bay waters between the Suffolk–Nassau County line and the Robert Moses Causeway.

Nicoll Bay (1701-0375) Impaired

Waterbody Location Information

Revised: 04/01/2016

Water Index No: (MW7.6) AO-GSB (portion 6)
Water Class: SA
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Drainage Basin: Atlantic-Long Island Sound
Water Type/Size: Estuary Waters 1111.3 Acres
Reg/County: 1/Suffolk (52)
Description: entire bay, as described below

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Stressed	Known
Recreation	Stressed	Known
Aquatic Life	Impaired	Unconfirmed
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unassessed	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known: PATHOGENS
Suspected: Nutrients (nitrogen), Low D.O./Oxygen Demand, Priority Organics (PCBs/migratory fish)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Onsite/Septic Systems, Other Source
Unconfirmed: - - -

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DEC/Reg1
IR/305(b) Code: Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Nicoll Bay is assessed as an impaired waterbody due to shellfishing use that is known to be precluded by pathogens. Urban and storm runoff are the primary sources of pathogens, although various other sources such as boat discharges, waterfowl may also contribute. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. These advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. Public bathing and other recreational uses are fully supported, however these uses may also be stressed, as a result of the shellfishing restrictions and related pathogen levels. Aquatic life is impacted by low D.O. thought to be the result of nitrogen loads to the stream. The larger Great South Bay is listed as impaired due to nitrogen and brown tide.

Use Assessment

Nicoll Bay is a Class SA waterbody, suitable for shellfishing, public bathing, general recreation use and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designations of much of the area

(Shellfish Growing Area #5) as only seasonally certified for the taking of shellfish for use as food. Seasonal restrictions apply to the portion of the bay north of a line from the Timber Point West Marina to the foot of West Avenue in West Sayville. Shellfish that grow in contaminated waters can accumulate disease–causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered to experience minor impacts based on monitoring at beaches in the segment. Beach monitoring revealed occasional elevated bacteriological levels at beaches, but typically these results occurred in less than ten percent of the samples and the sampling resulted in few closures. Occasional beach closures that do occur are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include West Oaks Recreation Club Beach. (from summary of local 2008 beach monitoring data as cited in Testing the Waters, NRDC, 2009)

Aquatic life in the waterbody is considered to be stressed due to periodic low dissolved oxygen, the result of elevated nitrogen loadings. Nitrogen source including residential wastewater, urban/storm runoff and atmospheric deposition promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen in the bottom waters of the Bay. The resulting low dissolved oxygen conditions impact the fishery and other aquatic life. (DEC/DOW and FWMR, Region 1, August 2015)

NYS DOH has issued precautionary health advisories recommending limiting consumption of American eel, bluefish, striped bass and weakfish from these waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

A Long Island dissolved oxygen monitoring effort led by The Nature Conservancy in collaboration with SUNY Stony Brook SoMAS and USGS began continuous monitoring of dissolved oxygen in a number of marine embayments in 2014. This sampling documented significant diurnal swings in dissolved oxygen during some summer periods. The initial results of this sampling are consistent with this assessment that aquatic life is known to be stressed by nutrients and the resulting episodic low dissolved oxygen. It is possible that the conditions found in the near-shore waters, if representative of the larger waterbody, rise to the level of impairment. (DEC/DOW, BWAM, April 2016)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute.

Management Action

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program as outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. (DEC/DOW, Region 1, July 2010)

Section 303(d) Listing

Nicoll Bay is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water. This waterbody was first listed on the 2002 Section 303(d) List. The waterbody is also referenced on the current List, noted as a trib to the nitrogen impaired embayment of Great South Bay. (DEC/DOW, BWAM, April 2016)

Segment Description

This segment includes the Class SA waters north of a line from Nicoll Point to Green Point. Connetquot River (-193) is listed separately.

Tidal Tribs to Nicoll Bay (1701-0392) Minor Impacts

Waterbody Location Information

Revised: 7/10/2016

Water Index No: (MW7.6) AO-GSB-188a thru 190
Hydro Unit Code: Carmans River-Great South Bay (0203020203)
Water Type/Size: Estuary Waters 64.1 Acres
Description: total area of selected tidal tribs to bay

Water Class: SC
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	Pathogens
Suspected:	Algal/Plant Growth (brown tide)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	Urban/Storm Runoff
Unconfirmed:	Onsite/Septic Systems

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: ext/WQCC
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
The Nicoll Bay Tidal Tribs segment is assessed as a waterbody having minor impacts due to recreational uses that are thought to be stressed by pathogens. This assessment is based on pathogens levels identified through shellfishing program monitoring. Algal growth (brown tide) may also impact uses.

Use Assessment
Nicoll Bay Tidal Tribs is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water – although sampling of the waterbody has been included in the shellfish monitoring program – or for public bathing.

All of this waterbody (included within Shellfish Growing Area #5) has been designated as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is thought to be stressed based on shellfishing certification monitoring, and

the occurrence of algal blooms (brown tide). There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment
Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Onsite/septic systems have also been identified as a possible contributing source. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action
The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire South Shore Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing
Middle Great South Bay Tidal Tribs is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes Class SC portions of tribs Namkee Creek (-188a), Hermans Creek (-188b), Brown Creek (-189),

and Green Creek (-190).

Connetquot River, Lower, and tribs (1701-0337) Minor Impacts

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.6) AO-GSB-193	**Water Class:**	SC
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	Estuary Waters 465.9 Acres	**Reg/County:**	1/Suffolk (52)
Description:	reach and tribs from mouth to Montauk Highway (tidal)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	Pathogens
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	Urban/Storm Runoff, Other Source (boat pollution)
Unconfirmed:	Onsite/Septic Systems

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/SSER
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Connetquot River is assessed as a waterbody having minor impacts due to recreational uses that are thought to be stressed by pathogens due to pathogens from urban stormwater runoff and other nonpoint sources. This assessment is based on pathogens levels identified through shellfishing program monitoring. Algal growth (brown tides) may also impact uses.

Use Assessment

This portion of Connetquot River is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water – although sampling of the waterbody has been included in the shellfish monitoring program – or for public bathing.

All of this waterbody (included within Shellfish Growing Area #5) have been designated as uncertified or only seasonally certified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing is thought to be stressed based on shellfishing certification monitoring. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Biological (macroinvertebrate) sampling at a freshwater site above this reach in 2009 found non–impacted water quality. Similar results were found during 2003 and 2004 sampling. (DEC/DOW, BWAM/SBU, November 2010)

Source Assessment
Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Onsite/septic systems have also been identified as a possible contributing source. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action
The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing
This portion of Connetquot River is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes Class SC tidal portions of the stream between the mouth and Route 27, including tribs -1, -1a and

tidal portion of West Brook (-2).

Connetquot River, Upper, and tribs (1701-0095) No Known Impacts

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.6) AO-GSB-193	**Water Class:**	B(TS)
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 7.8 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	Fully Supported	Suspected
Recreation	Fully Supported	Suspected
Aquatic Life	Fully Supported	Known
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/SSER
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of the Connetquot River is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

Upper Connetquot River is a Class B waterbody, suitable for public bathing, general recreation use and support of aquatic life, but not as a water supply. The waterbody is also designated as a cold water (trout) fishery.

Aquatic life is considered to be fully supported based on biological sampling that shows non-impacted conditions. This sampling can also be used to infer that there are no impacts to recreational (fishing) uses. The stream supports native brook trout and is the only source of water for the Connetquot River Fish Hatchery. (DEC/DOW, BWAM/SBU, December 2014)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific

advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
A biological (macroinvertebrate) assessment of Connetquot River in Oakdale (at state park hatchery) was conducted as part of the RIBS biological screening effort in 2009. Sampling results indicated non-impacted conditions and very good water quality. Such samples are dominated by clean-water species and are most similar to a natural community with minimal human impacts. Aquatic life community is fully supported. These results are consistent with a biological assessment at this site conducted in 2003 and 2004. Sampling was also conducted on Rattlesnake Creek, a trib to Connetquot River, in 2013 and 2008. Results of this sampling indicated slightly impacted conditions. The nutrient biotic index and impact source determination indicate some elevated enrichment in the stream and fauna that is most similar to communities influenced by impoundment effects. (DEC/DOW, BWAM/SBU, November 2010)

NYSDEC Rotating Integrated Basin Studies (RIBS) monitoring of Connetquot Creek in Oakdale was conducted in 2003 and 2004. Intensive Network sampling typically includes macroinvertebrate community analysis, water column chemistry, toxicity testing, sediment assessment and macroinvertebrate tissue analysis. Biological (macroinvertebrate) sampling indicated non-impacted conditions. Water column chemistry measurements indicate dissolved aluminum, dissolved oxygen and pH to be parameters of concern. However the biological results suggest these conditions are not limiting aquatic life. Toxicity testing using water from this location detected no significant mortality or reproductive effects on the test organism. Bottom sediments analysis based on sediment quality guidelines developed for freshwater ecosystems revealed overall sediment quality is not likely to cause chronic toxicity to sediment-dwelling organisms. Macroinvertebrate tissue collected at this site and chemically analyzed showed no contaminant to be elevated. Based on the consensus of these established assessment indicators, overall water quality at this site shows that aquatic life and recreational uses are considered to be fully supported in the stream, and there are no other apparent water quality impacts to recreational uses). (DEC/DOW, BWAM/SMAS, May 2011)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Actions
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
Upper Connetquot River is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description
This segment includes the freshwater portion of the stream and tribs, including Rattlesnake Creek (-3) and the freshwater portion of trib -2, above Route 27.

West Brook Pond (1701-0339) Threatened

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.6) AO-GSB-193-2-P903
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 14.6 Acres
Description: entire pond
Water Class: C(T)
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known: Aquatic Invasive Species (milfoil, fanwort)
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Habitat Alteration
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Verification of Sources Needed
Lead Agency/Office: ext/SSER
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
West Brook Pond is assessed as threatened due to recreational uses that are thought to be threatened by invasive plant growth. Although uses are currently fully supported, the presence of invasive plants raise concerns and condition should continue to be monitored.

Use Assessment
West Brook Pond is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Recreational uses are considered to be fully supported but threatened due to presence of invasive plant growth (water milfoil, fanwort). Water quality appears to be supportive of uses, however sampling is limited and follow up monitoring is recommended. This waterbody is considered to support a suitable cold water fishery. (DEC/DOW, BWAM/LMAS, July 2016)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice

for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

West Brook Lake was surveyed by the NYS Office of Parks, Recreation and Historic Preservation (OPR) as part of the OPR ambient lake monitoring program in 2000, 2001, 2003 and 2006. Aquatic plant surveys were also conducted by OPR staff in 2006 as part of a joint DEC–OPR–TNC aquatic plant survey of Long Island lakes. This survey work found a wide variety of native plants, as well as variable watermilfoil (Myriophyllum heterophyllum) and fanwort (Cabomba caroliniana), invasive exotic plant species. The limited water quality data indicated that the pond has moderately softwater, circumneutral pH, fully oxygenated water, and slight turbidity. (DEC/DOW, BWAM/LMAS, March 2011)

There is no indication of any present impacts to fishing in the lake. The presence of invasives could impact recreational use, though the lake is not used for boating. There is no indication of any present impacts to aquatic life in West Brook Pond, although the presence of invasives watermilfoil may ultimately threaten the biological condition and aquatic life in the lake. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Beyond the habitat modification related to the invasive plants, there are no apparent sources of pollutants to the waterbody.

Management Actions

No specific management actions have been identified for the waterbody. West Brook Pond is a small pond within the Bayard Cutting Arboretum State Park in Great River, Suffolk County. It is designated as a passive recreation park. (DEC/DOW, BWAM/LMAS, March 2011)

Section 303(d) Listing

West Brook Pond is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM, January 2016)

Segment Description

This segment includes the total area of the entire lake.

Lake Ronkonkoma (1701-0020) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.7) AO-GSB-193..P304
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 226.3 Acres
Description: entire lake
Water Class: B
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Poor	
Aesthetics	Poor	

Type of Pollutant(s)

Known: PATHOGENS, NUTRIENTS (phosphorus), ALGAL/PLANT GROWTH (native), AQUATIC INVASIVE SPECIES, Low D.O./Oxygen Demand
Suspected: Silt/Sediment
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF, Habitat Alteration
Suspected: Onsite/Septic Systems
Unconfirmed: - - -

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: ext/SSER
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Lake Ronkonkoma is assessed as an impaired waterbody due to public bathing and recreational uses that are known to be impaired by pathogens, high nutrient loads, excessive aquatic weed growth, occasional algal blooms and reduced water clarity. Habitat is stressed by the occurrence of invasive species (Hydrilla). The fishery is considered stressed by low hypolimnetic dissolved oxygen. Urban stormwater runoff and other nonpoint sources are the primary contributing source of pollutants.

Lake Ronkonkoma is the largest of Long Island's freshwater lakes. The lake is a glacial kettlehole lake and no outlet and only a minor inlet (draining from the Great Swamp north of the lake). Water level is controlled by the local water table. Portions of the lake's irregular basin are unusually deep for Long Island (65 feet), but most of the lake is less than 15 feet deep.

Use Assessment

Lake Ronkonkoma is a Class B waterbody, suitable for public bathing, general recreation use and support of aquatic life,

but not as a water supply.

Recreational uses considered to be impaired due pathogen levels, elevated nutrients (phosphorus), excessive algae and plant growth. Frequent beach closures due to high coliform counts occur frequently. Swimming was at one time permitted from the beaches operated by the towns of Islip and Brookhaven; however, there have been numerous beach closures over the past several years due to high bacteria levels, and swimming has not been allowed for at least three years. (DEC/DOW, BWAM/LMAS, July 2013)

Aquatic life is currently considered to be stressed based on suspected low dissolved oxygen related to the eutrophic condition of the lake and low dissolved oxygen. The fishery is limited at depths greater than 15 feet because there is seldom enough dissolved oxygen to sustain fish beyond this depth, though most of the lake is less than 15 feet deep. The primary gamefish are largemouth bass and smallmouth bass, but locating them is a challenge due to the scarcity of natural structure to attract these fish. (DEC/DOW, BWAM, January 2016)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

Water quality sampling of Lake Ronkonkoma has been conducted through the NYSDEC Lake Classification and Inventory (LCI) Program, most recently in 2009. The lake is also surveyed annually by the Division of Fish Wildlife and Marine Resources (DFWMR). In 2006 a plant survey was conducted at the lake by the Division of Water as part of a joint effort by New York State Office of Parks Recreation and Historical Preservation, The Nature Conservancy and DEC to assess the plant communities of Long Island lakes. The lake was also sampled as part of a pilot State Wide Lake Biomonitoring project in 2009, during which water quality conditions were evaluated through standard limnological indicators. Based on the single water quality sampling event in 2009, and consistent with historical data, Lake Ronkonkoma can generally be characterized as eutrophic, or highly productive. This assessment is supported by chlorophyll/algal levels above criteria corresponding to impaired recreational uses, while phosphorus concentrations are also typically high. Lake clarity observations indicate water transparency is typically poor. These data suggest that baseline nutrient levels support at least occasional algae blooms in the lake, and high algae levels are regularly reported during the summer months. (DEC/DOW, BWAM/LMAS, March 2011)

Lake Ronkonkoma is atypical of other Long Island waterbodies due to both its overall size and depth. Like most deep waterbodies, Lake Ronkonkoma exhibits thermal stratification. Anoxic conditions and elevated deepwater nutrient (phosphorus and ammonia) readings are found in the hypolimnion (bottom waters), which is consistent with data collected by FWMR. High levels of sodium and chloride were found, indicating impacts from runoff through developed areas. A fisheries survey in 2005 found the invasive species Cabomba caroliniana (fanwort) at a single location in the lake; however it has not been found in subsequent years. During the 2009 DOW sampling event the highly invasive species Hydrilla verticillata, was found at four of the eight sampling sites around the lake shoreline, and subsequent NYSDEC DFW surveys reported explosive growth of this plant throughout the littoral zone in 2010. This species was first found in New York State and on Long Island in 2008. This plant is known to out–compete many native plants as well as alter the physical and chemical characteristic of the waterbodies it invades. It is also known to grow at such high densities that boating, fishing, and swimming can be impacted. Aesthetics in the lake are stressed due to definite algal greenness. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, urban/stom runoff and other nonpoint sources are the most likely sources of impacts to the waterbody. Significant shoreline residential development are contributes to impacts.

Management Action

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of

unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

Suffolk County has also undertaken drainage improvement projects and other efforts around the lake over the years. These include a 1986 Clean Lakes Project nutrient flow study, and habitat enhancement projects. (DEC/DOW, Region 1 and DEC/DFWMR/Fisheries, March 2011)

Section 303(d) Listing

Lake Ronkonkoma is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL for both pathogens and phosphorus, and the resulting low dissolved oxygen. This waterbody was first listed on the 2002 List. The Lake is also impaired by algal/plant growth and aquatic invasive species, but these impairments cannot be address with a TMDL and therefore do not result in listings. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description

This segment includes the total area of the entire lake.

Great Cove (1701-0376) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB (portion 7)
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Estuary Waters 3495.5 Acres
Description: entire cove, as described below

Water Class: SA
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Precluded	Known
Public Bathing	Stressed	Known
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unassessed	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known: PATHOGENS
Suspected: Nutrients (nitrogen), Low D.O./Oxygen Demand, Priority Organics (PCBs/migratory fish)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Onsite/Septic Systems, Other Source
Unconfirmed: - - -

Management Information

Management Status: Verification of Sources Needed
Lead Agency/Office: DEC/FWMR
IR/305(b) Code: Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Great Cove is assessed as an impaired waterbody due to shellfishing use that is known to be precluded by pathogens. Urban and storm runoff are the primary sources of pathogens, although various other sources such as boat discharges, waterfowl may also contribute. Fish consumption is considered to experience minor impacts due to precautionary health advisories limiting the consumption of certain species due to elevated PCB levels. These advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. Public bathing and other recreational uses are fully supported, however these uses may also be stressed, as a result of the shellfishing restrictions and related pathogen levels. Aquatic life is also thought to be stressed due to impacts from occasional algal blooms (brown tides). The larger Great South Bay is listed as impaired due to nitrogen and brown tide.

Use Assessment

Great Cove is a Class SA waterbody, suitable for shellfishing, public bathing, general recreation use and support of aquatic life.

Shellfish harvesting for consumption purposes in the bay is restricted due to the designation of virtually the entire area as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Recreation use and public bathing are considered to be supported but stressed. Beach monitoring revealed occasional elevated bacteriological levels at beaches, but typically these results occurred in less than ten percent of the samples and the sampling resulted in few closures. Occasional beach closures that do occur are typically pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include East Islip Beach, Islip Beach, Brightwaters Beach, Benjamins Beach and Bayberry Beach and Tennis Club. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Aquatic life in the waterbody is considered to be stressed due to periodic low dissolved oxygen, the result of elevated nitrogen loadings. Nitrogen source including residential wastewater, urban/storm runoff and atmospheric deposition promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen in the bottom waters of the Bay. The resulting low dissolved oxygen conditions impact the fishery and other aquatic life. (DEC/DOW and FWMR, Region 1, August 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

A Long Island dissolved oxygen monitoring effort led by The Nature Conservancy in collaboration with SUNY Stony Brook SoMAS and USGS began continuous monitoring of dissolved oxygen in a number of marine embayments in 2014. This sampling documented significant diurnal swings in dissolved oxygen during some summer periods. The initial results of this sampling are consistent with this assessment that aquatic life is known to be stressed by nutrients and the resulting episodic low dissolved oxygen. (DEC/DOW, BWAM, April 2016)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute.

Since 1985, algal blooms resulting in extensive brown tide events have occurred periodically in this waterbody. The brown tide reduces light penetration, causing a die–off of seagrass beds, which in turn affects scallops, larval fish, and other species for which the seagrass provides critical habitat. There is evidence the algae may also generate some associated toxicity as be a poor nutrition source for desired species. Chronic brown tides are a likely impediment to ecosystem and fishery recovery efforts on Long Island's south shore. The tides are a known impairment to recreational uses in these waters. The conditions that promote algal growth and the resulting brown tide are the result of multiple factors, but elevated nitrogen loading is considered to be a key component. The primary source of nitrogen loads to the South Shore Estuary waters is thought to come from is onsite wastewater treatment (septic) systems delivered through

groundwater.

Management Action
The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing
Great Cove is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2c of the List as a shellfishing restricted water. This waterbody was first listed on the 2010 Section 303(d) List. (DEC/DOW, BWAM, April 2016)

Segment Description
This segment includes the Class SA waters north of a line from Conklin Point to Nicoll Point.

Tidal Tribs to Great South Bay, Middle (1701-0338) Minor Impacts

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-193a thru 204 (sel)
Water Class: SC
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Drainage Basin: Atlantic-Long Island Sound
Water Type/Size: Estuary Waters 324.1 Acres
Reg/County: 1/Suffolk (52)
Description: total area of selected tidal tribs to bay

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: Pathogens
Suspected: Nutrients (nitrogen)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff
Suspected: Onsite/Septic Systems
Unconfirmed: - - -

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: ext/SSER
IR/305(b) Code: Water Attaining All Standards (IR Category 2)

Further Details

Overview
The Tidal Tribs to Middle Great South Bay segment is assessed as having minor impacts due to recreational uses that are known to be stressed by pathogens from urban/storm runoff and other nonpoint sources. Nutrient loads and resulting algal growth (brown tide) may also impact uses. Residential onsite/septic systems serving this high-density area are likely sources of pollutants.

Use Assessment
The Tidal Tribs to Middle Great South Bay segment is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water or for public bathing.

Recreational use is considered to experience minor impacts based on monitoring at beaches in the segment and the shellfish advisory indicating somewhat elevated bacteriological levels. Beach monitoring revealed no elevated bacteriological levels at beaches and few closures. Occasional beach closures that do occur are pre-emptive closures

during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Merrick Estates Civic Association Beach. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Shellfishing harvesting for consumption purposes in these tribs is restricted due to the year-round and seasonal designations of these waters (a portion within Shellfish Growing Area #4) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions indicate other recreational uses could be stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Aquatic life in the waterbody is considered to be stressed due to periodic low dissolved oxygen, the result of elevated nitrogen loadings. Nitrogen source including residential wastewater, urban/storm runoff and atmospheric deposition promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen in the bottom waters of the Bay. The resulting low dissolved oxygen conditions impact the fishery and other aquatic life. (DEC/DOW and FWMR, Region 1, August 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute.

Management Action

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste

no discharge zone is in place for South Shore Estuary waters to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

The Tidal Tribs to Middle Great South Bay segment is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM, August, 2014)

Segment Description

This segment includes Class SC portions of tribs Heckscher Canal -193a), Quintuck Creek (-194a), Champlin Creek (–194), unnamed tribs -194b, -194c, -195, Orowoc Creek (-196), Awixa Creek (-197), Penataquit Creek (-198), Watchogue Creek (-199), unnamed trib -199a, Lawrence Creek (-200), Brightwaters Canal (-201), Thorn Canal (-202), Isbrandsen Canal (-202a), Thompsons Creek (-203), Trues Creek (-204).

Champlin Creek, Upper, and tribs (1701-0019) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-194
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: River/Stream 2.2 Miles
Description: stream and tribs above P910 (freshwater)
Water Class: C(TS)
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known: UNKNOWN POLLUTANTS (biological impacts)
Suspected: Nutrients (phosphorus), Low D.O./Oxygen Demand
Unconfirmed: Pathogens

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Onsite/Septic Systems
Unconfirmed: - - -

Management Information

Management Status: Verification of Problem Severity Needed
Lead Agency/Office: DOW/Reg1
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Upper Champlin Creek is assessed as an impaired waterbody due to recreational uses and aquatic life that is known to be impaired. No specific pollutant or sources have been identified, but sampling results indicate organic impacts from municipal or other sources are present. Surrounding land use also suggest urban stormwater runoff and onsite/septic impacts.

Use Assessment

Upper Champlin Creek is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Aquatic life is evaluated as impaired based on biological sampling that shows significant impacts. This sampling can also be used to infer that there are also significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses. (DEC, DOW, BWAM, July 2014)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Champlin Creek in East Islip (at Moffitt Blvd) was conducted as part of the RIBS biological screening effort in 2013. Sampling results reflect moderately impacted (poor) water quality, with sensitive taxa reduced, and the distribution of major taxonomic groups significantly different from what is naturally expected. The nutrient biotic index indicates elevated enrichment and impact source determination reveals a community that is most similar to those with impacts from municipal discharges or organic wastes. Water quality is considered to be poor and aquatic life is not supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, December 2015)

These sampling results are consistent with results found during sampling of the creek conducted in 2003, 1998 and 1994. All results indicated moderately impacted water quality conditions. The stream bottom was mostly sand gravel, and the fauna was dominated by midges and scuds. (DEC/DOW, BWAR/SBU, December 2015)

Regional Fisheries staff has reported the stream no longer supports trout populations. Sewering has reduced groundwater recharge thus lowering groundwater levels. Consequently there is less cold water from groundwater influencing the stream. (DEC/DFWMR, Region 1, 1998)

Source Assessment

Based on the biologic community composition, surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants/impacts to the waterbody are urban stormwater runoff and other nonpoint sources, include onsite wastewater treatment discharges in this high-density residential area.

Management Actions

No specific management actions have been identified for the waterbody. However the creek is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below).

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

Upper Champlin Creek is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as a waterbody for which TMDL development is required to address thermal impacts. This waterbody was first listed in 2002. This updated assessment suggests that an additional listing reflecting a cause/pollutant of "Unknown," but related to biological impacts, be considered during the next update. Such a listing should be included on Part 3b of the List as a impaired waterbody for which TMDL development made be deferred pending verification of the cause/pollutant. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the freshwater portion of the stream and tribs above unnamed pond (P910).

Lower/Upper Winganhauppauge, Knapp Lakes (1701-0340) Unassessed

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-194-P910,P911,P912
Water Class: C
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Drainage Basin: Atlantic-Long Island Sound
Water Type/Size: Lake/Reservoir 31.7 Acres
Reg/County: 1/Suffolk (52)
Description: total area of all three lakes

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Unassessed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. A portion of this segment is also designated as a cold water (trout) fishery.

Water Quality Information
There is currently no water quality information available upon which to base an assessment. A single sample collected in Knapps Lake in 2013 found phosphorus to be slightly elevated, but chlorophyll-a to be below criteria for impacted recreational use. (DEC/DOW, BWAM/LAMAS, May 2016)

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Action
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the total area of all three lakes. Lower and Upper Winganhauppauge Lakes are Class C; Knapp Lake is Class C(T).

Orowoc Creek, Upper, and tribs (1701-0094) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-196	**Water Class:**	C(T)
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 2.7 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Suspected
Aquatic Life	Impaired	Suspected
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	UNKNOWN POLLUTANTS (biological impacts)
Suspected:	Nutrients (phosphorus), Low D.O./Oxygen Demand, Water Level/Flow
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Onsite/Septic Systems, Hydrologic Alteration
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Upper Orowoc Creek is assessed as an impaired waterbody due to recreational uses and aquatic life that is thought to to be impaired, although more recent sampling suggests the impacts to uses are less significant. No specific pollutant or sources have been identified, but sampling results indicate organic impacts from municipal or other sources are present. Surrounding land use also suggest urban stormwater runoff and onsite/septic impacts.

Use Assessment

Upper Orowoc Creek is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Aquatic life is currently evaluated as impaired based on biological sampling that shows significant impacts. This sampling can also be used to infer that there are also significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses. (DEC, DOW, BWAM, July 2014)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Orowoc Creek in Bay Shore (at Moffitt Blvd) was conducted as part of the RIBS biological screening effort in 2013. Sampling results at that time indicated slightly impacted conditions. However previous assessments of Orowoc Creek at this site in 2003 and 1994, and in Bayshore (at Brook Street) conducted in 1998 and 1999 revealed moderately-slightly impacted water quality conditions, with sensitive taxa reduced, and the distribution of major taxonomic groups significantly different from what is naturally expected. The fauna was heavily dominated by tolerant sowbugs and black flies. This segment is currently considered to be impaired. (DEC/DOW, BWAM/SBU, December 2015)

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Orowoc Creek in Bay Shore (at Brook Street) was conducted in 1999. Fecal coliform and ammonia values were found to be high; pH in the stream was somewhat low. Other sampling results were typical of urban streams. (DEC/DOW, BWAR/SWAS, January 2001)

Source Assessment

Based on the biologic community composition, surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants/impacts to the waterbody are urban stormwater runoff and other nonpoint sources, include onsite wastewater treatment discharges in this high-density residential area. Hydromodification is also thought to contribute to the impacts in the stream.

Management Actions

No specific management actions have been identified for the waterbody. However the creek is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below).

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

Upper Orowoc Creek is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 3b of the List as a waterbody for which TDML development is deferred pending the verification of the cause/pollutant causing the impairment. Currently the cause/pollutant is listed as unknown, but related to biological impacts. The most recent sampling suggests the listing should be re-evaluated during the next listing cycle. (DEC/DOW, BWAM, January 2016)

Segment Description

This segment includes the freshwater portion of the stream and tribs.

Pardees, Orowoc Lakes (1701-0341) Unassessed

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-196-P915,P916
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 15.1 Acres
Description: total area of both lake
Water Class: C(T)
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unassessed	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Unassessed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Action

No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the total area of both lakes.

Awixa Creek, Upper, and tribs (1701-0093) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-197	**Water Class:**	C
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 0.5 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	UNKNOWN POLLUTANTS (biological impacts)
Suspected:	Nutrients (phosphorus), Low D.O./Oxygen Demand
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Upper Awixa Creek is assessed as an impaired waterbody due to recreational uses and aquatic life that is known to be impaired. No specific pollutant or sources have been identified, but sampling results indicate organic impacts from municipal or other sources are present. Surrounding land use also suggest urban stormwater runoff and onsite/septic impacts.

Use Assessment

Upper Awixa Creek is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life is evaluated as impaired based on biological sampling that shows significant impacts. This sampling can also be used to infer that there are also significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses. (DEC, DOW, BWAM, July 2014)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information
A biological (macroinvertebrate) assessment of Awixa Creek in Bay Shore (at Union Blvd) was conducted as part of the RIBS biological screening effort in 2003. Sampling results reflect moderately impacted (poor) water quality, with sensitive taxa reduced, and the distribution of major taxonomic groups significantly different from what is naturally expected. The nutrient biotic index indicates elevated enrichment and impact source determination reveals a community that is most similar to those with impacts from municipal discharges or organic wastes. Water quality is considered to be very poor and aquatic life is not supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, December 2009)

Source Assessment
Based on the biologic community composition, surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants/impacts to the waterbody are urban stormwater runoff and other nonpoint sources, include onsite wastewater treatment discharges in this high-density residential area.

Management Actions
No specific management actions have been identified for the waterbody. However the creek is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below).

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing
Upper Awixa Creek is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 3b of the List as a waterbody for which TDML development is deferred pending the verification of the cause/pollutant causing the impairment. Currently the cause/pollutant is listed as unknown, but related to biological impacts. (DEC/DOW, BWAM, January 2016)

Segment Description:
This segment includes the entire stream above tidal waters (Montauk Highway) and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are als Class C.

Penataquit Creek, Upper, and tribs (1701-0092) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-198	**Water Class:**	C
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 2 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Suspected
Aquatic Life	Impaired	Suspected
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	UNKNOWN POLLUTANTS (biological impacts)
Suspected:	Nutrients (phosphorus), Low D.O./Oxygen Demand
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Upper Penataquit Creek is assessed as an impaired waterbody due to recreational uses and aquatic life that is thought to to be impaired, although more recent sampling suggests the impacts to uses are less significant. No specific pollutant or sources have been identified, but sampling results indicate organic impacts from municipal or other sources are present. Surrounding land use also suggest urban stormwater runoff and onsite/septic impacts.

Use Assessment

Upper Penataquit Creek is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life is currently evaluated as impaired based on biological sampling that shows significant impacts. This sampling can also be used to infer that there are also significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses. (DEC, DOW, BWAM, July 2014)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Penataquit Creek in Bay Shore (at Mill Street) was conducted as part of the RIBS biological screening effort in 2008. Sampling results at that time indicated slightly impacted conditions. However previous assessments of Penataquit Creek in Bay Shore (at Redington Road) in 2003 revealed moderately impacted water quality conditions, with sensitive taxa reduced, and the distribution of major taxonomic groups significantly different from what is naturally expected. The fauna was heavily dominated by tolerant sowbugs and black flies. The 2003 sampling was conducted below an impoundment, so it is likely that sampling habitat had some influence on the assessment. The segment is currently considered to be impaired, but additional sampling to verify conditions is recommended. (DEC/DOW, BWAM/SBU, December 2015)

Source Assessment

Based on the biologic community composition, surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants/impacts to the waterbody are urban stormwater runoff and other nonpoint sources, include onsite wastewater treatment discharges in this high-density residential area.

Management Actions

No specific management actions have been identified for the waterbody. However the creek is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below). Based on the conflicting biological assessment results, additional sampling to verify the level of impact in this waterbody segment is recommended.

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

Upper Penataquit Creek is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 3b of the List as a waterbody for which TDML development is deferred pending the verification of the cause/pollutant causing the impairment. Currently the cause/pollutant is listed as unknown, but related to biological impacts. The most recent sampling and the possibility of habitat influences suggest the listing should be re-evaluated during the next listing cycle. (DEC/DOW, BWAM, January 2016)

Segment Description

This segment includes the entire stream and tribs above tidal waters (Montauk Highway) and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are also Class C.

Cascade Lake (1701-0342) Unassessed

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-201-P924
Water Class: C
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Drainage Basin: Atlantic-Long Island Sound
Water Type/Size: Lake/Reservoir 8.2 Acres
Reg/County: 1/Suffolk (52)
Description: entire lake

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unassessed	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Unassessed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Action

No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the total area of the lake.

Tidal Tribs to Great South Bay, West (1701-0372) Minor Impacts

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-204 thru 216
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Estuary Waters 667.4 Acres
Description: total area of selected tidal tribs to bay

Water Class: SC
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Unassessed	-
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate MAJOR Pollutants/Sources)

Known: Pathogens
Suspected: Nutrients (nitrogen)
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Urban/Storm Runoff
Suspected: Onsite/Septic Systems
Unconfirmed: - - -

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: ext/SSER
IR/305(b) Code: Water Attaining All Standards (IR Category 2)

Further Details

Overview

The Tidal Tribs to West Great South Bay segment is assessed as having minor impacts due to recreational uses that are known to be stressed by pathogens from urban/storm runoff and other nonpoint sources. Nutrient loads and resulting algal growth (brown tide) may also impact uses. Residential onsite/septic systems serving this high-density area are likely sources of pollutants.

Use Assessment

The Tidal Tribs to West Great South Bay segment is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water or for public bathing.

Recreational use is considered to experience minor impacts based on monitoring at beaches in the segment and the shellfish advisory indicating somewhat elevated bacteriological levels. Beach monitoring revealed no elevated bacteriological levels at beaches and few closures. Occasional beach closures that do occur are pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Merrick Estates Civic Association Beach. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Shellfishing harvesting for consumption purposes in these tribs is restricted due to the year-round and seasonal designations of these waters (a portion within Shellfish Growing Area #4) as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class SC designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, the shellfishing restrictions indicate other recreational uses could be stressed. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Aquatic life in the waterbody is considered to be stressed due to periodic low dissolved oxygen, the result of elevated nitrogen loadings. Nitrogen source including residential wastewater, urban/storm runoff and atmospheric deposition promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen in the bottom waters of the Bay. The resulting low dissolved oxygen conditions impact the fishery and other aquatic life. (DEC/DOW and FWMR, Region 1, August 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute.

Management Action

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau-Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone is in place for South Shore Estuary waters to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

The Tidal Tribs to West Great South Bay segment is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM, August, 2014)

Segment Description

This segment includes Class SC portions of unnamed trib -204a, Willets Creek (-205), Skookwams Creek (-206), Sampawams Creek (-207), Carlls River (-208), West Babylon Creek (-209), Santapogue Creek (-210), Neguntatogue Creek (-211), trib -212, Great Neck Creek (-213), unnamed tribs -213a, -213b, Howell Creek (-214), trib -214a, Woods/Ketchams Creek (-215) and Amityville Creek (-216).

Willets Creek, Upper, and tribs (1701-0091) Unassessed

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-205	**Water Class:**	C
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 1.9 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unassessed	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody. However some expected impacts to Willetts Creek are discussed in the assessment of Lake Capri (1701-0175).

Use Assessment

This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information

There is currently no water quality information available upon which to base an assessment.

Source Assessment

Specific sources of pollutants to the waterbody have not been identified.

Management Action
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the entire stream and tribs above tidal waters (Montauk Highway) and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are also Class C. Lake Capri (P934) is assessed separately.

Lake Capri (1701-0175) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-205-P934
Water Class: C
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Drainage Basin: Atlantic-Long Island Sound
Water Type/Size: Lake/Reservoir 7.8 Acres
Reg/County: 1/Suffolk (52)
Description: entire lake

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Unassessed	-
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: METALS (cadmium), PESTICIDES (chlordane)
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: TOXIC/CONTAMINATED SEDIMENT,
Unconfirmed: - - -

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DEC/DER
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Lake Capri is assessed as an impaired waterbody due to fish consumption that is known to be impaired by heavy metals and pesticides from contaminated sediment and legacy industrial discharges. Based on this impairment, recreational uses of the waterbody are also considered to be stressed. Currently there is inadequate data/information to evaluate aquatic life in the waterbody.

Use Assessment

Lake Capri is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Fish consumption in Lake Capri is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of American Eel and carp because of elevated cadmium and chlordane levels. The source of this contamination is considered to be contaminated sediment, the result of past industrial discharges and past residential pesticide use. The advisory for this waterbody was first issued prior to 1998-99. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Based on the fish consumption advisory, recreational uses of the waterbody are also considered to be stressed. Currently there is inadequate data/information to evaluate aquatic life in the waterbody.

Water Quality Information

Considerable sediment monitoring data for this waterbody has been collected as part of a hazardous waste site investigation and remediation effort. Sampling in 2013 and 2014 after the lake remediation (dredging) in 1999, found some remaining elevated cadmium concentrations in the upstream Willetts Creek and its floodplain. It is believed that the newly identified contamination is attributable to high water events (superstorm Sandy) and the subsequent erosion and redistribution of sediments. (DEC/DER, Dzus Fastener Site, March 2016)

Management Actions

A Superfund inactive hazardous waste site (Dzus Fasteners, site no. 1–52–033) was identified as a contributing source of cadmium to the lake. In December 1999, work to remove the most highly contaminated sediments (by excavation in near shore areas and by hydraulic dredging in deeper waters) was completed. Remedial work also included covering an identified zone of sediment contamination with rip-rap to isolate it from the environment, rotenone eradication of the contaminated fish and restocking, and source control at the Dzus facility. As a result of the extensive dredging , the risk of exposure to site-related contaminants is considered to have been reduced. However DEC is evaluating alternatives to address the contamination found in the off-site floodplain and the creek that is thought to be attributable to high water events (superstorm Sandy) and the subsequent erosion and redistribution of sediments. Although it appears that the contamination has remained within the banks of the creek and wetland, additional investigation will be necessary to confirm this. (DEC/DER, Dzus Fastener Site, March 2016)

Section 303(d) Listing

Lake Capri is included on the current (2016x) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2b of the List as an impaired waterbody requiring a TMDL to address cadmium and chlordane contamination. This waterbody was first listed on the 199 List. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description

This segment includes the total area of the lake.

Sampawams Creek, Upper, and tribs (1701-0090) Impaired

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-207	**Water Class:**	C(T)
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 4.4 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	UNKNOWN POLLUTANTS (biological impacts)
Suspected:	Nutrients (phosphorus), Low D.O./Oxygen Demand
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Upper Sampawams Creek is assessed as an impaired waterbody due to recreational uses and aquatic life that is known to be impaired. No specific pollutant or sources have been identified, but sampling results indicate organic impacts from municipal or other sources are present. Surrounding land use also suggest urban stormwater runoff and onsite/septic impacts.

Use Assessment

Upper Sampawams Creek is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Aquatic life is evaluated as impaired based on biological sampling that shows significant impacts. This sampling can also be used to infer that there are also significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses. (DEC, DOW, BWAM, July 2014)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Sampawams Creek in West Islip (at Union Blvd) was conducted as part of the RIBS biological screening effort in 2013. Sampling results reflect moderately impacted (poor) water quality, with sensitive taxa reduced, and the distribution of major taxonomic groups significantly different from what is naturally expected. The nutrient biotic index indicates elevated enrichment and impact source determination reveals a community that is most similar to those with impacts from municipal discharges or organic wastes. Water quality is considered to be poor and aquatic life is not supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, December 2015)

These sampling results are consistent with results collected at this site in 2008 and 2003. Sampling at those times also revealed moderately impacted conditions. Sampling results in 1998 indicated slightly impacted water quality conditions, but close to the range of moderate impact. The stream was sampled in 1994 and was determined to be moderately impacted, however results were similar enough that no water quality change is indicated. (DEC/DOW, BWAR/SBU, December 2015)

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Sampawams Creek in Babylon (at Union Blvd.) was conducted in 1999. Fecal and total coliform and ammonia values were found to be high at that time. Other sampling results were typical of urban streams. (DEC/DOW, BWAR/SWAS, January 2001)

Source Assessment

Based on the biologic community composition, surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants/impacts to the waterbody are urban stormwater runoff and other nonpoint sources, include onsite wastewater treatment discharges in this high-density residential area.

Management Actions

No specific management actions have been identified for the waterbody. However the creek is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below).

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary–related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

Upper Sampawams Creek is included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 3b of the List as a waterbody for which TDML development is deferred pending the verification of the cause/pollutant causing the impairment. Currently the cause/pollutant is listed as unknown, but related to biological impacts. (DEC/DOW, BWAM, January 2016)

Segment Description:
This segment includes the freshwater portion of the stream and tribs.

Guggenheim Lakes (1701-0343) Unassessed

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-207-P938,P939
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 16.1 Acres
Description: total area of both lakes
Water Class: C
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unassessed	
Aesthetics	Unassessed	

Type of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Unassessed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Action

No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the total area of the lake.

Carlls River, Upper, and tribs (1701-0089) Threatened

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-208	**Water Class:**	C(T)
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 4.8 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Fully Supported	Suspected
Aquatic Life	Threatened	Known
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	Unknown Pollutants (biological impacts)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	Unknown Source
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Pollutants/Causes Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Upper Carlls River is assessed as being threatened due to aquatic life that is thought to be threatened by unspecified pollutants. Biological sampling results show slightly impacted conditions that approach the non-impacted range. Impoundment effects may also influence conditions in the stream.

Use Assessment

Carlls River is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Aquatic life is considered to be supported with minimal impacts. Biological sampling of the stream show conditions to be in the slightly-to-non-impacted range. This sampling can also be used to infer that there are no significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. (DEC, DOW, BWAM, July 2014)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice

for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Biological (macroinvertebrate) assessments of Carlls River in Babylon (at Park Ave) was conducted as part of the RIBS sampling effort in 2014, 2013, 2009, 2008 and 2003. Sampling results reflect good water quality. Conditions were found to be either nonimpacted or in the slightly impacted range but approaching non-impacted. The macroinvertebrate community in these samples may show some beginning signs of alteration, some expected sensitive species may not present and overall macroinvertebrate species richness can be somewhat lower than expected, but overall there is still balanced distribution of all expected taxa. Aquatic life is fully supported and there are no other apparent water quality impacts. (DEC/DOW, BWAM/SBU, January 2015)

These results are also similar to sampling conducted on the stream at Route 27 and at Park Avenue in 1998. Sampling results indicated both sites to be slightly impacted, but near the range of non–impacted. Mayflies and caddisflies were numerous at both sites. Similar conditions were documented in 1994 sampling. Large rainbow trout were present at the Park Avenue site. The river is included in the Fisheries cold water management program. (DEC/DOW, BWAR/SBU, January 2000)

Source Assessment
Specific sources of pollutants to the waterbody have not been identified. (DEC/DOW, BWAM/SBU, January 2015)

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
Upper Carlls River is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no
impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description
The stream is Class C from Montauk Highway to Railroad Avenue, and Class C(T) above Railroad Avenue. Tribs are Class C and C(T).

Argyle Lake (Memorial Pond) (1701-0344) No Known Impacts

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-208-P943
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 25.3 Acres
Description: entire pond
Water Class: C
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Fully Supported	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Verification of Problem Severity Needed
Lead Agency/Office: ext/SSER
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
Argyle Lake (Memorial Pond) is assessed as having no known impacts; all evaluated uses are considered to be fully supported. Assessment is based on limited but positive water quality data.

Use Assessment
Argyle Lake is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

There is no evidence of recreation use impacts in the waterbody, consistent with relatively low lake productivity and acceptable water clarity. Invasive species (fanwort) has been noted but does not appear to impact uses.

Aquatic life is considered to be fully supported based on DFWMR assessments that indicate a healthy fishery of brown bullhead, sunfish, largemouth bass, yellow perch and Carp. The waterbody is designated as a warmwater fishery, however trout the lake is routinely stocked with trout. (DEC/DFWMR, January 2016)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Limited water quality sampling of Argyle Lake has been conducted through the NYSDEC Lake Classification and Inventory (LCI) program in 2013. Results of this sampling indicate the lake is best characterized as unproductive. Chlorophyll/algal levels are well below criteria corresponding to impacted recreational uses, while phosphorus concentrations typically approach impacted criteria. Lake clarity measurements indicate water transparency that meets the recommended minimum criteria for swimming beaches (measurements are limited by the lake depth). Readings of pH fall within the range established in state water quality standards for protection of aquatic life. (DEC/DOW, BWAM/LMAS, January 2015)

Source Assessment

There are no apparent sources of pollutants to the waterbody.

Management Actions

No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing

Argyle Lake (Memorial Pond) is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description

This segment includes the total area of the lake.

Southards Pond (1701-0345) Threatened

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-208-P946
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 25.9 Acres
Description: entire pond
Water Class: C(T)
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Known
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: Aquatic Invasive Species (fanwort)
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Habitat Alteration
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Verification of Problem Severity Needed
Lead Agency/Office: ext/PRHP
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview

Southards Pond is assessed as threatened due to recreational use that is considered to be threatened by aquatic invasive plant species. Although uses are currently fully supported, the invasive specices raise concerns and conditions should continue to be monitored.

Use Assessment

Southards Pond is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not for water supply or public bathing use. The waterbody is also designated as a cold water (trout) fishery.

There is no evidence of recreation use impacts in waterbody, although sampling has been limited to plant surveys and no extensive water quality sampling has be conducted. The occurrence of aquatic invasive species suggest some threat to recreational uses.

Aquatic life is considered to be fully supported. The pond provides fishing opportunities typical of warmwater Long Island ponds, including population of chain pickerel, largemouth bass, bluegill, pumpkinseed sunfish, yellow perch,

brown bullhead, and carp. In addition, the pond is stocked with brown and rainbow trout. (DEC/DOW, BWAM/LMAS, March 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Southards Pond was surveyed by NYSDEC Division of Water and Nature Conservancy of Long Island staff in 2006 as part of an aquatic plant survey of Long Island lakes. This survey work found fanwort (Cabomba caroliniana), an invasive exotic plant species. Detailed survey work has not been conducted. No water quality evaluations have been conducted at the lake. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment
There are no apparent sources of pollutants to the waterbody. Aquatic invasive species are the lone concern in the lake. The pond is surrounded by undeveloped parkland.

Management Action
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing:
Southards Pond is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description
This segment includes the total area of the entire pond.

Elda Lake (1701-0346) Threatened

Waterbody Location Information

Revised: 05/18/2016

Water Index No: (MW7.8) AO-GSB-208-P947
Hydro Unit Code: Great South Bay-Fire Island Inlet (0203020204)
Water Type/Size: Lake/Reservoir 5 Acres
Description: entire lake
Water Class: C
Drainage Basin: Atlantic-Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Known
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: Aquatic Invasive Species (curly-leaf pondweed)
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)

Known: Habitat Alteration
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: Verification of Problem Severity Needed
Lead Agency/Office: ext/PRHP
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
Elda Lake is assessed as threatened due to recreational use that is considered to be threatened by aquatic invasive plant species. Although uses are currently fully supported, the invasive specices raise concerns and conditions should continue to be monitored.

Use Assessment
Elda Lake is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not for water supply or public bathing use.

There is no evidence of recreation use impacts in waterbody, although sampling has been limited to plant surveys and no extensive water quality sampling has be conducted. The occurrence of aquatic invasive species suggest some threat to recreational uses.

Aquatic life is considered to be fully supported. The pond provides fishing opportunities typical of warmwater Long Island ponds. (DEC/DOW, BWAM/LMAS, March 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Elda Lake was surveyed by NYSDEC Division of Water and Nature Conservancy of Long Island staff in 2008 as part of an aquatic plant survey of Long Island lakes. This survey work found curly–leafed pondweed (Potamogeton crispus), an invasive exotic plant species. Detailed survey work has not been conducted, although lake residents report extensive surface growth of the plant. No water quality evaluations have been conducted at the lake, and no additional aquatic plant surveys have been conducted since 2008. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

There are no apparent sources of pollutants to the waterbody. Aquatic invasive species are the lone concern in the lake. The pond is surrounded by undeveloped parkland.

Management Action

No specific management actions have been identified or are deemed necessary for the waterbody. Grass carp are stocked as a weed control measure.

Section 303(d) Listing:

Elda Lake is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description

This segment includes the total area of the entire lake.

Belmont Lake (1701-0021) Minor Impacts

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-208-P949	**Water Class:**	C
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	Lake/Reservoir 28.4 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	Aquatic Invasive Species (curly-leaf pondweed)
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	Habitat Alteration
Suspected:	Urban/Storm Runoff
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/PRHP
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Belmont Lake is assessed as having minor impacts due to recreational use that is considered to be stressed by aquatic invasive plant species. Invasive exotic plant species (fanwort) growth in the lake is extensive. Other water quality indicators reflect conditions that are generally supportive of uses.

Use Assessment

Belmont Lake is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not for water supply or public bathing use.

Recreational uses in Belmont Lake are thought to experience minor impacts due to invasive aquatic plant growth. Invasive exotic plant species (fanwort) growth in the lake is extensive. In order to limit the growth of aquatic vegetation, Belmont Lake State Park stocked grass carp into the lake in 1997.

Aquatic life is considered to be fully supported. The pond supports a good naturally reproducing warmwater fish

community, consisting of largemouth bass, chain pickerel, yellow perch, bluegill, pumpkinseed and brown bullhead. While Belmont Lake cannot sustain trout through the heat of summer – nor is it classified as a trout supporting waterbody – rainbow, brown, and brook trout are stocked in the fall and spring to provide a seasonal fishing opportunity. (DEC/DOW, BWAM/LMAS, March 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Belmont Lake was surveyed by the NYS Office of Parks, Recreation and Historic Preservation (OPR) as part of the OPR ambient lake monitoring program in 2000, 2001, 2003, and 2006–2009. This survey work found several pondweed and bladderwort species, and fanwort (Cabomba caroliniana), an invasive exotic plant species. The fanwort growth in the lake is extensive. The limited water quality data showed some variable but moderate phosphorus readings (typical of mesotrophic, or moderately productive, lakes), moderate to elevated nitrate levels, slightly acidic pH, and moderately hardwater. Most of these readings were typical of shallow Long Island lakes. Many of the algae collected are associated with taste and odor problems, although no cyanobacteria were identified. (DEC/DOW, BWAM/LMAS and NYSOPRHP, March 2011)

Source Assessment

The primary concern in the lake is aquatic invasive species. Urban stormwater runoff and other nonpoint sources may contribute other pollutants to the lake.

Management Action

Lake dredging was conducted in 1986. Fish Wildlife and Marine Resource staff conducted post-dredging monitoring in 1987 and found the lake has once again developed an outstanding largemouth bass, yellow perch and bluegill fishery. Concerns remain regarding excessive aquatic plant growth and control techniques are being considered. In order to limit the growth of aquatic vegetation, Belmont Lake State Park stocked grass carp into the lake in 1997. (DEC/FWMR, Region 1, March 2016)

A previously issued fish consumption advisory for PCBs and Chlordane was lifted in 2005. This NYS DOH health advisory had recommended not to eat more than one meal per month of carp because of elevated chlordane and PCBs. (2005–06 NYS DOH Health Advisories).

Section 303(d) Listing

Belmont Lake is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description

This segment includes the total area of the entire lake.

Santapogue Creek, Upper, and tribs (1701-0016) Unassessed

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-210	**Water Class:**	C(T)
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 2 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment

This waterbody segment is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Water Quality Information

There is currently no water quality information available upon which to base an assessment.

Previous assessment noted low summer dissolved oxygen, suspected nutrient load and other pollutants from stormwater and other urban nonpoint sources. These conditions along with low fish diversity and abundance were reported by Regional Fisheries staff in a 1998 assessment effort. The stream previously supported trout, but no longer supports a cold water fishery. The west branch of the creek is now largely a storm drain. More recent monitoring to verify current

conditions is recommended.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified, though urban stormwater and other nonpoint sources are suspected of having impact on the stream.

Management Action
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2016)

Segment Description
This segment includes the entire stream and tribs above tidal waters (Montauk Highway) and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are also Class C.

Neguntatogue Creek, Upper, and tribs (1701-0088) Needs Verification

Waterbody Location Information

Revised: 05/18/2016

Water Index No:	(MW7.8) AO-GSB-211	**Water Class:**	C
Hydro Unit Code:	Great South Bay-Fire Island Inlet (0203020204)	**Drainage Basin:**	Atlantic-Long Island Sound
Water Type/Size:	River/Stream 0.3 Miles	**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above Montauk Highway (freshwater)		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Unconfirmed
Aquatic Life	Stressed	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	Unknown Pollutants (biological impacts)
Suspected:	Nutrients (phosphorus), Low D.O./Oxygen Demand
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	Urban/Storm Runoff
Suspected:	Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Problem Severity Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Upper Neguntatogue Creek is assessed as needing verification of impacts due to recreational uses and aquatic life that may be stressed, although more recent sampling is necessary to confirm water quality. Urban stormwater runoff and other urban nonpoint sources and onsite/septic impacts in this high-density area are likely contributors to the impacts. However, this assessment is based on older data and sampling to verify conditions is recommended.

Use Assessment

Upper Neguntatogue Creek is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life is currently evaluated as stressed based on biological sampling that shows slight impacts. This sampling can also be used to infer that there are also some impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses. (DEC, DOW, BWAM, July 2014)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Neguntatogue Creek in Lindenhurst (atHerbert Street) was conducted as part of the RIBS biological screening effort in 2003. Sampling results at that time reflect fair water quality, with the macroinvertebrate community altered from what is expected under natural conditions. Some expected sensitive species are not present and overall macroinvertebrate species richness is lower than expected. Some changes in community composition have occurred due to replacement of sensitive ubiquitous taxa by more tolerant taxa, but overall there is still balanced distribution of all expected taxa. This sampling is older, and more recent sampling is needed to verify current contitions. (DEC/DOW, BWAM/SBU, December 2015)

Source Assessment

Based on the biologic community composition, surrounding land use and other knowledge of the waterbody, the most likely sources of pollutants/impacts to the waterbody are urban stormwater runoff and other nonpoint sources, including onsite wastewater treatment discharges in this high-density residential area.

Management Actions

No specific management actions have been identified for the waterbody. Additional sampling to verify the level of impact in this waterbody segment is recommended.

The NYS Legislature authorized $5 million to DEC and the Long Island Regional Planning Council (LIRPC) for a Long Island nitrogen management and mitigation plan. Plan development – with active input from local stakeholders and public – is underway. Chief among the expectations for the plan is a focus on wastewater issues, including sewering of unsewered communities in Suffolk County and the evaluation and use of advanced alternative onsite wastewater treatment systems to reduce nitrogen loads from individual septic systems where sewering in not viable. (DEC/DOW, BRWM, November 2015)

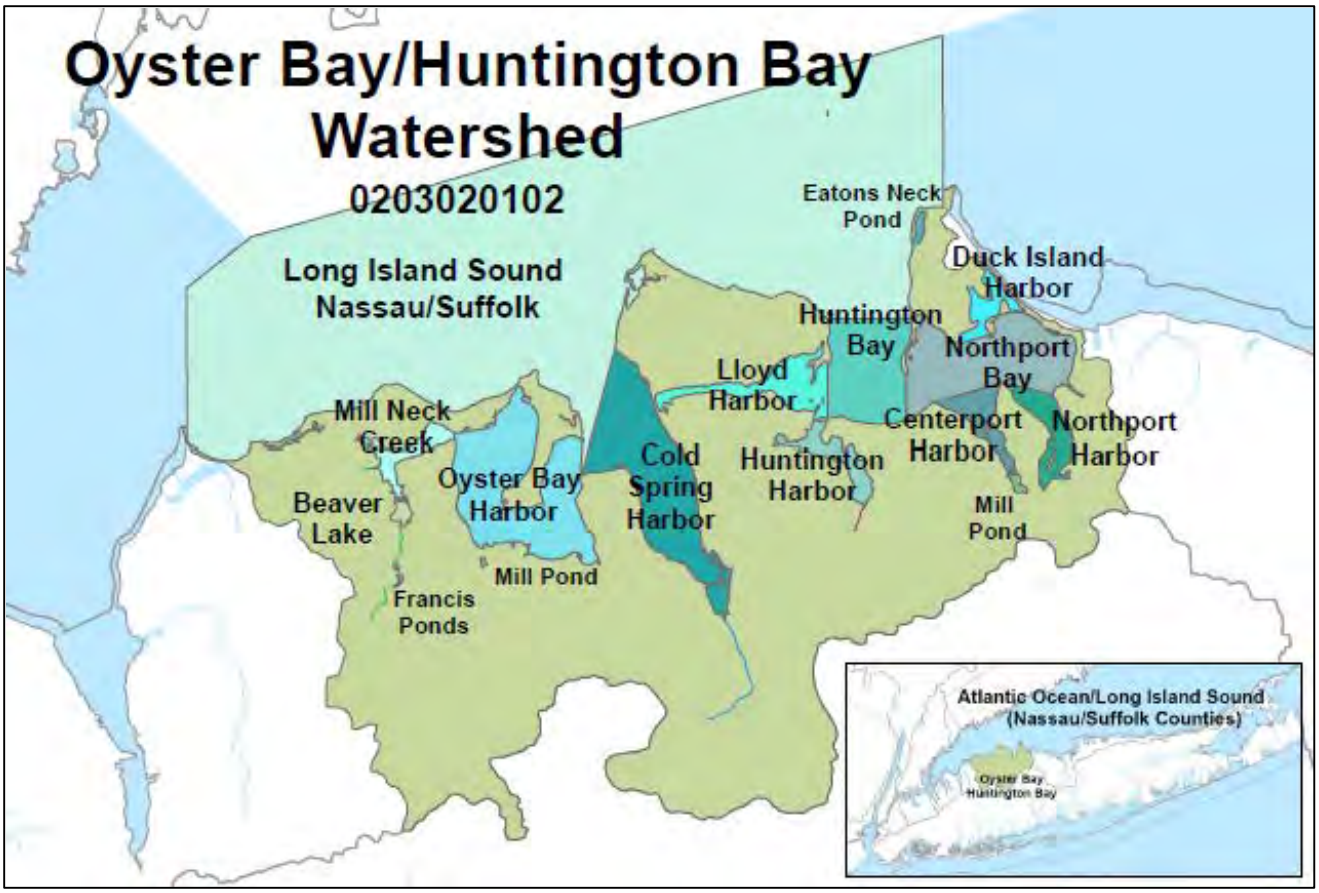
This waterbody is also included within the South Shore Estuary Reserve (SSER). The SSER encompasses the tidal waters and watershed between the Nassau–Queens County line and the eastern boundary of Shinnecock Bay. The goals of the SSER Program outlined in the 2001 Comprehensive Management Plan (CMP) include improvement and maintenance of water quality, protection and restoration of living resources, expansion of public use and enjoyment, sustaining and of the estuary-related economy, and increasing education, outreach and stewardship. Program activities focus on point and nonpoint source pollution reduction, protection and restoration of water quality and coastal habitat, increasing shellfish harvesting, open space preservation and enhancing other public uses of the estuary. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2009 to address impacts from boat pollution. (DEC/DOW, Region 1, March 2010)

Section 303(d) Listing

Upper Neguntatogue Creek is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts/impairments that would justify the listing of this waterbody, but additional sampling is recommended. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description

This segment includes the freshwater portion of the stream and tribs.



Oyster Bay/Huntington Bay Watershed
(0203020102)

Water Index Number	Waterbody Segment	Category
(MW5.1a) LIS (portion 3c)	Long Island Sound, Nassau/Suffolk (1702-0270)	Impaired
(MW5.1b) LIS-42,43	Minor Tribs to Long Island Sound (1702-0150)	Minor Impacts
(MW5.1c) LIS-OBH	Oyster Bay Harbor (1702-0016)	Impaired
(MW5.1c) LIS-OBH-47-P156	Mill Pond (1702-0155)	Minor Impacts
(MW5.1c) LIS-OBH-MNC	Mill Neck Creek and tidal tribs (1702-0151)	Impaired
(MW5.1c) LIS-OBH-MNC-44 thru 48	Tribs (fresh) to Oyster Bay/Mill Neck Cr (1702-0153)	No Known Impacts
(MW5.1c) LIS-OBH-MNC-45-P150a	Beaver Lake (1702-0152)	Impaired
(MW5.1c) LIS-OBH-MNC-45-P152,P153	Lower/Upper Francis Ponds (1702-0154)	Unassessed
(MW5.1d) LIS-CSH	Cold Spring Harbor, and tidal tribs (1702-0018)	Impaired
(MW5.1d) LIS-CSH-49 thru 52	Tribs (fresh) to Cold Spring Harbor (1702-0156)	Minor Impacts
(MW5.2a) LIS-HB	Huntington Bay (1702-0014)	Minor Impacts
(MW5.2a) LIS-HB..55 thru 57	Tribs (fresh) to Huntington Bay (1702-0231)	Unassessed
(MW5.2a) LIS-HB-HH	Huntington Harbor (1702-0228)	Impaired
(MW5.2a) LIS-HB-LH	Lloyd Harbor (1702-0227)	Impaired
(MW5.2a) LIS-HB-NB	Northport Bay (1702-0256)	Minor Impacts
(MW5.2a) LIS-HB-NB-CH	Centerport Harbor (1702-0229)	Impaired
(MW5.2a) LIS-HB-NB-CH-P240	Mill Pond (1702-0261)	Unassessed
(MW5.2a) LIS-HB-NB-DIH	Duck Island Harbor (1702-0262)	Minor Impacts
(MW5.2a) LIS-HB-NB-NH	Northport Harbor (1702-0230)	Impaired
(MW5.2b) LIS- 58-P269	Eatons Neck Pond (1702-0271)	No Known Impacts

Long Island Sound, Nassau/Suffolk (1702-0270) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.1a) LIS (portion 3c)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 27950.6 Acres	**Reg/County:**	1/Nassau (30)
Description:	Sound fr Matinecock Point to Eatons Neck Point		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Stressed	Known
Public Bathing	Stressed	Known
Recreation	Stressed	Known
Aquatic Life	Impaired	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	NUTRIENTS (nitrogen), LOW D.O./OXYGEN DEMAND, Pathogens
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	MUNICIPAL DISCHARGES, CSOs, URBAN/STORM RUNOFF
Suspected:	Other Source (migratory species)
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

This portion of Long Island Sound is assessed as impaired due to aquatic life that is know to be impaired by nutrients and resulting low dissolved oxygen. Shellfishing and public bathing and recreational uses are also thought to be stressed by pathogens. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

This portion of Long Island Sound is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be supported, but stressed in these waters. Much of this waterbody (included within Shellfish Growing Area #34) has been certified as safe for the taking of shellfish for use as food. A

small area of waters on the western edge of this segment is designated as uncertified. Because this area represents less than 5% of the total area, the waterbody is considered to be supporting of shellfishing use. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered to experience minor impacts based on monitoring and occasional beach closures at beaches in the segment. Beach monitoring revealed elevated bacteriological levels that occurred in generally less than ten percent of the samples collected at these beaches; these results resulted in occasional but infrequent (less than 10 days) beach closures at some beaches in most years. Occasional beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Prybil Beach, Lattington Beach, Piping Rock Beach, Stehli Beach, Ransom Beach, Soundside Beach, Centre Island Sound Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Aquatic life in the waterbody is considered to be impaired due to periodic low dissolved oxygen (hypoxia), the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. Atmospheric deposition is also contributes nitrogen to the Sound. The resulting low dissolved oxygen conditions have caused crustacean kills and limits the fishery in this passageway for diadromous fish. (DEC/DOW and FWMR, Region 1, August 2010)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Municipal wastewater discharges, urban storm runoff and other nonpoint sources including atmospheric deposition, and tidal exchange with western Long Island Sound and Connecticut waters are sources of the nutrients. Urban and storm runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called

for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
This portion of Long Island Sound is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Nitrogen TMDL. (DEC/DOW, BWRM, January 2015)

Segment Description
This segment includes all the waters of Long Island Sound within eastern Nassau and western Suffolk Counties, east of a line due north of Matinecock Point and west of a line due north of Eatons Neck Point, and excluding Cold Spring Harbor, Osyter Bay Harbor and Huntington Bay which are listed separately.

Minor Tribs to Long Island Sound (1702-0150) Minor Impacts

Waterbody Location Information

Revised: 02/13/2016

Water Index No:	(MW4.3b) LIS-42,43	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SC		Long Island Sound
Water Type/Size:	Estuary Waters 19.2 Acres	**Reg/County:**	1/Nassau (30)
Description:	total area of selected tidal tribs to sound		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	On-Site/Septic Syst, Other Source (boat pollution)
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Sources Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This Long Island Tribs waterbody is assessed as having minor impacts due to recreational uses that are thought to be stressed by pathogens. Some of these waters are designated as uncertified for shellfishing due to pathogens, although this waterbody is not designated for support of shellfishing use. The shellfishing restrictions suggest that recreational uses could be impacted but the pathogen criteria for shellfishing use are more stringent than for recreation and additional monitoring to evaluate recreational use support is recommended.

Use Assessment

This Long Island Tribs waterbody is a Class SC waterbody, suitable for general recreation use, and support of aquatic life, but not for shellfishing or for public bathing.

Recreational use including public bathing is thought to be stressed based on shellfishing certification monitoring. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for recreation and additional bacteriological sampling is needed to more fully evaluate recreational use. Restrictions on shellfishing represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

A portion of this waterbody, Frost Creek (-42), (included within Shellfish Growing Area #35) has been designated as uncertified for the taking of shellfish for use as food. Although these portions of this waterbody are monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment
Urban and storm runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Municipal wastewater discharges, urban storm runoff and other nonpoint sources including atmospheric deposition, and tidal exchange with western Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action
No specific management actions have been identified for the waterbody.

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
This Long Island Tribs waterbody is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL

Waters. There appear to be no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes Frost Creek (-42) and East Over Creek (-43). These tribs are designated class SC.

Oyster Bay Harbor (1702-0016) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4a) LIS-OBH		**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102	**Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters	2449.1 Acres	**Reg/County:**	1/Nassau (30)
Description:	entire bay			

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	MUNICIPAL DISCHARGES (Oyster Bay SD), URBAN/STORM RUNOFF
Suspected:	Other Source (migratory species), ONSITE/SEPTIC SYSTEMS
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Oyster Bay Harbor is assessed as impaired due to shellfishing, public bathing and recreational uses that are known to be impaired by pathogens, and aquatic life that is known to be stressed by nutrients and resulting low dissolved oxygen. Shellfishing, public bathing and recreational uses are restricted by periodic beach advisories/closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Oyster Bay Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Much of this waterbody (included within Shellfish Growing Area #47) has been designated uncertified or only seasonally certified for the taking of shellfish for use as food. About 18% of the Bay is closed year–round and an additional 20% is subject to seasonal or holiday closures. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is considered to be stressed based on monitoring and advisories/closures of beaches in the Harbor. Beach monitoring revealed elevated bacteriological levels that occur in more than ten percent of the samples collected at these beaches, and result in beach advisories/closures for more than 10 days in some years. Other beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches that have been affected include Theodore Roosevelt Beach, West Harbor Beach and Center Island Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff, municipal wastewater discharges and residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial

freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Friends of the Bay is a non–profit environmental organization formed in 1987 to preserve, protect and restore the ecological integrity and productivity of the Oyster Bay/Cold Spring Harbor Estuary and the surrounding watershed. The organizations efforts include water quality protection, watershed wetlands conservation, land use planning, research, education, community action and advocacy. (Friends of the Bay, 2010)

A vessel waste No Discharge Zone was established for the waters of the Oyster Bay/Cold Spring Harbor Complex in 2008.

Section 303(d) Listing

Oyster Bay Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although the Harbor is assessed as impaired due to pathogens, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Oyster Bay/Mill Neck Creek TMDL for pathogens in 2003. (DEC/DOW, BWRM, January 2015)

Segment Description

This segment includes tidal waters west of line from Plum Point to Cove Point and east of Bayville Bridge, which excludes Mill Neck Creek which is listed separately.

Mill Pond (1702-0155) Minor Impacts

Waterbody Location Information

Revised: 4/8/2011

Water Index No:	(MW4.4a) LIS-OBH-47-P156	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** C(T)		Long Island Sound
Water Type/Size:	Lake/Reservoir 7.3 Acres	**Reg/County:**	1/Nassau (30)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	NUTRIENTS (phosphorus)
Suspected:	SILT/SEDIMENT, Algal/Plant Growth
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	URBAN/STORM RUNOFF
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Mill Pond is assessed as having minor impacts due to recreational uses that thought to be stressed by nutrients and silt/sedimentation from urban/storm runoff and other nonpoint sources.

Use Assessment

Mill Pond is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Recreational uses and public bathing are considered to be supported but stressed due to elevated nutrients (phosphorus), excessive algae, poor water clarity. The pond has been used as a stormwater retention basin and now suffers from

siltation.

This waterbody is reported to support a suitable cold water fishery, although no specific fishery or biological reports are included in this assessment. Trout (brown and rainbow) are stocked in the spring and the fall, and the lake also supports a healthy population of small sized largemouth bass in the lake. A few carp are present, and bullhead grow to about 15 inches. A fisheries survey was conducted in 1993. (DEC/DOW, BWAM/LMAS and DEC/FWMR, Region 1 Fisheries, March 2011)

Water Quality Information

Water quality sampling of Mill Pond was conducted through the NYSDEC Lake Classification and Inventory (LCI) Program in 2004. Results of this sampling indicate the lake is best characterized as eutrophic, or highly productive. However chlorophyll/algal levels occasionally exceed criteria corresponding to impacted recreational uses, while phosphorus concentrations are typically quite high. Lake clarity measurements indicate water transparency does not typically meet the recommended minimum criteria for swimming beaches. These data indicate that the lake may be susceptible to algal blooms, although both water clarity and algae levels may be limited by turbidity from suspended sediment, as commonly occurs in shallow ponds. The depth profile is typical of shallow lakes, with fully oxygenated conditions to the lake bottom (depth < 2 meters). The lake has hard water and alkaline conditions. Readings of pH typically fall within the range established in state water quality standards for protection of aquatic life. (DEC/DOW, BWAM/LMAS, May 2011)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, urban/storm runoff and other nonpoint sources are the most likely sources of impacts to the waterbody. The pond is located on a United States Fish and Wildlife Preserve, and is one of the few public freshwater fishing spots on the north shore of Nassau County.

Management Actions

No specific management actions have been identified for the waterbody. The pond is located on a United States Fish and Wildlife Preserve. Trout are stocked in the lake during the spring and fall. (DEC/DOW, BWAM/LMAS and DEC/FWMR, Region 1 Fisheries, March 2011)

Section 303(d) Listing

Mill Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total area of the entire pond.

Mill Neck Creek and tidal tribs (1702-0151) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4a) LIS-OBH-MNC	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 292.6 Acres	**Reg/County:**	1/Nassau (30)
Description:	entire tidal reach and tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, ONSITE/SEPTIC SYSTEMS
Suspected:	Other Source (migratory species), Municipal Discharges
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Mill Neck Creek is assessed as impaired due to shellfishing, public bathing and recreational uses that are known to be impaired by pathogens, and aquatic life that is known to be stressed by nutrients and resulting low dissolved oxygen. Shellfishing, public bathing and recreational uses are restricted by shellfishing restrictions and periodic beach advisories/closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Mill Neck Creek is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support

of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Much of this waterbody (included within Shellfish Growing Area #47) has been designated uncertified or only seasonally certified for the taking of shellfish for use as food. About 93% of the creek is closed year-round, while the other 7% is subject to a seasonal closure. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2015)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is considered to be stressed based on monitoring and advisories/closures of beaches in the Harbor. Beach monitoring revealed elevated bacteriological levels that occur in more than ten percent of the samples collected at these beaches, and result in beach advisories/closures for more than 10 days in some years. Other beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches in this waterbody include West Harbor Beach and Center Island Beach, with lie just outside this segment in Oyster Bay Harbor. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff, municipal wastewater discharges and residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Friends of the Bay is a non–profit environmental organization formed in 1987 to preserve, protect and restore the ecological integrity and productivity of the Oyster Bay/Cold Spring Harbor Estuary and the surrounding watershed. The organizations efforts include water quality protection, watershed wetlands conservation, land use planning, research, education, community action and advocacy. (Friends of the Bay, 2010)

The Birches treatment facility, a small county owned wastewater treatment facility that had discharged to the creek, received Clean Water/Clean Air Bond Act grant to install a collection system/pump station to convey it's wastewater flow to the Glen Cove Wastewater Treatment. As a result the facility no longer discharges wastewater into Mill Neck Creek. (DEC/DOW, Region 1, February 2016).

A vessel waste No Discharge Zone was established for the waters of the Oyster Bay/Cold Spring Harbor Complex in 2008.

Section 303(d) Listing

Mill Neck Creek is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although the Harbor is assessed as impaired due to pathogens, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Oyster Bay/Mill Neck Creek TMDL for pathogens in 2003. (DEC/DOW, BWRM, January 2015)

Segment Description

This segment includes tidal waters west of the Bayville Bridge, including Oak Neck Creek.

Tribs (fresh) to Oyster Bay/Mill Neck Cr (1702-0153) No Known Impacts

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4a) LIS-OBH-MNC-44 thru 48		**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102	**Class:** C		Long Island Sound
Water Type/Size:	River/Stream	1.6 Miles	**Reg/County:**	1/Nassau (30)
Description:	total length of selected (freshwater) tribs			

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Fully Supported	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Reassessment Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

The Oyster Bay/Mill Neck Creek Tribs segment is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life is considered to be fully supported based on biological sampling that shows non-impacted conditions. This sampling can also be used to infer that there are no significant impacts to recreational (fishing) uses, although more

specific sampling is necessary to confirm this is the case. (DEC/DOW, BWAM/SBU, December 2014)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Beaver Brook in Mill Neck (at Frost Mill Road) was conducted as part of the RIBS monitoring effort in 2013 and 2014. The most recent of these sampling results indicated non-impacted conditions and very good water quality. Such samples are dominated by clean-water species and are most similar to a natural community with minimal human impacts. The 2013 sampling results, as well as 2008, 2009 results, also reflected good water quality but with conditions in the upper slightly impacted range, approaching non-impacted conditions. Additional sampling to confirm conditions is recommended, but nonetheless the aquatic life community is considered to be fully supported. (DEC/DOW, BWAM/SBU, January 2015)

Previous sampling at this site in 2003 revealed moderately impacted conditions, but this samples was considered to be influenced by poor sampling habitat . Sampling at the site in 1998 found non–impacted water quality conditions. The stream bottom was composed entirely of sand silt, with tree roots and macrophytes providing habitat for invertebrates. Several brown trout were also seen at this site.

A biological assessment of Oyster Bay Creek in Oyster Bay was also conducted in 1998. Sampling results at this site indicated moderately impacted water quality, with the fauna was heavily dominated by worms. However, the stream bottom was composed primarily of sand and gravel, and this likely contributed to the limited fauna. Trout were present at this site, and may actually provide a better indicator of water quality. (DEC/DOW, BWAR/SBU, January 2000)

Source Assessment

There are no apparent sources of pollutants to the waterbody.

Management Action

No specific management actions have been identified or are deemed necessary for the waterbody. Additional sampling to more specifically verify the level of impact in this waterbody segment is recommended, but is not a priority.

Section 303(d) Listing

The Oyster Bay/Mill Neck Creek Tribs segment is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total length of all freshwater tribs to Oyster Bay Harbor and Mill Neck Creek, including Beaver Brook (-45), Spring Lake Outlet (-46), Mill River (-47), Tiffany Creek (-48). These tribs are designated class C.

Beaver Lake (1702-0152) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4a) LIS-OBH-MNC-45-P150a	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** C		Long Island Sound
Water Type/Size:	Lake/Reservoir 63.6 Acres	**Reg/County:**	1/Nassau (30)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	NUTRIENTS (phosphorus), ALGAL/PLANT GROWTH (native)
Suspected:	Low D.O./Oxygen Demand
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	On-Site/Septic Syst, Other Source (waterfowl)
Unconfirmed:	- - -

Management Information

Management Status:	Verification of Sources Needed
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Beaver Lake is assessed as an impaired waterbody due to recreational uses that are known to be impaired by nutrients and the resulting algal/weed growth and possible low dissolved oxygen. No specific sources have been identified, but urban stormwater runoff and other nonpoint sources are the primary contributing source of pollutants.

Use Assessment

Beaver Lake is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Recreational uses considered to be impaired due elevated nutrients (phosphorus), excessive algae and plant growth.

Additional bacteriological sampling is needed to more fully evaluate the impact of pathogen levels on recreational use. (DEC/DOW, BWAM/LMAS, July 2013)

Aquatic life may be stressed based on suspected low dissolved oxygen related to the eutrophic condition of the lake. Additional fishery assessment is needed to more fully evaluate aquatic life and fishing use. (DEC/DOW, BWAM, January 2016)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

Water quality sampling of Beaver Lake has been conducted through the NYSDEC Lake Classification and Inventory (LCI) Program in 2014. Results of this sampling indicate the lake is best characterized as eutrophic, or highly productive. Chlorophyll/algal levels are well above criteria corresponding to impaired recreational uses, while phosphorus concentrations are typically very high. Lake clarity observations indicate water transparency is typically poor. Readings of pH occasionally exceed the range established in state water quality standards for protection of aquatic life though impacts to the fishery are not known. The elevated pH could be a response to algae levels. This evaluation is consistent with results from previous sampling at the site conducted in 2009. (DEC/DOW, BWAM/LMAS, May 2006)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, urban/storm runoff and other nonpoint sources are the most likely sources of impacts to the waterbody. Significant population of waterfowl and shoreline residential development are also possible sources.

Management Action

Beaver Lake is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below). No other specific management actions have been identified for the waterbody.

Section 303(d) Listing:

Beaver Lake is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL for phosphorus and resulting low dissolved oxygen. This waterbody was first listed on the 2012 List. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total area of the entire pond. The waterbody is Class C.

Lower/Upper Francis Ponds (1702-0154) Unassessed

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4a) LIS-OBH-MNC-45-P152,P153			**Drain**
Basin:	Atlantic-Long Island Sound			
Unit Code:	0203020102	**Class:** C		Long Island Sound
Water Type/Size:	Lake/Reservoir	12.5 Acres	**Reg/County:**	1/Nassau (30)
Description:	total area of both lakes			

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Water Supply	N/A	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information

There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
Lower/Upper Francis Lakes is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2015)

Segment Description
This segment includes the total area of both Lower Francis (P152) and Upper Francis (P153) Lakes. Both lakes are designated Class C.

Cold Spring Harbor, and tidal tribs (1702-0018) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4b) LIS-CSH		**Drain Basin:**	Atlantic-Long Island Sound	
Unit Code:	0203020102	**Class:** SA		Long Island Sound	
Water Type/Size:	Estuary Waters	2333.4 Acres	**Reg/County:**	1/Nassau (30)	
Description:	entire bay				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), ONSITE/SEPTIC SYSTEMS
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Cold Spring Harbor is assessed as impaired due to shellfishing, public bathing and recreational uses that are known to be impaired by pathogens, and aquatic life that is known to be stressed by nutrients and resulting low dissolved oxygen. Shellfishing, public bathing and recreational uses are restricted by periodic beach advisories/closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Cold Spring Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Portions of this waterbody (included within Shellfish Growing Area #48) has been designated uncertified or only seasonally certified for the taking of shellfish for use as food. The southern head of the harbor is closed year-round (this area was recently expanded in 2015), while a small portion around the mouth of Eel Creek on the western shore is only seasonal certified. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, December 2015)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is considered to be impaired based on monitoring and advisories/closures of beaches in the Harbor. Beach monitoring revealed elevated bacteriological levels that occur in more than ten percent of the samples collected at these beaches, and result in beach advisories/closures for more than 10 days in some years. Other beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this waterbody include Menschutt Beach, Eagle Dock Community Beach, Cold Spring Harbor Beach Club, Laurel Hollow Village Beach, Lloyd Harbor Village Park, Lloyd Neck Bath Club and West Neck Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved

oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Friends of the Bay is a non–profit environmental organization formed in 1987 to preserve, protect and restore the ecological integrity and productivity of the Oyster Bay/Cold Spring Harbor Estuary and the surrounding watershed. The organizations efforts include water quality protection, watershed wetlands conservation, land use planning, research, education, community action and advocacy. (Friends of the Bay, 2010)

A vessel waste No Discharge Zone was established for the waters of the Oyster Bay/Cold Spring Harbor Complex in 2008.

Section 303(d) Listing

Cold Spring Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although the Harbor is assessed as impaired due to pathogens, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Sound Pathogens (Shellfishing) TMDL in 2007. (DEC/DOW, BWRM, January 2015)

Segment Description

This segment includes tidal waters south of a line from Cove Point to Whitewood Point.

Tribs (fresh) to Cold Spring Harbor (1702-0156) Minor Impacts

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW4.4b) LIS-CSH-49 thru 50	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** C		Long Island Sound
Water Type/Size:	River/Stream 2.2 Miles	**Reg/County:**	1/Nassau (30)
Description:	total length of selected (freshwater) tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	UNKNOWN POLLUTANTS (biological impacts)
Unconfirmed:	Nutrients (phosphorus)

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	UNKNOWN SOURCE, Urban/Storm Runoff
Unconfirmed:	Onsite/Septic Systems

Management Information

Management Status:	Verification of Pollutants/Causes Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Cold Spring Harbor Tribs is assessed as having minor impacts due to aquatic life that is known to be stressed. No specific pollutant or sources have been identified, but land use suggests urban/storm runoff and other nonpoint sources contribute to the impacts.

Use Assessment

Cold Spring Harbor Tribs is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life is evaluated as supported but stressed based on biological sampling that shows slight impacts. This

sampling can also be used to infer that there may be minor impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional (bacteriological) sampling is needed to more fully evaluate other recreational uses.] (DEC/ DOW, BWAM, July 2014)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of unnamed trib (-50) to Cold Spring Harbor in Cold Spring Harbor (at Harbor Road) was conducted as part of the RIBS biological screening effort in 2013. Sampling results reflect fair water quality, with the macroinvertebrate community altered from what is expected under natural conditions. Some expected sensitive species are not present and overall macroinvertebrate species richness is lower than expected. Some changes in community composition have occurred due to replacement of sensitive ubiquitous taxa by more tolerant taxa, but overall there is still balanced distribution of all expected taxa. In spite of these minor impacts, aquatic life is considered to be supported. (DEC/DOW, BWAM/SBU, January 2015)

Source Assessment

Specific sources of pollutants to the waterbody have not been identified. Identification of sources based on biological community composition was inconclusive. But based on surrounding land use and other knowledge of the waterbody, urban stormwater runoff and other nonpoint source are the most likely sources of impacts to the waterbody. Residential onsite/septic systems may also be a contributing source.

Management Actions

No specific management actions have been identified or are deemed necessary for the waterbody. Additional sampling to verify specific pollutants and sources of impact to this waterbody segment is needed.

Section 303(d) Listing

Cold Spring Harbor Tribs is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts/impairments that would justify the listing of this waterbody at this time. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total length of all freshwater tribs to Cold Spring Harbor. The waters of these tribs are Class C, C(T). Tribs to this reach/segment, including unnamed tribs (-48- 49, -50).

Huntington Bay (1702-0014) Minor Impacts

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 1398 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire bay, as described below		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	NUTRIENTS (Nitrogen), LOW D.O./OXYGEN DEMAND
Suspected:	PRIORITY ORGANICS (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/PEP
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Huntington Bay is assessed as having minor impacts due to aquatic life that is thought to be stressed by nutrients and resulting low dissolved oxygen, and PCBs. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. All other evaluated uses are considered to be fully supported.

Use Assessment

Huntington Bay is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. Virtually all of this waterbody (included within Shellfish Growing Area #40) has been certified as safe for the taking of shellfish for use as food. The only restrictions in this segment are for a small area around the mouth of Huntington Harbor. Because this area represents less than 5% of the total area, the waterbody is considered to be fully supporting of shellfishing use. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered supported based on monitoring at beaches in the waterbody. Beach monitoring revealed no elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include Baycrest Association Beach, Nathan Hale Beach Club and Head of the Bay Club Beach. Additionally bacteriological sampling conducted through the shellfishing monitoring program suggest public bathing is supported. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control

of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Huntington Bay is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes bay waters east of line south from East Beach and west of line south from West Beach. Huntington Harbor, Northport Bay, Northport Harbor, Centerport Harbor (includes Mill Pond), Duck Island Harbor, and Lloyd Harbor are listed separately.

Tribs (fresh) to Huntington Bay (1702-0231) Unassessed

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB..55 thru 57	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** C		Long Island Sound
Water Type/Size:	River/Stream 0.4 Miles	**Reg/County:**	1/Suffolk (52)
Description:	total length of selected (fresh) tribs to bay		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This trib segment is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2015)

Segment Description
This segment includes the total length of all freshwater tribs to Huntington Bay.

Huntington Harbor (1702-0228) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-HH		**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102	**Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters	346.5 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor			

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), ONSITE/SEPTIC SYSTEMS
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Huntington Harbor is assessed as impaired due to shellfishing, public bathing and recreational uses that are known to be impaired by pathogens, and aquatic life that is known to be stressed by nutrients and resulting low dissolved oxygen. Shellfishing, public bathing and recreational uses are restricted by periodic beach advisories/closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Huntington Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. All of this waterbody (included within Shellfish Growing Area #46) has been designated uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, December 2015)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is considered to be impaired based on monitoring and advisories/closures of beaches in the Harbor. Beach monitoring revealed elevated bacteriological levels that occur in more than ten percent of the samples collected at these beaches, and result in beach advisories/closures for more than 10 days in some years. Other beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this waterbody include Gold Star Battalion Beach and Wincoma Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in

1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Huntington Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although the Harbor is assessed as impaired due to pathogens, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Sound Pathogens (Shellfishing) TMDL in 2007. (DEC/DOW, BWRM, January 2015)

Segment Description
This segment includes the entire harbor south of a line from Wendower Road to Elbertsons Point.

Lloyd Harbor (1702-0227) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-LH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 698.1 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), ONSITE/SEPTIC SYSTEMS
Unconfirmed:	- - -

Management Information

Management Status:	Restoration/Protection Strategy Needed
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Lloyd Harbor is assessed as impaired due to shellfishing that is known to be impaired by pathogens. Aquatic life is also known to be stressed by nutrients and resulting low dissolved oxygen. Public bathing and recreational uses may be stressed by pathogens, though evaluation of these uses need to be verified. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Huntington Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Much of this waterbody (included within Shellfish Growing Area #45) has been designated uncertified or only seasonally certified for the taking of shellfish for use as food. The western (head) half of the harbor is only seasonally certified and a small portion of the harbor waters near the mouth of Huntington Harbor is uncertified. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, December 2015)

Aquatic life in the waterbody is also considered to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is thought to be stressed based on shellfishing certification monitoring. Bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. There are no regularly monitored beaches in this waterbody, although Wincoma Beach lies just outside the mouth of the Harbor. Restrictions on shellfishing represent an impact to recreational use. (DEC/DFWMR, July 2014)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial

freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Lloyd Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. However this updated assessment suggests it is appropriate to include this waterbody on the next List. It is recommended that this waterbody be added to Part 2c of the List as a shellfishing impaired waterbody requiring development of a TMDL for pathogens. (DEC/DOW, BWAM/WQAS, January 2015) (DEC/DOW, BWRM, January 2015)

Segment Description
This segment includes the entire harbor west of a line extending south from East Beach.

Northport Bay (1702-0256) Minor Impacts

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-NB		**Drain Basin:**	Atlantic-Long Island Sound	
Unit Code:	0203020102	**Class:** SA		Long Island Sound	
Water Type/Size:	Estuary Waters	1891.3 Acres	**Reg/County:**	1/Suffolk (52)	
Description:	entire bay, as described below				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Stressed	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, NUTRIENTS (nitrogen), LOW D.O./OXYGEN DEMAND
Suspected:	PRIORITY ORGANICS (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Northport Bay is assessed as having minor impacts due to shellfishing and aquatic life that are considered to be stressed by pathogens, nutrients resulting low dissolved oxygen, and PCBs. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. All other evaluated uses are considered to be fully supported.

Use Assessment

Northport Bay is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be stressed in these waters. Most of this waterbody (included within Shellfish Growing Area #40) has been certified as safe for the taking of shellfish for use as food. The areas affected by restrictions include the area at the entrance to Northport Harbor which is closed year-round, and the northern portion of Price Bend (seasonally closed). Because this area represents less than 10% of the total area, the waterbody is considered to be supporting of shellfishing use. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered supported based on monitoring at beaches in the waterbody. Beach monitoring revealed no elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include Bay Hills POA Beach, Crescent Beach, Steers Beach, Asharoken Beach and Prices Bend Beach. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development

of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Northport Bay is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes bay waters east of line south from West Beach, excluding Centerport, Northport and Duck Island Harbors which are listed separately.

Centerport Harbor (1702-0229) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-NB-CH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 366.7 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), ONSITE/SEPTIC SYSTEMS
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Centerport Harbor is assessed as impaired due to shellfishing, public bathing and recreational uses that are known to be impaired by pathogens, and aquatic life that is known to be stressed by nutrients and resulting low dissolved oxygen. Shellfishing, public bathing and recreational uses are restricted by periodic beach advisories/closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Centerport Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Much of this waterbody (included within Shellfish Growing Area #43) has been designated uncertified or only seasonally certified for the taking of shellfish for use as food. About 36% of the harbor is closed to shellfishing year-round, while an additional 22% is subject to seasonal closures. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, December 2015)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is considered to be impaired based on monitoring and advisories/closures of beaches in the Harbor. Beach monitoring revealed elevated bacteriological levels that occur in more than ten percent of the samples collected at these beaches, and result in beach advisories/closures for more than 10 days in some years. Other beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this waterbody include Centerport Beach, Knollwood Beach, Huntington Beach Community Association Beach, Camp Alveria (closed for season in 2011-2012) and Fleets Cove Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was

developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Centerport Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although the Harbor is assessed as impaired due to pathogens, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Sound Pathogens (Shellfishing) TMDL in 2007. (DEC/DOW, BWRM, January 2015)

Segment Description
This segment includes the entire harbor south of a line from Little Neck Point to the northernmost point on the western shoreline.

Mill Pond (1702-0261) Unassessed

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-NB-CH-P240	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** C		Long Island Sound
Water Type/Size:	Lake/Reservoir 34 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire pond		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Water Supply	N/A	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
Mill Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM, January 2015)

Segment Description
This segment includes the total area of the entire pond.

Duck Island Harbor (1702-0262) Minor Impacts

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-NB-DIH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 272.8 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	NUTRIENTS (Nitrogen), LOW D.O./OXYGEN DEMAND
Suspected:	PRIORITY ORGANICS (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/PEP
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Duck Island Harbor is assessed as having minor impacts due to aquatic life that is thought to be stressed by nutrients and resulting low dissolved oxygen, and PCBs. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. All other evaluated uses are considered to be fully supported.

Use Assessment

Duck Island Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included within Shellfish Growing Area #44) has been certified as safe for the taking of shellfish for use as food. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered fully supported based on shellfishing certification monitoring. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program suggest public bathing is supported. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Duck Island Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the entire harbor north of a line from Winkle Point to Duck Island Bluff.

Northport Harbor (1702-0230) Impaired

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2a) LIS-HB-NB-NH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020102 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 445.2 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Impaired	Known
Aquatic Life	Stressed	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Nutrients (Nitrogen), Low D.O./Oxygen Demand
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, Municipal Discharges
Suspected:	Other Source (migratory species), ONSITE/SEPTIC SYSTEMS
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Northport Harbor is assessed as impaired due to shellfishing, public bathing and recreational uses that are known to be impaired by pathogens, and aquatic life that is known to be stressed by nutrients and resulting low dissolved oxygen. Shellfishing, public bathing and recreational uses are restricted by periodic beach advisories/closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Northport Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Virtual all of this waterbody (included within Shellfish Growing Area #42) has been designated uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, December 2015)

Aquatic life in the waterbody is also thought to be stressed by occasional low dissolved oxygen, the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die-off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. The tidal exchange of waters with the Sound suggests related impacts in the waters of the Bay. (DEC/DOW and FWMR, Region 1, August 2010)

Recreational use including public bathing is considered to be impaired based on monitoring and advisories/closures of beaches in the Harbor. Beach monitoring revealed elevated bacteriological levels that occur in more than ten percent of the samples collected at these beaches, and result in beach advisories/closures for more than 10 days in some years. Other beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this waterbody include Centerport Yacht Club Beech and Vanderbilt Beach (closed in 2012-13). (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Urban stormwater runoff and possibly residential onsite wastewater/septic systems are considered to be the primary sources of pathogens, although various other sources such as boat discharges, municipal wastewater discharges and waterfowl may also contribute. Municipal sources, urban storm runoff, onsite septic systems and other nonpoint sources including atmospheric deposition, and tidal exchange with Long Island Sound and Connecticut waters are sources of the nutrients. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in

1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Northport Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although the Harbor is assessed as impaired due to pathogens, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Sound Pathogens (Shellfishing) TMDL in 2007. (DEC/DOW, BWRM, January 2015)

Segment Description
This segment includes the entire harbor south of a line from Bluff Point to Little Neck Point.

Eatons Neck Pond (1701-0271) No Known Impacts

Waterbody Location Information

Revised: 02/19/2016

Water Index No:	(MW5.2b) LIS- 58-P269	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020202 **Class:** SA		Atlantic Ocean
Water Type/Size:	Estuary Waters 85.1 Acres	**Reg/County:**	1/Suffolk (52)
Description:	total area of pond and tidal tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Suspected
Recreation	Fully Supported	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	DEC/FWMR
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Eatons Neck Pond is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

Eatons Neck Pond is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included within Shellfish Growing Area #34) has been certified as safe for the taking of shellfish for use as food. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State

and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered fully supported based on shellfishing certification monitoring. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program suggest public bathing is supported. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is reported to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

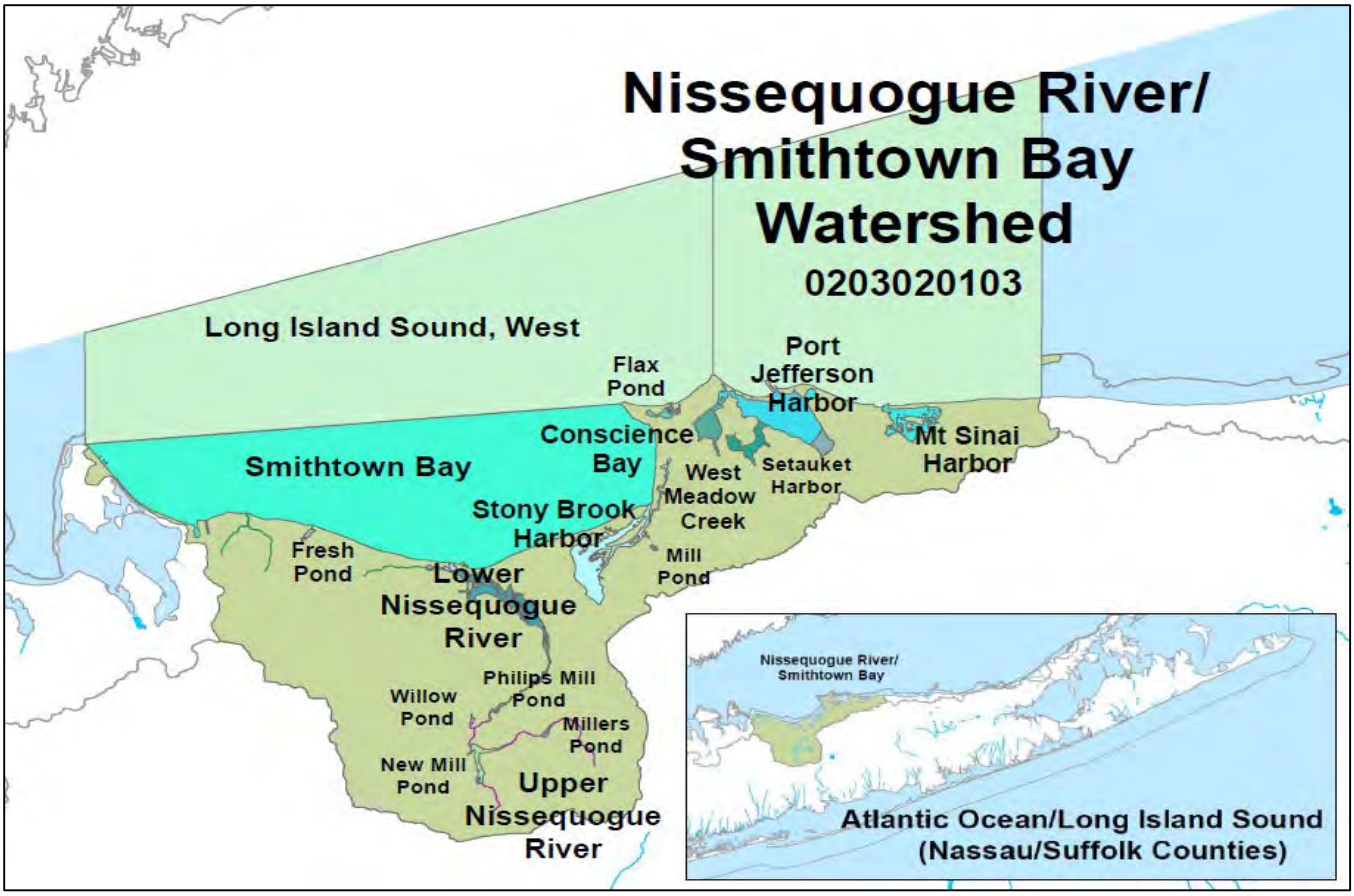
Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Action
This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Eatons Neck Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes Eatons Neck Pond (-P269) and its outlet to Long Island Sound (-58). Eatons Neck Pond is designated Class SA.



Nissequogue River/Smithtown Bay Watershed
(0203020103)

Water Index Number	Waterbody Segment	Category
(MW5.3) LIS (portion 4)	Long Island Sound, Suffolk County, West (1702-0098)	Impaired
(MW5.3) LIS (portion 4a)/SB	Smithtown Bay (1702-0023)	Impaired
(MW5.3) LIS- 59 thru 61	Tidal Tribs to Long Island Sound (1702-0232)	Needs Verification
(MW5.3) LIS- 59 thru 61	Tribs (freshwater) to Long Island Sound (1702-0234)	Unassessed
(MW5.3) LIS- 60-P271a	Fresh Pond (1702-0233)	Unassessed
(MW5.3) LIS- 62	Nissequogue River, Lower (1702-0025)	No Known Impacts
(MW5.3) LIS- 62	Nissequogue River, Upper, and tribs (1702-0235)	No Known Impacts
(MW5.3) LIS- 62-4-P289	Willow Pond (1702-0237)	No Known Impacts
(MW5.3) LIS- 62-P288	Philips Mill Pond (1702-0236)	Threatened
(MW5.3) LIS- 62-P292	New Mill Pond (1702-0238)	Threatened
(MW5.3) LIS- 62-P296	Millers Pond (1702-0013)	Impaired
(MW5.3) LIS-SB-SBH	Stony Brook Harbor/West Meadow Creek (1702-0047)	Impaired
(MW5.3) LIS-SB-SBH-63-P336	Mill Pond (1702-0239)	Unassessed
(MW5.4b) LIS-P339	Flax Pond (1702-0240)	Impaired
(MW5.4c) LIS-PJH (portion 1)	Port Jefferson Harbor, North, and tribs (1702-0015)	Impaired
(MW5.4c) LIS-PJH (portion 2)	Port Jefferson Harbor, South, and tribs (1702-0241)	Minor Impacts
(MW5.4c) LIS-PJH-CB	Conscience Bay and tidal tribs (1702-0091)	Impaired
(MW5.4c) LIS-PJH-SH	Setauket Harbor (1702-0242)	Impaired
(MW5.4d) LIS- MSH	Mt Sinai Harbor and tidal tribs (1702-0019)	Impaired

Long Island Sound, Suffolk County, West (1702-0098) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.1) LIS (portion 4)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 73736.2 Acres	**Reg/County:**	1/Suffolk (52)
Description:	Sound fr Nassau/Suffolk Co line to Old Field Point		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Impaired	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	NUTRIENTS (nitrogen), LOW D.O./OXYGEN DEMAND, Pathogens
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	MUNICIPAL DISCHARGES (Suffolk Co SD #6 STP)
Suspected:	URBAN/STORM RUNOFF
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

This portion of Long Island Sound is assessed as impaired due to aquatic life that is know to be impaired by nutrients and resulting low dissolved oxygen. Public bathing and recreational uses are also thought to be stressed by pathogens resulting in periodic beach closures. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

This portion of Long Island Sound is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody (included

within Shellfish Growing Area #34) has been certified as safe for the taking of shellfish for use as food. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered to experience minor impacts based on monitoring and occasional beach closures at beaches in the segment. Beach monitoring revealed elevated bacteriological levels that occurred in generally less than ten percent of the samples collected at these beaches; these results resulted in occasional but infrequent (less than 10 days) beach closures at some beaches in some years. Occasional beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Belle Terre Beach, Port Jefferson Beach East and West, , Cedar Beach East and West, Miller Beach Surf Club, Miller Place Park, Woodhull Landing and Scotts Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Aquatic life in the waterbody is considered to be impaired due to periodic low dissolved oxygen (hypoxia), the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die–off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. Atmospheric deposition is also contributes nitrogen to the Sound. The resulting low dissolved oxygen conditions have caused crustacean kills and limits the fishery in this passageway for diadromous fish. (DEC/DOW and FWMR, Region 1, August 2010)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Municipal wastewater discharges, urban storm runoff and other nonpoint sources including atmospheric deposition, and tidal exchange with western Long Island Sound and Connecticut waters are sources of the nutrients. Urban and storm runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development

of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

This portion of Long Island Sound is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Nitrogen TMDL. (DEC/DOW, BWRM, January 2015)

Segment Description

This segment includes all the waters of Long Island Sound within Suffolk County, east of a line due north of Eatons Neck Point, north of a line from Eatons Neck Point to Crane Neck Point (below which is Smithtown Bay, which is listed separately), and west of a line due north of the western border of Sound Beach. The boundary of this segment has been modified (2016); previously, it had extended west to Old Field Point.

Smithtown Bay (1702-0023) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4a) LIS-SB	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 22185.3 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire bay		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Shellfishing	Threatened	Suspected
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Impaired	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	NUTRIENTS (nitrogen), LOW D.O./OXYGEN DEMAND, Pathogens
Suspected:	Priority Organics (PCBs)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	MUNICIPAL DISCHARGES (Suffolk Co SD #6 STP)
Suspected:	Other Non-Permitted Sanitary Disch, URBAN/STORM RUNOFF
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DEC/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Smithtown Bay (a portion of Long Island Sound) is assessed as impaired due to aquatic life that is know to be impaired by nutrients and resulting low dissolved oxygen. Public bathing and recreational uses are also thought to be stressed – perhaps rising to the level of impairment – by pathogens resulting in periodic beach closures. Pathogens also threaten shellfishing use, though shellfishing is considered fully supported at this time. Fish consumption is also thought to be stressed by PCBs, however these fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

This portion of Long Island Sound is a Class SA waterbody, suitable for shellfishing, public bathing and general

recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. Vitually all of this waterbody (included within Shellfish Growing Area #39) has been certified as safe for the taking of shellfish for use as food. The largest uncertified area includes the area within a one–half mile radius of the Suffolk County SD #6 (Kings Park) STP outfall and an area between the outfall and at the shore at the mouth of the Nissequogue River. Other smaller areas with restrictins include the waters within a 1,000 foot radius of Stony Brook Harbor outlet that is only seasonally certified, and waters within a 500 foot radius around the mouth of Crab Meadow Creek which are uncertified year-round. Because these restrictions are either due to administrative closures set as precautionary measures due to the proximity of the wastewater treatment discharge, or because the restrictions cover such a small area relative to the size of the bay (less than 5% of the 22,300 acre SGA #39), shellfishing use is listed as threatened. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered to experience minor impacts – that might rise to the level of impairment – based on monitoring and occasional beach closures at beaches in the segment. Beach monitoring revealed elevated bacteriological levels that occurred in up to 15% of the samples collected at these beaches; these results resulted in occasional but infrequent (approaching 10 days) beach closures at some beaches in some years. Occasional beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. One beach is closed year-round (Brookhaven Beach). Beaches within this reach include Crab Meadow Beach, Callihans Beach, Short Beach, Nissequogue Point Beach, Long Beach, Schubert Beach, Brookhaven Beach, West Meadow Beach and Old Field Club Beach. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2015)

Aquatic life in the waterbody is considered to be impaired due to periodic low dissolved oxygen (hypoxia), the result of elevated nitrogen loadings. The Long Island Sound Study (see below) found that nitrogen from area WWTPs and to a lesser extent CSOs promote algal growth, die–off, settlement to the sediment, and create and oxygen demand which results in low dissolved oxygen and hypoxia in the bottom waters of the Sound. Atmospheric deposition is also contributes nitrogen to the Sound. The resulting low dissolved oxygen conditions have caused crustacean kills and limits the fishery in this passageway for diadromous fish. (DEC/DOW and FWMR, Region 1, August 2010)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Municipal wastewater discharges, urban storm runoff and other nonpoint sources including atmospheric deposition, and tidal exchange with western Long Island Sound and Connecticut waters are sources of the nutrients. Urban and storm

runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

Both New York State and Connecticut have identified Long Island Sound as water quality limiting due to low dissolved oxygen/hypoxia caused by nitrogen loadings. A Total Maximum Daily Load (TMDL) plan to address the problem was developed and approved in 2001. This plan outlines a phased approach to nitrogen reduction. Following and initial freeze on nitrogen loadings and the realization that further efforts were needed, New York and Connecticut agreed in 1998 to significant nitrogen reduction targets (58.5%) and a commitment to enforce the targets through the development of a TMDL. Significant upgrades to municipal wastewater treatment plants that discharge to Long Island Sound called for in the TMDL are currently underway; anticipated completion in 2017. Additional future actions to address the control of nitrogen (and carbon) from up–watershed of the immediate LISS area and atmospheric sources are currently under discussion. (DEC/DOW, BWAM/WQMS, August 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Smithtown Bay is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion and implementation of the Long Island Nitrogen TMDL. This updated assessment also suggests it may be appropriate to include this waterbody on the next List of pathogens due to the frequency of beach closures. (DEC/DOW, BWRM, January 2015)

Segment Description

This segment includes waters south of a line from Eatons Neck Point to Crane Neck Point.

Tidal Tribs to Long Island Sound (1702-0232) Needs Verification

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.2b) LIS- 59 thru 61	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SC		Long Island Sound
Water Type/Size:	Estuary Waters 42.7 Acres	**Reg/County:**	1/Suffolk (52)
Description:	total area of selected tidal tribs to sound		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Unconfirmed
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	PATHOGENS
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	URBAN/STORM RUNOFF
Unconfirmed:	Onsite/Septic Systems

Management Information

Management Status:	Reassessment Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This Long Island tribs segment is assessed as a waterbody having minor impacts due to recreational uses that are thought to be stressed by pathogens. This assessment is based on pathogens levels identified through shellfishing program monitoring.

Use Assessment

Tidal Tribs to Long Island is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water – although sampling of the waterbody has been included in the shellfish monitoring program – or for public bathing.

Portions of this waterbody (included within Shellfish Growing Area #39) have been designated as uncertified for the taking of shellfish for use as food. Crab Meadow Creek (-59) and unnamed tidal inlets (P270, P270b) are designated as uncertified for the taking of shellfishing for use as food. Although these portions of this waterbody are monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

Recreational use including public bathing may be stressed based on shellfishing certification monitoring. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. Crab Meadow beach on the Long Island shore near the mouth of Crab Meadwow Creek has experienced some beach closures and advisories. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Onsite/septic systems have also been identified as a possible contributing source. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

This Tidal Tribs to Long Island segment is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total area of the tidal portion of tribs to Long Island Sound from Eatons Neck to the Nissequogue River, including Crab Meadow Creek (-59), and Sunken Meadow Creek (-61). These tribs are designated class SC. Eaton Neck Pond (-58) is listed separately.

Tribs (freshwater) to Long Island Sound (1702-0234) Unassessed

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.2b) LIS- 58 thru 61	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** C		Long Island Sound
Water Type/Size:	River/Stream 4.7 Miles	**Reg/County:**	1/Suffolk (52)
Description:	total length of selected (freshwater) tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total length of the freshwater portions of tribs to Long Island Sound between Eatons Neck Point and the Nissequogue River. These freshwater reaches, including Upper Crab Meadow Brook (-59) and Sunken Meadow Creek (-61), are primarily Class C.

Fresh Pond (1702-0233) Unassessed

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.2b) LIS-P271a	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** C		Long Island Sound
Water Type/Size:	Lake/Reservoir 17.4 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not for water supply use or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
Fresh Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total area of the entire pond.

Nissequogue River, Lower (1702-0025) No Known Impacts

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.3) LIS- 62			**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103	**Class:** SC			Long Island Sound
Water Type/Size:	Estuary Waters	529.2 Acres		**Reg/County:**	1/Suffolk (52)
Description:	reach from mouth to Philips Mill Pond (tidal portion)				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	PATHOGENS
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	URBAN/STORM RUNOFF
Unconfirmed:	Onsite/Septic Systems

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Nissequogue River is assessed as having no known impacts; all evaluated uses are considered to be fully supported. Recreational uses are thought to be threatened by pathogens, a result of shellfishing restrstictions for the waterbody. However this waterbody is not designated for support of shellfishing use and the pathogen criteria for shellfishing are more stringent than for recreational use. Therefore recreational use is evaluated as possibly threatened rather than as having any water quality or use impacts.

Use Assessment

Lower Nissequogue River is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water – although sampling of the waterbody has been included in the shellfish monitoring program

– or for public bathing.

Aquatic life is considered to be fully supported. The river is also among the most productive anadromous salmonid spawning areas in the state. Additionally biological sampling reveals non-impacted conditions in the upper reach of the creek, above this segment. This sampling can also be used to infer that there are no significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. (DEC/DOW, BWAM/SBU, December 2014)

All of this waterbody (included within Shellfish Growing Area #38) has been designated as uncertified for the taking of shellfish for use as food. Although these portions of this waterbody are monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

A biological assessment of Nissequogue River above this tidal reach in Smithtown (at Route 25 in Caleb State Park) was conducted as part of the RIBS biological screening effort in 2008. Sampling results indicated non–impacted conditions. Such samples are dominated by clean–water species and are most similar to a natural community with minimal human impacts. Some additional species, including sensitive non–native species, and additional biomass may be present; the samples reveal no, or only incidental, anomalies. Slightly impacted conditions were found during sampling conducted at this site in 2003. Though this site is upstream of the segment, it is considered to be somewhat representative of water quality in the downstream reach. (DEC/DOW, BWAM/SBU, January 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from highly developed urban and residential areas. Onsite/septic systems have also been identified as a possible contributing source. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Lower Nissequogue River is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total area of the freshwater portion of the Nissequogue River and all tributaries below Phillips Mill Pond. These waters are designated Class SC.

Nissequogue River, Upper, and tribs (1702-0235) No Known Impacts

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.3) LIS- 62			**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103	**Class:** C			Long Island Sound
Water Type/Size:	River/Stream	15.5 Miles		**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs abv Phillips Mill Pond (freshwater)				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Fully Supported	Suspected
Aquatic Life	Fully Supported	Known
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Nissequogue River is assessed as having no known impacts; all evaluated uses are considered to be fully supported.

Use Assessment

Upper Nissequogue River is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Aquatic life is considered to be fully supported based on biological sampling that shows non-impacted conditions. This sampling can also be used to infer that there are no impacts to recreational (fishing) uses, although more specific sampling

is necessary to confirm this is the case. (DEC/DOW, BWAM/SBU, December 2014)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

A biological (macroinvertebrate) assessment of Nissequogue River in Smithtown (at Route 25 in Caleb State Park) was conducted as part of the RIBS biological screening effort in 2008. Sampling results indicated non-impacted conditions and very good water quality. Such samples are dominated by clean-water species and are most similar to a natural community with minimal human impacts. Aquatic life community is fully supported. These results are consistent with a biological assessment at this site conducted in 1998 and 1999. Sampling was also conducted on the East Branch of the Nissequogue in 2008. However the results were strongly influenced by habitat factors and impoundment effects and were determined to be inconclusive. (DEC/DOW, BWAM/SBU, January 2015)

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of the Nissequogue River in Smithtown (at New Mill Road) was conducted in 1999. Measurements of pH were somewhat low, but chemical monitoring revealed no other water quality issues. (DEC/DOW, BWAR/SWAS, January 2001)

Source Assessment

There are no apparent sources of pollutants to the waterbody.

Management Actions

No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing

Upper Nissequogue River is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total length of the freshwater portion of the Nissequogue River and all tributaries above Phillips Mill Pond. The portion of the stream above New Mill Pond is known as Northeast Branch. Lower Nissequogue River, as well as Philips Mill Pond (P288), Willow Pond (P289), New Mill Pond (P292), and Millers Pond (P296), are listed separately.

Willow Pond (1702-0237) No Known Impacts

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.3) LIS- 62-4-P289	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** C(T)		Long Island Sound
Water Type/Size:	Lake/Reservoir 8.3 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	AQUATIC INVASIVE SPECIES, Algal/Plant Growth
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	HABITAT ALTERATION
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview
Willow Pond is assessed as threatened due to recreational uses that are thought to be threatened by invasive plant growth. Although uses are currently fully supported, the presence of invasive plants raise concerns and condition should continue to be monitored.

Use Assessment
Willow Pond is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Recreational uses are considered to be fully supported but threatened due to presence of of invasive plant growth

(Eurasian watermilfoil). Water quality appears to be supportive of uses, however sampling is limited and follow up monitoring is recommended. This waterbody is thought to support a suitable cold water fishery, although no specific fishery or biological reports are included in this assessment. (DEC/DOW, BWAM/LMAS, July 2016)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Water quality sampling of Willow Pond has been conducted through the NYSDEC Lake Classification and Inventory (LCI) Program in 2009 and NYS Office of Parks Recreation and Historic Preservation (NYSPRHP) from 2001 through 2009. Results of this sampling indicate the lake is best characterized as mesoeutrophic, or moderately productive. Limited chemical sampling indicated low phosphorus concentration. The pond was surveyed NYSPRHP as part of the ambient lake monitoring program in 2000, 2001, 2003, 2004, 2006 and 2009, including aquatic flora sampling. This survey work found a wide variety of native plants, as well as variable watermilfoil (Myriophyllum heterophyllum), an invasive exotic plant species. The limited water quality data showed phosphorus readings that are typical of mesoeutrophic to eutrophic lakes, and higher than in some of the other ponds in Caleb Smith State Park. The lake was reported as having clumps of algae and other characteristics of eutrophic lakes. Water clarity is usually greater than measurable in the pond, due to shallow water depth, and the lake otherwise has a circumneutral pH, moderately soft water, and elevated nitrate levels–the latter is typical of other nearby lakes. (DEC/DOW, BWAM/LMAS, March 2011)

There is no indication of any present impacts to fishing in the lake, although boating would likely be threatened by the presence of invasives, since watermilfoil grows to the lake surface in many lakes. There is no indication of any present impacts to aquatic life in Willow Pond, although the presence of watermilfoil may ultimately threaten the biological condition and aquatic life in the lake. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Beyond the habitat modification related to the invasive plants, there are no apparent sources of pollutants to the waterbody.

Management Actions

No specific management actions have been identified for the waterbody.

Section 303(d) Listing

Willow Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the entire pond. The waterbody is Class C(T).

Philips Mill Pond (1702-0236) Threatened

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.3) LIS- 62-P288	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** C(T)		Long Island Sound
Water Type/Size:	Lake/Reservoir 14.3 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	AQUATIC INVASIVE SPECIES (Hydrilla)
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	HABITAT ALTERATION
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Philips Mill Pond is assessed as threatened due to recreational uses that are thought to be threatened by invasive plant growth. Although uses are currently fully supported, the presence of invasive plants raise concerns and condition should continue to be monitored.

Use Assessment

Philips Mill Pond is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Recreational uses are considered to be fully supported but threatened due to presence of of invasive plant growth

(Hydrilla). Water quality appears to be supportive of uses, however sampling is limited and follow up monitoring is recommended. This waterbody is considered to support a suitable cold water fishery. (DEC/DOW, BWAM/LMAS, July 2016)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Water quality sampling of Philips Mill Pond has been conducted through the NYSDEC Lake Classification and Inventory (LCI) Program, The Nature Conservancy and NYS Office of Parks Recreation and Historic Preservation (NYSPRHP) at various times from 2004 through 2009. Results of this sampling indicate the lake is best characterized as mesoligotrophic, or moderately unproductive. Chlorophyll/algal levels are below criteria corresponding to impacted recreational uses, while phosphorus concentrations are typically low. Lake clarity measurements are not applicable in this shallow clear lake and the lake is fully oxygenated to the lake bottom. (DEC/DOW, BWAM/LMAS, March 2011)

There is no indication of any present impacts to fishing in the lake, although boating would likely be threatened by the presence of invasives, since watermilfoil grows to the lake surface in many lakes. There is no indication of any present impacts to aquatic life in Philips Mill Pond, although the presence of invasives may ultimately threaten the biological condition and aquatic life in the lake. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Beyond the habitat modification related to the invasive plants, there are no apparent sources of pollutants to the waterbody.

Management Actions

No specific management actions have been identified for the waterbody.

Section 303(d) Listing

Philips Mill Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the entire pond. The waterbody is Class C(T).

New Mill Pond (1702-0238) Threatened

Waterbody Location Information

Revised: 02/01/2016

Water Index No: (MW5.3) LIS- 62-P292
Unit Code: 0203020103 **Class:** C(T)
Water Type/Size: Lake/Reservoir 104.9 Acres
Description: entire lake

Drain Basin: Atlantic-Long Island Sound
Long Island Sound
Reg/County: 1/Suffolk (52)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Threatened	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Fair	
Aesthetics	Unknown	

Type of Pollutant(s)
Known: AQUATIC INVASIVE SPECIES (Hydrilla)
Suspected: - - -
Unconfirmed: - - -

Source(s) of Pollutant(s)
Known: HABITAT ALTERATION
Suspected: - - -
Unconfirmed: - - -

Management Information

Management Status: No Action Needed
Lead Agency/Office: ext/WQCC
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview
New Mill Pond is assessed as threatened due to recreational uses that are thought to be threatened by invasive plant growth. Although uses are currently fully supported, the presence of invasive plants raise concerns and condition should continue to be monitored.

Use Assessment
New Mill Pond is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Recreational uses are considered to be fully supported but threatened due to presence of of invasive plant growth

(Hydrilla). Water quality appears to be supportive of uses, however sampling is limited and follow up monitoring is recommended. This waterbody is considered to support a suitable cold water fishery. (DEC/DOW, BWAM/LMAS, July 2016)

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Water quality sampling of New Mill Pond has been conducted through the NYSDEC Lake Classification and Inventory (LCI) Program, The Nature Conservancy and NYS Office of Parks Recreation and Historic Preservation (NYSPRHP) at various times from 2003 through 2009. Results of this sampling indicate the lake is best characterized as mesotrophic, or moderately productive. Chlorophyll/algal levels are below criteria corresponding to impacted recreational uses, while phosphorus concentrations are typically low. The lake is fully oxygenated to the lake bottom. (DEC/DOW, BWAM/LMAS, March 2011)

There is no indication of any present impacts to fishing in the lake, although boating would likely be threatened by the presence of invasives, since watermilfoil grows to the lake surface in many lakes. There is no indication of any present impacts to aquatic life in New Mill Pond, although the presence of invasives watermilfoil may ultimately threaten the biological condition and aquatic life in the lake. (DEC/DOW, BWAM/LMAS, March 2011)

Source Assessment

Beyond the habitat modification related to the invasive plants, there are no apparent sources of pollutants to the waterbody.

Management Actions

No specific management actions have been identified for the waterbody.

Section 303(d) Listing

New Mill Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the entire pond. The waterbody is Class C(T).

Millers Pond (1702-0013) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.3) LIS-62-P296	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** C		Long Island Sound
Water Type/Size:	Lake/Reservoir 16.5 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Impaired	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Fair	

Type of Pollutant(s)

Known:	NUTRIENTS (phosphorus), ALGAL/PLANT GROWTH (native)
Suspected:	LOW D.O./OXYGEN DEMAND
Unconfirmed:	Pathogens

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Non-Permitted Sanitary Discharges
Unconfirmed:	On-Site/Septic Syst

Management Information

Management Status:	Verification of Sources Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview

Millers Pond is assessed as an impaired waterbody due to recreational uses that are known to be impaired by nutrients and the resulting algal/weed growth and low dissolved oxygen. No specific sources have been identified, but urban stormwater runoff and other nonpoint sources are the primary contributing source of pollutants.

Use Assessment

Millers Pond is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Recreational uses considered to be impaired due elevated nutrients (phosphorus), excessive algae and plant growth.

Additional bacteriological sampling is needed to more fully evaluate the impact of pathogen levels on recreational use. (DEC/DOW, BWAM/LMAS, July 2013)

Aquatic life is currently considered to be stressed based on suspected low dissolved oxygen related to the eutrophic condition of the lake. Additional fishery assessment is needed to more fully evaluate aquatic life and fishing use. (DEC/DOW, BWAM, January 2016)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the presence of impacts/contaminants in the stream and the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed, rather than fully supported but unconfirmed. (NYS DOH Health Advisories and DEC/DOW, BWAM, December 2014)

Water Quality Information

Water quality sampling of Miller Pond has been conducted through the NYSDEC Lake Classification and Inventory (LCI) Program in 1999. Results of this sampling indicate the lake is best characterized as eutrophic, or highly productive. Chlorophyll/algal levels are above criteria corresponding to impaired recreational uses, while phosphorus concentrations are typically very] high. Lake clarity observations indicate water transparency is typically poor. Readings of pH occasionally exceed the range established in state water quality standards for protection of aquatic life though impacts to the fishery are not known. The elevated pH could be a response to algae levels. (DEC/DOW, BWAM/LMAS, May 2006)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, urban/stom runoff and other nonpoint sources are the most likely sources of impacts to the waterbody. Significant population of waterfowl and shoreline residential development are also possible sources.

Management Action

Millers Pond is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below). No other specific management actions have been identified for the waterbody.

Section 303(d) Listing:

Millers Pond is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL for phosphorus and resulting low dissolved oxygen. This waterbody was first listed on the 2002 List. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes the total area of the entire pond. The waterbody is Class C.

Stony Brook Harbor/West Meadow Creek (1702-0047) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4a) LIS-SB-SBH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 795.3 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor and tidal tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Low D.O./Oxygen Demand, Nutrients (nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER SOURCE (boat pollution)
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Stony Brook Harbor/West Meadow Creek is assessed as an impaired waterbody due to shellfishing use that is considered to be precluded by pathogens. This assessment is based on year-round and seasonal shellfishing closures. Nutrient-driven hypoxia is also a concern in the embayments of Long Island Sound. Fish consumption advisories for certain species are also in place. However these advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Stony Brook Harbor/West Meadow Creek is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. All of this waterbody (included within Shellfish Growing Area #43) has been designated uncertified for the taking of shellfish for use as food. About 16% of the area is uncertified year-round including the southernmost head of the Harbor and most of West Meadow Creek. A larger portion (44% of the harbor/creek) including the southeastern Harbor as well as portions of Stony Brook Boat Channel, Stony Brook Creek, and the Smithtown Marina boat basin at Porpoise Channel are closed seasonally as a safeguard when boats are present in nearby marinas. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational uses and public bathing are considered to be stressed due to periodic closures of public beaches to swimming, but typically elevated levels of bacteria occur in less than ten percent of samples and and result in few (less than 5) beach closure days. Occasional beach closures that do occur are typically pre-emptive closures during heavier rainstorms. Beaches within this waterbody segment include Stony Brook Beach, Stony Brook Yatch Club Beach, and Soundview Beach Asociation Beach. Bacteriological sampling conducted through the shellfishing monitoring program also indicate elevated pathogen levels. However criteria for shellfishing are more stringent than those for public bathing. Restrictions on shellfishing also represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas, agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

Stony Brook Harbor/West Meadow Creek was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Stony Brook Harbor/West Meadow Creek is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion of a TMDL to address the impairment. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the entire harbor and West Meadow Creek.

Mill Pond (1702-0239) Unassessed

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4b) LIS-SB-SBH-63-P336	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** C(T)		Long Island Sound
Water Type/Size:	Lake/Reservoir 7.3 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C(T) waterbody, suitable for general recreation use and support of aquatic life, but not for water supply use or for public bathing. The waterbody is also designated as a cold water (trout) fishery.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
Mill Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total area of the entire pond.

Flax Pond (1702-0240) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4b) LIS-P339	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 62.1 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire tidal waterbody		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Precluded	Known
Public Bathing	Stressed	Unconfirmed
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	- - -
Unconfirmed:	On-Site/Septic Syst

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water Requiring a TMDL (IR Category 5)

Further Details

Overview
Flax Pond is assessed as an impaired waterbody due to shellfishing use that is considered to be precluded by pathogens. This assessment is based on year-round shellfishing closures.

Use Assessment
Flax Pond is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be precluded in these waters. All of this waterbody (included

within Shellfish Growing Area #35) has been designated uncertified certified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is thought to be stressed based on shellfishing certification monitoring. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. Restrictions on shellfishing represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas, agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

No specific management actions have been identified for the waterbody. Flax Pond is included on the Section 303(d) List for eventual development of a TMDL or other restoration strategy (see below). However the identified sources of pollutants may limit the effectiveness of a TMDL approach.

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Flax Pond is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 2c of the List as a shellfishing impaired waterbody requiring development of a TMDL for pathogens. This waterbody was first listed on the 2012 List. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description
This segment includes the total area of the pond.

Port Jefferson Harbor, North, and tribs (1702-0015) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4c) LIS-PJH (portion 1)		**Drain Basin:**	Atlantic-Long Island Sound	
Unit Code:	0203020103	**Class:** SA		Long Island Sound	
Water Type/Size:	Estuary Waters	1001.6 Acres	**Reg/County:**	1/Suffolk (52)	
Description:	portion of harbor, as described below				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Low D.O./Oxygen Demand, Nutrients (nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER SOURCE (boat pollution)
Suspected:	Other Source (migratory fish species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

This portion of Port Jefferson Harbor is assessed as an impaired waterbody due to shellfishing use and public bathing that are considered to be impaired by pathogens. This assessment is based on year-round and seasonal shellfishing closures and a high number of beach closures. Nutrient-driven hypoxia is also a concern in the embayments of Long Island Sound. Fish consumption advisories for certain species are also in place. However these advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Port Jefferson Harbor North is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. Much of this waterbody (included within Shellfish Growing Area #33) has been designated uncertified for the taking of shellfish for use as food. Most of the head of the harbor (southern end) is closed year–round; the rest of the harbor is seasonally or conditionally closed. Additionally, the northeast certified portions of the harbor are routinely closed on a temporary basis during summer holiday weekends due to the significant increase in boat traffic. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational uses and public bathing are also considered to be impaired due to high number of closures of public beaches to swimming. In recent years, elevated levels of bacteria have occurred in more than ten percent of samples and resulted in 10 to 25 beach closure days. Beaches within this waterbody segment include Bayberry Cove Beach, Indian Field Beach and Bayview Beach. Bacteriological sampling conducted through the shellfishing monitoring program also indicate elevated pathogen levels. However criteria for shellfishing are more stringent than those for public bathing. Restrictions on shellfishing and public bathing also represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas; direct waterfowl/wildlife inputs; and boats and marinas. The watershed is highly developed and slopes steeply into the harbor, resulting in significant stormwater runoff loads. Significant summer boat traffic also affects water quality. Various local initiatives aimed at and improving water quality in general and stormwater management in particular are underway. A vessel waste No Discharge Zone was established for the waters of Port Jefferson Harbor in 2001. (DEC/DOW, BWRM, September 2015)

Management Action

Port Jefferson Harbor North was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Port Jefferson Harbor North is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion of a TMDL to address the impairment. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the entire main harbor north of a line from the LILCO bulkhead to Beach Road. Setauket Harbor and Conscience Bay are listed separately.

Port Jefferson Harbor, South, and tribs (1702-0241) Minor Impacts

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4c) LIS-PJH (portion 2)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SC		Long Island Sound
Water Type/Size:	Estuary Waters 118.6 Acres	**Reg/County:**	1/Suffolk (52)
Description:	portion of harbor, as described below		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Low D.O./Oxygen Demand, Nutrients (nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER SOURCE (boat pollution)
Suspected:	Other Source (migratory fish species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Port Jefferson Harbor is assessed as having minor impacts due to recreational uses that are considered to be stressed by pathogens. Although there are no bathing beaches in this segment, public bathing is impaired by pathogens in other portions of the Harbor and and is likely stressing recreational uses. The harbor is also monitored and designated as uncertified for shellfishing due to pathogens. However this waterbody is not designated for support of shellfishing use and the pathogen criteria for shellfishing are more stringent than for recreational use. Nutrient-driven hypoxia is also a concern in the embayments of Long Island Sound. Fish consumption advisories for certain species are also in place. However these advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Port Jefferson Harbor South is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water – although sampling of the waterbody has been included in the shellfish monitoring program – or for public bathing.

Recreational uses public bathing are considered to be stressed due to closures of public beaches to swimming in other portions of the Harbor; there are not public bathing beaches in this portion of the Harbor. Bacteriological sampling conducted through the shellfishing monitoring program also indicate elevated pathogen levels. However criteria for shellfishing are more stringent than those for recreational uses. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

All of this waterbody (included within Shellfish Growing Area #33) has been designated as uncertified for the taking of shellfish for use as food. Although these portions of this waterbody are monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from highly developed urban and residential areas. Onsite/septic systems have also been identified as a possible contributing source. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public

involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Port Jefferson Harbor South is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the entire main harbor south of a line from the LILCO bulkhead to Beach Road.

Conscience Bay and tidal tribs (1702-0091) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4c) LIS-PJH-CB	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 228.4 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire bay		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Known
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Low D.O./Oxygen Demand, Nutrients (nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER SOURCE (boat pollution)
Suspected:	Other Source (migratory fish species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Conscience Bay is assessed as an impaired waterbody due to shellfishing use and public bathing that are considered to be impaired by pathogens. This assessment is based on year-round and seasonal shellfishing closures and a high number of beach closures. Nutrient-driven hypoxia is also a concern in the embayments of Long Island Sound. Fish consumption advisories for certain species are also in place. However these advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Conscience Bay is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. All of this waterbody (included within Shellfish Growing Area #33) has been designated uncertified or as only seasonally certified for the taking of shellfish for use as food. The head of the harbor (southern end) is closed year-round; the rest of the harbor is seasonally closed. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational uses and public bathing are also considered to be impaired due to high number of closures of public beaches to swimming. In recent years, elevated levels of bacteria have resulted in the year-long closure of Minasseroke Beach. Elevated bacteria levels at Grantland Beach resulted in 10 to 25 beach closure days in some years. Bacteriological sampling conducted through the shellfishing monitoring program also indicate elevated pathogen levels. However criteria for shellfishing are more stringent than those for public bathing. Restrictions on shellfishing and public bathing also represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas; direct waterfowl/wildlife inputs; and boats and marinas. Urban stormwater runoff in the watershed introduce pathogens to the waters affecting shellfish consumption, public bathing and other recreation. The watershed is highly developed and slopes steeply into the harbor, resulting in significant stormwater runoff loads. Poor flushing characteristics in the bay affects water quality. Significant summer boat traffic is also a concern. Various local initiatives aimed at and improving water quality in general and stormwater management in particular are underway. A vessel waste No Discharge Zone was established for the waters of Port Jefferson Harbor in 2001. (DEC/DOW, BWRM, September 2015)

Management Action

Conscience Bay was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Conscience Bay is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion of a TMDL to address the impairment. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the entire Bay. Port Jefferson Harbor is listed separately.

Setauket Harbor (1702-0242) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4c) LIS-PJH-SH		**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103	**Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters	208.5 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor			

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Impaired	Suspected
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Low D.O./Oxygen Demand, Nutrients (nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER SOURCE (boat pollution)
Suspected:	Other Source (migratory fish species), Onsite/Septic Systems
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Setauket Harbor is assessed as an impaired waterbody due to shellfishing use and public bathing that are considered to be impaired by pathogens. This assessment is based on year-round and seasonal shellfishing closures and a high number of beach closures. Nutrient-driven hypoxia is also a concern in the embayments of Long Island Sound. Fish consumption advisories for certain species are also in place. However these advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Setauket Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. All of this waterbody (included within Shellfish Growing Area #33) has been designated uncertified or as only seasonally certified for the taking of shellfish for use as food. The head of the harbor (southern end) is closed year–round; the rest of the harbor is seasonally closed. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational uses and public bathing are also considered to be impaired due to high number of closures of public beaches to swimming. In recent years, elevated levels of bacteria have occurred in more than ten percent of samples and resulted in up to 10 beach closure days. Beaches within this waterbody segment include Little Bay Beach. Bacteriological sampling conducted through the shellfishing monitoring program also indicate elevated pathogen levels. However criteria for shellfishing are more stringent than those for public bathing. Restrictions on shellfishing and public bathing also represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas; direct waterfowl/wildlife inputs; and boats and marinas. Urban stormwater runoff in the watershed introduce pathogens to the waters affecting shellfish consumption, public bathing and other recreation. The watershed is highly developed and slopes steeply into the harbor, resulting in significant stormwater runoff loads. Poor flushing characteristics in the bay affects water quality. Significant summer boat traffic is also a concern. Various local initiatives aimed at and improving water quality in general and stormwater management in particular are underway. A vessel waste No Discharge Zone was established for the waters of Port Jefferson Harbor in 2001. (DEC/DOW, BWRM, September 2015)

Management Action

Setauket Harbor was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Setauket Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion of a TMDL to address the impairment. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the harbor. Port Jefferson Harbor is listed separately.

Mt Sinai Harbor and tidal tribs (1702-0019) Impaired

Waterbody Location Information

Revised: 02/01/2016

Water Index No:	(MW5.4d) LIS- MSH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020103 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 396.9 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor and tidal tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Known
Aquatic Life	Stressed	Suspected
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS, Low D.O./Oxygen Demand, Nutrients (nitrogen)
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF, OTHER SOURCE (boat pollution)
Suspected:	Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Mt Sinai Harbor is assessed as an impaired waterbody due to shellfishing use that is considered to be precluded by pathogens. This assessment is based on year-round and seasonal shellfishing closures. Nutrient-driven hypoxia is also a concern in the embayments of Long Island Sound. Fish consumption advisories for certain species are also in place. However these advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

Mt Sinai Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be impaired in these waters. All of this waterbody (included within Shellfish Growing Area #32) has been designated as uncertified or as only seasonally certified for the taking of shellfish for use as food. Nearly all of the Harbor is closed on a seasonal basis, while a small portion (less than 10%) near the southern head of the harbor is closed year–round. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational uses and public bathing are thought to be stressed. There are no regularly monitored beaches in this waterbody, but bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. Restrictions on shellfishing represent an impact to recreational use. (DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support an adequate marine water fishery. Low dissolved oxygen in the embayments of Long Island Sound are a concern, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas, agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Urban stormwater runoff in the watershed introduce pathogens to the waters affecting shellfish consumption, public bathing and other recreation. The watershed is highly developed and slopes steeply into the harbor, resulting in significant stormwater runoff loads. Erosion within the watershed is a water quality issue. The harbor is very heavily used for boating and includes mooring capabilities for 1000 boats, a large docking area (marina) and a public boat launch. (DEC/DOW, BWRM, September 2015)

Management Action

Mt Sinai Harbor was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state

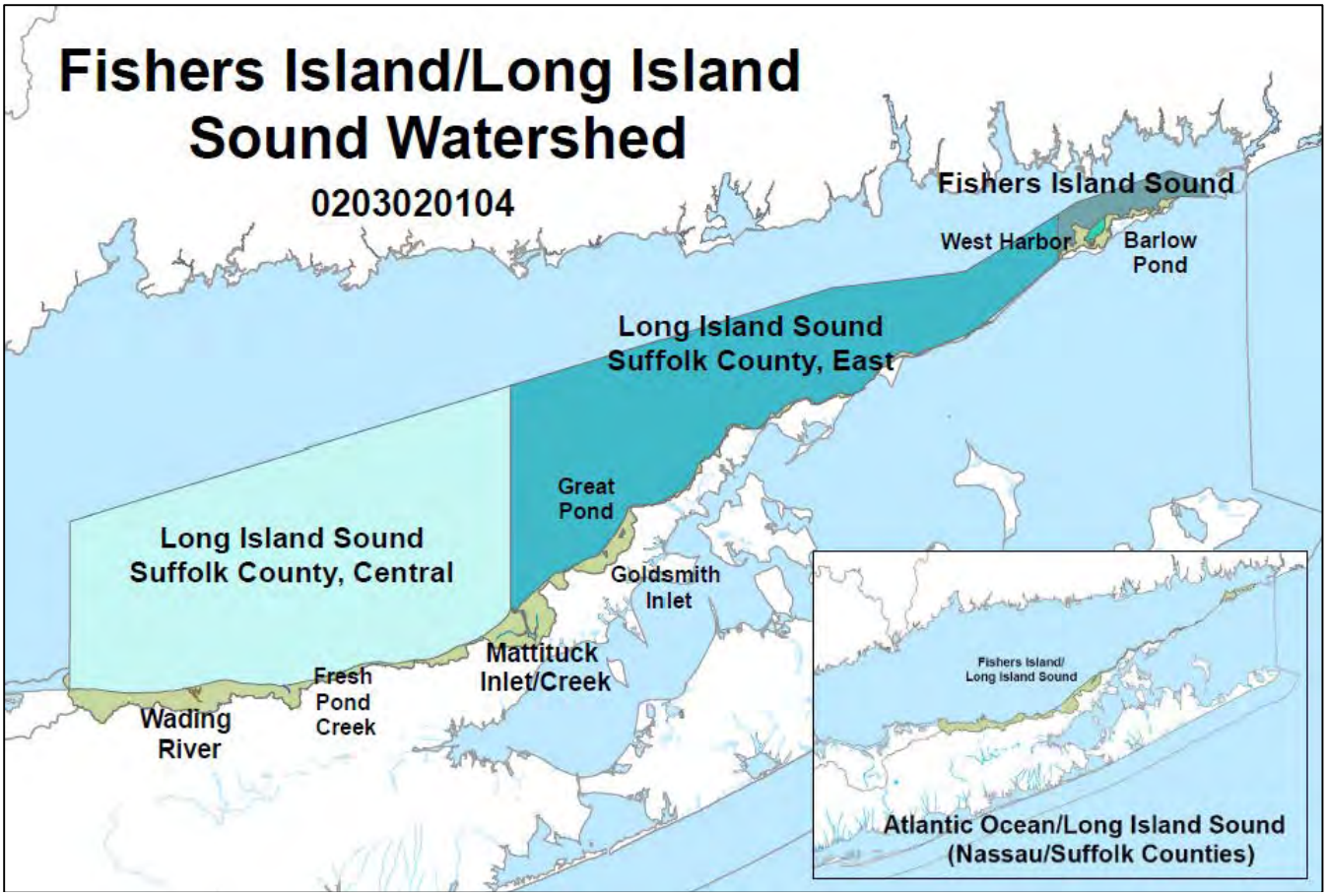
agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Mt Sinai Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion of a TMDL to address the impairment. (DEC/DOW, BWAM, January 2015)

Segment Description

This segment includes the total area of the entire harbor.



Fishers Island/Long Island Sound Watershed
(0203020104)

Water Index Number	Waterbody Segment	Category
(MW5.4d) LIS (portion 5)	Long Island Sound, Suffolk Co, Central (1702-0265)	Minor Impacts
(MW5.4d) LIS- 68	Wading River, Lower, and tidal tribs (1702-0099)	Needs Verification
(MW5.4d) LIS- 68	Wading River, Upper, and tribs (1702-0243)	Unassessed
(MW5.4d) LIS- 69	Fresh Pond Creek and tribs (1702-0244)	Unassessed
(MW5.4e) LIS (portion 6)	Long Island Sound, Suffolk County, East (1702-0266)	Minor Impacts
(MW5.4e) LIS- 71	Mattituck Inlet/Cr, Low, and tidal tribs (1702-0020)	Impaired
(MW5.4e) LIS- 71-	Tribs to Mattituck Creek (1702-0245)	Unassessed
(MW5.4e) LIS- 72	Goldsmith Inlet (1702-0026)	Impaired
(MW5.4e) LIS-P378	Great Pond (1702-0246)	No Known Impacts
(MW5.4g) LIS-FI	Fishers Island Sound (1702-0264)	Minor Impacts
(MW5.4g) LIS-FI-WH	West Harbor, Fishers Island (1702-0046)	Impaired
(MW5.4g) LIS-FI-WH-P1108	Barlow Pond, Fishers Island (1701-0285)	Unassessed

Long Island Sound, Suffolk County, Central (1702-0265) Minor Impacts

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4d) LIS (portion 5)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 182179.6 Acres	**Reg/County:**	1/Suffolk (52)
Description:	Sound from Sound Beach to Mattituck Inlet		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Suspected
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	PRIORITY ORGANICS (PCBS/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	OTHER SOURCE (migratory fish species), URBAN/STORM RUNOFF
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/LIS
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Long Island Sound is assessed as having minor impacts due to public bathing and recreational uses and fish consumption that are thought to be stressed by pathogens and PCBs. This segment had been assessed as impaired due to a higher frequency of public bathing beach closures however the frequency of closures has been very infrequent. In addition the boundary of this segment has been modified and most of the beaches with closures are now located in the segment to the west of this shoreline reach. These fish consumption advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody.

Use Assessment

This portion of Long Island Sound is a Class SA waterbody, suitable for shellfishing, public bathing and general

recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. Vitually all of this waterbody (included within Shellfish Growing Area #35) has been certified as safe for the taking of shellfish for use as food. The only restrictions in this segment are a year-round closures for areas within 500 yards of the shoreline around the mouth of Wading River. Because these areas represents less than 1% of the total area of this portion of the Sound, the waterbody is considered to be fully supporting of shellfishing use. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is thought to be supported but stressed based on monitoring and occasional beach closures at beaches in the segment. Beach monitoring revealed elevated bacteriological levels that occurred in generally less than ten percent of the samples collected at these beaches; these results resulted in occasional but infrequent (less than 10 days) beach closures at some beaches in some years. Occasional beach closures in the segment are largely pre-emptive closures during heavier rainstorms that are known to wash pollutants into the harbor. Beaches within this reach include Sound Beaches, Pickwick Beach, Tides Property Owners Beach, Teraces on the Sound Beach, Beech Road Beach, Broadway Beach, Friendship Drive, Shoreham Beach, Shoreham Shore Club Beach, Shoreham Village Beach, Wading River Beach, Camp DeWolfe, Wildwood State Park Beach, Camp Baiting Hollow Beach, Woodcliff Beach, Dorothy Flint Camp Beach, Reeves Beach, Iron Pier Beach and Mattituck Breakwater Beach. Additionally, bacteriological sampling conducted through the shellfishing monitoring program suggest public bathing is supported. (NYSDOH BEACH Act monitoring results, 2013 and DEC/DFWMR, July 2014)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance. (DEC/DOW, BWRM, September 2015)

Management Action

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs.

The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

This portion of Long Island Sound is included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. The waterbody is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL for pathogens. However this updated assessment suggests that the suspected impacts to water quality and uses are not sufficient to warrant continued listing. This waterbody will be considered for delisting pathogens during the next update of the List. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes all the waters of Long Island Sound within Suffolk County, east of a line due north of the western border of Sound Beach, north of the Long Island north shore, and west of line due north from Mattituck Inlet. The boundary of this segment has been modified (2016); previously, it had extended west to Old Field Point.

Wading River, Lower, and tidal tribs (1702-0099) Needs Verification

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4d) LIS- 68	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** SC		Long Island Sound
Water Type/Size:	Estuary Waters 12.2 Acres	**Reg/County:**	1/Suffolk (52)
Description:	tidal portion of stream and tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	N/A	-
Public Bathing	N/A	-
Recreation	Stressed	Unconfirmed
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	On-Site/Septic Syst, URBAN/STORM RUNOFF
Unconfirmed:	Other Source

Management Information

Management Status:	Verification of Sources Needed
Lead Agency/Office:	ext/WQCC
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Lower (tidal) Wading River is assessed as needing verification of impacts to recreational uses that may be be stressed by pathogens. The waterbody is uncertified for shellfishing but it is not certain if other recreational uses are impacted. Urban and storm runoff are the likely primary sources of pathogens, although various other sources such as inadequate onsite treatment/septic systems, boat discharges and waterfowl may also contribute. The river drains an undeveloped marshland with significant wildlife and waterfowl populations.

Use Assessment

Lower Wading River is a Class SC waterbody, suitable for general recreation use and support of aquatic life, but not as a shellfishing water or for public bathing.

Recreational use including public bathing is thought to be stressed. Bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. Water quality monitoring at beaches along the Long Island Sound shore near the mouth of Wading River (Shoreham

Beach, Wading River Beach and Camp DeWolfe Beach) indicate no significant impacts to uses. (DEC/DOW, BWAM, January 2016)

All of this waterbody (included within Shellfish Growing Area #31) has been designated as uncertified for the taking of shellfish for use as food. Although this waterbody is monitored through the shellfish program and designated as uncertified, its Class SC designation does not include shellfishing as an appropriate use and this assessment does not include an evaluation for the support of shellfishing use. (DEC/DFWMR, Region 1, July 2015)

This waterbody is thought to support a suitable marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment
Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action
No specific management actions have been identified for this waterbody.

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Lower Wading River is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the tidal portion of the stream and its tribs. This tidal portion of the stream and tidal tribs are designated Class SC. (Note that State Classification Regulations include this trib in Article 16, Part 921 – Peconic River-Flanders Bay Drainage Basin).

Wading River, Upper, and tribs (1702-0243) Unassessed

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4d) LIS- 68			**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104	**Class:** C			Long Island Sound
Water Type/Size:	River/Stream	1.8 Miles		**Reg/County:**	1/Suffolk (52)
Description:	stream and tribs above tidal waters (freshwater)				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information

There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total length of the freshwater portion of the stream. This freshwater portion of the stream, including unnamed ponds P353, P354, P355, is designated Class C. (Note that State Classification Regulations include this trib in Article 16, Part 921 – Peconic River-Flanders Bay Drainage Basin).

Fresh Pond Creek and tribs (1702-0244) Unassessed

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4d) LIS- 69	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** B		Long Island Sound
Water Type/Size:	River/Stream 0.5 Miles	**Reg/County:**	1/Suffolk (52)
Description:	entire stream and tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	**Severity**	**Confidence**
Water Supply	N/A	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
Fresh Pond Creek is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the freshwater portion of the stream and all tribs. The freshwater portion of the stream (including unnamed pond P356a) is Class B; tribs to this reach are Class C. (Note that State Classification Regulations include this trib in Article 16, Part 921 – Peconic River-Flanders Bay Drainage Basin).

Long Island Sound, Suffolk County, East (1702-0266) Minor Impacts

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4e) LIS (portion 6)	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 100709.6 Acres	**Reg/County:**	1/Suffolk (52)
Description:	Sound from Mattituck Inlet to East Point/Fishers Island		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	PRIORITY ORGANICS (PCBS/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	OTHER SOURCE (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/LIS
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Long Island Sound is assessed as having minor impacts due to fish consumption that is thought to be stressed by PCBs. These advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. All other evaluated uses are considered to be fully supported.

Use Assessment

This portion of Long Island Sound is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody

(included within Shellfish Growing Area #36) has been certified as safe for the taking of shellfish for use as food. The only restrictions in this segment are year–round administrative closures for areas within a one–half mile radius of the Greenport STP outfall (312 acres) and along the north shore of Plum Island (704 acres). Because these areas represents only about 1% of the total area of this portion of the Sound, the waterbody is considered to be fully supporting of shellfishing use. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed no elevated bacteriological levels at beaches and no beach closures. Beaches within this reach include Mattituck Breakwater Beach, Peconic Dunes Camp Beach, Kenny's Beach, McCabe's Beach, Southhold Beach. Additionally, bacteriological sampling conducted through the shellfishing monitoring program suggest public bathing is supported. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment
Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action
This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
This portion of Long Island Sound is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL

Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description

This segment includes all the waters of Long Island Sound within Suffolk County, east of a line due north of Mattituck Inlet, north of the Long Island north shore and a line from Orient Point through Plum Island to East Point and on to Fishers Island, and west of line due north from the western end of Fishers Island.

Mattituck Inlet/Creek, and tidal tribs (1702-0020) Impaired

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4e) LIS- 71	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 143.8 Acres	**Reg/County:**	1/Suffolk (52)
Description:	tidal portion of stream and tribs		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	Nutrients
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (boat pollution), On-Site/Septic Syst
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Mattituck Inlet/Creek is assessed as an impaired waterbody due to shellfishing use that is known to be precluded by pathogens. Urban and storm runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Public bathing and other recreational uses are supported, however these uses are thought to be stressed, as a result of the shellfishing restrictions and related pathogen levels.

Use Assessment

Mattituck Inlet/Creek is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfishing Use

Shellfish harvesting for consumption is considered to be precluded in these waters. All of this waterbody (included within Shellfish Growing Area #30) has been designated as un certified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is thought to be stressed. Bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. Water quality monitoring at beaches along the Long Island Sound shore near the mouth of Mattituck Inlet (Mattituck Breakwater Beach) indicate no known impacts to uses. (DEC/DOW, BWAM, January 2016)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

Mattituck Inlet/Creek was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing

Mattituck Inlet/Creek is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to the completion of a TMDL to address the impairment. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description:

This segment includes the entire inlet and tidal tribs. The inlet and tidal creek is Class SA; a tidal portion of unnamed trib (-1) is Class SA and SC. Freshwater tribs are listed separately.

Tribs to Mattituck Creek (1702-0245) Unassessed

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4e) LIS- 71-			**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104	**Class:**	C		Long Island Sound
Water Type/Size:	River/Stream	1.5	Miles	**Reg/County:**	1/Suffolk (52)
Description:	total length of selected (freshwater) tribs				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	N/A	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview
Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment
This waterbody segment is a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing.

Water Quality Information
There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
This waterbody is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total length of freshwater portions of tribs to Mattituck Creek (-71). The freshwater portions of these tribs are Class C. The lower portion of trib -1 is tidal and included with the Mattituck Inlet/Creek segment.

Goldsmith Inlet (1702-0026) Impaired

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4e) LIS- 72		**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104	**Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters	21.6 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire inlet			

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Precluded	Known
Public Bathing	Stressed	Suspected
Recreation	Stressed	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	Nutrients
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	Other Source (boat pollution), On-Site/Septic Syst
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

Goldsmith Inlet is assessed as an impaired waterbody due to shellfishing use that is known to be precluded by pathogens. Urban and storm runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Public bathing and other recreational uses are supported, however these uses are thought to be stressed, as a result of the shellfishing restrictions and related pathogen levels.

Use Assessment

Goldsmith Inlet is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfishing Use

Shellfish harvesting for consumption is considered to be precluded in these waters. Virtually all of this waterbody (included within Shellfish Growing Area #67) has been designated as un certified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is thought to be stressed. Bacteriological sampling conducted through the shellfishing monitoring program indicate elevated pathogen levels. However criteria for shellfishing are lower than those for public bathing and additional bacteriological sampling is needed to more fully evaluate swimming use. Water quality monitoring at beaches along the Long Island Sound shore near the mouth of Goldsmith Inlet (Peconic Dunes Camp Beach, Kenny's Beach) indicate no known impacts to uses. (DEC/DOW, BWAM, January 2016)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Management Action

Goldsmith Inlet was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Goldsmith Inlet is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to to completion of a TMDL to address the impairment. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description:
This segment includes the entire inlet and tidal tribs. The inlet, including the tidal pond (P376), is Class SA.

Great Pond (1702-0246) No Known Impacts

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4e) LIS-P378	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** A		Long Island Sound
Water Type/Size:	Lake/Reservoir 30.1 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Fully Supported	Unconfirmed
Public Bathing	Fully Supported	Unconfirmed
Recreation	Fully Supported	Suspected
Aquatic Life	Fully Supported	Suspected
Fish Consumption	Fully Supported	Unconfirmed
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Reassessment Needed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water Attaining Some Standards (IR Category 2)

Further Details

Overview

Great Pond is considered to have no known impacts. The most recent assessments of the waterbody indicated no known impacts, however that assessment is based on older data and sampling to verify conditions is recommended.

Use Assessment

This waterbody segment is a Class A waterbody, suitable for water supply [or shellfishing], public bathing and general recreation use, and support of aquatic life.

There is no evidence of recreation use impacts in Great Pond, consistent with relatively low lake productivity,

high water clarity, and the lack of invasive species and/or excessive aquatic vegetation. Public bathing is also considered to be fully supported based on the evaluation of overall recreational use, however bacteriological sampling is needed to more fully evaluate swimming use. (DEC/DOW, BWAM/LCI, January 2016)

Public water supply use of Great Pond is also thought to be fully supported. The waterbody is not currently believed to be used as a public supply, however other sampling information suggests the waterbody would support water supply use. (DEC/DOW, BWAM, January 2016)

Based on other available indicators for other related uses, this waterbody is reported to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

There are no health advisories in place limiting the consumption of fish from this waterbody (beyond the general advice for all waters). Fish consumption is considered to be fully supported based on the absence of any waterbody-specific advisory, but is noted as unconfirmed since routine monitoring of contaminants in fish is limited. (NYS DOH Health Advisories and DEC/DOW, BWAM, January 2014)

Water Quality Information
Water quality sampling of Great Pond has been conducted (single sample) through the NYSDEC Lake Classification and Inventory (LCI) Program in 2003. Results of this sampling indicate the lake is best characterized as oligotrophic, or unproductive. Chlorophyll samples were not collected but phosphorus concentrations are typically low. Lake clarity measurements indicate water transparency meets/exceeds the recommended minimum criteria for swimming beaches (Secchi disc was visible on bottom of lake at 2.5 m depth). Readings of pH fall within the range established in state water quality standards for protection of aquatic life. (DEC/DOW, BWAM/LMAS, May 2006)

Source Assessment
There are no apparent sources of pollutants to the waterbody.

Management Actions
No specific management actions have been identified or are deemed necessary for the waterbody.

Section 303(d) Listing
Great Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There appear to be no impacts/impairments that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total area of the entire pond. The pond is Class A.

Fishers Island Sound (1702-0264) Minor Impacts

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4g) LIS-FI			**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104	**Class:** SA			Long Island Sound
Water Type/Size:	Estuary Waters	6036.6 Acres		**Reg/County:**	1/Suffolk (52)
Description:	estuary waters surrounding Fishers Island				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Fully Supported	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Known
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Good	
Aesthetics	Good	

Type of Pollutant(s)

Known:	- - -
Suspected:	PRIORITY ORGANICS (PCBS/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	OTHER SOURCE (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	No Action Needed
Lead Agency/Office:	ext/LIS
IR/305(b) Code:	Water Attaining All Standards (IR Category 1)

Further Details

Overview

Fishers Island Sound is assessed as having minor impacts due to fish consumption that is thought to be stressed by PCBs. These advisories are the result of the migratory range of these fish species, and not related to any known contamination in this specific waterbody. All other evaluated uses are considered to be fully supported.

Use Assessment

Fishers Island Sound is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfish harvesting for consumption is considered to be fully supported in these waters. All of this waterbody

(included within Shellfish Growing Area #66) has been certified as safe for the taking of shellfish for use as food. These shellfishing designations are based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered supported based on monitoring at beaches in the waterbody and shellfishing certification monitoring. Beach monitoring revealed no elevated bacteriological levels at beaches and no beach closures. Beaches within this reach include Fisher Island Country Club Beach, Culloden Shores Beach and East Lake Drive Beach. Additionally, bacteriological sampling conducted through the shellfishing monitoring program suggest public bathing is supported. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information
Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment
Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action
This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
Fishers Island Sound is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impacts that would justify the listing of this waterbody. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes tidal estuary waters east of a line extending due north from the western end of Fishers Island, and north north of a line extending due east from the Island's eastern end; excluding West Harbor which is listed separately.

West Harbor, Fishers Island (1702-0046) Impaired

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4g) LIS-FI-WH	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** SA		Long Island Sound
Water Type/Size:	Estuary Waters 371.2 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire harbor, as described below		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Shellfishing	Impaired	Known
Public Bathing	Fully Supported	Known
Recreation	Fully Supported	Known
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Stressed	Suspected
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	PATHOGENS
Suspected:	Priority Organics (PCBs/migratory fish)
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	URBAN/STORM RUNOFF
Suspected:	On-Site/Septic Syst, Other Source (boat pollution), Other Source (migratory fish species)
Unconfirmed:	- - -

Management Information

Management Status:	Strategy Implementation Scheduled or Underway
Lead Agency/Office:	DOW/Reg1
IR/305(b) Code:	Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

West Harbor is assessed as an impaired waterbody due to shellfishing use that is known to be impaired by pathogens. Urban and storm runoff are the primary sources of pathogens, although inadequate onsite wastewater treatment and various other sources such as boat discharges, waterfowl may also contribute. Public bathing and other recreational uses are supported, however these uses are thought to be stressed, as a result of the shellfishing restrictions and related pathogen levels.

Use Assessment

West Harbor is a Class SA waterbody, suitable for shellfishing, public bathing and general recreation use, and support of aquatic life.

Shellfishing Use

Shellfish harvesting for consumption is considered to be precluded in these waters. Much of this waterbody (included within Shellfish Growing Area #51) has been designated as uncertified or only seaonally certified for the taking of shellfish for use as food. About 6% of the area is uncertified year–round including the sothernmost head of the Harbor. A larger portion (36%) of the harbor is closed seasonally as a safeguard when boats are present in nearby marinas.Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. These shellfishing designations are based on results of water quality sampling and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria and/or shoreline surveys of actual or potential sources of contamination. Certified/uncertified shellfish area designations are revised regularly; for the most up to date and detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Recreational use including public bathing is considered fully supported based on monitoring at beaches in the waterbody. Beach monitoring revealed no elevated bacteriological levels at beaches and no beach closures. Beaches within this waterbody include Hay Harbor Club Beach. (NYSDOH BEACH Act monitoring results, 2010 and DEC/DFWMR, July 2014)

Based on other available indicators for other related uses, this waterbody is expected to support a healthy marine water fishery, although no specific fishery or biological reports are included in this assessment.

Fish consumption is considered to be stressed due to NYSDOH precautionary health advisories recommending limiting consumption of larger weakfish (over 25 inches) and other species from these marine waters due to possible elevated levels of PCBs. These advisories are largely precautionary and are related to the specific habits and characteristics of these species, specifically the wide migratory range, predatory nature and high lipid/fat content that make them more likely to accumulate contaminants. In addition, for some species the advisories recommend limiting consumption to no more than one meal per week which is no more stringent than the general statewide advisory for all New York waters and does not result in significant impact to uses. Because possible contamination is more a result of the migratory range and other factors rather than any known sources of PCBs in this waterbody, fish consumption use in this segment is considered to be stressed rather than impaired. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Information

Assessments of recreational uses and aquatic life in marine waters are based primarily on information from NYS and local health departments and the NYSDEC Division of Fish Wildlife and Marine Resources. This information is compiled and updated in regularly issued advisories and certifications regarding bathing beaches, shellfishing harvest and sportfish consumption. (NYSDOH and DEC/DFWMR, 2014)

Source Assessment

Based on surrounding land use and other knowledge of the waterbody, the most likely sources of pathogens to the waterbody are largely nonpoint runoff from developed urban and residential areas agricultural activity and open space/forest; direct waterfowl/wildlife inputs; and boats and marinas. Relative contributions from each type of source are very site-specific in nature, particularly in localized areas of study. (DEC/DOW, BWRM, September 2015)

Impacts to fish consumption are the result of elevated PCBs in fish species with a wide migratory range; there are no known PCB sources within the waterbody of significance.

Management Action

West Harbor was among the waterbodies covered by the 2007 Shellfish Pathogen TMDL to address 27 shellfishing impaired waters in Long Island Sound embayments. (DEC/DOW, BWAM/WQMS, July 2010)

This waterbody is included in the Long Island Sound Study (LISS), a bi-state partnership consisting of federal and state

agencies, user groups, concerned organizations, and individuals dedicated to fully restoring and protecting the waters of the Sound. The LISS was formed by EPA, New York and Connecticut in 1985 to focus on the overall ecosystem. In 2015, the LISS revised its Comprehensive Conservation and Management Plan (CCMP) to address new environmental challenges (such as climate change, long-term sustainability, environmental justice, and ecosystem-based management), incorporate scientific and technological advances, and respond to changing community needs. The new CCMP is organized around four themes: Clean Waters and Healthy Watersheds, Thriving Habitats and Abundant Wildlife, Sustainable and Resilient Communities, and Sound Science and Inclusive Management. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education and water quality monitoring. (DEC/DOW, BWQM/WQMS, July 2015)

Section 303(d) Listing
West Harbor is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water that is not listed due to to completion of a TMDL to address the impairment. (DEC/DOW, BWAM/WQAS, January 2016)

Segment Description:
This segment includes harbor waters south of a line from Hawks Nest to Clay Point.

Barlow Pond, Fishers Island (1701-0285) Unassessed

Waterbody Location Information

Revised: 01/19/2016

Water Index No:	(MW5.4g) LIS-FI-P1108	**Drain Basin:**	Atlantic-Long Island Sound
Unit Code:	0203020104 **Class:** A		Atlantic Ocean
Water Type/Size:	Lake/Reservoir 12.6 Acres	**Reg/County:**	1/Suffolk (52)
Description:	entire lake		

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Pollutants/Sources)

Uses Evaluated	Severity	Confidence
Water Supply	Unassessed	-
Public Bathing	Unassessed	-
Recreation	Unassessed	-
Aquatic Life	Unassessed	-
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Source(s) of Pollutant(s)

Known:	- - -
Suspected:	- - -
Unconfirmed:	- - -

Management Information

Management Status:	Unassessed
Lead Agency/Office:	DOW/BWAM
IR/305(b) Code:	Water with Insufficient Data (IR Category 3)

Further Details

Overview

Currently there is inadequate data/information to evaluate uses and determine a water quality assessment for this waterbody.

Use Assessment

This waterbody segment is a Class A waterbody, suitable for water supply, public bathing and general recreation use and support of aquatic life.

Water Quality Information

There is currently no water quality information available upon which to base an assessment.

Source Assessment
Specific sources of pollutants to the waterbody have not been identified.

Management Actions
No specific management actions have been identified for the waterbody. Baseline sampling to evaluate conditions in this waterbody segment is needed.

Section 303(d) Listing
Barlow Pond is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. There is insufficient information to make a listing decision. (DEC/DOW, BWAM/WQAS, January 2015)

Segment Description
This segment includes the total area of the entire pond.

Attachment E

NMFS Essential Fish Habitat Assessment and Consultation

Essential Fish Habitat Assessment, July 2019

For

New York State Department of Environmental Conservation Artificial Reef Program

New York State Marine and Coastal District and Surrounding Federal Waters

Submitted Pursuant to 6 NYCRR Part 617.10

By the New York State Department of Environmental Conservation,

On behalf of the New York State Department of Environmental Conservation, Division of Marine Resources

Christopher LaPorta

Artificial Reef Program Coordinator

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Primary Preparers:

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CSA Group

NYSDEC

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1 Introduction

Essential fish habitat (EFH) is defined under section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (Public Law 94-265), as amended by the Sustainable Fisheries Act (SFA) of 1996 (Public Law 104-267), as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The SFA requires that EFH be identified for those species actively managed under Federal fishery management plans (FMPs). This includes species managed by the eight regional Fishery Management Councils (FMCs), established under the MSFCMA, as well as those managed by National Marine Fisheries Service (NMFS) under FMPs developed by the Secretary of Commerce.

EFH designations emphasize the importance of habitat protection to healthy fisheries and serve to protect and conserve the habitats of marine and estuarine finfish and invertebrates. EFH includes key physical, chemical, and biological attributes of both the water column and the underlying substrate, including sediment, hard bottom, and other submerged structures that support survival and growth of designated species. Under the EFH definition, necessary habitat is that which is required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. EFH may be designated for the complete life cycle of a species, including spawning, feeding, and growth to maturity, or may be specific for each life stage (egg, larval, juvenile, adult, and spawning adult).

The New York State Department of Environmental Conservation (NYSDEC)'s Artificial Reef Program (Program) was started in 1962 to develop and manage artificial reefs in the state and federal waters surrounding the New York State Marine Coastal District (MCD) under the Division of Marine Resources (DMR). The Program currently maintains a dozen reef sites in the waters of New York's Marine and Coastal District (MCD) and adjacent Federal waters. Program goals are to administer and manage artificial reef habitat as part of a fisheries management program, provide fishing and diving opportunities, and enhance or restore fishery resources and associated habitat through the selective placement of artificial reef habitat (i.e. natural rock, concrete and steel) in the MCD under Programmatic guidelines.

In 1993, the NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the MCD, and adjacent Federal waters. As the Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan. Since then, New York State artificial reefs have been developed according to the goals of the Artificial Reef Program to provide fishing and diving opportunities, enhance or restore fisheries habitat, and manage artificial reef resources as part of an overall fisheries program (NYSDEC 1993).

Artificial reefs are developed using the patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This method results in a smaller disruption of the site's natural benthic footprint thereby reducing impacts to the benthic community. Materials are transported to the reef site either by barge (i.e. natural stone and concrete) or towed out by vessel (i.e. steel barges or vessels) under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. This construction method results in a larger overall project footprint but allows for the area between the patches to remain as undisturbed benthic habitat thereby reducing impacts to the benthic community. The different artificial reef structures attract a variety of marine life including recreationally important

finfish and crustacean (i.e. lobster) species sought by anglers and divers. Artificial reefs provide structure for benthic organisms such as anemones, corals, sponges, hydroids, and bryozoans that would not otherwise be able to colonize on the sandy, unstable seafloor sediments that are dominant in the region. These reefs also provide shelter and foraging ground for marine organisms such as structure associated fish and other demersal species. This is particularly important for juvenile fish and crustaceans that are especially susceptible to predation (NYSDEC 2015).

The following EFH Assessment has been prepared to support the environmental reviews necessary for the issuance of the required federal and state permits and authorizations related to the NYSDEC Artificial Reef Program.

1.1 Project Location

The Project is situated within the New York State Marine Coastal District (MCD) and the adjacent Federal waters surrounding Long Island. Artificial reefs are located within the marine and estuarine waters of the Atlantic Ocean, Great South Bay, and Long Island Sound (see Figure 1). Reefs are strategically located near or are accessible to Long Island harbors and embayments through local inlets.

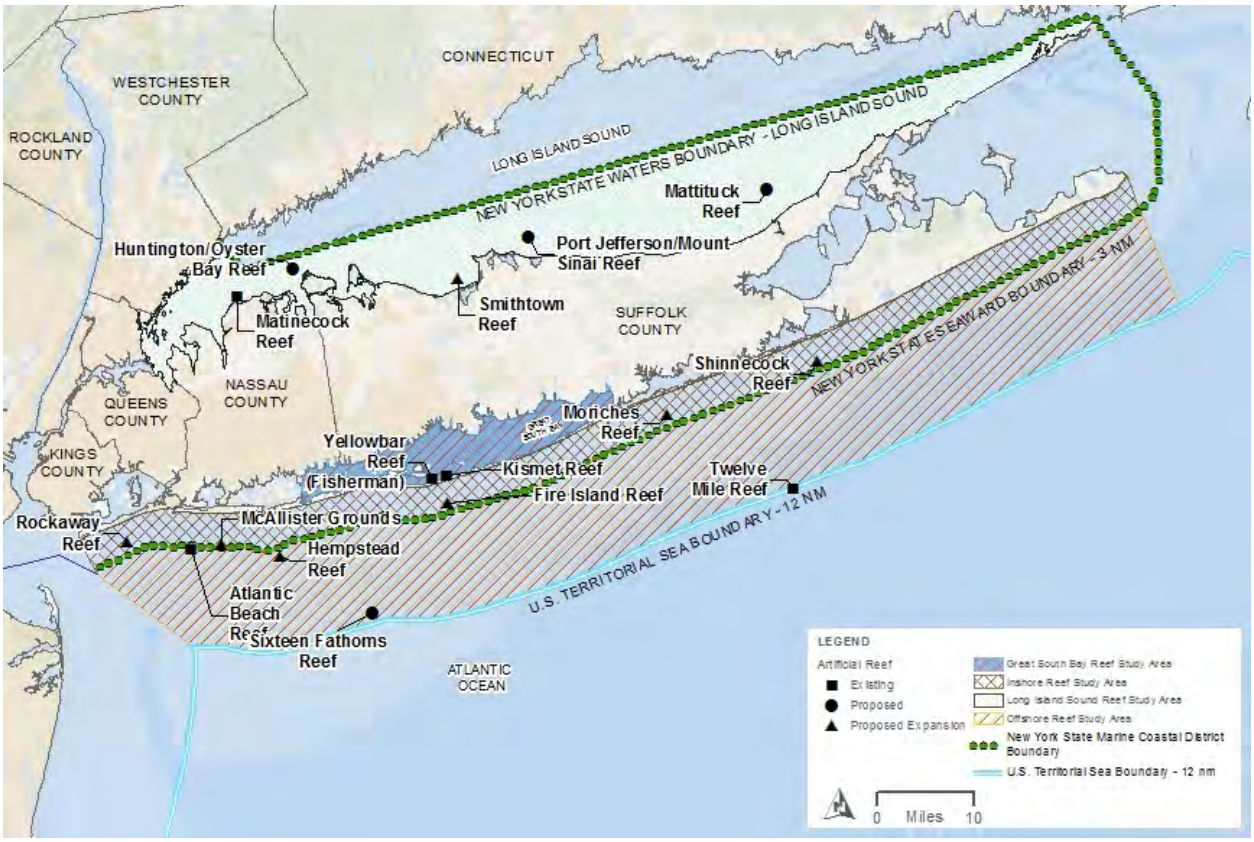


Figure 1: Artificial Reef Locations

The area, depth, and development status of each reef site are described in Table 1 below.

Table 1: Summary of Reef Site Development

Reef Name	Year Developed	Reef Site Depth (ft)	Controlling Depth (ft)[1]	Total Acreage	Development Status (%)	Remaining Acreage to be Developed	Materials Currently At Site
McAllister Grounds	1949	50-53	40	115	75%	28.75	3 vessels, 4 barges, 7 pieces of a 100' scow, 2 steel miter gates, 3 steel dam gates, 1 steel power plant turbine, rock, concrete barriers, and concrete bridge rubble.
Fire Island	1962	62-73	40	744	70%	223.2	4 vessels, 13 barges, 2 boat hulls, 6 pontoons, surplus armored vehicles, 2 drydocks, Tappan Zee bridge materials, 2 steel miter gates, 1 steel tainter gate, steel bridge girders, steel lift bridge sections, steel pipe, steel lifting towers, rock, concrete cesspool rings, slabs, and rubble.
Rockaway	1967	32-40	23	413	80%	82.6	1 barge, Tappan Zee bridge materials, 60 steel buoys, rock, concrete slabs, pipes, culvert, decking, and rubble.
Atlantic Beach	1967	55-64	40	413	87%	53.69	2 vessels, 10 barges, 8 pontoons, 4 pieces of a 100' scow, surplus armored vehicles, 404 auto bodies, 10 Good Humor trucks, steel crane and boom, 27 steel buoys, 1 steel turbine rotor, steel turbine shells, steel pipe, rock, concrete and steel bridge sections, concrete barriers, concrete slabs, pipes, culvert, decking, and rubble.
Hempstead	1967	50-72	50	744	60%	297.6	13 vessels, 2 barges, 2 steel power plant turbines, surplus armored vehicles, 1 drydock, Tappan Zee bridge materials, City Island bridge materials, Mill Basin bridge materials, steel bridge trusses, and concrete rubble.
Kismet	1967	16-25	16	10	85%	1.5	2 barges, concrete barriers, concrete blocks, concrete slabs, culvert, and rubble.
Moriches	1968	70-75	50	14	90%	1.4	12 vessels, 5 barges, surplus armored vehicles, Tappan Zee bridge materials, steel floorbeams, and concrete pipes.

Reef Name	Year Developed	Reef Site Depth (ft)	Controlling Depth (ft)[1]	Total Acreage	Development Status (%)	Remaining Acreage to be Developed	Materials Currently At Site
Shinnecock	1969	79-84	50	35	85%	5.25	8 vessels, 4 barges, surplus armored vehicles, 1 drydock, rock, Tappan Zee bridge materials, a steel and concrete tower, steel and concrete bridge rubble, steel pipes, steel beams, and steel bridge trusses.
Yellowbar	1969	25-40	16	7	60%	2.8	3 vessels, 1 barge, 4 pontoons, 100 concrete Reef Ball units, and concrete pipes.
Matinecock	1969	30-40	25	41	10%	36.9	1 barge and 7 pontoons.
Smithtown	1976	38-40	23	3	80%	0.6	2 vessels, 5 barges, steel pipes, and concrete-filled steel cylinders.
Twelve Mile	2019	123-143	60	850	5%	807.5	2 vessels.
Sixteen Fathoms	Undeveloped	100	60	850	Undeveloped		Undeveloped- New Site
Huntington/ Oyster Bay	New Site	30-50	TBD	50	Undeveloped		Undeveloped-New Site
Port Jefferson/ Mount Sinai	New Site	70-100	TBD	50	Undeveloped		Undeveloped-New Site
Mattituck	New Site	60-100	TBD	50	Undeveloped		Undeveloped-New Site

Source: NYSDEC Artificial Reef Locations https://www.dec.ny.gov/outdoor/71702.html
[1] Controlling depth refers to the depth at which reef materials must be deployed below the surface.
TBD: To be determined during the permitting process for these locations.

1.2 Proposed Project Description

1.2.1 Administration and Management

The NYSDEC manages and administers the artificial reef program. Development of artificial reef sites reefs would be consistent with the updated GEIS and applicable permit conditions.

1.2.2 Artificial Reef Construction Materials

The criteria suitable for reef materials include clean concrete, rock, or clean steel (NYSDEC 2004). All artificial reef materials are properly cleaned and free of contaminants.

1.2.3 Siting, Deployment, and Maintenance

Placement of materials at the artificial reef sites would take place within the boundaries of the reef sites identified in Table 1. These reefs are located within the Atlantic Ocean, Great South Bay, and Long Island Sound.

Materials are deployed on the reef in areas devoid of existing structure or other artificial reef materials. Materials are replenished over time as they subside, break down, and no longer meet Program objectives. Placement of materials within the reef areas will be based on hydrographic surveys.

Further, each reef is subject to a control depth that reef materials must remain below. Materials are transported to the reef site either by barge or towed out by vessel under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. The NYSDEC Reef Program staff oversee the deployment of materials. All reef construction would be completed in accordance with NYSDEC guidelines and a deployment plan for each reef.

Post-material deployment monitoring is done in order to comply with permit conditions and existing artificial reef program guidelines. A post-deployment survey is conducted to verify placement of materials and that controlling depth guidelines are adhered to. The NYSDEC monitoring program for existing artificial reef sites includes recreational and commercial usage, through an aerial survey of vessels on site. Biological monitoring includes scuba, underwater video, and multi-beam sonar surveys (NYSDEC, 2004).

The reef sites are assessed periodically to ensure compliance with permits and that deployed materials are meeting program objectives of providing hard bottom reef habitat. Over time and due to coastal storms, artificial reefs can become buried with sediment or fall apart and no longer function as complex hard bottom reef habitat. Deployment of additional reef materials in these areas can refresh older, degraded reef sites.

1.2.4 Design

Materials are placed to support the objectives of the NYSDEC's artificial reef program, including creating structured bottom habitat and increasing fishing and diving opportunities. Artificial reefs would be developed using a patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This construction method results in a smaller hardbottom benthic footprint thereby reducing impacts to the benthic community. The undisturbed benthic habitat between the patch reefs will be maintained and are typically avoided by commercial fisherman due to gear conflicts. Further, this configuration increases the enhancement of the local natural habitat by introducing profiled hard structure for colonization and reef development. The structures attract a variety of marine life including recreationally and commercially important finfish species sought by anglers and divers.

The materials would be deployed in a manner that avoids interference with navigation. Table 1 provides the controlling depths of each reef and the approximate water depths within the boundary of each site.

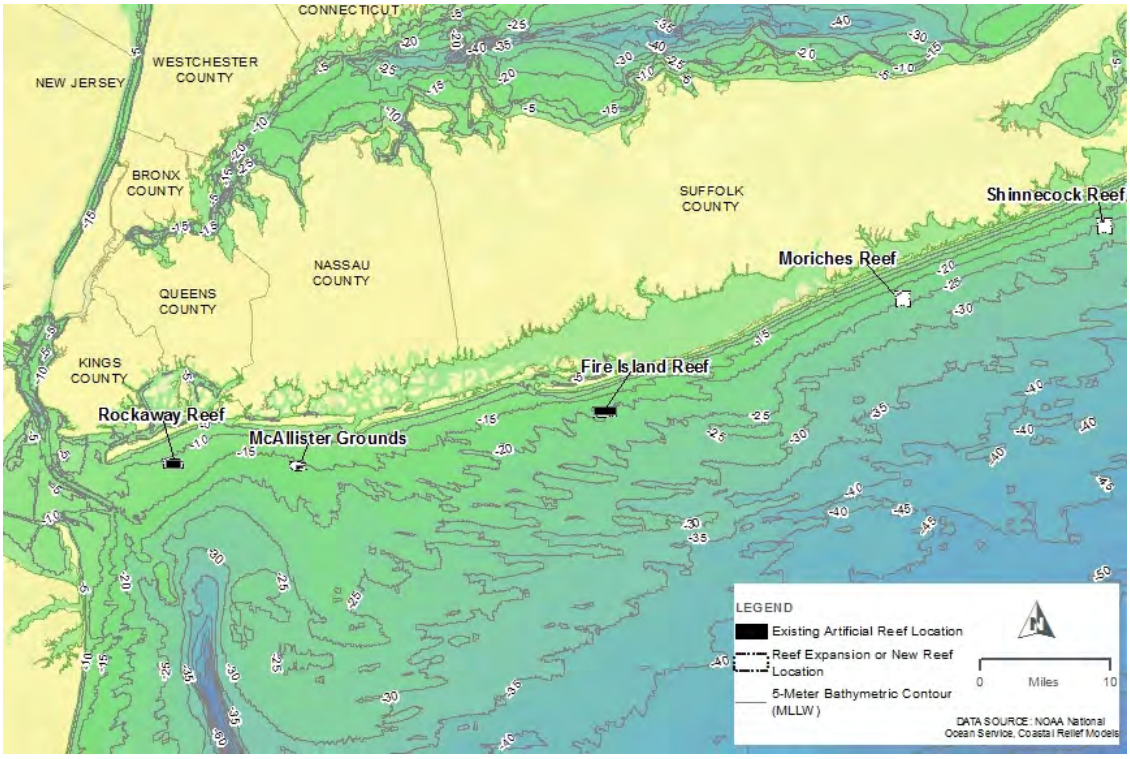
2 Existing Conditions

For the purposes of this Project, reefs have been categorized based on the water body that they exist within. These categories include Atlantic Ocean reef sites, Great South Bay reefs, and the Long Island Sound reefs. Atlantic Ocean reefs have been further sub-divided based on their location relative to the State Seaward Boundary (i.e. relative to three nautical miles (nm) of the New York State Mean Low Water (MLW) line). Atlantic Ocean reefs within the three nm line are referred to as "inshore" whereas the reefs beyond the three nm line are referred to as "offshore". Existing conditions have been summarized below. Additional information can be found as part of this permit application in Appendix I.

2.1 Atlantic Ocean

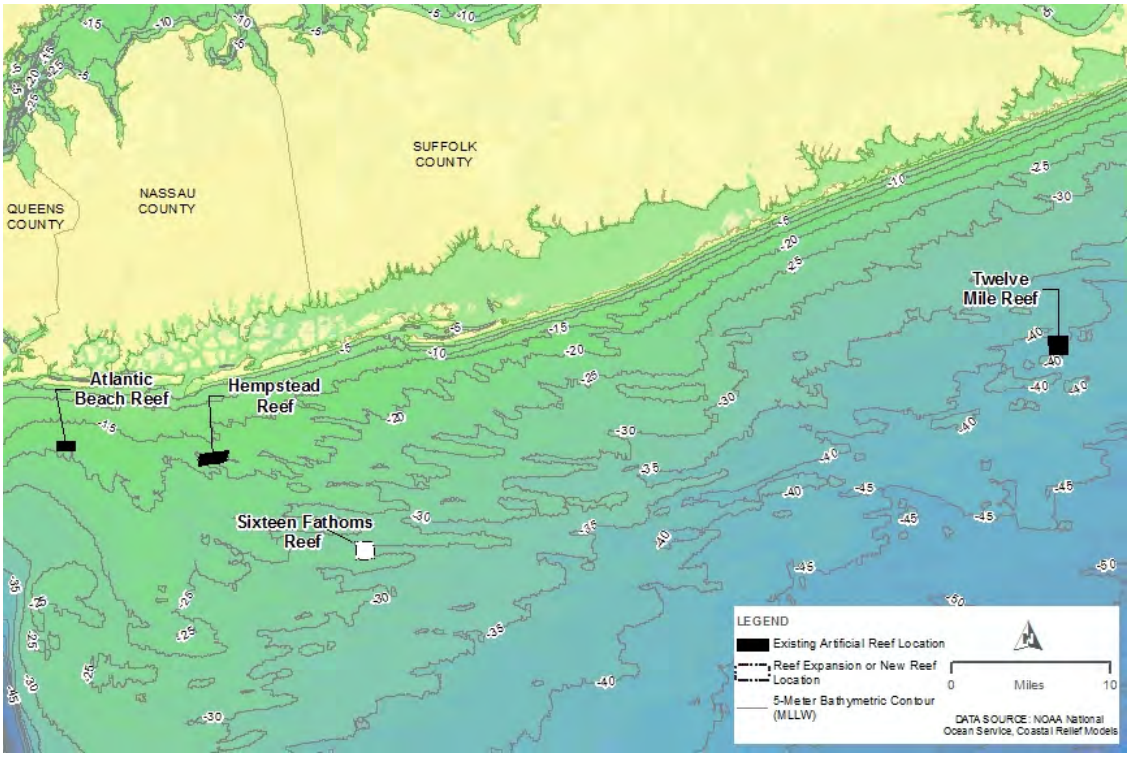
The Atlantic Ocean inshore reefs include McAllister, Moriches, Rockaway, Shinnecock, and Fire Island reefs. The Atlantic Ocean offshore reefs include Sixteen Fathom (proposed), Twelve Mile, Atlantic Beach, and Hempstead reefs. As these reefs are in close proximity, water quality, sediment type and quality, and biological communities are similar.

The Atlantic continental shelf bathymetry consists of a gentle slope from the MLW mark of the southern shore of Long Island to the edge of the Atlantic outer continental shelf. In the reef locations, water depths vary from 12 meters (m) to 46 m and predominantly consists of feature-less, sandy bottom and is devoid of complex vertical habitat (Menza, Kinlan, Dorfman, Poti, & Caldow, 2012) (Figure 2, 3, 4, and 5).



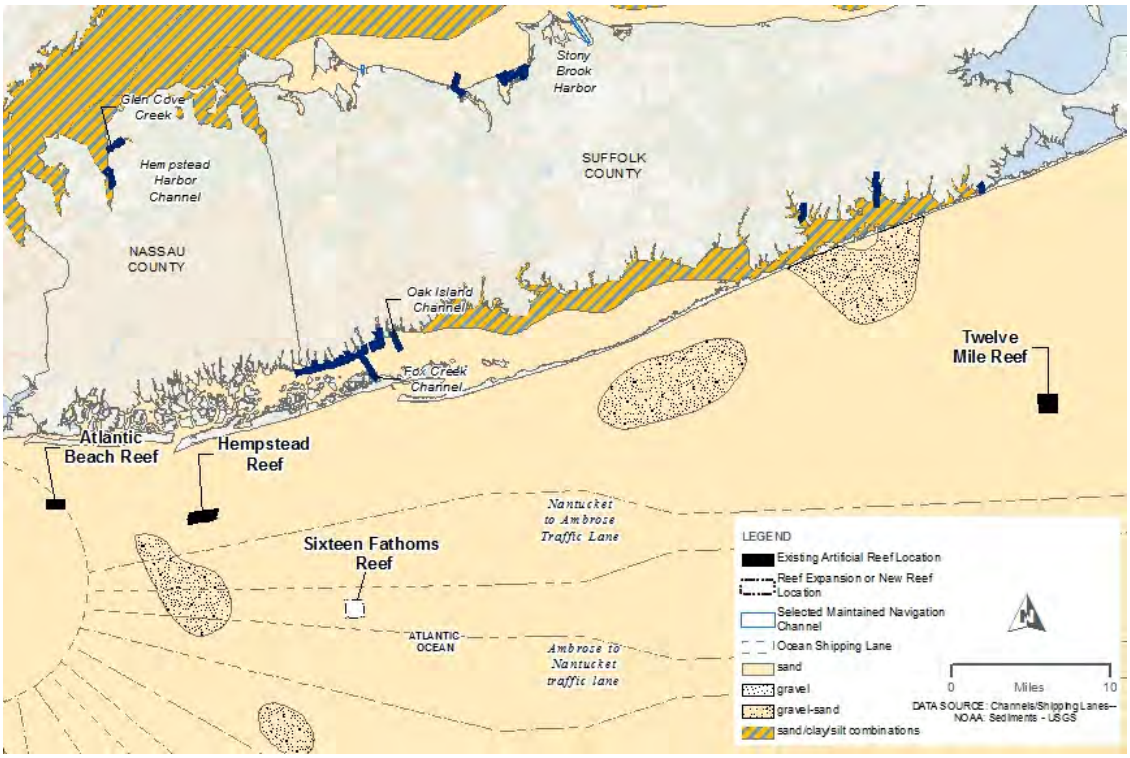
Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 2: Bathymetry at Atlantic Inshore reef locations



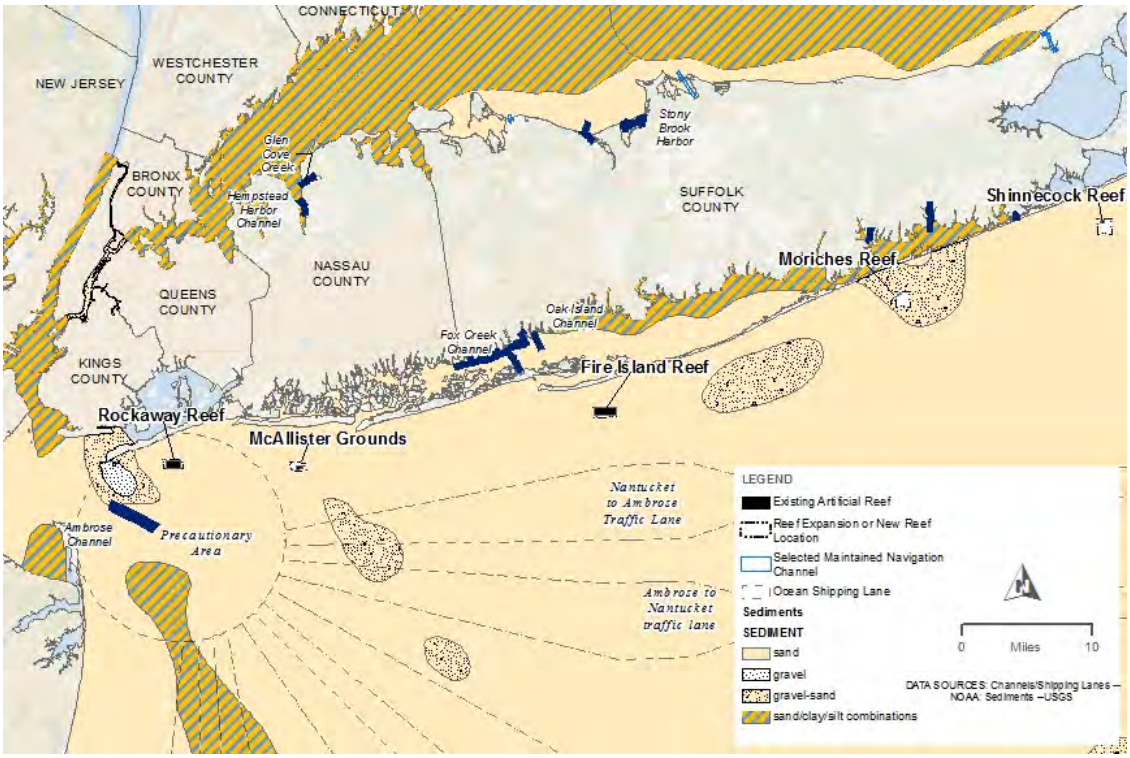
Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 3: Bathymetry at Atlantic Offshore reef locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015), (United States Geologic Survey, 2005-06)

Figure 4: Existing surficial sediment at Atlantic Offshore reef locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015), (United States Geologic Survey, 2005-06)

Figure 5: Existing surficial sediment at Atlantic Inshore reef locations

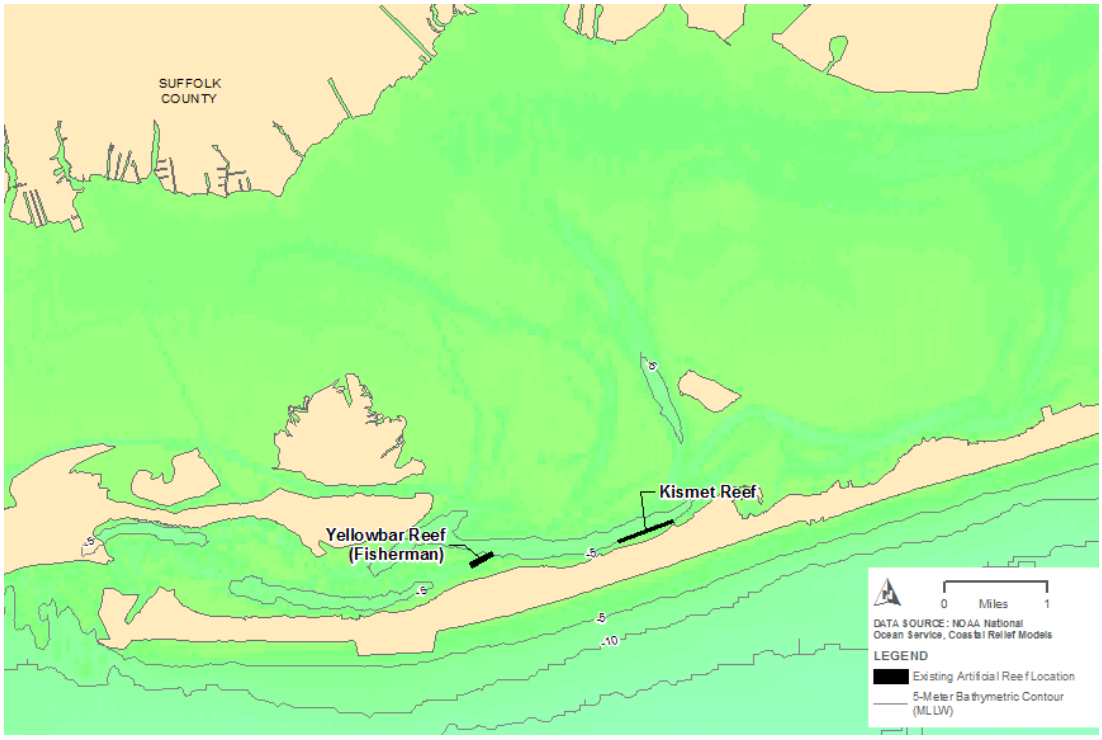
The benthic communities at the reef sites are common to sandy coastal areas and include polychaete worms (Annelida), amphipods (Arthropoda), sand dollars and sea stars (Echinodermata), horseshoe crabs (*Limulus polyphemus*), and *Yoldia* species of mollusk (Mollusca). Commercially important bivalve clams and scallops, including Atlantic surf clam and ocean quahog are present as well as American lobster, jellyfish (Cnidaria), longfin squid, shortfin squid, and various crab species (United States Army Corps of Engineers, 2016). In addition, as both of these locations have established reefs, epifaunal species such as barnacles, mussels, bryzoans as well as amphipods and isopods are present. These benthic communities provide important sources of prey for commercially and recreationally important fish species.

2.2 Great South Bay

The Great South Bay reefs include Kismet reef and Yellowbar reef near Fire Island Inlet. The Bay is characterized by shallow open water habitat, including submerged aquatic vegetation. Reefs are located within 10 to 15 m water depths (Figure 6). Water quality at the reef sites is influenced by the Atlantic Ocean through daily tidal flushing through Fire Island Inlet. Sediments at the reef locations are coarse grain sands and a mix of coarse and fine grains to silty sand (Figure 7).

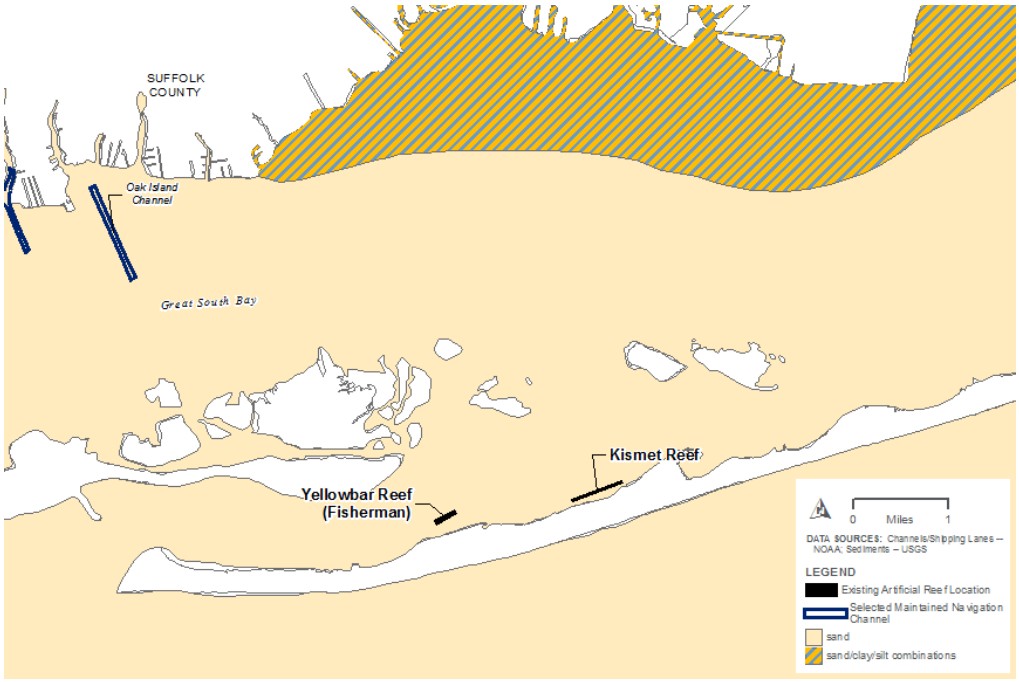
Dominant benthic species include polychaetes such as yellow-jawed clam worm (*Nereis succinea*), orbiniid worm (*Haploscoloplos fragilis*), opal worm (*Lumbrineris brevipes*), and thread worm (*L. tenuis*), and the bivalves northern dwarf-tellin (*Tellina agilis*) and Atlantic awningclam (*Solemya velum*), amphipods *Lysianopsis alba* and *Paraphoxus spinosus*, and the isopod *Idotea balthica*. Sandy bottom benthic species assemblages characteristically contain populations of polychaetes (*Platynereis dumerillii*), feather-duster worm (*Sabella microphthalma*), opal worm (*Arabella iricolor*), and common

bamboo worm (*Clymenella torquata*), bivalves such as northern quahog (*Mercenaria mercenaria*), Morton egg cockle (*Laevicardium mortuni*), blue mussel (*Mytilus edulis*),; and the crustaceans slipper shell (*Crepidula fornicata*), and mud crab (*Dyspanapeus sayi*). Muddy sandflats are dominated by polychaetes of the genus *Harmothoe* and the bivalve amethyst gemclam (*Gemma gemma*) (United States Army Corps of Engineers, 2016), (New York Sea Grant, 2001).



Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 6: Bathymetry at Great South Bay Reef Locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015), (United States Geologic Survey, 2005-06)

Figure 7: Existing surficial sediment at Great South Bay reef locations

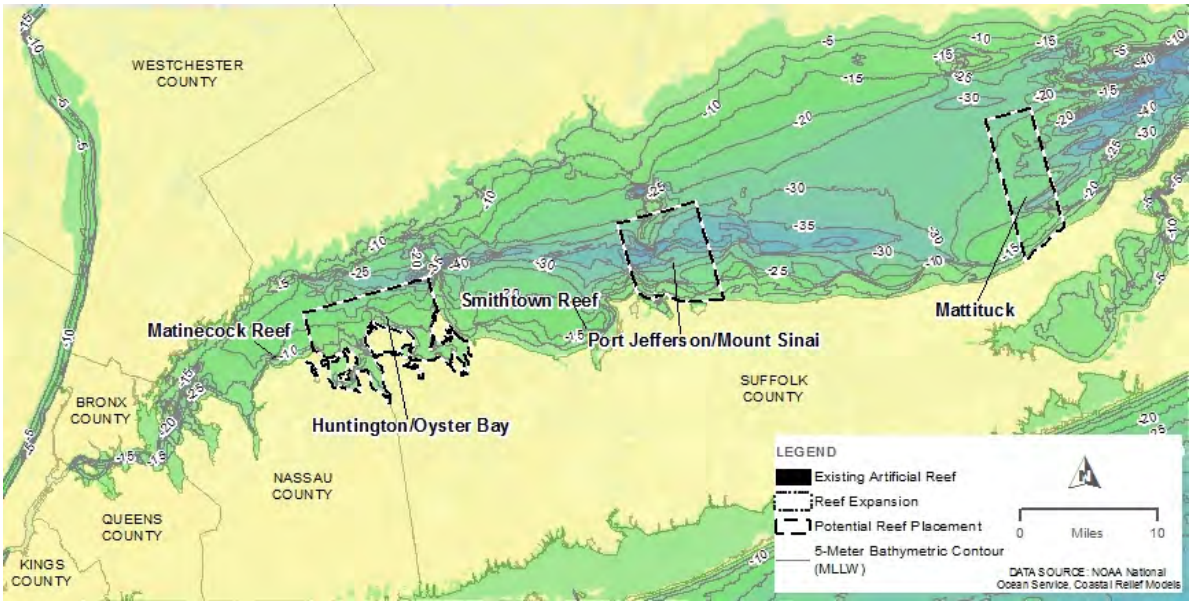
2.3 Long Island Sound

The Long Island Sound reefs include Smithtown, Matinecock, and the proposed Huntington/Oyster Bay, Port Jefferson/Mount Sinai, and Mattituck reefs. The majority of these reefs are located in the western basin of Long Island Sound near the north shore of Long Island. The portion of Long Island Sound characterized as the western basin has water depths ranging from 10 m to 20 m (Figure 8). Surficial sediment in this location is a combination of fine grain and coarse grain sediments including sand, silt, and clay (Figure 9). Water quality in this area seasonally fluctuates and experiences episodes of low dissolved oxygen (DO) concentrations in warm summer months.

The most recent data were derived from the Long Island Sound Mapping and Research Collaborative in 2012 and 2013 that collected targeted samples within the Port Jefferson/Mount Sinai area. Three areas consisting of sand, mud, and sandy mud bottom types were identified and 10 randomly selected samples within each were collected. A total of 5,640 animals representing 95 taxa were collected in the 30 samples (Long Island Sound Cable Fund Steering Committee, 2015). Dominant species included the polychaetes *Amphitrite artica*, *Paranois gracilies*, and *Polygordius spp.*, as well as the amphipods *Ampelisca vadorum* and *Leptocheirus pinguis* (Long Island Sound Cable Fund Steering Committee, 2015). Average faunal abundances in each area were 442 individuals per sample for sand, 85 individuals per sample for mud, and 37 individuals per sample for sandy mud (Long Island Sound Cable Fund Steering Committee, 2015). However, sediment characteristics and water quality are similar for the mid-and western-basins and are likely to contain similar assemblages of infaunal invertebrates.

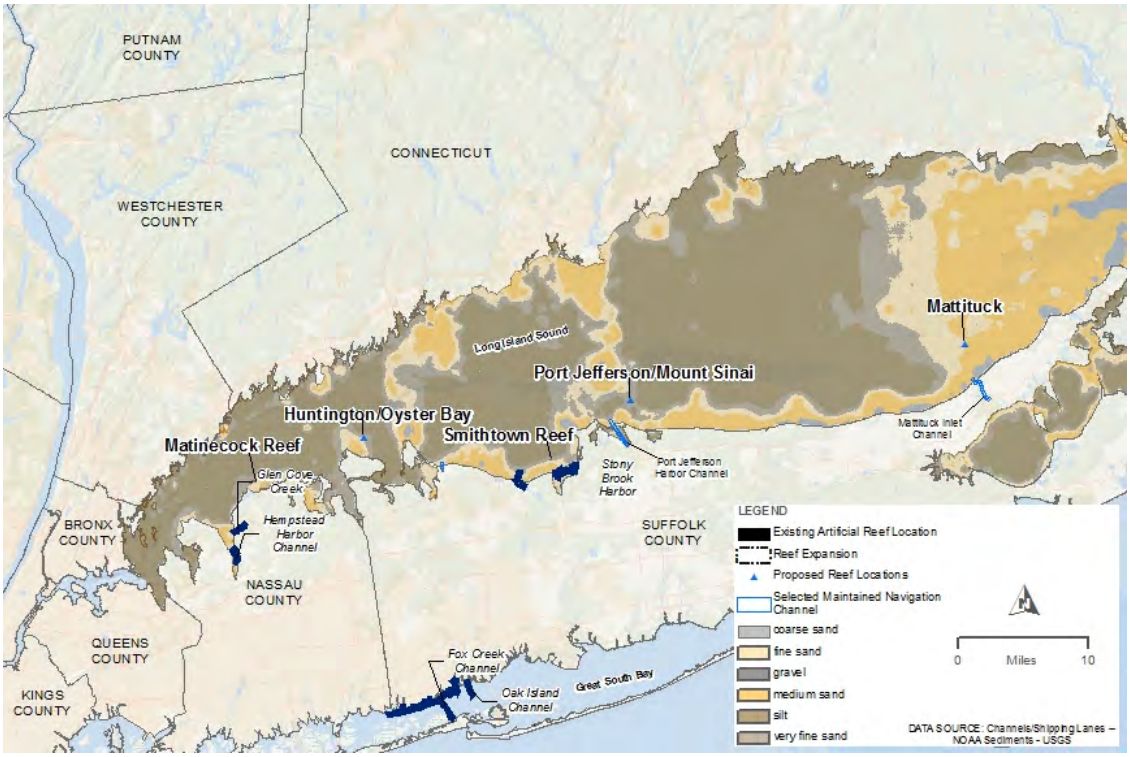
An extensive historic review of benthic communities was summarized in 2004 for the Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound (USEPA and USACE 2004). The EIS summarized historic benthic studies throughout

the sound including offshore and nearshore coastal waters of Connecticut and New York. While there are spatial and temporal trends in species composition and diversity, as is typical of benthic communities, the three main faunal assemblages were consistent: a shallow water, sandy-sediment species based group characterized by polychaetes, *Nephtys picta* and clams, *Spisula solidissima*, and amphipods; a muddy assemblage comprised of *Nephtys incisa, Mediomastus ambiseta* and *Polydora cornuta*, clams and Ampelisca amphipods; and a transitional shallow-water benthic community which occupied mixed zones of coarse and fine grain sediments and included polychaetes *Streblospio sp.* and *Polydora sp*., clams *Tellina agilis* and *Ensis directus* and amphipods *Ampelisca abdita* and *A. vadorum.* The existing and potential reef locations are in mixed sediment zones comprised mostly of coarse grain sediments and therefore will have similar benthic assemblages. In addition, the benthic community may be comprised of additional opportunistic species such as *Mulina lateralis* and Capitellidae worms due to short periods of poor water quality, as discussed above.



Source: (National Ocean Service Office of Coast Survey, 2017)

Figure 8: Bathymetry at Long Island Sound reef locations



Source: (National Oceanagraphic and Atmospheric Administration Office of Coast Survey, 2015), (National Oceanagrpahic and Atmospheric Administration, Office of Coast Survey, 2015),

Figure 9: Existing sediment at Long Island Sound reef locations

3 Essential Fish Habitat Assessment

The National Marine Fisheries Service (NMFS), New England Fishery Management Council, Mid-Atlantic Fishery Management Council, and South Atlantic Management Council have defined EFH for key species in the Northeastern United States coastal waters. The NOAA EFH mapper was consulted to determine the presence of EFH within the Project area.

Table 2: EFH-Designated Species within Project area.

Common name	Scientific name	EFH Habitat within Project Area				Habitat Association
		Egg	Larvae	Juvenile	Adult	
Atlantic cod	*Gadus morhua*	A,G	A,G	A	A,G	Eggs/Larvae: Pelagic Juvenile/Adults: Demersal/Structure Oriented
Atlantic herring	*Clupea harengus*		A	A,G,L	A,G,L	Pelagic
monkfish	*Lophius americanus*	A,G	A,G	A	A	Eggs/Larvae: Pelagic Juvenile/Adult: Demersal
ocean pout	*Macrozoarces amercanus*	A,G,L		A	A,G,L	Demersal
pollock	*Pollachius pollachius*		A,G	A,G,L	L	Pelagic

Common name	Scientific name	EFH Habitat within Project Area				Habitat Association
		Egg	Larvae	Juvenile	Adult	
red hake	*Urophycis chuss*	A,G,L	A,G,L	A,G,L	A,G,L	Eggs/Larvae: Pelagic Juveniles and Adults: Demersal
silver hake	*Merluccius bilnearis*	A,G,L	A,G,L	A	L	Demersal/Pelagic
windowpane flounder	*Scophthalmus aquosus*	A,G,L	A,G,L	A,G,L	A,G,L	Eggs: Pelagic Larvae/Juveniles/Adult: Demersal
witch flounder	*Glyptocephalus cynoglossus*	A, G, L	A, G, L	A, G, L	A, G, L	Demersal
winter flounder	*Pseudopleuronectes americanus*	A, G,L	A,G,L	A,G,L	A,G,L	Demersal
yellowtail flounder	*Limanda ferruginea*	A,G	A	A,L	A,G	Eggs/Larvae: Pelagic Juveniles/Adults: Demersal
Mid-Atlantic Finfish Species						
Atlantic butterfish	*Peprilus triacanthus*	A,G,L	A,G,L	A,G,L	A,L	Pelagic
Atlantic mackerel	*Scomber scombrus*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
black sea bass	*Centropristis striata*		A,G	A,G,L	A,G	Larvae: Pelagic/Structure Oriented Juveniles/Adults: Demersal/Structure Oriented
bluefish	*Pomatomus saltatrix*	A	A	A,G,L	A,G,L	Pelagic
scup	*Stenotomus chrysops*	L	L	A,G,L	A,G,L	Demersal
summer flounder	*Paralichthys dentatus*		A	A,G,L	A,G,L	Demersal
Invertebrate Species						
longfin inshore squid	*Loligo pealeii*	A,G,L		A,G,L	L	Eggs: Demersal/Somewhat Structure Oriented Larvae/Juvenile/Adult: Pelagic
ocean quahog	*Artica islandica*			A,G	A,G	Demersal
surf clam	*Spisula solidissima*			A,G	A,G	Demersal
Highly Migratory Pelagic Species						
bluefin tuna	*Thunnus thynnus*			A,G	A	Pelagic
skipjack tuna	*Katsuwonus pelamis*			A	A,G	Pelagic
Coastal Migratory Pelagic Species						
king mackerel	*Scomberomorus cavalla*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
Spanish mackerel	*Scomberomorus maculatus*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
cobia	*Rachycentron canadum*	A,G,L	A,G,L	A,G,L	A,G,L	Pelagic
Skate Species						
little skate	*Leucoraja erinacea*			A,G,L	A,G,L	Demersal
winter skate	*Leucoraja ocellata*			A,G,L	A,G,L	Demersal

Common name	Scientific name	EFH Habitat within Project Area				Habitat Association
		Egg	Larvae	Juvenile	Adult	
Shark Species						
shortfin mako shark	*Isurus oxyrinchus*	A		A	A	Pelagic
blue shark	*Prionace glauca*			A, G	A, G	Pelagic
common thresher shark	*Alopias vulpinus*			A, G	A, G	Pelagic
dusky shark	*Carcharhinus obscurus*	A		A	A	Pelagic
sand tiger shark	*Carcharias taurus*	A,G,L		A,G,L	A,G,L	Pelagic
tiger shark	*Galeocerdo cuvieri*			A	A	Pelagic
sandbar shark	*Carcharhinus plumbeus*	A,G		A,G	A,G	Demersal
spiny dogfish	*Squalus acanthias*			A	A	Pelagic/Epibenthic
white shark	*Carcharodon carcharias*	A,G		A, G	A, G	Pelagic
smooth dogfish	*Mustelis canis*	A,G,L		A,G,L	A,G,L	Demersal

Notes:
The letter in each cell corresponds to reef sites and bodies of water where EFH for each life stage is found where: A= Atlantic Ocean Reef (McAllister Grounds, Moriches, Shinnecock, Rockaway, Fire Island, Sixteen Fathom, Twelve Mile, Atlantic Beach and Hempstead), G= Great South Bay Reef Sites (Kismet and Yellowbar), and L= Long Island Sound Reef site (Matinecock, Smithtown, Huntington/Oyster Bay, Port Jefferson/Mount Sinai and Mattituck).

3.1 EFH Managed Species

Life history and EFH characteristics for those species most likely to occur at the reef sites are summarized below. Those species that were not discussed are generally pelagic, highly migratory, and only have a transient presence in the Project area (i.e. Spanish mackerel or tiger shark).

3.1.1 New England Finfish Species

3.1.1.1 Atlantic cod *(Gadus morhua)*

General: Atlantic cod is a benthopelagic, commercially important groundfish ranging from the coasts of Greenland to north of Cape Hatteras, North Carolina, in North America. The Project area is designated EFH for all life-stages (Table).

Eggs: Atlantic cod eggs are pelagic, buoyant, spherical, and transparent with a diameter that ranges from 1.2-1.7 mm (Lough 2004). Hatching occurs after 8 to 60 days in varying temperatures, with temperature exerting the most influence on egg and hatchling size (Lough 2004). EFH for Atlantic cod includes pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, as well as the high salinity zones of bays and estuaries (NEFMC 2017).

Larvae: Larvae hatch at sizes between 3.3 and 5.7 mm and occur from near-surface to depths of 75 m, with movement to deeper waters with growth (Lough 2004). Yolk sac larvae are vulnerable to zooplankton predators and planktivorous fish species, such as Atlantic herring and Atlantic mackerel

(Lough 2004). EFH for Atlantic cod larvae includes pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, as well as the high salinity zones of bays and estuaries (NEFMC 2017).

Juvenile: EFH for Atlantic cod includes intertidal and subtidal benthic habitats in the Gulf of Maine, southern New England, and on Georges Bank to a maximum depth of 120 m, as well as high salinity zones of bays and estuaries (NEFMC 2017). Structurally complex habitat that contain eelgrass, mixed sand and gravel, gravel pavements, cobbles, and boulders are essential habitats for juvenile cod (NEFMC 2017).

Adult: Adult Atlantic cod are found at depths of 40-150 m with water temperatures <10°C, and salinities between 29-34 ppt (Lough 2004). Atlantic cod spawn near the ocean floor from winter to early spring. Larger females can produce 3 to 9 million transparent, buoyant, pelagic eggs when they spawn (Lough 2004). Smaller Atlantic cod feed primarily on crustaceans, while larger cod feed primarily on fish, which include silver hake , shad (*Alosa* sp.), mackerel (*Scombridae* sp.), Atlantic silverside (*Menidia menidia*), and herring (*Clupea* sp.). Adult cod predators include large sharks and spiny dogfish (Lough 2004). Adult Atlantic cod essential habitat includes structurally complex hard bottom composed of gravel, cobble, and boulder substrates with and without emergent epifauna and macroalgae (NEFMC 2017).

3.1.1.2 Atlantic Herring *(Clupea harengus)*

General: Atlantic herring is a schooling, pelagic, commercially important coastal species that ranges from northern Labrador to North Carolina in the western Atlantic and, depending on feeding, spawning, and wintering, migrates extensively north-south (Collette and Klein-MacPhee 2002). Atlantic herring have been documented in coastal waster of New York. The Project area contains designated EFH for Atlantic herring larvae, juvenile and adult life-stages (Table 2).

Larvae: A very long larval stage (4-8 months) allows Atlantic herring to be transported long distances to inshore and estuarine waters where, in the spring, they become early stage juveniles through metamorphosis (NEFMC 2017). Atlantic herring larvae are observed between August and April, with peak abundances generally occurring from September through November (NEFMC 2017).

Juvenile: Atlantic herring juveniles are found in pelagic and bottom waters that range in depth from 15-135 m, at temperatures less than 10°C, and in salinities ranging from 26-32 ppt (Reid et al. 1999). At approximately 40-50 mm, Atlantic herring larvae metamorphose into juveniles and begin schooling. Juvenile Atlantic herring do not migrate seasonally, but instead move to overwintering habitats in southern New England and throughout the Middle Atlantic Bight during summer and fall where they stay in deep bays or near the bottom in offshore areas (Reid et al. 1999). The primary prey of juvenile Atlantic herring include zooplankton, consisting predominantly of copepods, decapod larvae, barnacle larvae, cladocerans, and pelecypod larvae, are the primary prey of juvenile Atlantic herring (Sherman and Perkins 1971). Atlantic herring reach maturity at approximately three years of age and approximately 23 cm (O'Brien et al. 1993).

Adult: Adult Atlantic herring can be found in pelagic and bottom waters ranging in depth from 20-130 m, with temperatures less than 10°C, and salinities that are greater than 28 ppt (Reid et al. 1999). Adult Atlantic herring feed on copepods, euphausiids, decapods, and bivalve larvae and are preyed on by short-finned squid, numerous piscivorous fish (cod [*Gadus* spp.], monkfish [*Lophius* spp.], bluefish, silver hake, striped bass [*Morone saxatilis]*, mackerel, and tuna), elasmobranchs (sharks and rays), marine mammals, and seabirds (Sherman and Perkin 1971, Stevenson and Scott 2005, Bigelow and Schroeder 1953, Bowman et al. 2000).

3.1.1.3 Monkfish *(Lophius americanus)*

General: Monkfish can be found from Newfoundland to North Carolina, in the Gulf of Mexico, and along the coast of Brazil (Collette and Klein-MacPhee 2002). The Project area contains designated EFH for all life stages (Table 2).

Egg: The spawning season for monkfish begins in early spring in the Carolinas and continues through early fall, with peak spawning occurring May through June, including in the Gulf of Maine (Steimle et al. 1999a). Eggs (1.6-1.8 mm in diameter), which are buoyant and float close to the surface, occur in surface waters at depths ranging from 15 m to 1,000 m, in temperatures less than 18°C (Martin and Dewry 1978). Egg incubation time depends on the temperature and can range from 7 to 100 days at 15°C to 5°C, respectively (Steimle et al. 1999a). At approximately 2.5 to 4.5 mm total length (TL[1]), larvae hatch from eggs and spend 2-3 days in the egg veil (Steimle et al. 1999a).

Larvae: After release from the egg veil, larval monkfish are pelagic occurring at depths of 5 to 1,000 m, in water temperatures ranging from 6°C to 20°C (Steimle et al. 1999a). At approximately 5-10 cm TL, larval monkfish metamorphose into juveniles and bottom dwellers. However, the habitat(s) in which metamorphosis occurs is not well known (Bigelow and Schroeder 1953, Steimle et al. 1999a). Larval monkfish have been collected in NEFSC MARMAP ichthyoplankton surveys, and appear in the New York Bight area in April and June through September (Steimle et al. 1999a). Zooplankton (i.e. copepods, crustacean larvae, and chaetognaths) are the primary prey item for larval monkfish (Steimle et al. 1999a).

Juvenile: Juvenile monkfish can be found in sub-tidal benthic habitats with depths between 50-400 m in the Mid-Atlantic, 20-400 m in the Gulf of Maine, and a maximum depth of 1,000 m on the continental slope (NEFMC 2017). Diverse habitats, including hard sand, pebbles, gravel, broken shells, and soft mud, are critical for juvenile monkfish, as well as algae covered rocks that provide shelter (Steimle et al. 1999a). In the Mid-Atlantic, juvenile monkfish have been predominantly collected at the center of the continental shelf, but have also been collected in the shallow, nearshore waters east of Long Island, in the shelf valley of the Hudson Canyon, and the perimeter of Georges Bank (NEFMC 2017).

Adult: Adult monkfish can be found at depths of 1 to 800 m and are associated with varying bottom habitats (i.e. hard sand, sand and shell mix, pebbly gravel, and rocks covered in algae), in temperatures that range from 0°C to 24°C, with salinities between 29.9 and 36.7 ppt (Steimle et al. 1999a). Opportunistic ambush feeders, adult monkfish feed on a variety of benthic and pelagic fish, such as skates, eels, dogfish, sand lance, herring, mackerel, cod, flounders, and hake, as well as invertebrates, such as crabs and squid, and sometimes sea birds (Steimle et al. 1999a, Bigelow and Schroeder 1953). In response to seasonal changes in water temperature, adult monkfish exhibit onshore-offshore migration habitats and are found seasonally distributed in the southern Middle Atlantic Bight (Steimle et al. 1999a).

3.1.1.4 Ocean Pout *(Macrozoarces americanus)*

General: The ocean pout is a bottom-dwelling, cool-temperate species of fish that utilizes both open and rough habitats, feeding on benthic organisms (Steimle et al. 1999d). The distribution of ocean pout is from the Atlantic continental shelf of North America between Labrador and the southern Grand Banks and Virginia. Ocean pout also occur south of Cape Hatteras in deeper, cooler waters. The Project area is designated EFH for egg, juvenile, and adult life-stages (Table 2).

[1]Total Length is defined as the measurement taken from the anterior-most part of the fish to the end of the caudal fin rays

Egg: Ocean pout eggs are laid in gelatinous masses in sheltered nests, holes, or rocky crevices. Prior to spawning, ocean pout congregate in rocky areas and occupy nesting holds under rocks or in crevices in depths less than 100 m (NEFMC 2017). Ocean pout EFH for eggs includes hard bottom habitats on Georges Bank, in the Gulf of Maine, and in the Mid-Atlantic Bight, as well as high salinity zones of bays and estuaries. Eggs occur at depths less than 100 m on rocky bottom habitats (NEFMC 2017).

Juvenile: Ocean pout juvenile EFH includes intertidal and subtidal benthic habitats in the Gulf of Maine and on the continental shelf north of Cape May, New Jersey, on the southern portion of Georges Bank, and in the high salinity zones of a number of bays and estuaries north of Cape Cod. EFH extends to a depth of 120 m and occurs on a variety of substrates. Including shells, rocks, algae, soft sediments, sand, and gravel (NEFMC 2017).

Adult: Ocean pout EFH includes subtidal benthic habitats between 20 and 140 m in the Gulf of Maine, on Georges Bank, in coastal and continental shelf waters north of Cape May, New Jersey, and in the high salinity zones of bays and estuaries north of Cape Cod. EFH for adult ocean pout includes mud and sand, as well as structure forming habitat such as shells, gravel, or boulders (NEFMC 2017).

3.1.1.5 Pollock *(Pollachius pollachius)*

General: Pollock is a bony fish found in the northwest Atlantic, being most common on the Scotian Shelf, Georges Bank, in the Great South Channel, and in the Gulf of Maine (Cargnelli et al. 1999c). The Project area is designated EFH for the larval, juvenile, and adult life-stages (Table 2).

Larvae: The larval pollock stage lasts approximately 3 to 4 months and are commonly found at temperatures of 3 to 9ºC (Bigelow and Schroeder 1953). Pollock larvae normally occur from the shore out to the 200 m depth contour (Cargnelli et al. 1999c). Primary prey of small larvae (4 to 18 mm) are larval copepods (Cargnelli et al. 1999c). EFH for pollock larvae includes pelagic inshore and offshore habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, including Great South Bay (NEFMC 2017).

Juvenile: Inshore and offshore pelagic and benthic habitats from the intertidal zone to 180 m in the Gulf of Maine, in Long Island Sound, and Narragansett Bay, between 40 and 180 m on western Georges Bank and the Great South Channel, and in mixed and full salinity waters in a number of bays and estuaries north of Cape Cod. Essential fish habitat for juvenile pollock consists of rocky bottom habitats with attached macroalgae (rockweed and kelp) that provide refuge from predators. Shallow water eelgrass beds are also essential habitats for young-of-the-year pollock in the Gulf of Maine. Older juveniles move into deeper water into habitats also occupied by adults.

Adult: Offshore pelagic and benthic habitats in the Gulf of Maine and, to a lesser extent, on the southern portion of Georges Bank between 80 and 300 m, and in shallower sub-tidal habitats in Long Island Sound, Massachusetts Bay, and Cape Cod Bay. Essential habitats for adult pollock are the tops and edges of offshore banks and shoals with mixed rocky substrates (including artificial reefs), often with attached macro algae.

3.1.1.6 Red hake *(Urophycis chuss)*

General: Red hake can be found from southern Nova Scotia to North Carolina, and historically, the heaviest concentrations of red hake were documented from the southwestern area of Georges Bank to the shelf valley of the Hudson Canyon (Bigelow and Schroeder 1953, Grosslein and Azarovitz 1982). The Project area contains designated EFH for all life-stages (Table 2).

Egg: Red hake eggs (0.6-1.0 mm in diameter) can be found on the inner continental shelf near the surface due to buoyancy, in temperatures less than 10°C, with salinities less than 25 ppt (Steimle et al. 1999b). Red hake eggs and larvae EFH are pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic, and includes the Long Island Sound.

Larvae: Larval stages of red hake can be found in surface waters at depths of 200 m or less, in temperatures less than 19°C, with salinities 0.5 ppt or greater (Steimle et al. 1999b). At approximately 2 mm in length, red hake larvae hatch and spend the next two months free floating at the surface, generally with debris, sargassum, and jellyfish (Steimle et al. 1999c). Red hake larvae distribution is not known to be associated with a substrate type (Stone et al. 1994).

Juvenile: Once red hake larvae reach 35 to 40 mm in length, they sink to the bottom on fine, silty sand at depths approximately 100 m or less, where they take shelter in depressions in the substrate (Bigelow and Schroeder 1953, Steimle et al. 1999b). In inshore areas, small red hake juveniles (5-15 cm) are highly correlated with eelgrass (*Zostera marina*) and in deep offshore areas, they can be found frequently hiding in sea scallops (*Pecten magellanicus*) (Steimle et al. 1999b). Structures, shell fragments, and sea scallops provide shelter for older juveniles (until red hake are approximately 14 cm in length) found in bottom habitats at less than 100 m depth, in water temperatures below 16°C, with salinities between 31-33 ppt (Steimle et al. 1999b. Juvenile red hake prey on euphausiids, amphipods, decapods, and mysids (Bowman et al. 2000).

Adult: Preferring bottom habitats of sand and mud with depressions, adult red hake can be found in depths that range from 30 to 130 m, in water temperatures 12°C or lower, with salinities between 33-34 ppt (Steimle et al. 1999b). At two years of age, red hake reach sexual maturity and peak spawning occurs during June and July off Long Island, Georges Bank, and the New York Bight (Grosslein and Azarovitz 1982). Red hake primarily feed on shrimp, small crustaceans, and small fish and red hake predators include striped bass, spiny dogfish, goosefish, white hake, silver hake, sea raven, and harbor porpoise (*Phocoena phocoena*) (Bowman et al. 2000, Steimle et al. 1999b, Bigelow and Schroeder 1953).

3.1.1.7 Silver Hake *(Merluccius bilinearis)*

General: Silver Hake (a.k.a. Whiting) are found from the Gulf of St. Lawrence to Cape Hatteras, North Carolina (Lock and Packer 2004). The areas of highest abundance in the U.S. are the Gulf Of Maine, Georges Bank, and the Middle Atlantic Bight off Long Island (Lock and Packer 2004). The Project area contains designated EFH for whiting egg and larval life-stages (Table 2).

Egg and Larvae: Whiting eggs and larvae are found in surface waters of the Gulf of Maine, Georges Bank, the continental shelf off southern New England, and the Mid-Atlantic south to Cape Hatteras (NEFMC 2017). EFH for whiting eggs includes sea surface temperatures that are below 20°C (NEFMC 2017). Eggs can be observed all year, but have peak counts from June through October and larvae are observed year round with peaks from July through September (NEFMC 2017).

Juvenile: Juvenile whiting EFH includes bottom habitats of all substrate types in the Mid-Atlantic south to Cape Hatteras. Whiting juveniles are found at depths between 20 and 270 m; salinities greater than 20%; and sea surface temperatures below 20°C (NEFMC 2017).

Adult: Adult whiting EFH includes bottom habitats of all substrate types in the Gulf of Maine, on Georges Bank, the continental shelf off southern New England, and the middle Atlantic south to Cape Hatteras (NEFMC 2017). Adult whiting are generally found at water temperatures below 22°C and at depths between 20 and 270 m (NEFMC 2017). Auster et al. (1997) found silver hake were more abundant on silt-sand bottoms containing amphipod tubes in the Middle Atlantic Bight. Silver hake

were also found on flat sand, sand-wave crests, shell, and biogenic depressions within the Mid-Atlantic Bight (Auster et al. 1991).

3.1.1.8 Windowpane Flounder (*Scophthalmus aquosus*)

General: The range of windowpane flounder is from the Gulf of Saint Lawrence to Florida (Gutherz 1967). The Project area contains designated EFH for windowpane flounder for all life-stages (Table 2).

Egg: Windowpane flounder produce buoyant, pelagic eggs that are 1-1.4 mm in diameter (Colton and Marak 1969). Eggs are found on the continental shelf from Georges Bank to Cape Hatteras and in mixed and high salinity zones of coastal bays and estuaries throughout the region.

Larvae: Larvae are found on the continental shelf from Georges Bank, southern New England, and the middle Atlantic down to Cape Hatteras. They are found at depths less than 70 m (Stone et al. 1994).

Juvenile: Juvenile windowpane flounder are found in intertidal and sub-tidal benthic habitats in estuarine, coastal marine, and continental shelf waters from the Gulf of Maine to northern Florida (NEFMC 2017). EFH for juvenile windowpane flounder is identified as extending from the intertidal zone to a maximum depth of 60 m on muds and sandy substrates (NEFMC 2017).

Adult: Adult windowpane flounder are found in the same marine and coastal habitats as juveniles. EFH for adult windowpane flounder extends from the intertidal zone to a maximum depth of 60 m on mud and sand substrates (NEFMC 2017).

3.1.1.9 Witch Flounder *(Glyptocephalus cynoglossus)*

General: EFH for witch flounder larvae comprises the surface waters to 250 m depths along the continental shelf from the Gulf of Maine south to Cape Hatteras, North Carolina. The Project area contains designated EFH for windowpane flounder for all life-stages (Table 2).

Egg: Pelagic habitats on the continental shelf throughout the Northeast region. Witch flounder eggs are most often observed during the months from March through October.

Larvae: The larvae are most often observed between March and November, with peaks between May and July. NOAA Fisheries has designated waters within the New York Bight apex as EFH for this life stage (Cargnelli et al. 1999a, NOAA Fisheries 2013).

Juvenile: Bottom habitats with a fine-grained substrate in the Gulf of Maine and along the outer continental shelf from Georges Bank south to Cape Hatteras. Generally, the following conditions exist where witch flounder juveniles are found: water temperatures below 13° C, depths from 50 - 450 m, although they have been observed as deep as 1500 m, and a salinity range from 34 – 36%.

Adult: Adult windowpane flounder are found in the same marine and coastal habitats as juveniles. EFH for adult windowpane flounder extends from the intertidal zone to a maximum depth of 60 m on mud and sand substrates (NEFMC 2017).

3.1.1.10 Winter Flounder *(Pseudopleuronectes americanus)*

General: The range for winter flounder is from the coastal waters in the Strait of Belle Isle, Newfoundland, south to Georgia (Collette and Klein-MacPhee 2002). These economically important flatfish are also found in inshore areas from Massachusetts and occur regularly in New York waters (Stone et al. 1994). The Project area contains designated EFH for winter flounder egg, larval, juvenile, and adult life-stages (Table 2).

Egg: Winter flounder eggs are approximately 0.7 to 0.9 mm in diameter and deposited in adhesive clusters on sand, muddy sand, mud, macroalgae, and gravel bottom substrates (Pereira et al. 1999). Bottom habitats are unsuitable if exposed to excessive sedimentation which can reduce hatching success. The preferred designation for winter flounder eggs defines EFH as sub-tidal coastal waters from the shoreline to a maximum depth of 5 m from Cape Cod to Absecon Inlet, New Jersey.

Larvae: Winter flounder larvae are found within estuarine, coastal, and continental shelf benthic habitats from the Gulf of Maine to Absecon Inlet, as well as in the mixed and high salinity zones of bays and estuaries (NEFMC 2017). Larvae hatch in nearshore waters and estuaries or are transported shoreward from offshore spawning sites, where they later settle to the bottom as juveniles (NEFMC 2017). As larvae age, they become increasingly less buoyant and occupy the lower water column.

Juvenile: Juvenile winter flounder are found within estuarine, coastal, and continental shelf water column habitats, as well as the mixed and high salinity zones in bays and estuaries (NEFMC 2017). EFH for juvenile winter flounder extends from the intertidal zone to a maximum depth of 60 m, and includes a variety of bottom types, including mud, sand, rocky substrates with attached macroalgae, tidal wetlands, and eelgrass (NEFMC 2017). Young-of-the-year (YOY[2]) juveniles are found inshore on muddy and sandy sediments within eelgrass and macroalgae, in bottom debris, and marsh creek habitat (NEFMC 2017). Juvenile winter flounder generally settle to the bottom in soft-sediments and disperse to coarser-grained substrates as they age.

Adult: Adult winter flounder are found in estuarine, coastal, and continental shelf benthic habitats from the intertidal zone to a maximum depth of 70 m, as well as the mixed and high salinity zones in bays and estuaries (NEFMC 2017). EFH for adult winter flounder occurs on muddy and sandy substrates and hard bottom.

3.1.1.11 Yellowtail Flounder *(Limanda ferruginea)*

General: Yellowtail flounder have a range along the Atlantic coast of North America from Newfoundland to the Chesapeake Bay, with the majority located on the western half of Georges Bank, the western Gulf of Maine, east of Cape Cod, and southern New England (Collette and Klein-MacPhee 2002). The Project area contains designated EFH for yellowtail flounder for all life-stages (Table 2).

Egg: In the northwest Atlantic, spawning occurs from March through August at temperatures of 5-12°C (Fahay 1983). Yellowtail spawn buoyant, round, pelagic eggs with an average diameter of 0.88 mm and ranges in size from 0.79 to 1.01 mm (Johnson et al. 1999). Eggs hatch approximately 5 days after fertilization at temperatures of 10-11°C (Bigelow and Schroeder 1953; Hildebrand and Schroeder 1928). The Northeast Fisheries Science Center (NEFSC) Marine Monitoring Assessment and Prediction (MARMAP) ichthyoplankton surveys occurred within the Project area. The survey collected yellowtail flounder eggs from 1977-1987 and found that most eggs were collected in water from 10 to 170 m deep and most frequently caught between 30 and 90 m. Densities near the Project area in March and April were 1 to < 10 eggs per 10 m^2. EFH for yellowtail flounder includes coastal and continental shelf habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region.

Larvae: Hatching times for yellowtail flounder larvae range from 14.5 days at 4°C to 4.5 days at 14°C (Yevseyenko and Nevinsky 1981). Larvae hatch at lengths of 2.0-3.5 TL and do not become benthic until reaching approximately 14 mm standard length (Johnson et al. 1999). NEFSC MARMAP ichthyoplankton surveys from 1978-1987 collected in April to June near the Project area identified

[2]Young-of-the-year are fish produced in one reproductive year. Small fish, hatched from eggs spawning in the current year, are considered young-of-year or age 0.

densities from 1 to < 10 to 10 to < 100 larvae per 10 m^2. EFH for yellowtail flounder includes coastal marine and continental shelf habitats in the Gulf of Maine, and from Georges Bank to Cape Hatteras.

Juvenile: Juveniles are found in waters 5 to 75 m at temperatures ranging from 9°C to 13°C (Johnson et al. 1999). Yellowtail flounder larvae occur in the water column briefly before entering the juvenile stage at approximately 11.6-16 mm SL[3] (Johnson et al. 1999). EFH for juveniles includes sub-tidal benthic habitats in coastal waters in the Gulf of Maine and on the continental shelf on Georges Bank and in the Mid-Atlantic. In the Mid-Atlantic, juveniles settle to the bottom of the continental shelf consisting of sandy substrates at depths of 40-70 m.

Adult: Yellowtail flounder adults reach a maximum size of 50 cm and are generally found at depths between 37 and 73 m (Johnson et al. 1999). The EFH for adult yellowtail flounder has been identified as sub-tidal benthic habitats in coastal waters in the Gulf of Maine and on the continental shelf on Georges Bank and in the Mid-Atlantic, including high salinity zones of bays and estuaries. EFH consists of substrate made of sand and sand with mud, shell hash, gravel, and rocks at depths between 25 and 90 m.

3.1.2 Mid-Atlantic Finfish Species

3.1.2.1 Atlantic Butterfish *(Peprilus triacanthus)*

General: Atlantic butterfish is a demersal/pelagic species ranging from the Gulf of St. Lawrence south to Florida, but is most abundant from the Gulf of Maine to Cape Hatteras (Bigelow and Schroeder 1953, Overholtz 2006). Butterfish are found in the Mid-Atlantic shelf in the summer and autumn, but migrate to the edge of the continental shelf where they aggregate in response to seasonal cooling of water temperatures (Grosslein and Azarovitz 1982). The Project area contains designated EFH for all life-stages (Table 2).

Eggs: Atlantic butterfish are broadcast spawners that spawn primarily in the evening or at night (Cross et al. 1999). Butterfish eggs are buoyant, transparent and have a diameter of 0.68-0.82 mm, with an incubation period of about 48 hours at 18ºC (Cross et al. 1999). Spawning may occur in the upper part of the water column and eggs were found between 0 to 4 m at night in the Mid-Atlantic Bight than during the day (Kendall and Naplin (1981). EFH for butterfish eggs is pelagic habitats in inshore estuaries and embayments from Massachusetts Bay to the south shore of Long Island, New York, in Chesapeake Bay, and on the continental shelf and slope, primarily from Georges Bank to Cape Hatteras, North Carolina. EFH for Atlantic butterfish eggs is generally over bottom depths of 1,500 m or less (MAFMC 2011).

Larvae: Atlantic butterfish larvae is generally found over bottom depths between 41 and 350 m where average temperatures are 8.5°C to 21.5°C in the upper water column (<200 m) (Cross et al. 1999). The size of Atlantic butterfish larvae ranges from 2.6 to 16 mm standard length (SL) with metamorphosis occurring gradually (Able and Fahay 1998). Butterfish larvae begin taking on the characteristics of adults (i.e. thin, deep body) at approximately 6 mm SL and at 15-16 mm SL they have a forked tail (Martin and Drewry 1978, Horn 1970, Ditty and Truesdale 1983). Between 10-15 mm, Atlantic butterfish are free swimming and generally move independent of currents (Martin and Drewry 1978). Larval Atlantic butterfish are believed to participate in diurnal vertical migrations; however more larvae have been collected in the water column between 0-4 m at night than during the day (Kendall and Naplin 1981).

[3] Standard length is defined as the measurement take from the tip of the lower jaw to the posterior end of the hypural bone

Juvenile: Small juvenile butterfish (less than 30 mm) are surface-dwelling, forming loose schools in association with flotsam and large jellyfish to avoid predation from larger fish (Cross et al. 1999, Mansueti 1963, Bigelow and Schroeder 1953). Larger juvenile butterfish (>30 mm) are found over sand and muddy substrate at depths between 10-365 m in water temperatures that range between 3-28°C (Stone at el. 1994, Cross et al. 1999).

Adult: Adult Atlantic butterfish are primarily found at bottom depths between 10 m and 250 m where water temperatures are between 4.5°C and 27.5 °C and salinities are above 5 parts per thousand (ppt) (Cross et al. 1999). Spawning generally occurs at water temperatures over 15°C (Cross et al. 1999).

3.1.2.2 Atlantic mackerel *(Scomber scombrus)*

General: Atlantic mackerel is a pelagic, schooling species that can be found from the Gulf of St. Lawrence to Cape Lookout, North Carolina (MAFMC 2011, Studholme et al. 1999). The Project area contains designated EFH for Atlantic mackerel for all life-stages (Table 2).

Egg: Atlantic mackerel eggs are pelagic and spherical and can generally be found over bottom depths of less than 100 m when temperatures in the upper 15 m of the water column average 6.5 to 12.5°C (Berrien 1975, Studholme et al. 1999). Atlantic mackerel eggs have one oil globule and range in size from 1.01-1.28 mm, with an average size of 1.3 mm, in diameter. However, sampling in the Gulf of St. Lawrence indicates that egg size has decreased in response to ambient temperatures over time (Berrien 1975, Ware 1977)

Larvae: Atlantic mackerel larvae can generally be found over bottom depths ranging between 10-130 m, in temperatures ranging from 6°C to 22°C, with the largest portion observed in temperatures between 8-13°C (Studholme et al. 1999). Mackerel larvae measure approximately 3.1-3.3 mm SL at hatching, which occurs between 90 and 120 hours post-fertilization in average water temperature of 13.8°C (Sette 1943, Bigelow and Schroeder 1953, Colton and Marak 1969, Berrien 1975, Ware and Lambert 1985, Scott and Scott 1988). Metamorphosis occurs rapidly for Atlantic mackerel larvae, likely increasing successful capture of prey and avoidance of predation (Sette 1943, Ware and Lambert 1985). Mackerel larvae (<13 mm) were collected in NEFSC MARMAP ichthyoplankton surveys from waters off Chesapeake Bay to the Gulf of Maine, with peak abundances offshore of Delaware Bay to Massachusetts Bay in inshore waters to the seaward limits (Studholme et al. 1999).

Juveniles and Adults: Atlantic mackerel juveniles can generally be found over bottom depths that range from the surface to 340 m, in temperatures between 4°C and 22°C (Studholme et al. 1999). Juveniles collected in Hudson-Raritan estuary of New York and New Jersey were found at depths between 4.9-9.8 m, in temperatures that ranged from 17.6 to 21.7, with salinities of 26.1-28.9 ppt (Studholme et al. 1999). At approximately, 30-50 mm, post-larvae begin to exhibit swimming and schooling behavior, and within approximately two months juveniles reach a length of 50 mm at which time they resemble adults (Sette 1943, Bigelow and Schroeder 1953, Anderson and Paciorkowski 1980, Berrien 1982). Juvenile Atlantic mackerel tend to have similar distribution patterns as adult Atlantic mackerel. However, juveniles have been collected in near coastal waters in the Mid-Atlantic Bight and southern New England, particularly in the fall (Studholme et al. 1999).

3.1.2.3 Black Sea Bass *(Centropristis striata)*

General: Black sea bass is a pelagic, warm temperate species that can be found in the western Atlantic, ranging from southern Nova Scotia and the Bay of Fundy to southern Florida (Drohan et al. 2007). Black sea bass are found in an array of complex, structured habitats, including reefs, shipwrecks, and lobster pots along the continental shelf (Steimle et al. 1999c). Young-of-year are

generally found in estuarine habitats with structural complexity (Drohan et al. 2007). The Project area contains designated EFH for the larval, juvenile, and adult life-stages (Table 2).

Larvae: North of Cape Hatteras, EFH is the pelagic waters found over the continental shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all ranked ten-minute squares of the area where black sea bass larvae are collected in the MARMAP survey. EFH also includes estuaries where black sea bass were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater salinity zones. Generally, the habitats for the transforming (to juveniles) larvae are near the coastal areas and into marine parts of estuaries between Virginia and New York. When larvae become demersal, they are generally found on structured inshore habitat such as sponge beds.

Juvenile: Black sea bass juveniles can be found in demersal waters over the continental shelf and in estuaries, in temperatures greater than 6°C with salinities greater than 18 ppt (Steimle et al. 1999c). Juvenile black sea bass are associated with structured habitats. In the summer, juvenile sea bass are found in estuarine nursery areas following settlement in coastal areas. However, due to declining water temperature, older juveniles will migrate seasonally to nearshore habitats in the spring through fall, and outer coastal areas at depths of 30 to 128 m in winter (Nichols and Breder 1927, Hales and Abe 2001). Benthic and epibenthic invertebrates (i.e. amphipods, isopods, and small crabs) and small fish dominate the diets for juvenile black sea bass (Drohan et al. 2007, Bowman et al. 2000).

Adult: Black sea bass adults can be found in demersal waters over the continental shelf and in estuaries, in temperatures greater than 6°C and salinities greater than 18 ppt (Steimle et al. 1999c). Black sea bass become more piscivorous as they mature (between one and four years of age) and in the Mid-Atlantic, feed primarily on crustaceans (*Cancer irroratus* and *Meganyctiphanes norvegica*) and small fish (Grosslein and Azarovitch 1982, Steimle et al. 1999c, Bowman et al. 2000). Northern populations of adult sea bass, located primarily between Chesapeake Bay and Montauk, New York, spawn during summer months in water 18 to 44 m (Musick and Mercer 1977).

3.1.2.4 Bluefish *(Pomatomus saltatrix)*

General: Bluefish are a coastal migratory pelagic species that can be found in inshore and offshore temperate and warm temperate waters of the continental shelf, ranging from Nova Scotia to Florida, as well as the Gulf of Mexico from Florida to Texas (Bigelow and Schroeder 1953, Briggs 1960). In mid-to-late May, bluefish, traveling in large schools of like-size fish, migrate into Mid-Atlantic waters, returning to deeper offshore waters of southeastern Florida in November (Grosslein and Azarovitz 1982, Stone et al. 1994). The Project area contains designated EFH for all life-stages (Table 2).

Egg: Bluefish eggs (0.8-1.2 mm) are found in mid-shelf waters ranging from 30 to 70 m in southern New England to Cape Hatteras, in temperatures ranging from 18°C to 22°C, with salinities greater than 31 ppt (Hardy 1978, Fahay et al. 1999). The incubation times for bluefish eggs varies with temperature with egg hatching generally occurring within 46 to 48 hours at temperatures ranging between 18°C to 22.2°C (Deuel et al. 1966, Hardy 1978). EFH for bluefish eggs include pelagic waters found over the continental shelf at mid-shelf depths, from Montauk Point, New York, to Cape Hatteras (MAFMC 1998). Bluefish eggs are generally not collected in estuarine waters and there are no EFH designations for inshore waters. Bluefish eggs have been found from April through August in temperatures greater than 18°C, and shelf salinities greater than 31 ppt (MAFMC 1998).

Larvae: Bluefish larvae are found in oceanic waters in temperatures of 18°C, with salinities of greater than 30 ppt (Able and Fahay 1998, Shepherd and Packer 2006). Larval bluefish are 2-2.4 mm when they hatch (Shepherd and Packer 2006). Bluefish spend their larval stage at no deeper than 15 m in

the water column, are most concentrated at 4 m during the day, and are equally distributed between 4 m and the surface at night (Kendall and Naplin 1981).

Juvenile: Juvenile bluefish are found in pelagic, nearshore areas and estuaries in temperatures between 19°C and 24°C, with salinities that range from 23 to 36 ppt (Shepherd and Packer 2006). In North Atlantic estuaries, bluefish juveniles are typically found March through December and associated with sand, mud, clay, submerged aquatic vegetation (*Ulva* and *Zostera*) beds and bottom habitats (*Fucus* spp*;* Nelson et al. 1991, Jury et al. 1994, Stone et al. 1994, Fahay et al. 1999).

Adult: Bluefish adults can be found in oceanic, nearshore, and continental shelf waters and prefer temperatures above 14-16°C and salinities above 25 ppt (Fahay et al. 1999). The species migrate extensively and are distributed based on season and size of the individuals within the schools (Shepherd and Packer 2006). There are two predominate spawning areas on the east coast for bluefish adults: one during the spring that is located offshore from southern Florida to North Carolina and the other during summer in the Middle Atlantic Bight (Wilk 1982).

3.1.2.5 Scup *(Stenotomus chrysops)*

General: Scup is a demersal species that can be found from the Gulf of Maine to North Carolina, with a winter distribution that ranges from approximately New Jersey to Cape Hatteras in waters 36-146 m deep and a summer distribution that ranges from southern New England to Mid-Atlantic coasts (Bigelow and Schroeder 1953, Collette and Klein-MacPhee 2002, Grosslein and Azarovitz 1982). The Project area contains designated EFH for all life-stages (Table 2).

Eggs: EFH is estuaries where scup eggs were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general, scup eggs are found from May through August in southern New England to coastal Virginia, in waters between 55 and 73 °F and in salinities greater than 15 ppt.

Larvae: EFH is estuaries where scup were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general, scup larvae are most abundant nearshore from May through September, in waters between 55 and 73 °F and in salinities greater than 15 ppt.

Juvenile: Scup juveniles (18-19 mm TL or greater) school in demersal waters over the continental shelf and inshore estuaries with salinities of 15 ppt or greater and prefer diverse habitats, including mud, sand, mussel beds, and eelgrass (Steimle et al. 1999d).

Adult: Adult scup prefer nearshore habitats within close proximity to large bays during the summer that are deeper than 1.8 to 3.7 m, with salinities greater than 15 ppt (Bigelow and Schroeder 1953, Steimle et al. 1999d). Scup are bottom feeders, preying on crustaceans, polychaetes, hydroids, sand dollars, squid and small fish, and can be found in a variety of habitats, including smooth to rocky bottoms and mixed sand and mud sediments that allow scup to forage on small benthic invertebrates (Bigelow and Schroeder 1953, Bowman et al. 2000). Spawning takes place for Mid-Bight scup from May to August along the inner continental shelf of southern New England, with peak spawning occurring from June through July.

3.1.2.6 Summer Flounder *(Paralichthys dentatus)*

General: Summer flounder is a demersal, left-sided flatfish that is distributed from Georges Bank to South Carolina and Florida, and is concentrated in the Middle Atlantic Bight from Cape Cod to Cape Hatteras (Bigelow and Schroeder 1953, Collette and Klein-MacPhee 2002). The Project area contains designated EFH for larval, juvenile, and adult life-stages (Table 2).

Larvae: After hatching, at approximately 3 mm in length, summer flounder larvae remain in the water column at depths of 10-70 m, in temperatures ranging between 0°C and 23°C, with salinities 35 ppt or less before settling to the bottom (Martin and Drewry 1978, Colton and Marak 1969). Larval and post-larval summer flounder migrate to shallower areas in inshore coastal and estuarine habitats where they metamorphose (at approximately 8-18 mm SL) into juveniles that will bury into sandy bottom substrate (Packer al. 1999, Keefe and Able 1994).

Juvenile: Summer flounder juveniles can be found in a variety of estuarine, soft-bottom habitats (i.e. mud flats, seagrass beds, marsh creeks, and open bays) with water temperatures 11°C or greater and salinities ranging from 10 to 30 ppt (Packer et al. 1999, Deubler and White 1962). Juvenile summer flounder are generalist when it comes to diet, feeding primarily on benthic invertebrates and then, fish, as individuals grow in size (Bowman et al. 2000).

Adult: In the summer, adult summer flounder can be found in demersal waters over the continental shelf and on sandy or muddy bottoms of inshore estuaries at depths of 0 to 25 m in an extensive range of salinities, whereas, in winter, adult summer flounder are found offshore at depths between 75-150 m (Grosslein and Azarovitz 1982). NMFS has designated habitat area of particular concern (HAPC) for juvenile and adult summer founder, which includes all native species of maroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed within EFH. The diet of adult summer flounder includes a variety of smaller fish (i.e. windowpane [*Scophthalmus aquosus*], winter flounder [*Pseudopleuronectes americanus*], northern pipefish [*Syngnathus fuscus*], Atlantic menhaden [*Brevoortia tyrannus*], bay anchovy, red hake, silver hake, scup, Atlantic silverside, American sand lance [*Ammodytes americanus*], bluefish, weakfish, and mummichog [*Fundulus heteroclitus*]), squids, crabs, shrimp, small mollusks, worms, and sand dollars (Bowman et al. 2000). Adult summer flounder predators include large sharks, rays, and goosefish (Bigelow and Schroeder 1953).

3.1.3 Invertebrate Species

3.1.3.1 Longfin Inshore Squid *(Loligo pealeii)*

General: The longfin inshore squid is a pelagic, schooling species that can be found from Newfoundland to the Gulf of Venezuela and is considered a commercially important species from Georges Bank to Cape Hatteras (Cargnelli et al. 1999b). Longfin inshore squid are known to migrate seasonally, moving south and offshore in the late fall and wintering on the continental shelf edge; as temperatures increase seasonally, this species moves inshore and north (Cargnelli et al. 1999b). The Project area contains designated EFH for all life-stages (Table 2).

Egg: Like most squids, longfin inshore squid produce egg masses that are demersal and anchored to the substrates they are laid on. Females deposit the gelatinous capsules of eggs typically in depths less than 50 m to different substrate types, including shells, fish traps, boulders, submerged aquatic vegetation (e.g. *Fucus* sp.), sand, and mud (MAFMC 2011). EFH for longfin inshore squid eggs occurs in inshore and offshore bottom habitats from Georges Bank southward to Cape Hatteras, where bottom temperatures are between 10ºC to 23ºC, salinities between 30 and 32 ppt, and depths less than 50 m (MAFMC 2011).

Juvenile: Juvenile longfin inshore squid are found at bottom depths that range between 6 and 160 m, in temperatures of 8.5°C to 24.5°C, with salinities of 28.5 to 36.5 ppt (Cargnelli et al. 1999b, MAFMC 2011). In the fall, juveniles in the pre-recruitment stage migrate offshore to winter in deeper waters along the continental shelf edge (Cargnelli et al. 1999b). Longfin inshore squid juveniles participate in diurnal vertical migration. EFH is considered pelagic habitats in inshore and offshore continental shelf waters from Georges Bank to South Carolina, in the southwestern Gulf of Maine, and in embayments such as Narragansett Bay, Long Island Sound, and Raritan Bay (MAFMC 2011).

Adult: In open waters, longfin inshore squid utilize varying depths of the water column. However, in inshore habitats, longfin inshore squid adults are typically found at bottom depths ranging from 6 to 200 m, in bottom water temperatures of 8.5°C to 14°C, with salinities of 24 to 36.5 ppt (Cargnelli et al. 1999b). EFH is pelagic habitats in inshore and offshore continental shelf waters and within the same embayments as juvenile longfin inshore squid.

3.1.3.2 Ocean Quahog *(Arctica islandica)*

General: The ocean quahog is a commercially important bivalve mollusk distributed along the continental shelf that can be found from Newfoundland to Cape Hatteras, with peak offshore densities occurring south of Nantucket to the Delmarva Peninsula (Cargnelli et al. 1999e). The ocean quahog is managed by the Mid-Atlantic Fishery Management Council under the Atlantic surfclam and ocean quahog fishery management plan. The Project area contains designated EFH for juvenile and adult life-stages (Table 2).

Juvenile: Ocean quahog juveniles are typically found offshore in sandy substrates, although they are known to survive in muddy intertidal habitats when protected from predators, and in the Middle Atlantic Bight exist at depths of 45-75 m with salinities ranging between 32-34 ppt (Kraus et al. 1991).

Adult: Adult ocean quahogs generally exist in dense beds on level bottoms, just below the surface of medium to fine grain sediments, at depths of 14-82 m, with most being found at 25 to 61 m and some individuals as deep as 256 m (Medcof and Caddy 1971, Beal and Kraus 1989, Brey et al. 1990, Fogarty 1981, MAFMC 1997, Merrill and Ropes 1969). The optimal temperature for adult ocean quahogs ranges from approximately 6°C to 16°C, with lethal temperatures reportedly being 20°C or greater (Golikov and Scarlato 1973, Merrill et al. 1969).

3.1.3.3 Surf Clam *(Spisula solidissima)*

General: The surf clam is a commercially important bivalve that can be found in sandy habitats along the continental shelf and ranges from the southern Gulf of St. Lawrence to Cape Hatteras, North Carolina, with concentrations located on Georges Bank, south of Cape Cod, off Long Island, southern New Jersey and the Delmarva Peninsula (Merrill and Ropes 1969, Ropes 1980). The surf clam is managed by the Mid-Atlantic Fishery Management Council under the Atlantic surf clam and ocean quahog fishery management plan. The Project area contains designated EFH for juvenile and adult life-stages (Table 2).

Juvenile: High concentrations of surf clams are found at depths ranging from 8 to 66 m in areas of turbidity deeper than the break zone, and can tolerate salinities ranging from 14-52 ppt (Fahay et al. 1983, Ropes 1980). Surf clam juveniles are distributed in well-sorted, medium sand and may also be found in fine and silty-fine sand (Cargnelli et al. 1999b).

Adult: Adult surf clams are distributed similar to juveniles, with high concentrations found in well-sorted, medium sand or fine and silty-fine sand (Cargnelli et al. 1999b). Surf clams reach sexual maturity at varying sizes and ages, including as early as 3 months and 5 mm length after settlement off the coast of New Jersey to as long as 4 years and 80-95 mm length off Prince Edward Island, Canada (Chintala and Grassle 1995, Sephton and Bryan 1990).

3.1.4 Skate Species

3.1.4.1 Little Skate *(Leucoraja erinacea)*

General: The little skate is a demersal fish species that occurs from Nova Scotia to Cape Hatteras (Packer et al. 2003a). Little skate are most abundant and found year-round in the northern section of the Mid-Atlantic Bight and Georges Bank (Packer et al. 2003a). The little skate prefers sandy or pebbly

bottom, but can also be found on mud and ledges (Collette and Klein-MacPhee 2002) where temperature ranges from 1 to 21ºC. The Project area contains EFH for little skate juvenile and adult life-stages (Table 2).

Juvenile: Little skate are able to mate any time throughout the year, and mating occurs frequently (Packer et al. 2003a). A single fertilized egg is encapsulated and deposited on the seafloor bottom until hatching. Juvenile little skate are fully developed at hatching, with an approximate size of 93-102 mm TL (Packer et al. 2003a). EFH for juvenile little skate includes intertidal and subtidal benthic habitats in coastal waters extending from the Gulf of Maine to Delaware Bay, and on Georges Bank. EFH consist of sand and gravel substrates, but juvenile little skate are also found on mud to a maximum depth of 80 m (NEFMC 2017).

Adult: Adult little skate have an average size of 41-51 cm TL and a maximum of 53 cm TL (Bigelow and Schroeder 1953). EFH for adult little skate includes intertidal and subtidal benthic habitats in coastal waters extending from the Gulf of Main to Delaware Bay, and on Georges Bank. EFH consist of sand and gravel substrates, but juvenile little skate are also found on mud to a maximum depth of 100 m (NEFMC 2017).

3.1.4.2 Winter Skate *(Leucoraja ocellata)*

General: Winter skate occurs from the south coast of Newfoundland and the southern Gulf of St. Lawrence to Cape Hatteras (Packer et al. 2003b). Like the little skate, winter skate are highly abundant on Georges Bank and in the northern section of the Mid-Atlantic Bight. The Project area contains EFH for the winter skate juvenile and adult life-stages (Table 2).

Juvenile: Like the little skate, winter skate is fully developed at hatching, with a TL between 11.2 cm to 12.7 cm. Winter skate predominately feeds on infaunal organisms, such as burrowing polychaetes, amphipods, and bivalves (Packer et al. 2003b). Winter skate is preyed upon by sharks, other skates, gray seals, and gulls (Packer et al. 2003b). EFH for juvenile winter skate includes subtidal benthic habitats in coastal waters extending from eastern Maine to Delaware Bay, as well as on the continental shelf in southern New England and the Mid-Atlantic region. EFH for juvenile winter skate occurs on sand and gravel substrates, but are also found on mud from the shoreline to a maximum depth of 90 m (NEFMC 2017).

Adult: The average size of adult winter skate is 76.2 to 86.4 cm TL (Bigelow and Schroeder 1953). EFH for adult winter skate includes subtidal habitats in coastal waters in the southwestern Gulf of Maine, in coastal and continental shelf waters in southern New England and the Mid-Atlantic region, and on Georges Banks. EFH includes depths of 80 m, including the high salinity zones of bays and estuaries, which includes Great South Bay and Barnegat Bay, and occurs on sand and gravel substrates, as well as mud substrates (NEFMC 2017).

3.1.5 Shark Species

3.1.5.1 Blue Shark *(Carcharhinus plumbeus)*

General: Blue shark have a wide range of occurrence and may be found in oceanic or nearshore Atlantic waters from Newfoundland to the Falkland Islands. They often occur in aggregations typically offshore, though they may move inshore at night. Blue sharks often remain near the surface they may occur to depths of 152 m (Compagno 1984). They prefer cool water between 7°C and 16°C, but can tolerate temperatures above 21°C. The Project area contains designated EFH for neonate/YOY, juvenile, and adult life-stages (Table 2).

Neonate/YOY: Blue sharks become reproductively mature at 6 or 7 years of age (Cailliet et al. 1983). In the Atlantic, gestation lasts for approximately 12 months and blue shark produce litters of 28 to 54 pups (Bigelow and Schroeder 1948). The length of the reproductive cycle is believed to be annual and nursery areas appear to be in open oceanic waters of higher latitudes. Neonate/YOY sizes for blue shark are less than or equal to 76 cm FL (NMFS 2017). EFH for blue shark neonate/YOY life stages in the Atlantic include areas offshore of Cape Cod through New Jersey, seaward of the 30 m bathymetric line, excluding inshore waters such as Long Island Sound (NMFS 2017). EFH follows the continental shelf south of Georges Bank to the outer extent of the U.S. EEZ in the Gulf of Maine.

Juveniles/ Adults: Male blue shark become mature once they reach 183 cm FL and females mature at 213 to 243 cm TL (Bigelow and Schroeder 1948). Nursery areas are typically closed bays or sheltered coastal areas that provide protection from predators. Blue sharks are opportunistic predators that feed on squids, octopi, lobsters, crabs, small sharks, and various fishes such as haddock (*Melanogrammus aeglefinus*), pollock (*Pollachius* sp.), flounder (*Pleuronectoidei* sp.), mackerel, herring, sea raven (*Hemitripteridae* sp.), silver hake, white hake (*Urophycis tenuis*), red hake (*Urophycis chuss*), butterfish (*Stromateidae* sp.), and cod. The younger sharks are frequently eaten by larger shark species, such as great white (*Carcharodon carcharias*) and tiger sharks (*Galeocerdo cuvier*)(Vandeperre et al. 2014).The EFH designations are the same for juvenile and adult blue shark life-stages. EFH for blue shark juvenile/adult life stages includes localized areas in the Atlantic Ocean in the Gulf of Maine, from Georges Bank to North and South Carolina, Georgia, and Florida (NMFS 2017).

3.1.5.2 Sandbar Shark *(Carcharhinus plumbeus)*

General: The sandbar shark is a common species found in coastal habitats and subtropical and warm temperature waters (NMFS 2009). The North Atlantic population ranges from Cape Cod to the western Gulf of Mexico (NMFS 2009). This bottom-dwelling species is common in 20 to 55 m of water and only found occasionally at depths of approximately 200 m (NMFS 2009). The Project area contains designated EFH for all life-stages (Table 2).

Neonate: The neonate and YOY for sandbar shark are less than 78 cm in TL (NMFS 2009). Designated EFH is identified in localized coastal areas on the Florida panhandle, as well as localized areas along the Georgia and South Carolina coastlines and from Cape Lookout to Long Island, New York (NMFS 2009). Sandbar shark nursery areas are typically in shallow coastal waters for neonates and young-of-the-year life-stages. (Merson and Pratt, 2001, 2007). The juvenile diet consists of blue crabs, mantis shrimp and other crustaceans, and a variety of fish, such as menhaden, black sea bass, and flatfish (Medved and Marshal 1981).

Juvenile: Juvenile sandbar shark sizes are 79 to 190 cm TL and have designated EFH along localized areas of the Atlantic coast of Florida, South Carolina, and southern North Carolina, and from Cape Lookout to southern New England (NMFS 2009). Juveniles will remain in or near the nursery grounds until late fall, later forming schools and migrating to deeper waters (NMFS 2009). Juvenile sandbar sharks return to nursery grounds during warmer months and repeat this migratory pattern until they are approximately 7 to 10 years of age and begin a wider migration into the adult life-stage (HMSMD 2006). The diet of juvenile sandbar sharks consists of hakes, mackerels, monkfish, flatfish, squids, and crabs (Stillwell and Kohler 1993).

Adult: Adult sandbar shark sizes are greater than or equal to 191 cm TL (NFMS 2009 Adult sandbar sharks are found along the Atlantic coast from the shore to a depth of 280 m in southern Nantucket, Massachusetts, to the Florida Keys (NMFS 2009). EFH in the Atlantic Ocean includes coastal areas from southern New England to the Florida Keys, ranging from inland waters of Delaware Bay and the

mouth of Chesapeake Bay to the continental shelf break. Sandbar sharks migrate seasonally along the western Atlantic coast, moving north with warming water temperatures during the summer and south as temperatures begin to decrease during the fall (Collette and Klein-MacPhee 2002). Sandbar sharks are opportunistic bottom feeders that prey on bony fishes, smaller sharks, rays, cephalopods, gastropods, crabs and shrimps (Collette and Klein-MacPhee 2002, Bowman et al. 2000, Stillwell and Kohler 1993).

3.1.5.3 Shortfin mako *(surus oxyrinchus)*

General: Shortfin mako is a coastal and oceanic species with circumglobal distribution throughout all temperate and tropical seas. They occur along the North American coast from the Gulf of Maine south past Florida. The Project area contains designated EFH for all life-stages (Table 2).

Neonate: Cailliet and Mollet (1997) estimated that female mako sharks mature at 4 to 6 years, have a two-year reproductive cycle, and a gestation period lasting 12 months. Litter sizes range from 4 to 25 pups, with a size at birth of approximately 70 cm TL (Calliet and Mollet 1997). There is no information about where shortfin mako mating occurs.

Juvenile: Early juveniles are most likely to occur in the New York Bight during the spring, while later juveniles may be present year-round (Compagno 2002). NOAA Fisheries has designated EFH for early juvenile shortfin makos between the 25 m and 50 m isobaths between the Chesapeake Bay and Georges Bank, and between the 50 m and 2,000 m isobaths between Cape Lookout, North Carolina, and Georges Bank. EFH for late juveniles/subadults has been designated between the 25 m and 2,000 m isobaths between Onslow Bay, North Carolina and Cape Cod, Massachusetts, and offshore to the EEZ boundary (NOAA Fisheries 2013).

Adult: This species gives live-birth to litters of young, typically between winter and mid-summer (Compagno 2002). Adult shortfin mako are greater than 275 cm FL and feed on fast-moving fishes such as swordfish, tuna, and other sharks, as well as clupeids, needlefishes, crustaceans, and cephalopods (NMFS 2017, Castro 1983). EFH for adult shortfin mako is the same for neonate/juvenile life-stages.

3.1.5.4 Spiny Dogfish *(Squalus acanthias)*

General: The spiny dogfish is widely distributed throughout the world, with populations existing on the continental shelf of the northern and southern temperate zones, which includes the North Atlantic from Greenland to northeastern Florida, with concentrations from Nova Scotia to Cape Hatteras (Compagno 1984). The Project area contains designated EFH for juvenile and adult life-stages (Table 2).

Juvenile: Spiny dogfish are born offshore in fall or winter, ranging from approximately 20-33 cm TL (Soldat 1979, Nammack et al. 1985, Burgess 2002). Sexual maturity is reached at approximately 6 years of age for males and 12 years of age for females (Collette and Klein-MacPhee 2002, Nammack et al. 1985, Bigelow and Schroeder 1953). From 1963-2003, NEFSC bottom trawl surveys collected spiny dogfish juveniles at depths ranging from 11 to 500 m, in water approximately 3-17°C, with salinities ranging from 24 to 36 ppt (Stehlik 2007).

Adult: Adult spiny dogfish are found in deeper waters inshore (more commonly males and mature females) and offshore from the shallows to approximately 900 m deep, in water temperatures that range from 6°C to 8°C, and seldom over 15°C (Collette and Klein-MacPhee 2002, Jensen 1965). Spawning occurs offshore during the winter and pups are born via live birth after approximately 18-22 months of gestation (Bigelow and Schroeder 1953, Jensen 1965). Based on seasonal temperatures, spiny dogfish migrate up to 1,600 km along the east coast (Compagno 1984a, Jensen 1965).

3.1.5.5 Smooth Dogfish *(Mustelis canis)*

General: Smooth dogfish is a common coastal shark species found in the Atlantic Ocean from Massachusetts to northern Argentina. They are primarily demersal sharks that inhabit continental shelves and are typically found in inshore waters down to 200m depth (Compagno, 1984). Smooth dogfish is a migratory species that responds to changes in water temperature. They primarily congregate between southern North Carolina and the Chesapeake Bay in the winter. In the spring, smooth dogfish move along the coast when bottom water warms up to at least 6 to 7 °C. As temperatures get colder, smooth dogfish move offshore to their wintering areas (Compagno, 1984). Smooth dogfish can tolerate a range of temperatures from 6 to 27 °C. Their diet primarily consists of invertebrates and large crustaceans. The Project area contains designated EFH for all life-stages (Table 2).

Neonate, Juvenile, Adult: EFH for all life stages in Atlantic coastal areas ranges from Cape Cod Bay, Massachusetts to South Carolina, inclusive of inshore bays and estuaries (e.g., Pamlico Sound, Core Sound, Delaware Bay, Long Island Sound, Narragansett Bay, etc.). EFH also includes continental shelf habitats between southern New Jersey and Cape Hatteras, North Carolina.

4 Assessment of Impacts to EFH in the Project Area

Table 3 provides a summary of the impact assessment for this Project. In general, species with benthic life stages will experience direct impacts, while pelagic species with designated EFH will likely experience minor to no impacts as a result of the placement of artificial reef materials and maintenance of the artificial reef sites. However, artificial reefs provide benefits to both benthic and pelagic life stages as reefs add complex vertical habitat which species use for foraging and protection.

The types of potential impacts include turbidity plumes, noise, vessel traffic, conversion of habitat type, and local changes in bathymetry and hydrodynamics. Indirect impacts include the direct burial of benthic infaunal prey organisms for bottom feeding EFH species. As the Project area represents a very small percentage of foraging grounds within the Atlantic Ocean, Great South Bay and Long Island Sound and bottom-feeding fish and crustaceans will consume epifaunal organisms living on the reef the overall indirect impact of the placement of reef materials to EFH species will be minimal.

With the exception of the sandy substrate habitats being converted to hard-bottom habitat with vertical relief, the remaining substrates within the surrounding areas in the Atlantic Ocean, Great South Bay, and Long Island sound are anticipated to function the same as pre-existing conditions, and allow the continued use by designated EFH species.

Table 3: Summary of Potential Impacts on EFH

Project Activity	Potential Impacts	Benthic EFH Species Impacts				Pelagic EFH Species Impacts				Impact Analysis
		Eggs	Larvae	Juveniles	Adults	Eggs	Larvae	Juveniles	Adults	
Placement of Material at Reef Location	**Turbidity**	Short Term Direct localized Impact	Short Term Direct localized Impact	No impacts as species would move to adjacent areas	No impacts as species would move to adjacent areas	No Impact				**Direct Impacts:** The deployment of reef materials has the potential to cause short term direct impacts to benthic fish species due to the temporary increase in turbidity. Placement of material will last a couple of hours per deployment. In addition, artificial reef locations were sited in sand which quickly settles and does not stay suspended in the water column. Potential impacts due to suspended sediments for Matinecock is greater than at other reef locations due to the silty sands present at the site. However, this impact will be temporary and localized. **Indirect Impacts:** The deployment of reef materials has the potential to cause short term impacts to benthic community which are a food source to EFH species. Due to the increase in turbidity, non-mobile benthic species may temporarily be buried by settling sand.
	Noise	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	**Direct and Indirect Impacts:** During placement of reef materials, vessels or barges will be at the reef location which will result in temporary increase in noise. However, the level of noise will be similar to the recreational and commercial traffic that is currently present in these water bodies and at these sites; therefore, impacts from noise associated with placement of material and use of the reef are not anticipated.
	Vessel Traffic	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	**Direct and Indirect Impacts:** During placement of reef materials, vessels or barges will be at the reef location which will result in temporary increase in vessel traffic. Placement vessels/barges will be on site for a short period (i.e. hours) for each placement. In addition, it is anticipated that the number of recreational fishing vessels may also increase due to the maintenance of these reefs. However, the number of vessels will be similar to the recreational and commercial traffic that is currently present in these water bodies and at these sites; therefore, impacts from vessel traffic associated with placement of material and use of the reef are not anticipated.
	Conversion of Habitat Type	Long Term Direct Impact	Long Term Direct Impact	Long Term Direct Impact	Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	**Direct Impacts:** The placement of reef materials represents a long term direct impact to benthic species and life stages that use benthic sand habitats as well as pelagic species that utilize water column habitats. Those species and life stages that utilize sandy uniform substrates will experience a long term loss of habitat in the areas where reef materials are placed. The reef areas represent a small percentage of the available sandy habitat on the coastal shelf, barrier island bays and Long Island Sound. Those species and life stages that are structure oriented or utilize coarse habitats such as boulders or cobbles will experience a long term gain of habitat and benefit of the addition of complex vertical habitat. In addition to providing physical shelter for benthic species the reef materials will provide substrate for encrusting organisms that would otherwise be unable to colonize the sandy habitats. These encrusting organisms will in turn provide shelter and forage for life stages of benthic and structurally oriented species. The deployed materials will bury benthic non-mobile life stages that are present at the site during placement. Mortality to immobile species and life stages would be limited to the footprint of the deployed materials and represent a onetime occurrence. **Indirect Impacts:** Mortality to existing benthic species which are food sources to EFH species is expected within the footprint of the reef. However, the benthic community and habitats in the undeveloped areas of reef sites are similar to the surrounding area and represent an extremely small portion of the available

Project Activity	Potential Impacts	Benthic EFH Species Impacts				Pelagic EFH Species Impacts				Impact Analysis
		Eggs	Larvae	Juveniles	Adults	Eggs	Larvae	Juveniles	Adults	
										benthic habitat in the area. Therefore, any potential impacts associated with the deployment of materials are not expected to have an adverse impact.
Placement of Material at Reef Location	**Changes in Local Bathymetry and Hydrody-namics**	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	Minor Long Term Direct Impact	No Impact	No Impact	No Impact	No Impact	**Direct Impacts:** The reef materials will provide vertical relief in areas that previously consisted of generally uniform benthic sand habitat. This vertical relief may cause localized changes in current, scour, and sediment deposition. The vertical relief of the reef material will provide current breaks and shelter for structure oriented life-stages as well as localized areas of increased current or "rips" as the water flows around the reef structure. These current edges can provide foraging opportunities for pelagic predators. The reef materials are not of sufficient size to significantly alter or restrict currents in the area of reef sites. There will also be a modest decrease in depth in areas where materials are deployed. Each reef site is subject to a control depth that limits how high above the bottom reef materials can be placed (see Table 1). The control depths at the reef sites range from 0 to 60 ft above the existing bottom. The water column below the control depths have the potential to be occupied by reef materials. While there will be a modest change in depth in areas where materials are deployed, post deployment depths will still be in the same general range and unlikely to cause a reduction in EFH due to depth changes. This material will occupy portions of the water column that were previously vacant and lead to minor localized reduction in pelagic, water column habitat. The pelagic habitat above the reef sites is similar to surrounding areas and represents an extremely small portion of the available pelagic habitat.

5 Assessment Summary

This assessment concludes that the overall potential adverse impacts to EFH designated species and EFH in the Project area will be minimal. Long term impacts are associated with the permanent conversion of a limited area of sand habitat to complex hard substrate with vertical relief. The development of the artificial reef sites will provide a long term benefit to benthic and pelagic species, structure oriented species that are commercially and recreationally valuable, and establish an epibenthic community, providing a more diverse and complex community.

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Attachment F

NMFS and USFWS Threatened and Endangered Species Assessment and Consultation

NOAA'S National Marine Fisheries Service
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930

Attn: Mrs. Kimberly Damon-Randall

Re: Request for Informal Consultation for the NYSDEC's Artificial Reef Program Effects Determination for Federally Listed Species or Species Proposed for Listing

Dear Mrs. Damon-Randall,

We are carrying out the proposed project as described below. This letter is to request Endangered Species Act (ESA) concurrence from your office for the New York State Department of Environmental Conservation's (NYSDEC) Artificial Reef Program for artificial reef expansion and the addition and creation of new sites. We have made the determination that the proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered by NMFS under the ESA of 1973, as amended. Our supporting analysis is provided below.

Proposed Project

In 1993, the NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the study area. As the NYSDEC Artificial Reef Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to provide authority to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan. These reefs are located off the south shore of Long Island, Great Bay, and Long Island Sound (Figure 1).

The proposed action includes the assessment of previously permitted sites, the expansion of seven existing sites (Fire Island, Hempstead, McAllister Grounds/Fishing Line, Moriches, Rockaway, Shinnecock, and Smithtown Reefs) and the addition and creation of four new sites (Sixteen Fathoms, Huntington/Oyster Bay, Port Jefferson/Mount Sinai and Mattituck Reefs; see Table 1 and Figure 1). Artificial reefs are developed using the patch reef system. Patch reef development includes the placement of material in discrete locations or "targets" separated by undisturbed benthic habitat. This method results in a smaller disruption of the site's benthic footprint thereby reducing impacts to the benthic community. NYSDEC will acquire the required State and Federal permits prior to placing material on reef locations (Table 2). This action is required for future reef permit acquisition to maintain, expand and develop existing site footprints and create new sites. Reef site locations are, and may be, in the Atlantic Ocean, Great South Bay, and Long Island Sound. All reef sites are strategically located near or accessible to Long Island harbors and embayments through local inlets. The Program will seek future permits of ten-year duration which would continue the Program into the late 2020s.

Table 1. Reef Locations, Status, and Modifications

Reef	Location-Category	Previously Analyzed or Permitted Acreage	Development Status (%)	Proposed Modification	Location Latitude/ Longitude
Atlantic Ocean-Inshore					
Rockaway	Atlantic Ocean - Inshore	413	80%	Expand to 635 Acres	40°32.453'N / 073°50.558'W
McAllister Grounds	Atlantic Ocean - Inshore	115	75%	Expand to 425 Acres	40°32.207'N/ 073°39.441'W
Fire Island	Atlantic Ocean - Inshore	744	70%	Expand to 850 Acres	40°35.863'N / 073°12.423'W
Moriches	Atlantic Ocean - Inshore	14	90%	Expand to 850 Acres	40°43.476'N / 072°46.479'W
Shinnecock	Atlantic Ocean - Inshore	35	85%	Expand to 850 Acres	40°48.135'N / 072°28.483'W
Atlantic Ocean-Offshore					
Atlantic Beach	Atlantic Ocean - Offshore	413	87%	None	40°31.792'N / 073°43.018'W
Hempstead	Atlantic Ocean - Offshore	744	60%	Expand to 850 Acres	40°31.107'N / 073°32.393'W
Sixteen Fathom	Atlantic Ocean - Offshore	850	Undeveloped	New Site	40°25.927'N/ 073°21.603'W
Twelve Mile	Atlantic Ocean - Offshore	850	5%	None	40°36.778'N / 072°31.538'W
Great South Bay					
Yellowbar	Great South Bay	7	60%	None	40°37.974'N / 073°14.503'W
Kismet	Great South Bay	10	85%	None	40°38.198'N / 073°12.702'W
Long Island Sound					
Matinecock	Long Island Sound	41	10%	None	40°54.586'N / 073°37.469'W

Huntington / Oyster Bay	Long Island Sound	50	Undeveloped	New Site	TBD
Smithtown	Long Island Sound	3	80%	Expand to 31 Acres	40°55.967'N / 073°11.100'W
Port Jefferson / Mount Sinai	Long Island Sound	50	Undeveloped	New Site	TBD
Mattituck	Long Island Sound	50	Undeveloped	New Site	TBD

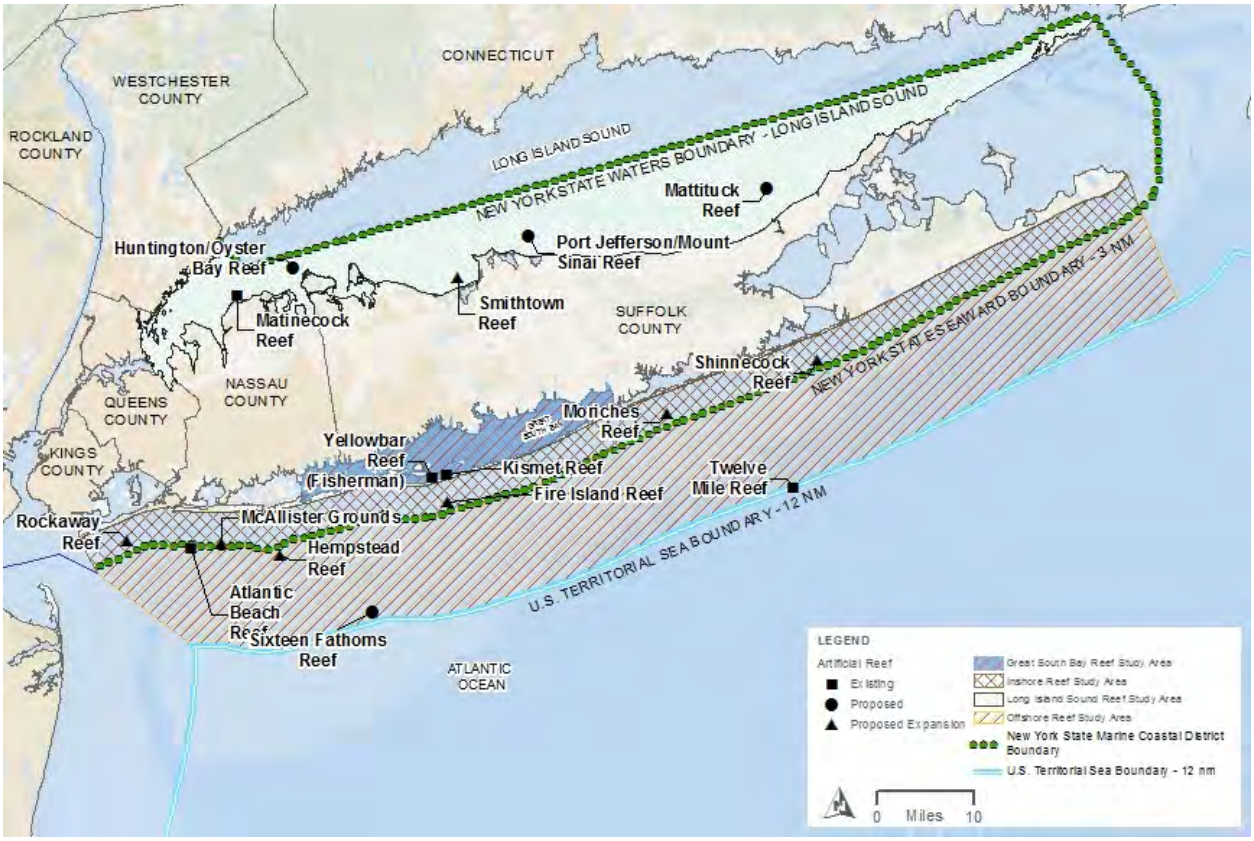

Figure 1. Reef Locations, Modifications, and Study Area

Project Purpose and Need

The needs for the artificial reef program are to provide complex hard bottom habitat to enhance fisheries and benthic communities, provide enhanced recreational fishing and diving opportunities; and offer an associated socio-economic benefit to local coastal communities. The purpose of the artificial reef program in New York is to fulfil its obligation under the National Fishing Enhancement Act in accordance with the standards of the National Artificial Reef Plan. The proposed action seeks to continue the use of, expand, and enhance the existing network of artificial reefs in the Atlantic Ocean, Great South Bay, and Long Island Sound coastal areas by providing a hard substrate that benefit fish, shellfish and crustaceans; and provide additional fishing grounds for anglers, and underwater structures attractive to scuba divers. Specifically, the purpose of the project is to:

- enhance or restore fishery resources and associated habitat, to the maximum extent practicable, utilizing artificial habitat;
- administer and manage artificial habitat to ensure its prudent use as part of an overall fisheries management program; and
- provide fishing and diving opportunities for reef-associated fishery resources by selective placement of artificial habitat in State and adjacent Federal waters.

All of these uses ultimately share the common purpose of enhancing or increasing the marine habitat available for associated fishes and other organisms. Planned manmade reefs can provide local economic benefits because fish and benthic organisms utilize the structure provided at known locations and are often popular attractions for commercial and recreational fishermen, and divers.

Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50CFR§402.02). For this project, the action area includes the existing artificial reef sites, expansion of sites, and development of new sites within the Atlantic Ocean, Great South Bay, and Long Island Sound, as well as vessel transit route to and from each of the artificial reef sites (Figure 1). Approximately 1,620 acres of artificial reefs have been developed of the 3,389 acres permitted as per the 1993 GEIS and subsequent state and federal permits. The proposed Project would add an additional 3,423 acres to the total area permitted through the expansion and addition of reef sites, bringing the total Project area to 6,812 acres. This area is expected to encompass all of the effects of the proposed project.

Table 2. Federally Threatened and Endangered Species Potentially Present within the Project Reef Sites

Common Name	Species Name	Federal Protection Status	State Protection Status
Blue whale	*Balaenoptera musculus*	Endangered	Endangered
Fin whale	*Balaenoptera physalus*	Endangered	Endangered
Humpback whale	*Megaptera novaeangliae*	Endangered	Endangered
North Atlantic right whale	*Eubalaena glacialis*	Endangered	Endangered
Sei whale	*Balaenoptera borealis*	Endangered	Endangered
Sperm whale	*Physeter macrocephalus*	Endangered	Endangered
Green sea turtle	*Chelonia mydas*	Threatened	Threatened
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	Endangered

Kemp's or Atlantic Ridley	*Lepidochelys kempii*	Endangered	Endangered
Leatherback	*Dermochelys coriacea*	Endangered	Endangered
Loggerhead	*Caretta caretta*	Threatened	Threatened
Atlantic sturgeon	*Acipenser oxyrhynchus oxyrhynchus*	Endangered	Endangered

Effects Determination

Marine Mammals
Of the six listed marine mammals, only three would likely occur in the waters offshore of Long Island and within Long Island Sound. These include the North Atlantic right whale (*Eubalaena glacialis*), the humpback whale (*Megaptera novaeangliae*), and the fin whale (*Balaenoptera physalus*). Blue whale (*Balaenoptera musculus*), sei whale (*Balaenoptera borealis*), and sperm whale (*Physeter macrocephalus*) are found in deeper waters offshore over the outer continental shelf and shelf break (Greene et al. 2010 Waring et al. 1999, 2011, 2013). The three species that are likely to occur in the Project area are seasonally present, using the nearshore, coastal waters of the Atlantic Ocean as they migrate to and from calving and foraging grounds. Humpback and fin whales occur in the waters of New York during the spring, summer, and fall months, while the North Atlantic right whale occurs primarily from November 1 through April 30.

Sea Turtles
The Hawksbill sea turtle has only historically been confirmed in the waters surrounding Long Island and is not expected to occur within the artificial reef sites. Green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and loggerhead sea turtle (*Caretta caretta*) are highly migratory and typically use the New York Bight as a migratory path between feeding grounds and nesting sites (NYSDOS 2013). As temperatures rise in the spring, these turtles begin to migrate northward. As temperatures decline rapidly in the fall, turtles in northern waters begin their southward migration. Sea turtles are expected to be found in New York waters when temperatures reach approximately 15ºC, typically during the months of May through November. The highest concentration of sea turtles is June through October (Morreale and Standora 1990; Morreale and Standora 2005; Shoop and Kenney 1992; Ruben and Morreale 1999).

Several studies have identified the seasonal distribution of sea turtles in New York waters. Sea turtles begin to arrive in New York waters in June (Morreale and Standora 1993; Morreale and Burke 1997). Juvenile Kemp's ridley sea turtles that were tagged and tracked made their way south from New York coastal waters by the first week in November (Standora *et al.* 1992). Loggerhead and Kemp's ridley sea turtles begin leaving New York waters in October and generally by the first week of November, heading southward past the Virginia border (Morreale and Standora 2005). These sea turtle species also have the potential to occur within the Long Island Sound. Sea turtles typically utilize the eastern portion of Long Island Sound as a foraging ground during annual migrations between feeding grounds and nesting sites (NYSDOS 2013).

Only mature egg-laying female will crawl onto land, once hatched sea turtles spend their entire life in the ocean (NYSDEC 2005). There are no known nesting locations along Long Island Sound or Long Island shorelines (NYSDEC 2005).

Atlantic Sturgeon
There are five distinct population segments (DPS) of Atlantic sturgeon listed as threatened or endangered. Atlantic sturgeon from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs are listed as endangered and the Gulf of Main DPS is listed as threatened. All five DPSs have a marine range extending along the Atlantic coast from Canada to Cape Canaveral, Florida. Atlantic sturgeon generally spawn in April through May in the Mid-Atlantic and at around three years of age, subadults exceeding 70 centimeters in total length begin to migrate to marine waters (Bain et al. 2000). After moving from their natal river/estuary, subadults and adults travel in marine waters typically less than 50 meters in depth, using coastal bays, sounds, and ocean waters (ASSRT 2007).

Dunton et al. (2015) completed a study of Atlantic sturgeon aggregations and migrations routes along the coast of Long Island to determine the temporal and spatial use of marine habitat. Aggregation periods and areas were documented in this study. Catches were an order of magnitude higher in May, June, September, and October in known aggregation areas, as opposed to other areas and times of the year. The highest average weighted catch per unit effort (CPUE) was during the month of May, followed by October, November, September, and June (Dunton et al. 2015). The CPUE was highest along western Long Island (Dunton et al. 2015). No Atlantic sturgeon were captured at depths of 20-30 m. If Atlantic sturgeon were present, it would likely be in the spring months of April to June and the fall months of September to November.

The Atlantic sturgeon is a federally-endangered fish that has the potential to occur within the waters offshore of Long Island and within Long Island Sound. Atlantic sturgeon of all sizes are seen and captured in Long Island Sound and the Sound may be an important feeding or resting area on the way to and from spawning grounds (CTDEEP 1999). However, the Atlantic sturgeon stock in the Connecticut River is thought to be extirpated and any sturgeon found in the deep-water areas in the estuarine portion of the Connecticut River are likely Hudson River progeny (Savoy and Pacileo 2003).

Effects of the Action
Potential effects of the proposed action fall into two categories:

- effects from installation of artificial reef materials; and
- effects of increases in vessel traffic.

The effects of artificial reef material placement has the following associated potential impacts: direct contact, habitat modification, and water quality. Potential impacts as a result of the proposed action are discussed further below.

Effects from Deployment of Artificial Reef Material During Deployment
Direct Impact from Artificial Reef Material During Deployment
The deployment of artificial reef materials has the potential to directly affect listed species by making direct impact. However, the risk of artificial reef material making direct contact with a listed species is highly unlikely due to the species' mobility and ability to sense activity in the

water column and the limited duration of actual reef material deployment events. Further, their presence would likely be transient in nature. Therefore, no impacts to listed species are anticipated as a result of direct impact from artificial reef material deployment.

Habitat Modifications
The artificial reef sites are not a prime foraging or migratory area for listed species. If listed species were present, they may be temporarily disturbed while directly utilizing the reefs for foraging or shelter. However, artificial reef material deployments may occur year-round, with the time of deployment short in duration and only occurring during daylight hours. Further, the presence of listed species would likely be transient in nature and expected to return to the area after cessation of activities. Therefore, no impacts to marine mammals, turtles, or Atlantic sturgeon are anticipated as a result of habitat modifications.

Benthic organisms may be affected by the placement of artificial reef materials on the seafloor through burial. Listed species may opportunistically forage in the area, however, the artificial reef sites are not a prime area for foraging, and constitute a small fraction (6,812 acres) of the available habitat off the New York coast. Additionally, maintenance of the artificial reef sites would create enhanced habitat and foraging prey items for some species, such as colonizing mollusks and crustaceans for loggerhead sea turtles to feed on. Therefore, impacts on foraging behavior of marine mammals, sturgeon, and sea turtles is not significant.

Water Quality
During placement of artificial reef materials, water quality could be affected by causing a temporary increase in the amount of turbidity in the action area. However, any suspended sediments are anticipated to settle quickly out of the water column due to the predominately sandy sediments within the action area. Any increases in turbidity would be short in duration. There have been no studies on the effects of temporary suspended solids on Atlantic sturgeon, however, Atlantic sturgeon juveniles and adults are often documented in turbid waters (Dadswell 1984). There is limited information on the effects of increased turbidity on sea turtles and marine mammals. Further, sea turtles and marine mammals breathe air and do not experience the same potential respiratory effects of high turbidity as fish. Atlantic sturgeon, sea turtles, and whales are highly mobile and would avoid any sediment plumes. Therefore, no significant impacts on listed species due to changes in water quality would occur.

Vessel Traffic
Atlantic sturgeon, sea turtles, and whales experience direct mortality as a result of being struck by boat hulls or propellers. The risk factors involved with direct impacts to listed species may depend on the size and speed of the vessels, depth of the water and draft of the vessel in the area where the vessel is operating, and the behavior of the individuals in the area, such as foraging or migrating.

The proposed action involves vessels transporting materials for deployment at the artificial reef sites. Most vessel strikes are thought to occur from fast-moving vessels. The proposed action will only involve the addition of slow moving vessels within the action area for a relatively brief period of time needed to transit to the site (farthest artificial reef site is 12.0 nautical miles from

Moriches and Shinnecock inlets). Based on the above, the effects of vessel traffic on sturgeon, sea turtles, and marine mammals will not be significant.

Artificial Reef Maintenance

The effects of the future maintenance of the reef sites will be the same as those of the initial placement of reef building materials. Therefore, any effects from reef maintenance would not be significant.

Conclusions

Based on the analysis that all effects of the proposed action will not be significant, we have determined that the proposed action is not likely to adversely affect any listed species or critical habitat under NMFS' jurisdiction. We certify that we have used the best scientific and commercial data available to complete this analysis. We request your concurrence with this determination.

Sincerely,

Christopher LaPorta
NYSDEC Artificial Reef Program Coordinator

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Long Island Field Office
340 Smith Road
Shirley, NY 11967

SUBJECT: Request for Informal Consultation with United States Fish and Wildlife Service and Effects Determination for Federally Listed Species or Species Proposed for Listing

To Whom It May Concern,

On behalf of the New York State Department of Environmental Conservation (NYSDEC), HDR Inc., requests an informal consultation with the United States Fish and Wildlife Service (USFWS) Long Island Field Office regarding the potential for the NYSDEC's Artificial Reef Program activities to affect the federally threatened or endangered species listed in Table 1 below. In 1993, the NYSDEC completed a Generic Environmental Impact Statement (GEIS)/Reef Plan which allowed for the issuance of a permit for the development of artificial reefs at specific locations within the study area. As the NYSDEC Artificial Reef Program developed, additional NYSDEC and United States Army Corps of Engineers (USACE) permits were obtained to provide authority to place material to meet specific goals of the Program outlined in the GEIS/Reef Plan. In April 2018, Governor Andrew Cuomo announced the largest expansion of the artificial reef program in state history. The development of the artificial reef program bolstered the 12 existing artificial reefs off the shore of Long Island. Materials for the reef enhancement were strategically placed to improve New York's diverse marine life and boost Long Island's recreational sport fishing and diving industries.

In addition to the enhancement of reef sites under the Governor's Artificial Reef Initiative, seven of the existing artificial reefs are proposed to be expanded and four new reefs sites are put forward for consideration including one in the Atlantic Ocean and three in Long Island Sound. New artificial reef locations were sited based on criteria developed for the NYSDEC Artificial Reef Program and lessons learned in artificial reef development since the GEIS was developed. Criteria were developed to meet the Artificial Reef Program Purpose and Need and to provide benefit to local users. As a Type I Action under New York State Environmental Quality Review Act (SEQRA), a full Environmental Assessment Form (FEAF) was prepared for the proposed action. It was determined based on the information developed to prepare the FEAF that there may be significant adverse impacts associated with the proposed action, and that a Supplemental Generic Environmental Impact Statement (SGEIS) is needed to assess potential impacts.

Under Section 7 of the Endangered Species Act (ESA), the NYSDEC as the State Sponsor is required to consult with the USFWS to determine whether any federally listed species or species proposed for listing as endangered or threatened, or their designated critical habitats, occur in the vicinity of the proposed project. Table 1 presents the federally and threatened species with the potential to occur within the proposed project reef sites using data from the U.S. Fish and Wildlife's Information, Planning, and Consultation System on March 19, 2019 and review of the NYSDEC's New York Nature Explorer mapper for the Atlantic Ocean and Long Island Sound on March 21, 2019. A discussion of the potential impacts is presented below for flowering plants and birds.

Table 1. Federally Threatened and Endangered Species Potentially Present within the Project Reef Sites

Common Name	Species Name	Federal Protection Status	Year Last Documented (where applicable)	Distribution Status
Flowering Plants				
Sandplain Gerardia	*Agalinis acuta*	Endangered	1899	Historically confirmed[a]
Seabeach Amaranth	*Amaranthus pumilus*	Threatened	2004	Recently confirmed[a]
Birds				
Piping plover	*Charadrius melodus*	Endangered/ Threatened	2013	Recently confirmed
Red knot	*Calidris canutus rufa*	Threatened	N/A	N/A
Roseate tern	*Sterna dougallii dougallii*	Endangered	2015	Recently confirmed

[a] Historically/recently confirmed within the terrestrial areas in Nassau and Suffolk county

Flowering Plants

Project construction activities will take place within waters of the Atlantic Ocean, Great South Bay, and Long Island Sound. No impacts to threatened and endangered flowering plant species would occur as a result of the project.

Birds

Project construction activities will take place within waters of the Atlantic Ocean, Great South Bay, and Long Island Sound. Bird species are anticipated to avoid the area during construction due to distance from onshore areas, noise, and presence of construction equipment. Materials are often deployed from barges based on the reef design, material type for artificial reef enhancement, and available equipment. Construction equipment includes, and is not limited to, bulldozers, hopper barges, or cranes.

We appreciate your quick response to this request. Please do not hesitate to contact me at should you have any questions or require additional information.

Sincerely,

Jaclyn Chapman
Environmental Scientist

Attachment G

NYSDEC Aerial Boat Surveys

Atlantic Ocean Inshore Reefs 2016 through 2019 Vessel Counts

Atlantic Ocean Inshore Reef	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Rockaway	6	1	15	16	7	4	12	5	2
McAllister Grounds	3	2	37	17	27	15	5	5	1
Fire Island	4	3	28	6	12	11	10	6	4
Moriches	0	0	1	4	0	2	2	5	0
Shinnecock	1	0	2	15	8	19	14	15	3

Atlantic Ocean Inshore Reef	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Rockaway	0	5	6	25	5	49	8	47	58
McAllister Grounds	5	2	3	19	1	27	5	22	31
Fire Island	5	6	2	45	0	12	8	31	57
Moriches	0	2	0	11	0	12	0	12	11
Shinnecock	1	0	5	29	0	27	39	62	16

Atlantic Ocean Inshore Reef	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Rockaway	7	17	X	31	8	334
McAllister Grounds	2	1	8	12	9	259
Fire Island	13	20	8	63	2	356
Moriches	1	18	2	9	7	99
Shinnecock	37	7	5	4	4	313

Atlantic Ocean Offshore Reefs 2016 through 2019 Vessel Counts

Atlantic Ocean Offshore Reef	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Atlantic Beach	4	4	9	15	47	14	5	5	1
Hempstead	1	2	8	20	6	12	4	8	3

Atlantic Ocean Offshore Reef	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Atlantic Beach	0	2	4	46	0	39	7	40	65
Hempstead	4	2	5	36	2	17	3	75	71

Atlantic Ocean Offshore Reef	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Atlantic Beach	6	18	X	42	18	391
Hempstead	20	10	8	14	8	339

Great South Bay Reefs 2016 through 2019 Vessel Counts

Great South Bay Reefs	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Yellowbar	2	1	4	4	4	13	5	10	4
Kismet	5	5	4	2	5	7	5	2	2

Great South Bay Reefs	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Yellowbar	1	1	0	3	2	2	8	1	1
Kismet	2	1	0	0	2	16	16	1	1

Great South Bay Reefs	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Yellowbar	0	2	2	3	1	74
Kismet	1	3	4	4	8	96

Long Island Sound Reefs 2016 through 2019 Vessel Counts

Long Island Sound Reefs	19-May-16	4-Jun-16	19-Jun-16	15-Jul-16	22-Jul-16	4-Aug-16	16-Sep-16	17-Sep-16	1-Jun-17
Matinecock	0	3	7	3	3	1	3	3	1
Smithtown	3	1	0	1	2	2	2	2	1

Long Island Sound Reefs	15-Jun-17	19-Jul-17	17-Aug-17	20-Aug-17	3-Oct-17	21-Oct-17	29-Jun-18	24-Aug-18	25-Aug-18
Matinecock	2	2	0	4	3	5	5	5	8
Smithtown	2	2	2	3	1	7	1	3	4

Long Island Sound Reefs	20-Aug-19	24-Aug-19	27-Sep-19	25-Oct-19	3-Nov-19	Total
Matinecock	1	2	3	5	5	74
Smithtown	1	1	0	7	1	49

Aerial Reef Survey Vessel Count Summaries by Year and Site Location.

Year	Number of Surveys	Inshore Sites	Offshore Sites	Long Island Sound Sites	Great South Bay Sites	Totals
2016	8	345	164	36	78	623
2017	7	314	161	35	36	546
2018	3	407	261	26	28	722
2019	5	295	144	26	28	493
Totals	23	1,361	730	123	170	2,384

Attachment H

Agency Consultation

New York State Division of Historic Preservation
New York State Office of Parks, Recreation & Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, New York 12188-0189

Re: New York State Department of Environmental Conservation
Historic Resources and Archaeological Request
Artificial Reef Program

To Whom This May Concern,

The New York State Department of Environmental Conservation (NYSDEC) is preparing a Supplemental Generic Environmental Impact Statement (SGEIS) to identify any significant issues associated with the Proposed Action under the NYSDEC's Artificial Reef Management Program. In April 2018, Governor Andrew Cuomo announced the largest expansion of the artificial reef program in state history. The enhancement of the artificial reef program bolstered the 12 existing artificial reefs off the shore of Long Island. Materials for the reef enhancement were strategically placed to improve New York's diverse marine life and boost Long Island's recreational sport fishing and diving industries.

In addition to the enhancement of reef sites under the Governor's Artificial Reef Initiative, seven of the existing artificial reefs are proposed to be expanded and four new reefs sites are put forward for consideration including one in the Atlantic Ocean and three in Long Island Sound. New artificial reef locations were sited based on criteria developed for the NYSDEC Artificial Reef Program and lessons learned in artificial reef development since the GEIS was developed.

NYSDEC is requesting New York State Office of Parks, Recreation & Historic Resources (OPRHP) review of the NYSDEC's Artificial Reef Program for the reef sites pursuant to SEQR and Section 106 of the National Historic Preservation Act (Table 1, Figure 1). According to the 1993 GEIS/Reef Plan, an unknown number of shipwrecks exist in the area covered by the Plan. The historical or cultural value of most these wrecks is undetermined. More information about the project, a review of available historic and cultural data sources, and potential shipwrecks within the vicinity of these reef sites is provided below.

Project Description

The NYSDEC's Artificial Reef Program (Program) maintains a series of reef sites in the waters of New York's Marine and Coastal District (MCD). Program goals are to administer and manage artificial reef habitat as part of a fisheries management program, provide fishing and diving opportunities, and enhance or restore fishery resources and associated habitat through the selective placement of artificial reef habitat (i.e. natural rock, concrete and steel) in the MCD under Programmatic guidelines.

Materials (i.e. natural stone and concrete) are transported to the reef site either by barge or towed out by vessel (i.e. steel barges or vessels) under Program supervision. The materials are deployed on pre-designated site targets to produce a patch reef configuration. This

configuration increases the enhancement of the local natural habitat by introducing profiled hard structure for colonization and reef development while maintaining areas of natural bottom habitat between patch reef structures. The different structures attract a variety of marine life including recreationally important finfish and crustaceans (i.e. lobster) species sought by anglers and divers.

Table 1. Reef Sites and Development under the NYSDEC Artificial Reef Program

Reef	Category	Acreage	Development Status (%)	Proposed Modification
McAllister Grounds	Atlantic Ocean - Inshore	115	75%	Expand to 425 Acres
Moriches	Atlantic Ocean - Inshore	14	90%	Expand to 850 Acres
Shinnecock	Atlantic Ocean - Inshore	35	85%	Expand to 850 Acres
Rockaway	Atlantic Ocean - Inshore	413	80%	Expand to 635 Acres
Fire Island	Atlantic Ocean - Inshore	744	70%	Expand to 850 Acres
Sixteen Fathom	Atlantic Ocean - Offshore	850	Undeveloped	New Site
Twelve Mile	Atlantic Ocean - Offshore	850	5%	None
Atlantic Beach	Atlantic Ocean - Offshore	413	87%	None
Hempstead	Atlantic Ocean - Offshore	744	60%	Expand to 850 Acres
Kismet	Great South Bay	10	85%	None
Yellowbar	Great South Bay	7	60%	None
Matinecock	Long Island Sound	41	10%	None
Smithtown	Long Island Sound	3	80%	Expand to 31 Acres
Huntington / Oyster Bay	Long Island Sound	50	Undeveloped	New Site
Port Jefferson / Mount Sinai	Long Island Sound	50	Undeveloped	New Site
Mattituck	Long Island Sound	50	Undeveloped	New Site

Atlantic Offshore Reefs

The Bureau of Ocean Energy Management conducted a study within the Atlantic Outer Continental Shelf (OCS) to better manage known and potential cultural resources. Information was gathered from historic shipwrecks, past landscapes, human settlement patterns, and site formation and preservation conditions. This information was then used to determine the sensitivity category (no, low, or high sensitivity) for the various Atlantic OCS regions. The report indicates that the Atlantic Beach reef area has a high archaeological sensitivity potential, representing areas exposed during the Paleoindian and later periods, from -70 meters to more

shallow areas (BOEM 2012). Specific landforms will have potential for intact sites in these areas of high sensitivity. Despite the high sensitivity, the seafloor has not been studied and mapped in sufficient detail to locate all specific landforms and it is not possible to precisely delineate potential site settings within the area of high preservation potential.

Data for potential shipwrecks were gathered from the NOAA Office of Coast Survey Wrecks and Obstruction Database. The tugboat Fran S sank in the Jones Inlet in the 1970, was salvaged and towed to the Atlantic Beach Reef and purposefully re-sunk two years later (NYSDEC 1993). There are two unknown obstructions in the vicinity of this reef (NOAA 2019). The Andy Pierce shipwreck is located close to Hempstead Reef, as well as several other unknown obstructions (NOAA 2019).

Atlantic Inshore Reefs

BOEM conducted a study within the Atlantic Outer Continental Shelf (OCS) to better manage known and potential cultural resources. Information was gathered from historic shipwrecks, past landscapes, human settlement patterns, and site formation and preservation conditions. This information was then used to determine the sensitivity category (no, low, or high sensitivity) for the various Atlantic OCS regions. The report indicates that the inshore reef study area has a high archaeological sensitivity potential, representing areas exposed during the Paleoindian and later periods, from -70 meters to more shallow areas (BOEM 2012). Specific landforms will have potential for intact sites in these areas of high sensitivity. Despite the high sensitivity, the seafloor has not been studied and mapped in sufficient detail to locate all specific landforms and it is not possible to precisely delineate potential site settings within the area of high preservation potential.

Data for potential shipwrecks were gathered from the NOAA Office of Coast Survey Wrecks and Obstruction Database. One wreck, from the vessel Mistletoe, is close in proximity to the Rockaway Reef, as well as several undefined obstructions. An undefined obstruction is located in proximity to McAllister Grounds (NOAA 2019). There are two shipwrecks near Moriches, and the Zeeliner shipwreck is near Fire Island reef. There is one undefined obstruction near Shinnecock Reef.

Great South Bay Reefs

According to the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) Cultural Resources Information System (CRIS), no historic or archeological sites are present within the Kismet and Yellowbar reef sites (New York State Office of Parks, Recreation, and Historic Preservation, 2019).

Long Island Sound Reefs

According to the New York State OPRHP CRIS, no historic or archeological sites are present within the Long Island Sound reef sites (New York State Office of Parks, Recreation, and Historic Preservation, 2019). Shipwreck data were readily available through NOAA's Office of Coast Survey Wrecks and Obstructions Database (NOAA 2019). In the U.S. Army Corps of Engineers Dredged Material Management Plan (2010), a likely paleoshoreline of Long Island

Sound at 11000 Before Present (B.P.) and 9000 B.P. is depicted. The waters of Huntington and Oyster Bay are assessed as having high archaeological sensitivity (U.S. Army Corps of Engineers, 2010). Additional data on historic shipwrecks and Paleoindian cultural resources located in or near the Matinecock reef site is not readily available.

Request for Information

NYSDEC is specifically requesting OPRHP concurrence that there would be no impact on historic or cultural resources. In order to maintain our project schedule, we kindly request a response in no more than 30 days.

Feel free to contact me at (631) 444-0438 or via email at christopher.laporta@dec.ny.gov should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

Christopher LaPorta
NYSDEC Artificial Reef Coordinator

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January 8, 2020

Daniel Rosenblatt
New York State Department of Environmental Conservation
NY Natural Heritage Program
50 Circle Road
SUNY @ Stony Brook
Stony Brook, NY 11790-3409
NaturalHeritage@dec.ny.gov

Dear Daniel Rosenblatt:

On behalf of the New York State Department of Environmental Conservation (NYSDEC), HDR, Inc. is requesting a search of the Natural Heritage Database records for rare or endangered species and natural communities on or near the proposed project located off the south shore of Long Island, Great Bay, and Long Island Sound in Nassau, Suffolk, Kings, and Queens Counties, New York. Further, any information regarding potential impacts to listed species or any other permit considerations for this project is requested. A map depicting the project location is attached.

In April 2018, Governor Andrew Cuomo announced the largest expansion of the artificial reef program in state history. The enhancement of the artificial reef program bolstered the 12 existing artificial reefs off the shores of Long Island. Materials for the reef enhancement were strategically placed to improve New York's diverse marine life and boost Long Island's recreational sport fishing and diving industries.

In addition to the enhancement of reef sites under the Governor's Artificial Reef Initiative, seven of the existing artificial reefs are proposed to be expanded and four new reefs sites are put forward for consideration including one in the Atlantic Ocean and three in Long Island Sound. New artificial reef locations were sited based on criteria developed for the NYSDEC Artificial Reef Program and lessons learned in artificial reef development since the GEIS was developed. Criteria were developed to meet the Artificial Reef Program Purpose and Need and to provide benefit to local users. As a Type I Action under New York State Environmental Quality Review Act (SEQRA), a full Environmental Assessment Form (FEAF) was prepared for the proposed action. It was determined based on the information developed to prepare the FEAF that there may be significant adverse impacts associated with the proposed action, and that a Supplemental Generic Environmental Impact Statement (SGEIS) is in development to assess potential impacts.

In an effort to determine known environmental characteristics of the site, we request any records you may have on special status plant/animal species and habitat found within the site indicated on the attached map. If you have any questions about this request, please contact me at (201) 335-9333 or at Jaclyn.Chapman@hdrinc.com. Thank you.

Sincerely,

Jaclyn Chapman
Environmental Scientist

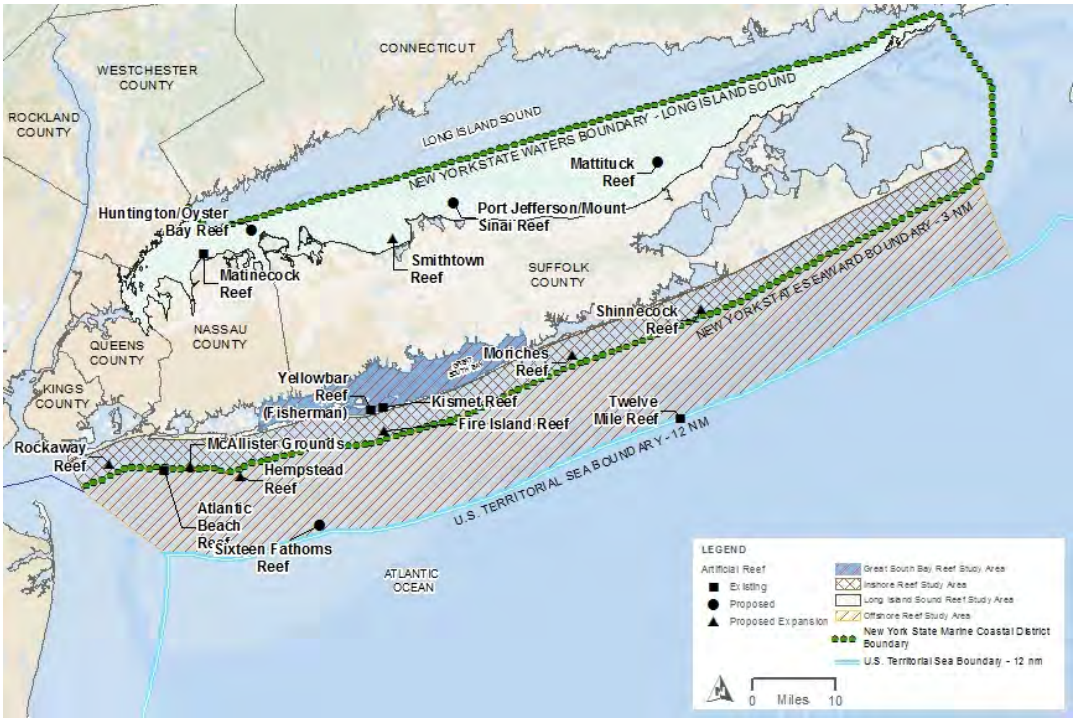

Figure 1. Reef Locations, Modifications, and Study Area

Table 2. Reef Locations

Reef	Category	Location Latitude / Longitude
McAllister Grounds	Atlantic Ocean - Inshore	40°32.207'N / 073°39.441'W
Moriches	Atlantic Ocean - Inshore	40°43.476'N / 072°46.479'W
Shinnecock	Atlantic Ocean - Inshore	40°48.135'N / 072°28.483'W
Rockaway	Atlantic Ocean - Inshore	40°32.453'N / 073°50.558'W
Fire Island	Atlantic Ocean - Inshore	40°35.863'N / 073°12.423'W
Sixteen Fathom	Atlantic Ocean - Offshore	40°25.927'N / 073°21.603'W
Twelve Mile	Atlantic Ocean - Offshore	40°36.778'N / 072°31.538'W
Atlantic Beach	Atlantic Ocean - Offshore	40°31.792'N / 073°43.018'W

Hempstead	Atlantic Ocean - Offshore	40°31.107'N / 073°32.393'W
Kismet	Great South Bay	40°38.198'N / 073°12.702'W
Yellowbar	Great South Bay	40°37.974'N / 073°14.503'W
Matinecock	Long Island Sound	40°54.586'N / 073°37.469'W
Smithtown	Long Island Sound	40°55.967'N / 073°11.100'W
Huntington / Oyster Bay	Long Island Sound	TBD
Port Jefferson / Mount Sinai	Long Island Sound	TBD
Mattituck	Long Island Sound	TBD

Attachment I

Public Notice

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

ENB - Statewide Notices 1/22/2020

Public Notice

Pursuant to Title 9, Article 54 of the Environmental Conservation Law, the New York State Office of Parks, Recreation and Historic Preservation (NS OPRHP) hereby gives public notice of the following:

Notice is hereby given, pursuant to Section 49-0305 (9) of the Environmental Conservation Law, that the State of New York acting by and through the NYS OPRHP intends to acquire a Conservation Easement from the following: Mohawk Hudson Land Conservancy, Inc. in Delmar, Albany County, New York; Baltimore Woods Nature Center, Inc. in Marcellus, Onondaga County, New York; Finger Lakes Land Trust, Inc. in Ithaca, Tompkins County New York; and Western New York Land Conservancy, Inc., East Aurora, Chautauqua County, New York.

For further information, contact: Beatrice L. Gamache, NYS OPRHP, 625 Broadway, Albany, NY 12238, Phone:
(518) 473-3321, Fax: (518) 486-7377.

Notice of Acceptance of Draft SEIS and Public Hearing

Statewide - The New York State Department of Environmental Conservation (NYS DEC), as lead agency, has accepted a Draft Environmental Impact Statement on the proposed NYS DEC Artificial Reef Program . **Public hearings on the Draft SEIS will be held on February 6, 2020 at 6:00 p.m. at the Freeport Public Library, 144 West Merrick Road, Freeport, NY 11520 and on February 10, 2020 at 6:00 p.m. at the NYS DEC Marine Resources Office, 205 North Belle Mead Road, East Setauket, NY 11733.** Public comments on the Draft SEIS will be accepted through February 21, 2020 by either direct mailing to the contact listed below or by e-mail at: artificialreefs@dec.ny.gov (enter "Draft Reef SEIS" in the subject line). The Draft EIS is available from the contact listed below and on line at: http://www.dec.ny.gov/outdoor/7896.html.

The action involves an update to the existing NYS DEC Generic Environmental Impact Statement (GEIS) and Reef Plan through the completion of a Supplemental Environmental Impact Statement (SEIS) to address proposed programmatic questions in the GEIS. This action is required for future reef permit acquisitions to renew existing reef sites, increase existing reef site dimensions and create new sites located in the Coastal Marine District of New York.

The proposed action involves the continuation and expansion of twelve existing NYS DEC Artificial Reef Program sites, located in the Atlantic Ocean, Great South Bay and Long Island Sound. Additionally, the action proposes the creation of four new artificial reef sites, including three in the Long Island Sound and one in the Atlantic Ocean. This action has the potential to affect the local associated environments and wildlife through introduction of reef building materials used to enhance the local habitat for marine life.

The project is located in the New York State Coastal Marine District and adjacent Federal Waters.

Contact: Christopher LaPorta, NYS DEC Marine Resources Office, 205 North Belle Mead Road, East Setauket, NY 11733, Phone: (631) 444-0438, Fax: (631) 444-0484, E-mail: artificialreefs@dec.ny.gov

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Attachment J

Summary of Public Comments

- **Summary of Public Comments Submitted Electronically or in Writing**
- **Public Meeting Transcript - Freeport Public Library, February 6, 2020**
- **Public Meeting Transcript – NYSDEC Division of Marine Resources, February 10, 2020**

Comment Number	Commenter Name	Contact Email	Comment	Response
1	Mike Toomey	mftoomey@optonline.net	Greetings, I want to thank you and add my support for the ongoing enhancements to the Long Island Reefs project. The positive impact to recreational diving and fishing can be enormous. The associated financial boost to small business supporting these activities will also be sizable. Give local divers some exceptional dive sites in their own backyard. Let us expand our skill sets while supporting local small businesses of dive shops and dive boats. Keep local money local. Let's invigorate the threatened charter boat industry in Captree and other areas where we can enjoy wreck sites to fish. There was a time when Captree was lit up with the activity of many boats sailing throughout the year. Expanding and creating reef/wreck sites will help remedy this failing industry. Long Island has such a beautiful history and has the potential to be the envy of the northeast diving/fishing community. Please continue your important work in this area and allow Long Islanders to hand off some beautiful activities to future generations. Thank You, Mike Toomey North Bellmore, NY	Comment noted. No text changes required.
2	Reed Riemer	reedriemer1@aol.com	Hi Chris Very happy to hear about this reef creation and expansion. The reefs to the West those are the only ones I fish all very overcrowded and the need for new ones and expansion of the existing weeks is very welcomed. It is also good to know that you were trying to create reefs in deep water. I believe that this will give more opportunities for went to fish such as blackfish cod and ling. Unfortunately I am not in town days that the hearings are being held. But if you need more input from me tell things just let me know. Regards Reed Riemer reedriemer1@aol.com	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
3	Rick Smith	rick@smithgraphicsinc.com	Dept. Of Environmental Conservation February 7, 2020 205 Belle Meade Road E. Setauket, NY 11733 Mr. Christopher LaPorta – Artificial Reef Program Coordinator Hello Chris, As a local charter boat Captain here in Long Beach, NY, I am super excited and happy about the upcoming additions to our artificial reef sites and particularly, the creation of the new 16 fathom reef. I cannot explain how much this means to finally have some support given to the local fisherman who ply the waters of Long Island. Much of the structure on the existing reefs has drastically eroded away over time and the fishing is not nearly what it once was. I often look enviously at what the State of NJ has accomplished with their artificial reef system. They have been pro- reef for decades while NY was doing little. I have travelled to fish NJ reefs on other charter boats and was quite impressed with the fishing and the vast areas/spots to fish. There are those that would argue that reef building is akin to dumping garbage offshore, that life under the sand may be disturbed. Nothing is farther than the truth. In a short period of time after deployment of clean materials such as rock, concrete, steel, barges and vessels, all kinds of new growth springs to life and begins to take hold on the new structure creating a stunningly beautiful underwater oasis and a protective habitat for marine life where only sand existed previously. Before long, as soon as one year, a food chain is created within. I would suggest to those who are not familiar to view some of the may videos out there which show the beautiful life that results. In my opinion, artificial reefs should be reserved for recreational rod and reel fishing. Fish pots do not belong on the reefs as they kill indiscriminately 24-7. I personally think fish potting should be banned altogether along with the destructive practice of roller gear fishing. I have seen on the Axel Carlson reef in NJ that they have sectioned off a small portion of that reef where fish pots were present – perhaps something similar might work here. However, pots should not be allowed on all reef sites, only certain reefs and a section of those. I am certain that many groups of anglers/fishing clubs/ groups would be willing to come together to donate funds to assist with the costs of old vessel clean ups. towing etc. especially if the reefs were deemed to be recreational fishing only. It would be helpful to know what the protocol would be for making the donations, amount of monies needed to attain certain goals and how the site may be named for the group making the donations. Regards, and Thank You for your efforts, Capt. Rick 99 Farrell Street Long Beach, NY 11561	Comment noted. Per 6 CCR-NY 40.6(g) it is unlawful to use fish pots, fish traps, or to retain any fish caught by lobster pots on or within 500 feet of the following artificial reef sites: Rockaway, McAllister Grounds, Fire Island, Moriches, Shinnecock, Yellowbar, Kismet, Smithtown, and Matinecock. Lobster pots may be fished for lobsters on artificial reefs in state waters, and reefs located within federal waters are under the jurisdiction of federal fishing regulations. Development of Special Management Zones (SMZ) to regulate gear types on artificial reefs was evaluated in Alternative 4 of the SGEIS. Per the alternative analysis, the NYSDEC would be required to request ~~to~~ the Mid Atlantic Fishery Management Council, National Marine Fishery Service (NMFS) Northeast Region, and NMFS Northeast Fisheries Service Center to evaluate the request for an SMZ. As discussed in the Draft SGEIS this alternative met the Project Purpose and Need and remains an option but is not the preferred alternative due to additional development of the artificial reef program that would be required to implement SMZ rules. The artificial reef program does not have a mechanism in place for donations or contributions of funds. If a member of the public is interested in providing materials for the program or to sponsor reef projects they are encouraged to contact the artificial reef program through the NYSDEC website at https://www.dec.ny.gov/outdoor/7896.html.

Comment Number	Commenter Name	Contact Email	Comment	Response
4	Captain Mark Cusumano	markcusumano@gmail.com	NYS DEC, I support the proposed action. Building / expanding artificial reefs at the identified eleven (11) reef sites will have a positive effect on our local fisheries while providing greater access to New York fishermen and driving our local economy. I would like to ask that the DEC consider placing a portion of the re-purposed materials in shallower water, specifically outside of Moriches and Shinnecock Inlets. These areas have little to no structure in 30' to 40' depths. Material deployed in shallower depths would open access to various fisheries at different times throughout the fishing season. Regards. Captain Mark Cusumano	Comment noted Material placements will be guided by site specific surveys prior to placements and under permit conditions which include minimum depth requirements. As noted in Section 1.7 – regulatory Framework and Permitting Requirements of the Draft SGEIS materials will be placed in compliance with US Army Corps of Engineers (USACE) permits within permitted depth clearance depths to minimize conflicts with navigation. Reefs are sited and constructed in locations where sufficient depth allows for construction of vertical profile of patch reefs to provide adequate complex habitat for reef species.
5	Mike Hunt	Tilia1@optonline.net	Dear DEC, After seeing the posting about Gov. Cuomo, Artificial Reef Program, I have a few question I hope you can answer. With the all American being very concern about our water and air, most American and government offices believe dumping of any man construction material into or water ways is of great concern. We have seen many government actions against firms that have illegal dumped construction debris into our coastal areas. We have seen legal actions against construction debris being used to expand shoreline areas and the health and environmental effects it causes. 1. Please explain how New York State (Gov. Cuomo) can think construction debris from Contractors, Road Construction firms etc. is so wrong to dump in our coastal areas but, debris created by removing NYS DOT Bridge and Roadway is excellent for a natural reef. 2. Please explain why New York State should not recycle all the material (steel, concrete, etc.) from their DOT projects like most contractors and American households do, 3. Compare to recycling all of the construction debris from the Cuomo project, how much would NYS and Gov. Cuomo be saving in cost by dumping debris in our ocean compared to required recycling of debris. In other words, is the reason NYS would like to create an Article Reef to save money on this and other projects. Would New York State have paid for new steel and new concrete structures to then create a new artificial reef. 4. Was all paints, oils, toxins removed from ever piece of debris and if debris is later found with toxins, will NYS remove debris from our oceans. The paint used on NYS bridges is not your household paint you can buy at home depot. Thank you and looking forwarder to some answers. Regards, Mike Hunt	Comment noted. The NYSDEC Artificial Reef Program is issued NYSDEC Section 401 Water Quality Certification and US Army Corps of Engineers (USACE) Section 10 of the Rivers and Harbors Act of 1988 (33 U.S. Code 1344) Permits to authorize the activity of reef development. These permits outline specific permit conditions regarding where reefs can and cannot be constructed, what types of materials can and cannot be used for artificial reef construction, what types of monitoring of environmental impacts must be conducted during reef construction, and processes to document that the conditions are followed. This permitting and reporting process is intended to prevent the use of unauthorized materials that may be harmful to the marine environment. A description of the full permitting process is provided in Section 1.7 - Regulatory Framework and Permitting Requirements. As noted in the SGEIS, materials of opportunity are utilized for artificial reef construction. Performing specific cost benefit analysis of disposing of concrete, steel, and rock via other methods are beyond the scope of the SGEIS and not part of the Project Purpose and Needs which focuses on the development of beneficial marine habitat. Prior to materials being deployed as part of an Artificial Reef, they must be documented to be free of contaminants and other materials that may be detrimental to the marine environment as per the Atlantic States Marine Fisheries Commission guidelines provided here: http://www.asmfc.org/habitat/artificial-reefs. The NYSDEC and USACE have jurisdiction under the Clean Water Act (CWA) to enforce these rules on materials prior to placement on Artificial Reefs.

Comment Number	Commenter Name	Contact Email	Comment	Response
6	Dr. Al Musella	musella@virtualtrials.com	Dear Sirs: I would like to comment on your draft SGEIS document. I would like to say that I am a recreational fisherman, fishing the south shore of Long Island for over 50 years. My favorite areas to fish are the artificial reefs within range of East Rockaway Inlet. I usually fish at the reefs at least 30-40 times a season and find that the fish concentrations and varieties are much higher at and around the reefs than any other locations. You did an excellent job with the reefs so far, and I trust you will only make the experience better! I love the plans for expansion of the reefs and the new additional reef in our area. I wanted to let you know that the reef surveys you published are very much undercounted as they are a single point in time. On a typical day most of my friends and I would fish the reef only for a few hours. Sometimes early in the morning, sometimes mid-afternoon and sometimes right before dusk. Boats come and go constantly.so a typical day where you counted 40 boats on the reef at one instant in time, might really have had 120 boats that day use the reef for part of the day. I would suggest a few days of research hanging out at the reef, count all vessels that come and go, and calculate what one reading at one point in time might translate to - for example, if 120 boats use the reef in a day, but you do a survey at 10am and there are only 40 boats at the reef at that time, use a correction factor of 3x to determine how many boats use the reef that day. Another correction might be needed for weather conditions. You have a day when only 1 boat was at the reef. (That was probably ME:) When it is cold and windy some people don't make it out to the reef. If you use those days in the equations, our usage will be undercounted. My point is the reefs are much more used than your survey indicates and they are very important to us. Thanks Dr Al Musella 1100 Peninsula Blvd Hewlett, NY 11557 516-270-5182 Bigfoot III - a 27' Worldcat!	Comment noted. Aerial boat counts use only boats observed to asses reef use. The NYSDEC Aerial Reef Survey Protocol requires that surveys are conducted ~~on~~ one week day and one weekend day per month on each reef site from May through November under weather conditions suitable for recreational fishing and diving.

Comment Number	Commenter Name	Contact Email	Comment	Response
7	Mike Salvarezza	sallvarezza@optonline.net	I am writing to comment on the Supplemental Environmental Impact Statement relating to the expansion of the Artificial Reef program along the coastline of Long Island in New York State. As a long time avid local SCUBA Diver, I have seen firsthand the benefits of artificial reefs in our waters. Whether these reefs are purposely sunk vessels and material or reefs created through maritime accidents and ship sinking, the structures underwater always become a haven for marine life. As is well known, the ocean floor which extends many miles in this area is largely a flat, sandy environment devoid of shelter and areas for marine life to live and grow. There is very little substrate available for sedentary creatures like anemones and shellfish to attach themselves to, and limited areas for mobile organisms like crustaceans and fish to find shelter from predators. When an artificial reef is created, marine life flocks to these areas and a burgeoning ecosystem quickly develops. As diver, I have seen this happen first hand. For example, after the USS Algol was purposely sunk off the coast of New Jersey in 1991, my dive buddy and I dove this wreck repeatedly. In the early days after the sinking there was very little marine life to be found on the wreck. But within one year, the wreck was covered from bow to stern with blue mussels and a thriving eco-system had established itself in the recently sunk vessel. Fish life abounded, along with crustaceans, shellfish and pelagic animals. It does not take long for marine life to inhabit these reef areas. Every one of the artificial reefs in our area tell the same story. Once established on the bottom, marine life quickly colonizes the site and the site becomes a haven for the marine eco system. As a SCUBA Diver, and as Executive Vice-President of the Long Island Divers Association (LIDA), I know firsthand the thirst that local divers have for exploring these areas. Divers enjoy seeing marine life and new dive sites will help the local dive charter boat industry as more divers will seek more opportunities to dive on these newly established sites. This is an industry that needs new sites to retain diver interest. I would imagine similar economic benefits would be created for the local recreational fishing industry. I agree with the SEIS assessment that negative impacts of the construction of these reefs (increases in turbidity, noise, etc.) are of a very short and transient duration. Indeed, I would think that the disturbance to the area would be no greater than that during a storm. Please accept this email as my full support of this program. Thank you. Mike Salvarezza Executive Vice-President Long Island Divers Association	Comment noted. No text changes required.
8	Courtney Bozic	chinchinb@yahoo.com	Dear DEC Staff, I believe the current public information posting of the SGEIS as found on your website is substantially incomplete as the Appendices A, B, C, D, E, F, G and H are not included in the document, though they are listed as part of the report on the document's table of contents. Thank you. Likely any member of the public would find that information of importance in understanding the whole report. Courtney Bozic 19 W. Garfield Street Bay Shore, NY 11706	Comment noted. Appendices were provided to the commenter and, in addition, uploaded to the NYSDEC Artificial Reef Program website at https://www.dec.ny.gov/outdoor/7896.html on February 11, 2020.

Comment Number	Commenter Name	Contact Email	Comment	Response
9	Janice Raber	seashe1@aol.com	Dear Chris, I have attached my letter supporting the Artificial Reef Expansion. If you cannot accept it through an attachment, I will put it in the body of the e-mail. Please let me know. Thank you, Janice Raber FROM: Janice L Raber 274 Seneca Street Ronkonkoma, NY 11779 February 9, 2020 TO: NYSDEC Marine Resources Headquarters 205 N Belle Mead Rd., East Setauket, NY 11733 Please accept my comments and whole hearted support to advocate for the continuation of expanding the Artificial Reef program along the coastline of Long Island and New York State. Thirty-five years of scuba diving in the water off the shores of Long Island have shown me that we desperately need to do something to preserve the ocean and bays that surrounds us. Many marine life forms have declined since I first started diving and there are fish that I used to see that no longer appear. There is much we need to do to stop this and one of the ways is to continue to create artificial reefs off of our shores. I learned to dive on our Long Island beaches and the many shipwrecks that lie in the surrounding waters, including ships and artificial reef materials that were sunk through the earlier efforts of LIDA and the DEC and the Moriches Off-Shore Reef Fund as long as 20 years ago. This has allowed me to observe the abundant life that has developed over the year around these sites. What would otherwise be an underwater desert has become abundant with life. Not just varied species of fish, but squid, lobster, scallops, crabs, and mussels, skates, eels, squid, anemones, hydroids, urchins, assorted algae, jelly fish, squid and creatures barely seen by the eye. The variety of marine life goes on and on. And it is seasonal. Some areas draw bait fish, some draw bluefish, some draw ling cod, some draw fluke. Some draw large pelagic fish. Wherever there is structure in the water, living organisms are drawn to it, will feed on it and life will multiply. An eco-system will be established. There is no down side to this. Deeper artificial reefs will draw larger fish. All of these things will draw scuba divers, fisherman, scientists, photographers, and boaters. This will, in turn increase our recreational opportunities for Long Island visitors, which, it follows, will help our Long Island economy. A brief environmental disruption will produce long term gain above and below the water's surface. Do it sensibly, do it right, use non-polluting materials, but PLEASE, do it. Sincerely yours, Janice Raber Trustee, Long Island Divers Association Trustee Emerita, Women Divers Hall of Fame Director Emerita, Historical Diving Society	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
10	Captain Joe DeVito	Captaindevito@gmail.com	Hello, My name is Captain Joe DeVito. I am 28 years old and have been a recreational fishermen on the South Shore of Long Island since I was 5 years old. I currently am the Captain of one of the busiest fishing fleets on Long Island, The Laura Lee Fleet. We specialize in reef and wreck fishing. For most of what I can remember reef fishing out of Fire Island Inlet had always been mediocre at best, until 2019. The new structures that the DEC dropped in Fall 2018 and early 2019 were teeming with life by the time Sea Bass season opened in 2019. It seemed like there were just so many more fish (Sea Bass, Porgies, Fluke, Ling) around the reef during the 2019 season. It was great to see these reef programs really work. All of the materials the DEC deployed during 2019 was Southeast of all of these materials, which is terrific. Keep going Southeast! The structures on the southeast part of the reef have always been some of the most productive for us. The 2018 deployments were no different: -The two least productive 2018 deployed materials that we fished in 2019 were the Northwestern most ones at 40°36.040 73°12.631 and 40°36.040 73°12.495. -In order of productivity, the most productive 2018 deployed materials that we fished in 2019 were the Southeastern most ones at 40°35.854 73°11.870, 40°35.838 73°12.015, 40°35.872 73°12.022, and 40°35.914 73°11.986. In my opinion, the most productive direction to continue to expand the Fire Island Reef would be to the Southeast. It would be great to see more deployments Southeast of the 1995 Armored Personnel Carriers at 40°35.545 73°11.508. In conclusion, I think the draft SGEIS is a great plan and I am a strong supporter of reef expansion. I am particularly fond of the Sixteen Fathom Reef. I am anxiously awaiting the deployment of materials at the Sixteen Fathom Reef and expanding the Fire Island Reef. Myself and the rest of my fleet would be happy to assist in anyway possible to expedite the process in our area. Feel free to contact myself or Captain Neil Delanoy (CC'd). Capt. Joe DeVito Laura Lee Fleet, 90 Cedar Point Dr., West Islip, NY, 11795 Cell: 631-944-2920 | Captaindevito@gmail.com | Captree.com	Comment noted. Reefs will be designed and constructed based on bathymetry surveys and permitting requirements. The NYSDEC will endeavor to place materials in site locations that are currently undeveloped or have become degraded or buried due to storm damage and/or other natural processes.
11	Randy F. Randazzo	scuba@hamptondive.com	I am writing to comment on the Supplemental Environmental Impact Statement relating to the expansion of the Artificial Reef program along the coastline of Long Island. As a veteran dive instructor, teaching diving locally since 1983, I have seen the positive impact these scuttled structures have on the marine population. The ocean bottom is a vast desert of sand, holding little or no life. These structures bolster fish populations and create homes for many species of marine life. Please keep this program going and possibly even expand on the sites. Sincerely, Randy F. Randazzo PADI Master Instructor TDI/SDI Technical Dive Instructor	Comment noted. No text changes required.

Comment Number	Commenter Name	Contact Email	Comment	Response
12	Bob Wilson		Hello My name is Bob Wilson. I am a teacher in the Three Village School District, over at Ward Melville High School. I also run the Ward Melville High School Fishing club, a club in its 12th year of running. I would like to start by saying that I am very happy to see the Artificial Reef proposal, the reason we are here, and hope that this proposal could be further expanded upon, especially here on the North Shore of LI. Artificial Reef programs are essential and necessary for the development of a thriving ecosystem in our waters. It is easy to see the benefits to marine life that artificial reefs bring. They strengthen the base of the food chain, create habitat in what were either barren or "run down" locations and they lesson the strain due to pressure that some areas have due to limited habitat availability. I am glad to see that NY is prioritizing its reef program and hope that one day we could be used as the model for our fisheries, much in the same way that Florida is seen with their artificial reef programs. Being an invested recreational fisherman and fishing club organizer, I could go on about the benefits to the fishing community. Instead, I would like to go in a somewhat different direction. I think the proposed artificial reef program is good but I think it can be better. Specifically here on the north shore, I think some additions need to be made. I think that the artificial reef program should be expanded in stretches such as the Mt Sinai to Mattituck zone. This would not only alleviate congestion and pressure on the "closer" reefs but will invite others to partake in using all the artificial reefs around Long Island. In utilizing this stretch, you now begin to appeal to kayakers and those in smaller boats who would rather not get mixed up in the traffic of a popular location such as the proposed Mt Sinai reef. Areas that have been underutilized or not utilized at all can be turned into launch sites only accessible for the small boats and kayakers. In addition to this I feel that there are 2 other groups that may benefit by an expanded artificial reef system. This would be the diving community and the educational system. More reefs, equals more availability of locations which in turn means everyone gets a piece of the actions. With freediving, spearfishing and diving in general being as popular as they are, it screams the need for easy access in a somewhat secluded location. Additional reefs can be the answer here. Educational institutions such as our local high schools and colleges would have the opportunity to now study these reef environments. At the high school level this does not mean that it has to be specific to a marine biology or ecology class that not every district offers but living environment classes or biology classes would be able to incorporate learning about the local artificial reef locations. With the technology that is available today, it would be very easy for schools to utilize the for hire industry to create "floating classrooms", send a camera down, record the life and growth of the area and then who knows, maybe even drop a line or two and enjoy this newly created resource. If say some new reefs were created in a location that could pan in as little as 20' of water all the way into the 80 or 100' depths or if several of these AR are in reasonable proximity, a comparisons of sites could be made and now you could have large amounts of kids learning about their local ecosystem. Currently there are elementary and secondary classes that go out aboard a Port Jeff or Captree based boat to dredge and create a critter tank. In 2020, students should be able to go to an artificial reef from its onset, video, record and chart its growth and development and then be able to become critical thinkers as they virtually study other eco systems and other reef systems. Textbook learning in a real world environment for real local issues. More artificial reefs will help to get us	Comment noted. The SGEIS includes a new reef located in the Mattituck area. Section 2.1 – Screening Assessment of the Draft SGEIS includes the criteria that was used to assess potential siting of reefs. These criteria were applied to the entire New York State Waters included within the Long Island Sound. One of the criteria noted in Table 2-1 includes water depth. The criteria text states "sites are in areas deep enough to allow for creation of significant vertical structure and habitat and be within navigability clearance depths." This criteria led to a siting criteria for the Long Island Sound that "Reefs be located in waters between 40 feet (12 m) and 132 feet (40 m) deep." Inclusion of reefs close to shore in shallow, shoreline areas would not meet this siting criteria and cannot be included under the SGEIS due to conflicts with navigation. There is an existing NYSDEC reef monitoring program where the public can record their experiences including observed species on the artificial reefs as a volunteer reef angler or diver and provide the information to NYSDEC. If members of the public would like to learn more about the Artificial Reef program and, the volunteer reef angler or diver program, they can contact the NYSDEC Artificial Reef Staff through our website at https://www.dec.ny.gov/outdoor/9211.html to schedule a presentation or an outreach discussion.

Comment Number	Commenter Name	Contact Email	Comment	Response
			there. For many of these reasons I would also like to get our club as well as other fishing clubs on Long Island involved in some way with this artificial reef program. We hear all the time about how kids spend too much time inside, on the computer, in front of video games and in other places than on the outdoors. We have a number of groups, clubs that exist and this artificial reef program should allow our kids community service opportunities that many are always looking for. It will also allow them to make a connection to marine culture in such a way that creates a legacy of civic involvement, understanding of conservation principles and teachable moments galore. The spark that is created by having an abundance of artificial reefs may just go to spark groups of students to look into the marine biology, marine ecology and conservation issues that will no doubt be a focus of life in their futures.	
13	Victor Viola	captvic1@optonline.net	As a recreational fisherman for over 50 years I feel the reef program has enhance my fishing abilities. I primarily fish the Moriches reef site. The expansion of the reef gives us a greater safety margin to fish the reef sites without congestion of fishing vessels. The new 12 mile reef site definitely is going to expand my fishing ability to a deeper sight with larger vessels. The governors program to enlarge the reef sites has definitely giving a boost to the recreational fisherman, local bait and tackle shops and party boats which has been a long time coming. Victor Viola 95 Wavecrest dr Mastic Beach NY 11951	Comment noted. No text changes required.
14	Phillips	nemo1@optonline.net	Please keep expansion and building our fishing reefs. A great many of recreational fishermen think this is a great service that has not seen in a very long time! A NEW REEF at proposed 16mi. [name?] is a great idea! Many fishermen love it! There is so much OVER CROWDING on existing reefs now this will only provide more space, safety, and pleasure for all!	Comment noted. No text changes required.
15	Beth McCrea	bethmccrea@gmail.com	I am writing in regards to the Supplemental Environmental Impact Statement relating to the expansion of the Artificial Reef Program along the coastline of Long Island in NY State. As a member of the Executive Board for one of the biggest scuba diving clubs in the US (the NYC Sea Gypsies), I know how much artificial reefs help our waters/marine life, increase tourism, & benefit those who live in the area. The sandy bottom around Long Island has very little shelter for fish, crabs, lobsters, anemones, & additional marine life. When an artificial reef is created, life flocks to it & an entire ecosystem quickly develops. I've seen this firsthand with a number of artificial reefs around NY & NJ...literally, within a year of an artificial reef being created, ecosystems are established. This is how our waters begin to thrive again bringing in amazing marine life from the tiniest of fish & mussels to whales. I know 2 different divers that saw whales while on local dives this past summer & it's because our waters are becoming healthier. I myself am putting my money where my mouth is & personally hosting a number of local area dives this year including a big camping & diving weekend on Long Island. But we need your help to make these areas thrive with more artificial reefs—we desperately need increased funding for this program! Divers enjoy seeing marine life & new dive sites will help local divers as well as local businesses including the local dive boat charters in our area. This is an industry that needs new sites to retain diver interest! As you'll see from the link above, I'm able to host shore dives out of Montauk, but had to arrange for a Long Island boat to go to Block Island in Rhode Island because there aren't enough artificial reefs in Long Island.	Comment noted. There is currently no dedicated Artificial Reef Program funding source. Program funding is based on the Governor's budget. No text changes required.

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			I agree with the SEIS assessment that the negative impact of the construction to create these reefs is of a temporary duration well worth the end result to help our local divers, our local marine life, & our local businesses. Please accept this email as my full support of the Artificial Reef Program. Regards, Beth McCrea NYC Sea Gypsies Social Events Chair 469 W. 57th St. Apt. 4C New York, NY 10019	
16	Captain Robert Rocchetta	captbobrocchetta@gmail.com	As a professional fisherman and lifelong NYS resident, representing the North Fork Captain's Association and other user groups, it is my opinion that artificial reefs provide significant benefit. I'm sure you've realized there was a time when NYS had sent railroad cars to other southern states for their benefit. Now's the time to do it right for the overall population of New York. Many New Yorkers live or vacation on Long Island and benefit from the surrounding coastal areas. The artificial reef program should continue and expand so that future generations can continue to enjoy and benefit from the waters surrounding Long Island. Respectfully submitted, Capt. Bob Rocchetta Rainbow Charters, Orient Point Former Officer, Suffolk County Police Marine Bureau	Comment noted. No text changes required.
17	Greg Rosengarten	grosengarten@gmail.com	To whom it may concern, I'd like to voice my support for the Artificial Reef Program which I have seen firsthand to provide a valuable habitat for fish and other creates, and generates a lot of interest in local diving. Please consider extending the budget for this program as it is a great resource to us all. Thank you, Greg Rosengarten Treasurer NYC Sea Gypsies	There is currently no dedicated Artificial Reef Program funding source. Program funding is based on the Governor's budget. No text changes required.
18	Jason Feldman	fhanglers@gmail.com	Dear Commissioner Seggos, As a duly elected representative of the Freeport Hudson Anglers, I can speak on behalf our fishing club and would like to take this opportunity to fully support New York State Department of Environmental Conservation's (DEC) draft of the SGEIS as part of Governor Cuomo's reef expansion project. The Freeport-Hudson Anglers fishing club was established over 50 years ago in Freeport, New York, and is comprised of approximately 50 members that draws heavily from Long Island's south shore communities. We all share a common passion of sport fishing and most of our club's activities are geared toward that passion. As long as New York's artificial reef program has been in existence, our members have plied the waters above the reefs as they provide essential habitat for many of the species that we target. Whether our members use their private boats, or board party and charter boats, our members have used the reefs extensively and would benefit enormously from the Governor's plan to expand New York's artificial reefs. We are even more excited about the establishment of four new reef sites, especially the deep-water "16 Fathom" site located approximately 12 miles southeast of Jones Inlet.	Comment noted. The artificial reef program does not have a mechanism in place for donations or contributions of funds. If a member of the public is interested in providing materials for the program or to sponsor reef projects they are encouraged to contact the artificial reef program through the NYSDEC website at https://www.dec.ny.gov/outdoor/7896.html. No text changes required.

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			I know our members would join the many thousands of anglers all across Long Island that have been yearning for additional opportunities to fish New York's coastal waters, and we look forward to providing any assistance to the Governor and the DEC to put this plan into action. Sincerely, Jason Feldman, Secretary Freeport Hudson Anglers	
19	Ronald Pfister	Rainbowrobin54@aol.com	The importance of expanding the Artificial Reef around Long Island is beneficial for the fishing industry and sport fishing. The economy improves as well.	Comment noted. No text changes required.
20	New York Recreational & For-Hire Fishing Alliance	harborman@optonline.net	Dear Chris, On behalf of the New York Recreational & For-Hire Fishing Alliance which is the largest organization advocating for the party & charter industry along with the customers who ride upon for-hire vessels in the NYS Marine Coastal District, we would like to extend to NYS Governor Andrew Cuomo as well as to Chris LaPorta our gratitude in helping to continue to restore nearshore eco-system health, improve habitat quality and in increasing fishing and diving opportunities in the NYS Marine and Coastal District. After review of the 'Draft Supplementary Generic Environmental Impact Statement For New York State Department of Environmental Conservation Artificial Reef Program,'1 and in and consultation with the NY RFHFA Executive Director Joe Tangel and our board, the NY RFHFA will vehemently support, 'Alternative 2 - Proposed Project (Preferred Alternative). Benefits of Artificial Reef building and eco-system enhancement is recognized both by current advances in marine science and the US Congress: With almost a century of artificial reef development by the states along the east coast, and recognition by the National Marine Fisheries Service (NMFS) in the development in November 1985 of the 'National Artificial Reef Plan' (NOAA Technical Memorandum, NMFS OF-6) and the amended February 2007 'National Artificial Reef Plan,'2 that there are notable positive environmental habitat impacts from artificial reef creation and expansion. With decades of research and monitoring by various federal and state marine agencies along in coordination and a partnership with the academic community, the US Congress in 2018 has issued a statement of findings and purpose of Artificial Reef development at 33 U.S.C. 2101(a)(5) in which: "Congress found that properly designed, constructed and located artificial reefs can enhance habitat and diversity of resources; enhance United States recreational and commercial fishery resources; increase production of fishery product in the United States; increase the energy efficiency of recreational and commercial fisheries; and contribute to the United States and costal economies." Over the last two decades, current progressive artificial reef programs in the states of Florida, North Carolina, Maryland, Delaware and New Jersey have stood out for the increased bio-diversity they have created in areas negatively impacted by man caused commercial and recreational fishing activities as well from nature-driven severe storm damage. As noted on page ES-5 in the 'NYSDEC Artificial Reef SGEIS document,' artificial reef creation has been proven by marine science to, "Enhance local refuge, forage, and some spawning opportunities for regional structure associated species." This was mentioned at the February 10, 2020 public comment session meeting at the NYSDEC in East Seatucket where the program not only, "Intends to increase the material repurposed on the 12 previously permitted sites but as much to expand the acreage or current AR footprint of	Comment noted. No text changes required.

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			seven existing artificial reefs and to create four new artificial reef sites along both the south shore and within New York territorial waters in Long Island Sound." Mitigating concerns over increased artificial reef enhancement: Coastal state marine agencies along with the NYSDEC have consistently improved in the scientific ecological structure and function in the enhancement of artificial reefs, along with yearly diver assisted monitoring of these sites in order to ensure that repurposed reef building items have the most minimal impact to the environment as so far as to the disruption of spawning activities, along with providing protection, shelter and subsistence to both resident and migrating finfish and other marine related species. Repurposed man-made materials have followed the guidance of 'The Atlantic States and Gulf Fisheries Marine Commission document on 'Guidelines for Marine Artificial Materials – 2nd edition,'4 as so far as ensuring best practices in the cleaning and preparation of manmade materials in the removal of any chemical hazards such as from vessels, highway or bridge construction debris or various fabricated reef balls/pyramids in order to prevent any detrimental impact to various marine life, vegetation or even human life as a result of the consumption of marine species harvested from an artificial reef location. The primary concerns noted by those who had attended the two NYS public meetings in February of 2020 concentrated on these six issues as the NYS DEC is in the early process and planning to perform the largest expansion in the history of the NYS artificial program: 1- A negative economic impact to commercial fishing activities within state and nearshore federal waters. 2- Taking what is proverbially 'garbage' and now performing ocean dumping. 3- Disruption to, or increasing hazards to safe navigation. 4- Creating areas of concentrated fishing effort activities. 5- Depletion of various local targeted fish to such a level to be impactful to a particular fish stock in the noted artificial reef footprints. 6- Impactful to other marine life which is not targeted by recreational fishers or divers. In addressing each of the concerns of the six items in order, it has to be noted: - By increasing the artificial reef footprint acreage from 3400 acres to a proposed 6,812 acres (pg. 69 NYSDEC Artificial Reef SGEI doc.), impacts may disrupt less than 1 percent of available NYS Marine and Coastal District waters as measured in acres. An approximate scaling example in area which would be impacted would be in using the proposed Long Island Sound 50 acre artificial reef footprint, which would be an equivalent to 0.06 square nautical miles. At this time there has been no reported documented interruption of commercial fishing activities due to the creation or expansion of artificial reef building in the Mid-Atlantic region. - The claim of 'ocean dumping' is a misnomer used by an extremely small number of anti-artificial reef building people as state developed artificial reef building is a highly regulated activity in which non-hazardous "materials of opportunity" are strategically deployed in pre-defined locations all along the coast. In fact one of the most noted decades long permitted 'ocean dumping' locations in the NY-NJ BIGHT area of which is designated for the depositing of dredge spoils composed of bedrock and softer bottom sediments removed from the waters of the Kill Van Kull, are re-deposited at the Mud Buoy off the Atlantic Highlands and have been noted as one of the most prolific locations for fishermen to target various pelagic and demersal species in this region..	

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			- The creation and/or expansion of artificial reefs in nearshore areas with close proximity to various New York City and Long Island based fishing ports and inlets has rarely been an issue in the impeding or disrupting either privately owned boats, for-hire vessels or commercial shipping. Prudent safe navigation on coastal and ocean waters must always be observed by operators and licensed mariners to use best judgement in avoiding any anchored, drifting or moving vessel or vessels over their intended route of navigation. - The creation and/or expansion of artificial reefs is well noted to disperse concentrated fishing and diving effort over a wider area off our shoreline. Artificial reefs also aide in lessening fishing and diving effort on other noted man-made structures (shipwrecks or purposed dumped rocks) or natural reefs. - There is no documented research which conclusively reports that the creation and/or expansion of artificial reefs will increase both catch and harvest to such high removal levels as to be detrimental and risk the sustainability of any of the MAFMC, ASMFC or NEFMC managed stocks. - Artificial reef creation and/or expansion will also vastly increase production of encrusting vegetation and various mollusks such as mussels as well as burrowing marine life, all of which positively contribute to localized healthy eco-systems. A recent diver assisted video on YOU TUBE illustrates the bio-diversity of life from artificial reef building and expansion on New York State artificial reefs in the Marine and Coastal District (see: NYSDEC Artificial Reef Building video, 2019)5 5 NYSDEC produced video, Building Artificial Reefs 2019, https://www.youtube.com/watch?v=HjQ4tZhcUX0 A much welcomed and needed benefit to both the fishing, diving and shore side business community with Artificial Reef enhancement in NYS waters: At a time with the negative economic impact due to the unending constraining of regulations on many of the recreational fishing sector fisheries, the creation and expansion of artificial reefs is one of the most welcomed benefits to not only to for-hire businesses, but as much to various shore side businesses that economically rely upon both fishing and diving activities. Artificial reefs provide the fishing and diving public with a marine-rich nearshore resource that is within close proximity to various fishing ports, marinas and inlets along all locations in the NYS Marine and Coastal District. There is also a major environmental benefit which all people should support as artificial reef enhancement aides in habitat and eco-system repair and restoration in nearshore areas negatively impacted and damaged from fishing activities, pollution or natural storm damage. The positive impact of artificial reefs to the marine environment eventually creates and results in the bio-diverse stability of localized nearshore waters, and for this reason the NY RFHFA supports 'Alternative 2 - Proposed Project (Preferred Alternative).' The NY RFHFA appreciates the opportunity to provide input in public comments, and we again thank Chris LaPorta for his time and unending efforts in improving the local marine environment as he understands how critical artificial reef habitats are in the Northeast region. The NY RFHFA will continue to participate in this process moving forward, and we look forward to sponsoring the strategic deployment of a vessel on one of the NYS artificial reefs in the future. Thank you for carefully considering these comments from not only the NY RFHFA, but also we believe represent the sentiments of fishermen and those within the diving community.	

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			Sincerely, Steven Cannizzo, NY RFHFA New York Recreational & For-Hire Fishing Alliance mb1143f@gmail.com NEW YORK RECREATIONAL & FOR-HIRE ALLIANCE: Executive Director Captain Joe Tangel, fv KING COD Board Member Captain Carl Forsberg, Viking Fishing Fleet Board Member Captain Jimmy Schneider, James Joseph Fishing Fleet Board Member Captain Kenny Higgins, Captree Pride & Captree Princess Board Member Captain Anthony Testa Sr., f/v Stefani Ann Board Member Captain Anthony Testa Jr., f/v Stefani Ann	
21	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris LaPorta, Please accept this comment related to whether the Draft SGEIS for the Artificial Reef Program adequately addresses greenhouse gas emission impacts of the program. There are two indirect sources of increases in greenhouse gasses caused by Artificial Reef expansion, each are addressed herein. The program seeks to expand by several thousand acres the permitted area within which hundreds of thousands of tons of metal rubbish will be allowed to be dumped into the ocean, including metal bridge parts, concrete, and metal vessels and vehicles. The DEC Draft impact statement concludes the program will not have any climate change impact. The statement fails to estimate the indirect climate change impact of the project. The environmental impact statement fails to take into consideration that by dumping used steel into the ocean rather than melting it down for reuse and resale as steel, more fossil fuels will have to be burned to produce new steel. Burning approximately 1.9 tons of coal is required to produce 1 ton of steel, resulting in four to five thousand pounds of carbon dioxide released into the environment for each ton of steel produced. Dumping 100,000 tons of steel into the ocean via the program rather than recycling it for use as steel would result in hundreds of millions pounds of carbon dioxide being released into the atmosphere via new steel production. This could be avoided by recycling the steel for resale rather than dumping it into the ocean. As recycling a large proportion of the refuse used steel would likely occur if it wasn't dumped into the ocean, the environmental impact statement does not properly estimate the impact to climate change of the programmatic expansion relative to the no action alternative. 90 percent of the value of an old ship in domestic markets is in the metals that can be reduced to mill-grade, and sold for re-melting and reforming into other metal products. The calculation of how much carbon emission results from the expansion of the artificial reef program should take into consideration the coal burning spared by actually recycling (selling and then melting and reforming the metals for resale) relative to reuse for the purpose of building reef. The estimate of carbon emitted as the result of the artificial reef program by such coal burning should be reduced by those released in the making of the energy to mill, melt, and reform the steel. This will allow your office to arrive at the total net carbon emissions that indirectly result from dumping of steel up to permitted limits rather than recycling it for resale. Such calculation	One of The NYSDEC Artificial Reef Program's goals is the planned development of artificial reefs through purposeful placement of clean material that has been demonstrated to provide suitable habitat for reef obligate species. Prior to reef building materials being placed they must be documented as free of contaminants and other materials that may be detrimental to the marine environment as per the Atlantic States Marine Fisheries Commission guidelines provided here: http://www.asmfc.org/habitat/artificial-reefs. The NYSDEC and US Army Corps of Engineers (USACE) have jurisdiction under the Clean Water Act (CWA) to enforce these rules on materials prior to placement on Artificial Reefs. The materials utilized for artificial reef construction are materials of opportunity that meet the requirements noted above. As noted in Section 3.1.6 – Climate Change, greenhouse gas emissions would be temporary and short in duration. The project would not introduce a new and consistent source of greenhouse gas emissions to the atmosphere and would not contribute to sea level rise. In addition, the impacts of climate change such as flooding and sea level rise are not applicable as the Project occurs in open-water habitats where flood prevention is not applicable. Performing a specific cost benefit analysis ~~of~~ for the disposing of concrete, steel, and rock via other methods is beyond the scope of the SGEIS and not part of the Project Purpose and Needs which is focuses on the development of beneficial marine habitat. Settlement of artificial reefs by epibenthic species are a link to higher trophic levels. With the addition of physical structure, the complexity of the community is increased and epibenthic species like barnacles are considered important links in creating microhabitats on the reef. Section 3.2.1.3 – Fish, notes that "Demersal fish species, like tautog, summer flounder, Atlantic cod, sea robin, scup, and black sea bass, frequent reef sites to feed on reef-associated species as well as take advantage of the enhanced benthic community found around the reef." Specifically adult cunner (Tautogolabrus adspersus), tautog (Tautoga onitis), and scup

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			of the carbon emissions result of the proposed reef program expansion was not made. A conservative approximation of how many tons of steel expected to be dumped per square area can be arrived at by using average known weight-to-volume ratio of sea vessels that fall within one standard deviation of the average size of vessels known to have been sunk previously as a part of the program, and, using the formula that relates the area of a pyramid to the length and width of its base, calculating how many ships would fit in each site if each site were built up to the maximum level for which permits for dumping are sought, in order to arrive at a rough measure of the weight of steel that would be sunk at each site, then sum the weights across all sites. Though this models carbon-emission environmental consequences when all of the metal comes from ships, such a model at least informs of the carbon emissions resulting from the program in that particular scenario, which is far superior to not making any model at all and just ignoring the carbon emissions impact of the expansion completely. Since your office knows exactly what items have been used to date, your office alternatively has the ability to do a calculation of what tonnage of metals have been sunk in the already-completed portion of the prior (2018-2019) expansion, measure the actual dimensions of the existing permitted sites, estimate what additional volume would be required to build the sites up to their permitted maxima, and extrapolate how many more tons of metal would be used if like materials were used to build the existing sites up to their permitted maxima. Then, add the already dumped metal tonnage to the expected weight required to build to (the prior already-approved uncompleted expansion) maximum. (This model would automatically account for the fact that mixed material - both concrete and steel - is used, because the known metal.weight-to-exising.site.volume ratio already accounts for the fact that not all the volume is from metal items.) This yields and an estimate of total metal weight for the completion of the prior expansion and an estimate of carbon emissions for the manufacture of equal weight in new steel, whose manufacture could have been spared by not permitting the prior expansion. The prior estimate of known dry.metal.weight-to-mixed.material.volume ratio can then be utilized in the calculation of carbon emissions for the preferred alternative in the newly proposed expansion, using the total added reef volume of the preferred alternative of the newly proposed expansion, if the newly proposed expansion were built up to its permitted maximum. I do not find the argument that the sites might not be built up to their permitted maxima acceptable. The state should know and make public what carbon-emission indirect impact approval of the programmatic expansion is expected to have 1, if it is completed to its permitted maximum. GREENHOUSE GAS EMISSION FROM DECREASED FUEL EFFICIENCY, BARNACLES Decades of overwhelming scientific evidence documents that barnacle coverage on, and roughness of, barnacled ship surfaces substantially increases frictional resistance, fuel consumption, and greenhouse gas emissions. The effect of barnacle coverage and roughness on vessel operation through increased drag reduces fuel efficiency by as much as 40%, estimates the U.S. Navy, and consequently substantially increases greenhouse gas emissions by increasing the amount of fossil fuels burned due to higher abundance of barnacles. Artificial reef systems create a plethora of surface area substrate to which barnacles attach and multiply. The expansion of the artificial reef system along the Atlantic coast is creating barnacle	(Stenotomus chrysops) feed on benthic invertebrates such as barnacles, small crustaceans, polychaetes, and mollusks. In addition, there is no known link between the placement of artificial reef habitat leading to an increase in fouling of ship hulls by barnacles. Furthermore, the hulls of many ships are painted with biofouling paints to limit the growth of organisms on these surfaces.

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			settlement in areas where none naturally existed. Owing to the highly three-dimensional nature of the objects sunk to create artificial reefs, the substrate surface area available for barnacle growth can be several dozens of times that of the square area of the artificial reef project footprint. The cumulative impacts of a program or action must be assessed when, added together with past, current, future, and reasonably foreseeable actions (that either use the same resource or produce the same effect), have adverse impacts, including long-term impacts. Please note that, even if by itself, the contribution to fouling by the current programmatic expansion under consideration is modest, there are many artificial reef programs by other states up and down the Atlantic, and cumulative impacts should be considered. The impact of barnacles on vessel operation through increased drag, costs the shipping industry billions in reduced fuel efficiency, direct costs of remediation procedures, and loss of use during remediation. The reduced fuel efficiency is, of course, concomitant with increase in greenhouse gas emissions. Expansion of artificial reef programs will cause an exponential increase in barnacle-settlement surface area. The state's draft impact statement is remiss in that it does not make any estimate, or even mention, of adverse economic impacts to the shipping industry, or increases in greenhouse gas emissions resulting from reduced fuel efficiency that the cumulative expansion of artificial reef systems in the Atlantic can reasonably be expected to worsen. It merely looks at expected changes to the cost of recreational dive excursions, which is extraordinarily trivial by comparison, and concludes there is no climate impact. The cumulative effects of artificial reef programmatic expansions on bio-fouling by barnacles is a serious environmental impact that needs to be considered in any responsible review. The state should model the effects of expansion by estimating the number of barnacles being added to Atlantic Populations. Your office can do this by having an engineer estimate the surface area to footprint ratio for a given site if built up to the permitted maximum height and then using measurements of actual barnacle density (individuals per square area) at existing sites to calculate the increase in abundance of barnacles across all sites expected to result from the expansion. While the resulting estimated increase in vessel biofouling may be more difficult to model from increased abundance, if even a rough estimate can be attained, a measure of the quantitative impact on fossil fuel use can then be made, as the effect of barnacle surface coverage on ship drag and fuel efficiency reduction is well documented. It is especially important to calculate these and other adverse potential environmental effects while the programmatic expansion is under environmental review, as artificial reef building is for all practical purposes irreversible, as it would be cost prohibitive to perform effective remediation. Regards, Alena Walters	

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22	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris Laporta, Please accept these comments related to whether the Draft SGEIS for the Artificial Reef Program adequately addresses possible adverse effects on Cetaceans. Introduction New York's Artificial Reef program, combined with artificial reef programs of other states along the Atlantic, may cause an explosion in barnacle populations which can reasonably be expected to increase barnacle-attachment on cetaceans and associated increase in energetic expenditures with adverse effects on fitness. Sites of barnacle attachment also permit exploitable by whale lice parasites, as is detailed further below. Insufficient information on the heights to which the state indents to build up the dump sites underwater sow concern over whether the dump sites render the habitat useless for large cetaceans. Although - relative to the total New York ocean area and outer continental shelf - the expanded dump site acreage is small, and cetaceans are presumed to be able to "swim around it", it does not address the loss of habitat area within the project footprints or echolocation blackout areas behind them potentially caused by the reefs. New ocean energy projects which also use whale habitat have been contracted, and it would be prudent to address the cumulative effects of an expanding reef system and industrial use of ocean areas on already stressed endangered cetaceans, as New York has Sperm, Blue, Finback, Humpback, Sei, and Right Whales and five of these six are Endangered. Whether the artificial "reef" system impairs the ability for whales to echolocate at, or through the reef site has not been studied. As even large whales have been cited close to shore off our barrier island and as some reef sites approach 850 acres, it at lease warrants investigation into whether or not it is a concern. Echolocation is expected to be impaired by complex three-dimensional structures, especially those that possess many smaller flat surfaces that exist at angles to one another. Potential for adverse impact - barnacle drag, mites, cetaceans Your draft impact statement didn't address the potential for adverse impacts to cetaceans via increase in barnacle population. The effect on whale parasites of the programmatic expansion of artificial reefs was not fully, or at all, considered by your draft impact statement. Barnacle attached sites on whales serve as shelter and attachment point for Whale Lice which also dig into genital folds, eyes, and exploit any skin lesions that may be on the whale by attached and feeding at the lesion. Decades of research documents that barnacle coverage and roughness on ship surfaces substantially increases frictional resistance, fuel consumption, and greenhouse gas emissions. Drag-inducing barnacles likewise cause cetaceans to have to expend more energy to travel a given distance or maintain a given speed. Artificial reef systems create a plethora of surface area substrate to which barnacles may attach and multiply. The expansion of the artificial reef system along the Atlantic coast creates an explosion of substrate area for barnacle settlement in formerly featureless flat benthic communities (where no three dimensional structure naturally existed). Owing to the highly three-dimensional nature of the objects sunk to create artificial reefs, the substrate surface area available for barnacle growth can be several dozen times that of the square area of the artificial reef project footprint. Barnacle attachment is found in many species of Marine Mammals, and causes substantial increase in energetic expenditure due to drag via a similar process as occurs on ships' hulls; via an increase in the coefficient of friction. Decrease in fitness from exponential growth of	Comment noted. Per Section 1.2 – Proposed Action the SGEIS and permit requirements reefs will be constructed in a patch reef manner with specified minimum depths which will prevent reefs from impeding migration or use of the reefs by cetaceans. Section 3.2.3 – Threatened and Endangered Species notes that the placement of reef materials will take place during short intermittent periods during daylight hours, the vessels delivering reef materials to the reefs are slow moving and represent a small portion of the total vessel traffic in the Project area and therefore would not substantively increase the risk of vessel strikes for listed species. The reef program will coordinate and consult with National Marine Fishery Service and US Fish and Wildlife Service as part of the SGEIS process. Indirect impacts to marine mammals are not anticipated as a result of the action. The reefs have been noted to be utilized by marine mammals for overnight feeding and foraging as documented on the Atlantic Beach Reef.

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			barnacle populations from cumulative expansions of artificial reef programs across several states up and down the Atlantic Coast is an anthropogenic source of mortality, but there is no mention of this in you Draft impact statement of this type of cumulative impact to Marine Mammals reasonably expected to be caused by expanding artificial reef programs by states up and down the Atlantic Coast. Except for certain species, that barnacles are harmless to whales is a myth. Whales have evolved special features in their skin to combat barnacle attachment, and have been known to make efforts to scrape them off (e.g. see at 1:35 http://www.youtube.com/watch?v=UW2e8M3nzvE]. To give you an understanding of the very high cost of drag-induced friction on energetic expenditures, the effect of barnacle-coverage and roughness on vessel operations through increased drag reduces fuel efficiency by as much a 40%, estimates the U.S. Navy, and consequently substantially increases greenhouse gas emissions. The state's draft impact review comes short of making any estimate, prediction, or even mention, of impact to whales via increased energetic demands from barnacle population expansion that artificial reef system expansion across Atlantic states may reasonably be predicted to trigger. The cumulative effects of artificial reef programmatic expansion on barnacle populations and subsequent parasite load on marine mammals needs to be considered in any reasonable review. Potential for adverse impact - Actual habitat loss, cetaceans Cumulative impacts of a program or action must be assessed when, added together with past, current, future, and reasonably foreseeable actions (that either use the same resource or produce the same effect), have adverse impacts, including long-term impacts. The environmental statement released by your office ignores all cumulative and other impacts to marine mammals. Though the reef expansion uses 6,000 acres of ocean area, it is maintained that no cumulative impacts are expected to occur - despite an 80,000 acre Wind-turbine Power Plant that is foreseen to be built in an ocean area on the OCS are nearby. "Cumulative effects" means that combined with the effects of the other existing, upcoming, or foreseeable projects, there is a potential adverse effect, even if the proposed program by itself may not warrant substantial concern. When the proposed action (of vastly expanding the artificial reef program) is combined with expected use of large ocean areas for the power plants, it is clear that multiple actions have the potential to affect the same resource. Large marine mammals are known to require travel over and forage over enormous area to meet their energy demand. It is nonsensical to say that because the reefs are not planned to be built within power plant areas that the combined endeavors do not have cumulative effects on the availability of open ocean resources. Further, if one also considers the multiple lease areas expected to be newly provisioned by BOEM to meet state's statutory mandates, and expected high levels of other ongoing economic activity that is in conflict with whale movements, it is all the more clear that six thousand acres when added to other projects may collectively affect the marine mammal habitat, and is not trivial when combined with other artificial reef projects along the Atlantic and projects in the Wind Energy Area. For example, the nearby Equinor wind-turbine power plant will use gravity-based piling, each projected to be about 17 square meters diameter, and according to its project envelope, the company may install up to 240 of them. This alone would result in the loss of 51 acres of area from a single power plant project, not including stations. The reef expansion project's role in cumulative loss of whale habitat together with growth in	

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			other reef projects up and down the Atlantic coast, and increasing industrialization of ocean areas, warrants consideration. The state has said that the maximum heights up to which the state seeks permits (at the respective sites) to build has been chosen for watercraft clearance. Please note that whales may typically be found for extended periods at depths below those needed for vessel clearance and that, depending on the height to which the state plans to build, artificial reef systems may render the areas unusable by whales, which, in addition to ocean area expected to be industrially-developed into wind-turbine power plants, may cumulatively have an impact. Potential adverse impact - Effective habitat loss, cetaceans The ability to echolocate is expected to be impaired by complex three-dimensional structures, especially those that possess several flat surfaces at difference angles to one another. Artificial reefs commonly have these characteristic. In fact, the surface of stealth aircraft are designed to evade detection with this very principal in mind (See, e.g. F-117 Stealth Nighthawk). Cetaceans such as dolphins and toothed whales have very poor vision and rely on echolocation to "see". Sonic eye technology exists that can be helpful in allowing the NYS DEC to, using existing reefs, study how three-dimensional structures are perceived via echolocation in order to determine if long-range echolocation (not only in extremely localized area at and very close to the reef site) but rather through the site is impaired, in order to predict the consequential loss of effective habitat of the new expansion. This can be combined with observations as to whether animals are actually observed to "swim around it [an 850 acre site, for example]" just to experience what is on the other side of it, or whether they are more apt to simply continue on their way past it without expending the energy to swim all the way around a site just to echolocate ("see") what the site may have been blocking. Then a determinations on whether (or if) any effective habitat loss is occurring as a result of the program can be made. Until this is done, assertions that there will be no impact to marine mammals because they "swim around it" are conclusory statements without basis.	

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23	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris LaPorta, Please accept this comment related to the adequacy of the Draft SGEIS in addressing the potential of the programmatic expansion of the Artificial Reefs Program to effect the evolution of virulence pathogens of important species. It is very common knowledge among evolutionary ecologists that concentrates or aggregates of organisms (density) causes the evolution of increased virulence and pathogenicity of pathogens and parasites in those pathogens and parasites requiring host proximity for transfer; This is for the simple reason that, under non-dense conditions there is strong natural selection acting against high-virulence phenotypes which possess the ability to rapidly cause mortality or illnesses that immobilize the host animal before the host animal has an opportunity to make contact with other host individuals in order to pass along the chain of infection. In short, high virulence phenotypes cannot reproduce without contact with another available host, and therefore do not ordinarily evolve in conditions where hosts density is low or hosts are dispersed over large areas. Aggregating host animals into denser concentrates lowers or removes natural selective pressures ordinarily present against highly virulent phenotypes. This allows pathogens and parasites of higher-virulence phenotype to spread among individuals in the aggregate even though they may cause the host to rapidly succumb or die, because even in the very short time it takes for the host to succumb, the pathogen or its progeny are likely to encounter another host when host are in high density conditions. In naturally occurring areas of high host density, hosts may have evolved, over many thousands of years, better defenses to high virulence phenotypes, a so-called “arms race” over many generations that leaves host species better defended against such phenotypes. Introducing refuge structures in regions where high densities do not naturally occur may relax selection against very virulent phenotypes of pathogen and parasite, but host populations that ordinarily experience low density conditions are far less likely there to have evolved adaptive vigorous responses to infection than in those regions characterized by naturally occurring concentrated areas of high host density. An extreme example is the high virulence and incidence of disease found aquaculture where fish are in much higher densities, due to containment, than the conditions under which they have evolved.1 It is therefore reasonable to expect that anthropogenic introduction of aggregation-enhancing structures poses risk of making the evolution of higher pathogenicity phenotypes more likely in populations of pathogens and parasites of our species local to Long Island. For species of recreational and economic interest intended to benefit from the program, and ecologically important species, the spread of more harmful pathogens and parasites may present a problem. It appears from the Draft SGEIS, that a cursory look at potentially problematic pathogens or their pathogenicity inside relative to outside reef sites has not been made. The potential for this phenomenon to occur as a result of the program has not been considered, nor has been identified the pathogens and illnesses it would be responsible to monitor. Regards, Alena Walters	Comment noted. As noted in Section 1.2 – Proposed Action of the SGEIS, the reefs are anticipated to be occupied by reef-obligate species. These are species that have evolved to live, breed, and feed in or around hard structures. Therefore these species have evolved to live in ~~a~~ reef habitat with higher population densities than found in the open-water, and sandy benthic habitat that surrounds the proposed reefs. The comparison of the artificial reefs to that of an aquaculture pen, where open-water species are concentrated to live and feed within an enclosure is, therefore, not applicable.

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24	Alena Walters	jonesbeach.statepark@tutanota.com	ENVIRONMENTAL JUSTICE It is no surprise that the owners of charter boat businesses and companies who sell diving lessons support the program. However, no recreational interest accessible to the public at large can justify a program of underwater land use of this large scale. Recreational value achieved by the programs may disproportionately benefit economic privileged persons, creating an "Environmental Justice" disparity issue for use of the funds that pay for it. To invest in a program of such massive scale for purported benefit of public recreation, where the ones who will benefit are limited to those who have the financial resources to rent charters, own watercraft, or invest in scuba diving lessons, is not an equitable use of public funds for recreation, let alone recreational fishing. Alena Walters	Comment noted. As noted in Section 3.3.4 – Environmental Justice, the impacts associated with the Project are not anticipated to be disproportionately shared by a specific race, color, or income with respect to the development, implementation, or enforcement of the Project. Therefore, there is no impact to Environmental Justice communities. Individuals may access the reefs at their will as they are intended to provide additional fishing and diving opportunities to all who wish to utilize them.
25	Alena Walters	jonesbeach.statepark@tutanota.com	Dear Chris LaPorta, I have reviewed the Draft SGEIS. It is my assessment that New York has not yet measured whether it has met with the goals of the program with respect to the prior authorized last major (2018-2019) Artificial Reef expansion, which is still in progress. The Draft SGEIS lends the mistaken appearance that New York is under legal obligation to authorize another expansion; "Selection of this [no expansion] alternative [was rejected because it] would not meet the purpose and need for the Project". New York has no legal obligation to continue to authorize additional expansions of existing reef, particularly at a time when the present reefs have not been fully laid or their effects realized. New York is not, under the NFEA, obliged to give authorization of additional sites or enlargement existing sites at a time when the previously-approved site areas already authorized have not yet been substantially laid or built to their permitted maxima, and when its obligation under the same statute to measure the effects of the artificial reefs already in place has not been performed. To authorize an additional massive expansion is imprudent without first meeting, for existing ARs, the requirements of "conduct[ing] an evaluation of the effectiveness of existing artificial reefs in achieving program goals" [See Final GEIS and Plan for the Development and Management of Artificial Reefs]. The Draft SGEIS published by the NYS DEC should contain but lacks reference to demonstrated scientifically realized benefits of prior programs to fish production. The distinction between production and aggregation of fish is key. Production improvement means more fish are produced as a result of the sites whereas aggregation means fish are attracted to the sites. Some Artificial Reefs may increase fish abundance, but some have been demonstrated to not actually increase the amount of fish, but rather just concentrate them around a specific area or areas. The higher fish concentration makes it easier for fishers to catch them, especially with advances in technology. This might even increase the overfishing problem instead of helping the marine life if the DEC lacks or cannot reasonably acquire a force large enough to patrol and enforce all six thousand new acres. While the environmental impact statement states that NYSDEC has the authority to limit fishing activity in the existing and expanded areas, it makes no comment about whether it has the practical capability to do so. Without a reasonable estimate of whether enforcement efforts can keep up with fishing pressure, the expected effects on fisheries remain elusive. The practicality referenced in the NFEA must incorporate expected adverse impacts that reasonably have the potential to occur and prudent use of underwater land, as well as current state of existing sites and our current state of knowledge about the benefits versus the risks.	Comment noted. Section 1.7 – Regulatory Framework and Permitting Requirements of the SGEIS provides the regulatory framework for the Proposed Action and as noted under *State Agencies* "NYSDEC derives its authority to develop and manage artificial reefs from New York State's Environmental Conservation Law (ECL), Section 11-0303. Further, ECL Article 3 and Title 3 of Article 11 give NYSDEC exclusive jurisdiction over fishery resources and ECL section 3-0301 (2) (j) states that NYSDEC is authorized to 'act as the official agency of the state in all matters affecting the purposes of the department under any federal laws.'" NYSDEC also manages the fishery resources of the State and in doing so establishes the size, fishing season and bag limit harvest restrictions on specific species including reef associated species (e.g. tautog, scup, black sea bass, Atlantic cod, lobster). This action regulates potential overharvest of reef associated species on the sites. National Fishing Enhancement Act (NFEA) §202(b) states that the purpose of the title is to promote and facilitate responsible and effective efforts to establish artificial reefs in waters cover under the article. The Proposed Action is consistent with NFEA as the Proposed Action is enhancing and restoring fishery resources and associated habitat utilizing artificial habitat to the maximum extent practicable. This is consistent with NFEA §203 – Establishment of Standards which states that artificial reefs shall be sited, ~~and~~ constructed, and subsequently monitored and managed in a manner which will – (1) enhance fishery resources to the maximum extent practicable; (2) facilitate access and utilization by United States ~~r~~recreational and commercial fisherman. Section 4.5 – Development of Special Management Zones (SMZ) notes that the creation of SMZs meets the Project Purpose and Need and will remain an option that could be utilized in combination with the proposed action. NYSDEC has the regulatory authority to limit activity and regulate reefs within state waters and also outside state waters through

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			A word related to the selection of alternatives from which the preferred alternative was selected: Including the discontinuance of maintenance and management of existing reef sites in the "No Action (no expansion)" alternative was wholly inappropriate as an alternative to expansion, and probably made the option easily and unduly rejectable. Of course, not only is it the case that existing sites do need to be managed, but such management is an obligation of the previously authorized program and previously authorized programmatic expansion. The fact that what is under consideration is a programmatic expansion dictates that the alternative to expansion is non-expansion. The alternative is not abandoning responsibilities of already approved programs. The Draft GEIS also did not adequately explain why it rejected the SMZ alternative, referencing only that the SMZ alternative was rejected because the Program would have to be adapted to SMZ rules. Rejection of the "No Action" alternative was not well reasoned. Too much emphasis on recreational diving and recreational off-boat charter and private boat fishing eclipses the most important aspiration and objective of Artificial Reef Programs, ensuring the health and sustainability of fisheries. Consequently, there isn't effort and there is an utter dearth of studies –for New York's AR systems - to distinguish the extent to which fish density at reef sites result largely from production, from production and aggregation each largely contributing, or primarily from aggregation alone. A main aim of the Act is to ensure the vitality of our fisheries is sufficient to withstand continued and increased fishing pressures. Objective and impartial scientifically-conducted studies published or accepted for publication in reputable, peer-reviewed journals demonstrating production benefits to our fisheries should be paramount. The state can then balance these benefits against the potential for and risk of adverse economic and environmental consequences, and the magnitude of those consequences, when deciding whether the program should be expanded. It is my hope that the state at a near future date and before this programmatic expansion is approved, will quantify the reefs' effect on production, and does take the potentially adverse consequences identified during this public comment period as reasonable concerns and scientifically study them so a reasoned decision can be made as to whether this additional programmatic expansion should be approved, rather than assuming benefits, listing potential adverse impacts but downplaying their effects with unsupported conclusory statements in order to feign their consideration so support for an already decided approval is able to be back-filled with rationalization. In numerous places throughout the Draft, the State indicates or maintains the project benefits biodiversity to native species. For example, "The proposed Project would provide habitat for native aquatic species and thereby would enhance the aquatic resources and increase biodiversity in the area ..." [See CMP Consistency Determination]. Unfortunately, it appears that the state's only measure of "diversity" is that a number of different species of fish were observed at reef site during sampling. However, this is expected to result from aggregation, even where there's no increase in diversity. For example, suppose, as has been indicated in the review, that a site known to be an area of fish aggregation, such as an artificial reef site, has four times the number of fish as an equal area of flat benthic ocean floor. If reef sites do not add any diversity, but rather merely aggregate fish by a multiplier of four, the number of individuals found at the site should be equal to the number pooled over four flat benthic sites. In the case of no diversity effect, the number of different species of fish found at the reef site would be equal to the number of fish species found in the pooled total of n different large flat	coordination with national and regional groups (Mid Atlantic Fishery Management Council, National Marine Fishery Service).

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			benthic areas1 which combined have an equal number of fish as the reef site (in our example n=4). There are other ways diversity can be measured. Unfortunately, although DEC documented which species were present at reef sites, and how species composition differed between reef sites, no field study or statistical analysis thereof whatsoever comparing fish diversity at reef sites to diversity at non-reef sites was done or referenced anywhere in the Draft SGEIS or its appendices. Underwater shelters attract marine life, and substrate obviously allows sessile organisms to attach, and variety in substrate materials may yield increases in diversity of sessile organisms, invertebrates, and other marine life ecologically related to them. A priori, it does follow that fish diversity may result, but there has been no demonstration of this for reefs off Long Island referenced in the Draft SGEIS. The programmatic expansion seems to lack measurable goals. The Draft SGEIS does not identify any life history stage of any local species expected to benefit from the program that would allow the success of the program against its goals to be measurable; It merely references which life stages of local species are known to occur in areas selected for expansion. Does the state seek to benefit non-native species that have been shown to be in decline (further south) by creating 'stepping stones' of habitat areas for them in regions where they would not ordinarily be found? Which? It is not specified or even suggested. It is concerning that the Draft SGEIS does not identify goals or targets by which success can be measured. The Draft SGEIS is devoid of debate of substance relating to a thorough examination of the tradeoff between scientifically demonstrated improvements to New York fisheries production/diversity, and the creation of the hazard of2 invasion by non-native species which are known to wipe out or substantially impair endemic species, so as to understand where the tradeoff lies in order to guide responsible planning. E.g. lionfish aren't native to Atlantic waters, their venomous spines deter predation and there are few predators of them in existence. The NOAA concluded invasive lionfish populations will continue to grow and can't be eliminated with conventional control methods. These marine invaders are nearly impossible to eradicate once established. Non-native species can dramatically affect native ecosystems and local fishing economies. To use lionfish as an example, they feed on small crustaceans and fish, including the young of many commercially important fish species. Because they cannot be controlled, do not ordinarily occur in these waters, and put predation pressure on native fish populations, substantial concern is warranted that there will be adverse consequences to native fish populations and commercial fishing industries, especially as their invasions can be very rapid resulting in severe negative impacts to recipient ecosystems – and these are not the only non-native marine organism of concern3. It is my strong recommendation that the State develop risk assessment mathematical models National Fishing Enhancement Act's primary reason for enactment is the degradation of vital fishing resources and overfishing, and reduction in abundance and diversity relative to demand. For the reasons stated herein, and for failure to consider adverse consequences of the expansion about which I have sent communication to the DEC under separate cover, the Draft SGEIS is insufficient to estimate the environmental effects of programmatic expansion of the scale proposed. To finalize the draft into an SGEIS and move forward with the expansion without further consideration would be in conflict with the purpose of the NFEA as stated in §202(b), the promotion of responsible and effective establishment of reefs. If one uses the NFEA standards, the Draft SGEIS does not make the case that an additional proposed expansion	

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			of this scale should be approved at the present time. The NFEA mandates an artificial reef sustainable long-term plan in accord with the purpose of the title (Title II). I recommend developing mathematical models including risk assessment models and sharing them publicly and with the scientific community so that they can be review with some rigor. Or, if your office does not have the capacity, skill, or time to develop models and perform the modelling, it may seek outside assistance. There are numerous companies which provide this service4. Regards, Alena Walters	

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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DATE: February 6, 2020
TIME: 6:00 P.M.

MINUTES OF PROCEEDING of ARTIFICIAL REEF PROGRAM PUBLIC MEETING, taken at the Freeport Public Library, 144 W. Merrick Road, Freeport, New York 11520, before Eileen Monteagudo, a Notary Public of the State of New York.

CHRISTOPHER LaPORTA: I want to thank everyone for showing up. My name is Chris LaPorta. I'm the artificial reef coordinator for New York State. Jesse Hornstein is also with the reef program.

We are here to give an update on the supplement -- the draft supplement of the generic environmental impact statement, and for the artificial reef plan for New York State.

If you have any comments, feel free to do that after so we can move this along.

A little history about the program and the mission. 1962 is when the program was first established, well before my time. In 1993, my predecessor, Steve Heinz, wrote a generic environmental impact statement and reef plan for New York State; that was the first.

New York State happens to be one of the very few states actually, if not the only, that has a GEIS running its reef program.

Obviously, very dated. When we applied for permits back in 2004 - the last one was 2004 and 2008 - the permitting agency and DEC said that we would need to update our GEIS,

which is the 1993 document. As you can see, it's very dated.

So, what we have done, we went and listed the services of HDR as a contractor. We have developed a draft supplement, which will eventually be a final supplement to the generic environmental impact statement. And that's right now, that's being done right now.

So, the program mission is to provide additional fishing and diving opportunities by enhancing global marine habitat through beneficial, secondary use of existing materials that are approved for artificial reef construction in the coastal waters of New York State.

The proposed action - and it's a big one, and the governor's office is all in on this - is to continue the use of the existing sites. We have 12 sites right now, ranging from Rockaway, all the way out to Shinnecock, two up in Great South Bay, two up in Long Island Sound, currently, and eight in the ocean.

What we are looking to do is -

shifting gears a little bit - we are looking to expand even more. Seven existing sites; Rockaway, McAllister Grounds, Hempstead, Fire Island, Moriches, Shinnecock and Smithtown will all be expanded from their current acreages. I will show a table later on that will show you all of those specifics.

On top of that, we are looking to create four brand-new sites. Three of them will be up at the Long Island Sound. They will be ranging - and you will see the map of them - from around the Mattituck area out east, and all the way back to Huntington.

And then one new site, which I had mentioned before, the Sixteen Fathoms site, which I'm very exited about because that will be a complement to the 12-Mile reef, which is out east.

This is where the real meat and potatoes are right here. So basically, this is where they are located. Going up to the Sound first, the existing sites, the Shinnecock Reef and Smithtown Reef, are the two that are currently out there.

So, what we are looking to do, as I said before, the Shinnecock Reef is currently 41 acres, and that is going to remain the same. The Smithtown Reef is now three acres. We are looking to expand that to 31 acres to bring in all the materials that are adjacent to it.

As far as new reefs go, Huntington-Oyster Bay right out here is one, Port Jefferson-Mount Sinai Harbor is number 2, and Mattituck Reef is number 3; all three of them, 50 acres each. Folks have been asking for longer than I have been at the home, and that's 2004, four sites up in town. So, we are particularly excited to get these; these are what we are proposing.

Now, going to down, basically, Yellowbar and Kismet will remain the same, so no changes with that.

Rockaway Reef is going to be expanded, if not by too much, probably about, maybe like, not quite half. Atlantic Beach will remain the same, McAllister will be extended, Hempstead Reef will be extended, somewhat.

This is the site I was telling you about

before, Sixteen Fathoms. The name, technically, it's going to be in Sixteen Fathoms of their amount, so it would be about 100 feet of water, and it will be 850 acres, so that will be very sweet, very large in complement to the 12-Mile Reef, which is out here.

So, moving from west to east, Hempstead will be expanded, Fire Island Reef will be expanded -- not significantly, by about 100 acres each, and I will show you the table very soon.

Moriches and Shinnecock, however, Moriches being 14 acres and Shinnecock being 35 acres, are going to be expanded, significantly, if all goes well through the proposal, to about 850 acres each, which is a really kind of a significant addition. And overall, getting to the end point, which we want, which will be to double the current acreage that New York State has for reefs.

This kind of spells it all out. As I said before, these are the current existing acreages: 413 acres will expand Rockaway to

propose at least 635.
McAllister expanding, significantly, from 115 to 425.
Fire Island is just going to go up 150 to 850.
Moriches and Shinnecock, significantly. We are talking like 99 percent increase on those.
Atlantic Beach, remaining the same, Hempstead increasing by 106 acres,
12-Mile will remain the same, and the same with Yellowbar and Kismet. Here is Smithtown, which is going up 28 acres to 31, Matinecock will stay the same, and then here are the other reefs that we had mentioned.

You can't really see it well down here, but it's 3,389 acres for the total acres that we currently have. We are looking to build that to 6,812 acres, for a net increase of 3,423 acres. This is going to be very significant.

All of this information is actually available on the SGEIS website, but feel free to take photos if you want.

The purpose and need, this is all in the supplement for the Generic Environmental

Impact Statement, number one, is to update the GEIS, the artificial reef plan to address all of these advancements that are currently going on.

A lot of water has gone to the bridge since we first started the program and after the GEIS in '93. So, basically to fulfill New York's obligations of the National Fishing Enhancement Act, and under the guidance of the National Artificial Reef Plan, which all artificial reef programs are intended to work with or under.

As I said before, providing fishing and diving opportunities for associated fisheries, and for our little finny friends and crusty friends out there. They really enjoy them. The resources are being done by a selective placement of our artificial reef habitats in both state, which is a majority of the sites, and also, federal waters.

And I didn't mention this before, but in federal waters right now, Atlantic Beach, Hempstead, and 12-Mile are all in federal waters. Sixteen Fathoms will be in the

federal waters also. That is outside of three miles.

Also, to enhance and restore fishery resources and associated habitat, that's basically utilizing the materials that we were putting out there that were all approved when they do that. And also, to administer and manage the artificial habitats to ensure its use, its basically fisheries management program. That's where it really came up from, Atlantic States Marine Fisheries Commission. In order to use these to enhance the local habitat, is to be using them as a fishery management tool.

These are some of the benefits. Secondary use, aquatic recycling, which is what I have called it for years. We can't use just anything. We are not ocean dumping. Basically, we are taking materials that have been used in the past, mainly vessels, steel vessels -- we used to use wood. These are materials, like rock and other clean materials that are prepared to our standards, the standards of the National Artificial Reef Plan,

and also, the New York standards, so that they can be placed out there.

It's a far cry from anything along the lines that we have been accused of in the past of ocean dumping. People think we put out barrels of oil, but we are not. This is a highly regulated activity.

We are adding more complex diverse habitat out there. Basically what we are doing is we look to improve on areas that are just big sandy bottoms. Basically, picture this room as a desert and what we are doing is putting materials on that that are going to profile a complex habitat. The bottom is living, but it is not as complex, it can't produce as much diversity by not providing this complex habitat, meaning height over bottom profile. It's basically key in artificial reef building. So, that is what we are looking for now; stable, durable structures that are going to stay.

The habitat that we are improving is basically for the critters I listed before; we are talking fish and lobsters as some examples.

It's out there for them also to feed on and to actually have refuge from other species, and also, some sporting opportunities. Actually, one of my co-workers had done her master's thesis on tautog sporting behavior out in Shinnecock. It also provides foraging refuge for threatened and endangered fish in various species.

So, these benefits, and it may take some habitat away, but overall what's happening is we are providing the same opportunities for them that we are for all the other non-threatened and endangered species. So, it is a very positive thing there too.

And as we said before, benefits to recreational scuba divers and some commercial fisherman, whereas it does actually take some of these areas off of limits, let's say, for any gear that's rolling gear, commercial, net gear, and whatever else. Pin hookers, people that hook and line fish, they can take advantage of this also, and some pot fisherman also. Fish pots are banned in New York State waters but lobster pots are allowed.

So, those are some benefits, obviously, for commercial and recreational fisherman out there, and also for divers. They know the benefits.

These are some of the impacts. There are physical, biological, human and marine regulatory areas. These are all things -- I'm not going to go through all of them because we would be here for an hour, but these are all explained in the document, which is available for your review and for your comments also. But as you can see, there are quite a few different impacts.

Now, the impacts are not necessarily negative, many of them are positive. But you would have to go through and review just to get a good idea. Basically, just as I said before, you're changing up the symmetry while you're putting down hard structure that is going to be allowing a lot of growth for them. It's going to become a great habitat and the diversity it creates is amazing. Hundreds of species can come in and inhabit a larger structure. So, that can happen.

Other things that I had gone over before, basically, threatened and endangered species, invertebrates, new homes for them; surfaces of attachment, as compared to -- they can attach to sandy bottoms, but a storm comes along and that just wipes them out. If you have a big piece that comes up, everything is going to attach to it and stay there for a while, and it's going to create a habitat for them. Special management zones, that is little bit more perplexing. That is not something that we are necessarily going to do, but we will have the opportunity to do if we need to. New Jersey ran into a situation with that and they had to create a special management zone. So, New York may do that in the future, as one of the opportunities that we have.

Some of the more permanent impacts, and then some of this mitigation that goes along with it in the symmetry. Relatively flat, featureless bottoms are going to be turned into a structured habitat, as I have mentioned before. Impacts for navigation, we

can only build up a certain height off the bottom because we need to allow for shipping to move through. So, that's mitigated by the permits that we have.

Just as an example, the deeper water sites, we can build up no higher than within 60 feet of the surface. Rockaway is 23 feet, so it will vary, depending on the actual site itself, the location, and that's determined by the permitting agencies and engineers.

The benthic communities are impacted negatively, unfortunately, by direct burial. But for what is lost there, whether it be heartlands or the life that is on the bottom, you're creating a much more productive habitat that is more stable, that is going to last a lot longer. So, there is a trade-off.

Then what I mentioned before about the commercial gear is, basically, no longer able to fish the areas. The basic trade-off there is the increased productivity, but also, the other thing to mention is the acreage -- the overall acreage and the amount that we have out there is less than one percent of the total

open water bottom, which is significantly smaller, overall.

Still, it doesn't negate the fact that if we are pulling back some of this by making it unavailable to other people, we are certainly sensitive to that, but at the same time, it's a situation where it's that much smaller, that it's almost a dismal when it's comes down to that.

These are the alternatives that are proposed in the SGEIS. So, these are all the things that we could do, we have our proposed actions, no action, which basically would be to continue the current reef program, no expansions, no additions, and that would happen and just go on until the current permits expire. When that happens, it is game over. They are going to continue to do what they are going to do.

The proposed action is what I explained before and what was in that tape, which basically shows the addition, the expansion of seven sites, the addition of four sites, and just a lot more room to grow on

that.

Fewer expansions, that's something that we were proposing before, which would just, basically, not as much as we are looking to do now, which is doubling the total acreage. We were looking to do maybe a third or thereabouts, not quite -- maybe closer to a half, I would think. But overall, certainly not something like what we are looking to do now. Maintaining the current program, what that would be is that would be renewing permits, but no new sites and no expansions.

So, we would build out. It would, basically, allow us to build for years to come. But after a while, what happens if when you are building on reefs, there's only so much area. And we build through the patchwork area. So, you have to leave some space in between.

So, it's a matter of time. Maybe it would be - I don't know - a permit or two before there's no more room to build on those. So, that's what maintaining the current program is.

Basically, the special management

zones, that actually is, basically, where we could use regulatory means to limit fishing or any activity on these sites, whether it be fishing, or diving, or just -- we can make them complete zones where everybody can come in and use them, whatsoever. So, that's not something that we would, necessarily, want to do, but that would be in our purview if we wanted to do that.

So basically, quite a few different alternatives there, but the proposed action is what we are looking to do.

Basically, as I said before, the GEIS is available right here. You can find out more information, but on the web page, there is a PDF that you can get to on there. Also, this is where you can provide public comment here if you would like, or you can provide public comment through the electronic highway, through an e-mail. It would come to me, we would make record of it, and that is all brought into the whole process. But basically, it's a very small idea of what's going on down there.

This is a tug that was sunk in

Shinnecock at the very beginning of the program, under the governor's initiative. It was a very, very productive area down there, a destination for divers, also. We are hoping to bring back all fishing and diving opportunities, overall. So, that's pretty much the long and short of it.

CARL LOBUE: Chris, what was the date for the comments?

CHRISTOPHER LaPORTA: So, folks have the opportunity, if you choose not to make comments now, which you are welcome to, you can do it through either written or the e-mail system.

JOHN POULOS: I have a question.

This is all very good, and I think it's a really good use of these resources that we no longer need; steel, structure, stuff like that. But why isn't any of this structure -- and I'm not talking about boats, I'm talking about all that beautiful

steel from the Tappan Zee Bridge, why isn't it being used for an artificial reef that will stop downtown Montauk from eroding away? Isn't anybody's right hand looking at what the left hand is doing here?

Shadmoor State Park, the cliffs used to be about a hundred yards into the ocean; it's eroded down. There's no more sand replenishing town beaches, right? It's all a matter of energy, the way the actions are moving the sand westward. If we could get the waves to release the energy - you're talking to a guy who flies planes and surfs - if you get all this energy to release on the reef off of Shadmoor, it's not going to be able to cart all that sand away.

They are spending millions of dollars to put sand on the beach that is being washed right away, and all this economic impact -- this is great

that you're doing this, but this should be secondary to using this steel to do something good for the entire economy of a village.

Is anybody giving this any consideration? Is anybody looking at what's going on, and saying we have these assets and resources? First things first, let's stop the town from washing away. I mean, it's insane the way I see it. What do you think?

CHRISTOPHER LaPORTA: Well, basically, what I can tell you is that the Artificial Reef Program and the way that these programs function is far afield from shoreline protection.

JOHN POULOS: This is an artificial reef. I'm not talking about --

CHRISTOPHER LaPORTA: I understand, and I'm going to explain to you. It's basically -- and I have

had -- you're not the first person to ask. I have had quite a few surfers over the years ask me.

JOHN POULOS: It's not about surfing.

CHRISTOPHER LaPORTA: No, but it's part of it, and I understand what you're saying about trying to protect the shoreline. Essentially, when we build reefs, we build them as fishery management tools, for enhancement for the fisheries, themselves.

JOHN POULOS: We do that.

CHRISTOPHER LaPORTA: If we were to build something closer to the shore, like what you're saying, the amount of energy that hits these pieces, what we do is we want it to sustain itself to grow and to stay. If we put things out in the high energy zones, they get beat up real bad, they get buried.

So, what you're going through

is a cycle of destruction and replenishment. That's not what we are looking to do because they are going to be barren at certain times. It's kind of an apples and oranges thing, if you understand what I'm saying.

JOHN POULOS: I understand. My question isn't why aren't you creating a fishing reef there. Why isn't this material being used? I mean, it's great, but how many recreational fisherman are you benefiting -- it's not that I'm against it -- as opposed to the economy of the entire freaking town and all the millions are having sand dumped on -- isn't anybody working together here?

CHRISTOPHER LaPORTA: Well, that would be a situation that you would have to bring up with, say, maybe the governor's office.

JOHN POULOS: I wouldn't waste

my time. Do you have some place where I could write a comment down; a piece of paper or something?

CHRISTOPHER LaPORTA: Yes (handing).

JOHN POULOS: Great. Well, thank you very much.

That's all I came here for. I think it's a good idea, but first things first. All the steel from that bridge --

CHRISTOPHER LaPORTA: I can tell you this also. We didn't get a lot of steel. We got much more concrete.

JOHN POULOS: Because in the '60s and '70s, there were a lot of big boulders out there and there was an erosion problem. Concrete, steel -- anything is better than what they're doing. It just --

CHRISTOPHER LaPORTA: It could very well be more of --

JOHN POULOS: Well, you could

turn it into a great fishing spot. All those small fishing boats -- I'm in the marine industry. All of those little cuddy cabin guys, it's right there. It's such an obvious spot to create a fishing reef and to kill two birds with one stone, but that's -- jeez.

CHRISTOPHER LaPORTA: Please do submit it. We do take that into account. We had someone just recently -- as a matter of fact, just yesterday, putting a site to the west of Rockaway. So, new places are something we would like to consider.

JOHN POULOS: Yeah. It seems to me it would be sufficient with how bad it's eroding. Where it's right up to the street, used to be 100 yards of beach when I lived there. You had to walk hot sand, as far as you could see, to get to the water. Now, it's just at the street.

You have to release the

energy. You've got to release the energy somewhere, not on the beach.

JOHN POULOS: Have a good night.

JESSE HORNSTEIN: Anybody else have questions?

MARK HARRINGTON: Mark Harrington from Newsday.

Can you explain why it's such a large expansion to those two or three that are going up to 850? And do you have materials sort of earmarked for that to build it that large?

CHRISTOPHER LaPORTA: There is quite a few -- there is lot of material out there. More comes into our sites as times goes on. As I mentioned before, there is potential for large volumes of rock to come -- construction material comes our way from time to time. Only certain things we will accept because they need to meet our guidelines, overall.

But there are large numbers of steel vessels, larger pieces out there too.

There is a discussion of that cost. There has been discussion of a lot of other materials that are out there. So, a lot of it really comes down to funding, and that's the way it's been for a long time. We would have put a lot more material out years ago, but it's an expensive proposition to do. We are looking to move forward on that.

I don't think there's so much of a situation where there's a lack of material. It's a matter of securing it, preparing it, then transferring it out, and sinking it; and all of that is a lot of money, it can take. We basically take one project at time. We have -- I don't know. We have at least - I don't know - a dozen going on now.

JESSE HORNSTEIN: Yeah. I

mean, part of the material issue is when and where they come about. So, if there's a construction project going on, and it's right on water, it's a perfect opportunity to get that and barge it out to the reefs. But a lot of construction projects going on further from the water access, they may not be quite as easy to get them down to the reefs.

So, part of the material issue is just the opportunity to finding the materials when they are there for the taking, essentially. It's not an easy thing to do.

MARK HARRINGTON: Did you say railcars?

CHRISTOPHER LaPORTA: They are big to consider, just like subway cars have been in the past. Railcars have come into the picture, among other things. There is quite a bit out there. Variety is always of interest. We are trying to vary

that. They would be more of steel. We do use green steel, green concrete and also rock. So, something like that could happen.

MARK HARRINGTON: Is there any consideration given to downsizing some of the spots? The acreage seems like a pretty large sudden expansion to do 400.

CHRISTOPHER LaPORTA: That's what we were originally considering, but the thought was to be going larger. The way we build -- and I don't think I made this very clear before. We build in a patch reef method. When you build patch reefs, you are purposely leaving spaces in between materials.

So, when I design targets to put these materials down, I try to keep them far enough part, so that you're having natural habitat in between. So even though it may be sand, there is still a lot going on

down there. There is a lot going on, whether it be sand dollars, which we just recently came across in some of the video.

It's also known that live sea bass like to forage actually off the structure, and not on the structure, itself. So, you're trying -- and some are fluke, some are flounder on the structures also, and out and around.

CARL LOBUE: Just a follow-up question.

The fact that you guys are going out to designate these areas, it could be a really long time before it gets filled, so I think it makes sense to drill these areas. That would make these other areas off of Shinnecock and Moriches on par with Fire Island and the other reefs that you kind of want the same size; is that correct.

CHRISTOPHER LaPORTA: It's

actually a very good point Carl is making. Because the two sides of Shinnecock and Moriches are very, very active. We have had sponsors in the past that have created a lot of reefs. They are at 14 and 35 acres -- tiny, compared to Hempstead and Fire Island, which have been around for just as long, and both of those are 744 acres.

So, the expansion out east is, basically, to bring them on par, but also very active areas out there. We have received materials from up north. We have worked with New Bedford in the past.

JESSE HORNSTEIN: I will also say too, one of the things we do is an aerial survey of reefs to get more of an idea of usage of the reefs. So, one of the things we found out through that study is the bigger reefs tend to have more people fishing on them.

Part of the program is also to provide this habitat, which then provides an economic benefit to recreational fisherman, divers, and so on. So creating these bigger, larger sites will, in theory, also have a bigger economic impact on the Long Island economy and allow more people to fish on those sites, as opposed to having a smaller space, where you can only get so many people fishing on there at once.

MARK HARRINGTON: Is this a situation where the amount of debris, the amount of material is driving the size, or is it the plan that is driving the size and looking for material?

CHRISTOPHER LaPORTA: Well, basically, the plan does drive it to a degree, but the situation being, if we had something very large offered to us, we are trying to plan ahead. So say the deep water sites or the

larger sites, if we had something very large offered to us, say like a 300-foot vessel, or something along those lines, we can't really put that on Moriches right now, or even Shinnecock, because they are already so small and they are already well populated.

So, it's kind of a little bit of the chicken and the egg, but at the same time, we are trying to look into the future. And the plan right now, as Carl had pointed out, which was very, very well put, if this happens, we are going to be building on these sites for many, many years to come. It's not going to be something where we fill them up next week. It's going to be many years, probably after I'm retired.

MARK HARRINGTON: Is there a big construction project concept that's in the works?

CHRISTOPHER LaPORTA: There

are different projects that we have become aware of, but nothing more specific than the West Point project, and even that is not definite.

JESSE HORNSTEIN: That's another thing. A lot of projects have come up, but it's never definite until the end.

CHRISTOPHER LaPORTA: Yeah. I have had quite a few slip through my hands, including others that looked really very good, unfortunately. That is just the way it works in the reef business because we think the beneficial secondary use of reefs material is the lesser expensive disposable option.

Essentially, if the construction groups are looking at this -- like, we have the Mill Basin Bridge, we have City Island Bridge material, also. That's because it was less expensive for them to bring the material because it was located

on the water, as Jesse had mentioned before, less expensive for them to actually put it on a barge and take it out to the reef site, which actually makes it to now be a win-win, than to be a landfill, which landfills erode also.

MARK HARRINGTON: I have another question, which is is there any thought to or is it done, any sort of the preparation for the site beforehand before you drop this, as opposed to just dropping everything?

CHRISTOPHER LaPORTA: Very, very focused surveys need to be done beforehand. We dont just go out and grab the site. Basically, what we have had -- the imagery work done to see what's on the bottom right now, and also sediment work to see if it's a productive habitat.

We also reach out, when we can, to fisherman to see if there's any commercial work going on over

there, the same thing, surf clammers and things along those lines. All of this is brought into effect beforehand. That is also why we come out for public comment.

JESSE HORNSTEIN: You know, these sites are sited in areas to avoid things like very dense surf clam beds and very popular commercial fishing. We want to avoid those areas.

CHRISTOPHER LaPORTA: Yeah. We are just looking for, what I would call, a desert out there. It's still alive, but technically, just sand, for the most part. I have dove on these many times, and all you need to do is just go off the site maybe like 50 feet, and literally, it's just a desert, and then you come back to this structure, and it is just an oasis. It is just amazing.

PETER KISSINGER: Yes, how are you? My name is Pete Kissinger. I'm

a pin-hooker, and my father was a party boat captain for years.

On your reef program, that's great. But you're saying it's supposed to spread stuff out on the Atlantic Beach Reef, they call it the wall. It's a mile long. On the weekend, there's a thousand boats there. Everyone is fishing there on top of each other, we are losing anchors. And I mean, my best fishing is on little drops that are half the size of my boat.

You're building a bigger fish area and habitat of the fish, and I'll tell you this much, that is more profitable for me. Even some of the tugboats and barges are sinking. You're burying them there right in the middle of the reef and then dumping more concrete on top of it.

CHRISTOPHER LaPORTA: Actually, your point is well-taken about the rock wall. That was an

experiment.

PETER KISSINGER: But even Rockaway Reef. You have stuff from the bridges right in the middle of the reef, which I stay away from because it's very populated. It's very hard to anchor there. They were dumping all that new debris right on the stuff that already had growth on it. You're killing it and it's going to take that much longer to build up.

CHRISTOPHER LaPORTA: The thing is it's more of replenishment because what happens --

PETER KISSINGER: Well, I'm just saying. I fished the dropped for years, and my father fished them too. They are the size of -- twice the size of that table, and they are very productive. We hit, we run, and there's maybe 50 drops like that. There are guys who do it for a living. It keeps the sport fisherman away from it because they can't

really accurately anchor on it.

CHRISTOPHER LaPORTA: It's not an exact science, I'll tell you that, after my 20 years of doing it. It's a situation where we have stayed way from Rockaway for quite a long time. It's very low lined. It was supposed to be originally built well before my time as a drift fishing reef. I have dove on it before. There is not really a lot of high profile. A decision was made.

PETER KISSINGER: There's second ground tackle. You know, every time we go to anchor up, you can't even drop your anchor. If you go another 15 feet, you still can't drop your anchor.

I stay off the reef. I fish the little drops. It's more -- I'm just saying, if you can make little drops -- it doesn't have to be 15 feet. It has to be maybe three to five feet, and that is very productive as well.

CHRISTOPHER LaPORTA: I will

take that under good advisement for the extension of Rockaway.

PETER KISSINGER: People I am friends with who are in the field feel the same way. On the weekend, you can't even get in there, and there's guys five feet away from you just anchoring on top of you.

CHRISTOPHER LaPORTA: It's unfortunate, but as Jesse was saying before about the aerial service that we do, we have been counting boats for a long time, and it's amazing how many more you get to the west because of the number that are out there. So essentially what you're saying, there's no way I'm going to refute that.

PETER KISSINGER: If you made a lot of little drops --

CHRISTOPHER LaPORTA: That's what we are trying to do. That was done a long time ago. That was done, once again, kind of experimentally.

Let's do this as a drift fishing reef, let's say. So, we now have the opportunity to build out another 220 acres; that would be to the south of that area. So, that is where we are going to start working.

PETER KISSINGER: It seems like Rockaway, it's the same debris. There is a seaweed bar there. We are able to anchor in a safe manner, but it seems like when they did those, they were drifting and just cleaning the rest of the barge off.

CHRISTOPHER LaPORTA: They put a lot of material there. If you think about it, it's 430 acres. When we were putting the -- actually, the transco pipes went out first. Those actually went out in 2015. Those were put down in like 2016, 20 to 30 pipe drops. And those were very effective. We started that with something different.

PETER KISSINGER: Even the

Atlantic Beach Reef, they dumped the Good Humor trucks years ago, and they just dumped all that railroad right on top of the barges and everything, and covered it.

CHRISTOPHER LaPORTA: I can't speak to that. All I can tell you is the way I build reefs, when I do that, is basically something goes down here, something goes down here. I keep them apart as best I can. Sometimes, I will try to put them close enough to where, say, divers may be able to get from one to another. It's not as easy to do, but that can happen sometimes.

But I will never -- unless we can document that the material that is down there is dead or pretty close to being dead and unproductive, then in the reef building business --

PETER KISSINGER: As far as you had old army tanks on Hempstead, they are all spread out. We can

anchor shipS to them, some barges that are spread out. But when everything is on top of each other, you just have a big line of boats on the weekend.

CHRISTOPHER LaPORTA: That's the unfortunate part. And that is actually speaking to what Mark was saying before. As far as the expansions go, and we touched on this too, is that's another reason for expanding these. This is what you don't have.

I have been on the Hempstead Reef trying to do a dive with friends and, literally, every piece was being hugged that day, and we had to wait until the afternoon for someone to move off a piece, so that we could go in.

So, the purpose of doing these expansions is to allow more opportunities for both fishing and diving, and then the replenishment,

which basically takes time. So, that's it.

BRUCE FORRESTER: Bruce Forrester. I'm a board member for the Freeport Tuna Club.

We are very much in support of expanding the territory and provide the funding to increase the size and numbers of the reefs. Our member take great advantage of all these pieces.

As far as the Shinnecock, I wanted to ask, how did you select the Sixteen Fathoms as a location, and you and I had spoken briefly about the upcoming impact of the wind farms in Collera [sic] that are coming, apparently, and how that affected your decision making and where that should go.

CHRISTOPHER LaPORTA: Initially, to address that, Bruce, initially, when my predecessor, Steve Heinz, and I were talking about

creating deep water sites, 12-Mile, which is what you say before, that was supposed to be the eastern site, which did come to fruition. The Sixteen Fathoms Site, which was actually the original, was supposed to be around the Collera event.

That's what we thought would be most productive as a deep water site to the west. It's not as deep, but as large of a site would be good, and advantageous to both sides, meaning east and west fisherman and divers. That, unfortunately, didn't come through because of issues -- requirements that were being required by the Coast Guard. We just couldn't fulfill them, at the time. So, Sixteen Fathoms went away.

Now, with this happening all together, in looking at what was available to us in all of these leased areas, it just did not make good sense -- sense is probably not

the right word. There's a better chance of having this proposed site be put in a little further to the east than it would be to the west.

So, the current location, which is not by Collera, it's a little bit of a distance from there, that's how we arrived at that overall.

And then when you were talking about the wind farms, the monopiles that are going in, those would be the fact of artificial reefs in a different way. We can only build up a certain -- for navigational purposes, we can only build up a certain amount of height off the bottom.

So, that's -- it will be interesting when all that happens, overall. So that's a little bit of a competition, in a good way. It all depends.

JESSE HORNSTEIN: Yeah. While

all these sites are proposed in these areas, depending on the feedback that we get for the permit, they may shift around a little bit here and there. So that may not necessarily be the final location, but just to put that out there.

CHRISTOPHER LaPORTA: That's a very good point. Surveys that are being done right now, HDR has been doing quite a bit for us, the consulting company looking at what's out there, say, the Sound, in particular. The Sound is a very busy place. We have to avoid areas where there are cables down there, whether it be existing shellfish beds or productive spawning areas, anything along those lines.

Also, another thing I didn't mention before was I was talking about sandy bottoms. Some of these bottoms may be silt or mud. And that we'll avoid, because it's -- things

sink into them a little bit quicker. It's not as productive a habitat. It could be potentially hypoxic during the summertime too.

So, we try to avoid any area like that, that would cause any negative issues. It's all about making homes for our little finny and crusty friends.

CARL LOBUE: Something for you to think of, I said on my survey, environmental technical working group, we have a meeting on Monday. They are just about to fund a 5.5 million dollar geophysical and geotechnical survey of the potential lease areas. They could probably cover this Sixteen Fathoms Reef for, like, no cost for you guys.

So, they haven't written a contract yet. If you send them a map, I mean, the boats can be out there to a cover a piece that size is, like, nothing. But that's going

to happen in the next eight months. It would give you to the geo -- it will tell you what the bottom looks like.

CHRISTOPHER LaPORTA: Absolutely. Thank you for letting us know about that. As Jesse said before, it may not necessarily go right on that spot, but the more information --

CARL LOBUE: They haven't written the contract yet, but they will be in the next couple of weeks. So give them a call, and send them the coordinates. It's worth a shot. It's a free survey.

CHRISTOPHER LaPORTA: I heard there was a lot of work done after Sandy, and I can't get my hands on it. It probably would have been awesome to do that. It would have saved us a few bucks.

JESSE HORNSTEIN: Did you have a question back there before?

JOSEPH MARESCA: My question is, basically, your funding. Where do you stand on talking about all this material and all that?

CHRISTOPHER LaPORTA: Right now, the New York government is coming up, New York Power Authority, among others. That's some of the bigger funding that we have received recently. There will be other sources that will come forward also. Folks that are looking to, say, donate materials. They will help out too.

We have had sponsoring organizations in the past, and now that the Reef Program is beginning to ramp up again, the word will be going out. I have been talking to Bruce in the Freeport Tuna Club about possibly helping out in the future. Other, say, fishing clubs, the Moriches Offshore and Moriches Anglers, actually subsidized quite a bit of

the Moriches Reef, which is now going to be, hopefully, expanding too.

So, we do get some internal funding through, sometimes, the Environmental Protection Fund, through state funding. Then any match that we can work with, we certainly will.

So, things are coming around right now. The governor has been very, very helpful with this artifical reef. We started this in 2018, and we have seen some serious significant growth in those two years, as compared to -- I mean, it certainly was not precedent.

JOSEPH MARESCA: Basically, whoever is providing the material, basically, is going to have to donate the dollars to move, dump it.

CHRISTOPHER LaPORTA: What happens is the materials from the Tappan Zee, that was all donated. Basically, I believe a majority of

that was donated, but funding had to come up with to, basically, take the materials, prepare them in any way that we needed, take plastics off them or anything that was not an acceptable for reefing. After the preparation, then they get loaded on and they get taken out. So, all of that was extra funding.

People come to me, and I have had it done a lot in the past. I had -- there was a 220 steel freight up in Massachusetts. They were going to give it to me for a dollar. We didn't have two nickels to rub together, at that time, in order to take it out. That was a shame, missing that.

So, the reefing business is a hit and miss. A lot of it is if the funding is available, we can do it. If there is a lesser expensive opportunity, it happened in City Island and Mill Basin. They came to

us. We worked closely together.

So, that's how it works. It's pretty complex, overall. If I ever won the lottery, it would be a different story, but we will see what happens.

MARK HARRINGTON: Is there any plan to remediate older sites that have things like tires and stuff that you would not be dumping there?

CHRISTOPHER LaPORTA: We are not aware of where the tires are, at this point. Basically, I haven't seen them diving on spots, that I can recollect. A lot of the materials, and that's why we don't use things like tires, is stability and durability profile with them is totally lacking. Basically, if you look at a tire, it is a durable structure, it's going to last a long time. It is not stable at all.

Any materials that we put out, which is really paramount, is that we

have a permit to put materials down on these coordinates, this square, not outside of it. If something goes outside of it, it's a violation of the permit.

So, the reason why we don't use things like, say, tires, is because they are either going to move, or they are going to get buried, just like the gentleman was saying before. I was trying to bring that out.

So, what I have seen so far, and from the video that we have taken under water, we haven't come across things like, say, a field of tires or something along those lines. North Carolina had that horror show. So, the assumption is whatever we put down, or whatever was put down many, many years ago, decades ago, is either buried -- more than likely, it is just buried, just gone.

JESSE HORNSTEIN: And we will

replenish those areas with new materials and create productive habitat again.

CHRISTOPHER LaPORTA: Similar to what we were talking about with the Rockaway stuff.

JESSE HORNSTEIN: Stuff gets buried over time, and sometimes, the ships will break apart, and then they fall to the sand, and then over time, you need to replenish it with new materials to keep the reefs producing and functioning.

CHRISTOPHER LaPORTA: Those large pipes that we put down on transco, the transco pipes on Rockaway, they are beautiful. But the problem was they don't have a bigger profile, so over time, what's going happen is it will just work its way into the sand, and it will be buried in the next ten plus years.

MARK HARRINGTON: Can we talk about the non-native species that get

attracted to these because it's warming, which species are these, and how much of an issue is that?

CHRISTOPHER LaPORTA: With different species, we are in the early stages of that right now. We have traditionally and historically had tropical stragglers coming on on the Gulf Stream. That has been happening for a long time.

MARK HARRINGTON: Those aren't native?

CHRISTOPHER LaPORTA: Fish that might come in that would be displacing native species, or indigenous species, say like black sea bass, tautog, porgies, those, I'm not aware of any competition right now -- any heavy competition that would be displacing them.

JESSE HORNSTEIN: I mean, I think as far as reefs go, whether or not they are there or not, as the water warms and changes, they are

going to have this competition regardless of the reefs being there or not, and naturally, every year, you get tropicals and all kinds of different species that make their way up here. Right now, winter is getting too cold for them. Most of them, they don't make it back down south, they end up dying. But as the water warms, things are going to change and it will certainly be an interesting study, if nothing, to watch as things change.

CHRISTOPHER LaPORTA: Fortunately, we haven't experienced anything like, say, Florida is with the line fish. That is a non-native species that is coming in, and taking over, and not in a good way. So, hopefully, it won't happen in our life.

MR. HARRINGTON: Is this going to be the largest on the east coast?

CHRISTOPHER LaPORTA: Not on

the east coast. Other programs have larger sites. I'm just going to say, like I'm just going to cite South Carolina because I'm familiar with their program. Their largest site is I think, if I remember correctly, two miles by six miles. The 850-acre sites are one square nautical mile. So, to give you an idea, that one site is bigger than all of our sites put together.

New York is trying to get in the game a little bit more. We are trying to beef up. It's long overdue. And thanks to Governor Cuomo and his artificial reef initiative, we are moving in the right direction, overall. There is a lot more to be done, and hopefully, through the supplement to the GEIS, we will be able to take care of expansions, and get more material out there, and get more opportunities for our fisherman and divers. That's one

of the goals.

MR. HARRINGTON: Is there a budget for it, or is there a number that you have allocated as a budget this year?

CHRISTOPHER LaPORTA: I don't think we have anything specific set in stone right now. There have been some --

JESSE HORNSTEIN: It varies from year to year, but there is -- I mean, they are looking into a budget line for the program, and putting it more on par with other states.

CHRISTOPHER LaPORTA: There has been discussion, but nothing is set in stone. Ideally, that is what you would want to have. You would want to have a, say, specific identified funding source, but right now -- or something that will be a budget. Many different states have these three different things, like, say, licenses and things along those

those lines. So, we will see what happens in the future.

MR. HARRINGTON: And how soon will this start, if approved?

CHRISTOPHER LaPORTA: When we get permits.

JESSE HORNSTEIN: We are hoping to get the permits. So, after this is all finalized, this is a draft, and then when the commentary closes, we will get it revised and turn it into a final document, and then permitting process, we are expecting, within the next year or two, to have these permits.

So, it's a long process, but we also have to get other studies done on some of these sites. So, there is a lot of moving parts.

JOSEPH MARESCA: Is there a finite light for the permit?

CHRISTOPHER LaPORTA: Technically, they are usually ten-year permits. There are

five-year permits, as well, but in New York State, all of ours have been ten-year permits. So, certain permits, the ones that we originally had -- not originally, but the ones from 2008, 2010, they will be expiring this year. So, we are hoping to either get an extension on those. We probably won't have them renewed by then, but we could apply for an extension.

Ideally, what we would like to do is just marry all the permits together. I think we are going to be under one instead of separate ones.

JESSE HORNSTEIN: Just another thing about the permits. They may come in shifts. So, like, all of them might not come at once. We may get permits for some sites and then permits for the other ones, at a later time.

CHRISTOPHER LaPORTA: It takes more time to permit a brand-new site,

because you need to -- it's something that's, say, as compared to something that can be grandfathered.

So, the expansions of, say, Shinnecock, Moriches, Rockaway, Hempstead, and Fire Island, and also Smithtown, those would be possibly an easier take on that, because it's -- they are kind of adjacent to existing. So, we have data on them and good information, compared to the site at Sixteen Fathoms, as with the case with 12-Mile.

MR. HARRINGTON: Is there a reason why you haven't done any of these programs out by Montauk? Why not go east?

CHRISTOPHER LaPORTA: Basically, we have had some input about that in the past. We tend to stay away from very productive areas, if we can, because there's a lot of other areas that really need it. It's not that we don't like the folks

out on Montauk, but they have a really productive fishery out there. Also, the water is a lot deeper. There is a lot more live bottom.

JESSE HORNSTEIN: There is a lot more rock and rock habitat. In Montauk, the old saying is "If it ain't broke, don't fix it." It's some of the prime fishing on the east coast.

CHRISTOPHER LaPORTA: Probably one of the reasons why Connecticut doesn't have a reef program, because they have all natural rock over there?

Anybody else, comments? I think we're good.

JESSE HORNSTEIN: Thank you all for coming.

CHRISTOPHER LaPORTA: We very much appreciate your input. Thank you for coming down.

JESSE HORNSTEIN: Yeah. If you have any other comments, the

period is open until the 21st. So, feel free to send them in to us.

CHRISTOPHER LaPORTA:

Appreciate it.

(Time noted: 7:12 P.M.)

C E R T I F I C A T E.

STATE OF NEW YORK)
: SS.:
COUNTY OF SUFFOLK)

I, EILEEN MONTEAGUDO, a Notary Public for and within the State of New York, do hereby certify:

That the witness whose examination is hereinbefore set forth was duly sworn and that such examination is a true record of the testimony given by that witness.

I further certify that I am not related to any of the parties to this action by blood or by marriage and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of February 2020.

_____
EILEEN MONTEAGUDO

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

----------X

DATE: February 10, 2020

TIME: 6:00 P.M.

MINUTES OF PROCEEDING of ARTIFICIAL REEF PROGRAM PUBLIC MEETING, taken at NYSDEC Marine Resources Headquarters, 205 N. Belle Mead Road, East Setauket, New York 11733 before Stephanie O'Keeffe, a Notary Public of the State of New York.

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MS. SOCRATES: Good evening everybody. Thank you all for coming.

I'm Julia Socrates, the Bureau Chief of Marine Habitat here at the Division of Marine Resources. Our Assistant Division Director, Dawn McReynolds, is here as well. This is Christopher LaPorta from our Marine Access and Artificial Reefs Program.

Tonight we're here to seek comments from all on our Supplemental Generic Environmental Impact Statement for our Artificial Reef Program. Chris is going to be giving a presentation about the GEIS.

Before we start that, just to let you -- some of you have been here before, but we have exits at the back of the room. Over here is an emergency exit if we need evacuate. Bathrooms are down the hall to the right.

If you haven't already done so, please sign up and let us know that you have been here tonight.

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If you would like to speak, you can check off on there that you would like to make a comment. If you don't wish to speak, there is also a form you can fill out or take with you afterwards.

Chris is going to go through the presentation. We ask that you hold all of your comments to the end. He'll call the people that have checked off that they want to speak.

After that, we will open the floor to other additional questions for people that have changed their mind about speaking.

Chris.

MR. LaPORTA: Thank you, Julia; and thanks everybody for showing up.

It's pretty exciting times in the wonderful world of New York reef building. As many of you know, it's been quiet for quite a few years up until 2018 when Governor Cuomo decided to step in and give us some resources to

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get the job done.

The presentation we will be talking about tonight is what Julia mentioned, the Supplemental Generic Environmental Impact Statement.

What that is going to give us is what we need in order to move forward.

(New slide.)

A little program history, back in 1962 is when the reef program was officially established, let's say. In 1993, my predecessor, Mr. Steve Heinz, some of you may know Steve, he was the one that actually wrote the Generic Environmental Impact Statement and Artificial Reef Plan that this program has been operating on since then.

'93 is a long time ago. Guess what, it needs to be updated, so that's what we're doing here now.

In 2020, the draft Supplemental Environmental Impact Statement was completed. That is basically gonna update the '93, and this is what we are

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going to need to move forward for new permits, etcetera.

Simplified, the program mission is to provide additional fishing and diving opportunities by enhancing local marine habitat with the beneficial use of approved materials to construct artificial reefs in New York's marine and coastal district.

(New slide.)

Okay. This is the proposed action, this is what we're currently proposing to do.

We're gonna continue the use of all the previously permitted reef sites. There are currently 12.

We're looking to expand seven of those sites. Essentially what we're looking to do is double the current acreage. Those sites that we're looking to expand are Rockaway from West to East Rockaway, the McAllister Grounds slash Fishing Line Reef, the Hempstead Reef, Fire Island, Moriches. Shinnecock and

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Smithtown up in the Sound. All of these are either, or they're all the ocean, south shore.

The other exciting news is, we're looking to create four new artificial reefs. Three of them will be in the Sound, many people have been waiting for this for a long time. When I started at the helm 20 years ago, people were asking about getting new signs, new sites, excuse me, up in the Sound. Three will be in Long Island Sound -- I'll show you the locations that are proposed, none of this is set in stone -- and one is in the Atlantic Ocean, that will actually be south of the Fire Island Inlet, a little bit to the west.

Okay. Here we are. Let's see if this actually works on here. No, it doesn't. That's not a surprise.

(New slide.)

Okay. Starting up in the north shore to the west, starting over here

(indicating) at the Shinnecock Reef, basically looking here, Huntington, Oyster Bay is the first new site for the Sound. This is the second (indicating) Port Jefferson and Mt. Sinai. As you can see, they're strategically located near areas of egress where there are boats, marinas, etcetera. The last one is Mattituck Reef, over here (indicating). Those are the 350-acre sites that we're proposing.

Also, the Smithtown Reef, a lot of material that was placed not on the coordinates many, many years ago, what we're looking to do is expand that site in order to include all the materials there, so it will all be one happy family.

Now, moving on the south shore from the west to the east, Rockaway Reef, we're looking to expand, and I'll show in the table following this, the size of the expansions. Expansions, Rockaway Reef, McAllister, Hempstead,

the brand new site, which is particularly exciting to me is Sixteen Fathoms which will be the complement to Twelve Mile Reef. So Hempstead expansion, McAllister Grounds expansion, Fire Island Expansion; Kismet and Yellowbar will stay the same; Moriches and Shinnecock also expansions; and Twelve Mile will remain the same.

(New slide.)

Okay, now we're gonna show you it in numbers. Some very significant expansions. Starting with Rockaway once again, currently 413 acres, the proposed acres we have, are looking for, are 635, an expansion of 222 acres, significant expansion.

Going to the McAllister Grounds, that will be really quadrupled. That will go from the current 115 acres to 425, a net gain of 310.

Fire Island and also Hempstead are in the same ballpark, they're our second-largest sites at 744 acres, we're

looking to round them off at a square nautical mile to 850 acres, a net gain of 106 acres.

Shinnecock are Moriches are the big gains because they are currently very small and very populated, 14 acres for Moriches, 35 acres for Shinnecock, bringing them both up to 850 acres. Once again, proposed, nothing is set in stone, but this is what we're proposing to do, and that will be a net gain to a serious amount of acreage there.

Moving on, Twelve Mile Reef will stay the same at 850 acres.

Yellowbar and Kismet will stay the same.

In Great South Bay, no expansions there.

And as I said before, Long Island Sound, Smithtown going to 31, a net gain of 28.

Those are all the expansions that we're looking at right now, the proposed expansions. Then we move over to the

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proposed new reef sites.

As I mentioned before, 850 acres for the Sixteen Fathom Reef, that will be the complement to Twelve Mile Reef. Both deep water, that's in about 100 feet of water, twelve miles 120 to 140.

And then we go to the Long Island Sound, each of those will be 50 acres. We're kind of like wading into the waters gently because it's a very productive area and when we site the different reef sites, we try to put them in areas that are not productive at all.

Those are the current -- and also, I should review this, we're currently at about 3,300, I'll say 3,400 acres. We're looking to expand, doubling the acres to over 6,800. That would be a net gain of over 3,400, so this is the proposed plan. So remember this because we're gonna have other proposed alternatives also after this.

(New slide.)

The project's purpose and need.

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As I said before, updating the GEIS, absolutely necessary to do, mainly to address advancement in science and knowledge on artificial redevelopment. A lot of water has gone under the bridge in the past 20-plus years and that's something that we need to keep up on.

We're going to fulfill New York's obligation under the National Fishing Enhancement Act in accordance with the standards of the National Artificial Reef Plan. That's how we've always done things.

We're gonna provide fishing and diving opportunities for reef-associated fishery resources, those are the structure-associate species, so it will be done through selective placement of artificial habitat in State and Adjacent Federal Waters. Those are the sites, all but Hempstead, Atlantic Beach, Sixteen Fathom, and Twelve Mile, all but those are in State waters, those four are in Federal waters or will be.

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Also, enhance and restore fishery resources and associated habitat to the maximum extent practicable utilizing artificial habitat which is what we do in the reef program.

Also, administer and manage artificial habitat to ensure its prudent use as part of an over fisheries and management program. That's really the basis of artificial reef work.

(New slide.)

Okay, some of the benefits, you may be aware of these, if you're not, basically aquatic recycling is what I call it, beneficial secondary use of materials. What we're doing is we're taking things that are no longer used or no longer of value that are on land, rather than being landfill, they're cut up or whatever, we're taking them and we're cleaning them up and recycling them.

We're adding more complex diverse habitat through conversion of low

diversity benthic community. I often refer to the ocean as a desert in many area. If you have ever dove out there, you know what I'm talking about. A lot of it is just sand, silt, and mud out there, but it's just barren. It's not that it's not productive, there are organisms living in there that are important, but what we do is we take those areas that we target in order to create these sites and we put in high-profile, stable restructure. Stability is a very big thing, but when we put something down, we want it to stay there, but also, you're coming up off the bottom, you're creating a more complex habitat because things may grow on the bottom, but a big storm is gonna wipe that out.

So we're gonna improve habitat for structure associated species which are lobster, if you fish or dive on these, you know what I'm talking about, blackfish, sea bass, cod, etcetera,

there's a lot there.

We also provide foraging and refuge areas for threatened and endangered species and larval state species, very important. Some people look at this and say, well, you know, we may be displacing them, they provide benefits for them also which is very important, so keep that in mind.

And the things that we appreciate most, benefits to recreational angler and scuba divers and some commercial fishermen also.

Granted, some of these sites, you cannot roll commercial gear over or nets or whatever else because they will get hung up, they call them hangs, but that doesn't negate some trap fishing going on which would be like lobster traps in State waters, no fish pots, and also our friends out there who commercially fish on the reef sites are welcome to continue.

(New slide.)

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These are some of the impacts. I am not gonna go through every one. These are all addressed in the SGEIS which is available at the very end. I'll show you where the link is, and you can check it out. Basically from physical to biological to human to marine regulatory areas, these are all things that have effects. Some are, most of them are positive truthfully, but I will let you wade through that, or if you have questions later on after I'm done with the presentation, you can feel free to ask during the public comment period, but these are just some of the things, some of the many things that they do affect.

(New slide.)

Okay. Permanent impacts and mitigation. Bethmetry, as I mentioned before, relatively flat featureless bottom will be turned into stable vertical structured habitat. Impacts to navigation will be mitigated by

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maintaining permitted vertical clearance depths above structures.

What that means is, our permits, our current permits state that we can only build up a certain amount of feet off the bottom. That is for navigational depth clearance for traffic that goes through, these large tankers, some of these things take 50, 60 feet of water, which is incredible, so we have to maintain that depth.

Benthic Communities, they're gonna be directly impacted when we're producing or creating new reefs and hatcheries, it's inevitable, some of these areas are gonna be affected by things growing on top of them, and basically what we call habitat conversion. So what's gonna happen is this permanent loss to some of these endobenthic species, whether they be clams or the life that can't move out of the way, but that is gonna be mitigated through the creation of this complex

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structure which is growing and which increases diversity quite a bit. There have been some great studies out there about just increasing it tenfold, sometimes more than that.

As I mentioned before, commercial gear, mobile gear will no longer be able to fish the reefs unless people don't mind getting their gear hung up, which not many do, so basically, they will avoid it. They will actually drag around the reefs which they have been known to do, but not on the reefs themselves.

New reefs will only be sited in areas that are not productive commercial fishing ground. That is all down beforehand, we research this, along bathymetric studies, and we do bottom grabs also to characterize the areas, what's living there.

In addition, the reefs represent less than 1 percent of the total open water area available for commercial

harvest. That's an important thing to remember. As I mentioned before, New York, we're looking to go to about 7,000 acres. I did a little bit of research earlier, Jersey currently has about almost 16,000 acres, the Carolinas, they have 20,000 plus, so New York is kind of behind a little bit here, trying to do a little catchup, but it's just gonna provide better habitat overall, and it's gonna benefit commercial rod and reel fisherman also.

(New slide.)

These are the alternatives.

The no-action alternative, and these are all proposed inside the SGEIS for you to read.

No action is to continue the current reef program until the permits expire, then no additional improvements. We have kind of a hodgepodge of permits right now. There are some that are due to expire later this year. There are others that will last for another eight,

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nine years or so; so we're trying to pull all this together. Basically, the no action would just let the permits expire and we wouldn't do any additional improvements, everything would just stay out there, over time it subsides and will also eventually fall apart.

The propose action is what we described to you before. What we're looking to do is provide the greatest potential resource benefit that aligns with the Reef Program Mission.

Fewer expansions is something that we were thinking of doing before, meaning not as much, not doubling. We were looking to go a little larger, about 2,000 acres or so, addition of a single site and some expansions, but that's not our current proposed action.

We could also maintain the current program. Basically, no expansions or new sites. It's gonna improve the existing sites, we'll still build on them through patch reef

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additions, but it's restricted to those sites in particular. Some of those sites are almost full right now. You can only build up a certain amount. What we do is we patch refill, so we don't carpet bomb the whole bottom. We actually give space in between the species that exist to their advantage and also, sea bass like to forage offsite, off the actual structures.

Lastly, development of special management zones. Some of you may be familiar with these. These are proposed actions where, either some or all of the sites through regulatory management can actually be used to restrict, say, gear usage. There are some places, some reefs where, not in New York, but they're restricted to say, hook, like, and spear, meaning, no traps, no other gear, no mobile gear, none of that can be used. There are actually -- I know there's one site down in South Carolina, I still don't know how they do it, but I

think it's called Area 51 or something where nobody but the reef program knows where it is. What's awesome about that is, you get to really do your control versus your used reefs, you get to see what's going on. So that's how SMZs do come into effect.

If you're familiar with New Jersey, they had a very serious situation happen where they actually lost their funding because of conflict between commercial the recreational usage, so avoiding potential conflicts.

(New slide.)

Basically, that's it pretty in a nutshell. The draft SGEIS is available for review. You can go to the DEC website and that's where you'll find it right there.

Comments can be forwarded electronically to us, written also, we have sheets in the back over there. Some folks will be providing verbal comment here right now.

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If you have any additional questions after tonight, feel free to contact me. That's my contact information and that's my e-mail address, and in case you don't, Sandra Clopp, right, this is a diver on the Shinnecock Reef on the Tug Reliable which is a New York canals corporation 75-foot tug that we sunk on the governor's initial event back in 2018 and within weeks, the fish came in and within a year's time, if you were looking at the video before, it's overgrown, we green muscled, it's a living reef right now and will continue to be.

So that all being said, I'm gonna take a big drink of water here, I've been doing a lot of talking, so it's gonna be your turn now.

We have some folks that have selected to give public comment. First within a reasonable short period of time, if you have any questions before

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we go to the public comment, we can address those now.

MALE SPEAKER: Question about the Sixteen Fathom Reef.

MR. LaPORTA: Yes.

MALE SPEAKER: I looked it up online, it appears to be in the traffic separation zone --

MR. LaPORTA: Yes.

MALE SPEAKER: It would seem to be the right place to put it --

MR. LaPORTA: That's why we put it there.

MALE SPEAKER: That's where it is?

MR. LaPORTA: Yes.

MALE SPEAKER: That seems like you got that right.

MR. LaPORTA: Yeah.

The other thing was, just to give you a little bit of background, we, Steve Heinz and I, years ago when Steve was at the helm, when we came to those two deep-water sites, Sixteen Fathom was

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supposed to be closer to Colibar (phonetic), that's ideally what we wanted it to be, but because of the wind farms and all the rest of this that's coming in, I don't think we would have had much of a chance. You know, right now it's still up in the air, this needs to get a lot of approvals, all of this needs to get a lot of approvals before -- none of this is set in stone, as I keep saying, so hopefully it will happen, but nothing is definite. Believe me, there is a lot of work going on before this.

Sir.

MALE SPEAKER 2: So you're talking about, like, restoring habitats, so were there historic reefs there before that were destroyed in some way or --

MR. LaPORTA: Basically, as I mentioned before, most of this is just sand. It's just, literally, if you drained the ocean, you would be looking

at, like, desert on a lot of these areas, so they're not preexisting. As a matter of fact, if there was anything out there that was pre-existing, we avoid it because anything that was there may have been productive and still could be, so we want to avoid that completely. We want to go to areas that are not productive at all and that's, basically, how we site them.

MALE SPEAKER 2: Kind of like a shift away from -- because that seems like that would be the natural ecosystem, if there was no historic reefs, there, it's not necessarily, like, restoring but more like shifting into a more diverse ecosystem?

MR. LaPORTA: The proper term is enhancement. Basically, we're not so much like -- it's not a creation type of thing, it's we're taking the existing habitat and we're enhancing it. So what you're doing is basically, just to make it real simple, mussels and whatever

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else, living organisms that grow on the bottom, sponges, fine that's all good living habitat, storm comes along, they're gone. Sand waves move, they're gone.

We put in something like a vessel, steel vessel, profile comes up off the bottom, it's stable, it's not going anywhere, right, it's hanging out, the organisms come in, they grow on that, storms come through, they're still there. That's the difference. That's the tradeoff in the habitat, you know other between one and the next.

So that's what artificial reef building is really about.

MALE SPEAKER 2: So kind of offsets the, like, the storms and the increased turbulence from climate change and whatnot, I guess.

MR. LaPORTA: Basically what we're looking to do is looking to put areas out there that will be homes, you know, homes -- as one of my old friends

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out east Captain Capuano (phonetic) would say, affordable houses for fish. Basically we're taking this and we're recycling many things, whether it be concrete, steel, rock, whatever becomes available to us, materials of opportunity, we selectively and strategically place things out there. There is nothing that is just random about this at all. Believe me, I've spent many hours siting where certain things are going to go.

MS. WALTERS: What inquiries have been done to estimate or consider the effects of predators that might be attracted to such reefs posing a risk to humans, such as surfers and swimmers?

MR. LaPORTA: Basically, as far as that's concerned, I'm not aware of any particular studies about that, but as far as what we're creating here, the only -- and some divers here can back me up, I mean, I've dove on a lot of these reefs through my years and I have yet to

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see a shark.

MS. WALTERS: But this is new.

MR. LaPORTA: No, this is pre-existing. This has been going on for decades. What we're doing is, we're looking to enhance what's out there right now.

MS. WALTERS: Right.

MR. LaPORTA: This is old science as far as the creatures that are coming in to inhabit them -- well, what you usually will have, you'll have -- you'll put down that structure, say a vessel --

MS. WALTERS: I have a few more questions, so if you don't have an answer to my first question.

So you said, you're not aware of any particular studies, are you aware of any studies that have been done?

MR. LaPORTA: Not for -- if you're talking about large predators and you're talking about --

MS. WALTERS: Okay --

MR. LaPORTA: Let me back up --

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MS. WALTERS: I have one more question.

MR. LaPORTA: Before you go ahead, let me back up once.

MS. WALTERS: Sure.

MR. LaPORTA: These sites are located nowhere near the surf, so no surfers are gonna be --

MS. WALTERS: The new one.

MR. LaPORTA: Any of them. Any of them.

The only ones would be inside the Bay and there are only two small ones there, but as far as, you're talking about attracting predators that could hurt humans.

MS. WALTERS: Yes.

MR. LaPORTA: No.

MS. WALTERS: So if predators -- so sharks don't -- we really enjoy relative safety from any shark attacks right now because there is a flat sense of community right now, so you have already answered my question that no

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studies have been done.

I have a question --

MR. LaPORTA: That I'm aware of.

MS. WALTERS: Okay so the tonnage, what tonnage is expected with this new expansion to be added to new sites, and to be dumped into new sites and to be added to existing sites; do you have an estimate of tonnage?

MR. LaPORTA: No. Actually, we don't because we take materials of opportunity as they become available to us --

MS. WALTERS: Do you have --

MR. LaPORTA: As a matter of fact, I cannot give you an estimate right now because it depends on -- I mean, all of this unfortunately is in the mix. As I said before, right now, the only thing we can build on definitely is what we currently have permits for. This is --

MS. WALTERS: Right. But you can only build up to a certain height. Do

you have an estimate tonnage that would reach that height that you are allowed to --

MR. LaPORTA: I have not calculated that out. That's gonna take a long time to, take it a little bit at a time.

MS. WALTERS: My third question is, what is the expected economic benefit of being spared from otherwise disposing of these very heavy large materials that might cost the government and government subcontractors to dispose of, what is being spared by dumping them in the ocean?

MR. LaPORTA: Not ocean dumping number 1. It's a heavily regulated activity.

MS. WALTERS: -- dumping --

MR. LaPORTA: Please.

It's a heavily regulated activity.

We clean everything up before it goes in. It is expensive, but what

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happens is, there are major socioeconomic benefits to these things. What that comes down to is the fishing and diving industry, people that want to go out, I do this myself, when we go travel to the reefs, you're talking about fishing gear, diving gear, gasoline, boat maintenance, all of this comes in, people go into local restaurants or delis or whatever else, these are the socioeconomic drivers that benefit the reefs.

MS. WALTERS: Sir, respectively [sic], that wasn't my question.

My question is, what is the economic benefit of being spared from otherwise disposing of these outside the ocean?

MR. LaPORTA: I'm not sure I understand your question then.

MS. WALTERS: So if one were to dismantle a bridge, you would need to recycle that or sell it to another country or reuse it here, and that has

costs associated with it. Surely this ocean dumping program will be saving tons of money so that those things won't happen. I'm sure there is an economic, there's an estimate of the economic benefit of not having to do anything with it but put it on the ocean floor.

Do you have an estimate of that.

MR. LaPORTA: I don't have that. You're talking very --

MS. WALTERS: Thank you.

MR. KARPEN: My name is Daniel Karpen, I'm a professional engineer.

I think that the dumping of steel and iron in the ocean is a terrible waste of energy. It takes about one ton of coal equitant to produce a ton of steel or iron and you're better off just dumping concrete which won't rust.

MR. LaPORTA: Okay.

We're gonna turn this over to -- thank you for -- one more question and then we need to get to the public comment on top of that, that's what

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we're gonna do.

MALE SPEAKER 3: You mentioned permits, do you have any idea of the length of the permits, time period of expiration?

MR. LaPORTA: Basically, the average permits that we do, they're either five or ten years, and New York has always had ten-year permits, so once we secure them, they're good for ten years from that date.

One last question, then we'll go to public comment.

FEMALE SPEAKER: I saw a link, thank you so much for explaining everything, I saw the link through the SGEI. I didn't see an appendices in there, maybe I'm looking in the wrong place.

MR. LaPORTA: The appendices, I don't know if -- I thought we put a link to that, I'll have to look back.

You can give me your information or I'll give you my card after the

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meeting and we'll see about making sure that's available.

I want to thank everyone for their questions, now we're gonna get to the meat and potatoes.

What's gonna happen is, we have -- now, anybody else that's interested in providing public comment verbally now as part of this meeting can. If you're not signed up already, you can go back where, I believe Martin is right now and you can sign up, and there is a little checkbox next that where we'll actually call upon you to come up and give your public comment.

Stenographer is over here, we have a recorder over here.

We are going to move along right now and I will have to -- I apologize if I mispronounce anybody's name.

Mr. James Foley. James, would you please provide your comment.

MR. FOLEY: I'D first like to thank you for organizing this. I think

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it's a great, great opportunity for the local fisherman and everybody in this room. I think these people right here are the ones you need to focus on and hear all the comments.

I just ask that when you do go ahead with the reef building project that you do talk to the local fishermen on where you're gonna do with the existing material that you have because the last time you dumped some of the existing material on the current reef, and it caused a lot of problems for us trying to anchor and it also killed a lot of the marine life that was already in place, you know, all the mussel growth that was on the existing reef when you came in and just dumped it all over the Shinnecock Reef. You know, it's great, we love it and I know you're building it up for the future, but in effect it did quiet down the few locations where that material was dropped on top of some of the existing

locations; so I also saw that you said that you spoke to a couple of the fishermen and asked them, you know, what would be a good location for you to dump this stuff but, you know, nobody seemed to contact me or any of the other local fishermen in the area, and I think it would be beneficial to come talk to myself or Captain John from the Shinnecock Star, you can get a grip of where the existing material is and we can point you maybe in the right direction or at least help out as best we can.

MR. LaPORTA: It's a good point. Thank you for making that.

What I will tell you is that whenever we put new materials out, we work with existing bathymetric work, so basically we're seeing what's down there and I do have to say that right now we were working with older -- we just had a brand new survey done last year which is gonna be really huge for us as far as

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determining where everything is, is it -- it's an inexact science in that what I do is I'm the one that actually reviews what's down there to the best of my knowledge with the information I have and I make the determination of the targets and I try to stay with those targets, try to stay away from the existing materials.

Now, that's my job. The next job goes to the people that are bringing it out and dumping it. Now, I'm watching them and if they're live boating, that's where the action starts because then they're not going directly to that target and we try to hone them in as much as we can, so I'm just giving you an idea of the inexact science it is and unfortunately, it's not our intention to actually destroy pre-existing habitat; believe me, that's the last thing I want to do because it takes a lot to get them going.

MR. FOLEY: We understand that.

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I'm just saying maybe you can communicate a little better with the fishing community to find out, you know, we have every piece of, you know, every button located on the reef in our machines, and I'll be more than willing to, you know, share that information with you if it can help, you know, pinpoint on a better location where to dump it in terms of, okay, we can anchor on this piece, but now you dumped material in this location, now it prevents us from dropping anchor there because now it's just a big giant debris field, so that's what I have to add to this.

MR. LaPORTA: Appreciate your comment, and as I said before, it is somewhat of an inexact science, and unfortunately for Shinnecock in particular, it's a small site, Moriches is even smaller. That's the reason for the expansion, so now we can just leave sleeping dog's alone and let people

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enjoy that.

If you need to contact me, feel free to, you know, give me a call, send me an e-mail whatever it is and say, I'd like to sit down with you and provide this information, I'd be more than happy to listen to you.

MR. FOLEY: Thank you.

MR. LaPORTA: It's a give and take thing.

All right, Courtney Bozic.

MS. BOZIC: I'm gonna read my question, if that's okay.

MR. LaPORTA: It's not -- I'm sorry, this is the public comment part, so you're providing comments.

MS. BOZIC: I'm gonna make a statement.

MR. LaPORTA: Okay.

MS. BOZIC: My concern involves what testing for lead-containing materials will be performed on both marine ships' salvage materials and bridge components, if there are bridge

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components from the Tappan Zee Marina Roadway Bridge or any other bridge. If so, if testing shall be done, are there reports which will show such testing has been done and the results of the testing, and if remediation is necessary, what form will the certification be in that these remediation procedures have been undertaken?

MR. LaPORTA: We do test the materials that we put down beforehand, especially the older materials and they are done through chemists and the like. I can't tell you what the exact -- but we just don't take anything.

MS. BOZIC: Lead paint --

MR. LaPORTA: Lead paint, PCBs, the old vessels had tribunal tin which is particularly nasty. Things along those lines, and these are all things that are within our guidelines as far as reef building, not only the National Artificial Reef Program but also New

York State, and we do take it very serious, and we do have a laundry list of guidelines that we work with, just anyone that's tried to work with us, there is a lot that needs to be -- that's a very good question because the last thing in the world we would want to do is to put pollutants out there and be accused of ocean dumping, which is something that the programs have been -- not just New York, but any of the programs are very sensitive about that.

Hope the answers your question.

Now, we have a little tough one, Watters, I can't read the first name, W-A-T-T-E-R from Atlantic Avenue?

MS. WALTERS: Yeah.

So my first comment is that this is -- even the existing program is such a massive scale that it's very difficult to fathom that it's really to benefit just divers. I believe the economic importance of disposing of these enormous materials or enormous items

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like boats, subway cars, bridges, are the driving force behind the program and that the artificial reef is really a euphemism for ocean dumping.

Now, you can say you're using recycled materials, but it's not recycled materials being used, it is refuse that in the process of dumping it, it becomes an artificial reef, so you're not using recycled materials, they become recycle in air quotes by the dumping and the conversion to an artificial reef, so there's something fundamentally wrong with the language.

Secondly, it's very important to understand that there are, this new expansion program is, there's not enough recreational interest in diving to warrant the existing sites, let alone the huge expansion by 7,000 plus acres, this is a huge expansion --

MR. LaPORTA: It's 3,400 acres approximately.

MS. WALTERS: Well, okay, so even

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if it's 3,400, but I read 7,000 into the --

MR. LaPORTA: That was the total, 6,800 was the total.

Could I interrupt you a second, could you please state your name so the stenographer can get it.

MS. WALTERS: Alina Walters.

MR. LaPORTA: Thank you. Sorry to interrupt you.

MS. WALTERS: That's okay.

So I just want to state that this is an irreversible program because the cost of exhuming these very heavy objects would be prohibitive, so there's no way to reverse any effects, ill effects that may be discerned in the future, so this is a permanent and irreversible change that we're making, and as this person in the audience correctly pointed out, the term habitat restoration is improper because you're not restoring the habitat to something that was there before, you're actually

changing the habitat. There is, have been some studies done that the question that the diversity, I'm sorry, that the fishing is actually going to be, fishing is easier to come by the recreational fishermen, but it is not necessarily any kind of solution to overfishing because the fish are more easily caught near those sites as opposed to, they're more easily caught near the site, so there may be actually more fish catched [sic] than otherwise would be able to be harnessed.

MR. LaPORTA: That's why we have regulations, and my agency are the ones that determine those regulations so that people don't go onto the sites and target the structure associated species, blackfish, sea bass, etcetera, and wipe them out. They're only allowed a certain amount that they can take.

MS. WALTERS: I saw in some of the press releases, fluke and flounder, those are benthic --

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MR. LaPORTA: Yes.

MS. WALTERS: -- animals so those wouldn't be helped by the program, they would be hurt because --

MR. LaPORTA: Oh, no, they would be helped also, they come and they forage on the sites too. They actually will come up onto the top. I've seen them.

MS. WALTERS: There have been at least one study that shows that flounder does not benefit from artificial reef, so some of the things that have been put into the press releases are at odds with the scientific literature.

And then, finally, I'd like to say that the predator and prey dynamic around these sites and if you compare the former flat bottom ocean floor to what you're building now, and it's a massive scale, the difference may mean that predator prey dynamic will be changed, so you have predators that chase schools of fish and use their to

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hearing to locate pray, it may obstructed by these very large massive areas where there is built up three-dimensional debris.

So I think that my comment is that it should be never -- carefully studied because we have some very important species, especially mammal species, but also fish species, it should be very carefully studied before we go to this next phase and expand the program by many thousands of acres.

Thank you.

MR. LaPORTA: Thank you for your comments.

Daniel Karpen.

MR. KARPEN: Daniel Karpen, K-A-R-P-E-N.

I'm a professional engineer in New York State. I've been fishing for the last 15, particularly on the north shore.

As I said earlier, disposing of steel and iron in the ocean is really

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not an energy efficient thing to do, it take about one ton of coal equivalent to produce one ton of steel, so really if you want to solve the -- well, if you want to help the global warming problem, don't dump steel and iron in the ocean, recycle it. Cut it up and melt it again because you have invested a tremendous amount of coal in a blast furnace to produce pig iron. Pig iron is then refined into steel by the basic oxygen furnace, so I think dumping steel in the ocean is really a no.

There is possibly some unintended consequences. You get these fish populations and then fisherman know how to catch and hit them, so I'm not gonna comment on that.

I fish mostly along the north shore of Long Island. I do know this, you have large rocks on the bottom of Long Island Sound, that's where the blackfish hide out.

MR. LaPORTA: Agreed.

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MS. WALTERS: And they can get to a good size, 8, 10 pounds.

MR. LaPORTA: Bigger.

Thank you for your comment.

John Mihale.

MR. MIHALE: I wanted to make a couple of comments about the original 1993 proposal, and I was involved a little bit with Steven Heinz, he actually came out and fished with me on the Rockaway Reef and he invited me to comment at that proposal, and then he nicely typed up my comments which I had scribbled to him.

But I do remember, and this is just an aside, first of all, this is great, this is terrific, this is wonderful news for anybody that's fishing and using the artificial reefs that were moving forward. After a long period of time we're not really doing that and that's not your fault, we didn't have the money --

MALE SPEAKER 4: Can you speak up

a little?

MR. MIHALE: You couldn't go ahead with some of the programs that you wanted to go ahead with.

I'm going by memory here, but I remember on that 1993 Environmental Impact Statement, there was talk, not only of the offshore reefs, but there was also talk of a reef southwest of Fire Island Inlet, and there was also talk of a drifting reef, an inshore drifting reef which I think would be a traffic idea.

One of the things that you need to do here is to look at the past and look where we were and look where we've come to. Basically I fished some of these reefs in the '60s and 70s and every decade since then. If you look initially at the effort bottom fishing by the individual, not necessarily the party boats or the charter boats, it was limited, and human ingenuity created first Loran Sea then the GPS and now

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everyone has access to all of these areas. So if we only had that existing material, the effort on that existing material is increasing, and I think that one of the things that you really have to look at is, how much effort was put in to the reefs as they existed in the '70s and '80s and '90s and now how much effort is being put on to the reefs in this century with all of the electronic innovations, GPS whatever. I think what you're gonna find is that if we had -- if nothing had changed, if the electronic innovations hadn't come into existence, what was down there was probably sufficient and now what's down there is grossly insufficient.

I don't want to take up a lot of time but one of the tings that you're gonna ultimately run into is something, the lack of money. You're gonna have a lack of money, you're gonna have a lack of manpower. This should be the start, not the end. This should be the start

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where you're gonna move forward.

At the July 2017 meeting, I got up and I was allowed to speak for about ten minutes, and I said you need a corporate sponsor and I suggested to you at that time, Pepsi Cola -- and I picked them for one very specific reason, they're domiciled in New York. I'm sure Governor Cuomo knows them and they actually have the products that are used on a boat, water carbonated beverages, Lays potato chips, if you want to take a Tropicana orange juice out with you, those were all Pepsi products. That's why I picked them, and what I said then was that they would do it or might do it because there would a benefit to them if they could be involved because when you went to a website and said it was the Diet Pepsi Reef, there is a subliminal message to person that goes there that maybe they ought to choose that product, the Pepsi product over another product and I still think this will get you to

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the point where somebody else is going to be paying to clean up the material and somebody else might be willing even to splurge, this woman is concerned, metal for rock. I know it's very expensive, you've told me how expensive it is, but these guys are spending millions of dollars for 30 second commercials on the Superbowl, they can spend a few million here and get a benefit also. I think it's a good idea, it might not be Pepsi, it might be someone else, but we need to think ahead because the effort is only increasing. This is good. This is a great start. This is terrific, we've got to do more.

Thank you.

MR. LaPORTA: John, I've got a mission for you. You're elected.

Thank you very much.

Floyd Carrington.

MR. CARRINGTON: I'd like to speak tonight primarily on the Shinnecock Reef, a little bit on the

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Twelve Mile Reef.

I fished the Shinnecock Reef extensively for many years including the summers 2000, 2001, and my better half was doing her research for her masters thesis on blackfish on the reef. She had a collector's permit for 500 fish a year, we caught 400 of them each year.

MR. LaPORTA: Spawning behavior, very good study.

MR. CARRINGTON: And since then, I have been there. 35 acres, you missed the box in several pieces already, you need to have it made bigger.

The other thing is on the weekend at this point, it is so crowded it's getting to be dangerous. You throw a couple boats, other than the big red boat back there who knows what he's doing anchoring, most of them don't, you got more of a problem. We need to have the bigger area. If you can get the full 850, that would be great.

You need to talk the fishermen

about placing this thing, expanse (phonetic), such as drawing a line from the west jetty of Shinnecock to 180 degrees all the way down and don't get close to that because that's where the traffic comes in and out the inlets, but you have plenty of room south, north.

Now, the fish on this reef don't just pop up out of the bottom, they have to travel somewhere to get there, and the reef is the magnet. You have a little magnet outside Shinnecock. If we expand this, you're gonna have a far bigger magnet for fish to come to and a place to live. The pot fisherman have a bigger area to set outside the reef, there's nothing to say bigger area, the draggers can't drag there right next to it. We might not think of it that way, but that's, you know, the best way to deal with it, and we all have room so we're not looking three ways at once to make sure somebody isn't drifting into you or you're not drifting up on

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somebody.

On the Twelve Mile Reef, I was one of the group of people who came to Steve Heinz in the early '90s about putting a reef out there. It's a long time coming. Thanks.

MR. LaPORTA: Tell me about it. We finally put something on that reef in November and that took nine years which is amazing but it got done and you can thank the governor's office for putting that over the top there. This is something we all appreciate, putting more material out there for sure.

Mr. Barry Lipsky.

MR. LIPSKY: Good evening. My name is Barry Lipsky, I'm the president of the Long Island Diver's Association, and between myself and my colleagues, we have been working very, very hard with the DEC and the governor's office on increasing the size of these artificial reefs and we see the tremendous benefit to the reefs, especially to future

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population of which is gonna come after us.

I look at everything from my point of view as being president of this organization and being a diver for over 50 years as, what is something that we could do to enhance and better those coming ahead of us. We are talking about taking materials, mostly concrete, mostly steel and then other ships that are being abandoned. Concrete, when it's coming off of the bridge is sometimes ground up into materials called RCA or recycled concrete aggregate. New York State has an over abundance of RCA material that's being put into landfills and you know what grows on it, absolutely nothing, it is a dump site. We are taking concrete and putting it to use and we are recycling that material for a good use to attract fish, attract divers, attract fishermen for recreational use. We have steel that if we look at the shipwrecks that

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have been out there for hundreds of years, the only thing that's left in most cases is the steel, that is the shipwreck. The shipwrecks that are existing out there right now that are hundreds of years old are deteriorating, they're sinking down to the ground, they're almost gone and for the purpose of diving, to go into those shipwrecks that are still survivable, you don't want to go inside those. What we're creating here are new vessels that are going into the water that have been cleaned very thoroughly, cleaner than anything on the bottom, it's been manmade, put down there and now the divers can go inside of those shipwrecks relatively safely and do penetration of wreck diving and going through a ship that's actually something of which is very much of great interest.

Man, as most agree is somewhat responsible, if not all responsible, for what we're talking about as being global

warming. That global warming, I have firsthand witnessed, so have my colleagues all over the entire world, we see it ourselves, we don't have to ask anybody about it, we don't have to look at any studies, we can see the effect upon global warming as it affects the reefs around the entire world. Those reefs are deteriorating, they're going away. That's what came naturally to the world. What we're doing here as well as many other places all over the world is we're now taking materials which would normally be thrown in the dumpster and putting them to use to bring reefs back to the environment for the people into the future, that's what we're doing here.

I really commend the DEC, I commend Governor Cuomo's office for putting such a great program together and not looking at what's going on just today, but looking at the past and what man has done and trying to correct the

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errors as best they could to what's gonna happen and what we're gonna give to those who are in the future.

Thank you very much.

MR. LaPORTA: Thank you.

Bob Wilson.

MR. WILSON: Thank you. My name is Bob Wilson. I'm a local teacher and I run the Ward Melville High School Fishing Club.

I'm here because, first off, I'm very happy about this program and it's super beneficial to a couple of guys from the club that came here because really that's what we're looking to do.

Artificial reef programs are extremely essential and necessary for a developing thriving ecosystem in our waters. It's easy to see the marine life and marine benefit that these reefs bring from day one that they're set down. They strengthen the base of the food chain, creating habitat from barren areas and further lessen the strain that

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you have on the pre-existing fishing areas and diving spots. One day, I hope that, you know, with this type of progress, we can be in line with where Florida is at with their reef system being that they're leading everything that's just beyond ideal. You talk about New Jersey and the acres that they have down there which is phenomenal and really helps their ecosystem, and Florida is really that much further past that.

I could go on and on and talk about the fishing benefits that it has, that actually isn't really where my comments are coming from here. There are a couple different areas that I think play a role that I think a couple of groups get benefited from this increased system of reefs.

First off are the divers. You see recreational spear diving, all other types of diving -- I lost my place. All other types of diving that are taking

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place nowadays where you see guys at the end of harbors up here locally on the north shore. That's simply unsafer. We have such a stretch, specifically between the Mt. Sinai proposed spot and the Mattituck proposed spot that you can create new area or in an ideal world, we can create new areas only kayakers and land-based guys in small boats can actually access and get to where they're not gonna have the pressure and they're gonna have the time to, you know, enjoy the benefits of what Mother Nature is gonna definitely provide.

Another area that I'd like to go through is actually the educational system. Looking at local high schools and local colleges, this is a gift. This is where, I tend to call it a floating classroom, where schools can, not only specialized programs such as marine biology or marine ecology, but you can take a normal living science course which every school tends to

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offer, you can utilize the for-hire fleets that are out there, and now you can turn that vessel into a classroom where with today's technology, send down cameras from day one charting the progress, taking a look, they're learning about everything in the textbook but now it's real world because ultimately they're the ones that are gonna be dealing with the real world environmental issues, and the more they start to learn now, the more of an interest they'll have and the better solutions they're gonna come up with later on in life.

Specifically and maybe a little bit selfishly, I would love to see the local clubs of high school kids get involved. I run a high school fishing club, and one of the things that I think it benefits is, first off, we always complain that kids nowadays, too much time on the computer, too much time on video games, not enough time outdoors,

and for the most part it's true. Give them the opportunity they're looking for. What I mean by that, they're always looking for some way for service credit, some way they can give back, allowing kids into this process and getting them situated allows them to leave a legacy, a legacy of accomplishment and a legacy of interest that they're gonna keep going. The amount of knowledge they learn and the amount of interest that that tends to generate in terms of jobs, majors and futures is gonna be a vitally important role to play and something that if we invest in them now and we invest in these now, they'll have dividends later on.

Thank you.

MR. LaPORTA: We do actually have a volunteer reef survey program, so I'll give you my card after and we can have a discussion about this.

Neil Delanoy.

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MR. DELANOY: Hi, I'm Neil Delanoy. I'm the executive director of the Captree Boatmen's Association, we're the largest fishing port on Long Island. We take 300,000 people fishing a year. Over the last 20 years, we have seen tremendous loss, economic loss, fish loss due to brown algae in the Bay, the decline of bay flounders, the decline of wheat fish. Brown algae in the bay has really declined the number of fluke that we catch, so we have had a significant decrease in our fisheries. The one bright spot that we have had is the wheat fishing, but more and more of our fishing every year is done on the Fire Island Reef. Now, for us most of the trips in the summer are very limited to half day, we don't really have the time to go any further than that, but every year, it's more and more people so 300,000 fisherman in New York get to enjoy this resource. It's proven. It's been around for a long time. There are

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artifical reefs all up and down the coast. Almost all the material that's being put there has already been in the ocean, it's been the ships, the bridges, things that have already been in the water, so this is proven. Now, the addition of the Sixteen Fathom Reef for us will be tremendous. It will give us a little deeper spot we can fish, the same size as the Fire Island Reef is gonna be expanded to in a little deeper water, so when the fish are in the shallow, we can fish on the Fire Island Reef, a little deeper, we can fish there; but this is the greatest thing for us. It's something we needed, this is the future. We see all our other fisheries declining. The reef fishery has healthy porgys, the stock is through the roof, sea bass, the stock is through the roof, these are fish that are gonna be inhabiting these reefs, so there's so many. Let the people of New York enjoy them, let them catch them. Build this

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reef, the sooner the better.

Thank you.

MR. LaPORTA: Thank you.

Steve Witthuhn.

MR. WITTHUHN: I've got written comments coming.

I just want to say, I do support the program 110 percent. Being a charter boat captain, it's right way to go, it's been a long time coming and I was just enjoying watching that video, and it just speaks a thousand words, so that in itself will just tell the story.

MR. LaPORTA: Seeing is believing. Unless you're diving on these spots, you really don't have a clue. You see people fishing right here, no fish, there's a ton of fish.

Lastly, Mr. John Capuano.

MR. CAPUANO: Thank you for all the work you're doing here. I just wanted to make a couple of comments about the reef extension. The basic idea, I agree with Captain James, it's

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getting kind of crowded, it's necessary I mean, functionally to have more space to put some of these items down, and somebody had brought something up about affecting the environment in a negative way. The planet seeks biodiversity, you can't have one species, we have to have more species and have more place for them to live, and putting more reef sites down on the bottom creates biodiversity, different species get attached to the reef sites, little fish are attracted there to hide, big fish come to eat the little fish. It's a program that works.

The environmental impact studies that Mr. LaPorta and these guys do, unbelievable how thorough they are with these projects, if they're gonna sink an old dragger or old tug boat, they go through every inch of this boat to make sure it's not gonna negatively affect the environment, every piece is just, how thorough this process is. They're

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creating biodiversity, they're creating more fish, better habitat, and I don't want to bring up the whole subject of global warming, but things are changing on a daily basis. You had said something earlier, the diving. If you're out there every day for 30 years, you're seeing changes happen, gradual, but it's happening. The only thing that these reef sites can do is make a positive impact on any fish that are in the area, trigger fish, for instance 25 years ago wasn't a target, but you would catch a few now and then, but I actually target them now, you go to spots and you catch trigger fish. This is basically a southern species that's getting pretty abundant here, all of the fish, major fish bodies, fluke, sea bass, their main bodies of migration are shifting to the north. I mean, if you look at charts, and being able to put down these sites to expand them is just something that allows these fish to hang

out, stay in the area.

The other thing is economically, that just out at Shinnecock, that 12-mile reef site, if you can get that destroyer that I want, Chris, and sink it.

MR. LaPORTA: You're hired, I'm gonna need some help.

MR. CAPUANO: I know you've got to work out all the bugs.

Divers, fisherman, you put a 400 foot destroyer down on that site, you are gonna build an economy, and the proof is, you look at the west coast of Florida, they sank an aircraft carrier off the west coast of Florida, it is boom town in that area now. We're talking about places where they didn't have anything much going on, there's divers, hotels going up just so they go see more fish on top of that aircraft carrier.

Just keep up the good work, keep the faith. Chris?

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MR. LaPORTA: Okay.

I want to thank everybody for making your comments, for attending tonight. If you have any additional comments or if you just want to write them down, we do have papers in the back where you can actually fill it out and mail it in.

You can still comment, I apologize, I didn't say this before, public comment will be received up until the 21st of this month, so you still have plenty more time if you want. If you don't want to do it right now, you can do it later. You can send it electronically or by snail mail or whatever.

The whole purpose of this process is to receive your input and to let us know what you're thinking, both positively and negatively. That's the way these things work.

Steve.

STEVE: If you could also, maybe

get this information out like a little quicker. I know you -- something that to have a short notice like this on an important item possibly, at least a three week notice instead of a three day notice.

MR. LaPORTA: We actually had gotten word out through the usual channels which is basically our Environmental Notice Bulletin, the E&B, and also published in Newsday, not quite like an article, but those are the usual routes we start with. There was a little bit of a delay with the press release going out and that was probably something that we should work on next time around.

Your point is well taken.

Yes.

MALE SPEAKER 5: Chris, this was excellent, I mean you answered so many questions tonight. I just want to say what Bob Wilson did here with the group of young people, Barry Lipsky, you gave

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an excellent description about what's going down in our waters.

I think there's a lot of things you're gonna have to handle here with education of the public which the benefits of things sinking. We've had many things sink off our coast since the 1600s and he talks about steel, the last thing we see on the bottom are usually battle stars from ships, nobody's gotten sick from eating fish off the shipwrecks in the area.

I think people got to understand how much ecosystem damage has been done by fishing activities, if you go up to Georgia's banks and see what happens with the bottom, it's been destroyed up there from fishing activities. We need reefs, it's so important and everything else because we have created these deserts in the oceans now.

We have a life -- New York is very unique, New Jersey, we have a lot of fishing density, what the reefs allow

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is to spread it all out all across all Long Island. We're very large. We have the south shore, we have the east end, we also have the Long Island Sound.

Chris is one of the most dedicated people, I mean, over the years, he's always talked about it with the shows and everything like that.

It is essential, folks, the support this, not only for the for-hire industry but for private boaters, the diving community.

But what Bob Wilson did here tonight, these are young people, we always try to talk about the future, what is the future of fishing, what is the future of diving, what is the future of just going out in the ocean and enjoying.

And we got something coming up especially the for-hire industry and the commercial fishing industry, offshore wind, you know, that's gonna be an impact, it's something we got to pass

the bill to find out what's in it, we don't know.

What Chris and New York State is doing here is so essential, and I hope people become more educated when they speak about these topics what's going on in the water. The classroom is part here but you have to come out there, you have to speak to the people involved in daily fishing to see what's going on.

Again, we have had many shipwrecks, World War II especially, you have shipwrecks off Jersey, big world tankers, everything, they are some of the most productive fishing wrecks around. What we put in the ocean is repurposed, instead of going on land, it goes in the water, it has a benefit.

Thank you.

MR. LaPORTA: One last thing I would ask is, thank you for everyone that did sign in, if you haven't signed in, please do that before you leave. It's very important that we have that

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documented for the meeting tonight. This is one of two public meetings that we're having. Once again, we're still taking public comments until the 21st.

Thank you again for coming out on a miserable night to make some important comments to us.

Have a good night.

(Time noted: 7:15 p.m.)

C E R T I F I C A T E

STATE OF NEW YORK)
) Ss:
COUNTY OF SUFFOLK)

I, STEPHANIE O'KEEFFE, a Reporter and Notary Public within and for the State of New York, do hereby certify that the within is a true and accurate transcript of the proceedings taken on February 10, 2020.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 10th day of February, 2020.

STEPHANIE O'KEEFFE

3. **The proposed activity will require:**

   d. State water quality permit or certification

   - *Policy #30 – "Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to State and national water quality standards"*

     The proposed Project does not involve the discharge of pollutants. The proposed Project requires NYSDEC water quality certification and NYSDEC will comply with the permit requirements; therefore, this Project is consistent with this policy.

   - *Policy #38 – "The quality and quantity of surface water and groundwater supplies, will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply"*

     See 1a. above.

   - *Policy #40 – "Effluent discharged from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to state water quality standards"*

     The proposed Project does not involve effluent discharges; therefore, this policy is not applicable.

4. **Will the proposed activity occur within and/or affect an area covered by a State-approved local waterfront revitalization program, or State-approved regional coastal management program?**

   Consistency with the New York City Waterfront Revitalization Program (WRP), and the Long Island Sound Coastal Management Program policies relevant to the proposed Project has been completed and is included herein.