# Species Status Assessment

**Common Name:** Fin whale **Date Updated:** 2/16/2025

**Scientific Name:** *Balaenoptera physalus* **Updated by:** Meghan Rickard

**Class:** Mammalia

**Family:** Balaenopteridae

**Species Synopsis** *(a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):*

The fin whale is the second largest whale in the world. A sleek and stream-lined rorqual, nicknamed the "greyhound of the sea" for its speed, the fin whale is found in all the world's oceans (Folkens and Reeves 2002, Edwards et al. 2015). It is similar in appearance to and sometimes confused with blue, sei, and Bryde's whales. There are currently three recognized subspecies of fin whales: *Balaenoptera physalus physalus,* the Northern fin whale; *B. p. quoyi*, the Southern fin whale; and *B. p. datachonica*, the Pygmy fin whale (Committee on Taxonomy 2024). Additionally, Archer et al. (2019) proposed that the Northern Fin whale should be two separate subspecies, one in the North Atlantic and one in the North Pacific. The International Whaling Commission (IWC) has designated different stock boundaries for North Atlantic fin whales. Under the IWC, fin whales of the eastern United States, Nova Scotia, and Newfoundland comprise a single stock (Donovan 1991). However, recent genetic work suggests the presence of several subpopulations of fin whales with limited gene flow throughout the North Atlantic, making stock boundaries uncertain (Berube et al. 1998, Hayes et al. 2024).

Like the other species of great whales, fin whales were heavily exploited by the whaling industry. The IWC declared a global moratorium to go into effect in 1986, but fin whales never stopped being targeted by commercial whaling. Presently, fin whales have continued to be harvested under objection, scientific permit, or subsistence harvest by Iceland, Japan, and Greenland.

Fin whale seasonal movements are less predictable and less well defined than many other species of baleen whales that demonstrate clear migration patterns between known summer feeding grounds and winter breeding grounds. While densities vary seasonally, fin whales are most commonly distributed north of Cape Hatteras, North Carolina up to Canada (NMFS 2013). In the New York Bight, fin whales are the most abundant baleen whales and can be found year-round (Sadove and Cardinale 1993, Davis et al. 2020, Muirhead et al. 2018, Zoidis et al. 2021, Estabrook et al. 2025). Local distribution is determined mostly by prey availability (NMFS 2010, LaBrecque et al. 2015, Lomac-MacNair et al. 2022).

There is no available trend analysis for fin whales and little statistical power due to imprecise abundance estimates and variable survey design (Hayes et al. 2024). Abundance estimates over the years have fluctuated due to the different methodologies used for both the surveys and the estimations. The IUCN's North Atlantic fin whale population estimate in 2015 was 70,000 (Cooke et al. 2018). The best available abundance estimate for fin whales in the western North Atlantic is 6,802, with a minimum population estimate of 5,573 (Hayes et al. 2024).

## I. Status

### a. Current legal protected Status

i. **Federal:** Endangered **Candidate:** __________

ii. **New York:** Endangered

## b. Natural Heritage Program

**i. Global:** G3G4

**ii. New York:** S1 **Tracked by NYNHP?:** Yes

## Other Ranks:

-New York 2025 SGCN status: High Priority Species of Greatest Conservation Need
-IUCN Red List: Vulnerable

-CITES: Appendix I

-Northeast Regional SGCN: Highly Imperiled, Very High Conservation Concern

-Canada Species at Risk Act (SARA): Special Concern

-Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Special Concern

-Marine Mammal Protection Act (MMPA): Strategic

## Status Discussion:

Fin whales were originally not a target species for whaling operations due to their speed and lower oil yield. Technological advances in the late 1800s made it possible to hunt and kill fin whales, which began off Norway in the 1870s (Schmitt et al. 1980, Reeves and Barto 1985, Tonnessen and Johnsen 1982, Aguilar 2002). Stocks were quickly overexploited and severely reduced in both the Atlantic and Pacific, so much so that whaling stations in Norway closed in 1904 due to the deficit of whales (Mitchell 1974, Sutcliffe and Brodie 1977). Globally, fin whales were killed in larger numbers than any other species, with an estimated 874,000 taken (Rocha et al. 2015). In 1937 alone, over 28,000 fin whales were taken globally (Kawamura 1994, Mizroch 1984). By 1974, less than 1,000 fin whales were being caught per year. Rocha et al. (2014) estimated that at least 72,000 fin whales were killed in the North Atlantic between 1900 and 1999. The International Whaling Commission (IWC) Scientific Committee produced “best” and “high” estimates of fin whales killed in the North Atlantic totaling 98,000 and 115,000, respectively (IWC 2017). In the western North Atlantic, some fin whales were caught off New England starting around 1850, though whaling in U.S. Atlantic waters ended around the turn of the century (Allen 1916). After whaling stations were established in Newfoundland in the 1890s, catch numbers rose (Reeves and Barto 1985, Mitchell 1974). At least 15,000 fin whales were taken in Atlantic Canada between 1898 and 1972, almost 90% of which were caught off Newfoundland and Labrador (Mitchell 1974, Moors-Murphy et al. 2018).

Iceland remained a whaling nation, targeting fin whales specifically. Sigurjønsson (1988) noted that fin whales were the preferred species in Iceland because of the large yield of high-quality meat. IWC quotas were first introduced in 1977, and whaling was eventually phased out in Iceland in the 1980s. The total catch of fin whales near Iceland from 1948 through 1986 was 8,963 (Sigurjønsson 1988). However, Iceland took nearly 300 additional fin whales under a scientific research permit between 1986 and 1989 before withdrawing from the IWC in 1992 (Reeves and Kenney 2003). By 1990 whaling in the North Atlantic had stopped, except for small aboriginal subsistence catches off Greenland. Currently, aboriginal subsistence whaling is carried out by Greenland and managed by the IWC, which set an annual strike limit of 19 fin whales from 2019 to 2025 (IWC 2025c, 2025d).

No reliable estimates exist for pre-whaling abundance. Overall, fin whales seem to have at least partially recovered from whaling in the North Atlantic, although the extent of this recovery is uncertain due to unknown pre-exploitation abundance (Cooke et al. 2018). Vikingsson et al. (2015) proposed that fin whale recovery had been reached by 2000 and any subsequent changes within the species were due to environmental changes. However, well-documented pirate whaling in the northeastern Atlantic occurred as recently as 1979 and illegal trade in baleen whale meat was documented during the 1990s (Sanpera and Aguilar 1992, Best 1992, Baker and Palumbi 1994). Since the mid-1970s, there has been some demand, primarily in the Japanese market, for baleen whale meat (Aguilar and Sanpera 1982). Both Iceland and Japan continue to hunt fin whales commercially and Greenland maintains an annual aboriginal subsistence quota approved by the IWC (IFAW 2024, IWC 2025c, 2025d, 2025e). Therefore, it cannot be assumed that fin whales have been fully protected from all commercial whaling since the 1986 moratorium or that their current legal protection from commercial whaling will continue (NMFS 2019).

Fin whales are considered strategic under the Marine Mammal Protection Act (MMPA) because the species is listed as endangered under the Endangered Species Act (ESA) and has been since the law was first passed in 1973. The U.S. Recovery Plan, as mandated by the ESA, was last updated in 2010, and the 5-year Review, also mandated by the ESA, was last completed in 2019 (NMFS 2010, NMFS 2019). Under the Canadian Species at Risk Act (SARA) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the North Atlantic population of fin whales is listed as a species of special concern. The most recent COSEWIC assessment was completed in 2019. In Quebec, fin whales are listed as a “wildlife species likely to be designated threatened or vulnerable”. On the IUCN Red List, fin whales are listed as Vulnerable with an increasing population trend. The last IUCN Red List assessment was completed in 2018 (Cooke et al. 2018).

There are no reliable estimates for fin whales globally or within the North Atlantic. Perry et al. (1999) estimated there may be 50,000-60,000 fin whales in the North Atlantic. McKenzie and Nicolas (1988) estimated 120,000 fin whales worldwide and 7,200 in the North Atlantic. Catch statistics suggest the western North Atlantic population numbered 5,000-10,000 individuals in 1942 (COSEWIC 2019) and the rough global estimate in 2000 was about 53,000 fin whales (NMFS 2019). The IUCN’s North Atlantic population estimate in 2015 was 70,000 (Cooke et al. 2018). The best available abundance estimate for fin whales in the western North Atlantic is 6,802, with a minimum population estimate of 5,573 (Hayes et al. 2024).

## II. Abundance and Distribution Trends

| Region | Present? | Abundance | Distribution | Time Frame | Listing status | SGCN? |
|---|---|---|---|---|---|---|
| **North America** | Yes | Unknown | Unknown | | Endangered | Yes |
| **Northeastern US** | Yes | Unknown | Unknown | | | Yes |
| **New York** | Yes | Unknown | Unknown | | Endangered | Yes |
| **Connecticut** | Yes | Unknown | Unknown | | | No |
| **Massachusetts** | Yes | Unknown | Unknown | | Endangered | Yes |
| **Rhode Island** | Yes | Unknown | Unknown | | Endangered | Yes |
| **New Jersey** | Yes | Unknown | Unknown | | Endangered | Yes |
| **Pennsylvania** | No | Choose an item. | Choose an item. | | | Choose an item. |
| **Vermont** | No | Choose an item. | Choose an item. | | | Choose an item. |
| **Ontario** | No | Choose an item. | Choose an item. | | | Choose an item. |
| **Quebec** | Yes | Choose an item. | Choose an item. | | | Choose an item. |

*Column options*
**Present?:** Yes; No; Unknown; No data; (blank) or Choose an Item
**Abundance and Distribution:** Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item
**SGCN?:** Yes; No; Unknown; (blank) or Choose an item

**Monitoring in New York** *(specify any monitoring activities or regular surveys that are conducted in New York):*

There is inherent difficulty studying large whales due to the challenges of the marine environment and the pelagic and wide-ranging nature of most species, especially fin whales. In addition, funding for monitoring, especially visual surveys, is extremely limited. Until 2016, monitoring of large whales in New York was very narrow in scope. Previous examples of surveys that included the New York area and recorded large whales were done coast-wide, seasonally, and/or focused on multiple taxa and were therefore not carried out at the most appropriate temporal or spatial scale for an assessment of large whale species in the New York Bight (CETAP 1982).

One of the first NYB-focused large whale surveys was a passive acoustic monitoring effort that took place from 2008 to 2009 (Muirhead et al. 2018). The 258-day project included 10 sites, with a line of moored receivers perpendicular to Long Island and 3 sites around the entrance to NY Harbor. The data was analyzed for blue, fin, humpback, and North Atlantic right whales only.

In 2010, the Atlantic Marine Assessment for Program for Protected Species (AMAPPS) joint program between the National Oceanic and Atmospheric Administration (NOAA) and the Bureau of Ocean Energy Management (BOEM) began, with the goal of determining the abundance and distribution of protected species along the U.S East Coast. The NOAA Northeast Fisheries Science Center (NEFSC) Protected Species Branch leads the surveys which are conducted by plane and ship and includes both visual and acoustic monitoring methods. AMAPPS is a broadscale survey and therefore does not match the specific needs of New York Bight monitoring in time or space but has, however, recorded sightings of fin whales in and around New York. AMAPPS II (2015-2019) and AMAPPS III (2019-2024) have both been completed but AMAPPS was not picked up for continued funding by BOEM (NMFS 2025a). Instead, the U.S. Navy plans to work with NOAA on similar surveys beginning in 2025 (US Navy 2024).

NOAA conducts regular, year-round monitoring focused on North Atlantic right whales (i.e., the North Atlantic Right Sighting Advisory System) that also collects data on other taxa including fin whales (Johnson et al. 2021). In addition, the New England Aquarium also conducts regular aerial surveys, and sometimes shipboard surveys, in the Southern New England area and records sightings of fin whales. Sightings of fin whales off the coast of New England are very common and occur year-round.

In 2016, to support the state’s commitment to offshore wind energy, the New York State Energy Research and Development Authority (NYSERDA) began a seasonal 3-year ultra-high resolution digital aerial survey of all marine taxa within the New York Bight (e.g., the offshore planning area delineated by NY Dept. of State; NYSERDA 2021). All large whale species were observed during the digital aerial survey. Also in 2016, the Woods Hole Oceanographic Institute (WHOI) deployed the first of an ongoing succession of real-time monitoring buoys, and later gliders, to record the presence of large whales in the New York Bight (WHOI 2025). This effort had first been introduced off the coast of Massachusetts and proved helpful for both data collection and real-time management of vessel speeds to prevent collision with whales. Currently, the data shared publicly is limited to four large whale species: sei, humpback, fin, and North Atlantic right whales.

Beginning in 2017, DEC launched the first three years of a monitoring program for large whales (Tetra Tech and LGL 2020, Estabrook et al. 2021). Using monthly visual aerial surveys and 24/7 passive acoustic monitoring over a three-year period, the NYS Whale Monitoring Program gathered enough data to estimate large whale abundance in the NYB and identify probable discreet periods of space and/or time that fin whales are likely to be found (Tetra Tech and LGL 2020, Estabrook et al. 2021). The NYS Whale Monitoring Program will conduct another three years of visual aerial surveys for a total of 18 surveys beginning in November 2024. Additionally, DEC funds a long-term Indicators of Ocean Health monitoring program. Data collection on whales during the 10-year program has at various times included gliders outfitted with PAM (i.e., the WHOI real-time system), shipboard line transect surveys, and recording opportunistic sightings. Currently, this effort is set to be completed in 2027.

Marine mammal stranding response is performed by two federally permitted groups in New York: the New York Marine Rescue Center (NYMRC) and the Atlantic Marine Conservation Society (AMSEAS). For all live and dead large whale events, AMSEAS is the lead response team. The DEC has supplied funding for stranding response in New York since the program began in 1980. Despite their extremely common occurrence, fin whale strandings are rather rare but they do sometimes occur in New York and provide valuable data, making stranding response an essential component of monitoring.

## Trends Discussion *(insert map of North American/regional distribution and status):*

Fin whales are the dominant whale species in the Northeast U.S. year-round; they have the largest standing stock, the largest food requirements, and therefore, the largest influence on ecosystem processes (Hain et al. 1992, Kenney et al. 1997). Despite their prevalence, little is known about fin whale migration patterns, where they spend the winter months, or the location of calving or breeding areas (Folkens and Reeves 2002). Like other baleen whales, they undertake seasonal migrations north to feed and south to breed, but only part of the population does so. To date, there is little support for fin whales following the typical distinct annual migrations that other baleen whales on the U.S. East Coast exhibit (Watkins et al. 2000). Regular mass movements along migratory corridors with specific endpoints have not been documented for the western North Atlantic stock. Although fin whales move seasonally into and out of high latitude feeding areas, the overall migration pattern is less predictable and well-defined than in other species, and as such, slightly complex (Christensen et al. 1992). Edwards et al. (2015) concluded that fin whales likely do not conduct long-distance seasonal migrations to tropical latitudes and instead, some may remain at high or low latitudes year-round, while others may make shorter migrations, or conduct other, unknown movement altogether.

Fin whales are broadly distributed throughout the world’s oceans, from the temperate regions poleward (Gambell 1985). Their range in the North Atlantic extends from the Canary Islands in Spain in the east to the Antilles in the west, and from the Gulf of Mexico and Caribbean Sea in the south to Canada, Greenland, Iceland, and Norway in the north (Jonsgård 1966, Gambell, 1985, Rice 1998, Perry et al. 1999). In general, fin whales are present at some level throughout their range throughout the year (Cooke et al. 2018).

Fin whales are the most sighted large whale species in continental shelf waters from the U.S. mid-Atlantic to Nova Scotia (Sergeant 1977, Sutcliffe and Brodie 1977, CETAP 1982, Hain et al. 1992). Surveys conducted from 1978-1989 were the first to report the frequency of fin whale sightings north of Cape Hatteras during all seasons (Winn 1982, Hain et al. 1992). Specifically, fin whales accounted for 46% of the large whales sighted over the continental shelf during aerial surveys between Cape Hatteras and Nova Scotia from 1978–1982 (CETAP 1982). A large body of research has confirmed the constancy of fin whales on the east coast of U.S. and Canada year-round (GMI 2010, Edwards et al. 2015, Bailey et al. 2018, Salisbury et al. 2018, Palka et al. 2022). Fin whale presence is primarily year-round with shifts to the north and south or offshore to inshore during certain times of year, though peak presence in time or space is difficult to identify due to inter-annual variability (Salisbury et al. 2019, Zoidis et al. 2021). Despite the variability, peak presence is typically found during the summer months and some areas such as south of Nantucket and east of Delaware seem to be important winter habitat (GMI 2010, McKenzie and Nicolas, Bailey et al. 2019, Palka et al. 2021, PACM 2025).

Fin whales exhibit widespread density across the continental shelf from Cape Hatteras north through the Scotian Shelf throughout the year (Edwards et al. 2015, Roberts et al. 2022). Calls have been recorded year-round as far north as the mid-Labrador coast and as far south as Florida, even during winter months (Delarue et al. 2018, PACM 2025). Delarue et al. (2022) reported consistency in acoustic occurrence of fin whales in eastern Canada, with greater presence in late spring and early summer, and steady numbers remaining into and through the winter. Based on acoustic data, Clark (1995) predicted that a southward "flow pattern" occurs in the fall from the Labrador-Newfoundland region, south past Bermuda, and into the West Indies. More recently, passive acoustic monitoring has confirmed the year-round presence of fin whale across much of the eastern seaboard, from Virginia through eastern Greenland, with increased time spent in the northern latitudes since 2010 (Davis et al. 2020). Recordings from the Atlantic continental shelf, including near-shore and deep-ocean areas, detected some level of fin whale singing (i.e., male presence) year-round (Watkins et al. 1987, Clark and Gagnon 2002, Morano et al. 2012, Davis et al 2020). Kowarski et al. (2022) reported that south of North Carolina, fin whale occurrence generally decreased with decreasing latitude, and that the months of peak presence were November through February. Roberts et al. (2022) confirmed very low but non-zero density south of Cape Hatteras from December through May.

Mixing between the eastern and western North Atlantic populations apparently occurs regularly in the waters around Iceland and Greenland. Significant genetic differences have been found between fin whales in the Mediterranean Sea, the eastern North Atlantic (Spain), and the western North Atlantic (Gulf of Maine and Gulf of St. Lawrence) (Bérubé et al. 1998, Palsbøll et al. 2004). Isotope analysis further confirmed a separation between Atlantic and Mediterranean fin whale subpopulations but also confirmed that some Atlantic individuals wander into the Mediterranean Sea (Giménez et al. 2013, Ryan et al. 2013).

However, population structure still cannot be confirmed or denied (Pampoulie and Daníelsdóttir 2013). The existence of a subpopulation structure was suggested by local depletions that resulted from commercial overharvesting (Mizroch et al. 1984). Geographic differences in fin whale song structure have been documented in the North Atlantic and have been proposed as a means of assessing population structure (Hatch and Clark 2004, Delarue et al. 2009, Castellote et al. 2012b). For example, vocalizations of fin whales off Bermuda differ from those recorded in the Norwegian Sea (Clark 1995). The most recent evidence for population sub-structure comes from acoustic monitoring in Canada, which suggests at least three acoustically distinct populations (COSEWIC 2019).

There is no available trend analysis for fin whales and little statistical power due to imprecise abundance estimates and varying survey design methods (Hayes et al. 2024). Abundance estimates over the years have fluctuated due to inconsistent methods of data collection and analysis, and the spatial coverage of survey effort. Most past estimates indicate that for the U.S East Coast, from approximately Virginia through the Gulf of Maine, there is likely around 3,000 fin whales (CETAP 1982, McKenzie and Nicolas 1988, Palka 2000, Palka et al. 2021, 2022). The coast-wide density model prepared by Roberts et al. (2022) using data from 1998-2020 showed "a preference for a range of depths across the continental shelf, with an avoidance of shallow, inshore waters, and highest densities along the edges of banks and the shelf itself". There was also a positive relationship with sea surface temperature (between 7-24 degrees C, peaking at 21 degrees C), “likely reflecting peak density during summer months in waters north of the Gulf Stream”, and bottom temperature (peaking at 5 degrees C), “indicating preference for northern waters, particularly in deep areas of the shelf” (Roberts et al. 2022). The model highlighted widespread density across the shelf north of Cape Hatteras and along the shelf break, with lower density predictions close to shore. There was also a strong seasonal component, with the lowest estimate in February (1,329 individuals) and a peak estimate in August (4,387 individuals), though there was consistent substantial presence from Cape Hatteras through the Scotian Shelf during the whole year (Roberts et al. 2022). These estimates are lower than the most recent NOAA Stock Assessment Report which estimates abundance for fin whales in the western North Atlantic to be 6,802, with a minimum population estimate of 5,573 (Hayes et al. 2024).

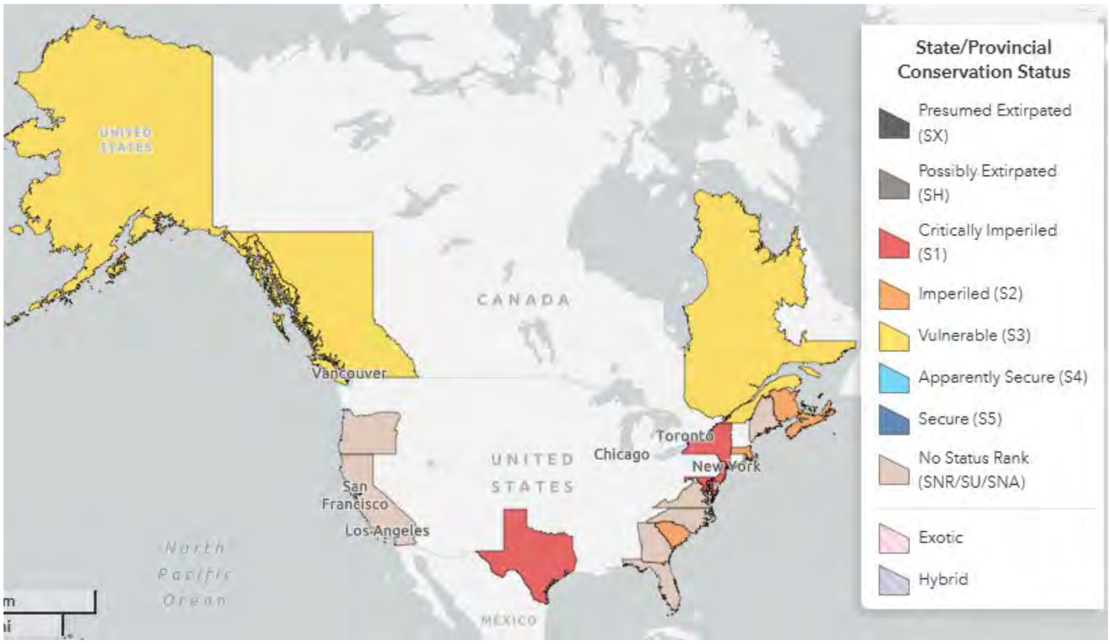


**Figure 1.** Conservation status of fin whale in North America (NatureServe 2024).

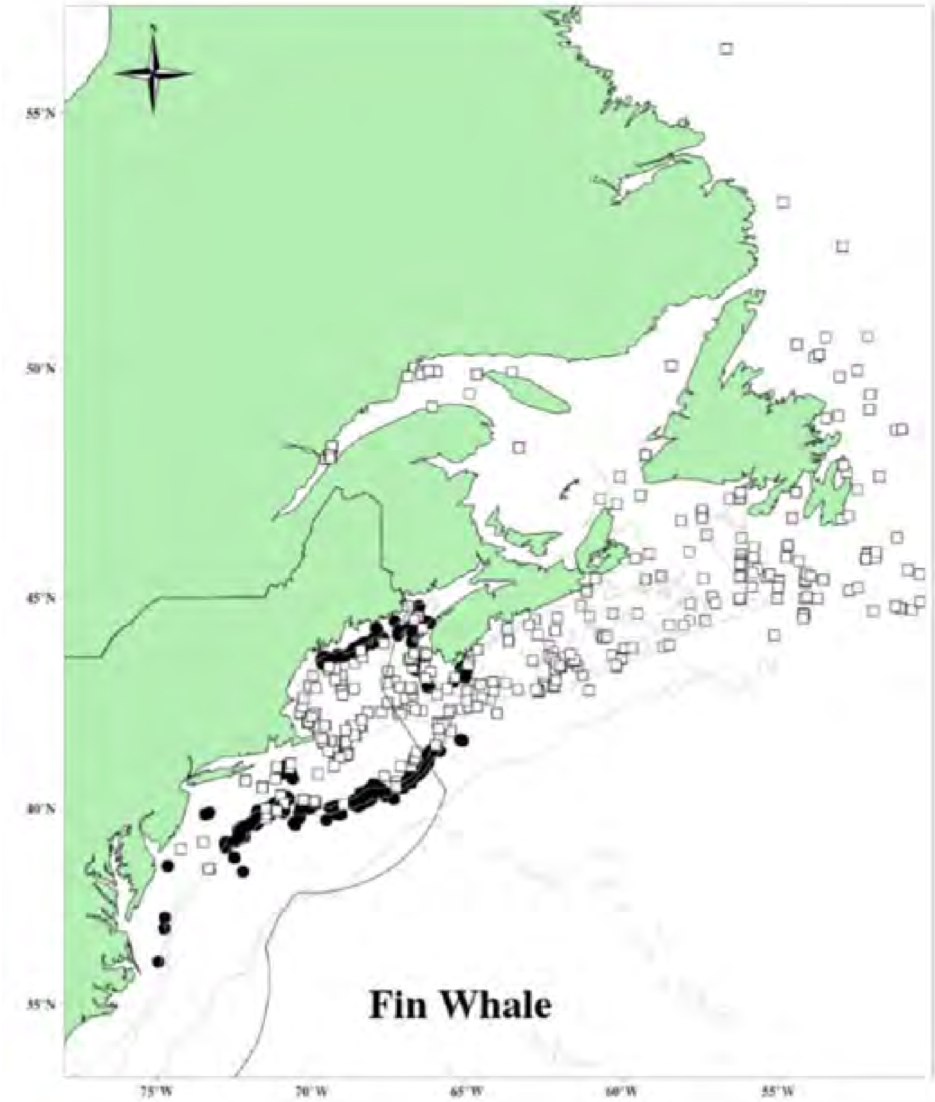


**Figure 2**. Distribution of fin whale sightings from NEFSC and SEFSC shipboard and aerial surveys during the summers of 1995, 1998, 1999, 2002, 2004, 2006, 2007, 2008, 2010, 2011, 2016, and 2021 and DFO's 2007 TNASS and 2016 NAISS surveys. Isobaths are the 100-m, 1000-m, and 4000-m depth contours. Circle symbols represent shipboard sightings and squares are aerial sightings (Hayes et al. 2024).

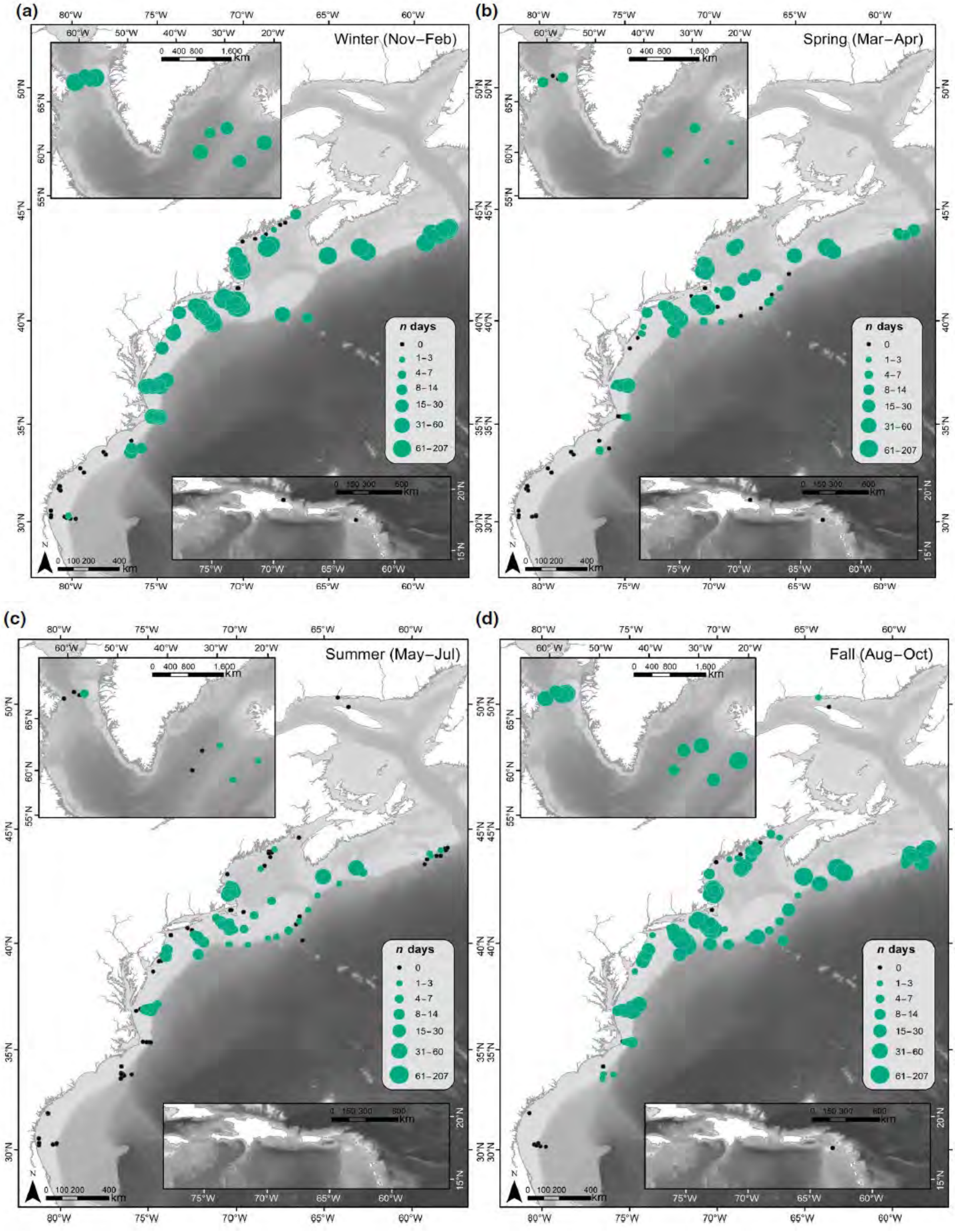


**Figure 3**. Fin whale seasonal occurrence maps: The number of days per season with confirmed North Atlantic fin whale acoustic detections, summarized for all available recording locations (2004–2014). Filled green circles indicate fin whale acoustic presence, and circle size indicates the number of days with fin whale acoustic detections during a season. Black dots indicate recorder locations with no fin whale acoustic presence for any year during that season (defined as: (a) Winter [November–February]; (b) Spring [March–April]; (c) Summer [May–July]; and (d) Fall [August–October]) (Davis et al. 2020).

## III. New York Rarity *(provide map, numbers, and percent of state occupied)*

### Details of historic and current occurrence:

Murphy (1918) described fin whales as regularly feeding offshore in the Long Island area in summer and reported an instance of six individual fin whales traveling inside the Jamaica Bay inlet in July 1916. Other historic stranding records include a stranded fin whale in Huntington Harbor in October 1946 and a stranded individual in Sheepshead Bay in November 1936 (Connor 1971). Goodwin (1935) reported one additional Long Island Sound record of an 18-meter fin whale killed in New Haven Harbor in Connecticut in May 1834. Another Connecticut stranding was documented in Groton in January 1976, a 13-.5-meter fin whale with vessel strike injuries (Kenney and Vigness-Raposa 2010). A 12-meter female fin whale also stranded in New Haven Harbor, Connecticut in December 1983 (Kenney and Vigness-Raposa 2010). Additionally, Cronan and Brooks (1968) reported on several fin whale sightings and stranding records in Rhode Island dating back to the mid-1800s.

Most sources that report on historic whale presence in the New York Bight area state that fin whales are the most abundant large whale and widely distributed across the continental shelf year-round but most commonly in the summer (Connor 1971, CETAP 1982, McKenzie and Nicolas 1988, Sadove and Cardinale 1993, Kenney and Vigness-Raposa 2010). Connor (1971) reported that though fin whale numbers were greatly reduced by commercial whaling, the species is still the most numerous large whale on the northeast U.S. coast, including around New York. Fin whales were occasionally seen near the Long Island shore and reported from fishing boats off Montauk. During whaling, fin whales were seen regularly as they followed prey towards shore but they were rarely pursued due to their speed and lower oil yield (Connor 1971). According to Edwards and Rattray (1932), fin whales “came over the shallow sandbar about a quarter mile off the Long Island south shore frequently in pursuit of small fish”. Sadove and Cardinale (1993) noted the difference in New York fin whale distribution by season: between April and August fin whales were within 30 miles of shore and actively feeding; between September and December they moved offshore near the 200-meter contour; and between January and March they were again feeding off eastern Long Island but very close to shore, often within one mile. Small groups of 3 to 4 fin whales were most common but feeding aggregations in the summer regularly reached 20+ individuals and groups of over 200 fin whales were not uncommon (Sadove and Cardinale 1993). Calves were seen year-round though newborns seemed to occur mainly in early July, suggesting that calving may occur in the New York Bight but remains unconfirmed. Based on their data, Sadove and Cardinale (1993) estimated a population of 400 fin whales in New York but noted that during certain times of year there might be close to 800 individuals.

Muirhead et al. (2018) found that fin whale vocalizations occurred every day of their 258-day study period in the New York Bight between 2008 and 2009; most detections were recorded during the summer and at acoustic sites farthest from shore. At sites near New York Harbor, fin whale presence (34% of recorded days) was highest during winter, followed by spring and fall; the study was not conducted during the summer due to funding constraints.

The Great South Channel is a well-known feeding ground and there is a second major feeding area east of Montauk between the 15- and 50-meter contours (Kenney and Winn 1986, Hain et al. 1992, LaBrecque et al. 2015). This large feeding area, which includes some New York waters directly south of Montauk, was designated a Biologically Important Area (BIA) for fin whales from March to October (LaBrecque et al. 2015). The BIA delineation process can be found in Ferguson et al. (2015).

The NYSERDA digital aerial survey recorded 43 sightings of fin whales, the most common large whale species seen (NYSERDA 2021). Most sightings were in the summer but took place year-round and were distributed evenly across the continental shelf.

The first near-real time moored buoy deployment by WHOI was in 2016, and in 2021 an additional buoy was added in the opposite end of the Empire Wind area (WHOI 2025). In 2023 glider deployments from the DEC Offshore Indicators project began working in coordination with WHOI, adding to the scope of acoustic detections in the New York Bight. Confirmed detections of fin whales occur very regularly during all seasons and, often, detections on both the moored buoy(s) and glider(s) occur every day or almost every day of each deployment.

The 2017-2020 DEC aerial surveys recorded 124 sightings of 207 individual fin whales (Zoidis et al. 2021). Fin whales were seen during all years and all months, with seasonal abundance estimates highest in summer, followed by spring, winter, and fall, and most occurrence on the continental shelf and slope. Fin whales had the greatest sighting depth range, from 17 to 2,162 meters (Zoidis et al. 2021). Calves were sighted three times: once in April 2018 and twice in August 2018. Density and abundance estimates were highest in July, revealing that as many as 473 individual fin whales, on average, may have been present in the NY Bight during that period (Zoidis et al. 2021). These results further support the notion that a percentage of the fin whale population may not be doing large scale migrations. During the second year of surveys, in Summer 2018, there was a significant influx of both fin whales and humpbacks whales occurring in large multi-species feeding aggregations across the middle of the continental shelf (Tetra Tech and LGL 2020, Lomac-MacNair et al. 2022). Fin whales were recorded foraging during all survey years and all seasons except winter, only in the shelf zone, with group sizes ranging from one to 16 individuals (Lomac-MacNair et al. 2022). Calculated foraging sighting rates were 0.9 for Year 2, 0.2 for Year 1, and 0.1 for Year 3, indicating that there is some interannual variability in fin whale presence and/or feeding activity in New York.

The 2017-2020 DEC passive acoustic monitoring (PAM) data showed that fin whales were the most frequently detected large whale species with detections on 99% of recording days, reflective of the initial NY Bight-focused PAM study completed in 2008-2009 (BRP 2010, Estabrook et al. 2021, Estabrook et al. 2025). While fin whale presence was dominant, there was a slight seasonal trend, with the fewest detections between April and June. At most of the 14 recording sites, fin whales were present more than half the time. Sites nearest NY Harbor recorded the fewest detections, with most detections occurring at sites closer to the shelf edge (Estabrook et al. 2025). This also supports previously established and hypothesized trends that fin whales tend to prefer deeper waters. Significant interannual differences in fin whale presence were also found in the data (Estabrook et al. 2025)

Marine mammal stranding records are submitted to and managed by the National Oceanic and Atmospheric Administration (NOAA) in the NOAA National Stranding Database (NMFS 2025b). According to the Database, fin whales have stranded in New York 17 times from 1993 to 2024. Only three of those strandings occurred since 2015.

## New York’s Contribution to Species North American Range:

| Percent of North American Range in NY | Classification of NY Range | Distance to core population, if not in NY |
|---|---|---|
| 1-25% | Core | |

*Column options*

**Percent of North American Range in NY**: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item

**Classification of NY Range**: Core; Peripheral; Disjunct; (blank) or Choose an item

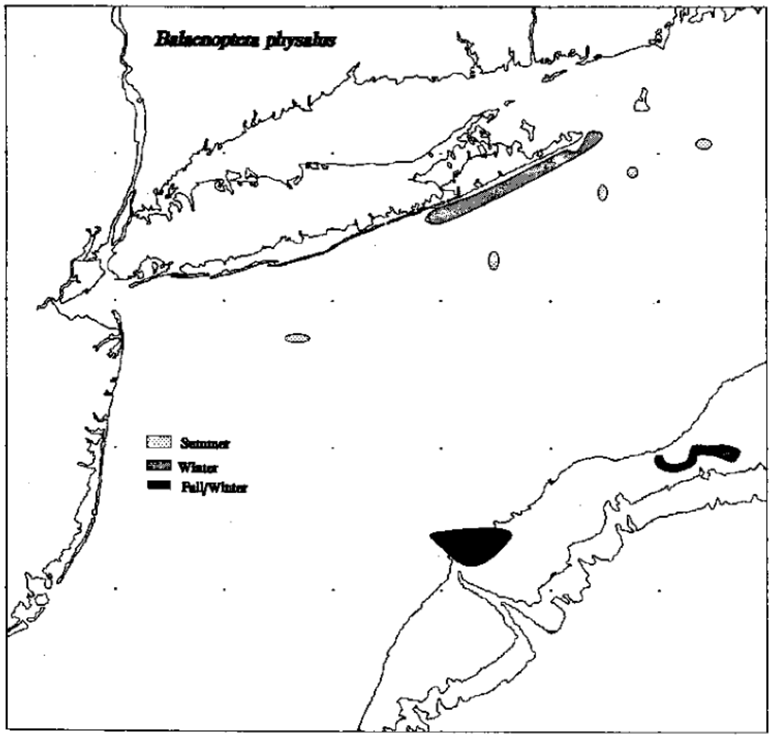
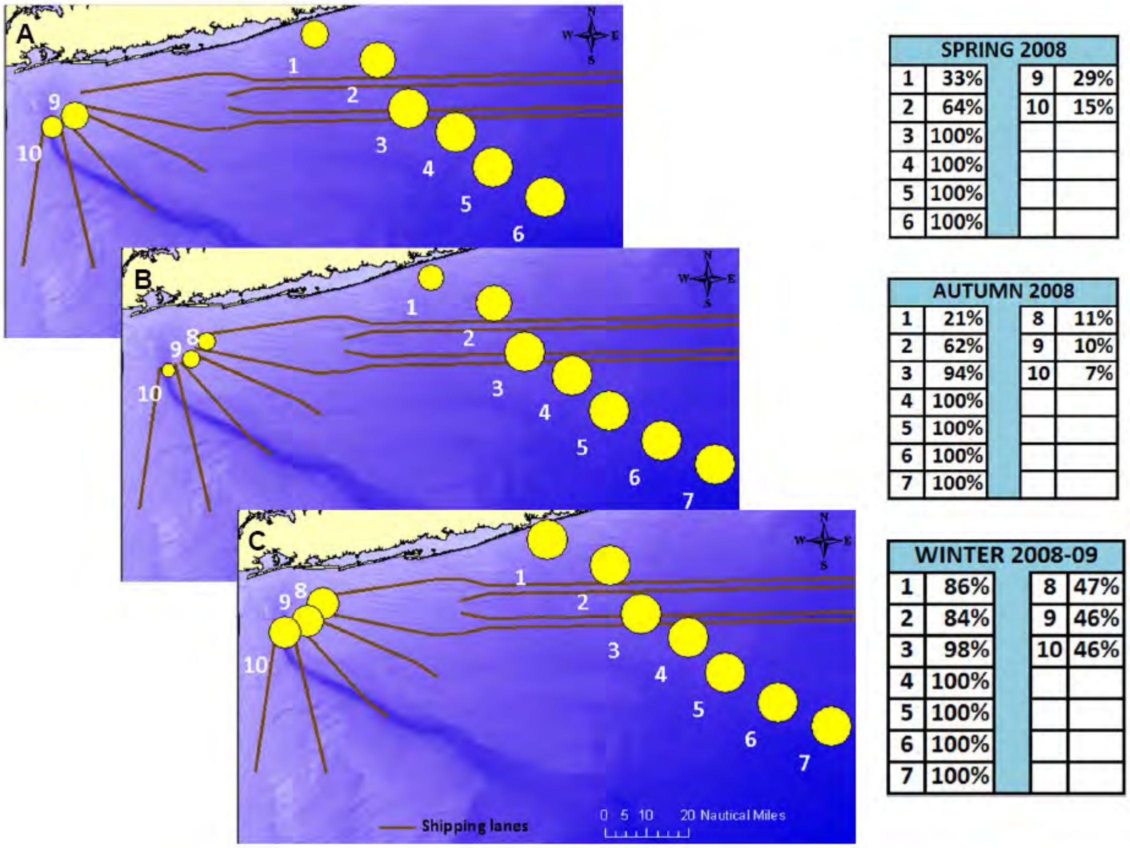


**Figure 4.** Locations of sightings of fin whales by surveys conducted by the Okeanos Ocean Research Foundation from 15 years of research from the 1970s – early 1990s (Sadove and Cardinale 1993).

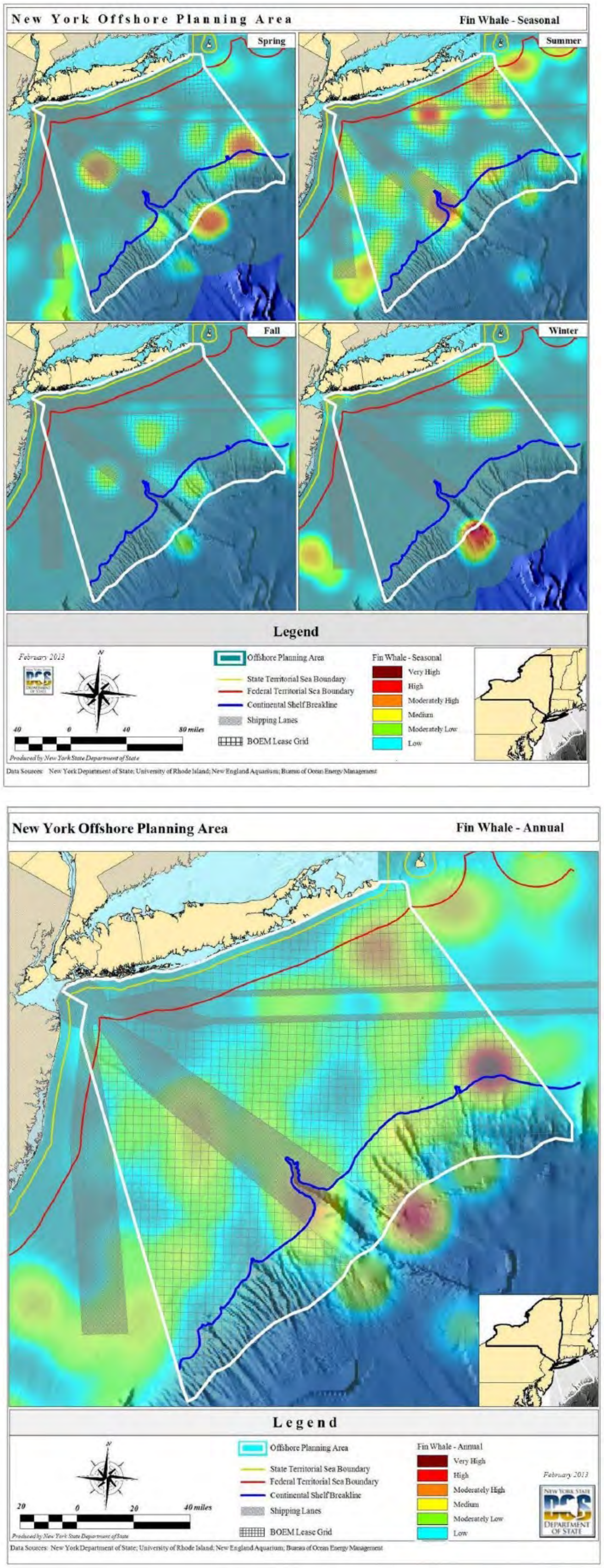


| SPRING 2008 | | | | |
|---|---|---|---|---|
| 1 | 33% | | 9 | 29% |
| 2 | 64% | | 10 | 15% |
| 3 | 100% | | | |
| 4 | 100% | | | |
| 5 | 100% | | | |
| 6 | 100% | | | |

| AUTUMN 2008 | | | | |
|---|---|---|---|---|
| 1 | 21% | | 8 | 11% |
| 2 | 62% | | 9 | 10% |
| 3 | 94% | | 10 | 7% |
| 4 | 100% | | | |
| 5 | 100% | | | |
| 6 | 100% | | | |
| 7 | 100% | | | |

| WINTER 2008-09 | | | | |
|---|---|---|---|---|
| 1 | 86% | | 8 | 47% |
| 2 | 84% | | 9 | 46% |
| 3 | 98% | | 10 | 46% |
| 4 | 100% | | | |
| 5 | 100% | | | |
| 6 | 100% | | | |
| 7 | 100% | | | |

**Figure 5**. Seasonal presence of fin whales in the New York Bight region. A) fin whale presence during spring (1 March – 14 May 2008), B) presence during autumn (31 August – 2 Dec 2008), and C) presence during winter (5 December 2008 – 3 March 2009). Tables to the right of each plot show the actual percentages of days with fin whale song during each season (BRP 2010).



(a)

(b)

**Figure 6.** Seasonal (a) and annual (b) relative abundance of fin whales (NYSDOS 2013).

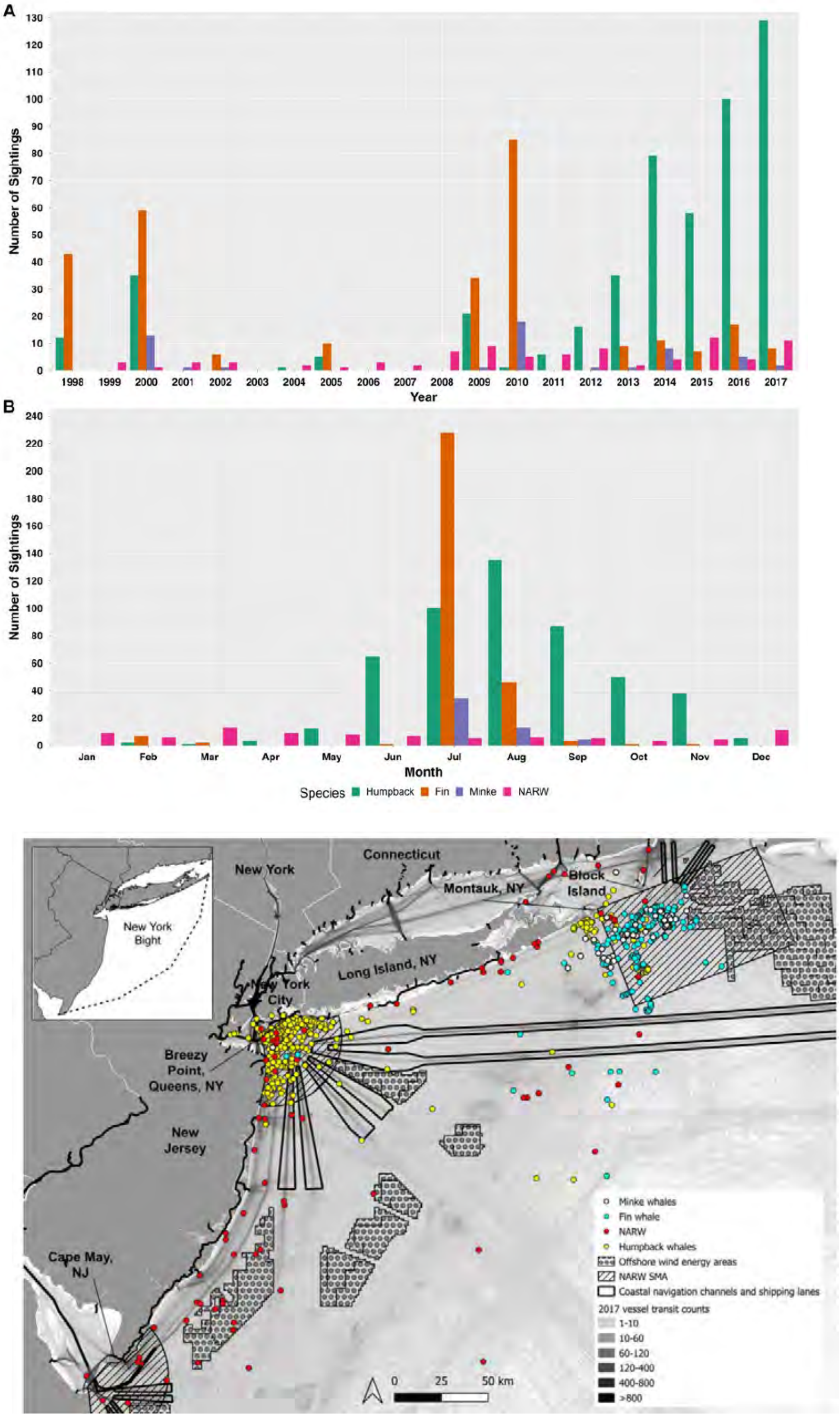
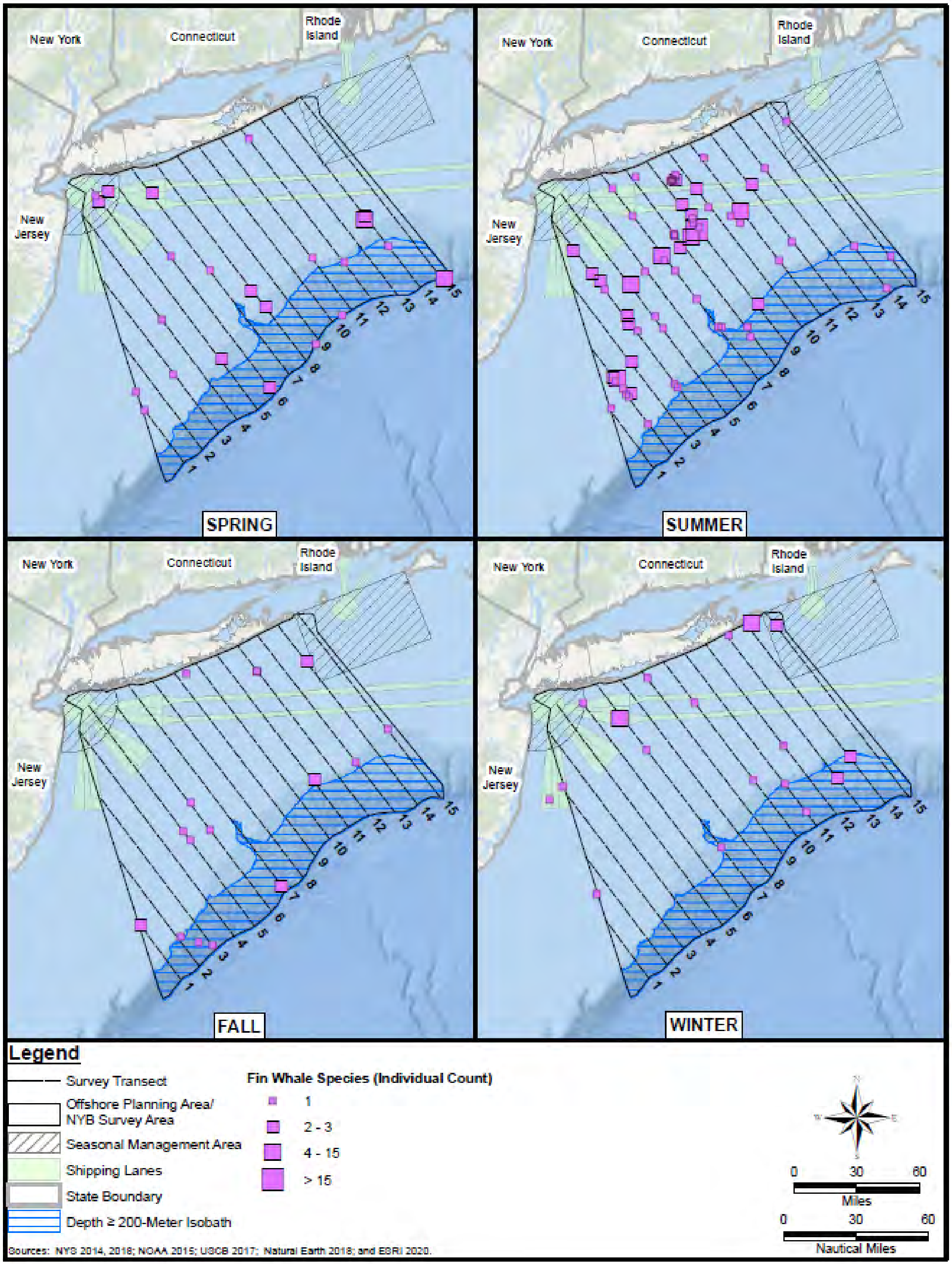


**Figure 7.** (A) Total number of sightings per year by species from 1998 to 2017 (fin whales are orange); (B) Total number of sightings per month across the study period by species; (C) Map of baleen whale sightings from within the New York Bight (Cape May, New Jersey to Montauk, New York) across study period. Blue are fin whale sightings (Chou et al. 2022).



Sources: NYS 2014, 2018; NOAA 2015; USCG 2017; Natural Earth 2018; and ESRI 2020.

**Figure 8**. Locations of all fin whale sightings by count and season, 2017-2020 (Tetra Tech and LGL 2020).

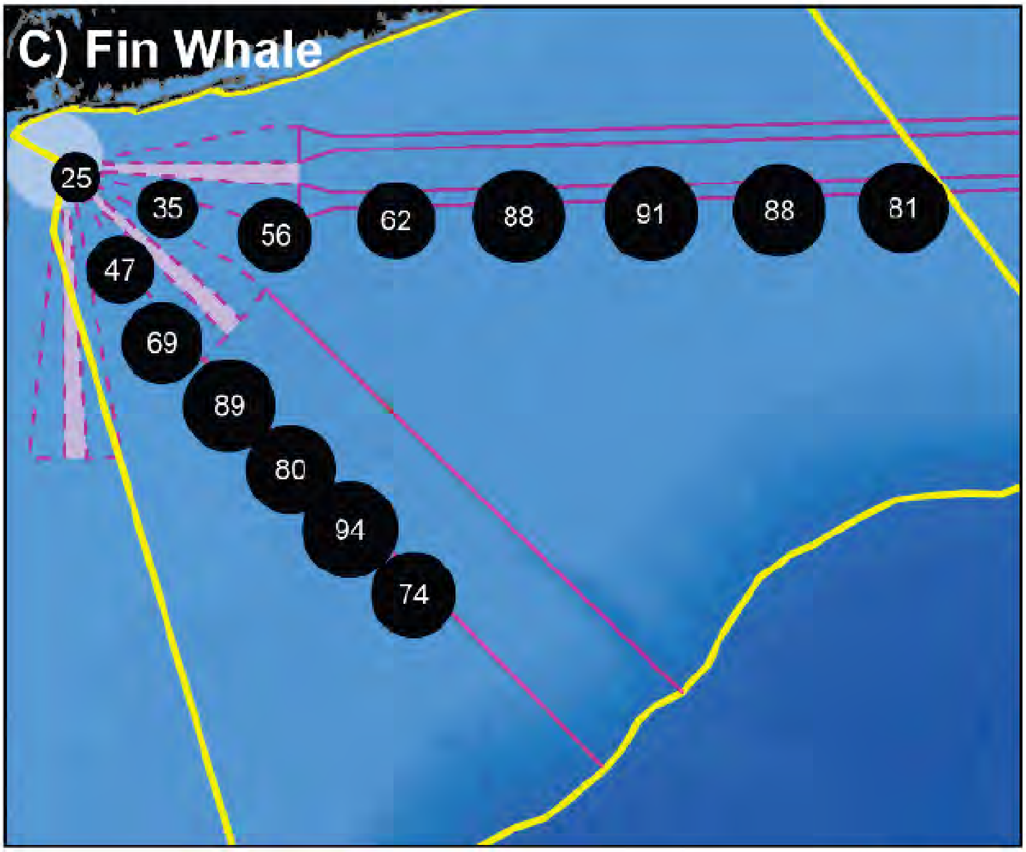


**Figure 9.** Cumulative spatial distribution of acoustic detections from fin whales detected within New York Bight across the 3 survey years. Black circles correspond to the position of recorders and are proportionately scaled in size for the percentage of days with detections over total days recorded. White label shows the exact percentage (Estabrook et al. 2021).

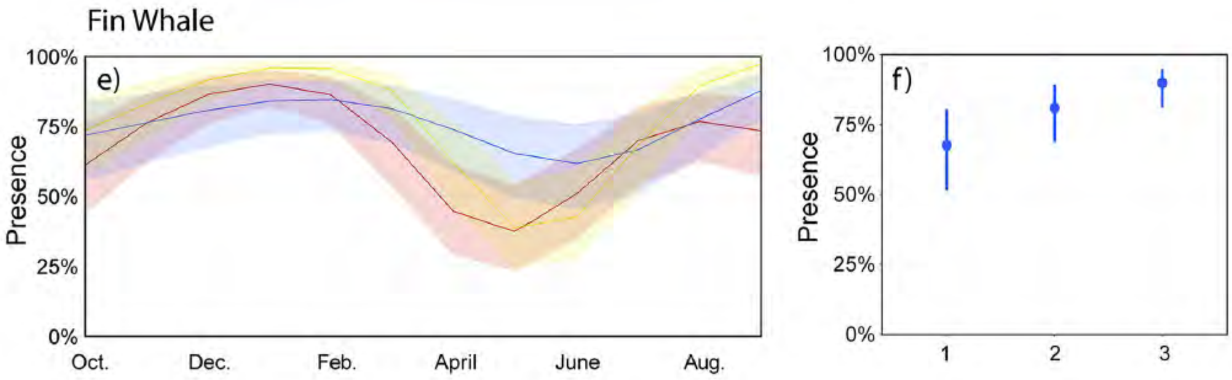


**Figure 10.** Results of DEC passive acoustic monitoring 2017-2020. Generalized additive model (GAM) plots of fin whale daily acoustic presence, with estimated marginal means of the presence probability, and survey year presence (Estabrook et al. 2025).

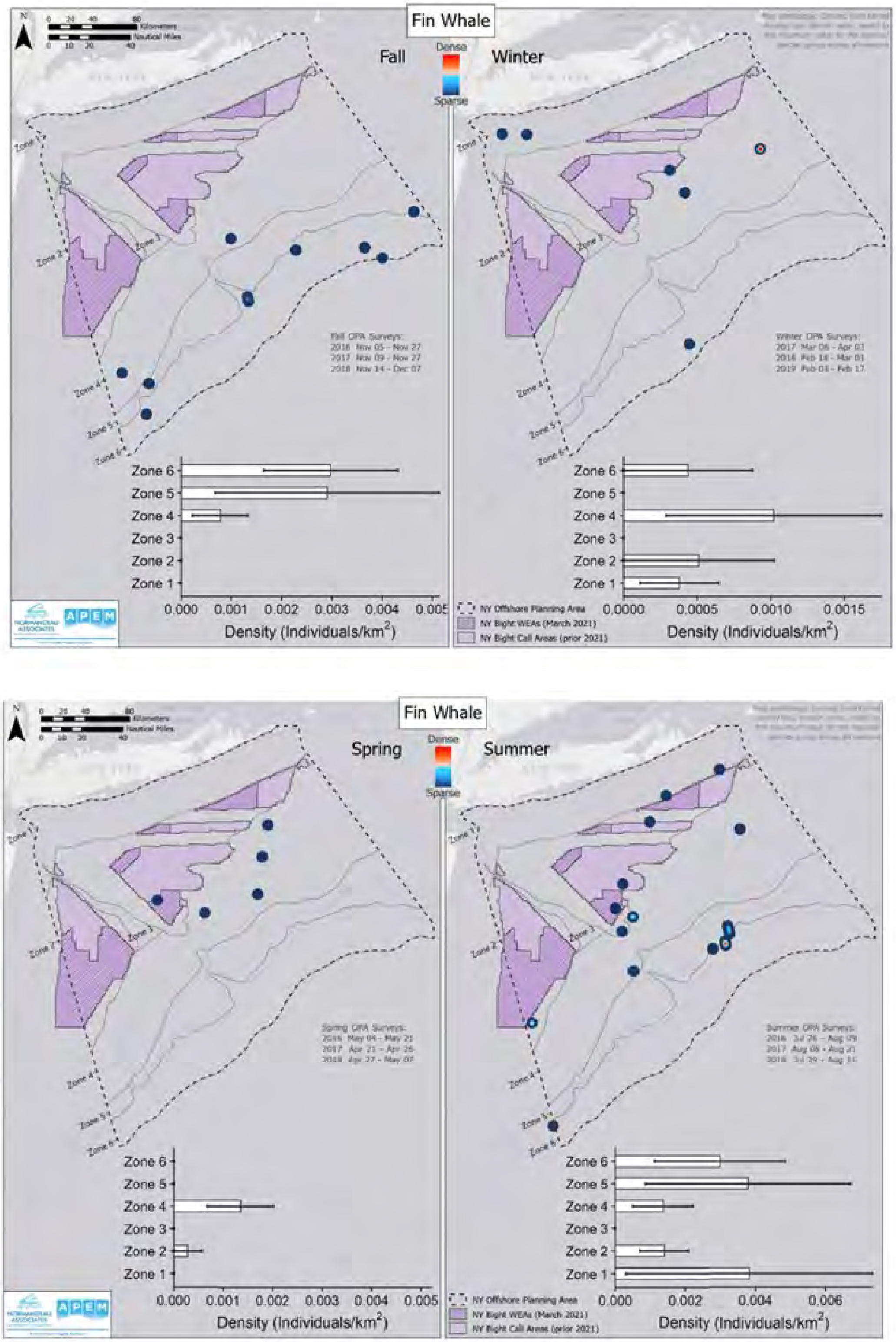


**Figure 11**. Spatial distribution of fin whales during each season by zone and proximity to call areas. Heat map density maximum is scaled to the maximum density for the species across all seasons. Inset figure shows estimated densities within each zone and the standard error of the mean (NYSERDA et al. 2021).

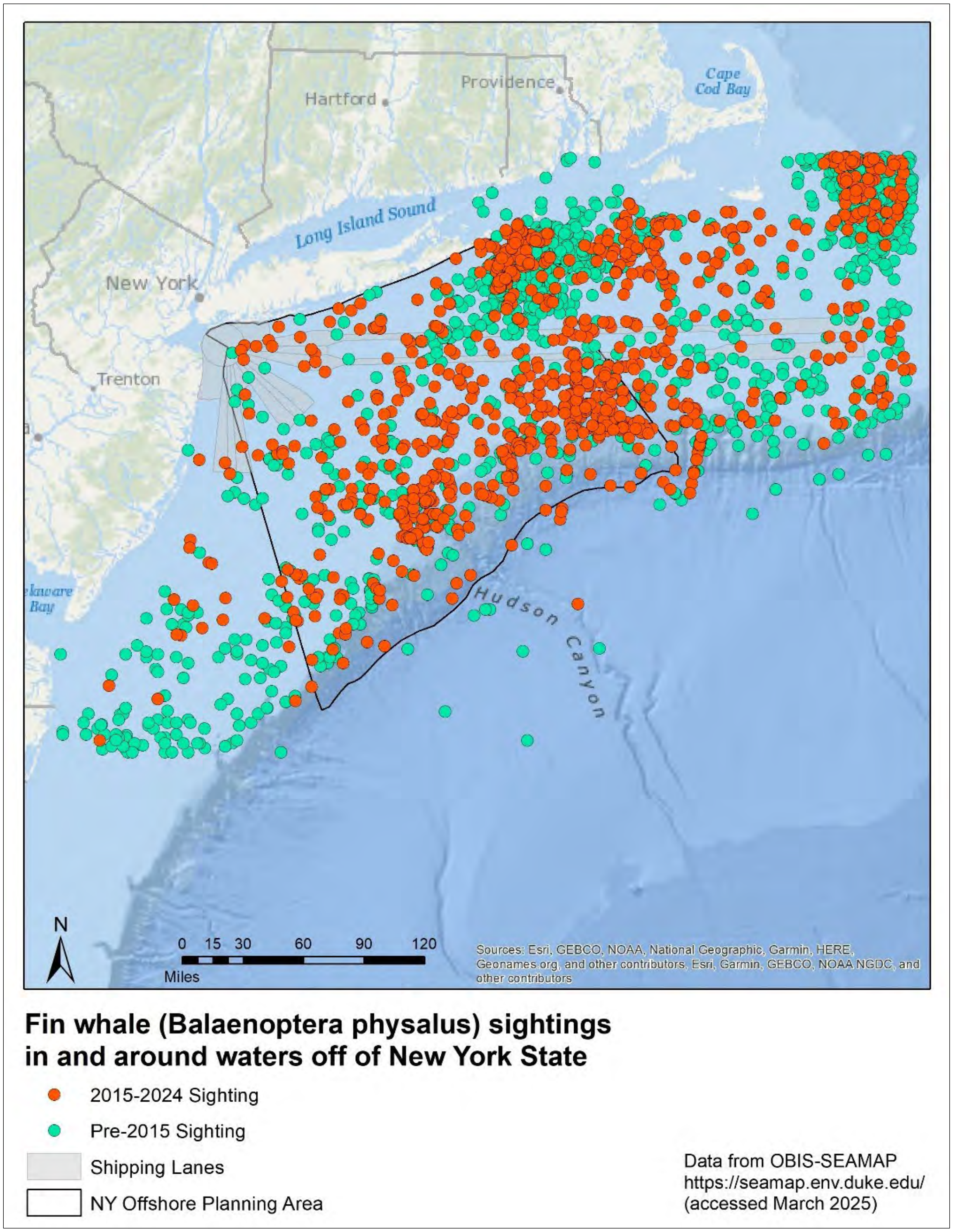


**Figure 12**. Fin whale sightings in New York. Downloaded from OBIS-SEAMAP and mapped in ArcMap 10.2.

## IV. Primary Habitat or Community Type *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

**a.** Pelagic, marine, deep subtidal

### Habitat or Community Type Trend in New York

| Habitat Specialist? | Indicator Species? | Habitat/ Community Trend | Time frame of Decline/Increase |
|---|---|---|---|
| No | No | Unknown | |

*Column options*
**Habitat Specialist and Indicator Species**: Yes; No; Unknown; (blank) or Choose an item
**Habitat/Community Trend**: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

### Habitat Discussion:

In the western North Atlantic, fin whales are very widely distributed. They can be found from the Gulf of Mexico north to the edge of the pack ice in the Arctic and their distribution is concentrated between Cape Hatteras and Canada (NMFS 2010, NMFS 2013.) The fin whale migration is poorly understood. Acoustic monitoring suggests a migratory pattern like that of other baleen whales, with summers spent in high-latitude feeding grounds and winters spent in low-latitude calving grounds (Clark 1995). It is likely that fin whales occurring in the U.S. Atlantic EEZ migrate into Canadian waters, open-ocean areas, and perhaps even subtropical or tropical regions (Waring et al. 1997, Edwards et al*.* 2015, Silva et al*.* 2019). For example, results from the U.S. Navy's Sound Surveillance System (SOSUS) program, originally an acoustic submarine detection system, showed a considerable deep-ocean distribution of fin whales (Clark 1995, Clark and Gagnon 2002). However, there is evidence of fin whale winter occurrence in high-latitude areas, particularly off Nova Scotia and in the Gulf of St. Lawrence, presumably linked to prey availability (Mitchell 1974, Sergeant 1977, Mizroch et al. 2009, Moors-Murphy et al. 2018, Roy et al. 2018). It has been suggested that fin whales may move offshore during the winter (Jonsgård 1966, Clark 1995). In New York, at least some fraction of the population moves closer to shore during the winter period (Sadove and Cardinale 1993). Whether that fraction represents all age groups, or perhaps only juvenile or non-reproductive individuals is unknown.

Depth, primary productivity, and distance to the closest major front were found to be predictors of fin whale presence in the North Atlantic (Ramirez-Martinez and Hammond 2012). On the U.S. East Coast, fin whales are distributed along the 100-meter isobath though sightings are recorded widely spread out over both shallower and deeper water (Kenney and Winn 1987, Hain et al. 1992). Fin whales are often found in areas with bathymetric features, along submarine canyons on the shelf break and other highly productive areas where upwelling concentrates prey (Herman et al. 1981, Hain et al. 1992, Woodley and Gaskin 1996, Doniol-Valcroze et al. 2007).

Rorquals, or baleen whales with throat grooves, are "gulpers": the mouth is opened, taking in a large volume or water and prey which sits within the distended lower jaw and ventral pouch, then the mouth is closed and the pouch is contracted, pushing water out through the baleen and keeping prey inside (Nemoto 1970, Pivorunas 1979, Lambertsen 1983). The baleen plates of rorquals are shorter and coarser than in right whales, and the rostrum of the skull is flatter and broader. Fin whales are generalist feeders, sometimes preying heavily on fish but mostly on crustaceans. Although there may be some degree of specialization, most individuals probably prey on both invertebrates and fish, depending on availability (Watkins et al. 1984, Edds and Macfarlane 1987, Borobia et al. 1995). Sergeant (1977) suggested that euphausiids were the "basic food" of fin whales and that they took advantage of fish only when in sufficient concentrations. However, Gambell (1985) hypothesized that fin whale diet is as much a function of availability as preference. A large spectrum of prey species can make up a fin whale's diet, including various species of small schooling fish, squid, and euphausiids (Jefferson et al. 1993, Bannister 2002, Gavrilchuck et al. 2014). Fin whale prey also varies by geographic area (Perry et al. 1999). Documented prey in the North Atlantic includes crustaceans like krill and euphausiids, and fish such as capelin and herring (Hjort and Ruud 1929, Ingebrigtsen 1929, Jonsgård 1966a, Mitchell 1974, Sergeant 1977, Christensen et al. 1992b, Borobia et al. 1995). Fin whales in the northwest Atlantic specifically often feed on American sand lance (Overholtz and Nicolas 1979). The availability of sand lance is thought to have had a strong influence on the distribution and movements of fin whales along the east coast of the United States (Kenney and Winn 1986, Payne et al. 1990, Hain et al. 1992). In Canada, fin whales primarily eat euphausiids and capelin (Sergeant 1966). Euphausiids appear to dominate the fin whale diet in the Bay of Fundy and Gulf of St. Lawrence once there is sufficient concentration (Gaskin 1983, Simard and Lavoie 1999). In contrast, capelin appears to dominate the fin whale diet off Newfoundland and Labrador (Mitchell 1975, Brodie et al. 1978, Whitehead and Carscadden 1985). Mitchell (1972) found that capelin made up 80-90% of the diet of fin whales caught off Newfoundland. Fin whales have also been observed feeding on herring off Nova Scotia (COSEWIC 2019).

It is widely believed that fin whale distribution is primarily driven by prey abundance, particularly during the summer months (NMFS 2010, COSEWIC 2019). Woodley and Gaskin (1996) found that in the Bay of Fundy, fin whales occurred primarily in shallow areas with high topographic relief and were correlated with high concentrations of herring and euphausiids. Similarly, whaling data indicates that fin whale catches in Iceland were correlated with known spawning areas of krill, the Icelandic fin whale's primary prey (Rørvik et al. 1976). Silva et al. (2013) found that fin whales would suspend their northward migration to forage in the mid-latitudes in the central North Atlantic for extended periods of time and much later into the summer than generally assumed. Data collected during AMAPPS PAM along the shelf break of the U.S. East Coast provided new seasonal occurrence information for fin whales, finding that the species was present in the deep waters off Florida during fall and winter months (Palka et al. 2021). Fin whales were also seen feeding as far south as the coast of Virginia (Hain et al. 1992).

Some fin whales often exhibit strong site fidelity, returning to the same feeding grounds year after year. This high degree of site fidelity was documented in New York by Sadove and Cardinale (1993), who often saw the same whales throughout the year and from year to year. Site fidelity appears to be maternally driven, with individuals returning to the same feeding grounds they traveled to with their mothers as calves (NMFS 2013). Studies have also shown maternally directed site fidelity for fin whales in the Gulf of Maine (Seipt et al. 1990, Clapham and Seipt 1991, Agler et al. 1993). Seipt et al. (1990) analyzed photos taken in the Massachusetts Bay area feeding ground from 1980 through 1987 and found that approximately 62% of the 156 individually identified fin whales were observed in more than one year. In some cases, individually identified fin whales were recorded within the feeding ground in all eight years (Seipt et al. 1990). More specifically, 49% of the identified whales were resighted in the same year and 45% were resighted in multiple years (Seipt et al. 1990). The authors suggested that fin whales frequenting this feeding ground "exhibited patterns of seasonal occurrence and annual return that in some respects were similar to those shown for humpback whales" (Seipt et al. 1990). Clapham & Seipt (1991) suggested that these rates of return are evidence that site fidelity may be maternally directed, and Agler et al. (1993) confirmed this hypothesis. There is also evidence of some segregation by sexual, maturational, or reproductive class in the Gulf of Maine feeding area (Agler et al. 1993, Schleimer et al. 2019). Specifically, there is female site fidelity as fine scale as the northern versus southern Gulf of Maine; lactating females and their calves appear to primarily occupy the southern portion of the Gulf of Maine summer feeding area (Agler et al. 1993).

Site fidelity has also been documented in the Gulf of St. Lawrence (Sergeant 1977; Simard and Lavoie 1999, COSEWIC 2019). Between 1986 and 2016, nearly 130 individual fin whales were identified in the St. Lawrence Estuary near Quebec and 30% were determined to be seasonal residents. In comparison, the northern Gulf of St. Lawrence photo-ID effort from 2007 to 2016 showed that 30% of individuals sighted each year had not been seen previously, suggesting that some whales appear from other areas during the summer feeding season (Schleimer et al. 2019). Closely studied populations such as this, with individually identified fin whales tracked through time, provides an important opportunity to assess individual health and population abundance. An apparent decline in the Gulf of St. Lawrence fin whale population has been documented since 2010 (Schleimer et al. 2019, Sullivan-Lord et al. 2017, Ramp et al. 2014). Ramp et al. (2014) reported a decreasing trend in apparent survival and abundance between 2004 and 2010. A decline in reproduction then became apparent starting in 2010; between 2005 and 2010, 67 fin whale calves were recorded, while between 2011 and 2016 only 9 calves were recorded, even though most reproductively active females were accounted for (Sullivan-Lord et al. 2017). This decline in the Gulf of St. Lawrence subpopulation was determined to not be correlated with shifting environmental conditions due to climate change and therefore the cause of the decline remains unknown (Schleimer et al. 2019). New satellite tag data analysis revealed significant differences in fin whale movement from (and returning to) the Gulf of St. Lawrence, further complicating our understanding of an already complex migratory scheme and undetermined stock structure, especially in the face of climate change (Ramp et al. 2024). For instance, sea ice loss "is already associated with an earlier arrival of 30 days (over 27 years) of fin whales in the Gulf of St. Lawrence" and it's unclear if or how fin whale reproductive requirements will be met and migratory patterns will change (Ramp et al. 2014, 2015, 2024).

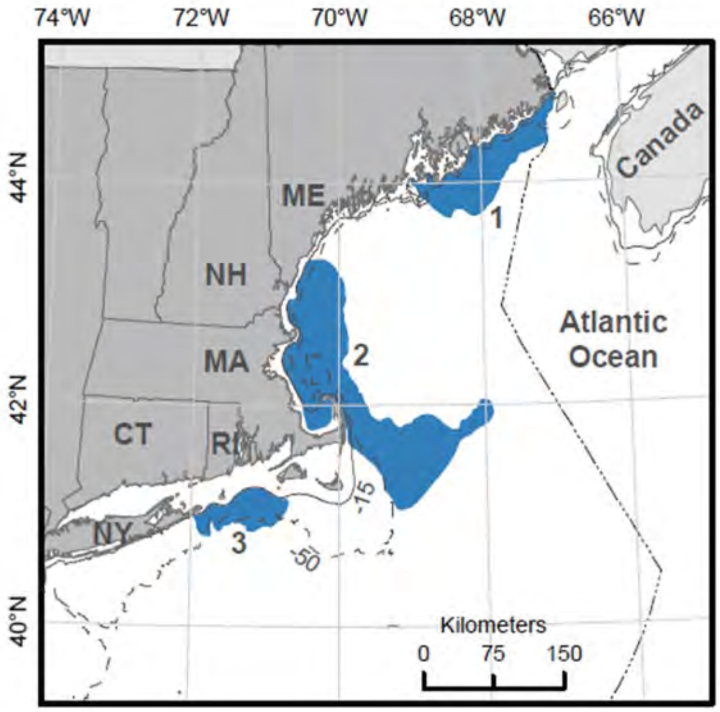


**Figure 13.** Fin whale (*Balaenoptera physalus*) feeding Biological Important Areas (BIAs) in the northeast Atlantic: (1) June to October in the northern Gulf of Maine; (2) year-round in the southern Gulf of Maine; and (3) March to October east of Montauk Point, substantiated through vessel-based survey data, photo-identification data, and expert judgement; also shown are the 15-m (solid line) and 50-m (dashed line) depth contours (LaBrecque et al. 2015).

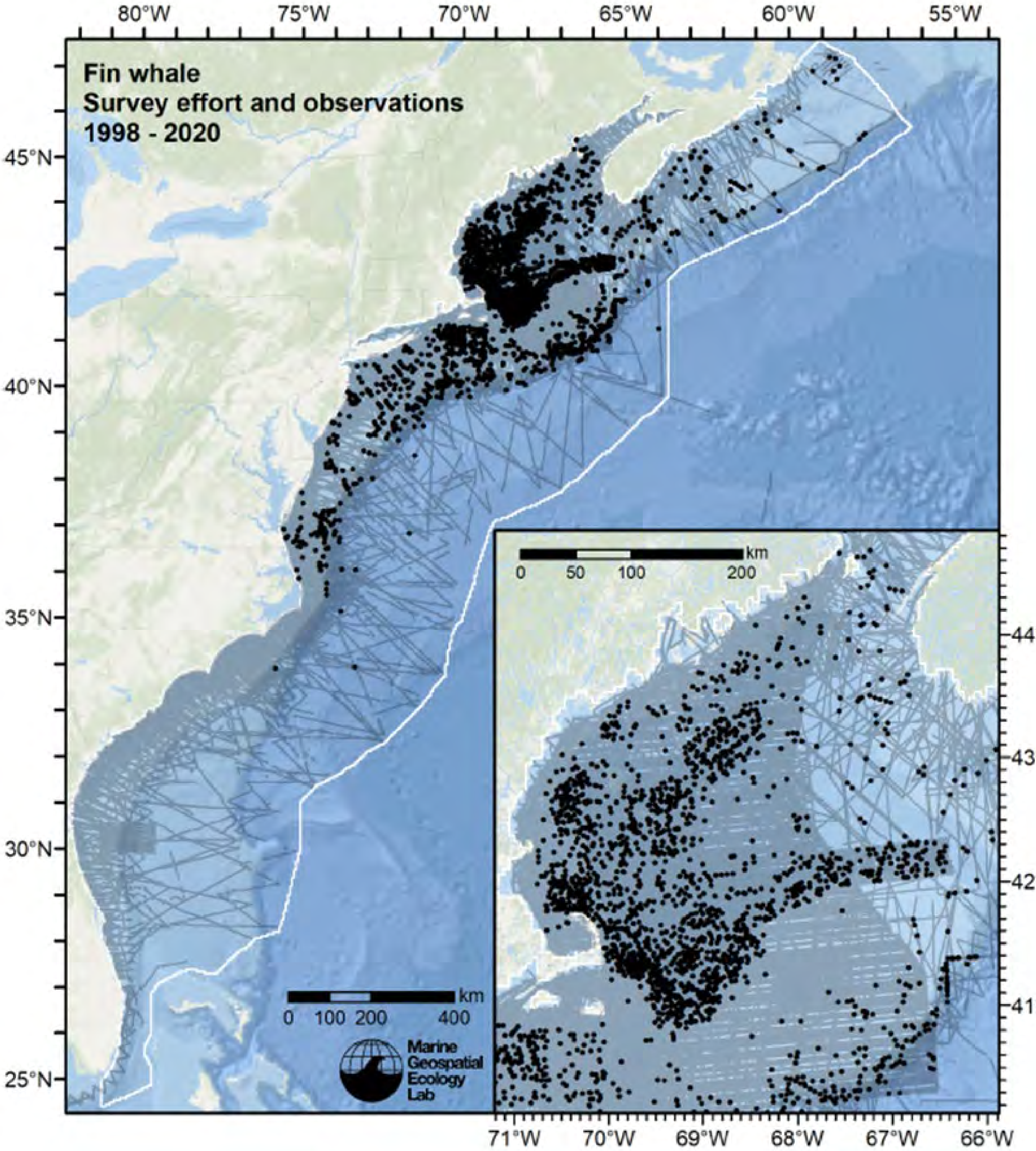


**Figure 14.** Survey effort and fin whale observations available for density modeling, after detection function were applied, and excluded segments and truncated observations were removed (Roberts et al. 2022).

## V. Species Demographics and Life History

| Breeder in NY? | Non-breeder in NY? | Migratory Only? | Summer Resident? | Winter Resident? | Anadromous/ Catadromous? |
|---|---|---|---|---|---|
| Unknown | Choose an item. | No | Yes | Yes | Choose an item. |

*Column options*
**First 5 fields**: Yes; No; Unknown; (blank) or Choose an item
**Anadromous/Catadromous**: Anadromous; Catadromous; (blank) or Choose an item

**Species Demographics and Life History Discussion** *(include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):*

Fin whales are believed to have a lifespan of 80 to 90 years and may possibly live up to 100 years (Gambell 1985, NMFS 2010). Generation time was calculated to be 25.9 years (Taylor et al. 2007). Fin whales are usually found alone or in small groups, though can also be found in groups of 20 or more, which are more common in foraging areas (Sadove and Cardinale 1993, Perry et al. 1999, Lomac-MacNair et al. 2022). Fin whales are the fastest cetacean, able to maintain speeds of over 20 knots (Bose and Lien 1989, Gambell, 1985a, Aguilar, 2002). Their speed is likely an adaptation to avoid predation by killer whales (*Orcinus orca*) rather than to catch fast prey, but it also allows them to move significant distances in a short amount of time (Ford and Reeves 2008, Potvin et al. 2009). Watkins (1981) tracked a radio-tagged fin whale between Iceland and Greenland that traveled 2,095 km (roughly 1,300 miles) in ten days. The high mobility of the species proven via long range movements and satellite tags means that in any given habitat there could be new individuals arriving from other populations. This dispersal from adjacent populations has been documented in the North Pacific (Mizroch et al. 2009, Silva et al. 2013)

Body coloration is diagnostic of the species; fin whales have a V-shaped chevron behind their head with asymmetrical pigmentation, darker on the left and lighter on the right (Agler et al. 1990). Mitchell (1972) speculated that their asymmetric coloration was related to feeding, based on the theory that rolling to the right would maintain their countershading and evidence that most of the time (about 81% in the North Atlantic), fin whales roll to their right when feeding (Tershy and Wiley 1992). Individual fin whales can be identified by these pigmentation patterns, by scarring, and dorsal fin shape (Agler et al. 1990). Slight variations in pigmentation have been documented for different regions in the northern hemisphere (Aguilar 2002).

Adult fin whales in the western North Atlantic, on average, weigh 40 to 50 tons and are 20 to 27 meters long, which is up to 4 meters smaller than southern hemisphere fin whales (Gambell, 1985a, Jefferson et al. 1993, Wynne and Schwartz 1999, Aguilar 2002, Bannister 2002). As baleen whales, which typically exhibit sexual dimorphism, female fin whales are larger than males, with northern hemisphere adults averaging about 22.5 m for females and 21 m for males (Aguilar 2002). There is also evidence that fin whales off the U.S. Atlantic are smaller than animals farther north (Hain et al. 1992, Aguilar 2002).

Female fin whales sexually mature at 7–8 years of age and males at 6–7 years of age, though Taylor et al. (2007) claims that first reproduction doesn’t occur until about 10 years of age. Full physical maturity in both sexes is reached around age 25 (Aguilar and Lockyer 1987). Corresponding body length at the age of sexual maturity in the northern hemisphere is around 17–18.5 m in females and somewhat smaller in males (Lockyer 1972, 1984, Gambell 1985, Aguilar 2002, Mitchell 1974).

It is unknown where calving, mating, and wintering occur for most of the population. Hain et al. (1992) suggested that calving takes place from October to January in the U.S. mid-Atlantic region. Other sources indicate that reproductive activity, including mating, conception, and calving, takes place primarily in the winter season from November to March (Haug 1981, Mitchell 1974, Mizroch et al. 1984, Folkens and Reeves 2002). Fin whale calves tend to be born in the late fall and winter, probably offshore (Mitchell 1974, Haug 1981, Gambell 1985a, Hain et al. 1992, Aguilar, 2002). However, while births reportedly peak in December and January, fin whales can give birth year-round (Hain et al. 1992). These “out-of-season” births may occur because, unlike other baleen whale species on the U.S. East Coast, warm water is not a requirement for fin whale calving (Ingebrigtsen 1929, Hain et al. 1992). In support of probable winter mating and calving, the 20 Hz song, believed to be a fin whale mating call, is recorded most often during winter months off Canada (Moors-Murphy et al. 2018).

In the North Atlantic, it’s believed females give birth after a gestation period of slightly less than one year (Haug 1981, Gambell 1985). Fin whale length and weight at birth are 6 m and 1,000 kg (Mizroch er al. 1984b). The only stable social bond for fin whales is between a mother and a calf, which lasts about 6 months. Between 6 and 11 months after birth, and at double the size at 12 m, fin whale calves are weaned (Best 1966, Haug 1981, Gambell 1985). The average calving interval is believed to be 2 to 3 years (Christensen et al. 1992, NMFS 2010, Agler et al. 1993). Pregnancy rates have been estimated at 38-50% for adult female fin whales, though the annual reproductive rate for fin whales in the Gulf of Maine was estimated to be about 8% during the 1980s (Agler et al. 1993, COSEWIC 2019). In the U.S., stock management under the MMPA assumes a maximum net productivity rate of 4% (Barlow et al. 1995).

Several cases of fin whale/blue whale hybrids have been documented in the North Atlantic, which have been reported since the 19th century, including one in the Gulf of St. Lawrence (Bérubé and Aguilar 1998, Bérubé et al*.* 2017). Though instances of hybridization are still believed to be somewhat rare, albeit underestimated, it’s likely that the biodiversity and biomass lost during industrial whaling facilitated hybridization events (Pampoulie et al. 2021). Pampoulie et al. (2021) analyzed 8 hybrid samples collected in Iceland and found that all but one had a blue whale mother, suggesting unidirectional hybridization. The study also presented for the first time the existence of a second-generation adult male hybrid resulting from a female hybrid and a male fin whale (Pampoulie et al. 2021). The existence of a second-generation adult hybrid proves that a first-generation fin-blue hybrid is not only able to breed with one of the parent species, but that their offspring can survive into adulthood. The hypothesis for this phenomenon proposes that females from the rarer species (i.e., blue whales) reject males from the more common species but eventually mate with the common species due to lack of conspecifics (Pampoulie et al. 2021). Hybridization events do not come without concern; they are considered a potential threat to the recovery of blue whales. In 2022, further hybrid evidence was reported in the first documented fin-blue hybrid in the Mediterranean Sea (Fiorvanti et al. 2022).

There is little information available on natural mortality in fin whales. Ice entrapment is known to injure and kill large whales, particularly in the Gulf of St. Lawrence (Sergeant et al. 1970). There have been some reports of predation on fin whales by killer whales in the western North Atlantic and possibly by sharks preying on neonates (Mitchell and Reeves 1988, Jefferson et al. 1991, Weller 2018). It is believed that disease probably plays a role in natural mortality as well, although the extent is unknown. Lambertsen (1986) estimated that 90–95% of fin whales in the North Atlantic carry heavy loads of the giant nematode *Crassicauda boopis*. Such loads could be pathogenic, resulting in renal inflammation and, in extreme cases, kidney failure and death (Lambertsen 1992, Perry et al. 1999). Exposure to dolphin morbillivirus and subsequent stranding of fin whales has been reported in the Mediterranean Sea (Mazzariol et al. 2012, 2016) and along the coast of Denmark (Jo et al. 2017). In September 2013, a 5.4 m newborn male fin whale stranded alive in Italy and later died. The calf was positive for dolphin morbillivirus, demonstrating that the disease could be transmitted through the placenta (Mazzariol et al.

2016). Overall, natural mortality rates in fin whales have been estimated to be between 0.04 and 0.06 (Aguilar and Lockyer 1987). In addition, estimated rates of natural mortality are higher in adult female fin whales than adult males which may be due to reproductive stress but has not been determined (Aguilar and Locker 1987, Lockyer and Sigurjonsson 1992).

There has been considerable discussion of interspecific competition among baleen whales, particularly as a function of whaling impacts and successive recovery (Aguilar and Lockyer 1987). The substantial dietary overlap among these species establishes the potential for interference competition but no conclusive evidence exists that interspecific competition among baleen whales is affecting population recovery rates (Clapham and Brownell 1996). Garcia-Vernet et al. (2021) assessed niche partitioning off of Iceland and found that fin whales had the smallest niche size and the most overlap with another species, an overlap of 50-60% with blue whales. However, it's possible that though the fin whales in this study depended heavily on krill, there is some spatial and/or temporal segregation of timing per species on the feeding grounds, or a species could target a different size class of the same prey (Vikingsson et al. 2015, Garcia-Vernet et al. 2021). Another study found that fin whales feeding in four areas – Iceland, Spain, the Azores, and the Strait of Gibraltar – may share a common feeding ground at different times of year, suggesting there is some resource partitioning and exchange of individuals between the northeast Atlantic and the Mediterranean (Gauffier et al. 2020). Both examples suggest that fin whales are adapting to the "sharing" of resources. However, more research is needed to determine if competition exists, if it might exist in the near-future, and how species may or may not adjust.

| Threat Level 1 | Threat Level 2 | Threat Level 3 | Spatial Extent | Severity | Immediacy | Trend | Certainty |
|---|---|---|---|---|---|---|---|
| 3. Energy Production & Mining | 3.1 Oil & Gas Drilling | Choose an item. | Restricted | Moderate | Near-term | Unknown | Moderate |
| 3. Energy Production & Mining | 3.3 Renewable Energy | 3.3.2 Wind farms | Restricted | Moderate | Near-term | Intensifying | Moderate |
| 4. Transportation & Service Corridors | 4.3 Shipping Lanes | 4.3.1 Shipping | Pervasive | Moderate | Immediate | Intensifying | High |
| 4. Transportation & Service Corridors | 4.3 Shipping Lanes | 4.3.2 Dredging of shipping lanes | Small | Slight | Immediate | Unknown | Moderate |
| 5. Biological Resource Use | 5.4 Fishing & Harvesting Aquatic Resources | 5.4.2 Commercial fishing | Large | Slight | Immediate | Intensifying | Moderate |
| 6. Human Intrusions & Disturbance | 6.1 Recreational Activities | 6.1.4 Recreational boating | Restricted | Slight | Immediate | Intensifying | Moderate |
| 6. Human Intrusions & Disturbance | 6.2 War, Civil Unrest & Military Exercises | 6.2.3 Military exercises | Restricted | Slight | Immediate | Unknown | Low |
| 8. Invasive & Other Problematic Species | 8.2 Problematic Native Plants & Animals | 8.2.6 Increased predation by large predators | Small | Slight | Immediate | Intensifying | Moderate |
| 8. Invasive & Other Problematic Species | 8.4 Pathogens | Choose an item. | Restricted | Slight | Immediate | Unknown | Unknown |
| 9. Pollution | 9.1 Domestic & Urban Wastewater | Choose an item. | Large | Slight | Near-term | Unknown | Low |
| 9. Pollution | 9.2 Industrial & Military Effluents | Choose an item. | Large | Slight | Near-term | Unknown | Low |
| 9. Pollution | 9.4 Garbage & Solid Waste | 9.4.4 Drifting plastic and entanglement rubbis | Pervasive | Slight | Immediate | Intensifying | Moderate |
| 9. Pollution | 9.6 Excess Energy | 9.6.3 Noise pollution | Pervasive | Serious | Immediate | Intensifying | High |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11. Climate Change | 11.1 Habitat Shifting & Alteration | 11.1.2 Phenological mismatch | Large | Moderate | Immediate | Intensifying | High |
| 11. Climate Change | 11.2 Changes in Geological Regimes | Choose an item. | Large | Moderate | Near-term | Intensifying | Moderate |
| 11. Climate Change | 11.3 Changes in Temperature Regimes | Choose an item. | Large | Moderate | Near-term | Intensifying | Moderate |

## *VI.* Threats *(from NY 2015 SWAP or newly described)*

**Table 1.** Threats to fin whale.

### Whaling

Commercial whaling for fin whales is still practiced today. After rejoining the IWC in 2002 under objection, Iceland began whaling again in 2007 (IWC 2025b). Since then, Iceland has continued to hunt both fin whales and minke whales. Most fin whale meat is exported to Japan, made possible due to both countries' reservation against the Appendix I listing of fin whales under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; WDC 2025). In 2022, Iceland considered ending whaling after a multi-year hiatus due to the COVID-19 pandemic but instead, whaling resumed and new permits for 2025-2029 were issued. Under these new permits, 209 fin whales and 217 minke whales can be caught each year during the whaling season from June to September (BBC 2024). Recently reported catches of fin whales in Iceland numbered 24 individuals in 2023 and 148 individuals in 2022 (IWC 2025e). In addition, Japan, which left the IWC in 2019, announced in May 2024 that it would include fin whales in their commercial whaling operations and subsequently killed a fin whale in August (IFAW 2024, Pynn 2024). Currently, aboriginal subsistence whaling is carried out by Greenland and managed by the IWC, which set an annual strike limit of 19 fin whales from 2019 to 2025 (IWC 2025c, 2025d). Therefore, it cannot be assumed that fin whales have been fully protected from commercial whaling since 1986 or that their current legal protection from commercial whaling will continue (NMFS 2019).

### Vessel Strikes

Over the past 50 years, increasing vessel traffic has been correlated with a three- to four-fold increase in the number of large whales reportedly struck by vessels annually (Vanderlaan et al. 2009). The increasing number of incidents is likely related to a combination of factors, one of which is the increase in vessel numbers, sizes, and transits (Redfern et al. 2020, Womersley et al. 2023). The global shipping fleet doubled in size from 2005 to 2022, and it's estimated that the number of vessel transits could increase by up to 1200% by 2050 (Sardain et al. 2019, Womersley et al. 2023). The increase in strikes is also related to variable species distributions as habitats shift due to climate change (Meyer-Gutbrod et al. 2022, Redfern et al. 2020).

Vessel speed is a primary factor in lethal vessel strike events involving whales, with faster vessel speed increasing the likelihood of interactions and mortality resulting from an interaction (Vanderlaan and Taggart 2007, Conn and Silber 2013, Garrison et al. 2025). Using simple biophysical models, Kelley et al. (2021) determined that whales can be seriously injured or killed by vessels of all sizes and that a collision with a 50-ton vessel transiting at seven knots has a probability of lethality greater than 50%. Vessel strikes can cause broken bones and massive internal injuries, known as blunt force trauma, or cuts from propellers (e.g., lacerations), known as sharp force trauma. Importantly, there is not always obvious external impacts with blunt force trauma, which requires a necropsy for determination (Moore et al. 2013, 2020).

Both vessel strikes and entanglement in fishing gear are believed to be more problematic than observational studies suggest (Heyning and Lewis 1990). Vessel strikes are likely underreported, especially since animals struck and killed are likely to sink and remain undetected (Douglas et al. 2008). Unfortunately, it is extremely difficult to track a specific event to a geographic location, so it is nearly impossible to know whether a whale was originally struck or entangled in New York waters.

For the cases in which the struck whale is detected and identified to species, fin whales are one of the more commonly reported species in vessel collisions (Laist et al. 2001, IWC 2025a). Most vessel strikes involve ships 80 m or longer travelling at 14 knots or faster, and despite their speed, fin whales are struck more frequently than other balaenopterids (Laist et al. 2001). Jensen and Silber (2004) compiled information on reported ship strikes from 1975 – 2002 and found that fin whales represented about 25% of records. Along the U.S. East Coast there are multiple instances of fin whale carcasses being brought into port deceased across the bow of a ship (Douglas et al. 2008, Henry et al. 2011, 2016).

Fin whale annual vessel strike mortalities and serious injuries from 1999 to 2021 along the east coasts of the U.S. and Canada averaged almost 6.5 events per year (NMFS 2025e). While uncommon, some of the events did occur in New York. The most recent fin whale stranding in New York, in September 2024, revealed vessel strike as the cause of death due to fractured skull bones and extensive internal bruising.

While vessel strikes of fin whales are relatively few across the entire east coast of North America, vessels do still pose an active threat to fin whales. It's unknown what the total risk and population impact of this threat is, but as Arctic sea ice melts due to climate change and vessels are able to travel through previously closed areas, increased vessel strike risk is expected to increase for all large whales (Thomas et al. 2016, Ramp et al. 2024). In addition, increased demand for global trade coupled with increased anthropogenic activities (e.g., military exercises, offshore energy development, etc.) is driving vessel traffic growth in the world's oceans, with a global fourfold increase between 1992 and 2012 (Tournadre 2014).

### Entanglement

Fin whales are sometimes seriously injured or killed by entanglement in fishing gear off of eastern Canada and the east coast of the U.S. (Read 1994, Lien 1994, Waring et al. 1997). Fin whale annual entanglement mortalities and serious injuries from 1999 to 2021 averaged a little over 3 events per year (NMFS 2025e). While uncommon, some of the events were first documented in New York.

Fin whales rarely raise their flukes above the surface of the water when diving, making it difficult to record active entanglements in the caudal peduncle area and to assess rates of entanglement based on photos. One study determined that 43% of individuals with caudal peduncle photos showed signs of entanglement and increased to 58% when the leading edge of the fluke was also visible in photos (COSEWIC 2019).

Whales surviving initial entanglement might take considerable time to shed gear, heal and hopefully completely recover. During this time, they can suffer from reduced feeding ability and suppressed immune system function, all leading to higher indirect mortality or reduced fecundity (van der Hoop et al. 2017). Even whales that survive the physical aspect of an entanglement (e.g., the gear is completely shed or removed) may suffer from reduced survival and fecundity, as has been documented in North Atlantic right whales (Knowlton et al 2012). Fishing effort, and therefore entanglement risk, is pervasive. The ultimate cost of entanglement to an individual, especially in smaller endangered populations, can be extreme, though the full scope of impact on fin whales is currently unknown.

Stranding and entanglement response in New York is done by the New York Marine Rescue Center (NYMRC) and the Atlantic Marine Conservation Society (AMSEAS). Each group is federally permitted and responsible for a different subset of cases. All large whale events – live and dead – fall under the purview of AMSEAS, however they are not authorized to disentangle large whales. The nearest group authorized to perform disentanglements is in Provincetown, Massachusetts.

- *Aquaculture*

Expansions to the aquaculture industry, both inshore and offshore, may also affect fin whales. The addition of vertical lines in the water increases the risk of entanglement, both directly through whale interactions with aquaculture gear or secondarily through the entanglement of trailing gear on a whale with fixed aquaculture gear (Price et al. 2017). Increased vessel traffic in and around aquaculture farms will increase ambient noise levels and the risk of vessel strikes (Price et al. 2017). There may also be oceanographic changes to areas used for aquaculture that could affect the physical environment or create changes to prey availability.

### Anthropogenic Noise

Another major anthropogenic threat is noise pollution. Anthropogenic noise in the marine environment has increased substantially since the 1950s (Croll et al. 2001, McDonald et al. 2006, Hildebrand 2009), and this rapid change in the acoustic environment may have profound implications for marine mammals that evolved in a much quieter environment (Clark et al. 2009). The primary sources of anthropogenic noise in the ocean are shipping, oil and gas exploration (e.g., seismic surveys and air guns), military activities, and marine construction (e.g., pile-driving, dredging, etc.) (Nowacek et al. 2007). Marine mammals, and especially cetaceans, rely on sound during all stages of life; they use sound to communicate, navigate, locate prey, and sense their environment. As such, increasing levels of anthropogenic noise in the ocean could hamper these abilities in fin whales in the form of masking (e.g., not hearing conspecifics), displacement, temporary or permanent hearing loss, stress, and other behavioral changes (Gordon et al. 2004, Nowacek et al. 2007, Tyack 2008, Southall et al. 2019). Noise may seriously disrupt marine mammal communication, navigational ability, and social patterns, but noise is also highly variable in its generation and its reception. Noise may be intermittent or continuous, steady or impulsive, and may be generated by stationary or passing sources. Noise exposure can result in a multitude of impacts, ranging from those causing little to no impact to more severe outcomes like serious injury or mortality (Richardson et al. 1995, Foote et al. 2004).

Response to anthropogenic noise exists on a spectrum, from minor behavioral changes to death, and the level of response varies due to many factors. The noise source type and characteristics, the surrounding environment (e.g., distance from shore, bathymetry), distance between the source and receptor, receptor characteristics (e.g., behavioral context, age, sex), and the time of day and/or season all affect the impact and response to noise (Richardson et al. 1995, NRC 2003, 2005). Hearing damage is categorized as causing either a temporary threshold shift (TTS) or a permanent threshold shift (PTS) (Southall et al. 2007, 2019). There are also short-term and long-term behavioral changes. Long-term changes include displacement from habitat, which may or may not be recolonized, sensitization (i.e., increased behavioral or physiological responsiveness over time) to noise that could exacerbate other effects, and habituation (i.e., decreased behavioral responsiveness over time) to chronic noise that could cause animals to remain close to noise sources (NMFS 2010). Except for displacement, long-term behavioral changes are subtle and therefore difficult to detect and quantify.

Short-term changes include stopping a behavior such as feeding, resting, or socializing. Behavioral reactions can vary not only among individuals but also for a given individual between one specific set of variables and another, depending on previous experience. Behavioral changes can include more calls, longer calls, or different frequency of calls (Di Iorio and Clark 2009). Several species of large whales have been found to increase the amplitude of their calls in response to large levels of noise, which could lead to increased energy consumption (Holt et al. 2009, Parks et al. 2010). In contrast, above a certain level of noise, some whale species are known to stop vocalizing, and there is also the potential for masking of calls if background noise occurs within the frequencies used by calling whales (Melcón et al. 2012).

An animal’s auditory threshold may be masked by noise at frequencies similar to or louder than biologically important sounds. Masking these acoustic signals can disturb the behavior of individual animals, groups of animals, or entire populations (Richardson et al. 1995). Individuals may try to compensate for masking by changing their behavior, such as producing more calls, producing longer calls, or shifting the frequency of the calls (Parks et al. 2007, Parks et al. 2009). Interruption of normal vocalizing behavior could have significant energetic consequences, particularly if these shifts in vocalizing impact foraging efficiency. The acoustic monitoring in the New York Bight in 2008 and 2009 recorded elevated levels of ambient noise, due in large part to shipping traffic, and the potential for masking of whale calls (BRP 2010). In a large, solitary species like the fin whale, this could lead to difficulty finding other whales, including potential mates.

- *Military Activity*

Acute, intermittent noise from military activity, especially from mid-frequency sonar and explosions, is likely to result in significant behavioral disruption and responses, and, at sufficiently high levels, may result in mortality from acoustic trauma for some baleen whale species (Harris et al. 2018, Weilgart 2007). Controlled experiments have shown clear behavioral responses to simulated military sonar and sounds by baleen whale species, including cessation of feeding, increased swimming speed, and travel away from the sound source (Goldbogen et al. 2013, Southall et al. 2014). Military training exercises and active sonar could adversely affect fin whales since the low frequency transmissions overlap with fin whale hearing range, thereby masking communications between individuals and negatively affecting the species' social ecology (NMFS 2011).

- *Oil and Gas Exploration*

Baleen whales are known to detect the low-frequency sound pulses emitted from air guns used during seismic surveys and have been observed changing their behavior due to the presence of seismic survey vessels (McCauley et al. 2000, Stone et al. 2006). Stone et al. (2003) found that baleen whales including fin whales were sighted less frequently and exhibited avoidance behavior when air guns were active. In addition, fin whales tended to dive less at these times, possibly because noise levels are lower near the surface than at depth (Richardson et al. 1995).

Seismic operations have also been linked to extended area avoidance and louder vocalization levels by fin whales (Castellote et al. 2012a, Nieukirk et al. 2012). Studies hypothesize that fin whale acoustic communication is modified to compensate for increased noise levels. Such continuous compensation in high-activity areas, such as the east coast of Canada which has been subject to much oil and gas exploration, may have lingering impacts on a fin whale's overall fitness. Additional studies have highlighted these concerns about the long-term effects of prolonged exposure to air guns (Delarue et al. 2018).

- *Shipping*

Shipping is the main source of low-frequency noise in the oceans, though the majority of the sound energy associated with both pile driving and dredging, common coastal development activities, is also in the low frequency range (Reyff 2003, Parks et al. 2007). Over the past few decades the contribution of shipping activities to ambient noise has increased by 12 dB (Hildebrand 2009).

Fin whales communicate at the same low frequencies (< 100 Hz) of most vessel noise, which therefore has the potential to significantly reduce the communication space of fin whales by masking their calls and songs (Clark et al. 2009; Erbe et al. 2016). Large vessels generate loud noise at low frequencies which degrades the acoustic environment and can negatively affect behavior and habitat use of baleen whales (Schick and Urban 2000, Blair et al. 2016). Masking (i.e. acoustic interference) can have serious effects on cetaceans by hampering individual and conspecific communication, finding mating partners, locating prey, and navigating, thereby negatively impacting reproductive success and ultimately survival (Clark et al. 2009, Ahonen et al. 2017). Masking of acoustic courtship displays, such as the 20 hertz call, could be particularly problematic (Watkins 1981).

As highly migratory species, fin whales, like all baleen whales, depends on long-range communication to maintain individual and population health (Payne and Webb 1971). Cholewiak et al. (2018)

determined that vessel noise near shipping lanes, which includes most of the New York Bight, significantly decreases the communication space of multiple baleen whale species. Additionally, Clark et al. (2009) found that mysticetes showed diminished call rates in the presence of passing vessels.

### Offshore Energy Development

The effects of other anthropogenic activities, such as offshore energy development and oil spills, are largely unknown. Pre-construction, construction, operation, and decommissioning encompass a wide range of underwater sound in addition to pile driving noise (Ruppel et al. 2022). Offshore energy development could potentially degrade fin whale habitat or displace them from common foraging or breeding areas. Studies have found evidence of this in passive acoustic data that showed the Southern New England area, a hot spot of offshore wind energy development, is an important area for fin whales and other endangered cetacean species (Stone et al. 2017, Van Parijs et al. 2023). Development of offshore wind energy areas will also introduce a significant amount of vessel traffic, compounding impacts (Van Parijs et al. 2023). In addition, baleen whales are at the highest risk of entanglement in the moorings and associated power cables used to anchor offshore renewable energy, including wind, wave, and tidal energy (Benjamins et. al. 2014).

- *Oil Spills*

Oil spills that occur while fin whales are present could result in skin irritation, baleen fouling, ingestion of oil, respiratory distress, ingestion of contaminated prey, and displacement from habitat (Geraci 1990). Actual impacts would depend on the extent and duration of contact and the characteristics of the oil. Most likely, the effects would be irritation to the respiratory system and absorption of toxins into the bloodstream (Geraci 1990).

### Climate Change

Climate change has already led to temperature and current shifts throughout the North Atlantic, especially in the Gulf of Maine (Pershing et al. 2021). Poleward and increasing depth shifts in cetacean species have been documented (MacLeod et al. 2009, Sousa et al. 2019). Ecosystem changes, such as ocean warming, are already affecting fin whale distribution. As ice cover decreases, it will likely affect fin whale distribution and migration (Simon et al. 2010, Thomas et al. 2016). Between 1984 and 2010, fin whales in the Gulf of St. Lawrence shifted their arrival and departure time as a result of an earlier ice breakup (Ramp et al. 2015). Pendleton et al. (2022) estimated the date of peak habitat use for fin whales from 1998–2018 in Cape Cod Bay. They found a significant positive relationship between the date of peak occupancy and the spring transition date. Chavez-Rosales et al. (2022) documented an overall 178 km northeastward spatial distribution shift of the seasonal core habitat of northwest Atlantic cetaceans that was related to changing habitat and climatic factors. In the study, the weighted centroid of the fin whale core habitat moved farthest during fall (223 km towards the northeast) and least during winter (33 km). These studies suggest that fin whales are adapting to long-term changes in temperature, although the mechanisms behind these relationships and effects on the population are not known currently.

These changes could lead to shifts in distribution of fin whales as occupied habitats may become unsuitable and previously unsuitable habitats may become occupied. Certain studies have shown that the productivity of ocean basins may be altered by shifts in the climate (Quinn and Neibauer 1995, Mackas et al. 1989). In the North Atlantic, copepod distribution has already shown signs of shifting due to climatic changes (Hays et al. 2005, Grieve et al. 2017). Climate change was assessed to have a high potential to change the distribution of Atlantic herring resulting in negative effects on productivity (Hare et al. 2016). If spring phytoplankton bloom disruptions occur, it may change established migratory patterns and/or feeding grounds of baleen whales in the North Atlantic. As animals that undertake long migrations, if baleen species like fin whales do not have the same opportunities to forage and build up energy reserves, individual and population health impacts may occur (Williams et al. 2013). For example, the female fin whale pregnancy rate in the North Atlantic declined with lower blubber thickness, which is linked to prey availability (Williams et al. 2013).

Any reduction in prey availability can be viewed as a reduction in available habitat for large whales. However, fin whales are generalist feeders, so there is a good chance that they may be more resilient to the effects of climate change than other large whale species who specialize on one prey item (NMFS 2010). In addition, the feeding range of fin whales is larger than that of other large whale species and consequently, it is likely that the fin whale may be more resilient to climate change, should it affect prey, than a species with a narrower range (NMFS 2010). Due to their physiology, fin whales are physically capable of searching widely for high concentrations of prey; they regularly move large distances to locate euphausiid swarms and then forage in localized areas as long as prey is available. Payne et al. (1990) concluded that fin whales were able to exploit more widely separated patches of prey and thus, were more independent of local fluctuations in prey availability than were humpback whales. Thus, localized changes in habitat quality may alter the spatial distribution of the species but, for fin whales, likely would not reduce the total amount of habitat available which is more likely to be a function of basin-wide trends in productivity. The effects of climate change on both fin whales and their prey need to be further researched, but the potential effects are overarching and of concern. The overall impact to the species is unknown.

### Marine Debris

According to the United Nations Global Compact, more than 8 million tons of plastic ends up in the ocean every year, and the amount of plastic in the ocean is expected to quadruple by 2040 (United Nations Global Impact 2025). Plastic ingestion has been well documented in cetaceans including several species of baleen whales. Ingestion of marine debris by cetaceans may include internal injuries or cause complete blockage to the digestive tract leading to malnutrition, starvation, and mortality (Simmonds 2012, Baulch and Perry 2014). Most cetacean ingestion of marine debris is discovered through necropsies of stranded animals and has been documented in more than half of extant cetacean species, including nine baleen whale species, with ingestion rates as high as 31% in certain populations (Baulch and Perry 2014).

Two published accounts of marine debris ingestion by fin whales currently exist (Lusher et al. 2018, Im et al. 2020). Lusher et al. (2018) report a case from Ireland where nylon rope was found wrapped in a deceased fin whale's baleen plates and in its digestive tract, and Im et al. (2020) report on a case off Korea where the dissection of a dead juvenile fin whale revealed 45 pieces of plastic debris including fishing lines and nets, plastic filaments, and Styrofoam. In both cases, there was damage to the whale's baleen from debris, possibly impacting foraging success. Garcia-Garin et al. (2021) investigated daily ingestion rates of synthetic particles by fin whales off Iceland. Krill samples showed the presence of approximately 57 particles per kilogram of krill, suggesting that whales could ingest between 38,000 and 77,000 particles per day. Kahane-Rapport et al. (2022) further investigated microplastic ingestion by baleen whales off California. The study found that baleen whales feed at the same depth of the highest microplastic concentrations and 99% of microplastic ingestion occurs via tropic transfer, meaning that krill-feeding whales may ingest 10 million pieces of microplastic per day while fish-feeding whales may ingest 200,000 pieces of microplastic per day. Importantly, while fin whale habitat does overlap with microplastic pollution, most of the overlap is in the low latitudes where feeding rarely occurs (Kahane-Rapport et al. 2022).

### Contaminants, Toxins, and Chemical Pollutants

Another source of anthropogenic threat and mortality is pollution in the form of heavy metals and other contaminants such as polychlorobiphenyls (PCBs), chlorinated pesticides (DDT, etc.), polyfluoroalkyl substances (chemicals that resist grease, oil, water, and heat; PFAS), and polycyclic aromatic hydrocarbons (PAHs). Metals and other stable pollutants are ubiquitous in the marine ecosystem and their accumulation in long-lived, high-trophic level animals such as fin whales is of concern for reproduction and overall health (Hall et al. 2018, Murphy et al. 2018, Wise et al. 2011). Research is ongoing to determine the level of bioaccumulation of various stable pollutants in cetaceans and their health effects, as contaminants could have both sub-lethal and chronic impacts. For example, it’s suspected that the contaminant loads lower a whales’ immune system, making individuals more susceptible to disease (Marsili et al. 2014).

Research on contaminants and toxins is lacking for the western North Atlantic fin whale stock (Hayes et al. 2024). However, a number of studies report various levels of toxins and contaminants found in live and deceased fin whales. Sanpera et al. (1996) reported that heavy metal (i.e., cadmium, copper, and zinc) concentrations were significantly higher in fin whales off Iceland versus off Spain. Fossi et al. (2012) found phthalates, which are used in the production of plastics, in the blubber of stranded dead fin whales in the Mediterranean, indicating the whales had ingested microplastics. Pinzone et al. (2015) took blubber samples from fin whales in the Mediterranean Sea which showed persistent organic pollutant concentration levels above the threshold for toxic effects. In the Gulf of Maine, fin whale biopsies contained elevated chromium levels, enough to conclude that individuals exposed to chromium may experience toxic effects (Wise et al. 2015). Organochlorides have also been found in North Atlantic fin whale tissue (Gauthier et al. 1997, Hobbs et al. 2001). Aguilar and Borrell (1988) reported that, while pollutant levels in both male and female juvenile fin whales were the same, once sexual maturity is reached, concentrations of all organochlorines increased with age in males and decreased with age in females. These higher concentrations found in males compared to females is due to reproductive transfer to calves during lactation/nursing (Hobbs et al. 2001).

More recently, Garcia-Garin et al. (2020) found 7 of 19 tested flame retardant chemicals in fin whale tissue collected off West Iceland, but did not find evidence of bioaccumulation. Additionally, Garcia-Garin et al. (2022) tested 13 phthalates (e.g., plastic additives) in fin whale samples collected off Iceland. Five of the 13 additives were detected but the concentrations did not vary over the 29-year study period and the authors report that no adverse effects of phthalates have been observed in fin whales to date. Sala et al. (2022) found transplacental (e.g., maternal) transfer of flame retardants and other plastic additives in fin whales off Iceland. Lastly, Fossi et al. (2025) tested fin whale skin and blubber samples revealing high concentrations of PCBs, PFAS, and even pharmaceuticals and life-style chemicals like nicotine and UV filters that have not previously been reported in whales.

While no exceedingly significant effects of contaminants have yet been documented in fin whales, it is possible that exposure has long-term effects such as reduced reproductive success and survival (Harwood 2001, Islam and Tanaka 2004). There remains a risk of bioaccumulation for this long-lived species, and lack of understanding of health impacts of contaminants is particularly concerning with emerging toxins and chemicals. It’s also true that some toxic contaminants do not accumulate in the tissues after exposure but may still have negative impacts. Perhaps most concerningly, climate change may serve to amplify the effects of contaminants and the presence of certain pathogens in the marine environment, which is another example of the importance of considering and understanding cumulative impacts (Schiedek et al. 2007, Kebke et al. 2022). *Harmful Algal Blooms (HABs)*

There has been a global increase in cases of poisoning in cetaceans due to harmful algal blooms (HABs; Harvell et al. 1999). In the summer of 2008, a HAB causing a red tide in the St. Lawrence Estuary resulted in the deaths of several marine species including beluga whales, harbor porpoises, seals, sea birds, invertebrates, and fish (Dufour et al., 2010). The algae produce a neurotoxin called saxitoxin which causes neurological issues that may result in death. A fin whale was found stranded shortly after the red tide event and toxicological analysis showed saxitoxin in the tissues (Dufour et al. 2010). Higher than usual precipitation during that summer caused a rise in temperature and a decrease in salinity, which favor HABs (Dufour et al., 2010). Cetaceans ingest this neurotoxin through their prey.

Sub-lethal effects may include lower reproductive success and increased susceptibility to other mortality causes (Leandro et al. 2010). Recent analysis of HAB events indicated that there is not as strong a relationship between HAB occurrence and whale injuries and deaths on the east coast as there is on the west coast, but there is still risk of whales being more susceptible to other threats due to HAB effects (Silber and Silber 2024). Intensity and frequency of algal blooms are expected to increase with continued ocean warming (Gobler et al. 2017).

Whale Watching and Harassment

Recreational vessel activity, such as whale-watching has been known to affect some species of cetaceans. Fin whales are a species of main attraction for whale watching operations in Canada and the northeastern United States, including New York (Hoyt 1984, Beach and Weinrich 1989). As a result, they are regularly subjected to close and continual vessels and may be negatively affected. Off the coast of Massachusetts, it was previously reported that fin whales seemed to avoid ships but by the 1980s became “much less responsive to vessels” (Schevill et al. 1964, Watkins 1986).

Fin whales in the Gulf of St. Lawrence were documented as altering their dive behavior when approached by vessels (Michaud and Giard 1998, Edds and Macfarlane 1987). In Maine, fin whales approached by vessels decreased their dive times, surface times, and number of breaths per surfacing (Stone et al. 1992). In the Mediterranean, fin whales altered their behavior when approached by ships and did not return to their normal behaviors, including foraging, when vessels left (Jahoda et al. 2003).

Santos-Carvallo et al. (2021) found that fin whales in the southeastern Pacific change their movements and increase swimming speed in response to whale watching boats, which are common evasion responses. Other negative impacts of whale watching include shifts in surfacing and/or diving rates, changes in vocalizations, forced active behavior due to disturbance while resting, and abandonment of areas, either temporarily or permanently (Parsons 2012).

Research is lacking in determining how these many short-term behavioral changes may impact whales long-term (Parsons 2012). Whale watching is a good example of cumulative impacts, in that the responses of whales may translate to declines in overall health, making them more susceptible to other threats, especially acute threats such as vessel strike (Parsons 2012). Wright et al. (2011) suggested that the cumulative effects experienced by large whale populations subject to whale watching could decrease reproductive and/or survival rates. Our understanding of the overall impacts of anthropogenic activities like whale watching and recreational boating has grown over the years, but additional research is needed.

## Are there regulatory mechanisms that protect the species or its habitat in New York?

**Yes:** ✓ **No:**_____ **Unknown:**_____

**If yes, describe mechanism and whether adequate to protect species/habitat:**

The fin whale is protected in the United States by its status as a federally endangered species under the Endangered Species Act (ESA). In addition, the fin whale (along with all other marine mammals) receives federal protection under the Marine Mammal Protection Act of 1972 (MMPA). The fin whale is only partially protected internationally from commercial hunting under the International Whaling Commission’s (IWC) global moratorium on whaling since some member states continue to hunt fin whales.

At the state level, fin whales are also protected under the Environmental Conservation Law (ECL) of New York, where the fin whale is listed as an endangered species. Section 11 – 0535 protects all state-listed endangered and threatened species and makes it illegal to take, import, transport, possess or sell any listed species or part of a listed species. In addition, Article 17 of the ECL works to limit water pollution, and Article 14 presents the New York Ocean and Great Lakes Ecosystem Conservation Act. Whether these protections are adequate is currently unknown.

The Atlantic Large Whale Take Reduction Plan exists to mitigate entanglements on humpback, fin, and North Atlantic right whales. The multi-stakeholder team identified floating groundline used in the trap and pot fisheries as an entanglement threat for large whales. The National Marine Fisheries Service subsequently passed a new law making it mandatory for all pot and trap fisheries to switch over to sinking groundline by 2008. To encourage compliance by fishermen, DEC's Marine Endangered Species and Crustacean Unit partnered with the Cornell Cooperative Extension of Suffolk County and initiated gear buyback programs, which removed 16.9 tons of floating rope from New York's commercial lobster fishery.

### Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

It is still largely unknown how fin whales utilize New York waters and whether or not there is a resident population. Long-term surveys and monitoring strategies are being developed and implemented but remain underfunded. Additional, more robust information about fin whale abundance and distribution in the New York Bight can inform conservation and management decisions. Studies focused on fin whale behavior and demography to determine whether they are feeding, migrating, and/or mating or calving would establish more effective recovery plans and better prioritize research efforts. Satellite tagging of fin whales while they are in New York waters would characterize fin whale residency and movements within and outside of the Bight. Further research should also focus on quantifying the total and individual risk produced by various anthropogenic threats like vessel strikes. Given the sustained lack of recovery of the stock, law enforcement and economic incentives or disincentives should be considered. Alliance and partnership development should be prioritized so that actions taken reflect all available information and are implemented with the support of stakeholders. Lastly, education on this species and the importance of reporting sightings and interactions would support additional research initiatives and/or lead to the development of appropriate conservation measures.

***Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection):*** ***https://www.iucnredlist.org/resources/conservation-actions-classification-scheme***

| Action Category | Action | Description |
|---|---|---|
| A.1 Direct Habitat Management | A.1.3 Mitigate human environmental impact | Implement seasonal speed restrictions on vessels in high-use and/or high-risk areas |
| A.2 Direct Species Management | A.2.1 Stewarding wild individuals | Continue funding stranding response |
| B.3 Outreach | B.3.1 Outreach, communication and distribution | Encourage responsible human behavior<br>Target recreational boaters and avid beach goers |

| Action Category | Action | Description |
|---|---|---|
| B.4 Law Enforcement and Prosecution | B.4.1 Detection and intervention<br>B.4.2 Prosecution and conviction | Enforce potential regulations and maintain presence in high-use and/or high-risk areas to deter problematic activity |
| B.5 Economic and Other Incentives | B.5.4 Economic incentives and disincentives | Consider possible incentives and disincentives to support compliance and/or precautionary measures |
| C.6 Design and Plan Conservation | C.6.5 Conservation planning | Long-term conservation and management strategies should be developed. |
| C.7 Legislative and Regulatory Framework or Tools | C.7.1 Create, amend, or influence legislation, regulation, or codes<br>C.7.2 Create or amend policies, guidelines, or best practices | Consider adding a mandatory section on whale-safe boating to NYS boating safety course |
| C.8 Research and Monitoring | C.8.1 Basic research and status monitoring | Conduct research on fin whale behavior to identify if they are calving or feeding in the New York Bight<br>Monitor fin whale presence in New York waters long-term, especially close to shore<br>Utilize tags and new technology to assess behavior and risk<br>Investigate fine-scale seasonal and interannual trends |
| C.10 Institutional Development | C.10.3 Alliance and partnership development | Engage with local organizations and companies that are invested in whale conservation<br>Explore opportunities to collaborate on research and monitoring, including public reporting systems |

**Table 2.** Recommended conservation actions for fin whale.

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