Tables and Figures

Tables

Figures

SW Lake Ontario Table 1. Multi-Resolution Land Classification (MRLC) land cover classifications and corresponding percent cover in the SW Lake Ontario Basin.

Classification	% Cover
Row Crops	39.02
Deciduous Forest	26.31
Pasture/Hay	16.08
Mixed Forest	12.38
Low Intensity Residential	1.96
Parks, Lawns, Golf Courses	1.03
Water	0.83
High Intensity Commercial/Industrial	0.64
Evergreen Forest	0.60
Wooded Wetlands	0.49
High Intensity Residential	0.39
Emergent Wetlands	0.14
Barren; Quarries, Strip Mines, Gravel Pits	0.12

SW Lake Ontario Table 2. NYSDEC Wildlife Management Area (WMA) land units (n=13) within the SW Lake Ontario Basin.

Unit Name	County	DEC Region	Acres
John White Wildlife Management Area	Genesee	8	346
Oak Orchard Wildlife Management Area	Genesee	8	2,500
Tonawanda Wildlife Management Area	Genesee/Niagara	8	5,600
Conesus Inlet Wildlife Management Area	Livingston	8	1,120
Rattlesnake Hill Wildlife Management Area	Livingston/Allegany	8	5,100
Braddock Bay Wildlife Management Area	Monroe	8	2,693
Honeoye Creek Wildlife Management Area	Ontario	8	717
Honeoye Inlet Wildlife Management Area	Ontario/Livingston	8	2,000
Hanging Bog Wildlife Management Area	Allegany	9	4,571
Keaney Swamp Wildlife Management Area	Allegany	9	708
Hartland Swamp Wildlife Management Area	Niagara	9	385
Carlton Hill Wildlife Management Area	Wyoming	9	2,580
Silver Lake Outlet Wildlife Management Area	Wyoming	9	10

SW Lake Ontario Table 3. NYSDEC State Forest and Unique Area land units (n=30) within the SW Lake Ontario Basin.

Unit Name	County	DEC Region	Acres
Canaseraga State Forest	Livingston	8	1,282
Ossian State Forest	Livingston	8	1,300
Sonyea State Forest	Livingston	8	901
Rush Oak Openings State Unique Area	Monroe	8	229
Genesee Valley Greenway Trail	Monroe/Livingston/Wyoming/ Allegany/Cattaraugus	8, 9	458
Allen Lake State Forest	Allegany	9	2,440
Bald Mountain State Forest	Allegany	9	802
Cold Creek State Forest	Allegany	9	496
Coyle Hill State Forest	Allegany	9	2,372
Crab Hollow State Forest	Allegany	9	1,155
English Hill State Forest	Allegany	9	1,393
Gas Springs State Forest	Allegany	9	2,263
Gillies Hill State Forest	Allegany	9	2,372
Hiltonville State Forest	Allegany	9	991
Jersey Hill State Forest	Allegany	9	1,078
Karr Valley Creek State Forest	Allegany	9	1,909
Keeney Swamp State Forest	Allegany	9	2,401
Klipnocky State Forest	Allegany	9	2,585
Lost Nation State Forest	Allegany	9	1,350
Palmers Pond State Forest	Allegany	9	3,694
Phillips Creek State Forest	Allegany	9	2,713
Plumbottom State Forest	Allegany	9	1,684
Rush Creek State Forest	Allegany	9	1,410
Slader Creek State Forest	Allegany	9	1,117
Swift Valley State Forest	Allegany	9	1,634
Turnpike State Forest	Allegany	9	4,589
Vandermark State Forest	Allegany	9	2,349
Bush Hill State Forest	Cattaraugus	9	2,810
Farmersville State Forest	Cattaraugus	9	1,145
Carlton Hill State Forest	Wyoming	9	2,005

SW Lake Ontario Table 4. Office of Parks, Recreation & Historic Preservation (OPRHP) land units (n=14) within the SW Lake Ontario Basin.

Unit Name	County	DEC Region	Acres
Conesus Lake Marine Park	Livingston	8	4
Letchworth State Park	Livingston	8	14,291
Hamlin Beach State Park	Monroe	8	984
Harriet Hollister Spencer State Recreation Area	Ontario	8	690
Honeoye Marine Park	Ontario	8	10
Lakeside Beach State Park	Orleans	8	700
Oak Orchard Marine Park	Orleans	8	84
Stony Brook State Park	Steuben	8	556
Fort Niagara State Park	Niagara	9	272
Four Mile Creek State Park	Niagara	9	284
Golden Hill State Park	Niagara	9	382
Joseph Davis State Park	Niagara	9	382
Wilson-Tuscarora State Park	Niagara	9	386
Silver Lake State Park	Wyoming	9	778

SW Lake Ontario Table 5. Bird Conservation Areas (BCA) within the SW Lake Ontario Basin (n=2). NYSDEC's BCA Program, established in 1997, is modeled after the National Audubon Society's Important Bird Areas (IBA) program, which began in New York in 1996. The BCA Program applies criteria developed under the IBA program to state-owned properties.

Bird Conservation Area	County	DEC Region	Acres	Description
Braddock Bay	Monroe	8	2,576	Comprised of a diverse array of habitats along the Lake Ontario shoreline. These habitats include marshes, open water, forests, grasslands, and shrub-scrub. Braddock Bay is a shallow water bay-marsh complex that includes Buck Pond, Long Pond, Cranberry Pond, Braddock Bay, and Rose Marsh. All of the ponds are connected to the lake by intermittent channels, which plug and open up as lake currents and wave action change the character of the gravel and sand barrier bars. The bay-marsh complex provides excellent nesting, resting, and feeding habitats for waterfowl, shorebirds, songbirds, raptors, and marsh birds. In addition to the marsh areas, there are wooded areas, grasslands, and shrublands. The area is a noted hawk, songbird and owl migration corridor and observation area. The grasslands support bobolink, meadowlark, sedge wren and savannah sparrow.
Oak Orchard / Tonawanda	Niagara/Orleans/Genesee	8, 9	8,116	A large complex consisting mainly of managed emergent marshes, swamps and other wetlands, as well as extensive grasslands. Large numbers of wetland dependent birds breed here, and the site is an important migratory stopover for waterfowl and wetland-dependent birds. Grasslands provide nesting habitat for waterfowl and numerous grassland bird species. These two state parcels (Oak Orchard Wildlife Management Area, Tonawanda Wildlife Management Area) are at opposite ends of the 11,000 acre Iroquois National Wildlife Refuge. As a whole these areas comprise over 19,000 acres of wetlands and grasslands, much of which have been managed to provide habitat for a variety of birds.

SW Lake Ontario Table 6. Critical Environmental Areas (CEA) within the SW Lake Ontario Basin (n=7). CEAs are traditionally designated by DEC to protect drinking water supplies; however, DEC and other government agencies may designate CEAs to protect wildlife and their habitats and other natural resource elements.

Critical Environmental Area	Location	DEC Region	Reason for Designation
Lesser Hills	City of Rochester, Monroe County	8	Unknown
Wetlands in the City of Rochester	City of Rochester, Monroe County	8	Unknown
Lands within 100 ft. of Rochester	City of Rochester, Monroe County	8	Unknown
Hotel Creek	Town of Riga, Monroe County	8	Trout habitat & may be spawning ground
Canadice Lake	Town of Canadice, Ontario County	8	Preserve open space
Hemlock Lake	Town of Canadice, Ontario County	8	Preserve open space
Valley-Fill Aquifer	Town of Wayland, Steuben County	8	Primary source of drinking water

SW Lake Ontario Table 7. Significant Coastal Fish and Wildlife Habitats (n=10) within the SW Lake Ontario Basin. DEC evaluates the significance of coastal fish and wildlife habitat areas, and following a recommendation from NYSDEC, the Department of State designates and maps specific areas.

Habitat Name	County	Acres	Significance Value [a]	Description
Braddock Bay and Salmon Creek	Monroe	3,910	171	One of the largest coastal wetland ecosystems in New York State. One of the major concentration areas for migratory birds in the Great Lakes coastal region. Northern harrier (T), black tern (SC), least bittern (SC), sedge wren (SC), spotted salamander (SC) and Jefferson salamander (SC) have been documented here. The area consists of large, shallow, open water areas (including Braddock Bay, Cranberry Pond, Long Pond, Buck Pond, and Round Pond), extensive freshwater wetlands (predominantly emergent marsh and submergent aquatic beds), forested and open upland areas, and approximately eight miles of Salmon Creek. Salmon Creek is a relatively large, medium gradient, warmwater stream, which drains approximately 70 square miles of relatively flat agricultural and rural residential lands. The habitat includes the segment of Salmon Creek from Braddock Bay to the Parma Center Road Dam, approximately two and one-half miles southwest of the Village of Hilton. The habitat includes all of the Braddock Bay Wildlife Management Area.
Oak Orchard Creek	Orleans	256	60	One of about 10 major tributaries of Lake Ontario. Concentrations of spawning salmonids are among the largest occuring in NYS's Great Lakes tributaries. Habitat extends about six miles from the mouth at Point Breeze to the Waterport Dam, and includes the entire stream channel and associated islands and wetlands. The habitat also includes an approximate two mile segment of Marsh Creek, which flows into Oak Orchard Creek about one mile south of Point Breeze. Oak Orchard Creek is a very large, low to medium gradient, warmwater stream, with a predominantly rock and gravel substrate. The creek drains approximately 270 square miles of relatively flat agricultural land, rural residential land, and extensive inland wetlands. Below Waterport Dam, which serves an active hydroelectric power plant, Oak Orchard Creek flows through a steep sided undeveloped, wooded gorge, where habitat disturbances are minimal. However, below the confluence with Marsh Creek, there has been considerable shoreline development. Sizeable areas of emergent wetland vegetation and submergent aquatic beds occur in undisturbed shoreline areas along this lower section of the creek.
Genesee River	Monroe	385	54	One of 10 major New York tributaries of Lake Ontario. Concentrations of spawning slamonids are among the largest occuring in NYS's Great Lakes tributaries. Spotted salamander (SC) and spotted turtle (SC) have been observed but the extent of use not well documented. Habitat is an approximate six and one-half mile segment of the river, extending from Lake Ontario to "Lower Falls" (located just above Driving Park Avenue), which is a natural impassable barrier to fish. The Genesee River is a large, warmwater river, with a drainage area of nearly 2,500 square miles, and an average annual discharge of approximately 2,800 cubic feet per second. Maximum water depths of up to 25 feet occur near the river mouth, and a navigation channel has been dredged upstream approximately two and one-half miles. Much of this lower segment is bordered by dense commercial, industrial, and residential development, accompanied by extensive bulkheading. Above this area, the Genesee River flows through a relatively undeveloped wooded gorge, and has a fringe of emergent wetland vegetation along much of its shoreline. This portion of the river is
Sandy Creek	Monroe	164	52	One of about 10 major New York tributaries to Lake Ontario. Concentrations of salmonids and smallmouth bass are unusual in the Lake Ontario ecological subzone. Least bittern (SC) nesting has been documented. Habitat includes the creek channel and associated wetlands and islands, extending approximately fourteen miles from the mouth of Sandy Creek (at Sandy Harbor Beach), to the confluence of the West and East Branches of Sandy Creek, just south of N.Y.S. Route 104. Sandy Creek is a relatively large, medium gradient, warmwater stream, with a predominantly sand and gravel substrate. The creek drains approximately 90 square miles of relatively flat agricultural and rural residential lands, and is bordered along most of its length by woody riparian vegetation.

SW Lake Ontario Table 7. (continued)

Habitat Name	County	Acres	Significance Value [a]	Description
Eighteen Mile Creek - Lake Ontario	Niagara	64	37	One of about 10 major New York tributaries to Lake Ontario, and relatively undisturbed; rare in ecological subzone. One of the major salmonid spawning streams on Lake Ontario (ecological subzone). Fish and wildlife habitat extends approximately one and one-half miles from the N.Y.S. Route 18 bridge to the Burt Dam, and includes the entire stream channel and Associated wetlands and islands. Eighteen Mile Creek is a relatively large, meandering, warmwater stream, with predominantly silt and gravel substrates. The creek drains approximately 90 square miles of relatively flat agricultural and rural residential lands. Below the Burt Dam, Eighteen Mile Creek flows through a steep sided, undeveloped wooded gorge, where habitat disturbances are minimal.
Johnson Creek	Orleans	98	29	One of about 10 major New York tributaries to Lake Ontario; rare in ecological subzone. One of only two significant salmonid spawning streams in Orleans County. Fish and wildlife habitat extends approximately seven miles from the hamlet of Lakeside on Lake Ontario to a low dam (the first impassable barrier) at the Village of Lyndonville. Johnson Creek is a relatively large, medium gradient, warmwater stream, with a gravelly substrate. The creek drains over 100 square miles of relatively flat agricultural and rural residential lands, and is bordered along most of its length by woody riparian vegetation. Most of the land area bordering Johnson Creek is privately owned, except in the last mile of stream, which flows through undeveloped Lakeside Beach State Park. Habitat disturbances in the area are generally limited to discharges of agricultural runoff, road crossings, and cottage development near the mouth of the creek.
Fourmile Creek Bay	Niagara	27	20	Relatively small, undisturbed, emergent marsh and deep aquatic beds, unusual in Niagara County. Tributary stream is typical of the local area. One of about 4 Niagara County tributaries having significant concentrations of salmonids; also an important spawning and nursery area for resident and lake-based warmwater fish populations. An approximate 20 acre wetland estuary located north of the Robert Moses Parkway, in Fourmile Creek State Park. The habitat encompasses all of the area below mean high water, including deep aquatic beds and emergent marsh. The land area surrounding Fourmile Creek Bay is generally undeveloped, dominated by a broad band of mature deciduous forest.
Keg Creek	Niagara	39	20	Relatively small, undisturbed tributary stream and associated wetlands, unusual in Niagara County. One of about 4 Niagara County tributaries having significant concentrations of salmonids (steelhead especially) during spring and fall spawning runs. an approximate half-mile segment of the creek (up to N.Y.S. Route 18) and associated wetlands, totaling approximately 16 acres. This segment of Keg Creek is an undisturbed, low gradient, weedy channel, 10-20 feet wide. The stream is bordered by a broad, lush, band of wetland vegetation, dominated by cattails, burreed, yellow iris, sedges, dogwoods, and grasses. Above Route 18, Keg Creek is a small, medium gradient, warmwater stream, with a silt and gravel substrate.
Slater Creek	Monroe	24	18	Very small artificially-warmed, tributary stream; not a rare ecosystem type. Year-round concentrations of salmonids, smelt, and various warmwater species are unusual in the Great Lakes coastal region. A small, medium gradient, warmwater stream, which drains approximately 5 square miles of rural and suburban residential area. Warmwater discharges from a Rochester Gas and Electric power plant enter Slater Creek approximately 1000 feet above the mouth. The fish and wildlife habitat includes the creek upstream to Ling Road, and a small area of open water in Lake Ontario at the stream mouth.

SW Lake Ontario Table 7. (continued)

Habitat Name	County	Acres	Significance Value [a]	Description
Tuscarora Bay Marsh	Niagara	53	16	One of the largest, undeveloped coastal wetlands in Niagara County. Concentrations of many fish and wildlife species, especially warmwater fishes and marsh-nesting birds, are unusual in Niagara County's coastal area. Approximately 40 acres of undisturbed cattail marsh and small, wooded islands. Much of this wetland area is located within Wilson-Tuscarora State Park. The only open water within the marsh is the East Branch, a narrow (10-20' wide), slow-moving, warmwater stream, which meanders through the area. Tuscarora Bay Marsh is bordered by undeveloped woodlands to the east, south, and west. To the north, Tuscarora Bay proper has been heavily developed as a residential and small craft harbor area, containing marinas, boat launches, extensive bulkheading, houses, trailers, and related businesses, resulting in some encroachment into the marsh.

[a] Significance Value = [(Ecosystem Rarity + Species Vulnerability + Human Use + Population Level) x Replaceability]

SW Lake Ontario Table 8. Species of Greatest Conservation Need currently occurring in the SW Lake Ontario Basin (n=130). Species are sorted alphabetically by taxonomic group and species common name. The Species Group designation is included, indicating which Species Group Report in the appendix will contain the full information about the species. The Stability of this basin's population is also indicated for each species.

TaxaGroup	SpeciesGroup	Species	Stability
Bird	Bald Eagle	Bald eagle	Increasing
Bird	Barn owl	Barn owl	Unknown
Bird	Breeding waterfowl	American black duck	Unknown
Bird	Breeding waterfowl	Blue-winged teal	Decreasing
Bird	Breeding waterfowl	Ruddy duck	Increasing
Bird	Colonial-nesting herons	Black-crowned night-heron	Decreasing
Bird	Common loon	Common loon	Unknown
Bird	Common nighthawk	Common nighthawk	Decreasing
Bird	Deciduous/mixed forest breeding birds	Black-throated blue warbler	Stable
Bird	Deciduous/mixed forest breeding birds	Cerulean warbler	Increasing
Bird	Deciduous/mixed forest breeding birds	Kentucky warbler	Unknown
Bird	Deciduous/mixed forest breeding birds	Louisiana waterthrush	Unknown
Bird	Deciduous/mixed forest breeding birds	Prothonotary warbler	Unknown
Bird	Deciduous/mixed forest breeding birds	Red-headed woodpecker	Decreasing
Bird	Deciduous/mixed forest breeding birds	Scarlet tanager	Decreasing
Bird	Deciduous/mixed forest breeding birds	Wood thrush	Decreasing
Bird	Early successional forest/shrubland birds	American woodcock	Decreasing
Bird	Early successional forest/shrubland birds	Black-billed cuckoo	Decreasing
Bird	Early successional forest/shrubland birds	Blue-winged warbler	Decreasing
Bird	Early successional forest/shrubland birds	Brown thrasher	Decreasing
Bird	Early successional forest/shrubland birds	Canada warbler	Decreasing
Bird	Early successional forest/shrubland birds	Golden-winged warbler	Decreasing
Bird	Early successional forest/shrubland birds	Prairie warbler	Increasing
Bird	Early successional forest/shrubland birds	Ruffed grouse	Decreasing
Bird	Early successional forest/shrubland birds	Whip-poor-will	Decreasing
Bird	Early successional forest/shrubland birds	Willow flycatcher	Decreasing
Bird	Early successional forest/shrubland birds	Yellow-breasted chat	Unknown
Bird	Forest breeding raptors	Cooper's hawk	Increasing
Bird	Forest breeding raptors	Golden eagle	Unknown
Bird	Forest breeding raptors	Long-eared owl	Unknown
Bird	Forest breeding raptors	Northern goshawk	Increasing
Bird	Forest breeding raptors	Red-shouldered hawk	Decreasing
Bird	Forest breeding raptors	Sharp-shinned hawk	Increasing
Bird	Freshwater marsh nesting birds	American bittern	Decreasing
Bird	Freshwater marsh nesting birds	Black tern	Decreasing
Bird	Freshwater marsh nesting birds	King rail	Decreasing
Bird	Freshwater marsh nesting birds	Least bittern	Stable
Bird	Freshwater marsh nesting birds	Pied-billed grebe	Decreasing
Bird	Freshwater marsh nesting birds	Yellow rail	Unknown
Bird	Grassland birds	Bobolink	Decreasing
Bird	Grassland birds	Eastern meadowlark	Decreasing
Bird	Grassland birds	Grasshopper sparrow	Decreasing
Bird	Grassland birds	Henslow's sparrow	Decreasing
Bird	Grassland birds	Horned lark	Decreasing
Bird	Grassland birds	Northern harrier	Unknown
Bird	Grassland birds	Sedge wren	Unknown
Bird	Grassland birds	Short-eared owl	Unknown
Bird	Grassland birds	Upland sandpiper	Decreasing
Bird	Grassland birds	Vesper sparrow	Decreasing
Bird	Peregrine falcon	Peregrine falcon	Stable
Bird	Transient shorebirds	American golden-plover	Unknown
Bird	Transient shorebirds	Black-bellied plover	Unknown
Bird	Transient shorebirds	Buff-breasted sandpiper	Unknown
Bird	Transient shorebirds	Dunlin	Unknown
Bird	Transient shorebirds	Greater yellowlegs	Unknown
Bird	Transient shorebirds	Hudsonian godwit	Unknown
Bird	Transient shorebirds	Ruddy turnstone	Unknown
Bird	Transient shorebirds	Sanderling	Unknown
Bird	Transient shorebirds	Semipalmated sandpiper	Unknown
Bird	Transient shorebirds	Whimbrel	Unknown
Bird	Wintering waterbirds	Bonaparte's gull	Unknown
Bird	Wintering waterbirds	Horned grebe	Unknown
Bird	Wintering waterbirds	Lesser scaup	Stable
Bird	Wintering waterbirds	Little gull	Unknown
Bird	Wintering waterbirds	Long-tailed duck	Unknown
Bird	Wintering waterbirds	Northern pintail	Unknown
Bird	Wintering waterbirds	Red-throated loon	Unknown

SW Lake Ontario Table 8. (continued)

TaxaGroup	SpeciesGroup	Species	Stability
Bird	Wintering waterbirds	Thayer's gull	Unknown
Crustacea/Meristomata	Freshwater crustacea	Devil crawfish	Stable
Freshwater fish	Brook trout, Heritage strains	Brook trout, Heritage strains	Stable
Freshwater fish	Extirpated Fishes	Atlantic salmon	Unknown
Freshwater fish	Extirpated Fishes	Kiyi	Unknown
Freshwater fish	Extirpated Fishes	Shortjaw cisco	Unknown
Freshwater fish	Extirpated Fishes	Shortnose cisco	Unknown
Freshwater fish	Extirpated Fishes	Silver chub	Unknown
Freshwater fish	Extirpated Fishes	Spoonhead sculpin	Unknown
Freshwater fish	Iowa darter	Iowa darter	Unknown
Freshwater fish	Lake Sturgeon	Lake sturgeon	Increasing
Freshwater fish	Longear sunfish	Longear sunfish	Unknown
Freshwater fish	Mooneye	Mooneye	Unknown
Freshwater fish	Ninespine stickleback - inland	N. American ninespine stickleback	Unknown
Freshwater fish	Pugnose shiner	Pugnose shiner	Stable
Freshwater fish	Redfin shiner	Redfin shiner	Decreasing
Freshwater fish	River redhorse	River redhorse	Unknown
Freshwater fish	Round whitefish	Round whitefish	Decreasing
Freshwater fish	Sauger	Sauger	Decreasing
Freshwater fish	Western pirate perch	Western pirate perch	Decreasing
Herpetofauna	Freshwater wetland amphibians	Four-toed salamander	Unknown
Herpetofauna	Freshwater wetland amphibians	Western chorus frog	Unknown
Herpetofauna	Lake/river reptiles	Eastern ribbonsnake	Unknown
Herpetofauna	Lake/river reptiles	Queen snake	Decreasing
Herpetofauna	Lake/river reptiles	Spiny softshell	Decreasing
Herpetofauna	Lake/river reptiles	Wood turtle	Unknown
Herpetofauna	Lizards	Coal skink	Unknown
Herpetofauna	Massasauga	Eastern massasauga	Decreasing
Herpetofauna	Mudpuppy	Common mudpuppy	Unknown
Herpetofauna	Snapping Turtle	Snapping turtle	Unknown
Herpetofauna	Uncommon turtles of wetlands	Blanding's turtle	Unknown
Herpetofauna	Uncommon turtles of wetlands	Spotted turtle	Unknown
Herpetofauna	Vernal pool salamanders	Blue-spotted salamander	Unknown
Herpetofauna	Vernal pool salamanders	Jefferson salamander	Unknown
Herpetofauna	Woodland/grassland snakes	Smooth greensnake	Unknown
Herpetofauna	Woodland/grassland snakes	Timber rattlesnake	Decreasing
Insect	Odonates of rivers/streams	American rubyspot	Unknown
Insect	Odonates of rivers/streams	Arrow clubtail	Unknown
Insect	Odonates of rivers/streams	Blue-tipped dancer	Unknown
Insect	Odonates of rivers/streams	Midland clubtail	Unknown
Insect	Odonates of seeps/rivulets	Arrowhead spiketail	Unknown
Insect	Odonates of seeps/rivulets	Gray petaltail	Unknown
Insect	Other butterflies	Checkered white	Decreasing
Insect	Other butterflies	Mottled duskywing	Decreasing
Insect	Other butterflies	Persius duskywing	Unknown
Insect	Other moths	*Euxoa pleuritica*	Decreasing
Insect	Riparian tiger beetles	*Cicindela ancocisconensis*	Unknown
Insect	Riparian tiger beetles	Cobblestone tiger beetle	Unknown
Insect	Stoneflies/Mayflies of uncertain habitat	*Plauditus gloveri*	Unknown
Mammal	Furbearers	River otter	Unknown
Mammal	Tree bats	Eastern red bat	Unknown
Mammal	Tree bats	Hoary bat	Unknown
Mammal	Tree bats	Silver-haired bat	Unknown
Marine fish	American eel	American eel	Decreasing
Mollusk	Freshwater bivalves	Black sandshell	Unknown
Mollusk	Freshwater bivalves	Eastern pondmussel	Unknown
Mollusk	Freshwater bivalves	Elktoe	Unknown
Mollusk	Freshwater bivalves	Kidneyshell	Unknown
Mollusk	Freshwater bivalves	Pink heelsplitter	Unknown
Mollusk	Freshwater bivalves	Pocketbook	Unknown
Mollusk	Freshwater bivalves	Rainbow	Unknown
Mollusk	Freshwater bivalves	Threeridge	Unknown
Mollusk	Freshwater bivalves	Wabash pigtoe	Unknown

SW Lake Ontario Table 9. SGCN that historically occurred in the SW Lake Ontario Basin, but are now believed to be extirpated from the Basin (n=27).

Taxa Group	Species Group	Species
Bird	Loggerhead Shrike	Loggerhead shrike
Freshwater Fish	Bigeye chub	Bigeye chub
Freshwater Fish	Black redhorse	Black redhorse
Freshwater Fish	Blackchin shiner	Blackchin shiner
Freshwater Fish	Extirpated fishes	Bloater
Freshwater Fish	Deepwater sculpin	Deepwater sculpin
Freshwater Fish	Extirpated fishes	Lake chubsucker
Herpetofauna	Woodland/grassland snakes	Black ratsnake
Herpetofauna	Uncommon turtles of wetlands	Bog turtle
Insect	Other moths	*Papaipema aerata*
Insect	American burying beetle	American burying beetle
Insect	Odonates of bogs/fens/ponds	Black meadowhawk
Insect	Odonates of rivers/streams	Elusive clubtail
Insect	Karner blue butterfly	Karner blue
Insect	Other moths	Phyllira tiger moth
Mammal	Extirpated large mammals	Eastern cougar
Mammal	Extirpated large mammals	Gray wolf
Mammal	Small mammals of uncertain/questionable residency	Least shrew
Mollusk	Freshwater gastropods	Buffalo pebblesnail
Mollusk	Freshwater bivalves	Deertoe
Mollusk	Freshwater bivalves	Fat pocketbook
Mollusk	Freshwater bivalves	Lilliput
Mollusk	Freshwater bivalves	Paper pondshell
Mollusk	Freshwater bivalves	Pimpleback
Mollusk	Freshwater bivalves	Round pigtoe
Mollusk	Freshwater bivalves	Tidewater mucket
Mollusk	Freshwater bivalves	Wavyrayed lampmussel

SW Lake Ontario Table 10. SW Lake Ontario Basin species diversity relative to the total number of SGCN statewide

Taxa Group	# Species Groups in the Basin	# Species in the Basin	Total # SGCN Statewide	% of Total SGCN for this Group
BIRDS	**14**	**68**	**118**	**57.6**
Bald Eagle		1		
Barn Owl		1		
Breeding Waterfowl		3	4	75.0
Colonial-Nesting Herons		1	8	12.5
Common Loon		1		
Common Nighthawk		1		
Deciduous/Mixed Forest Breeding Birds		8	9	88.9
Early Successional Forest/Shrub Birds		11	12	91.7
Forest Breeding Raptors		6	6	100.0
Freshwater Marsh Nesting Birds		6	6	100.0
Grassland Birds		10	11	90.9
Peregrine Falcon		1		
Transient Shorebirds		10	14	71.4
Wintering Waterbirds		8	19	42.1
CRUSTACEA	**1**	**1**	**7**	**14.3**
Freshwater Crustacea		1	2	50.0
FRESHWATER FISH	**13**	**18**	**40**	**45.0**
Heritage-Strain Brook Trout		1		
Extirpated Fishes		6	11	54.5
Iowa Darter		1		
Lake Sturgeon		1		
Longear Sunfish		1		
Mooneye		1		
Ninespine Stickleback (inland)		1		
Pugnose Shiner		1		
Redfin Shiner		1		
River Redhorse		1		
Round Whitefish		1		
Sauger		1		
Western Pirate Perch		1		
HERPETOFAUNA	**9**	**16**	**44**	**36.4**
Freshwater Wetland Amphibian		2	5	40.0
Lake/River Reptiles		4	5	80.0
Lizards		1	3	33.3
Massasauga		1		
Mudpuppy		1		
Snapping Turtle		1		
Uncommon Turtles of Wetlands		2	5	40.0
Vernal Pool Salamanders		2	4	50.0
Woodland/Grassland Snakes		2	8	25.0
INSECT	**6**	**13**	**197**	**6.6**
Odonates of Rivers/Streams		4	19	21.1
Odonates of Seeps/Rivulets		2	4	50.0
Other Butterflies		3	18	16.7
Other Moths		1	92	1.1
Riparian Tiger Beetles		2	2	100.0
Stoneflies/Mayflies - Uncertain Habitat		1	6	16.7
MAMMAL	**2**	**4**	**21**	**19.0**
Furbearers		1	2	50.0
Tree Bats		3	3	100.0
MARINE FISH	**1**	**1**	**51**	**2.0**
American Eel		1		
MOLLUSK	**1**	**9**	**59**	**15.3**
Freshwater Bivalves		9	39	23.1
TOTAL	**47**	**130**	**537**	**24.2**
% of All Species Groups Statewide	**36.7**			

SW Lake Ontario Table 11. Critical **aquatic** habitats found in the SW Lake Ontario Basin, classified at the system and sub-system level, adapted from Edinger et al. (2002). The number of SGCN that indicate each system/sub-system association as a critical habitat is indicated.

System	Sub-System	Number of Species
Palustrine	mineral soil wetland	35
Riverine	warm water stream	28
Riverine	coldwater stream	27
Riverine	deepwater river	19
Lacustrine	warm water shallow	18
Lacustrine	cold water deep	17
Lacustrine	cold water shallow	11
Lacustrine	unknown	9
Lacustrine	warm water deep	7
Palustrine	peatlands	6
Riverine	unknown	5
Riverine	warm water shallow	2
Palustrine	warm water stream	1
Palustrine	unknown	1
Riverine	cultural	1
Riverine	warm water deep	1
Subterranean	natural	1

SW Lake Ontario Table 12. Critical **terrestrial** habitats found in the SW Lake Ontario Basin, classified at the system and sub-system level, adapted from Edinger et al. (2002). The number of SGCN that indicate each system/sub-system association as a critical habitat is indicated.

System	Sub-System	Number of Species
Terrestrial	open upland	49
Terrestrial	forested	43
Terrestrial	barrens/woodlands	14
Terrestrial	coastal	9
Unknown	unknown	4
Terrestrial	unknown	3

SW Lake Ontario Table 13. Summary of threats, number of (and percent of all) species groups affected, and percentage of all threats for SGCN in the SW Lake Ontario Basin
For details on threats, see Appendix: *Threats Characterization for Wildlife and Their Habitats.*

Threats	# of Species Groups Affected	% of All Spp Groups in Basin	% of All Threats in Basin
Habitat Loss - cultural (e.g., development)	29	61.7	10.6
Contaminants	22	46.8	8.0
Degradation of Water Quality	19	40.4	6.9
Human Disturbance - illegal/unregulated harvest	18	38.3	6.6
Human Disturbance - collisions	14	29.8	5.1
Disrupted Predator-Prey Cycles	14	29.8	5.1
Interspecific Competition for Resources	14	29.8	5.1
Barriers to Aquatic Movement (e.g., dams, weirs, culverts)	12	25.5	4.4
Disease	10	21.3	3.6
Habitat Loss - natural (e.g., succession)	10	21.3	3.6
Fragmentation	9	19.1	3.3
Human Disturbance - general	8	17.0	2.9
Competition from Invasive Exotics	8	17.0	2.9
Insensitive/Unsustainable Agricultural/Silvicultural Practices	7	14.9	2.6
Sedimentation/Erosion (impacts on aquatic habitats)	7	14.9	2.6
Active Alteration/Suppression of Natural Processes (e.g., fire)	6	12.8	2.2
Unknown Threats	6	12.8	2.2
Loss of Streamside Buffers	5	10.6	1.8
Altered Hydrology (water level management/extraction)	5	10.6	1.8
Reduction of Patch Size, Shape, Area	5	10.6	1.8
Human Disturbance - entanglement, entrainment, impingement	5	10.6	1.8
Detrimental Hybridization	5	10.6	1.8
Habitat Composition Altered by Terrestrial Invasive Species	4	8.5	1.5
Loss of Connectivity/Metapopulation Dynamics	4	8.5	1.5
Habitat Composition Altered by Aquatic Invasive Species	3	6.4	1.1
Susceptibility to Stochastic Events (weather, storms)	3	6.4	1.1
Susceptibility to Stochastic Events (isolated pop'ns)	3	6.4	1.1
Climate Change (change in water level, temperature)	3	6.4	1.1
Barriers to Terrestrial Movement (e.g., roads, powerlines)	2	4.3	0.7
Pollution (e.g., acid rain, soil contamination)	2	4.3	0.7
Terrestrial Habitat Composition Altered by Overuse (e.g., deer)	2	4.3	0.7
Loss of Host Species	2	4.3	0.7
Susceptibility to Stochastic Events (rare species)	2	4.3	0.7
Aquatic Habitat Composition Altered by Overuse (e.g., swan, muskrat)	1	2.1	0.4
Negative Edge Effects (i.e., increased predation, "ecological traps")	1	2.1	0.4
Parasites	1	2.1	0.4
Aquatic Habitat Altered by Natural Processes (e.g., beaver)	1	2.1	0.4
Climate Change (change in species range, distb'n, migration)	1	2.1	0.4
Impacts of Erosion on Terrestrial Habitats	1	2.1	0.4

SW Lake Ontario Table 14. Approved State Wildlife Grant studies relevant to the SW Lake Ontario Basin (Coordination Grant T-1, Wildlife Grants T-2-1 and T-2-2, and Fish/Marine Grant T-3).

State Wildlife Grant Study	Location	Description
COORDINATION GRANT		
Project 1: Comprehensive Wildlife Conservation Planning & Coordinatior		
Job 1: SWG Coordination & Development of the Comprehensive Wildlife Conservation Strategy	Statewide	New York will develop a Comprehensive Wildlife Conservation Strategy by October 2005, focusing on species of greatest conservation need in the state. We will work closely with partner organizations and the public to develop the plan, which will identify management needs, goals and strategies for more than 500 animal species that are rare, declining, vulnerable, or status unknown in New York State.
WILDLIFE CONSERVATION GRANT		
Project 1: Conservation Planning for Species of Greatest Conservation Need		
Bird Conservation		
Job 1: New York State's 2nd Breeding Bird Atlas	Statewide	New York completed its first Breeding Bird Atlas during 1980-1985, and the second atlas project (2000-2004) is underway. State Wildlife Grant funding will ensure completion of the second atlas, which will document the current distribution of breeding birds in New York State and quantify changes in distributions of species between the two atlas periods. Once completed, Atlas results will be made available in book and web-based formats for use by conservation biologists, planners, and the public.
Job 2: Developing a Grassland Bird Conservation Plan for New York State	Statewide, where grassland habitats are present	Because of widespread loss and fragmentation of grassland habitat, grassland bird populations are declining in New York and throughout North America. This project will develop a comprehensive plan to guide and direct grassland bird conservation and management on public and private lands in New York State. The plan will help direct conservation efforts to the most important areas, provide guidance to grassland owners and managers, and identify monitoring and research needs for grassland birds.
Job 5: Golden-winged Warbler Habitat and Hybridization Study	Sterling Forest State Park, Orange County	The golden-winged warbler has declined at an annual rate of 8 percent for the last 35 years in the northeastern U.S. Possible factors in its decline include reforestation and range expansion of the blue-winged warbler. This project will investigate genetics and habitat segregation among these two species. Results will help to establish whether they should be considered distinct species and provide guidance for habitat management plans to sustain golden-winged warbler populations.
Job 17: Marshbird Conservation in New York State	Statewide, where freshwater emergent marshes are present	Baseline information on distribution and abundance is needed for many marsh-nesting species in New York State. Species of concern include pied-billed grebe, black tern, least bittern, American bittern, and king rail. This project will survey representative freshwater marsh habitats across the state during 2004-2006 to quantify abundance and habitat use of marsh birds, identify focus areas for marsh bird conservation, and develop a long-term monitoring program.
Job 18: Coordinated Comprehensive Bird Monitoring Plan for New York State	Statewide	Comprehensive and coordinated monitoring programs are needed to reliably assess the status of all bird "species of greatest conservation need" in New York State. This project will document details of existing bird monitoring and survey programs in New York and assess their utility for monitoring various species of concern. We will form a bird monitoring partnership, involving agencies, organizations, and individuals, to recommend and help implement new or improved monitoring and survey programs for all bird species in New York State.
Job 22: Golden-winged Warbler Habitat Restoration Investigation	Sterling Forest State Park, Orange County	The golden-winged warbler (GWWA) has declined at an annual rate of eight percent for the last 35 years in the northeastern U.S. and is a candidate for federal listing as a threatened or endangered species. Possible factors in its decline include loss of habitat due to reforestation and hybridization with the blue-winged warbler. Results of prior SWG-funded research will be used to design and conduct an experimental habitat restoration project in Sterling Forest State Park to assess the feasibility of creating or maintaining suitable habitat for GWWA in southeastern New York.
Mammal Conservation		
Job 8: Feasibility of Implementing a Robust Design Mark-Recapture Study for Indiana Bats	Statewide, where Indiana bats are present	The Indiana bat, a federally endangered species, has declined from roughly 600,000 in the 1960s to about 350,000 today. Population declines in southern portions of its range, primarily Kentucky and Missouri, have far exceeded increases in the north, including New York. We hope to conduct a large scale mark-recapture study to identify causes of the decline and regional differences in population trends. The first step is a feasibility study to determine if we can adequately address assumptions of the study design.
Job 9: Determining the Feasibility of a Statewide Summer Survey of Tree Bats	Statewide, north of NYC and Long Island	Tree bats (red, hoary and silver-haired bats) are among the least understood vertebrates in the state. We do not know the current status or distribution of any of these species, and the most comprehensive surveys were conducted more than 100 years ago. Recent technical innovations have increased the reliability of field sampling while reducing costs. We plan to conduct initial surveys to determine the costs and effectiveness of conducting a statewide status survey for tree bats in New York State.

SW Lake Ontario Table 14. (continued)

State Wildlife Grant Study	Location	Description
Reptile & Amphibian Conservation		
Job 10: Assessment of the Status and Abundance of High Priority Reptile and Amphibian Species	Statewide	As a group, a higher proportion of amphibian and reptile species have suffered significant declines than any other vertebrate groups in New York State. To date, much effort has been placed on documenting distribution of these endangered and threatened species. This project will focus on collecting information on the status of known populations, following standard protocols, so that conservation efforts can be prioritized on those in greatest need.
Job 12: Reducing Turtle Mortality During Nesting	Statewide	Certain turtle species experience high mortality of females when they migrate from over-wintering locations to traditional egg-laying sites. This project will investigate methods of reducing this mortality through use of subsurface tunnels for crossing roadways, creation of protected nesting sites, and predator exclusions.
Job 25: Spiny Softshell Turtle Survey and Life History Studies	Shores of Lake Ontario and its tributaries	Little is know about the distribution, life history, seasonal movements, and habitat-use of spiny softshell turtles in New York State. NYSDEC will assess the status and distribution of spiny softshell turtles in the Finger Lakes and the bays on the southern shore line of Lake Ontario, including the streams and creeks that enter Lake Ontario, in order to make recommendations concerning the management of critical habitats for this species.
Job 26: Reptile and Amphibian Species Inventory (cont'd from Job 10, Grant T-2-1)	Statewide	Previous studies have identified many reptile and amphibian species in need of conservation, which is the first step in developing baseline information to measure changes in populations. This project will help complete surveys of other reptile and amphibian species that are listed as species of special concern by New York State. Completion of these surveys will produce a mechanism to assure continuity of surveys for this group of species, as gather well as data to determine the status of special concern reptile and amphibian species.
Invertebrate Conservation		
Job 15: Odonate Inventory	Statewide	There is a need for a comprehensive survey or inventory for odonates (dragonflies and damselflies) statewide. This project will document the current distribution of odonate species in New York State and direct more intensive sampling in selected habitats, areas with expected high odonate diversity, or habitats of rare species. The project will include general surveys conducted by volunteers as well as directed surveys that target specific species, habitats, or poorly known areas of the state.
Job 27: Tiger Beetle Inventory	Western New York State	There are 26 species or subspecies of tiger beetle reported from New York State. Of the 26 species, nine are considered globally rare or rare in New York State, while another five are thought to be uncommon in the state (Gordon 1939, New York Natural Heritage Program 2004.) Nearly all of the species of concern are found in habitats that have been heavily impacted by development or other deleterious factors. DEC will conduct status assessments for nine species (including one subspecies) of tiger beetles in New York State that will clarify the need for conservation actions in order to maintain these species.
FISH AND MARINE CONSERVATION GRANT		
Project 1: Conservation Planning for Aquatic Resources		
Freshwater Fish Conservation		
Job 2: Conservation of Lesser Known Species of Fish	Statewide	This project involves review of DEC and New York State Museum fish records to identify information needs about the status of rare species. Findings will be used to plan new surveys that will eventually allow a complete assessment of the status and distribution of these "lesser known" freshwater fish species of New York State.

For more information on these projects visit NYSDEC website at www.dec.state.ny.us
or contact NYSDEC at:
State Wildlife Grants Program Coordinator
New York Division of Fish, Wildlife and Marine Resources
625 Broadway
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SW Lake Ontario Table 15. Existing management plans and agreements relevant to the SW Lake Ontario Basin. This is an assortment of the major planning efforts within the Basin and is not a comprehensive list. Other planning efforts may exist at both the local and landscape scale and should be consulted before implementing conservation actions.

Plan/Agreement Name	Involved Parties	Information
Biodiversity Around the Great Lakes (2002)	USEPA, Purdue University	Educational software program, Great Lakes history, case studies, monitoring, species inventory, habitat restoration
Black Creek Watershed State of the Basin Report (2003)	Black Creek Watershed Coalition	Geography; uses of land and water; water quality; water quantity; problems;
Conesus Lake Watershed Management Plan	Livingston County Planning Department	Need for restoration and protection; subwatershed analysis; recommended actions; implementation
Conservation Blueprint for the Great Lakes (2003)	The Nature Conservancy	Preserving biodiversity; framework for action; scientific foundation; threats
County Water Quality Strategies	County Soil and Water Conservation offices	Identifying and prioritizing water quality problems; water quality goals and actions
Eighteenmile Creek Remedial Action Plan (1997)	USEPA, NYSDEC	Background; use impairments; status; schedule; progress; research; community involvement; partners
Erie Canal National Heritage Corridor Plan (in preparation)	National Park Service	Preservation and management; incorporates existing federal, state, and local plans; public partnerships and review
Fish and Wildlife Habitat Status and Trends in the Canadian Watershed of Lake Ontario (2000)	Environment Canada, CWS Ontario Region	Current habitat conditions, threats, current habitat protection/restoration efforts, summary analysis of the status of fish and wildlife habitat, monitoring/evaluation
Fish Community Objectives for Lake Ontario (1999, 2003)	NYSDEC, Ontario MNR	Goals, description of the lake, habitat alterations, fish species, management actions
Genesee River Basin Action Strategy	US ACOE, Genesee/Finger Lakes Regional Planning Council	Basin overview - land use, water quality;basinwide recommendations; watershed prioritization; natural resource and prioritization; natural resource and heritage data
Great Lakes Strategy - A Plan for the New Millennium (2002)	US Policy Committee for the Great Lakes	Goals, chemical, physical, and biological integrity, partnerships
Great Lakes Wetlands Conservation Action Plan (1994, 2002)	Ontario MNR, Environment Canada, DU Canada, Nature Conservancy of Canada, Federation of Ontario Naturalists	Long-term strategies for wetland conservation, implementation of the 25-year Strategic Plan for Wetlands of the Great Lakes Basin
Great Lakes Wetlands Conservation Action Plan Report 2000-2003	Environment Canada	Wetland conservation highlights, review of strategies, partners
Lakewide Management Plan for Lake Ontario (1998)	USEPA, Environment Canada, NYSDEC, Ontario Ministry of the Environment	Problem identification, public involvement, monitoring progress
Oak Orchard Watershed State of the Basin Report (2005)	Oak Orchard Watershed Protection Alliance	Unique features of the watershed; resources of value within the watershed; current water quality and quantity conditions; relevant land use impacts and critical issues within the basin; recommendations for improving water quality to ensure the health and sustainability of the basin's resources.
Oatka Creek Park Vegetation and Wildlife Report (2000)	Oatka Creek Watershed Committee	Agency resources; inventory methods; results; conclusions
Rochester Embayment Remedial Action Plan (1997)	USEPA, NYSDEC	Background; use impairments; status; schedule; progress; research; community involvement; partners
State of Conesus Lake: Watershed Characterization Report (2002)	Livingston County Planning Department	Various programs; watershed characteristics; tributaries; lake characterization; sources of contamination; public education; recommendations
Strategic Plan for Wetlands of the Great Lakes Basin (1993)	Ontario MNR, Environment Canada, DU Canada, Nature Conservancy of Canada, Federation of Ontario Naturalists	Twenty-five year strategy for wetlands conservation in the Great Lakes Basin
The Oatka Creek Watershed State of the Basin Report (2002)	Oatka Creek Watershed Committee	State of the basin - geology, wetlands, natural resources, regional programs; watershed; water quality; human population
Towards a New Conservation Vision for the Great Lakes Region: A Second Iteration (2003)	The Nature Conservancy	Ecoregional planning, visions, goals, identify datagaps and core conservation areas, threats, target species
Twenty-five Year Plan for the Great Lakes (1991)	NYSDEC	Goals, water quality, economic development, interstate/international partnerships
Western Erie Canal Heritage Corridor Plan (Draft 2004)	Western Erie Canal Heritage Corridor Planning Commission	Land use planning; natural resource management
NYSDEC Unit Management Plans	NYSDEC	Assessment of the natural and physical resources present within a unit; opportunities for recreational use and ability of resources and ecosystems to accommodate public use; management objectives for public use
Rush Oak Openings State Unique Area (1999)		
Bird Conservation Area Management Guidance Summaries	NYSDEC, OPRHP, Audubon	A physical description of the site, BCA criteria met, important species & habitat types, guidance for management, op/maintenance, research, education and outreach. Includes local contacts.
Braddock Bay Oak Orchard / Tonawanda		
Wildlife Management Area Plans	NYSDEC	Assessment of the wildlife, habitats and physical resources present; history of the property; management, op/maintenance, research, education and outreach objectives; opportunities for recreational use and ability of resources and ecosystems to accommodate public use; management objectives for public use
Braddock Bay Wildlife Management Area (1995) Carlton Hill Wildlife Management Area (1970) Conesus Inlet Wildlife Management Area (1973) Hanging Bog Wildlife Management Area (1970) Hartland Swamp Wildlife Management Area (1977) Honeoye Creek Wildlife Management Area (1986) Keaney Swamp Wildlife Management Area (1977) Oak Orchard Wildlife Management Area (1989) Rattlesnake Hill Wildlife Management Area (1984) Tonawanda Wildlife Management Area (1988)		