

Ramsar Information Sheet

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United States of America

Niagara River Corridor



Designation date 3 October 2019

Site number 2402

Coordinates 43°02'37"N 78°58'11"W

Area 5 247,70 ha

https://rsis.ramsar.org/ris/2402 Created by RSIS V.1.6 on - 20 May 2020

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summarv

The Niagara River is a freshwater strait that forms the border between the U.S. and Canada. The river flows approximately 58 km (36 mi) from Lake Erie in the south, over one of Earth's natural wonders, Niagara Falls, and through the Niagara Gorge, emptying at Lake Ontario in the north. The river's depth and width vary greatly; shallow and wide above Niagara Falls, and deep and narrow below. Along the river's shoreline are protected nature reserves, parks, large cities, transportation infrastructure, and farmland.

The local communities benefit immensely from the Niagara River. The Niagara River will be among the most visited Ramsar sites in the world. On the U.S. side alone, hundreds of thousands of people swim, fish, boat, hunt, birdwatch, conduct research, and hike on and along the river. Eight million people visit the U.S. side of Niagara Falls each year. Tourism to the Niagara region contributes \$2.7 billion to the economy and supports 53,168 jobs. In addition, nearly a million people get their freshwater from the river, and electricity generated from the river powers millions of homes and businesses.

The Niagara River Corridor supports numerous species of protected flora and fauna. The river is an extremely important spawning ground for fish and a migratory corridor for birds. It supports several birds that congregate in globally significant numbers, and supports massive congregations of waterbirds during the winter. Upland areas along the river are home to threatened ecological communities and old growth forests. The Niagara Escarpment is designated as a UNESCO Biosphere Reserve in Canada, and the entire Niagara River Corridor is designated a globally significant Important Bird Area.

The ecology of the corridor has been shaped by millennia of human activity, from indigenous civilizations to today's cities. The corridor hosted battles of the War of 1812, was the last stop on the Underground Railroad, saw the continent's first state and provincial parks, and saw the birth of hydroelectric energy. Over the last two centuries, industrialization and population growth caused environmental degradation, yet the river and its people have proven to be resilient. The infamous Love Canal helped to spur the environmental justice movement, and plans are being implemented to reverse past and prevent future degradation. Today, the river is healthier than it has been in generations.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

Compiler 2

Name	Niagara River Corridor Ramsar Site Steering Committee
Institution/agency	University at Buffalo School of Law
Postal address	507 O'Brian Hall, North Campus, Buffalo, NY 14260-1100
E-mail	kimconno@buffalo.edu
Phone	716-645-2092
Fax	716-645-6199
Name	Cade London
Institution/agency	U.S. Fish and Wildlife Service
Postal address	5275 Leesburg Pike, MS:IA Falls Church, VA 22041-3803
E-mail	cade_london@fws.gov
Phone	703-358-2584
Fax	703-358-2277

2.1.2 - Period of collection of data and information used to compile the RIS

From year 2014

To year 2019

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish) Niagara River Corridor

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Former maps 0

Boundaries description

The site includes the U.S. side of the Niagara River, from Lake Ontario in the north to Lake Erie in the south. The site includes much of the riparian lands along the river's edge. The riparian lands included are located on protected green spaces adjacent to or near the river and incorporate parks, nature preserves, undeveloped islands in the river, and other greenspaces around institutional land and public infrastructure. The site excludes privately-owned land along the shoreline, private holdings that extend into the river, and private railroad bridges that cross the river. The ecological values of the site are not compromised due to these exclusions; the site includes nearly all of the U.S. side of the river itself.

2.2.2 - General location

a) In which large administrative region does the site lie?	State of New York
tile site lie:	
b) What is the nearest town or population	The City of Niagara Falls (population of 48,460) and City of Buffalo (population of 258,612) are the
centre?	largest nearby population centers.

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other Yes

No O

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party?

2.2.4 - Area of the Site

Official area, in hectares (ha): 5247.7

Area, in hectares (ha) as calculated from GIS boundaries 5245.819

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Udvardy's Biogeographical Provinces	The Neararctic Realm - Great Lakes / Eastern Forests Biogeographical Provinces
WWF Terrestrial Ecoregions	Temperate Broadleaf & Mxed Forest (Carolinian)

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

Criterion 1: Representative, rare or unique natural or near-natural wetland types

The Niagara River drains the majority of the Great Lakes Basin, which in total contains 84% of the surface freshwater of North America and 21% of the world's fresh surface water (US EPA website "Great Lakes"). Numerous population centres along the river obtain their drinking water from the river. On the U.S. side, approximately one million people get their freshwater directly from the river. Large cities on Lake Ontario, like Toronto, obtain their drinking water from the lake after it passes through the Niagara River. The water Hydrological services provided from the Niagara River is used to power the Robert Moses Niagara Power Plant on the U.S. side (Gawronski et al. 2006, NYPA "Niagara Power Plant"), and the Sir Adam Beck Hydroelectric Generating Station on the Canadian side (NPC "The History of Sir Adam Beck"). Electricity from these two hydroelectric power plants is used by millions of people in the U.S. and Canada. The water from the river is also used by industry along the river, especially on the U.S. side, as well as agriculture, especially on the Canadian side.

The Niagara River Corridor provides numerous other non-hydrological ecosystem services. The river is the spawning ground for many freshwater fish species that support fisheries, sport fishing, and some subsistence fishing in the river itself and surrounding lakes. The river supports recreation, especially water-based recreation like boating and tourism. In fact, more than 22.5 million people visit both sides of Niagara Falls annually (Travel and Leisure "World's Most Visited Tourist Attractions"), 125 million people live within an 8-hour drive, multi-billion dollar spending on tourism and recreational occurs annually, over Other ecosystem services provided 100,000 students are enrolled in over 20 local colleges and universities, and the Niagara River is located within the "Golden Horseshoe" (an international region extending from metropolitan Toronto, through the Southern Ontario and Buffalo-Niagara regions, to Rochester, NY)

(http://www.niagarafallsredevelopment.com/niagara-falls-facts/). The river is also the basis of countless scientific studies and monitoring programs, including several annual bird counts by the Buffalo Ornithological Society, fish monitoring programs of the U.S. Fish and Wildlife Service, the Great Lakes Marsh Monitoring Program by Bird Studies Canada, and many more conducted by university researchers. The Niagara River is unique because it is home to Niagara Falls, three separate waterfalls which combine to form the highest volume waterfall in North America (including the Great Lakes/Eastern Forests Biogeographical Provinces) (World Waterfall Database "Niagara Falls").

The Niagara River is a strait connecting two larger fresh water lakes, Lake Erie and Lake Ontario. There are few other straits in North America (including the Great Lakes/Eastern Forests Biogeographical Provinces) that connect large bodies of freshwater, and none that carry as much water annually as the Niagara River, making the Niagara River unique.

The New York State Department of State has identified numerous Significant Coastal Fish and Wildlife Habitats within the Niagara River Corridor, including a riverine littoral zone in the upper Niagara River that is a rare ecosystem type in the Great Lakes and extremely valuable fish and wildlife habitat (NYS DOS "Significant Coastal Fish & Wildlife Habitats").

Other reasons

The 30-hectare cattail marsh at the Tifft Nature Preserve is the largest section remaining of a much larger marsh once found at the mouth of the Buffalo River on Lake Erie and previously common on the Great Lakes (Spiering 2009), and is representative of the Tp: Permanent freshwater marshes/ pools wetland type. The marshes in Buckhorn Island State Park, the East River Marsh, and Strawberry Island are also representative of the Tp: Permanent freshwater marshes/ pools wetland type.

Economic opportunities surround the Niagara River Corridor. The U.S. side of the Niagara region (Erie, Genesee, Niagara, Orleans, and Wyoming counties) attracts 22.5 million visitors annually. The tourism industry associated with the Niagara region has \$2.7 billion of sales annually, supports 53,168 jobs, and generates generated \$891 million in direct labor income and \$1.5 billion of income including indirect and induced impacts. Tourism generates 13.2% of Niagara County's labor income and 4.4% of Erie County's labor income. (https://www.wycochamber.org/files/mgQwaU/NYS%20Tourism%20Impact%20-%20Greater%20Niagara%202017.pdf)

- ☑ Criterion 2 : Rare species and threatened ecological communities
- ☑ Criterion 3 : Biological diversity

Of the high biological diversity supported at the Niagara River Corridor, at least one species is considered a "keystone" species: the Emerald Shiner (Notropis atherinoides). Although much of the Justification Emerald Shiner's life cycle is unknown, they are considered the base of the food web for many fish-eating birds and sports fish. They are particularly important to the Common Tern (Sterna hirundo), a NYS threatened species ("New projects: Researching a keystone species in the Niagara River").

- ☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions
- ☑ Criterion 5 : >20.000 waterbirds

Overall waterbird numbers Greater than 120,000 (single day observations have exceeded 100,000 gulls and 20,000 waterfowl).

Start year 1979

Source of data: Important Bird Areas in Canada website. "IBA Database - Niagara River Corridor". Source of data: Retrieved on 11/15/2014.

- ☑ Criterion 6 : >1% waterbird population
- Criterion 7 : Significant and representative fish

The Niagara River Corridor sustains at least 89 species of indigenous, freshwater fish. (see Appendix 1)

☑ Criterion 8 : Fish spawning grounds, etc.

The New York State Department of State has identified numerous Significant Coastal Fish and Wildlife Habitats within the Niagara River Corridor (NYS DOS "Significant Coastal Fish and Wildlife Habitats").

Justification

Most of these are important spawning grounds for native freshwater fish. From recent studies, at least 41 species of fish are known to spawn in the Niagara River, although it is likely that more species spawn there. (see Appendix 1)

3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Carex garberi	Elk Sedge	 ✓					Endangered (NYS)	
Fraxinus americana	White Ash	✓			CR			
Fraxinus pennsylvanica	Red/Green Ash	>			CR			
Gentianopsis virgata	Lesser Fringed Gentian	V			LC		Endangered (NYS)	
Pellaea glabella glabella	Smooth Cliff-brake	 ✓					ESA threatened	
Symphyotrichum oolentangiense	Sky Blue Aster						Endangered (NYS)	

See full species	lists in Appendix 1
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Other status lists include:

- US (Endangered Species Act) "U.S. Fish and Wildlife Service, Endangered Species" (http://www.fws.gov/ENDANGERED/species/us-species.html)
- New York State (Natural Heritage Program) New York Rare Plant Status Lists, 2017, Edited by Stephen M. Young (https://www.dec.ny.gov/docs/wildlife_pdf/2017rareplantlists.pdf)

Additional notes on the criteria:

• For criteria two, species that are listed in the IUCN Red List, CITES, or any of the federal or state lists satisfy this criteria.

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Speci qualifi unde criteri 2 4 0	ies c er ion	Species contribute under criterion 5 7	Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CMS Appendix I	Other Status	Justification
Birds												
CHORDATA/ AVES	Acanthis flammea	Common Redpoll							LC			Overwintering Migratory
CHORDATA/ AVES	Accipiter cooperii	Cooper's Hawk	~						LC		Special Concern (NYS) & CITES Appendix II	Overwintering Migratory Nesting
CHORDATA/ AVES	Accipiter gentilis	Northern Goshawk							LC		Special Concern (NYS) & CITES Appendix II	
CHORDATA/ AVES	Accipiter striatus	Sharp-shinned Hawk							LC		Special Concern (NYS) CITES Appendix II	Overwintering Migratory Nesting
CHORDATA/ AVES	Actitis macularius	Spotted Sandpiper							LC			Mgratory Nesting
CHORDATA/ AVES	Aegolius acadicus	Northern Saw- whet Owl							LC			Mgratory

Phylum	Scientific name	Common name	Specie qualifie under criterio	es on	crite	ibutes der erion	Pop. Size Period of pop. Est.	% occurrence		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Agelaius phoeniceus	Red-winged Blackbird							LC				Overwintering Mgratory Nesting
CHORDATA/ AVES	Aix sponsa	Wood Duck							LC				Mgratory/Nesting
CHORDATA/ AVES	Ammodramus henslowii	Henslow's Sparrow	V V									Threatened (NYS)	Mgratory
CHORDATA/ AVES	Ammodramus savannarum	Grasshopper Sparrow	V V						LC			Special Concern (NYS)	`Mgratory Nesting
CHORDATA/ AVES	Anas acuta	Northern Pintail							LC				Overwintering / Waterbird / Mgratory
CHORDATA/ AVES	Anas americana	American Wigeon											Mgratory/ Nesting
CHORDATA/ AVES	Anas clypeata	Northern Shoveler											Mgratory/ Nesting
CHORDATA/ AVES	Anas crecca	Green-winged Teal; Eurasian Teal							LC				Mgratory / Nesting
CHORDATA/ AVES	Anas discors	Blue-winged Teal											Mgratory/Nesting
CHORDATA/ AVES	Anas platyrhynchos	Mallard							LC				Overwintering / Migratory Waterbird Nesting
CHORDATA/ AVES	Anas rubripes	American Black Duck							LC				Overwintering / Migratory Waterbird Nesting
CHORDATA/ AVES	Anas strepera	Gadwall											Overwintering / Waterbird
CHORDATA/ AVES	Anser albifrons	Greater White- fronted Goose							LC				Mgratory
CHORDATA/ AVES	Anthus rubescens	Buff-bellied Pipit							LC				Mgratory
CHORDATA/ AVES	Aquila chrysaetos	Golden Eagle							LC			Endangered (NYS) CITES Appendix II	
CHORDATA/ AVES	Archilochus colubris	Ruby-throated Hummingbird							LC				Migratory Nesting
CHORDATA/ AVES	Ardea alba	Great Egret							LC				Migratory/Nesting
CHORDATA/ AVES	Ardea herodias	Great Blue Heron							LC				Overwintering / Waterbird Migratory Nesting
CHORDATA/ AVES	Arenaria interpres	Ruddy Turnstone							LC				Mgratory
CHORDATA/ AVES	Asio flammeus	Short-eared Owl	990						LC			Endangered (NYS)	Overwintering Mgratory
CHORDATA/ AVES	Asio otus	Long-eared Owl							LC				Overwintering Mgratory
CHORDATA/ AVES	Aythya affinis	Lesser Scaup							LC				Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Aythya americana	Redhead							LC				Overwintering / Waterbird Migratory
CHORDATA/ AVES	Aythya collaris	Ring-necked Duck							LC				Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Aythya marila	Greater Scaup					15000 1979	2	LC				Overwintering / Waterbird Migratory
CHORDATA/ AVES	Aythya valisineria	Canvasback					14000 1997	2	LC				Overwintering / Waterbird Migratory
CHORDATA/ AVES	Baeolophus bicolor	Tufted Titmouse							LC				Overwintering Nesting

Phylum	Scientific name	Common name	qual un crite	der erion	cc	Species ntribute under criterion	Siz	of pop. Est	% occurrence 1)		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Bartramia Iongicauda	Upland Sandpiper								LC			Threatened (NYS)	Migratory / Nesting
CHORDATA/ AVES	Bombycilla cedrorum	Cedar Waxwing								LC				Overwintering Migratory Nesting
CHORDATA/ AVES	Bonasa umbellus	Ruffed Grouse								LC				Overwintering
CHORDATA/ AVES	Botaurus Ientiginosus	American Bittern	1							LC			Special Concern (NYS)	Mgratory / Nesting
CHORDATA/ AVES	Branta bernicla	Brent Goose; Brant Goose								LC				Mgratory
CHORDATA/ AVES	Branta canadensis	Canada Goose								LC				Mgratory
CHORDATA/ AVES	Bubo scandiacus	Snowy Owl	1							W				Overwintering Mgratory
CHORDATA/ AVES	Bubo virginianus	Great Horned Owl								LC				Overwintering Nesting
CHORDATA/ AVES	Bucephala albeola	Bufflehead								LC				Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Bucephala clangula	Common Goldeneye								LC				Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Buteo jamaicensis	Red-tailed Hawk								LC			CITES Appendix II	Overwintering / Nesting
CHORDATA/ AVES	Buteo lineatus	Red-shouldered Hawk	1							LC			Special Concern (NYS) & CITES Appendix II	Mgratory
CHORDATA/ AVES	Buteo platypterus	Broad-winged Hawk								LC			CITES Appendix II	Migratory / Nesting
CHORDATA/ AVES	Butorides virescens	Green Heron												Mgratory/Nesting
CHORDATA/ AVES	Calcarius Iapponicus	Lapland Longspur								LC				Overwintering Mgratory
CHORDATA/ AVES	Calidris alba	Sanderling								LC				Mgratory
CHORDATA/ AVES	Calidris alpina	Dunlin								LC				Mgratory
CHORDATA/ AVES	Calidris bairdii	Baird's Sandpiper								LC				Mgratory
CHORDATA/ AVES	Calidris canutus	Red Knot								NT				Mgratory
CHORDATA/ AVES	Calidris fuscicollis	White-rumped Sandpiper								LC				Mgratory
CHORDATA/ AVES	Calidris himantopus	Stilt Sandpiper								LC				Mgratory
CHORDATA/ AVES	Calidris maritima	Purple Sandpiper								LC				Migratory
CHORDATA/ AVES	Calidris mauri	Western Sandpiper								LC				Migratory
CHORDATA/ AVES	Calidris melanotos	Pectoral Sandpiper								LC				Mgratory
CHORDATA/ AVES	Calidris minutilla	Least Sandpiper								LC				Mgratory
CHORDATA/ AVES	Calidris pusilla	Semipalmated Sandpiper								NT		₽		Mgratory
CHORDATA/ AVES	Caprimulgus vociferus	Whip-poor-will	1										Special Concern (NYS)	Mgratory

Phylum	Scientific name	Common name	Speci qualifi unde criteri 2 4 0	ies er ion	conti ur crit	ecies ributes nder erion	Pop. Size Period of pop. Est.	% occurrence		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Cardellina canadensis	Canada Warbler							LC				Mgratory
CHORDATA/ AVES	Cardellina pusilla	Wilson's Warbler							LC				Mgratory
CHORDATA/ AVES	Cardinalis cardinalis	Northern Cardinal							LC				Overwintering Nesting
CHORDATA/ AVES	Cathartes aura	Turkey Vulture							LC				Mgratory Nesting
CHORDATA/ AVES	Catharus fuscescens	Veery							LC				Mgratory Nesting
CHORDATA/ AVES	Catharus guttatus	Hermit Thrush							LC				Mgratory
CHORDATA/ AVES	Catharus minimus	Grey-cheeked Thrush; Gray- cheeked Thrush							LC				Mgratory
CHORDATA/ AVES	Catharus ustulatus	Swainson's Thrush							LC				Mgratory
CHORDATA/ AVES	Certhia americana	Brown Creeper							LC				Overwintering Nesting
CHORDATA/ AVES	Chaetura pelagica	Chimney Swift	V						W				Mgratory Nesting
CHORDATA/ AVES	Charadrius melodus	Piping Plover							NT			Endangered (US, NYS)	
CHORDATA/ AVES	Charadrius semipalmatus	Semipalmated Plover							LC				Mgratory
CHORDATA/ AVES	Charadrius vociferus	Killdeer							LC				Mgratory Nesting
CHORDATA/ AVES	Chen caerulescens	Snow Goose											Mgratory
CHORDATA/ AVES	Chlidonias niger	Black Tern	77						LC			Endangered (NYS)	Mgratory Nesting
CHORDATA/ AVES	Chordeiles minor	Common Nighthawk	1						LC			Special Concern (NYS)	Mgratory Nesting
CHORDATA/ AVES	Chroicocephalus philadelphia	Bonaparte's Gull		0			100000 1995	25					Overwintering / Waterbird Migratory
CHORDATA/ AVES	Chroicocephalus ridibundus	Black-headed Gull											Mgratory
CHORDATA/ AVES	Circus cyaneus	Northern Harrier	11						LC			Threatened (NYS) CITES Appendix II	Overwintering / Waterbird Migratory Nesting
CHORDATA/ AVES	Cistothorus palustris	Marsh Wren							LC				Mgratory Nesting
CHORDATA/ AVES	Cistothorus platensis	Sedge Wren	77						LC			Threatened (NYS)	Mgratory
CHORDATA/ AVES	Clangula hyemalis	Oldsquaw; Long- tailed Duck	77						W				Overwintering / Waterbird Migratory
CHORDATA/ AVES	Coccyzus americanus	Yellow-billed Cuckoo							LC				Mgratory Nesting
CHORDATA/ AVES	Coccyzus erythropthalmus	Black-billed Cuckoo							LC				Mgratory Nesting
CHORDATA/ AVES	Colaptes auratus	Northern Flicker							LC				Overwintering Migratory Nesting
CHORDATA/ AVES	Contopus cooperi	Olive-sided Flycatcher							NT				Mgratory
CHORDATA/ AVES	Contopus virens	Eastern Wood- Pewee; Eastern Wood Pewee							LC				Mgratory Nesting

Phylum	Scientific name	Common name	Specie qualifie under criterio 2 4 6	s on	Spec contri uno crite	butes der erion	Pop. Size Period of pop. Est.	% occurrence		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Corvus brachyrhynchos	American Crow							LC				Overwintering Nesting
CHORDATA/ AVES	Cyanocitta cristata	Blue Jay							LC				Overwintering Nesting
CHORDATA/ AVES	Cygnus columbianus	Tundra Swan							LC				Overwintering / Waterbird Nesting
CHORDATA/ AVES	Dolichonyx oryzivorus	Bobolink							LC				Migratory Nesting
CHORDATA/ AVES	Dryocopus pileatus	Pileated Woodpecker											Overwintering Nesting
CHORDATA/ AVES	Dumetella carolinensis	Grey Catbird							LC				Migratory Nesting
CHORDATA/ AVES	Egretta thula	Snowy Egret							LC				Nesting
CHORDATA/ AVES	Empidonax alnorum	Alder Flycatcher							LC				Migratory Nesting
CHORDATA/ AVES	Empidonax flaviventris	Yellow-bellied Flycatcher							LC				Mgratory
CHORDATA/ AVES	Empidonax minimus	Least Flycatcher							LC				Mgratory Nesting
CHORDATA/ AVES	Empidonax traillii	Willow Flycatcher							LC				Migratory Nesting
CHORDATA/ AVES	Empidonax virescens	Acadian Flycatcher							LC				Migratory
CHORDATA/ AVES	Eremophila alpestris	Horned Lark	77						LC			Special Concern (NYS)	Overwintering Migratory Nesting
CHORDATA/ AVES	Euphagus carolinus	Rusty Blackbird							W				Migratory
CHORDATA/ AVES	Falco columbarius	Merlín							LC			CITES Appendix II	Migratory Nesting
CHORDATA/ AVES	Falco peregrinus	Peregrine Falcon	V V						LC	\checkmark		Endangered (NYS)	Migratory Nesting
CHORDATA/ AVES	Falco rusticolus	Gyrfalcon	77						LC	 ✓			Full migrant
CHORDATA/ AVES	Falco sparverius	American Kestrel							LC				Overwintering Nesting
CHORDATA/ AVES	Fulica americana	American Coot							LC				Overwintering / Waterbird
CHORDATA/ AVES	Gallinago delicata	Wilson's Snipe							LC				Migratory Nesting
CHORDATA/ AVES	Gavia immer	Great Northern Loon; Great Northern Diver; Common Loon	77						LC			Special Concern (NYS)	Overwintering / Waterbird Migratory
CHORDATA/ AVES	Gavia stellata	Red-throated Loon; Red- throated Diver							LC				Mgratory
CHORDATA/ AVES	Geothlypis philadelphia								LC				Nesting
CHORDATA/ AVES	Geothlypis trichas	Common Yellowthroat							LC				Migratory Nesting
CHORDATA/ AVES	Grus canadensis	Sandhill Crane	77									CITES Appendix I	Mgratory
CHORDATA/ AVES	Haemorhous purpureus	Purple Finch							LC				Overwintering Mgratory Nesting

Phylum	Scientific name	Common name	Special qualification unde criteri	es r on	conf u cri	ecies ributes nder terion	Pop. Size	d of pop. Est.	% occurrence	IUCN Red List	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Haliaeetus leucocephalus	Bald Eagle	77							LC		Threatened (NYS) & CITES Appendix II	Overwintering / Waterbird Nesting
CHORDATA/ AVES	Helmitheros vermivorum	Worm-eating Warbler								LC			Mgratory
CHORDATA/ AVES	Hesperiphona vespertina	Evening Grosbeak	V							W			Overwintering Mgratory
CHORDATA/ AVES	Histrionicus histrionicus	Harlequin Duck	V							LC		species of concern in U.S.	Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Hydrocoloeus minutus	Little Gull								LC			Overwintering / Waterbird Migratory
CHORDATA/ AVES	Hydroprogne caspia	Caspian Tern								LC			Mgratory
CHORDATA/ AVES	Hylocichla mustelina	Wood Thrush								NT			Mgratory Nesting
CHORDATA/ AVES	Icteria virens	Yellow-breasted Chat	77							LC		Special Concern (NYS)	Mgratory
CHORDATA/ AVES	Icterus galbula	Baltimore Oriole								LC			MgratoryNesting
CHORDATA/ AVES	Icterus spurius	Orchard Oriole								LC			Mgratory Nesting
CHORDATA/ AVES	Ixobrychus exilis	Least Bittern	77							LC		Threatened (NYS)	Mgratory/Nesting
CHORDATA/ AVES	Junco hyemalis	Dark-eyed Junco								LC			Overwintering Mgratory Nesting
CHORDATA/ AVES	Lanius excubitor	Northern Shrike; Great Grey Shrike								LC			Overwintering Mgratory
CHORDATA/ AVES	Lanius Iudovicianus	Loggerhead Shrike								NT		Endangered (NYS)	
CHORDATA/ AVES	Larus argentatus	European Herring Gull					50000 1997		1	LC			Overwintering / Waterbird Nesting
CHORDATA/ AVES	Larus delawarensis	Ring-billed Gull					32000 1998		1	LC			Overwintering / Waterbird Nesting
CHORDATA/ AVES	Larus fuscus	Lesser Black- backed Gull								LC			Overwintering / Waterbird Migratory
CHORDATA/ AVES	Larus glaucoides	Iceland Gull								LC			Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Larus hyperboreus	Glaucous Gull								LC			Overwintering / Waterbird Migratory
CHORDATA/ AVES	Larus marinus	Great Black- backed Gull								LC			Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Larus thayeri	Thayer's Gull											Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Leiothlypis celata	Orange-crowned Warbler								LC			Mgratory
CHORDATA/ AVES	Leiothlypis peregrina	Tennessee Warbler								LC			Mgratory
CHORDATA/ AVES	Leiothlypis ruficapilla	Nashville Warbler								LC			Mgratory Nesting
CHORDATA/ AVES	Leucophaeus pipixcan	Franklin's Gull											Mgratory
CHORDATA/ AVES	Limnodromus griseus	Short-billed Dowitcher								LC			Mgratory
CHORDATA/ AVES	Limosa fedoa	Marbled Godwit								LC			Mgratory

Phylum	Scientific name	Common name	Specie qualifie unde criterio	es r on	cont u cri	ecies ributes nder terion	Pop. Size Period of pop. Est	% occurren 1)	IUCN ce Red List	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Limosa haemastica	Hudsonian Godwit							LC			Mgratory
CHORDATA/ AVES	Lophodytes cucullatus	Hooded Merganser							LC			Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Loxia leucoptera	White-winged Crossbill; Two- barred Crossbill							LC			Mgratory
CHORDATA/ AVES	Megaceryle alcyon	Belted Kingfisher							LC			Mgratory Nesting
CHORDATA/ AVES	Megascops asio	Eastern Screech Owl; Eastern Screech-Owl							LC			Overwintering Nesting
CHORDATA/ AVES	Melanerpes carolinus	Red-bellied Woodpecker							LC			Overwintering Nesting
CHORDATA/ AVES	Melanerpes erythrocephalus	Red-headed Woodpecker	1						LC		Special Concern (NYS)	Mgratory Nesting
CHORDATA/ AVES	Melanitta nigra americana	Black Scoter										Mgratory
CHORDATA/ AVES	Melanitta perspicillata	Surf Scoter							LC			Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Meleagris gallopavo	Wild Turkey							LC			Overwintering Nesting
CHORDATA/ AVES	Melospiza georgiana	Swamp Sparrow							LC			Mgratory Nesting
CHORDATA/ AVES	Melospiza Iincolnii	Lincoln's Sparrow							LC			Mgratory
CHORDATA/ AVES	Melospiza melodia	Song Sparrow							LC			Overwintering Mgratory Nesting
CHORDATA/ AVES	Mergus merganser	Common Merganser							LC			Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Mergus serrator	Red-breasted Merganser					9000 2011	2	LC			Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Mimus polyglottos	Northern Mockingbird							LC			Overwintering Nesting
CHORDATA/ AVES	Mniotilta varia	Black-and-white Warbler							LC			Mgratory
CHORDATA/ AVES	Molothrus ater	Brown-headed Cowbird							LC			Overwintering Mgratory Nesting
CHORDATA/ AVES	Myiarchus crinitus	Great Crested Flycatcher							LC			Mgratory Nesting
CHORDATA/ AVES	Numenius phaeopus	Whimbrel							LC			Mgratory
CHORDATA/ AVES	Nycticorax nycticorax	Black-crowned Night-Heron; Black-crowned Night Heron							LC			Mgratory/Nesting
CHORDATA/ AVES	Oporornis agilis								LC			Mgratory
CHORDATA/ AVES	Oxyura jamaicensis	Ruddy Duck							LC			Mgratory
CHORDATA/ AVES	Pandion haliaetus	Western Osprey, Osprey	V						LC		CITES Appendix II & Special Concern (NYS)	Mgratory Nesting
CHORDATA/ AVES	Parkesia motacilla	Louisiana Waterthrush							LC			Mgratory
CHORDATA/ AVES	Parkesia noveboracensis	Northern Waterthrush							LC			Mgratory Nesting

Phylum	Scientific name	Common name	Specia qualifi unde criteri 2 4 6	es (er on	Spec contril und crite	utes er ion	Pop. Size	Period of pop. Est	% occurrence 1)		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Passerculus sandwichensis	Savannah Sparrow								LC				Mgratory Nesting
CHORDATA/ AVES	Passer domesticus	House Sparrow								LC				Overwintering Nesting
CHORDATA/ AVES	Passerella iliaca	Fox Sparrow								LC				Mgratory
CHORDATA/ AVES	Passerina cyanea	Indigo Bunting								LC				Mgratory Nesting
CHORDATA/ AVES	Petrochelidon pyrrhonota	Cliff Swallow; American Cliff Swallow								LC				Mgratory Nesting
CHORDATA/ AVES	Phalacrocorax auritus	Double-crested Cormorant												Overwintering / Waterbird Mgratory Nesting
CHORDATA/ AVES	Phalaropus fulicarius	Red Phalarope								LC				Mgratory
CHORDATA/ AVES	Phalaropus lobatus	Red-necked Phalarope								LC				Mgratory
CHORDATA/ AVES	Phalaropus tricolor	Wilson's Phalarope												Mgratory
CHORDATA/ AVES	Pheucticus Iudovicianus	Rose-breasted Grosbeak								LC				Mgratory Nesting
CHORDATA/ AVES	Picoides pubescens	Downy Woodpecker												Overwintering Nesting
CHORDATA/ AVES	Picoides villosus	Hairy Woodpecker												Overwintering Nesting
CHORDATA/ AVES	Pinicola enucleator	Pine Grosbeak								LC				Mgratory
CHORDATA/ AVES	Pipilo erythrophthalmus	Rufous-sided Towhee; Eastern Towhee								LC				Mgratory Nesting
CHORDATA/ AVES	Piranga olivacea	Scarlet Tanager								LC				Mgratory Nesting
CHORDATA/ AVES	Plectrophenax nivalis	Snow Bunting								LC				Overwintering Migratory
CHORDATA/ AVES	Pluvialis dominica	American Golden- Plover; American Golden Plover								LC				Mgratory
CHORDATA/ AVES	Pluvialis squatarola	Black-bellied Plover								LC				Mgratory
CHORDATA/ AVES	Podiceps auritus	Horned Grebe	1							W				Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Podilymbus podiceps	Pied-billed Grebe	77							LC			Threatened (NYS)	Overwintering / Waterbird Mgratory Nesting
CHORDATA/ AVES	Poecile atricapillus	Black-capped Chickadee								LC				Overwintering Nesting
CHORDATA/ AVES	Polioptila caerulea	Blue-grey Gnatcatcher; Blue- gray Gnatcatcher								LC				Mgratory Nesting
CHORDATA/ AVES	Pooecetes gramineus	Vesper Sparrow	11							LC			Special Concern (NYS)	Mgratory
CHORDATA/ AVES	Porzana carolina	Sora								LC				Mgratory/ Nesting
CHORDATA/ AVES	Progne subis	Purple Martin								LC				Mgratory Nesting
CHORDATA/ AVES	Protonotaria citrea	Prothonotary Warbler								LC				Mgratory

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CHORDATA/ AVES	Pterodroma hasitata	Black-capped Petrel								EN			
CHORDATA/ AVES	Quiscalus quiscula	Common Grackle								NT			Mgratory Nesting
CHORDATA/ AVES	Rallus elegans	King Rail								NT		Threatened (NYS)	
CHORDATA/ AVES	Rallus limicola	Virginia Rail								LC			Mgratory/Nesting
CHORDATA/ AVES	Recurvirostra americana	American Avocet								LC			Mgratory
CHORDATA/ AVES	Regulus calendula	Ruby-crowned Kinglet								LC			Mgratory
CHORDATA/ AVES	Regulus satrapa	Golden-crowned Kinglet								LC			Overwintering Migratory
CHORDATA/ AVES	Rissa tridactyla	Black-legged Kittiwake								VU			Mgratory
CHORDATA/ AVES	Sayornis phoebe	Eastern Phoebe								LC			Mgratory Nesting
CHORDATA/ AVES	Scolopax minor	American Woodcock								LC			Mgratory Nesting
CHORDATA/ AVES	Seiurus aurocapilla	Ovenbird								LC			Mgratory Nesting
CHORDATA/ AVES	Setophaga americana	Northern Parula								LC			Mgratory Nesting
CHORDATA/ AVES	Setophaga caerulescens	Black-throated Blue Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga castanea	Bay-breasted Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga cerulea	Cerulean Warbler	77							VU	4	Special Concern (NYS)	Mgratory
CHORDATA/ AVES	Setophaga coronata	Yellow-rumped Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga discolor	Prairie Warbler								LC			Mgratory Nesting
CHORDATA/ AVES	Setophaga fusca	Blackburnian Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga magnolia	Magnolia Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga pensylvanica	Chestnut-sided Warbler								LC			Mgratory Nesting
CHORDATA/ AVES	Setophaga petechia	Yellow Warbler								LC			MgratoryNesting
CHORDATA/ AVES	Setophaga pinus	Pine Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga ruticilla	American Redstart								LC			MgratoryNesting
CHORDATA/ AVES	Setophaga striata	Blackpoll Warbler								NT			Mgratory
CHORDATA/ AVES	Setophaga tigrina	Cape May Warbler								LC			Mgratory
CHORDATA/ AVES	Setophaga virens	Black-throated Green Warbler								LC			Mgratory
CHORDATA/ AVES	Sialia sialis	Eastern Bluebird								LC			Overwintering Mgratory Nesting

Phylum	Scientific name	Common name	Spec qual und crite	fies der rion	COI	pecies atributes under iterion	Size	Period o	of pop. Est	% occurrence		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Sitta canadensis	Red-breasted Nuthatch									LC				Overwintering Nesting
CHORDATA/ AVES	Sitta carolinensis	White-breasted Nuthatch									LC				Overwintering Nesting
CHORDATA/ AVES	Somateria spectabilis	King Eider									LC				Overwintering / Waterbird Mgratory
CHORDATA/ AVES	Sphyrapicus varius	Yellow-bellied Sapsucker									LC				Mgratory Nesting
CHORDATA/ AVES	Spinus pinus	Pine Siskin									LC				Overwintering Mgratory
CHORDATA/ AVES	Spinus tristis	American Goldfinch									LC				Overwintering Nesting
CHORDATA/ AVES	Spiza americana	Dickcissel									LC				Mgratory
CHORDATA/ AVES	Spizella pallida	Clay-colored Sparrow									LC				Mgratory Nesting
CHORDATA/ AVES	Spizella pusilla	Field Sparrow									LC				Mgratory
CHORDATA/ AVES	Spizelloides arborea	American Tree Sparrow													Overwintering Mgratory
CHORDATA/ AVES	Stelgidopteryx serripennis	Northern Rough- winged Swallow									LC				Mgratory Nesting
CHORDATA/ AVES	Stercorarius parasiticus	Parasitic Jaeger									LC				Mgratory
CHORDATA/ AVES	Sterna hirundo	Common Tern	1								LC			Threatened (NYS)	Mgratory Nesting
CHORDATA/ AVES	Sturnella magna	Eastern Meadowlark									NT				Mgratory Nesting
CHORDATA/ AVES	Tachycineta bicolor	Tree Swallow									LC				Mgratory Nesting
CHORDATA/ AVES	Thryothorus Iudovicianus	Carolina Wren									LC				Overwintering Nesting
CHORDATA/ AVES	Toxostoma rufum	Brown Thrasher									LC				Mgratory Nesting
CHORDATA/ AVES	Tringa flavipes	Lesser Yellowlegs									LC				Mgratory
CHORDATA/ AVES	Tringa melanoleuca	Greater Yellowlegs									LC				Mgratory
CHORDATA/ AVES	Tringa semipalmata	Willet									LC				Mgratory
CHORDATA/ AVES	Tringa solitaria	Solitary Sandpiper									LC				Mgratory
CHORDATA/ AVES	Troglodytes aedon	House Wren									LC				Mgratory Nesting
CHORDATA/ AVES	Troglodytes hiemalis	Winter Wren									LC				Mgratory Nesting
CHORDATA/ AVES	Tryngites subruficollis	Buff-breasted Sandpiper													Mgratory
CHORDATA/ AVES	Turdus migratorius	American Robin									LC				Overwintering Migratory Nesting
CHORDATA/ AVES	Tyrannus tyrannus	Eastern Kingbird									LC				Mgratory Nesting
CHORDATA/ AVES	Tyto alba	Barn Owl									LC			CITES Appendix II	Nesting

Phylum	Scientific name	Common name	Speci qualifi unde criteri	es r on	Spec contril und crite	outes ler rion	Pop. Size Period of pop. Est.	IUCN Red List	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Vermivora chrysoptera	Golden-winged Warbler						NT		Special Concern (NYS)	Migratory
CHORDATA/ AVES	Vermivora cyanoptera	Blue-winged Warbler						LC			Migratory Nesting
CHORDATA/ AVES	Vireo flavifrons	Yellow-throated Vireo						LC			Migratory Nesting
CHORDATA/ AVES	Vireo gilvus	Warbling Vireo						LC			Mgratory Nesting
CHORDATA/ AVES	Vireo griseus	White-eyed Vireo						LC			Mgratory
CHORDATA/ AVES	Vireo olivaceus	Red-eyed Vireo						LC			Migratory Nesting
CHORDATA/ AVES	Vireo philadelphicus	Philadelphia Vireo						LC			Migratory
CHORDATA/ AVES	Vireo solitarius	Blue-headed Vireo						LC			Migratory
CHORDATA/ AVES	Xema sabini	Sabine's Gull						LC			Migratory
CHORDATA/ AVES	Zenaida macroura	Mourning Dove						LC			Overwintering Nesting
CHORDATA/ AVES	Zonotrichia albicollis	White-throated Sparrow						LC			Overwintering Migratory
CHORDATA/ AVES	Zonotrichia leucophrys	White-crowned Sparrow						LC			Migratory
Fish, Mollusc and Cru	ıstacea	1									
CHORDATA/ ACTINOPTERYGII	Acipenser fulvescens	Lake Sturgeon; Lake Sturgeon; Lake Sturgeon; Lake Sturgeon	V			1		LC		Threatened (NYS) CITES Appendix II	Indigenous
CHORDATA/ ACTINOPTERYGII	Ambloplites rupestris	Northern rock bass				1		LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Ameiurus melas	Black Bullhead				7 🗆		LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Ameiurus natalis	Yellow bullhead; Yellow bullhead; Yellow bullhead; Yellow bullhead				20		LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Ameiurus nebulosus	Northern brown bullhead; Mudcat; Mnister; Hompout; Homed pout; Homed pout; Common catfish; Brown catfish				7 7		LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Amia calva	Bowfin				1		LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Anguilla rostrata	American Eel				2 🗆		EN			Indigenous
CHORDATA/ ACTINOPTERYGII	Aplodinotus grunniens	Freshwater drum; Freshwater drum; Freshwater drum; Freshwater drum; Freshwater drum						LC			Indigenous

Phylum	Scientific name	Common name	Spec quali und crite	ifies der rion	con	ecies ributes nder terion	Pop. Size Period of pop. Est		CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ ACTINOPTERYGII	Campostoma anomalum	Central stoneroller; Central stoneroller; Central stoneroller; Central stoneroller						LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Carpiodes cyprinus	Quillback Carpsucker				7		LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Catostomus catostomus	Longnose Sucker						LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Catostomus commersonii	White Sucker				1		LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Coregonus clupeaformis	Great Lakes whitefish; Inland whitefish; Gizzard fish; Eastern whitefish										Indigenous
CHORDATA/ ACTINOPTERYGII	Cottus bairdii	Speckled sculpin; Beard's sculpin; Miller's thumb; Freshwater sculpin; Blob		٥				LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Cottus cognatus	Slimymuddler; Cockatouch; Common slimy muddler; Bear Lake bullhead						LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Couesius plumbeus	Plumbeus minnow; Moose lake minnow; Northern chub; Lake northern chub; Creek chub; Bottlefish; Chub minnow						LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Culaea inconstans	Variable stickleback; Six- spined stickleback; Five- spined stickleback; Common stickleback; Common freshwater stickleback		٥٥	000			LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Cyprinella spiloptera	Spotfin shiner; Spotfin shiner; Spotfin shiner						LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Erimyzon sucetta	Lake chubsucker; Lake chubsucker	7					LC			Threatened (NYS)	Indigenous
CHORDATA/ ACTINOPTERYGII	Esox americanus	Grass Pickerel						LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Esox lucius	Great northern pike				V		LC				Indigenous Spawning

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CHORDATA/ ACTINOPTERYGII	Esox masquinongy	Wisconsin muskie; White pike; White pickerel; Ohio muskie; Muskie; Mascalonge; Lunge; Great pike; Barred muskie; Allegheny River pike				V V			LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Etheostoma blennioides	Greenside darter; Greenside darter; Greenside darter							LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Etheostoma caeruleum	Rainbow darter; Rainbow darter; Rainbow darter				1			LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Etheostoma exile	Yellowbelly, Weed darter				/			LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Etheostoma flabellare	Fantail darter; Fantail darter; Fantail darter				/			LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Etheostoma nigrum	Johnny darter				1			LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Etheostoma olmstedi	Tessellated darter				v			LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Hiodon tergisus	Mooneye; Mooneye; Mooneye; Notch- finned hiodon; River whitefish; Moon-eye	2 00			2 -			LC			Threatened (NYS)	Indigenous
CHORDATA/ ACTINOPTERYGII	Hypentelium nigricans	Northern hog sucker; Northern hog sucker; Northern hog sucker		000		y y			LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	lctalurus punctatus	Channel catfish; Channel catfish; Channel catfish; Channel catfish; Channel catfish; Channel catfish; Channel catfish; Channel catfish;							LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Ictiobus cyprinellus	Bigmouth buffalo; Bigmouth buffalo; Bigmouth buffalo; Bigmouth buffalo; Bigmouth buffalo				2 🗆			LC				Indigenous
CHORDATA/ ACTINOPTERYGII	Labidesthes sicculus	Brook silverside; Brook silverside; Brook silverside				J			LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Lepisosteus osseus	Longnose gar; Longnose gar				1			LC				Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Lepomis cyanellus	Green sunfish; Green sunfish; Green sunfish				Z			LC				Indigenous Spawning

Phylum	Scientific name	Common name	Speci qualif unde criter 2 4	ies er ion	contr un crit	ecies ibutes der erion	Pop. Size Period of pop. Est	% occurrence 1)		CMS Appendix I	Other Status	Justification
CHORDATA/ ACTINOPTERYGII	Lepomis gibbosus	Yellow sunfish; Sunny; Punky; Sun bass; Pumpkinseed sunfish; Pond perch				y y			LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII		Bluegill sunfish; Bluegill sunfish; Bluegill sunfish				V V			LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Lepomis megalotis	Pumpkinseed; Northern longear; Great lakes longear; Creek perch	2 00			2			LC		Threatened (NYS)	Indigenous
CHORDATA/ CEPHALASPIDOMORPHI	Lethenteron appendix	American Brook Lamprey				2 🗆			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Lota lota	Maria; Freshwater cod; Lush; American burbot				2			LC			Indigenous
CHORDATA/ ACTINOPTERYGII		Striped shiner; Striped shiner							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Luxilus cornutus	Common shiner; Common shiner; Common shiner				1			LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Lythrurus umbratilis	Redfin shiner; Redfin shiner				\square			LC		Special Concern (NYS)	Indigenous
CHORDATA/ ACTINOPTERYGII	Micropterus dolomieu	Smallmouth Bass				11			LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Micropterus salmoides	Largemouth black bass; Largemouth black bass; Northern largemouth bass; Largemouth				V			LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Morone chrysops	White Bass				7			LC			Indigenous
CHORDATA/ ACTINOPTERYGII		White nose redhorse; White nosed mullet; White nosed sucker; Silver mullet							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Moxostoma duquesnii	Greater Redhorse				/						Indigenous
CHORDATA/ ACTINOPTERYGII	Moxostoma erythrurum	Golden redhorse; Golden redhorse; Golden redhorse				2			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	macrolepidotum	Northern shorthead redhorse; Common redhorse; Northern redhorse; Common mullet				2			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	thompsonii	Deepwater sculpin; Deepwater sculpin				2			LC		Endangered	Indigenous
CHORDATA/ ACTINOPTERYGII	Nocomis biguttatus	Hornyhead chub:				V			LC			Indigenous Spawning

Phylum	Scientific name	Common name	qual und crite	der erion	COI	pecies tributes under iterion 5 7 8	Pop. Size Period of pop. Est	% occurrence 1)	IUCN Red List	CMS Appendix I	Other Status	Justification
CHORDATA/ ACTINOPTERYGII	Nocomis micropogon	River chub; River chub; River chub]		LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Notemigonus crysoleucas	Golden shiner minnow							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	atnermoraes	Shiner; Common emerald shiner; Lake emerald shiner; Lake shiner							LC			Keystone, Indigenous, Spawning
CHORDATA/ ACTINOPTERYGII		Bridle shiner; Bridle shiner							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Notropis heterodon	Blackchin shiner; Blackchin shiner; Blackchin shiner							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Notropis heterolepis	Blacknose shiner; Blacknose shiner; Blacknose shiner							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Notropis hudsonius	Spottail minnow; Spot-tail minnow; Sucking carp; Spottail; Spawneater							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Notropis rubellus	Rosyface shiner; Rosyface shiner; Rosyface shiner							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Notropis	Sand shiner; Sand shiner; Sand shiner; Sand shiner							LC			Indigenous
CHORDATA/ ACTINOPTERYGII		Mimic shiner; Mimic shiner; Mimic shiner							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Noturus flavus	Stonecat; Stonecat; Stonecat							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Noturus gyrinus	Tadpole madtom; Tadpole madtom; Tadpole madtom							LC			Indigenous
CHORDATA/ ACTINOPTERYGII		Brindled madtom; Brindled madtom							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Perca flavescens	Yellow Perch							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Percina caprodes	Manitou darter; Log perch							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Percina maculata	Blackside darter; Blackside darter]		LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Percopsis omiscomaycus	Troutperch; Silver chub							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Pimephales notatus	Bluntnose minnow; Bluntnose minnow							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Pimephales promelas	Fathead Minnow							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Pomoxis annularis	White Crappie							LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Pomoxis nigromaculatus	Black Crappie							LC			Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Rhinichthys atratulus	Blacknose dace; Blacknose dace; Blacknose dace							LC			Indigenous

Phylum	Scientific name	Common name	qua un crite	ecies diffies der erion	con	ecies ributes nder terion	Pop. Size	Period of pop. Est	% occurrence 1)	IUCN Red List	CMS Appendix I	C Other Status	Justification
CHORDATA/ ACTINOPTERYGII	Rhinichthys cataractae	Longnose dace; Longnose dace; Longnose dace; Longnose dace								LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Salvelinus namaycush	Lake trout(=Char)				77]						Indigenous Spawning
CHORDATA/ ACTINOPTERYGII	Sander canadensis	Sauger]			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Sander vitreus	Walleye)			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	atromaculatus	Creek Chub]			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Semotilus corporalis	Windfish; White; Shining dace; Roughnosed chub; Mohawk; Corporal; Chivin; American chub			000]			LC			Indigenous
CHORDATA/ ACTINOPTERYGII	Umbra limi	Central mudminnow; Central mudminnow								LC			Indigenous
Others													
CHORDATA/ AMPHIBIA		Jefferson Salamander	/							LC		Special Concern (NYS)	
CHORDATA/ AMPHIBIA		Blue-Spotted Salamander	7							LC		Special Concern (NYS)	
CHORDATA/ REPTILIA	Emydoidea blandingii	Blanding's Turtle	/]			EN		CITES Appendix II	
CHORDATA/ REPTILIA		Common Map Turtle]			LC		CITES Appendix III	Nesting

¹⁾ Percentage of the total biogeographic population at the site

See full species lists in Appendix 1. Other status lists include:

- US (Endangered Species Act) "U.S. Fish and Wildlife Service, Endangered Species" (http://www.fws.gov/ENDANGERED/species/us-species.html)
- New York State (Environmental Conservation Law) List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State (http://www.dec.ny.gov/animals/7494.html)

Additional notes on the criteria:

- For criteria three, the Emerald Shiner is considered a 'keystone' species, as referenced in "New Projects..." from the Fall 2013 Great Lakes Center (GLC) Newsletter.
- For criteria six, population estimates are from the Important Bird Areas in Canada "IBA Database Niagara River Corridor."

Human impact:

- Birdwatching, hunting, photographing, and fishing opportunities provide a significant reason for the amount of tourism to the Niagara River Corridor. Several organizations and businesses that make a significant economic impact on the Niagara River Corridor are associated with such animal related activities.
- 3.4 Ecological communities whose presence relates to the international importance of the site

RIS for Site no. 2402, Niagara River Corridor, United States of America

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Calcareous Cliff Community	Ø	This community occurs "on vertical exposures of resistant, calcareous bedrock (such as limestone or dolomite) or consolidated material; these cliffs often include ledges and small areas of talus (Edinger et al. 2002).	It is ranked S3 (vulnerable) because it is limited in distribution to calcareous regions of New York State, and because of threats including mineral extraction, adjacent upslope development and run-off, recreational over
Calcareous Talus Slope Woodland	Ø	This community consists of "an open or closed canopy community that occurs on talus slopes composed of calcareous bedrock such as limestone or dolomite." (Edinger et al. 2002) This community is found in the Niagara River Gorge (EDR 2010).	This community is wilnerable because it is limited in distribution to calcareous regions of New York State, and because of threats including development, forest fragmentation, invasive species, recreational overuse, and over-browsing by deer.
Old Growth Forests	Ø	Asmall portion of forest in DeVeaux Woods State Park is a dedicated forest in the Old- Growth Forest Network.	Old growth forests are rare in the Niagara region and throughout New York State.

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

The ecological components that are most critical to determining the ecological character of the Niagara River Corridor are its major wetland type (M) and Köppen-Gieger Climate type (Dfb). The Niagara River is a freshwater, flowing, permanent river, connecting two large freshwater lakes. The river region has cold winters, warm summers, and year-round precipitation. The natural variability in the ecological character of the river is mostly seasonal, due to its climatic conditions, but the Niagara River stays open year-round even as most other freshwater in the region is frozen over in the cold winter. These conditions allow the river to support considerable populations of native fish and other aquatic organisms, as well as large congregations of waterbirds during winter months.

The most significant ecological services to humans that the river provides are fresh drinking water to large population centres and water used in hydroelectric power generation. On the U.S. side, the river is the source of drinking water for nearly one million people in two counties. The Niagara Power Project, which is home to one of the New York Power Authority's three visitor centers, operates with a dependable maximum net capacity of 2,675,000 kW. At the time it was built it was the largest hydropower facility in the Western world.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> Mt Permanent rivers/ streams/ creeks	Niagara River	1	3450	Rare
Fresh water > Lakes and pools >> O: Permanent freshwater lakes	Lake Erie and Lake Ontario	4		
Fresh water > Marshes on inorganic soils >> Tp: Permanent freshwater marshes/ pools	Tifft Nature Preserve, Times Beach Nature Preserve, Buckhorn Island State Park, Grass Island	2	100	
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils	N/A	4		
Fresh water > Marshes on inorganic soils >> W: Shrub- dominated wetlands	N/A	4		
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands	N/A	4		

Human-made wetlands

i luman-made wellands				
Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
9: Canals and drainage channels or ditches	Buffalo Shipping Canal	3	100	

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Park and recreation areas, with a few large patches of mature forest.	1500

(ECD) Habitat connectivity There's a high degree of habitat connectivity along the river corridor

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Other Hoteworthy plant species			
Scientific name	Common name	Position in range / endemism / other	
Cypripedium calceolus	Yellow Lady Slipper		
Epipactis helleborine	Helleborine		

Invasive alien plant species

Acer platanoides Norway Maple Actually (major impacts) No change Acer pseudoplatanus Sycamore Maple Actually (major impacts) No change Allarithus altissima Tree of Heaven Actually (minor impacts) No change Alliaria petiolata Garlic Mustard Actually (major impacts) No change Artemisia vulgaris Mugwort Actually (major impacts) No change Berberis vulgaris Common Barberry Actually (minor impacts) No change Celastrus orbiculatus Oriental Bittersweet Actually (major impacts) No change Centaurea cuneifolia cuneifolia cuneifolia Spotted Knapweed Actually (major impacts) No change Cirsium arvense Canada Thistle Actually (major impacts) No change Baeagnus umbellata Autumn Olive Actually (major impacts) No change				
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Tussilago farfara Coltsfoot Actually (minor impacts) No change Veronica officinalis Viburnum lantana Wayfaring Tree Actually (minor impacts) No change Vicia cracca Cow Vetch Actually (minor impacts) No change Vinca minor Common Periwinkle Actually (minor impacts) No change Chinese Wisteria Actually (minor impacts) No change	Rubus phoenicolasius	Wineberry	Actually (major impacts)	No change
Tussilago farfara Common Speedwell Actually (minor impacts) No change Viburnum lantana Wayfaring Tree Actually (minor impacts) No change Vicia cracca Cow Vetch Actually (minor impacts) No change Vinca minor Common Periwinkle Actually (minor impacts) No change Chinese Wisteria Actually (minor impacts) No change	Securigera varia	Trailing Crown Vetch	Actually (minor impacts)	No change
Veronica officinalis Viburnum lantana Wayfaring Tree Actually (minor impacts) No change Vicia cracca Cow Vetch Actually (minor impacts) No change Vinca minor Common Periwinkle Actually (minor impacts) No change Chinese Wisteria Actually (minor impacts) No change	Tussilago farfara	Coltsfoot	Actually (minor impacts)	No change
Vicia cracca Cow Vetch Actually (minor impacts) No change Vinca minor Common Periwinkle Actually (minor impacts) No change Chinese Wisteria Actually (minor impacts) No change	Veronica officinalis	Common Speedwell	Actually (minor impacts)	No change
Vicia cracca Common Periwinkle Actually (minor impacts) No change Vinca minor Chinese Wisteria Actually (minor impacts) No change	Viburnum lantana	Wayfaring Tree	Actually (minor impacts)	No change
Vinca minor Chinese Wisteria Actually (minor impacts) No change	Vicia cracca	Cow Vetch	Actually (minor impacts)	No change
Wisteria sinensis Chinese Wisteria Actually (minor impacts) No change	Vinca minor	Common Periwinkle	Actually (minor impacts)	No change
	Wisteria sinensis	Chinese Wisteria	Actually (minor impacts)	No change

Optional text box to provide further information

Large beds of subaquatic vegetation sustain populations of fish, amphibians, and aquatic invertebrates.

Note – Rating of the impact of the species on the character of the site is based on New York Invasive Species Clearinghouse Website. "Non-Native Plant Species Invasiveness Assessments." Retrieved on 10/4/2014. http://nyis.info/non-native-plant-assessments/

- Actually major impact = Very High or High ecological rank
- Actually minor impact = Medium, Low, or Insignificant ecological rank
- Potentially = Not assessed (not included in this table)

Only introduced species that are rated in the "Non-Native Plant Species Invasiveness Assessments" are included in the table above. All introduced species are noted in appendix 1.

4.3.2 - Animal species

Invasive alien animal species				_
Phylum	Scientific name	Common name	Impacts	
CHORDATA/ACTINOPTERYGII	Alosa pseudoharengus	Anadromous alewives	Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Carassius auratus	Goldfish	Actually (major impacts)	No change
CHORDATA/AVES	Columba livia	Common Pigeon	Potentially	No change
CHORDATA/AVES	Cygnus olor	Mute Swan	Actually (major impacts)	No change
CHORDATA/ACTINOPTERYGII	Cyprinus carpio	Common Carp	Actually (major impacts)	No change
CHORDATA/ACTINOPTERYGII	Dorosoma cepedianum	Mud shad;Hickory shad;Eastem gizzard shad;American gizzard shad	Potentially	No change
MOLLUSCA/BIVALVIA	Dreissena bugensis	Quagga Mussel	Actually (major impacts)	No change
MOLLUSCA/BIVALVIA	Dreissena polymorpha	many-shaped dreissena;zebra mussel	Actually (major impacts)	No change
CHORDATA/ACTINOPTERYGII	Fundulus diaphanus	Banded killifish;Banded killifish	Potentially	No change
CHORDATA/ACTINOPTERYGII	Gasterosteus aculeatus	Three-spined Stickleback	Potentially	No change
CHORDATA/AVES	Haemorhous mexicanus	House Finch	Potentially	No change
CHORDATA/ACTINOPTERYGII	Morone americana	Wreckfish;White perch;White perch;White perch;White perch	Potentially	No change
CHORDATA/ACTINOPTERYGII	Neogobius melanostomus	Caspian round goby	Actually (major impacts)	No change
CHORDATA/ACTINOPTERYGII	Oncorhynchus kisutch	Coho(=Silver) salmon	Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Oncorhynchus mykiss	Coast rainbow trout	Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Oncorhynchus tshawytscha	Chinook(=Spring=King) salmon	Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Osmerus mordax	Rainbow Smelt	Potentially	No change
CHORDATA/CEPHALASPIDOMORPHI	Petromyzon marinus	Sea Lamprey	Actually (minor impacts)	No change
CHORDATA/AVES	Phasianus colchicus	Common Pheasant	Actually (major impacts)	No change
CHORDATAMAMMALIA	Rattus norvegicus	Norway Rat;Brown Rat	Potentially	No change
CHORDATA/ACTINOPTERYGII	Salmo trutta	Brown trout	Actually (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	Scardinius erythrophthalmus	Rudd	Actually (minor impacts)	No change
CHORDATA/AVES	Sturnus vulgaris	European Starling	Potentially	No change
CHORDATA/REPTILIA	Trachemys scripta elegans	Red-eared Slider	Actually (minor impacts)	No change

Optional text box to provide further information

Note – Rating of the impact of the species on the character of the site is based on New York Invasive Species Clearinghouse Website. "Non-Native Animal Species Invasiveness Assessments." Retrieved on 10/4/2014. http://nyis.info/?action=israt_nn_animal&sort=scientific_name

- Actually major impact = Very High or High ecological rank
- Actually minor impact = Medium, Low, or Insignificant ecological rank
- Potentially = Not assessed

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
	Dfb: Humid continental
D: Moist Mid-Latitude	(Humid with severe winter,
climate with cold winters	no dry season, warm
	summer)

The average annual temperature for the Niagara region has increased by 1.3 degrees centigrade in the last 40 years, resulting in a trend towards more days with temperatures over 30 degrees centigrade. As is true of much of the northern part of the continent, the area is being subjected to an increase in heat waves (3 or more consecutively hot days) and a significantly warmer and longer growing season. Climate change has brought more summer droughts and dry spells to the region along with an increase in the number of freeze-thaw cycles (Penney 2012).

4.4.2 - Geomorphic setting	
a) Mnimum elevation above sea level (in metres)	
a) Maximum elevation above sea level (in metres)	
Entire river basin	2
Upper part of river basin [
Mddle part of river basin [
Lower part of river basin [
More than one river basin	
Not in river basin [
Coastal C	
Please name the river basin or basins. If the site lies in a sub-basin, please	se also name the larger river basin. For a coastal/marine site, please name the sea or ocean.
Niagara River, between Lake Erie and Lake Ontario.	
4.4.3 - Soil	
Mneral 6	2
Organic 6	2
No available information [
Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)?	res O No
Please provide further information on the soil (optional)	

Except for a portion of the Niagara Escarpment (Ecology and Environment 2014), and the Niagara Gorge, the landscape on the U.S. side of the Niagara River is a nearly flat plain. Common soil mapping units include Odessa, Schoharie and Rhinebeck with minor inclusions of Claverack, Cosad, Cayuga, Churchville, Niagara, Lakemont and Wayland. The soils formed in clayey glacial lake-laid (lacustrine) deposits. Seasonal wetness, slow or very slow permeability in the subsoil, and the clayey texture are the main limitations of these soils for most uses. A small percentage of the area consists of deeper soils derived from glacial outwash deposits, which are more gravelly or shaly in texture. These may form a shallow mantle over the clayey or silty lacustrine deposits. These areas tend to be better drained and more suitable for vegetable, specialty crop, and fruit production. The immediate gorge walls of major sections of the Niagara River are ecologically unique soils.

4.4.4 - Water regime

Water nermanence

valer permanence	
Presence?	
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from surface water	✓	No change

Water destination

٧١	valer destination	
	Presence?	
-	To downstream catchment	No change

Stabil	ity of	water	regime	

Stability of water regime	
Presence?	
Water levels largely stable	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Annually, only 1% of the water in the Great Lakes originates from rivers, precipitation, and groundwater springs that drain into the lakes. The other 99% came from glacial melt from the last ice age. Evaporation and drainage balance this out, making the lake levels constant (Grady, 2007). The Niagara River's drainage basin is 684,000 square km (264,000 square mi) (NPC website "Niagara Falls Geology Facts & Figures"). The Niagara River has an annual mean discharge of 5,799 cubic metres per second (204,800 cubic ft per second) (Hornlein, et al. 2004). The Niagara River is shallow and wide above Niagara Falls (upper Niagara River), and deep and narrow below Niagara Falls (lower Niagara River), especially in the gorge. Its width ranges from 2,000 m (6,500 ft) across at its widest, to less than 90 m (300 ft) at its narrowest. Its depth averages approximately 6 m (20 ft) in the upper Niagara River and drops to approximately 58 m (190 ft) at its deepest point in the lower Niagara River (Buffalo Niagara Riverkeeper website "Niagara River").

In the Niagara River, a substantial portion of water is diverted from the river to large reservoirs on both the U.S. and Canadian sides that are used to generate hydroelectricity. On the U.S. side, the water goes through the Lewiston Pump Generating Plant and the Robert Moses Niagara Power Plant where 748,000 gallons of water per second produce up to 2.6 million kW. Diversion quantities fluctuate to preserve water levels going over Niagara Falls during peak tourism seasons (tourism brought over \$700 million to Niagara County in 2017) and to supply more power during peak demand times ("Niagara Power Goes Under Ground"). This diversion and return results in daily and seasonal fluctuations in river levels below the hydroelectric intakes. Flooding on the river caused by ice jams during the spring still occurs as well.

4.4.5 - Sediment regim	е
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Significant erosion of sediments occurs on the site $\ensuremath{\checkmark}$
Significant accretion or deposition of sediments occurs on the site \qed
Significant transportation of sediments occurs on or through the site $\ensuremath{\checkmark}$
Sediment regime is highly variable, either seasonally or inter-annually \Box
Sediment regime unknown

Please provide further information on sediment (optional):

The upper Niagara River has more turbidity that the lower Niagara River. Turbidity in the upper Niagara River is related to inflows from Lake Erie and smaller tributaries, and turbidity increases with runoff events. Combined sewer overflows (CSOs) may affect the turbidity in the upper and lower Niagara River during wet weather events. Erosion along the banks of the upper and lower Niagara River is caused by waves from wind and boats (URS Corporation and Gomez and Sullivan Engineers, P.C. 2005).

4.4.6 - Water pH

Acid (pH<5.5) ☐

Circumneutral (pH: 5.5-7.4) ☐

Alkaline (pH>7.4) ☑

Unknown ☐

Please provide further information on pH (optional):

A study with field measurements for the Niagara River at Fort Niagara show that the pH is alkaline, with 80% of the samples ranging from pH 7.7 to pH 8.4 (URS Corporation and Gomez and Sullivan Engineers, P.C. 2005).

4.4.7 - Water salinity

Fresh (<0.5 g/l)

Mixohaline (brackish)/Mixosaline (0.5-30 g/l)

Euhaline/Eusaline (30-40 g/l)

Hyperhaline/Hypersaline (>40 g/l)

Unknown □

4.4.8 - Dissolved or suspended nutrients in water

Mesotrophic ☐

Oligotrophic ☐

Dystrophic ☐

Eutrophic

Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different site itself:

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density 🗹

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types $\ensuremath{\overline{\sigma}}$

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains) Drinking water for humans and/or livestock High	
Fresh water		
Fresh water	Water for industry	High
Fresh water	Water for energy production (hydro-electricity)	High

Regulating Services

regulating oci vices				
Ecosystem service	Examples	Importance/Extent/Significance		
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	High		
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other dimactic processes	Medium		
Hazard reduction	Flood control, flood storage	Medium		

Cultural Services

Ecosystem service	Ecosystem service Examples Imp	
Recreation and tourism	Recreational hunting and fishing	High
Recreation and tourism	Water sports and activities	Medium
Recreation and tourism	Picnics, outings, touring	Medium
Recreation and tourism	Nature observation and nature-based tourism	High
Spiritual and inspirational	Inspiration	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Spiritual and inspirational	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	High
Spiritual and inspirational	Spiritual and religious values	High
Spiritual and inspirational	Aesthetic and sense of place values	High
Scientific and educational	Educational activities and opportunities	High
Scientific and educational Important knowledge systems, importance for research (scientific reference area or site)		High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Major scientific study site	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	High

Within the site: 100000

Outside the site: 10000000

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes O No ● Unknown O

4.5.2 - Social and cultural values

i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and $\overline{\boldsymbol{\mathbb{Z}}}$ use that maintain the ecological character of the wetland

Description if applicable

The Boundary Water Treaty (BWT) of 1909 between the U.S. and Canada established limits on the amount of water diverted from the Niagara River for hydro-electric power production. The 1950 Niagara Treaty replaced certain paragraphs of the BWT and re-defined the diversion and division of water to protect the scenic beauty of Niagara Falls and at the same time provide for increased hydro-electric power production (Niagara Falls Thunder Alley website "A River Diversion"). The International Joint Commission, with appointees from the U.S. and Canada, prevents and resolves disputes between the United States of America and Canada under the 1909 BWT.

ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

Description if applicable

The history of human activity in the region began as far back as 8,000 years ago. The most recent indigenous civilization is the Haudenosaunee Confederacy, or "People of the Longhouse," called the Iroquois Confederacy by the French and the League of Five Nations by the English (Ecology and Environment Inc. 2014).

The Niagara River hosted significant War of 1812 activities. The war ended with the signing of the Treaty of Ghent in 1815, the beginning of unbroken peace between the two countries. Today, Old Fort Niagara operates as a museum and educational canter, drawing 100,000 visitors annually. More information can be found here: The Official War of 1812 Bicentennial Website.

During the 1800s, prior to the abolition of slavery in the United States, the Niagara River and its communities played a significant role in the Underground Railroad. Today, the recently-opened Niagara Falls Underground Railroad Heritage Center welcomes visitors. More information can be found here: Niagara Falls Underground Railroad Heritage.

The Erie Canal was completed in 1825, connecting Albany to Buffalo and opening trade and travel between the Atlantic coast and the U.S. interior. The Erie Canal is now primarily used for recreational boating and biking. The western terminus of the Erie Canal includes portions of the upper Niagara River. More information can be found here: Erie Canalway National Heritage Corridor.

Niagara Falls is the birthplace of hydroelectric power. The region's first small-scale hydroelectric plant was built in 1881 by the Niagara Falls Hydraulic Power & Manufacturing Company (Niagara Falls Thunder Alley website "A History of Power."). More information can be found here: Niagara Falls History of Power.

The first state park in the U.S. and the first provincial park in Canada are located along the Niagara River. The Niagara Reservation (Niagara Falls State Park) was established in 1885 and was designed by Frederick Law Olmsted, Sr., and declared a National Historic Landmark (NPS National Historic Landmark Program website "Niagara Reservation").

In many ways, the now infamous Love Canal, located on the Niagara River, was the impetus for the environmental justice movement in the U.S. The federal Superfund program, meant to remediate legacy toxic waste sites, was established as a result (Geneseo website "Love Canal – a Brief History").

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples]
iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological]
character of the wetland	

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

D.,	ы	li o	OW	ma	ro	hi	n
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Category	Within the Ramsar Site	In the surrounding area
National/Federal government		✓
Provincial/region/state government	>	>
Local authority, municipality, (sub)district, etc.	V	V
Other public ownership		✓

Private ownership

Tivate ownership					
Category	Within the Ramsar Site	In the surrounding area			
Commercial (company)		✓			
Foundation/non- governmental organization/trust	V	2			
Religious body/organization		✓			
Other types of private/individual owner(s)		✓			

Other

Category	Within the Ramsar Site	In the surrounding area
Commoners/customary rights	2	/

Provide further information on the land tenure / ownership regime (optional):

The State of New York owns the land beneath the Niagara River, as it is a navigable waterway. Landowners whose property adjoins the river have riparian rights, or the right to make reasonable use of it. Additionally, the public has certain rights to use the Niagara River for navigation purposes, pursuant to the public trust doctrine. On the US side, other adjoining land areas may also be included in the public trust. In New York, one court opined that "the entire ecological system supporting the waterways is an integral part of them (the waterways) and must necessarily be included within the purview of the trust." 336 N.Y.S.2d 764 (1972). The greenspaces along the river included in the site are publicly owned, except for a nature preserve privately owned by a land trust called the Western New York Land Conservancy. The land surrounding the site is comprised of public and private land in large metropolitan regions. (See Appendix 2 for land ownership details).

5.1.2 - Management authority

agency or organization responsible for	Niagara River Greenway Commission
managing the site:	
Provide the name and title of the person or people with responsibility for the wetland:	Greg Stevens, Executive Director
people with responsibility for the wettand.	
Postal address:	3160 Deveaux St, Niagara Falls, NY 14305
E-mail address:	gregory.stevens@parks.ny.gov

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Housing and urban areas	High impact			✓
Commercial and industrial areas	High impact			2
Tourism and recreation areas	Medium impact		 ✓	✓

Water regulation

Trator rogalation				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Water abstraction	High impact		✓	✓
Dredging	High impact		✓	✓
Water releases	High impact		✓	✓
Canalisation and river regulation	High impact			V

griculture and aquaculture				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding are
Livestock farming and ranching	High impact			✓
Annual and perennial non- timber crops	High impact			/
nergy production and mining				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding ar
Oil and gas drilling	High impact			Z
Mining and quarrying	High impact		✓ ✓	✓
Renewable energy	High impact		(SC)	S
ransportation and service con				
affecting site	Actual threat	Potential threat	Within the site	In the surrounding ar
Roads and railroads Utility and service lines	High impact		✓	2
(e.g., pipelines)	High impact		₹	V
Shipping lanes	High impact		✓	₹
Aircraft flight paths	Low impact		✓	✓
Biological resource use				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding ar
Hunting and collecting terrestrial animals	Low impact			2
Gathering terrestrial plants	Low impact		✓	 ✓
Logging and wood harvesting	Low impact			₽
Fishing and harvesting aquatic resources	Medium impact		2	₹
		1		
luman intrusions and disturbate Factors adversely	Actual threat	Potential threat	Within the site	In the course melion or
affecting site Recreational and tourism		Poteritial trireat	_	In the surrounding ar
activities	Medium impact		2	2
(Para)military activities	Low impact		✓	✓
Natural system modifications				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding ar
Dams and water management/use	High impact		✓	✓
Vegetation clearance/ land conversion	High impact			 ✓
		1		1
rvasive and other problematic Factors adversely	Actual threat	Potential threat	Within the site	In the surrounding ar
Invasive non-native/ alien		i oteritiai trireat	_	_
species	High impact		✓	✓
Pollution				
Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding ar
Household sewage, urban waste water	High impact		2	2
Industrial and military	High impact		✓	₽
effluents Agricultural and forestry			2	2
effluents	High impact		<u>×</u>	-
Garbage and solid waste Air-borne pollutants	High impact High impact		✓	₽
Excess heat, sound, light	High impact		2	2
Ni			·	
Climate change and severe we Factors adversely	Actual threat	Potential threat	Within the site	In the surrounding ar
affecting site Habitat shifting and	Astual till cat		_	_
alteration		High impact	€	✓
Droughts		High impact		

J

 \checkmark

 \checkmark

High impact

 \checkmark

 \checkmark

 \checkmark

High impact

Medium impact

Droughts

Temperature extremes

Storms and flooding

Please describe any other threats (optional):

Current threats to water quality and quantity include water diversion for industry and hydroelectric power generation, urban and agricultural land uses in the watershed, legacy and ongoing toxic contamination, and ongoing untreated sewage discharges. The potential for hydraulic fracturing (hydro-fracking) for shale gas reserves in the watershed is a potential threat to water quality. Biodiversity is currently threatened by invasive species, including plants like the common reed (Phragmites australis) and animals like the zebra mussel (Dreissena polymorpha). The introduction of Asian carp into the Great Lakes would be a threat to biodiversity.

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Nationally designated site	Erie Canalway National Heritage Corridor	http://www.nps.gov/erie/index.ht m	partly
Nationally designated site	Niagara Falls National Heritage Area	http://www.nps.gov/nifa/index.ht m	partly

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Niagara River Corridor Important Bird Area	http://netapp.audubon.org/iba/Si te/1724 and : https://www.audubon.org/importan t-bird-areas/state/new-york?fiel d_iba_status=All&priority=All&pa ge=4	whole

5.2.3 - IUCN protected areas categories (2008)

la Strict Nature Reserve	l
Ib Wilderness Area: protected area managed mainly for wilderness protection	
II National Park: protected area managed mainly for ecosystem protection and recreation	
III Natural Monument: protected area managed mainly for conservation of specific natural features	ı
IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention	1
V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation	
VI Managed Resource Protected Area: protected area managed mainly	1

for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Legal protection			
Measures	Status		
Legal protection	Implemented		

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Improvement of water quality	Implemented
Habitat manipulation/enhancement	Implemented
Hydrology management/restoration	Implemented
Re-vegetation	Implemented
Land conversion controls	Implemented

Species

Measures	Status
Threatened/rare species management programmes	Implemented
Control of invasive alien plants	Implemented
Control of invasive alien animals	Implemented

Human Activities

Measures	Status
Management of water abstraction/takes	Implemented
Regulation/management of wastes	Implemented
Fisheries management/regulation	Implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes O No ●

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning Yes O No

processes with another Contracting Party?

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

Not a formal transboundary site but there are shared management planning processes with Canada Several educational / visitor facilities are located within the Niagara River Corridor. A few of these include:

- Beaver Island State Park Visitor Center
- Buffalo and Erie County Naval & Military Park
- Fort Niagara State Park Nature Center
- Niagara Falls State Park Visitor Center
- Niagara Falls Underground Railroad Heritage Center
- Niagara Power Vista Visitors Center
- Old Fort Niagara
- Tifft Farm Nature Preserve Visitor Center
- Western New York Welcome Center on Grand Island

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Yes, there is a plan

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Plant community	Implemented
Animal community	Implemented
Birds	Implemented

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

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6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<1 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site



Kayaking on the Lower Niagara River (*Jajean Rose-Burney, 02-06-2015*)



Niagara river corridor (Ana Margarita Hemandez Balzad 05-08-2006)



Gorgeous morning over America falls (New York State Parks , 26-05-2015)

6.1.4 - Designation letter and related data

Designation letter <1 file(s) uploaded>

Date of Designation 2019-10-03