

7. Black Sturgeon

HEALTHY WATERS REPORT CARD

OFFSHORE	NA	ISLANDS	A
NEARSHORE	C	COASTAL WETLANDS	A-
EMBAYMENTS & INSHORE	B	COASTAL TERRESTRIAL	A+
TRIBUTARIES & WATERSHEDS	A	OVERALL	A-

Report card denotes general condition/health of each biodiversity target in the region based on condition/stress indices. See introduction to the regional summaries.



A Very Good	<i>Ecologically desirable status; requires little intervention for maintenance</i>
B Good	<i>Within acceptable range of variation; may require some intervention for maintenance.</i>
C Fair	<i>Outside of the range of acceptable variation and requires management. If unchecked, the biodiversity target may be vulnerable to serious degradation.</i>
D Poor	<i>Allowing the biodiversity target to remain in this condition for an extended period will make restoration or preventing extirpation practically impossible.</i>
Unknown	<i>Insufficient information.</i>



The Black Sturgeon River, looking towards the river mouth. Photo credit: Ontario Ministry of Natural Resources

Summary/ Description

The Black Sturgeon regional unit is located on the northern shore of Lake Superior. This regional unit is 6,333 km² in size, including the associated nearshore waters. The Black Sturgeon regional unit extends from near Thunder Bay in the west, to near the communities of Red Rock and Nipigon in the east. Communities in this regional unit include Red Rock, Red Rock Indian Band (Lake Helen First Nation), the Township of Shuniah, and the Township of Dorion. This regional unit includes Black Bay, a portion of Thunder Bay, and the Sibley and Black Bay Peninsulas. A number of provincial parks, nature reserves and conservation areas are located in this regional unit. The Lakehead Region Conservation Authority's area of jurisdiction covers eight municipalities, including municipalities in the Black Sturgeon and Arrow and Dog regional units. The Black Sturgeon regional unit contains one tertiary watershed, Black Sturgeon, and 12 quaternary watersheds. The watersheds are characterized by forests. The coast is characterized by rocky shores, cliffs, cobble beaches, and includes some of the most extensive coastal wetlands on the Ontario portion of Lake Superior.

TABLE 7.1: Black Sturgeon BY THE NUMBERS

Land and Water Cover	Region (km²)	Region %	Lake Superior Total (km²)	Notes
Agriculture	14.73	0.21	1,441.07	
Developed	1.07	0.02	389.55	
Forest	4,903.13	69.62	107,747.13	
Associated Nearshore Waters	1,536.40	21.82	17,868.03	
Other	282.69	4.01	8,227.57	
Water (inland)	304.32	4.32	9,473.05	
Total Area	7,042.33	100	145,146.40	
Coastal Features	Region	Region %	% of Lake Superior Total for Coastal Feature	
Coastline (km)	866.71	NA	14.87	Based on SOLEC shoreline
Sand Beaches (km)	47.83	5.52	7.43*	*% of Lake Superior Total Sand Beaches
Coastal Wetlands (km ²)	51.35	6.57*	4.65**	*% of Regional Coastal Area ** % of Lake Superior Total Coastal Wetlands
Natural Cover in Coastal Zone	713.83	91.31*	11.56**	*% of Regional Coastal Area ** % of Lake Superior Total Natural Cover in Coastal Area
Number of Islands	426	NA	16.1	
Condition	Region	Region %	% of Lake Superior Total	
Population Density (persons/km ²)	0.67	NA		
Road Density (km/km ²)	0.23	NA		
Number of Dams and Barriers	504	NA	2.1	
Artificial Shoreline (km)	8.17	0.94	3.58	
Land Ownership & Protection	Region (km²)	Region %	Regional Area (km²)	
Private	979.31	17.79	5,505.89	Regional area based on landmass
Public/Crown	4,029.54	73.19	5,505.89	
Tribes/ First Nations		0.00	5,505.89	
Parks & Protected Areas (total)	497.05	9.03	5,505.89	
Parks & Protected Areas (coast)	151.39	19.37*	781.73**	*% of Regional Coastal Area **Regional Coastal Area (km ²)

Important Biodiversity Features

Nearshore and Inshore Waters

- Black Bay is noted as a Lake Superior embayment important for Lake Sturgeon (Auer 2003). In the Black Sturgeon regional unit this embayment and the nearshore zone, which provides corridors for movement, are identified as critical management areas for Lake Sturgeon in the Lake Superior basin (Auer 2003).
- Cisco are an important feature in western Lake Superior. Large spawning aggregations of Cisco are found in Black Bay and Thunder Bay (S. Greenwood, pers. comm., March 11 2013).

Coastal Zone and Islands

- The Black Sturgeon regional unit provides several sites of Important Habitat for Lake Trout, including many sites around the southern tip of the Black Bay Peninsula, Edward Island and Porphyry Island, and the southern tip of the Sibley Peninsula. One Important Habitat Area for Lake Whitefish is noted in Black Bay. Additional Important Habitat Sites for Lake Trout are found in areas along the Lake Superior coast in Thunder Bay (Lake Superior Binational Program Habitat Committee 2006) (Figure 7.1).
- Several Important Habitat Areas are located in the Black Sturgeon regional unit, including Black Bay, the Black Bay Peninsula, much of the Sibley Peninsula, and several smaller Important Habitat Areas on Edward Island and Porphyry Island. Additional Important Habitat Areas are found in other areas of the regional unit, along with several Important Habitat Sites (Lake Superior Binational Program Habitat Committee 2006) (Table 7.3, Figure 7.3).

Tributaries and Watersheds

- The Black Sturgeon River contains spawning habitat for native migratory fishes, but the Camp 43 dam restricts fish movement beyond the dam. The Ontario Ministry of Natural Resources (OMNR) is currently undertaking an Environmental Assessment to determine if they will decommission the Camp 43 dam (OMNR 2012). (See Important Issues and Threats).
- Historically 21 tributaries in Lake Superior had Lake Sturgeon spawning runs (Lake Superior Lake Sturgeon Work Group 2012, unpublished data). Two of these historical spawning tributaries, the Black Sturgeon River and the Wolf River are in the Black Sturgeon regional unit. The Black Sturgeon River population status is extant and the population trajectory is unknown. The Wolf River population status is extirpated (Golder Associates Ltd. 2011).
- A Lake Sturgeon Rehabilitation Plan for Lake Superior (Auer 2003) identifies the Black Sturgeon River and Wolf River as two of the seventeen tributaries to Lake Superior in which there should be a focus on Lake Sturgeon rehabilitation. Habitat restoration is a priority in the Black Sturgeon River and Wolf River, due to barriers to migration and spawning (Auer 2003).

Figure 7.1: Black Sturgeon - Coastal and Watershed Features

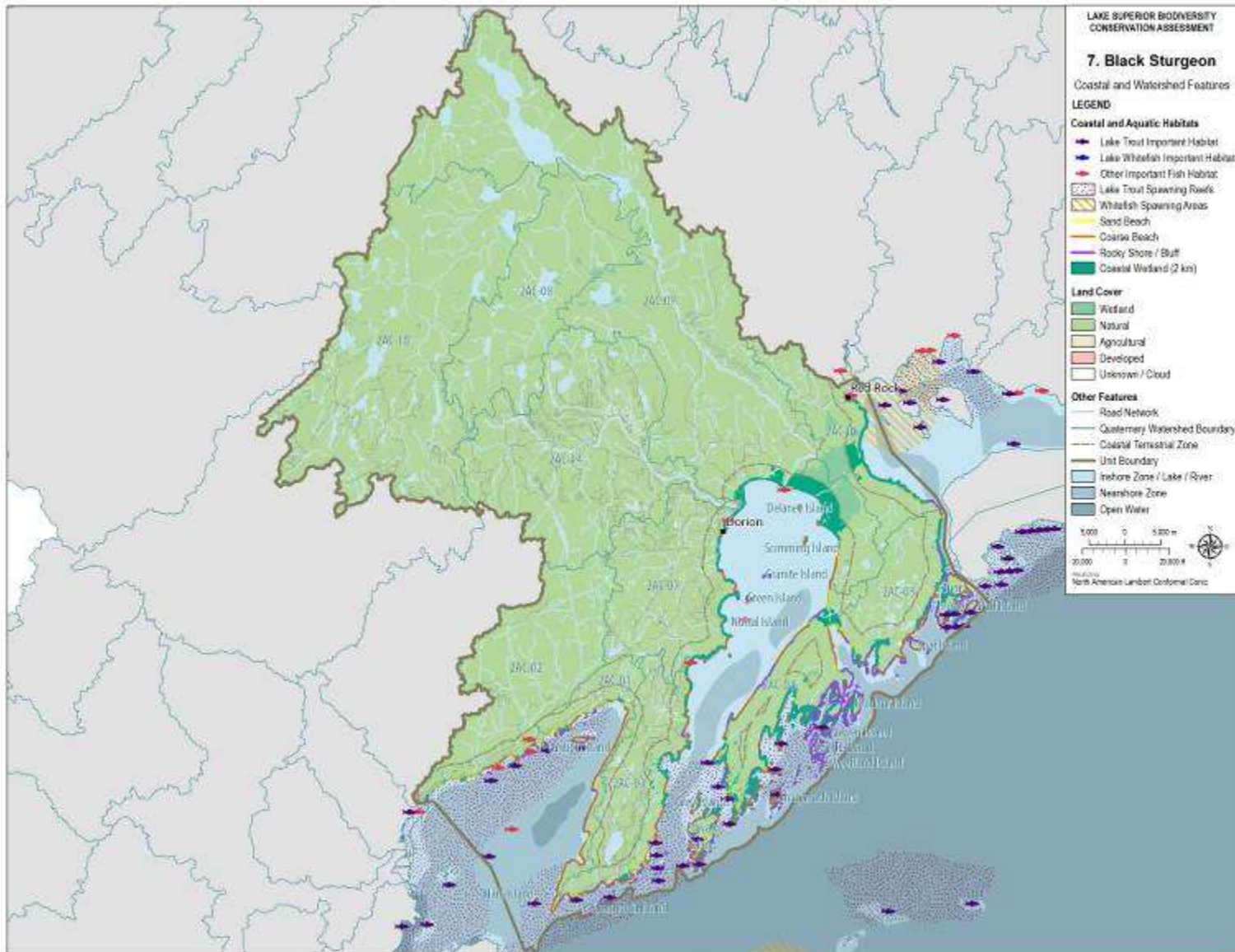


TABLE 7.2: Black Sturgeon CONDITION AND TRENDS

Target (Data Source)	Condition	Trends
Offshore ¹	NA	NA
Nearshore ¹	C (0.59)	Unknown
Embayments and Inshore ^{1,2}	B (0.72)	Unknown
Coastal Wetlands ^{2,3}	A- (0.808)	Unknown
Islands ⁴	A	Unknown
Coastal Terrestrial ³	A+ (0.994)	Unknown
Tributaries and Watersheds ²	A (0.84)	Unknown

A: Very Good	<i>Ecologically desirable status; requires little intervention for maintenance</i>
B: Good	<i>Within acceptable range of variation; may require some intervention for maintenance.</i>
C: Fair	<i>Outside of the range of acceptable variation and requires management. If unchecked, the biodiversity target may be vulnerable to serious degradation.</i>
D: Poor	<i>Allowing the biodiversity target to remain in this condition for an extended period will make restoration or preventing extirpation practically impossible.</i>
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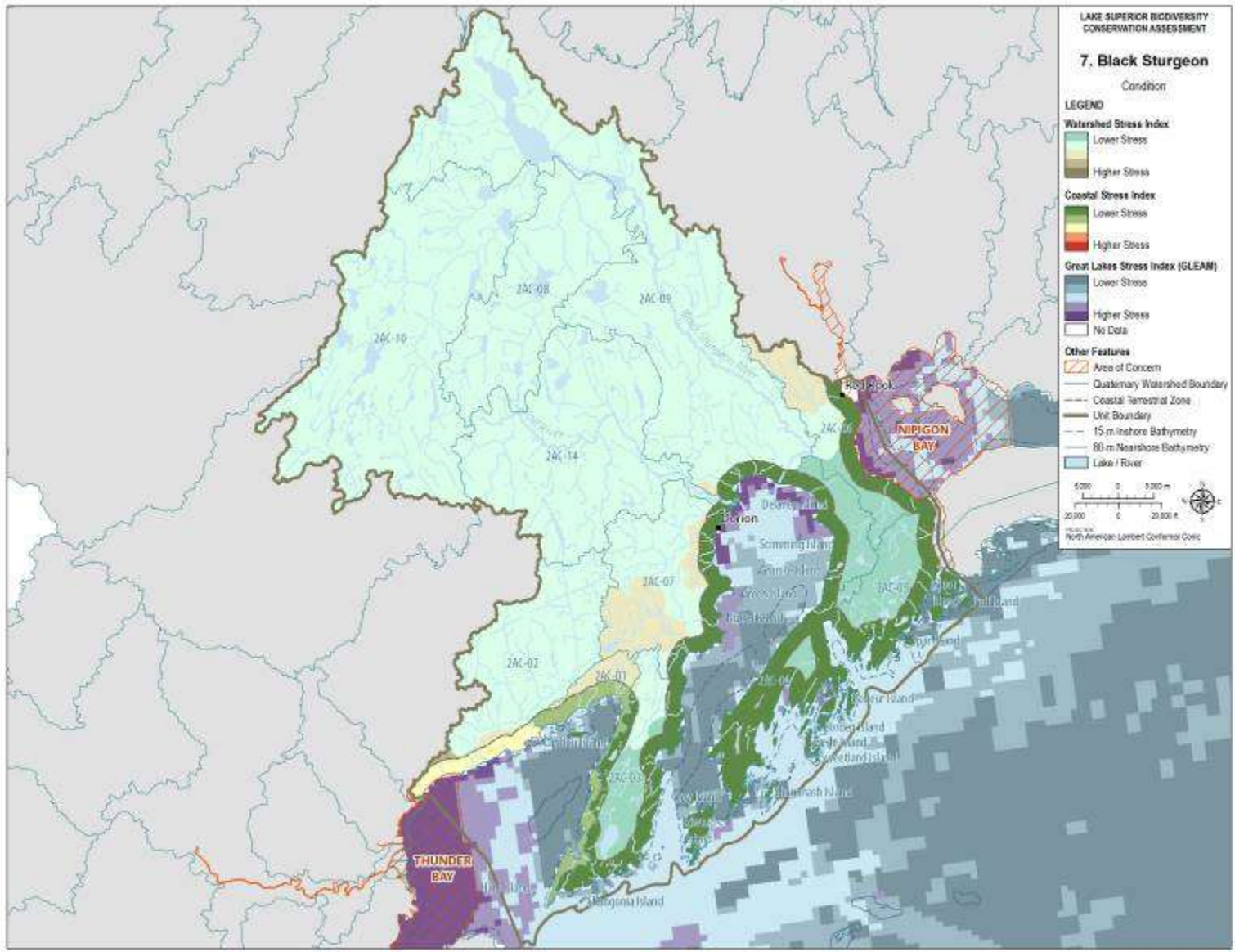
1: Great Lakes Cumulative Stress (GLEAM 2012, Allan et al. 2013)

2: Watershed Stress Index (GLEI 2013)

3: Coastal Condition Index (developed for this report)

4 : Island Condition Score (Henson et al. 2010)

Figure 7.2: Black Sturgeon - Condition



Important Issues & Threats

- The Ontario Ministry of Natural Resources (OMNR) is currently undertaking an Environmental Assessment process to examine the recommendations of the Fishery Management Zone 9 Advisory Council: to decommission the Camp 43 dam and construct a multi-purpose sea lamprey barrier at Eskwanonwatin Lake (OMNR 2012). One of the largest populations of Walleye in Lake Superior previously inhabited Black Bay. The Camp 43 dam, 17 kilometres upstream on the Black Sturgeon River, cut off access to spawning habitat for native migratory fishes. The removal of the dam and the reinstatement of access to naturally occurring spawning habitat would be an essential step in the large scale rehabilitation of the Black Bay and Black Sturgeon River native fish community (OMNR 2012). If the proposed project is completed an additional 50 kilometres of river habitat will be available to native migratory fish species, including Walleye, Lake Sturgeon and coaster Brook Trout (OMNR 2012). Additional possible benefits stemming from the decommissioning of the dam would provide Brook Trout with access to 40 small tributaries, along with an un-quantified amount of spawning and nursery habitat; the potential reestablishment of Walleye and Cisco as the top predator and prey species in Black Bay, with the reduction of the Rainbow Smelt population; and avoiding catastrophic failure of the dam before it is at the end of its lifespan. Potential effects and mitigation measures are also described in the project summary (OMNR 2012). As demonstrated prior to the Camp 43 dam being refurbished to block sea lamprey migration, this preferred option will also result in the infestation of 50 kilometres of the Black Sturgeon River as well as four tributaries to the Black Sturgeon River by Sea Lamprey, and is stated to result in “an incremental increase in parasitic sea lamprey in Lake Superior” (OMNR 2012:1). Some experts note that the cost of additional lampricide treatment is high relative to the Lake Superior control budget for Sea Lamprey, and that there are additional risks to Lake Trout and other large fish species by allowing Sea Lamprey additional river access (S Greenwood, pers. comm., March 11 2012). Further, the requirement to treat this newly infested area will expose an estimated 14 million Northern Brook Lampreys to lampricide, and will extirpate this population in this portion of the Black Sturgeon River ((M. Steeves, pers. comm., June 17 2015).

Conservation In Action

Parks & Protected Areas

- The Lake Superior National Marine Conservation Area (LSNMCA) of Canada includes a significant portion of the nearshore and inshore waters associated with the Black Sturgeon regional unit, as well as some coastal lands (Parks Canada 2009). National Marine Conservation Areas protect and conserve representative marine areas for the benefit, education and enjoyment of the people of Canada and the world. By law, each national marine conservation area must contain at least one zone that fosters and encourages the ecologically sustainable use of aquatic resources and at least one zone that fully protects special features or sensitive elements of ecosystems. Currently, the Lake Superior NMCA has proposed two zones that offer some protection for the Gunilda shipwreck (Nipigon and Jackpine regional unit), and Gapen’s Pool Brook Trout Spawning Area (Nipigon and Jackpine regional unit) (C. Vis, pers. comm., December 18 2014).
- The LSMCA extends beyond the nearshore water boundary associated with the Black Sturgeon region, to the international boundary with the United States.
- Black Sturgeon River Provincial Park (portion)
- Albert Lake Mesa Provincial Nature Reserve
- Cavern Lake Provincial Nature Reserve
- Ouimet Canyon Provincial Park
- Hurkett Cove Conservation Area

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- Granite Point Conservation Area
- Shesheeb Bay Provincial Nature Reserve
- Sleeping Giant Provincial Park
- Edward Island Provincial Park
- Porphyry Island Provincial Park
- Puff Island Provincial Nature Reserve
- Silver Harbour Conservation Area
- Black Bay Nature Reserve (Thunder Bay Field Naturalists)
- Elizabeth and Gordon McClaren Hare Island Nature Reserve (Thunder Bay Field Naturalists)
- Red Rock Nature Reserve (Thunder Bay Field Naturalists)

Existing Programs & Projects

- Four Provincially Significant Wetlands (PSWs) are located in the Black Sturgeon regional unit. Black Bay PSW (6,490.01 hectares), Harvais Lake PSW (13.93 hectares), Hurkett Cove PSW (186.46 hectares) and Shesheeb Bay PSW (516.46 hectares) are all located in the southern end of the regional unit, near Black Bay and Shesheeb Bay (on Black Bay Peninsula). The four PSWs provide a combined total of 7,206.86 hectares.
- The Ontario Ministry of Natural Resources Dorion Fish Culture Station is the site of captive rearing of brood stock and production fish for the Lake Nipigon strain of Brook Trout (Newman et al. 2003). This facility is located in the Black-Sturgeon region of the Lake Superior basin. The offspring from the Dorion Fish Culture Station are not stocked into Lake Superior (M. Chase, pers. comm., June 3 2013).
- The Ontario Ministry of Natural Resources undertook tracking of adult Lake Sturgeon on the Black Sturgeon River, to monitor seasonal distribution and identify important habitat (OMNR 2013c). This work ended in the fall of 2009 (M. Chase, pers. comm., June 3 2013).
- The Thunder Bay Field Naturalists have three nature reserves in the Black Sturgeon regional unit. Black Bay Nature Reserve is 160.5 acres in total and is a Great Lakes Heritage Coast signature site, and also contains provincially significant wetlands. Elizabeth and Gordon McClaren Hare Island Nature Reserve is 4 acres in total area and is adjacent to other conservation lands and is a Great Lakes Heritage Coast signature site. Red Rock Nature Reserve is 11.5 acres in total and is a Great Lakes Heritage Coast signature site (B. Yurkoski, pers. comm., February 16 2015).
- The Lakehead Region Conservation Authority (LRCA) undertakes a number of programs and services related to the Black Sturgeon regional unit. These include water control structures such as dams and channels, forest management and tree planting, and erosion control, among other programs (LRCA No date).
- Peregrine Falcons have been reintroduced to Ontario, including in the Lake Superior basin, following their extirpation as a breeding species in Ontario in the early 1960s (Ontario Peregrine Falcon Recovery Team 2010).

TABLE 7.3: Black Sturgeon IMPORTANT HABITAT SITES AND AREAS

<i>Code</i>	<i>Site/ Area</i>	<i>Important Habitat Site/Area Name</i>	<i>Key Features</i>
ON-011	Site	Black Bay Peninsula	High biodiversity value, relatively undisturbed habitat, significant wetland
ON-011	Area	Black Bay Peninsula	High biodiversity value, relatively undisturbed habitat, significant wetland
ON-013	Site	Black Sturgeon River, Split Rapids	Spawning area and previous spawning area for fish
ON-020	Site	Clark Island	Historic rare animal habitat
ON-021	Site	Nipigon Bay Clay Banks	Historic fish spawning habitat
ON-034	Site	Fluor Island	High biodiversity values
ON-083	Site	Nonwatin Lake and Black Sturgeon River	Fish spawning area
ON-106	Site	Shangoina Island	Rare animal habitat (unoccupied by Peregrine Falcon), colonial water bird habitat
ON-107	Site	Shillibeer Lake	Wetland; staging area for waterfowl
ON-138	Area	Black Bay	Extensive coastal wetlands, diversity of aquatic habitats; provincially significant bog community at east end of bay
ON-140	Area	Albert Lake Mesa Nature Reserve	Rare plant habitat
ON-142	Area	Cavern Lake Nature Reserve	Arctic-alpine plant community, rare plants, bat hibernaculum
ON-146	Area	Edward Island Nature Reserve	Fish spawning habitat; unique landform vegetation; part of Lake Superior Archipelago
ON-166	Area	Ouimet Canyon Nature Reserve	Arctic-alpine plant community, rare plant habitat
ON-171	Area	Puff Island Nature Reserve	Environmentally Sensitive Area (unusual geological features, bog area)
ON-175	Area	Shesheeb Bay Nature Reserve	Fish spawning habitat
ON-178	Area	Sleeping Giant	Old growth red and white pine stands, rare plant habitat, cliff habitats, coastal wetlands

Figure 7.3: Black Sturgeon - Important Habitat Sites and Areas

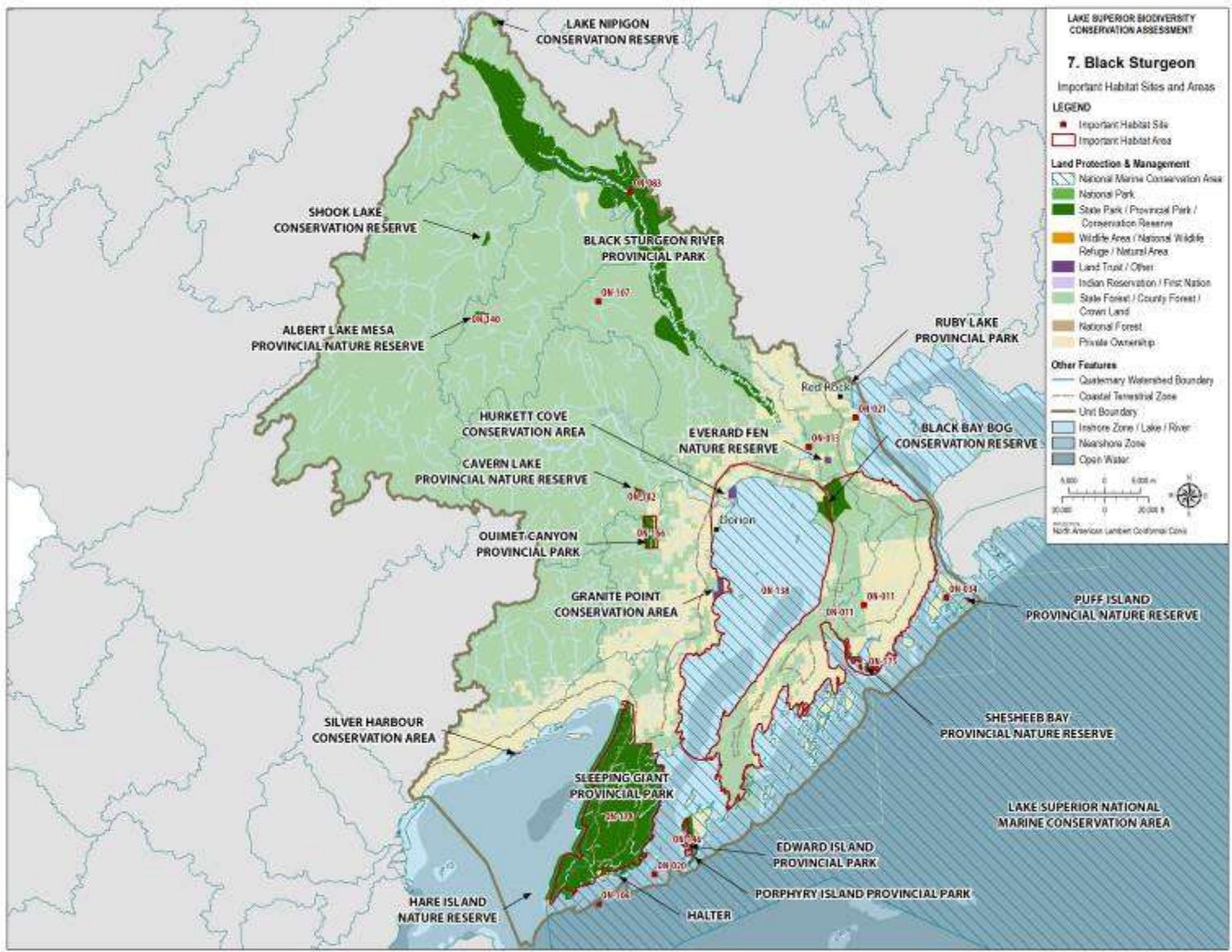


TABLE 7.4: Black Sturgeon LIST OF SPECIES AND COMMUNITIES OF CONSERVATION CONCERN

At least 83 species and communities of conservation concern have been documented in the regional unit. 41 of these have viability rankings which indicate the species or community is currently present, or was at the date of last sampling. The viability rankings of these species varies from A to E (A – Excellent predicted viability, B – Good predicted viability, C – Fair predicted viability, D – Probably not viable, E – Verified extant). 42 species and communities were once known to occur here, but have current conservation ranks of H (Historical).⁸

<i>Present Records (Viability Rankings of A to E)</i>	
Scientific Name	Common Name
American Dune Grass - Beach Pea - Sand Cherry Dune Grassland Type	American Dune Grass - Beach Pea - Sand Cherry Dune Grassland Type
<i>Antennaria rosea</i>	Rosy Pussytoes
<i>Arenaria humifusa</i>	Creeping Sandwort
<i>Arnellia fennica</i>	A Liverwort
<i>Arnica cordifolia</i>	Heart-leaved Arnica
<i>Arnica lonchophylla</i>	Long-leaved Arnica
<i>Artemisia frigida</i>	Prairie Sagebrush
<i>Aulacomnium acuminatum</i>	A Moss
<i>Aulacomnium turgidum</i>	A Moss
Basic Open Glaciere Talus Type	Basic Open Glaciere Talus Type
Bat Colony	Bat Hibernaculum/Nursery
Boreal Acidic Sandstone Open Cliff Type	Boreal Acidic Sandstone Open Cliff Type
<i>Botrychium pseudopinnatum</i>	False Northwestern Moonwort
<i>Calamagrostis purpurascens</i>	Purple Reed Grass
<i>Caprimulgus vociferus</i>	Whip-poor-will
<i>Carex rossii</i>	Ross' Sedge
<i>Carex xerantica</i>	Dryland Sedge
<i>Corispermum americanum</i>	American Bugseed
<i>Cystopteris laurentiana</i>	Laurentian Bladder Fern
<i>Eleocharis nitida</i>	Quill Spike-rush
<i>Enallagma clausum</i>	Alkali Bluet
<i>Erebia discoidalis</i>	Red-disked Alpine
<i>Erebia mancinus</i>	Taiga Alpine
<i>Falco peregrinus</i>	Peregrine Falcon
<i>Gulo gulo</i>	Wolverine
<i>Gymnocarpium jessoense</i>	Nahanni Oak Fern
<i>Huperzia appressa</i>	Mountain Firmoss
<i>Hypnum fertile</i>	A Moss
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey
<i>Mnium thomsonii</i>	A Moss
<i>Moehringia macrophylla</i>	Large-leaved Sandwort
<i>Oeneis macounii</i>	Macoun's Arctic
<i>Oplopanax horridus</i>	Devil's Club
<i>Orthothecium chryseum</i>	A Moss
<i>Oxytropis splendens</i>	Showy Locoweed
<i>Pelecanus erythrorhynchos</i>	American White Pelican

⁸ Data included here were provided by the Ontario Ministry of Natural Resources and Forestry. Copyright Queen's Printer for Ontario (2012).

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Potentilla hippiana	Horse Cinquefoil
Rangifer tarandus caribou	Woodland Caribou (Forest-dwelling boreal population)
Silene acaulis	Moss Champion
Trichophorum clintonii	Clinton's Clubbrush
Viola epipsila	Northern Marsh Violet
Historical Records	
Scientific Name	Common Name
Acipenser fulvescens pop. 3	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)
Antennaria parvifolia	Small-leaved Pussytoes
Aquila chrysaetos	Golden Eagle
Astragalus adsurgens	Laxmann's Milk-vetch
Botrychium hesperium	Western Moonwort
Botrychium pallidum	Pale Moonwort
Botrychium spathulatum	Spatulate Moonwort
Bromus pumpellianus	Pumpelly's Brome
Bryum blindii	A Moss
Carex atratifomis	Scabrous Black Sedge
Carex loliacea	Ryegrass Sedge
Chelydra serpentina	Snapping Turtle
Chenopodium leptophyllum	Slim-leaved Goosefoot
Coregonus hoyi	Bloater
Coregonus zenithicus	Shortjaw Cisco
Cystopteris montana	Mountain Bladder Fern
Euchloe ausonides	Large Marble
Frullania inflata	A Liverwort
Great Lakes Arctic-Alpine Basic Open Bedrock Shoreline Type	Great Lakes Arctic-Alpine Basic Open Bedrock Shoreline Type
Grimmia teretinervis	A Moss
Gymnocarpium robertianum	Limestone Oak Fern
Leucophysalis grandiflora	Large-flowered Ground Cherry
Listera auriculata	Auricled Twayblade
Lobaria scrobiculata	A Lichen
Lycaena helloides	Purplish Copper
Malaxis paludosa	Bog Adder's-mouth
Myotis septentrionalis	Northern Myotis
Myurella tenerrima	A Moss
Pannaria conoplea	A Lichen
Phacelia franklinii	Franklin's Scorpionweed
Polystichum braunii	Braun's Holly Fern
Potentilla bimundorum	Staghorn Cinquefoil
Potentilla pulcherrima	Soft Cinquefoil
Rhizomnium gracile	A Moss
Sagittaria cristata	Crested Arrowhead
Scapania degenii	A Liverwort
Senecio eremophilus	Desert Ragwort
Stereocaulon subcoralloides	A Lichen
Sympetrum corruptum	Variiegated Meadowhawk
Tetraplodon mnioides	A Moss
Woodsia alpina	Alpine Woodsia
Zizia aptera	Heart-leaved Alexanders