## Addendum

to the

# 2012 COSEWIC Status Report

on the

# **Striped Bass** *Morone saxatilis*

St. Lawrence River population

in Canada

EXTINCT 2019

**COSEWIC** Committee on the Status of Endangered Wildlife in Canada



**COSEPAC** Comité sur la situation des espèces en péril au Canada \*Addendum to the 2012 COSEWIC Status Report on the Striped Bass (*Morone saxatilis*), St. Lawrence River population.

This document may be cited as follows:

COSEWIC. 2019. Addendum to the 2012 COSEWIC Status Report on the Striped Bass *Morone saxatilis*, St. Lawrence River population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii pp. (<u>https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html</u>).

Production note:

COSEWIC would like to acknowledge Dr. Nicholas Mandrak, Co-chair of the COSEWIC Freshwater Fishes Specialist Subcommittee for writing the Addendum on Striped Bass, *Morone saxatilis*, St. Lawrence River population in Canada, prepared under contract with Environment and Climate Change Canada.

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Également disponible en français sous le titre Addenda au Rapport de situation du COSEPAC de 2012 sur le Bar rayé (*Morone saxatilis*), population du fleuve du Saint-Laurent, au Canada.

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#### Assessment Summary – November 2019

Common name Striped Bass

Scientific name Morone saxatilis

Status Extinct

#### **Reason for designation**

This large-bodied fish was a highly prized commercial and sport fish in the St. Lawrence River. This population was one of three in Canada. Unlike the other two populations that still exist, fish from the St. Lawrence River population have not been caught since 1968 despite extensive scientific, recreational and commercial sampling. In 2002, fish from another population (originating from the Miramichi River) began to be stocked in the St. Lawrence River and, as the key historical threats in the St. Lawrence River had decreased, these fish established a self-reproducing population. Because these newly established fish were from another population, they are not considered to be part of the original St. Lawrence River population. The original St. Lawrence River population no longer exists.

Occurrence Québec

#### Status history

Designated Extirpated in November 2004. Status re-examined and designated Endangered in November 2012. Status re-examined and designated Extinct in November 2019.



Morone saxatilis Striped Bass St. Lawrence River population Bar rayé Population du fleuve du Saint-Laurent Range of occurrence in Canada: Québec

## Status History:

Designated Extirpated in November 2004. Status re-examined and designated Endangered in November 2012. Status re-examined and designated Extinct in November 2019.

## Evidence:

The St. Lawrence River population, identified and assessed as "Endangered" in the 2012 COSEWIC report, is the same as the St. Lawrence Estuary population, identified and assessed as "Extirpated" in the 2004 COSEWIC report. In the 2004 status report, it was assessed as Extirpated based on the last known specimen being reported in 1968. This assessment was erroneous as the St. Lawrence Estuary population occurred entirely within Canada; therefore, "Extinct" would have been the appropriate assessment if it had been concluded, as in 2004, that no individuals of the original DU were extant.

As a result of stocking fish originating from the Miramichi River (Southern Gulf of St. Lawrence population) in the early 2000s (i.e., translocation), Striped Bass were present in the St. Lawrence River prior to the 2012 assessment, but it was not known if they had established a reproducing population. In the 2012 COSEWIC report, they were considered part of the original St. Lawrence Estuary population (now called the St. Lawrence River population), and low numbers and restricted distribution were the criteria used to assess the species as "Endangered". Striped Bass is now known to have been reproducing in the St. Lawrence River since 2008 (Morisette 2011, Valiquette *et al.* 2018, 2019, Vanalderweireldt 2019).

Based on the current COSEWIC Guidelines on Manipulated Populations (Appendix E7 of O+P Manual; COSEWIC 2019), the stocked fish and their offspring should not be considered part of the original St. Lawrence River population. Because the St. Lawrence River population is the wildlife species, the introduction was not intra-limital (i.e., not from within the natural range of the designatable unit); therefore, this was not a reintroduction (Guideline #4). It could be considered to be an extra-limital introduction of the Southern Gulf of St. Lawrence population (Guideline #4) and, thus, part of that designatable unit. There is now tagging and otolith microchemistry evidence that suggests that fish now move between the St. Lawrence River and Southern Gulf of St. Lawrence (Valiquette *et al.* 2018, 2019) (perhaps indicating that the Southern Gulf of St. Lawrence population now extends into the St. Lawrence River; this should be addressed in the next full update report). In conclusion, the individuals currently found in the St. Lawrence River are a manipulated population not part of the original St. Lawrence River population; therefore, data for the manipulated population should not be considered in the application of quantitative criteria for the assessment of the St. Lawrence River population wildlife species.

The 2004 and 2012 status reports (COSEWIC 2004, 2012) provide compelling evidence that a reproducing population of Striped Bass was not observed in the St. Lawrence River between 1968 and the early 2000s when stocking was initiated despite extensive scientific, commercial, and recreational

sampling using appropriate gears. According to Valiquette *et al.* (2019), some adults were occasionally observed during summer months in the St. Lawrence River, especially between 1975 and 1982, including some with tags identifying them as belonging to the Southern Gulf of St. Lawrence population (Beaulieu 1984). Furthermore, no young-of-the-year (YOY) were reported in the St. Lawrence River between 1965 and 2004 (Valiquette *et al.* 2019).

## Wildlife species:

Change in eligibility, taxonomy or designatable units:

yes 🗌 no 🖂

Explanation:

There is no evidence to suggest that the original St. Lawrence River population is not valid.

## Range:

Change in Extent of Occurrence (EOO):	yes 🗌 no 🛛 unk 🗌
Change in Index of Area of Occupancy (IAO) :	yes 🗌 no 🛛 unk 🗌
Change in number of known or inferred current locations <sup>1</sup> :	yes 🗌 no 🛛 unk 🗌
Significant new survey information	yes 🗌 no 🛛
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Explanation: As the COSEWIC (2)

As the COSEWIC (2012) status report erroneously included individuals from the Southern Gulf of St. Lawrence population, and individuals of the St. Lawrence River population have not been confirmed as present since the 1960s, the EOO, IAO, and number of locations in the 2012 status report should have been zero. There is no new survey information for the St. Lawrence River population dating prior to the stocking in the early 2000s.

Population Information:		
Change in number of mature individuals:	yes 🗌 no 🖂 unk 🗌	
Change in population trend:	yes 🗌 no 🖂 unk 🗌	
Change in severity of population fragmentation:	yes 🗌 no 🖂 unk 🗌	
Change in trend in area and/or quality of habitat:	yes 🗌 no 🗋 unk 🛛	
Significant new survey information	yes 🗌 no 🖂	

Explanation:

As the COSEWIC (2012) status report erroneously included individuals from the Southern Gulf of St. Lawrence population, and individuals of the St. Lawrence River population have not been confirmed as present since the 1960s, the population size in the 2012 status report should have been zero. There is no new survey information for the St. Lawrence River population dating prior to the stocking in the early 2000s. As there is no population, there has been no change in severity of population fragmentation. It is unknown whether there has been a change in habitat quality; however, successful establishment of the stocked population indicates that habitat quality is likely sufficient in the St. Lawrence River.

Although there is no new survey information, existing sampling effort data strongly support the absence of a reproducing population of Striped Bass in the St. Lawrence River between 1968 and 2002 when stocking commenced. Sampling effort has been substantial since 1968. Between 1969 and 1974, no Striped Bass were reported by more than 200 commercial eel fishers in brackish waters of the St. Lawrence River and an additional 25-50 in the Lake St. Pierre area, or by recreational anglers (Robitaille and Tremblay 1994). Between 1974 and 1994, at least 165 adults, but no YOY, were reported and some individuals had tags indicating that they were from the Southern Gulf of St. Lawrence

<sup>&</sup>lt;sup>1</sup> Use the IUCN definition of "location"

population (Beaulieu 1985). During this time, there were 250 commercial fishers in brackish waters and recreational anglers (Robitaille and Tremblay 1994). Between 1980 and 1982, captures (more than 165 fish) were reported between Saint-Nicolas and Sainte-Luce-sur-Mer (Lebel 1983). The increased presence of Striped Bass may have been the result of density-dependent dispersal from the Southern Gulf of St. Lawrence population, which was high in abundance at that time (Trépanier and Robitaille 1996). The 2012 COSEWIC report stated that the Striped Bass commercial fishery catches in the Southern Gulf of St. Lawrence reached a peak in 1981. From 1983 to 1994, few Striped Bass were reported. The Southern Gulf of St. Lawrence population was also very low at the time (Chaput and Randall 1990). Between 1995 and 2002, no Striped Bass were reported by the 45-60 commercial fishers and recreational anglers. Although commercial fishing effort decreased from 45 to 13 fishers, more than 40,000 YOY and adults have been caught since the stocking program commenced in 2002. YOY were first caught by commercial fishers in 2005, and averaged 20-80 YOY per year until 2009, when over 1,400 YOY were caught by only 13 commercial fishers. Numbers have increased dramatically since 2009; by 2018, 30,000 YOY were caught (Valiquette *et al.* 2019).

## Threats:

Change in nature and/or severity of threats:

, \_ \_ \_

yes 🛛 no 🗌 unk 🗌

Explanation:

The threat of exploitation (i.e. directed fishery) has ceased as it is prohibited, and the successful establishment of the stocked population indicates that the severity of the other threats, including habitat degradation, bycatch and poaching, has likely decreased.

## Protection:

Change in effective protection:

yes 🛛 no 🗌 unk 🗌

Explanation:

The Striped Bass (St. Lawrence River population) was listed on Schedule 1 of SARA as Extirpated in 2012, the same year that it was reassessed as Endangered by COSEWIC. In August 2019, the designatable unit was reclassified as Endangered on Schedule 1 of SARA.

## Rescue Effect:

Change in evidence of rescue effect:

Explanation:

The wildlife species occurs nowhere else in the world; therefore, rescue is not possible.

## Quantitative Analysis:

Change in estimated probability of extirpation: Details: Already extinct.

## Acknowledgements and Authorities Contacted:

Eliane Valiquette, Direction de l'expertise sur la faune aquatique, Ministère des Forêts, de la Faune et des Parcs.

Julien April, Direction de l'expertise sur la faune aquatique, Ministère des Forêts, de la Faune et des Parcs.

yes 🗌 no 🖂

yes □ no ⊠ unk □

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Writer: Nicholas Mandrak

## **TECHNICAL SUMMARY**

Morone saxatilis Striped Bass St. Lawrence River population Bar rayé Population du fleuve Saint-Laurent Range of occurrence in Canada: Québec

## Demographic Information

Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines(2011) is being used)	4 years
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	No. Extinct.
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations, whichever is longer up to a maximum of 100 years]	Not applicable. Extinct.
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Not applicable. Extinct.
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Not applicable. Extinct.
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any period [10 years, or 3 generations, whichever is longer up to a maximum of 100 years], including both the past and the future.	Not applicable. Extinct.
Are the causes of the decline a. clearly reversible and b. understood and c. ceased?	a. Yes b. Yes c. Yes
Are there extreme fluctuations in number of mature individuals?	Not applicable. Extinct.

## Extent and Occupancy Information

Estimated extent of occurrence (EOO)	0 km²
Index of area of occupancy (IAO) (Always report 2x2 grid value).	0 km²

Is the population "severely fragmented" i.e., is >50% of its total area of occupancy in habitat patches that are (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	No. Extinct. a. Not applicable. Extinct. b. Not applicable. Extinct.
Number of "locations" (use plausible range to reflect uncertainty if appropriate)	0
Is there an [observed, inferred, or projected] decline in extent of occurrence?	No. Extinct.
Is there an [observed, inferred, or projected] decline in index of area of occupancy?	No. Extinct.
Is there an [observed, inferred, or projected] decline in number of subpopulations?	No. Extinct.
Is there an [observed, inferred, or projected] decline in number of "locations"*?	No. Extinct.
Is there an [observed, inferred, or projected] decline in [area, extent and/or quality] of habitat?	Unknown.
Are there extreme fluctuations in number of subpopulations?	No. Extinct.
Are there extreme fluctuations in number of "locations"*?	No. Extinct.
Are there extreme fluctuations in extent of occurrence?	No. Extinct.
Are there extreme fluctuations in index of area of occupancy?	No. Extinct.

## Number of Mature Individuals (in each subpopulation)

Subpopulations (give plausible ranges)	N Mature Individuals
Total	0

## **Quantitative Analysis**

Is the probability of extinction in the wild at least [20% within 20 years or 5 generations whichever is	Not applicable. Extinct.
longer up to a maximum of 100 years, or 10% within 100 years]?	

<sup>\*</sup> See Definitions and Abbreviations on COSEWIC website and IUCN (Feb 2014) for more information on this term

## Threats (direct, from highest impact to least, as per IUCN Threats Calculator)

Was a threats calculator completed for this species? No.

- i. Illegal fishing and mortality from incidental catches in a variety of fisheries
- ii. Habitat degradation
- iii. Dredging

What additional limiting factors are relevant? None.

## Rescue Effect (immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	Not applicable. Wildlife species only found in Canada.
Is immigration known or possible?	No
Would immigrants be adapted to survive in Canada?	Not applicable.
Is there sufficient habitat for immigrants in Canada?	Not applicable.
Are conditions deteriorating in Canada?+	No
Are conditions for the source (i.e., outside) population deteriorating?+	Not applicable.
Is the Canadian population considered to be a sink?+	Not applicable.
Is rescue from outside populations likely?	No

## **Data Sensitive Species**

Is this a data sensitive species?	No

## **Status History**

Designated Extirpated in November 2004. Status re-examined and designated Endangered in November 2012. Status re-examined and designated Extinct in November 2019.

## Status and Reasons for Designation:

Extinct Not applicable.	Status:	Alpha-numeric codes:
	Extinct	Not applicable.

## Reasons for designation:

This large-bodied fish was a highly prized commercial and sport fish in the St. Lawrence River. This population was one of three in Canada. Unlike the other two populations that still exist, fish from the St. Lawrence River population have not been caught since 1968 despite extensive scientific, recreational and commercial sampling. In 2002, fish from another population (originating from the Miramichi River) began to be stocked in the St. Lawrence River and, as the key historical threats in the St. Lawrence River had decreased, these fish established a self-reproducing population. Because these newly established fish were from another population, they are not considered to be part of the original St. Lawrence River population. The original St. Lawrence River population no longer exists.

<sup>+</sup> See Table 3 (Guidelines for modifying status assessment based on rescue effect)

## Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable. There are no individuals.

Criterion B (Small Distribution Range and Decline or Fluctuation): Not applicable. There are no individuals.

Criterion C (Small and Declining Number of Mature Individuals): Not applicable. There are no individuals.

Criterion D (Very Small or Restricted Population): Not applicable. There are no individuals.

Criterion E (Quantitative Analysis): Not application. Has not been conducted.



#### **COSEWIC HISTORY**

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

#### **COSEWIC MANDATE**

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

#### **COSEWIC MEMBERSHIP**

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

#### DEFINITIONS (2019)

	(1010)
Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

- \* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.
- \*\* Formerly described as "Not In Any Category", or "No Designation Required."
- \*\*\* Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.

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The Canadian Wildlife Service, Environment and Climate Change Canada, provides full administrative and financial support to the COSEWIC Secretariat.