

# Shortnose Cisco

## Ontario Government Response Statement

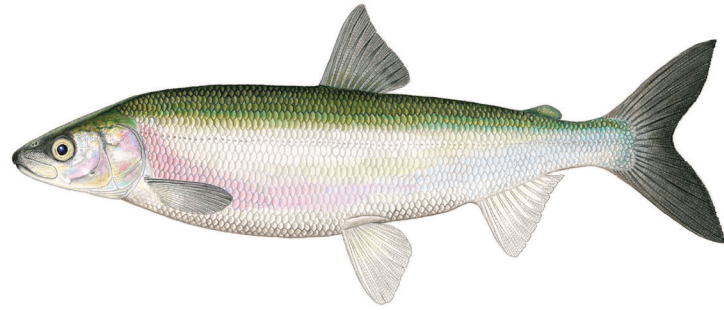


Illustration: Paul Vecsei

### Protecting and Recovering Species at Risk in Ontario

Species at risk recovery is a key part of protecting Ontario's biodiversity. The *Endangered Species Act, 2007* (ESA) is the Government of Ontario's legislative commitment to protecting and recovering species at risk and their habitats.

Under the ESA, the Government of Ontario must ensure that a recovery strategy is prepared for each species that is listed as endangered or threatened. A recovery strategy provides science-based advice to government on what is required to achieve recovery of a species.

Within nine months after a recovery strategy is prepared, the ESA requires the government to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The response statement is the government's policy response to the scientific advice provided in the recovery strategy. In addition to the strategy, the government response statement considered (where available) input from Indigenous communities and organizations, stakeholders, other jurisdictions, and members of the public. It reflects the best available local and scientific knowledge, including Traditional Ecological Knowledge where it has been shared by communities and Knowledge Holders, as appropriate and may be adapted if new information becomes available. In implementing the actions in the response statement, the ESA allows the government to determine what is feasible, taking into account social, cultural and economic factors.

The Recovery Strategy for the Shortnose Cisco (*Coregonus reighardi*) in Ontario was completed on December 7, 2018.

Shortnose Cisco is a deepwater fish, typically characterized by a cylindrical body, short head and snout, small eye and short paired fins. It is presumed extirpated but was historically known from Lake Huron and Lake Ontario.

## Protecting and Recovering Shortnose Cisco

Shortnose Cisco is listed as an endangered species under the ESA, which protects both the fish and its habitat. The ESA prohibits harm or harassment of the species and damage or destruction of its habitat without authorization. Such authorization would require that conditions established by the Ontario government be met.

Globally, Shortnose Cisco was endemic to (occurred only in) three of the Great Lakes: Lake Michigan, Lake Huron and Lake Ontario. The 2005 federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Assessment and Update Status report states that although it has probably disappeared throughout its global range, searches for this species have not been extensive enough to declare it extinct. The species was last reported from Lake Ontario in 1964, Lake Michigan in 1982 and Lake Huron in 1985. Since the publication of the COSEWIC report, more recent sampling has been conducted in Lakes Huron and Ontario that could capture Shortnose Cisco; however, despite the use of appropriate sampling methods and effort, no observations were reported. The species is believed to be extirpated in Ontario (and extinct globally) although it does not yet meet the formal criteria for that designation (i.e., elapsed time since last credible record > 50 years).

Shortnose Cisco is one of ten cisco species found in Canada. The status of Shortnose Cisco is complicated by the possibility of hybridization among cisco species in the Great Lakes and the unresolved taxonomy of the cisco complex. As a result, identification of individual species can be difficult due to the similarity in traits that would typically be used to distinguish species. This is further intensified by the fact that while genetic differences have been identified among and between cisco, these results have not been consistent with the historical interpretation of species (i.e., based on morphological differences).

Little is known about the biology or habitat requirements of Shortnose Cisco. In Ontario, the species was historically known to occupy clear, cold, deepwater habitats in Lakes Huron and Ontario with depths ranging from 22 to 110 m. Although distribution data for the species are lacking, deepwater habitats within these two lakes are abundant. The Shortnose Cisco's diet consisted predominantly of freshwater crustaceans, such as Opossum Shrimp (*Mysis diluviana*) and benthic amphipods (*Diporeia* spp.) and spawning was believed to occur primarily during April through June.

The species' collapse and apparent extirpation is suspected to be the result of commercial overfishing and possibly competition with, or predation from, introduced species. If populations still exist, they may be further threatened by hybridization with other ciscoes, including the reintroduced Bloater (*Coregonus hoyi*). Current stocking efforts to re-establish self-sustaining Lake Trout (*Salvelinus namaycush*) populations in Lakes Huron and Ontario could also threaten the Shortnose Cisco by increasing predation by these species on populations of Shortnose Cisco should they exist. Competition with, or predation by, invasive species, such as Sea Lamprey (*Petromyzon marinus*), Alewife (*Alosa pseudoharengus*) and Rainbow Smelt (*Osmerus mordax*) may also have contributed to population declines or prevented its re-establishment. Another impact related to invasive species may include the effect of dreissenid mussels (e.g., Zebra Mussels (*Dreissena polymorpha*)) on the abundance of Shortnose Cisco food sources such as benthic amphipods (*Diporeia* spp.).

Formerly, the Shortnose Cisco was a valuable component of the deepwater cisco fishery (commonly known as the "chub" fishery). However, commercial fishing of these species no longer occurs within the Canadian waters of Lakes Huron or Ontario due to the collapse of deepwater cisco populations in the Great Lakes. If a commercial chub fishery becomes active in the future, overexploitation could become a threat unless appropriately mitigated or managed.

To date, there have been no recovery efforts specifically targeting Shortnose Cisco. In Ontario, it is recommended that recovery actions focus on determining whether the species is still present and undertaking research and general conservation efforts that have the potential to benefit deepwater cisco species as a whole. If Shortnose Cisco is found to be extant, consideration should be given towards potential threats and threat mitigation techniques. Once further information is available about the species and other co-occurring ciscoes in Ontario, this information may be used to review and adapt protection and recovery activities and the goal may be re-evaluated.

### **Government's Recovery Goal**

**The government's goal for the recovery of Shortnose Cisco is to increase knowledge of the species, the cisco complexes and their habitat and if populations are found to exist, mitigate threats to the Shortnose Cisco.**

## Actions

Protecting and recovering species at risk is a shared responsibility. No single agency or organization has the knowledge, authority or financial resources to protect and recover all of Ontario's species at risk. Successful recovery requires inter-governmental cooperation and the involvement of many individuals, organizations and communities. In developing the government response statement, the government considered what actions are feasible for the government to lead directly and what actions are feasible for the government to support its conservation partners to undertake.

## Government-led Actions

To help protect and recover Shortnose Cisco, the government will directly undertake the following actions:

- Continue to implement Ontario's Great Lakes Strategy (2012) including the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (COA) to help restore, protect and conserve the Ontario Great Lakes.
- Continue to collaborate with federal partners, such as Fisheries and Oceans Canada, and partners in other jurisdictions to implement fisheries monitoring programs and research, with consideration of Shortnose Cisco and other co-occurring deepwater cisco species. This includes a continued cooperative management through the implementation of the Joint Strategic Plan for the Management of Great Lakes Fisheries and participation on lake committees for the Great Lakes.
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of Shortnose Cisco data to the Ontario's central repository through the citizen science project that they receive data from (i.e., iNaturalist.ca) and directly through the Natural Heritage Information Centre.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario.
- Continue to protect Shortnose Cisco and its habitat through the ESA.
- Support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Shortnose Cisco. Support will be provided where appropriate through funding, agreements, permits (including conditions) and/or advisory services.
- Encourage collaboration, and establish and communicate annual priority actions for government support in order to reduce duplication of efforts.
- Conduct a review of progress toward the protection and recovery of Shortnose Cisco within five years of the publication of this document.

## Government-supported Actions

The government endorses the following actions as being necessary for the protection and recovery of Shortnose Cisco. Actions identified as “high” may be given priority consideration for funding under the Species at Risk Stewardship Program. Where reasonable, the government will also consider the priority assigned to these actions when reviewing and issuing authorizations under the ESA. Other organizations are encouraged to consider these priorities when developing projects or mitigation plans related to species at risk.

### Focus Area: Research and Monitoring

**Objective:** Investigate the distribution, abundance and taxonomy of Shortnose Cisco in Ontario.

Difficulties in distinguishing individual species within the Great Lakes deepwater cisco complex and understanding the processes that maintain their distinctiveness have hindered efforts to effectively manage and protect these species. Filling knowledge gaps on the taxonomy of the cisco complex species may help inform recovery planning and enable management at an appropriate level and scale. Shortnose Cisco has not been reported in Ontario waters since 1985. As such, recovery efforts should be directed at surveying for the presence/absence of the species in Ontario through targeted surveys or in collaboration with ongoing fisheries monitoring programs.

#### Actions:

1. **(High)** Further investigate the taxonomic uncertainty surrounding the cisco complex species, including Shortnose Cisco. Actions may include:
  - conducting morphological, biological, ecological, genetic and habitat assessments of cisco complexes to determine taxonomic distinctiveness of individual species, including Shortnose Cisco;
  - examining historic cisco species samples from Lake Superior to determine whether Shortnose Cisco occurred in additional Great Lakes; and,
  - analyzing archived specimens to investigate the role of Shortnose Cisco in the food chain (trophic niche) compared to other cisco species.
2. Determine if Shortnose Cisco continues to exist in Ontario. Actions may include:
  - conducting targeted surveys at locations with historic occurrences or other locations with habitat similar to historical collection sites;
  - collaborating with ongoing fisheries monitoring programs that occur in the Great Lakes;
  - conducting periodic monitoring of commercial fish catches; and,

- developing educational tools to help with the identification and reporting of any new potential records of the species.

**Focus Area: Habitat and Threat Management**

**Objective:** Maintain suitable habitat in formerly occupied areas of Lake Huron and Lake Ontario and if populations are found to exist, mitigate threats to the Shortnose Cisco.

Until its existence is confirmed, conservation efforts are likely best directed at actions that maintain the quality of deepwater habitat previously utilized by Shortnose Cisco in Lake Huron and Lake Ontario. If new occurrences of Shortnose Cisco are discovered in Ontario, further research may be beneficial to first understand the extent and magnitude of potential threats and secondly to develop and implement threat management techniques to reduce their effects.

**Actions:**

3. Maintain and improve the quality of habitat for deepwater fish in the Great Lakes, including at sites where the Shortnose Cisco has been found historically. This may include implementing actions in Ontario's Great Lakes Strategy.
4. If Shortnose Cisco is found to exist in Ontario, develop, implement and evaluate the effectiveness of threat mitigation techniques.

## Implementing Actions

Financial support for the implementation of actions may be available through the Species at Risk Stewardship Program. Conservation partners are encouraged to discuss project proposals related to the actions in this response statement with the program staff. The Ontario government can also advise if any authorizations under the ESA or other legislation may be required to undertake the project.

Implementation of the actions may be subject to changing priorities across the multitude of species at risk, available resources and the capacity of partners to undertake recovery activities. Where appropriate, the implementation of actions for multiple species will be coordinated across government response statements.

## Reviewing Progress

The ESA requires the Ontario government to conduct a review of progress towards protecting and recovering a species no later than the time specified in the species' government response statement, or not later than five years after the government response statement is published if no time is specified. The review will help identify if adjustments are needed to achieve the protection and recovery of Shortnose Cisco.

## Acknowledgement

We would like to thank all those who participated in the development of the Recovery Strategy for the Shortnose Cisco (*Coregonus reighardi*) in Ontario for their dedication to protecting and recovering species at risk.

### **For additional information:**

Visit the species at risk website at [ontario.ca/speciesatrisk](http://ontario.ca/speciesatrisk)  
Contact the Ministry of the Environment, Conservation and Parks  
1-800-565-4923  
TTY 1-855-515-2759  
[www.ontario.ca/environment](http://www.ontario.ca/environment)