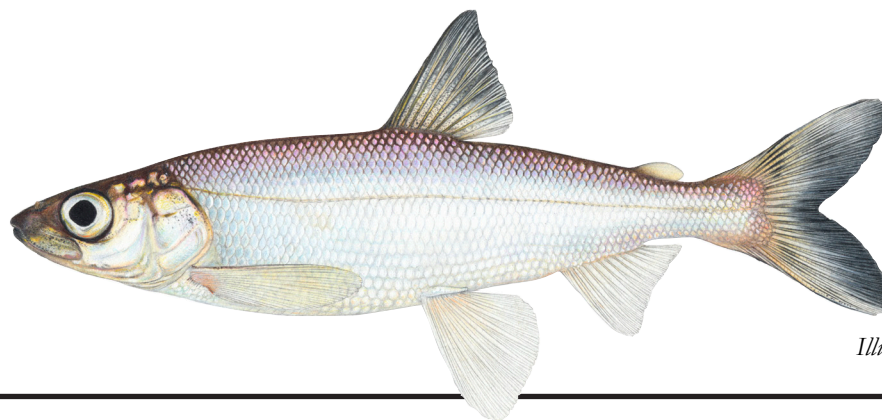


# Aquatic Species at Risk



## The Upper Great Lakes **Kiyi** ... a **Species at Risk** in Canada

COSEWIC Status - SPECIAL CONCERN May 2005  
SARA Status - SPECIAL CONCERN December 2007



*Coregonus kiyi kiyi*  
Illustration © Joseph R. Tomelleri

This species has been assessed as Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is currently listed as Special Concern under the *Species at Risk Act* (SARA), and was afforded

protection as of December 2007. Similarly, it is also listed as Special Concern under Ontario's *Endangered Species Act, 2007*. As required under SARA, a management plan has been developed for this species.

### General description

The Kiyi (*Coregonus kiyi kiyi*) is among the deepest water forms of cisco species found in Canada. It is a member of the Salmonidae family and has the following characteristics:

- laterally compressed body with large eyes that comprise 22 to 26 per cent of the head length;
- terminal mouth with lower jaw usually extending beyond the upper jaw;
- mainly silver in colour with some pink and purple iridescences;
- long paired fins;
- sexually mature between ages two and five years; and
- typical measurements range between 100 and 200 mm, and weights of 10 to 60 g, but have been recorded in excess of 300 mm and 125 g.



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## Distribution

The Kiyi is endemic to all of the Laurentian Great Lakes except Lake Erie. The Upper Great Lakes population (*Coregonus kiyi kiyi*) is believed to currently exist only in Lake Superior. Believed extirpated, it was last recorded in Lake Huron in 1973 and in Lake Michigan in 1974. The Lake Ontario population (*Coregonus kiyi orientalis*) is considered extinct, last recorded in 1964.

Kiyi appears to be widely distributed in the deep waters of the offshore (generally most abundant at depths of 150 m) making up a significant proportion of the fish community in Lake Superior. They are also found in reduced numbers in the shallow waters of the nearshore. Kiyi move to shallower water depths at night, typically less than 50 m, in search of their prey.

## Habitat and life history

Little is known about the habitat preferences and life history of the Kiyi. It lives in a clear, cold-water environment at depths ranging from 10 m to 305 m, with peak abundances found at depths between 130 to 150 m. Kiyi have been collected over lake bottoms of clay and mud substrates. Spawning generally occurs in the late fall at depths between 91 and 168 m. The age of maturity is between two and five years. The maximum known age for females is 22 years, and 16 for males. The Kiyi is prey for Burbot (*Lota lota*) and deepwater forms of Lake Trout (*Salvelinus namaycush*). Kiyi eggs may also provide a prey source for other fish, including Lake Whitefish (*Coregonus clupeaformis*).

## Diet

The Kiyi feeds on deepwater crustaceans such as *Mysis relicta* and *Diporeia hoyi*. Secondary prey items chironomids, calanoid copepods, clams and *Daphnia spp.*

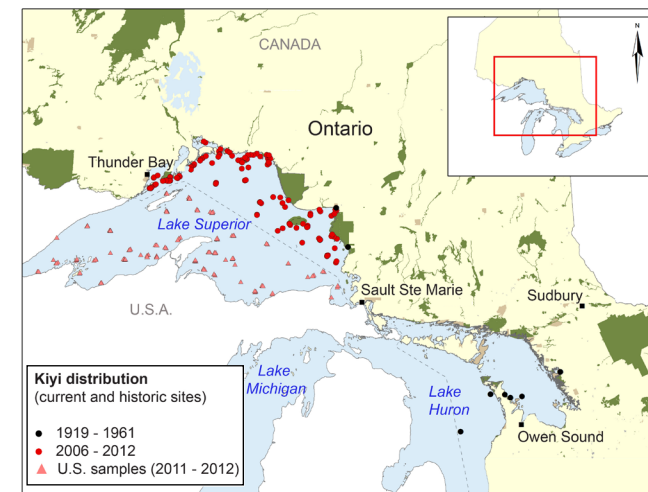
## Threats

Commercial overfishing of Kiyi was likely the cause of its decline in lakes Huron, Michigan and Ontario. Remaining Kiyi populations in lakes Huron and Ontario likely have competed with, or have been preyed upon by, introduced fish species such as the Sea Lamprey (*Petromyzon marinus*), Alewife (*Alosa pseudoharengus*) and Rainbow Smelt (*Osmerus mordax*). Other issues, including degraded water quality (from the continuing pressures of contaminant and nutrient inputs in the Great Lakes) are also ongoing, with likely impacts on Kiyi survival and habitat. Climate change has been identified as a possible factor that could worsen the situation in the future. Lastly, certain pathogens, particularly viral hemorrhagic septicaemia (VHS), have the potential to generate mass mortality in a variety of fish species. Detected in Lake Superior watershed in 2010, future outbreaks of VHS could decimate the remaining Kiyi population.

## Similar species

The Kiyi can be distinguished from the two other deepwater cisco species (*C. hoyi* and *C. zenithicus*) known to exist in the Great Lakes by its unique combination of large eyes and long paired fins.

## Kiyi distribution in Canada



**Text Sources:** COSEWIC assessment and status report on the Kiyi in Canada, 2005; Fisheries and Oceans Canada. Management Plan for the Kiyi, Upper Great Lakes (*Coregonus kiyi kiyi*) in Canada [proposed], 2013.

For more information, visit the SARA Registry at [www.SARAreistry.gc.ca](http://www.SARAreistry.gc.ca) or the website below.

*Cette publication est également disponible en français.*

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[www.aquaticspeciesatrisk.gc.ca](http://www.aquaticspeciesatrisk.gc.ca)

*Section 32 (1) of the Species at Risk Act (SARA) states that “no person shall kill, harm or harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.”*