

## Species Status Assessment

**Class:** Actinopterygii  
**Family:** Salmonidae  
**Scientific Name:** *Coregonus hoyi*  
**Common Name:** Bloater (bloater chub)

### Species synopsis:

This species is one of four ciscoes, which were once the most abundant prey fish in the Great Lakes (Baldwin 1999). It is a deepwater, benthic freshwater fish found in large lakes at depths of 30-190m (125-400ft) that migrates vertically at night to feed on *Mysis* and other invertebrates in the water column. Currently, bloater is only present in Lake Huron, Superior, and Michigan; it is considered extirpated from Lake Ontario and Lake Nipigon (Ontario). Populations in New York declined dramatically by the mid-20<sup>th</sup> century, possible due to over-harvest and expanding populations of invasive alewife and rainbow smelt (NYSDEC 2012). Reintroduction efforts are currently underway in New York and Ontario.

### I. Status

#### a. Current and Legal Protected Status

i. **Federal**      Not Listed      **Candidate?**    No

ii. **New York**      SGCN

#### b. Natural Heritage Program Rank

i. **Global**      G4

ii. **New York**      SX      **Tracked by NYNHP?**    Yes

### Other Rank:

Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Not at Risk (01Apr1988)  
IUCN Red List Category: Vulnerable

### Status Discussion:

This species is extirpated from the waters of New York State; it was previously found in New York only in Lake Ontario. NYSDEC/USGS began reintroduction efforts with the release of fall fingerlings

in Lake Ontario during the fall of 2012; efforts will continue in 2013-2014 by NYSDEC/USGS and officials in Ontario.

**II. Abundance and Distribution Trends**

**a. North America**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

**Time frame considered:** Past 10 years (NatureServe 2012)

**b. Regional**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

**Regional Unit Considered:** Great Lakes

**Time Frame Considered:** Past 10 years (NatureServe 2012)

**c. Adjacent States and Provinces**

**CONNECTICUT**                    **Not Present**   X                      **No data** \_\_\_\_\_

**MASSACHUSETTS**                    **Not Present**   X                      **No data** \_\_\_\_\_

**NEW JERSEY**                    **Not Present**   X                      **No data** \_\_\_\_\_

**PENNSYLVANIA**                    **Not Present**   X                      **No data** \_\_\_\_\_

**QUEBEC**                    **Not Present**   X                      **No data** \_\_\_\_\_

**VERMONT**                    **Not Present**   X                      **No data** \_\_\_\_\_

**ONTARIO**                    **Not Present** \_\_\_\_\_                    **No data** \_\_\_\_\_

**i. Abundance**

       **declining**           **increasing**                      X   **stable**           **unknown**

**ii. Distribution:**

       **declining**           **increasing**                      X   **stable**           **unknown**

Time frame considered:   Past 10 years (NatureServe 2012)  

Listing Status:                   Not Listed

**d. NEW YORK**

No data \_\_\_\_\_

**i. Abundance**

X  declining    \_\_\_ increasing    \_\_\_ stable    \_\_\_ unknown

**ii. Distribution:**

X  declining    \_\_\_ increasing    \_\_\_ stable    \_\_\_ unknown

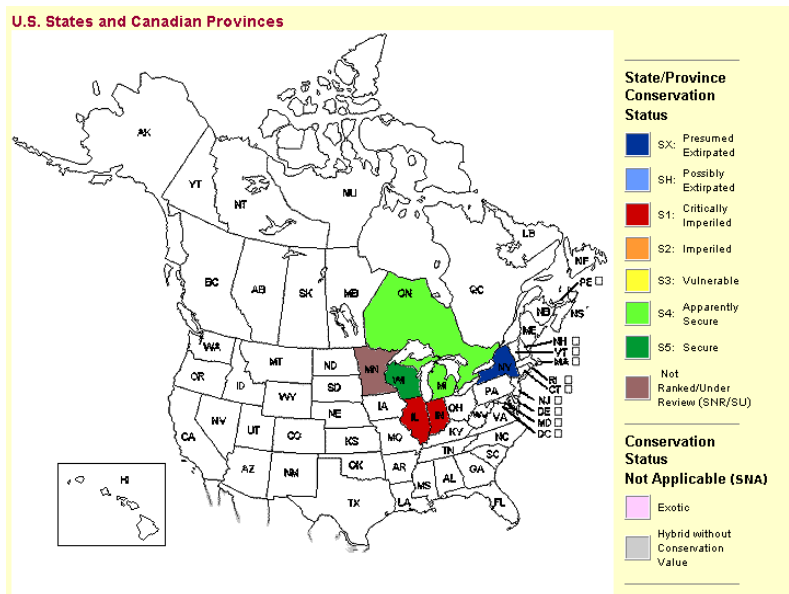
Time frame considered:  1950 – present

**Monitoring in New York.**

NYSDEC/USGS Lake Ontario spring and fall bottom trawling, and fall gillnetting.

**Trends Discussion:**

The bloater has been extirpated from Lake Ontario; the last known fish was collected in 1983. Secure populations can still be found in Lakes Michigan, Huron, and Superior (Smith 1985, NatureServe 2012). In 2012 the NYSDEC, working with the USGS, released juvenile bloomers into Lake Ontario to try to re-establish the species (NYSDEC 2012, S. LaPan, personal communication).



**Figure 1:** Conservation status of bloater in North America (NatureServe 2012).

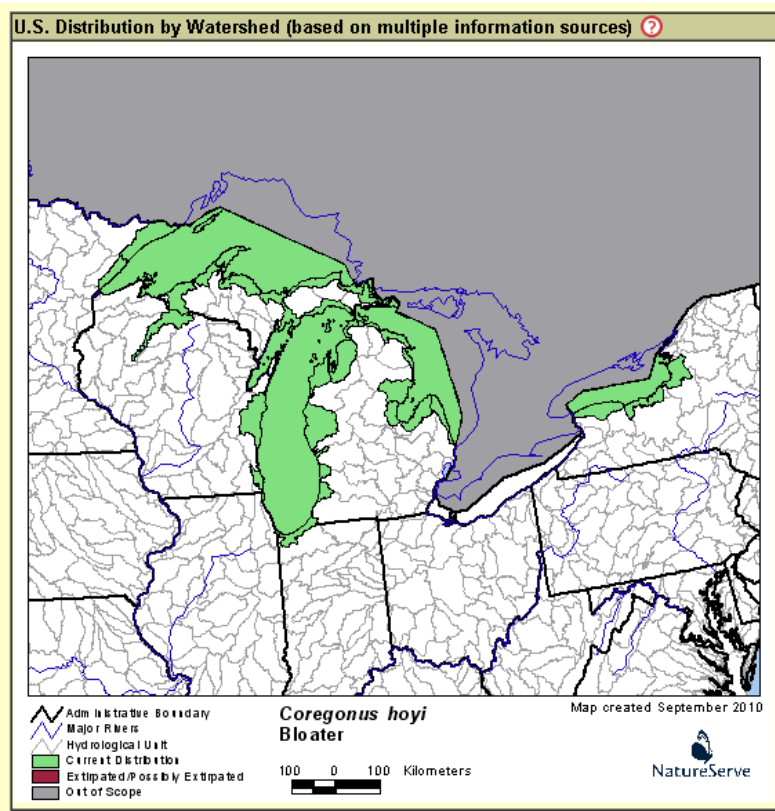


Figure 2: Distribution of bloater in the United States (NatureServe 2012).

**III. New York Rarity, if known:**

| <b>Historic</b>      | <b><u># of Animals</u></b> | <b><u># of Locations</u></b> | <b><u>% of State</u></b> |
|----------------------|----------------------------|------------------------------|--------------------------|
| <b>prior to 1970</b> | _____                      | _____                        | _____                    |
| <b>prior to 1980</b> | _____                      | <u>1</u>                     | _____                    |
| <b>prior to 1990</b> | _____                      | _____                        | _____                    |

**Details of historic occurrence:**

Historically, bloaters were present in New York only in Lake Ontario, distributed throughout the lake.

| <b>Current</b> | <b><u># of Animals</u></b> | <b><u># of Locations</u></b> | <b><u>% of State</u></b> |
|----------------|----------------------------|------------------------------|--------------------------|
|                | _____                      | <u>0</u>                     | _____                    |

**Details of current occurrence:**

There are currently no self-sustaining populations of bloater in New York. It is suspected that the bloater is extirpated from Lake Ontario since the last collected specimen was found in 1983 (Miller et al. 1990, Baldwin 1999, NYSDEC 2012). The distribution map for the Great Lakes (Figure 2) shows Lake Ontario as a part of the current distribution, however this was incorrect in 2010. Bloater fall fingerlings (1,200) were released by NYSDEC/USGS in 2012 near Oswego, NY. Larger stockings are planned in 2013-2014 by NYSDEC/USGS and Ontario.

**New York's Contribution to Species North American Range:**

| <b>% of NA Range in New York</b> | <b>Classification of New York Range</b> |
|----------------------------------|---|
| <u>   </u> 100 (endemic)         | <u>   </u> Core                         |
| <u>   </u> 76-99                 | <u>   </u> Peripheral                   |
| <u>   </u> 51-75                 | <u>  X  </u> Disjunct                   |
| <u>   </u> 26-50                 | <b>Distance to core population:</b>     |
| <u>  X  </u> 1-25                | <u>   ~200 miles   </u>                 |

**IV. Primary Habitat or Community Type:**

1. Summer-stratified Monomictic Lake
2. Benthic
3. Great Lakes Deepwater Community

**Habitat or Community Type Trend in New York:**

Declining       Stable       Increasing       Unknown

**Time frame of decline/increase:** \_\_\_\_\_

**Habitat Specialist?**       Yes       No (deepwater specialist)

**Indicator Species?**       Yes       No

**Habitat Discussion:**

The bloater is found in deep water of large lakes usually at depths of 30-190 meters (NatureServe 2012). Spawning occurs on the bottom usually at about 50-100 meters (NatureServe 2012). It preys mainly on crustaceans, including zooplankton and crustaceans on or near the bottom (NatureServe 2012).

**V. New York Species Demographics and Life History**

- Breeder in New York**
- Summer Resident**
- Winter Resident**
- Anadromous**
- Non-breeder in New York**
- Summer Resident**
- Winter Resident**
- Catadromous**
- Migratory only**
- Unknown**

**Species Demographics and Life History Discussion:**

Bloaters average in length from 200-250 mm depending on the lake (Scott and Crossman 1973). They spawn mostly during the fall and winter months in depths from 36-91 m over all bottom types and eggs take about four months to hatch (Scott and Crossman 1973). A fish reached sexual maturity in Lake Ontario in two or three years (Stone 1947). Bloaters were approximately 144 mm in one year and 161 mm by year two (Pritchard 1931). According to Emery and Brown (1978), "A 241-mm female in Lake Michigan contained 3,230 eggs; a 305-mm female contained 18,678 eggs."

**VI. Threats:**

For any bloater populations in Lake Ontario the major threat is competition with the invasive alewife and rainbow smelt, established species that utilize the same food source as bloaters (Miller et al. 1990, Baldwin 1999). The bloater may also be a host species to the lamprey which may cause mortality (Miller et al. 1990). Although it is not a highly prized game species, the bloater is a viable fishery in other Great Lakes and overfishing contributed to their decline in Lake Ontario in the early 20<sup>th</sup> century (Baldwin 1999) however commercial fishing effort in Lake Ontario is currently low and limited to the eastern basin.

**Are there regulatory mechanisms that protect the species or its habitat in New York?**

- No**
- Unknown**



X   Yes

Fishing regulations are possible but currently there are none for cisco in New York.

The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Conservation Law.

**Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:**

NYSDEC began stocking the bloater in an attempt to diversify prey species populations in Lake Ontario. In November of 2012, 1,200 fish were released ranging from 1-6 grams (NYSDEC 2012, S. LaPan, personal communication). In the spring of 2013, the Ontario Ministry of Natural Resources (OMNR) plans to release approximately 20,000 large fish (>8 grams) (S. LaPan, personal communication). During the winter of 2012-13, egg collection on Lake Michigan provided the USGS Tunison Lab with about 57,000 eggs and the OMNR with 455,000 eggs for future stocking efforts (S. LaPan, personal communication).

Conservation actions following IUCN taxonomy are categorized in the following table.

| Conservation Actions       |                                     |
|----------------------------|-------------------------------------|
| Action Category            | Action                              |
| Land/Water Management      | Habitat/Natural Process Restoration |
| Species Management         | Species Recovery                    |
| Species Management         | Species Reintroduction              |
| External Capacity Building | Alliance & Partnership Development  |

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for species in the extirpated fishes group, which includes the bloater.

**Habitat monitoring:**

\_\_\_ Inventories will be completed in all areas where restoration might be practical.

**Relocation/reintroduction:**

\_\_\_ Re-establish, if feasible, populations of those endangered fish species now believed to be extirpated from New York.

## VII. References

- Baldwin, B. 1999. Discussion Paper – Native prey fish re-introduction into Lake Ontario. Great Lakes Fishery Commission, Lake Ontario Commission, Lake Ontario Technical Committee.
- Emery L. and E.H. Brown Jr. 1978. Fecundity of the bloater (*Coregonus hoyi*) in Lake Michigan. Trans. Am. Fish. Soc. 107(6): 785-789.
- LaPan, Steve. Personal communication. February 11, 2013.
- Miller, T., L.B. Crowder, and F.P. Binkowski. 1990. Effects of changes in the zooplankton assemblage on growth of bloater and implications for recruitment success. Transactions of the American Fisheries Society 119: 483-491.
- NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <<http://www.natureserve.org/explorer>>. Accessed: 04 February 2013.
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- Pritchard, A.L. 1931. Taxonomic and life history studies of the cisco of Lake Ontario. University of Toronto Studies. Publications of the Ontario Fisheries Research Laboratory No. 41. University of Toronto Press. Toronto, ON, Canada.
- Smith, L.C. 1985. The Inland Fishes of New York State. NYSDEC. Albany, NY.
- Stone, U.B. 1947. A study of the deepwater cisco fishery of Lake Ontario with particular reference to the bloater, *Luecichthys hoyi*. Trans. Am. Fish. Soc. 74 (1944): 230-249.

**Date last revised:** July 15th, 2013