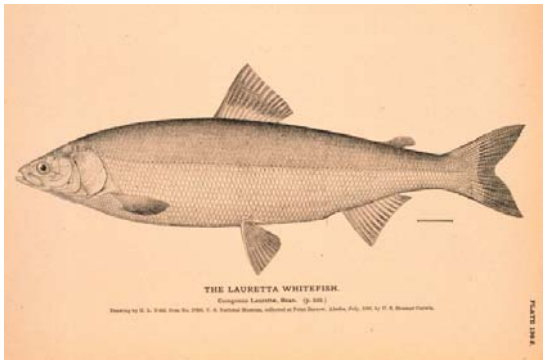
# BERING CISCO

## TAXONOMY




**Scientific name:** *Coregonus laurettae* (Bean 1881)
**Common name:** Bering cisco
**Family**: Salmonidae
**Taxonomic comments:**
The Bering cisco is a whitefish; in North America, the name applies to species in the subfamily Coregoninae. Regarded as conspecific with the arctic cisco (*C. autumnalis*) by many authors until distinguished by McPhail (1966). The 1991 AFS checklist (Robins et al. 1991) recognized *autumnalis* and *laurettae* as distinct species, but Page and Burr (1991) regarded *laurettae* as a subspecies of *C. autumnalis*. See Morales et al. (1993) for a discussion of the taxonomic status of samples from Point Barrow, Alaska.

## DESCRIPTION

**Basic description:** A whitefish.

**General description:**
A rather elongate, slightly compressed body; generally brownish to dark green dorsally; silvery on lower sides and belly. Black dots with halos on body, and/or white spots on fins; caudal and dorsal fins dusky; distinguished by pale, almost colorless anal, pectoral, and pelvic fins; number of gill rakers on lower limb of first arch is fewer (18-25) than in *C. autumnalis* (26-31) (Morrow 1980, Edge 1991, Mecklenburg et al. 2002).
**Length (cm):** 48

**Reproduction:**
Believed to spawn in fall, but little is known about spawning behavior and location of spawning grounds (Morrow 1980). Three known populations spawn in the Yukon, Kuskokwim and Susitna rivers. In the Susitna River, Bering cisco spent 15-20 days on spawning grounds, with peak spawning occurring during the second week of October (ADFG 1981).

**Ecology:**
Generally not targeted for subsistence use, but harvested in small numbers where it occurs in the Yukon and Kuskokwim rivers with other harvested whitefish (Morrow 1980).

**Migration:**
Primarily freshwater and coastal marine, but some populations are anadromous and undertake extreme spawning migrations into freshwater systems. Some populations may spend winter in freshwater far from sea; upstream migrations probably occur in late summer (Scott and Crossman 1973, Morrow 1980, Mecklenburg et al. 2002).

**Food:**
Diet includes amphipods and other invertebrates and small cottids; apparently does not feed during spawning runs (Morrow 1980).

**Habitat:**
Most believed to winter in salt or brackish water near river mouths, but occurrence in the lower Porcupine river (1610 km from the sea) in mid-June suggests some may spend winter in freshwater far from the sea (Alt 1973). Spawning occurs in clear-water streams and tributaries to major rivers. Spawning habitat in the Susitna River was characterized by depths of 0.5-2.5 ft, water temperatures 3.0-3.8 degrees C, and substrate ranging from silt to cobble but predominantly 1- to 3-inch gravel and cobble (ADFG 1981 and 1983).

## STATUS

**Global rank:** G4 (1996-09-09)
**Global rank reasons:**
Global rank reasons currently unavailable.

**State rank:** S4 (2004-08-24)
**State rank reasons:**
Primarily an Alaskan endemic, except for a few sightings off Chukotsk Peninsula. Apparently abundant wherever it occurs, although total population and trends unknown. Habitat condition is generally good to pristine where known. Greatest threat is from subsistence harvest and habitat disturbance at localized spawning grounds.

## DISTRIBUTION AND ABUNDANCE

**Range:**
**Global range:**
Alaska from Cook Inlet on the south coast to Oliktok Point on the arctic coast, including the Yukon River as far upstream as Dawson, Yukon Territory (Edge 1991), Porcupine River, mouth of Ship Creek (Knik Arm) at Anchorage, Tolugak Lake in Anaktuvuk Pass in Brooks Range, and Kenai River. May occur also in eastern Siberia (not included in the range by Page and Burr 1991), but these were probably migrants from Alaska, as no spawning populations have been reported for Asia. See also Morales et al. (1993) for a discussion of distribution of *Coregonus* in northern Alaska.

**State range:**
Alaska range extends from Cook Inlet on the south coast to Oliktok Point on the Beaufort Sea; Yukon River as far upstream as Dawson, Yukon Territory (Edge 1991), Porcupine River, mouth of Ship Creek (Knik Arm) at Anchorage, Tolugak Lake in Anaktuvuk Pass in Brooks Range, and Kenai River. An anadromous population inhabits the Kuskokwim River (Morrow 1980, Mecklenburg et al. 2002). Marine distribution in the Bering Sea extends from Bristol Bay to Kotzebue Sound, and some individuals have been identified as far away as the Colville River delta. The marine distribution of the Susitna River population is unknown, but presumably they range throughout Cook Inlet and perhaps even farther.

**Abundance:**

**Global abundance:**
See State abundance comments below.

**State abundance:**
Species is essentially endemic to Alaska, except for possible occurrence in eastern Siberia. Considered fairly abundant throughout Alaskan range (Morrow 1980).

**Trends:**

**Global trend:**
See State trend comments below.

**State trend:**
Fall surveys of the Colville River fishery documented a peak in relative abundance in 1990, followed by a consistent decline through 2003 (Moulton 2001, Moulton and Seavey 2004). Trends unknown for remainder of species range.

## EXISTING PROTECTION

**Global protection:**
See State protection below.

**State protection:**
Habitat is protected where species occurs in Yukon Delta, Togiak, Nowitna, and Koyukuk National Wildlife Refuges, and in Bering Land Bridge National Monument and Cape Krusenstern National Preserve.

## CHALLENGES

**Global challenges:**
See State challenges below.

**State challenges:**
Localized subsistence harvest occurs to a small degree; small numbers are taken by fish wheels and gill nets on the Yukon and Kuskokwim Rivers. Similar use probably exists wherever subsistence fishing occurs within species range (Morrow 1980).

Species is believed to have highly confined, localized spawning areas, which could be susceptible to local habitat disturbance. Industrial development is a concern for Beaufort Sea cisco populations. Habitat alteration and seawater intakes associated with oil and gas development are potential threats (Craig 1984). Anadromous populations tend to be slow-growing, late-maturing, and long-lived, which leave them particularly vulnerable to large-scale disasters, such as oil spills (Craig 1984).

Effects of global warming on species distribution and prey base are unknown, but major ecological changes, particularly in the Gulf of Alaska and Bering Sea, could have serious repercussions to Bering cisco populations.

## RESEARCH AND INVENTORY NEEDS

**Global research needs:**
See State research needs below.

**State research needs:**
Further research to determine taxonomic status of the Bering and arctic cisco should be conducted. Determination of spawning locations and spawning habitat requirements, especially in the Yukon and Kuskokwim Rivers, is also a priority. Little is understood of species migration, habitat preferences and reproductive biology; needs study. Some information may be obtained from local knowledge, particularly run timing and amount of harvest (historical and contemporary).

**Global inventory needs:**
See State inventory needs below.

**State inventory needs:**
Little information available on species abundance, population trends and distribution. Monitoring protocols for this species should be developed (perhaps using mark-recapture techniques) to attain an accurate estimate of overall Alaska population size. Monitoring should continue on an annual basis. Identification of important spawning areas on Yukon, Kuskokwim and Susitna Rivers needed. Subsistence harvest should be monitored on Yukon and Kuskokwim Rivers.

## CONSERVATION AND MANAGEMENT NEEDS

**Global conservation and management needs:**
See State conservation and management needs below.

**State conservation and management needs:**
Although apparently small, subsistence harvest should be monitored in river and coastal villages. Protection of key spawning areas may be important, especially in areas where disturbance and habitat degradation are issues.

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**Acknowledgements**

**State Conservation Status, Element Ecology & Life History Author(s):** Gotthardt, T.A., M. Booz and J.G. McClory
**State Conservation Status, Element Ecology & Life History Edition Date:** 23Mar2005

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Life history and Global level information were obtained from the on-line database, NatureServe Explorer (www.natureserve.org/explorer). In many cases, life history and Global information were updated for this species account by Alaska Natural Heritage Program zoologist, Tracey Gotthardt. All Global level modifications will be sent to NatureServe to update the on-line version.

**Global Element Ecology and Life History Authors:** G. Hammerson, January 1994.