

Photo credit: Norwegian Seafood Export Council.

**Current Status:**

**Demographic and Genetic Diversity Concerns:**

Northeast Fisheries Science Center (NEFSC) autumn bottom trawl survey biomass index has fluctuated considerably (Figure 1), but a declining trend has been evident since the late 1960s with all indices remaining at or close to record-low levels from 1985 through 2002 (Sosebee and Cadrin 2006). The 1998 biomass index is near zero and is the record low. Cusk have also been found to be distributed primarily in deeper waters in the central portion of the Gulf of Maine (Sosebee and Cadrin 2006). The declining trend is also apparent in the distribution maps, and very few fish were caught in 1993-1997 and 1998-2002 (Sosebee and Cadrin 2006). Mean length has also declined from 24 inches (62 cm) during 1964 to 1987 to 19 inches (50 cm) during the period of 1988 to 1998. In the early 1970s, individual fish weight averaged 7 lbs (3 kg) but declined to 3 lbs (1.5 kg) in the late 1990s. Landings and survey indices have dropped considerably from 1984 to 2004 (NMFS 2000). The ratio of landings to survey biomass estimates has been increasing since 1986, which implies increased exploitation over that time period.

The catch per unit effort (CPUE) from 1970-2001, or 3.5 cusk generations, declined by 93.4% while population estimates for fish greater than 20 inches (50 cm) in the same time frame demonstrated a 95.5% decline (COSEWIC 2003). Furthermore, according to COSEWIC (2003), cusk are caught in a smaller area on the Scotian shelf each year. The slow growth and late maturation of this species is also a concern.

**KEY INFORMATION**

**Area of Concern**

Gulf of Maine

**Year Identified as "Species of Concern"**

2004

**Factors for Decline**

- Commercial fishing
- Bycatch

**Conservation Designations**

IUCN: Not Evaluated

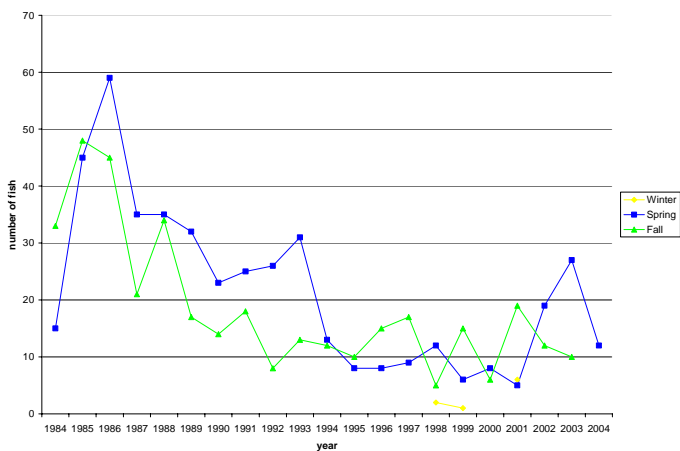


Figure 1. NEFSC trawl survey data 1984-2004.



## Species of Concern

NOAA National Marine Fisheries Service

### Existing Protections and Conservation Actions:

Fishing was unrestricted in Canada until 1999 when limitations were established for landings in the Scotia-Fundy region, yet fishing still continues to be a source of mortality.

### Factors for Decline:

Principal gears used to catch cusk are line trawl, otter trawl, gill net, and longline. *Brosme* is often taken as **bycatch** on longlines directed at Atlantic halibut, cod, haddock and Pollock (COSEWIC 2003). Recreational fishing is insignificant and foreign catches are minor. Cusk landings were relatively stable at 1700 mt per year in the 1960s to 1970s. Landings increased to 2363 mt in the late 1970s to mid 1980s, fluctuated in the late 1980s and early 1990s between 1500 and 2400 mt, and then declined to 78.6 mt in 2004.

### Data Deficiencies:

General information on life history characteristics including nursery areas for juveniles and spawning areas for adults is lacking. Additional information on habitat requirements for this species and estimates of the amount of available suitable habitat are also needed.

### Brief Species Description:

*Brosme* is a monotypic genus (i.e., cusk is the only animal species to occur worldwide in this genus). Cusk attain lengths up to 3 feet (90 cm) and weights up to 20 pounds (9 kg). They are physically defined by a single chin **barbel** and only one dorsal fin. The species' upper body ranges from a light grey with hints of brown to a dull reddish brown that transitions into a dirty white belly.

Cusk from the Scotian Shelf off Nova Scotia, Canada are relatively slow growing and late maturing. Depending on location, fifty percent of adults mature at approximately 20 inches (5 to 6 years). Maximum age is believed to be over 14 years, and sexual maturity is reached by 5 (males) or 7 (females) years. Little is known about Gulf of Maine cusk, and the **stock** structure is unknown.

There are regional variations in diet, but generally it consists of crustaceans, fishes, and echinoderms (Collette and Klein-MacPhee 2002). They are a deep water species found in rocky, hard bottom areas and reside in the temperature range of 1-10°C in the Gulf of Maine (COSEWIC 2003). They spawn in spring and early summer. Eggs initially rise to the surface where hatching and larval development takes place. Juveniles move to the bottom at 2 inches (5 cm) in length and become sedentary and solitary (Collette and Klein-MacPhee 2002).

### Contact Information

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### References:

COSEWIC. 2003. Assessment and Status Report on the Cusk (*Brosme brosme*) in Canada. May 2003.

Collette, B.B. and G. Klein-MacPhee. 2002. Fishes of the Gulf of Maine. Smith. Inst. Press. Washington, D.C.

NMFS. 2000. Status of Fisheries Resources off Northeastern United States - Cusk. January 2000. <http://www.nefsc.nmfs.gov/sos/spsyn/og/cusk/>.

Sosebee, K.A. and S.X. Cadrin. 2006. Northeast Fisheries Science Center Reference Document 06-05.