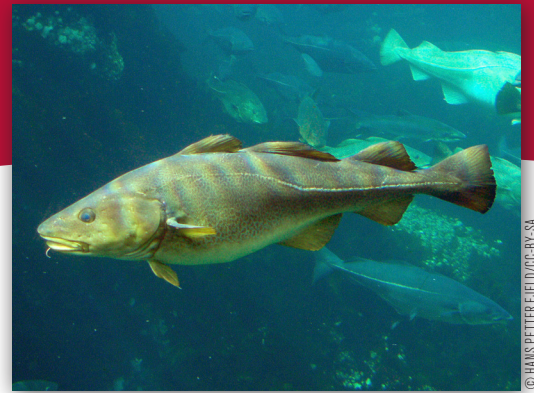


# THE HEAT IS ON

Species feeling the effects of climate change



## Atlantic Cod

*Gadus morhua*

### Region:

Atlantic Ocean

### Area affected:

North Atlantic

### Climatic change:

Warmer oceans

### Impact:

Food web changes

### ABOUT THIS SPECIES

The Atlantic cod has been a staple in American diets and commerce since colonial times and was an important resource for native peoples for thousands of years before that. Although its range in the western Atlantic stretches as far south as Virginia, its population strongholds have historically been off the coasts of Maine and Massachusetts. Indeed, early explorers named Cape Cod for the bounty found in the area. Atlantic cod can grow to over four feet long and up to nearly 80 pounds, although fish of such size are rarely seen today. Adults prefer cold water and live primarily along the ocean bottom at depths of about 500 feet. Schools of cod undertake complex seasonal migrations, moving to shallower or more southerly waters in the winter and northward or to deeper waters in spring. The cod feed on a wide variety of other fish and marine invertebrates. Females spawn near the ocean bottom, but the eggs float up to the upper reaches of the water column, where larval cod live and feed on tiny organisms called zooplankton for the first three months of their lives.

### DESCRIPTION OF IMPACT

Sustained fishing pressure led to the near collapse of the Atlantic cod population off the coast of New England in the mid-1990s. Fishery managers slashed harvest quotas in an effort to rebuild population levels, but, as of 2012, the fisheries in both Georges Bank and the Gulf of Maine were still considered seriously depleted. **The failure of Atlantic cod stocks to rebound over the past 20 years is probably due at least in part to major ocean changes associated with climate warming.** An examination of decades' worth of survey data showed that warm water habitats have been increasing at the expense of colder habitats in the region. These temperature changes are affecting ocean circulation patterns, leading to a decline in two types of zooplankton that are a critical food source for larval cod, which consequently have also decreased in abundance.

### References

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NOAA. 1999. Essential Fish Habitat Source Document: Atlantic Cod, *Gadus morhua*, Life History and Habitat Characteristics. Technical Memorandum NMFS-NE-124. NOAA, National Marine Fisheries Service, Northeast Region, Northeast Fisheries Science Center. Woods Hole, MA. <http://www.nefsc.noaa.gov/publications/tm/tm124/tm124.pdf>



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