

Atlantic Herring
Clupea harengus



ASMFC Management Area: ME - NJ

Common Names: Sea herring, sardine, herring

Interesting Facts:

* Atlantic sea herring are often confused with river herring. Sea herring spend their entire life at sea, while river herring migrate annually to freshwater to spawn.
* Atlantic and Pacific herring have been found to produce a burst of sound, called a Fast Repetitive Tick, at night. It is believed that this high-pitched click-like sound is used by herring to signal their location, thereby making it easier to form schools at night (Source: <http://biologybiozine.com>).
* After 100 years of operation, the Stinson Cannery of Gouldsboro, ME, closed its doors in April 2010. It was the last sardine cannery left in the US.

**Age/Length at Maturity: 3 years/
9.1 inches**

**Stock Status: Not overfished and
not experiencing overfishing**

Species Profile: Atlantic Herring **Important Northeast Fish Provides Bait & Forage Needs**

Introduction

Atlantic herring (*Clupea harengus*) is a member of the clupeid family, which are typically small, schooling marine fishes, such as menhaden, shad, and sardines. This species is also known as sea herring because it spends its entire life cycle in the ocean (unlike the anadromous river herring). Atlantic herring inhabits the coastal waters of the United States from Cape Hatteras, North Carolina through Labrador, Canada, and also off the coasts of Europe. Herring form the base of the food web as a forage fish for marine mammals, seabirds, and many fish throughout the Mid-Atlantic and Northeast. They are an effective and affordable bait source for lobster, blue crab, and tuna fishermen, and were historically sold by fish canneries as sardines. Whale watching/ecotourism and salt retailers are indirectly dependent on a steady supply of herring because whales migrate inshore in pursuit of schooling herring and fishermen buy salt to preserve their fish. Overseas, frozen and salted herring are a valued commodity.

The Commission's Atlantic Herring Section manages herring in state waters (0 - 3 miles from shore), while the New England Fishery Management Council (Council) regulates the stock in federal waters (3 - 200 miles from shore). Complementary interstate and federal herring fishery management plans (FMPs) began in 1999 and have evolved through subsequent amendments to meet the changing needs of the resource and communities that rely on them. Both the Commission and Council seek to maintain the resource's high abundance level while also maintaining traditional use patterns in the fishery, allowing for an expanded bait fishery, and protecting herring's role as forage in the Northwest Atlantic ecosystem. Management of Atlantic herring includes conservation of its relative, the river herring (alewife and blueback herring). Unlike the abundant sea herring, river herring have precipitously declined in recent years. Both the Commission and Council have been working together to develop a comprehensive monitoring program to assess the extent of river herring bycatch in the directed Atlantic herring fishery, as well as seek ways to reduce it.

Life History

Atlantic herring are oceanic, plankton-feeding fish that occur in large schools and inhabit coastal and continental shelf waters from Labrador to North Carolina. They usually feed at night following the massive vertical migrations of zooplankton that inhabit deep waters by day and surface waters by night. Juveniles (called sardines) undergo seasonal inshore-offshore migrations. Sardines are abundant in shallow, inshore waters during the warmer months of the year. Adults (age three and older) migrate south from summer/fall spawning grounds in the Gulf of Maine and Georges Bank to spend the winter in Southern New England and the Mid-Atlantic.

Herring spawn as early as August in Nova Scotia and eastern Maine and during October and November in the southern Gulf of Maine, Georges Bank, and Nantucket Shoals. Spawning habitat consists of rock, gravel, or sand bottoms, ranging in depth from 50-150 feet. Females can produce between 30,000 and 200,000 eggs each. Schools can produce so many eggs the ocean bottom is covered in a dense carpet of eggs several centimeters thick. Eggs hatch in 10-12 days depending on water temperature. By their fourth year, fish are about 10" in length and may eventually grow to about 15" (1 ½ pounds) at ages 15 to 18 years.



Commercial Fisheries

Atlantic herring is a commercially caught species. Since 2000, the ex-vessel value of commercial herring landings has averaged 86.2 metric tons (mt) valued at \$19.2 million each year.

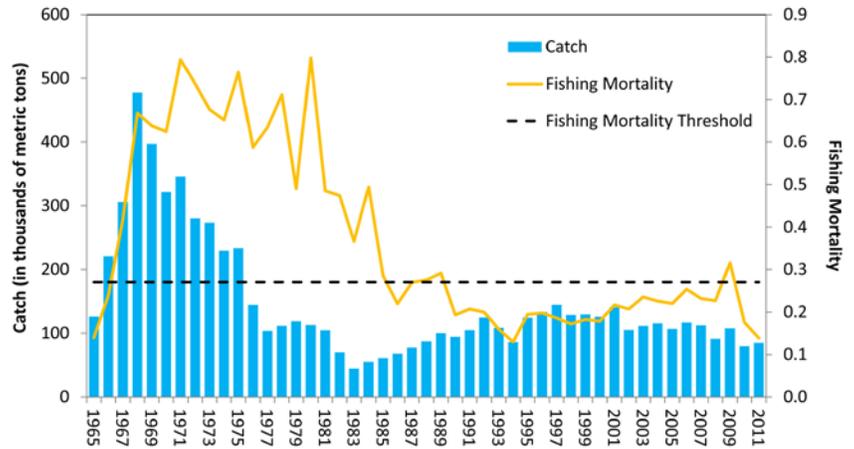
Europeans have been fishing herring for over a thousand years. The earliest herring fisheries in North America date back to 450 years. The commercial herring fishery in New England developed in the late 19th century, spurred by the development of the canning industry. The lobster fishery developed about the same time, creating a market for herring as bait that continues to this day.

Commercially landed herring are caught using purse seines and mid-water trawls. Total catches peaked in 1968, when more than 477,767 metric tons (1 billion pounds) of Atlantic herring were caught. This excessive harvest led to a collapse of the offshore herring stock. Total landings reached the lowest point in 1983 at 44,613 mt (98 million pounds). Since then, landings generally doubled in recent years, averaging 95,081 mt (209 million pounds) per year from 2006-2011.

Stock Status

The latest stock assessment, conducted by the Northeast Regional Stock Assessment Workshop in 2012 concluded that Atlantic herring are not overfished and overfishing is not occurring. In fact, the stock is considered rebuilt, mainly because of a strong cohort born in 2009. Spawning stock biomass (SSB) in 2011 is estimated at 518,000 mt (1.1 billion pounds), well above the SSB threshold and target of 78,500 mt (173 million pounds) and 157,000 mt (364 million pounds), respectively. Current fishing mortality is estimated at 0.14, below the fishing mortality threshold of 0.27. The latest assessment represents a significant departure from previous assessments in that it examines predator

Figure 1. Atlantic Herring Catch and Fishing Mortality
Northeast Regional Stock Assessment Workshop, 2012



Note: Catch includes the landings from the US fishery and the New Brunswick weir fishery, both of which are included in the assessment as part of the US stock. Since 1996, catch represents landings plus discards. Prior to 1996, catch represents landings ONLY since there is no discard information.

consumption on Atlantic herring biomass and productivity to address herring ecosystem functions.

Atlantic Coastal Management

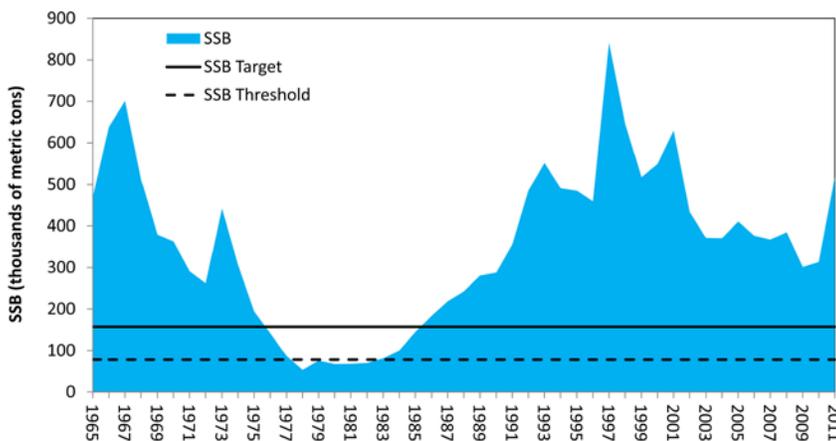
Atlantic herring are managed under Amendment 2 to the Interstate Fishery Management Plan for Atlantic Herring and its associated addenda. Because herring can be found in state and federal waters, there are complementary FMPs between the Commission and Council which set annual quotas, called a total allowable catch (TAC), for four management areas. The TACs for these areas are set based on the maximum sustainable yield that allows for a sustainable harvest but leaves enough herring for fish, birds and marine mammals.

While the plans for state and federal waters share management boundaries, there are a few differences. The Council prohibits mid-water trawling from June 1–September 30 in federal waters (3–200 miles from shore). The Commission plan includes spawning closures and a “days out” provision. Days out is the primary effort control measure for the inshore fishery, and works by limiting the number of days per week in which landings are allowed. On the days in which landings are prohibited (“days out”), vessels are restricted to 2,000 pounds of herring bycatch.

Recent concerns raised by the Commission and stakeholders regarding river herring (alewife and blueback herring) bycatch in the Atlantic herring fishery prompted the Council to include catch/bycatch monitoring requirements and measures to reduce interactions with river herring stocks in Draft Amendment 5 to the Atlantic Herring FMP. The proposed measures include monitoring requirements, avoidance and protection areas, trigger-based approaches, and catch caps. NOAA Fisheries submitted Amendment 5’s Final Environmental Impact Statement in March 2013.

Figure 2. Atlantic Herring Spawning Stock Biomass (SSB)

Source: Northeast Regional Stock Assessment Workshop, 2012



Timeline of Management Actions: FMP (1993); Amendment 1 (1999); Amendment 2 (2006); Addendum I (2009); Addendum II (2010); Addendum III (August 2012)