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## New England Fishery Management Council Forage Fish Management

Collectively, forage species provide an important supporting ecosystem service. The primary ecological role of forage species is energy transfer; these relatively small fish and invertebrates (e.g., squids and krill) tend to be central in food webs. Forage species tend to be highly productive relative to larger predatory fish, marine mammals, and birds. Fisheries for forage species represent an important ecosystem provisioning service. Globally, forage species are major contributors to marine fisheries. While the landed value of forage fish is high, the global value of the forage fish supporting the production of marine commercial predator fishes is estimated to be even higher. Additional management considerations extend to unfished protected species such as seabirds and marine mammals.

The NEFMC explicitly manages Atlantic herring, a key forage species. The fishery primarily provides bait for the Northern Lobster fishery, but the stock itself provides important forage for seabirds, tunas, whales, and other fish species. The Council recently used Management Strategy Evaluation to develop a new control rule (used to determine annual catches) that explicitly considers the role of herring as a forage species. That control rule was approved by the National Marine Fisheries Service and is being used to set catch limits. The Council also adopted a measure to prohibit mid-water trawl fishing for Atlantic herring near the coast, and is considering additional closures to protect spawning herring. In addition, bycatch caps limit the harvest of river herring and shad species, which are not managed by the Atlantic herring FMP. Midwater trawl vessels are required to carry observers or electronic monitors on 50 percent of trips, at industry expense.

In addition to the management plan for Atlantic herring, other measures hinder the development of a fishery for other forage species without either Council or National Marine Fisheries Service action. Due to their size, forage species are typically harvested using small mesh nets. Management measures in place since 1996 prohibit using small mesh nets in the Gulf of Maine and Georges Bank without Council and/or NMFS approval. As a result, no small mesh fisheries have developed in New England for other forage species.

The Council is also developing an example Fisheries Ecosystem Plan. As part of that work the Council is working on a draft Forage Fish Management policy.