

Atlantic Menhaden: A Profile

The menhaden fishery is one of the most important and productive fisheries on the Atlantic coast. For years, it has provided coastal communities with a stable source of employment and the nation with a major source of protein on a renewable and environmentally sound basis.

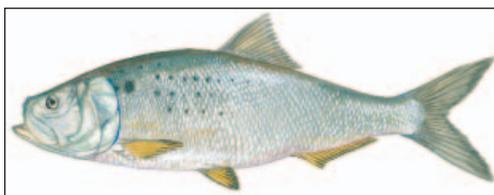
Scientific Name: *Brevoortia tyrannus*

Family: Clupeidae

Common Names: menhaden, bunker, mossbunker, poggy, fatback, alewife, bugfish, skipjack

Interesting Fact: Menhaden travel in large schools which may number in the millions; this makes them easy prey for both predators and fishermen.

Identifying Features: very large scaleless head that occupies 1/3 of the total body length; dark blue, green, blue gray, or blue brown above, with silvery sides, belly, and fins and a strong yellow or brassy luster; conspicuous dusky spot on each side close behind the gill opening, with a varying number of smaller dark spots farther back, arranged in irregular rows



New Jersey Atlantic Menhaden Management

The taking of Atlantic menhaden by any means for purposes of fishmeal reduction is prohibited in New Jersey marine waters.

New Jersey allows for the licensed taking of Atlantic menhaden by purse seine for use as commercial and recreational bait outside 0.6 nautical miles from shore in Sandy Hook and Raritan Bays, the Atlantic Ocean, and Delaware Bay. Other licensed gear such as pound net, gill nets and trawls also land Atlantic menhaden for the bait market, but in very modest amounts when compared to the purse seines.

(FDA) in 1990. The FDA has recently adjusted the standard of identity for margarine to include use of menhaden oil. The FDA is also considering approval of non-hydrogenated menhaden oil for use in selected foods. In the U.S., fish oil continues to be used in the production of water-resistant paints and cosmetics. Fish solubles are high-protein liquid by-products which are used directly in the feed market or dried onto fishmeal (i.e., whole meal).

Menhaden are used as bait in commercial blue crab, lobster, crayfish, and eel fisheries. Menhaden are also used by recreational anglers as chum and as cut or live bait for sportfish such as striped bass, bluefish, king mackerel, sharks, and tunas.

Atlantic Coastal Management

Amendment 1 to the Interstate Fishery Management Plan for Atlantic Menhaden was approved and adopted by the Commission in 2001. The plan specifies a new overfishing definition based on target mortality rates and stock biomass levels, and implements a framework for future management measures as the need arises.

Life History

Atlantic menhaden are found in estuarine and coastal waters from northern Florida to Nova Scotia, and serve as prey (food) for many fish, sea birds and marine mammals. Adult and juvenile menhaden form large, near-surface schools, primarily in estuaries and nearshore ocean waters from early spring through early winter. By summer, menhaden schools stratify by size and age along the coast, with older and larger menhaden found farther north. During fall through early winter, menhaden of all sizes and ages migrate south around the North Carolina capes to spawn.

Sexual maturity begins just before age three, with major spawning areas from the Carolinas to New Jersey; the majority of spawning occurs primarily offshore (20–30 miles) during winter. Buoyant eggs hatch at sea, and larvae are carried into estuarine nursery areas by ocean currents. Larvae change into juveniles in estuaries where they spend most of their first year of life, migrating to the ocean in late fall. Adult and juvenile menhaden migrate south in fall-winter, and adult menhaden migrate north in spring.

One-year old menhaden are about six inches long and weigh 2–3 ounces, three year old menhaden are 9–10 inches long and weigh about 0.5 pounds, and menhaden six years and older are about 1 foot long and weigh about 1 pound. Atlantic menhaden may live up to 10–12 years with a maximum length of 20 inches and three pounds.

Adult and juvenile menhaden feed by straining plankton from the water, their gill rakers forming a specialized basket to efficiently capture tiny food. Menhaden provide the link between primary production and higher organisms by consuming plankton and providing forage (food) for species such as striped bass, bluefish and weakfish, to name just a few.

Products

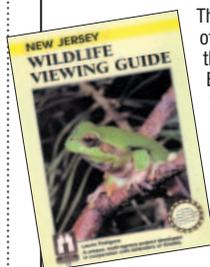
Fish caught in the purse seine reduction fishery are processed into fishmeal, fish oil, and fish solubles. Fishmeal is used as a high quality component in poultry, swine, ruminant and aquaculture feeds, and also in pet foods. Recent technological advances have produced fishmeal that is dried after cooking at relatively low temperatures. This “low temperature” meal, when added to feed formulas, produces exceptional growth rates in target animals.

Fish oil is high in omega-3 type fatty acids which have been linked to positive health effects in humans. Partially hydrogenated fish oils are used in shortening and margarine. While these oils have been used extensively in Europe and Canada for years, partially hydrogenated menhaden oil was approved for general use by the U.S. Food and Drug Administration

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Atlantic States Marine Fisheries Commission, June 2002

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The creation of the Wildlife Viewing Guide and the development of a Watchable Wildlife Program for New Jersey was made possible in part through grants from the EPA, US Fish and Wildlife Service, National Park Service and Department of Defense. Major funding has been provided through proceeds from the sale of 'Conserve Wildlife' license plates.

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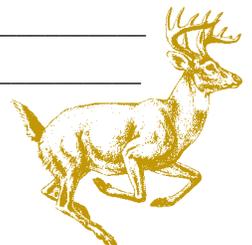
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Anglers Unite With Biologists to Change Weakfish Management Plan

In 1985, the Atlantic States Marine Fisheries Commission (ASMFC) developed and adopted a coastwide Weakfish Fishery Management Plan (FMP). The plan recommended that coastal states delay fishing on weakfish until they reached one year of age (about 12 inches) and for southern states to use escape panels for weakfish in their shrimp trawls. By the late 1980s it was apparent that these recommendations were inadequate in stopping the decline of weakfish.

Around this time New Jersey and Delaware formed the Bi-State Weakfish Commission, which made recommendations to the states' fisheries agencies and adopted regulations to restrict the harvest of weakfish in their waters. In addition, at the request of both states and with their financial support, the ASMFC began the work to update the FMP. Amendment 1 was adopted in 1992 with recommendations that all states implement a 12-inch minimum size in the recreational fishery. There were also recommendations for states with directed commercial weakfish fisheries to reduce harvest by 25%, implement minimum mesh size in nets to allow 75% escapement of undersized weakfish, and shrimp fisheries to reduce by-catch mortality of weakfish by 50%. Although New Jersey implemented the recommendations, this was not the case with all states.

Meaningful Regulations

The passage of the Atlantic Coastal Fisheries Cooperative Management Act in 1993 finally put some regulatory teeth into the ASMFC and for the first time mandated states to fully implement the provisions of the FMP's and their amendments. In 1994, the ASMFC adopted Amendment 2, which provided a reference for each state and evaluation guidelines in establishing fishery reductions through 1995. Unfortunately, throughout the 10-year history of the weakfish FMP weakfish stocks continued to decline.

In 1996, the ASMFC adopted Amendment 3 as a long-term plan for recovery of weakfish to healthy levels in order to maintain commercial and recreational harvest consistent with a self-sustaining spawning stock. The major objective of Amendment 3 was to restore the weakfish population over a 5-year period by reducing fishing pressure 32% in both the commercial and recreational fisheries. The results have been pretty impressive.

According to the ASMFC's most recent stock assessment, annual mortality has progressively dropped from a high of 92% in 1984 to about 20% in 2000. The spawning stock has exceeded expectations and continues to increase while recruitment of young weakfish has reached more than 60 million per year. The percentage of older fish (6 years and older) in the population has increased from a low of 0.3% in 1996 to a high of 6.9% in 2001. There has also been a significant increase in the number of large weakfish harvested in the recreational fishery with the percent of 24 inch and larger fish harvested increasing coast-

wide from a low of 0.86% in 1997 to 11.08% in 2000. Commercial landings in Rhode Island and recreational landings in Connecticut are similar to landings from the early 1980's, which shows that weakfish are returning to their historical range.

Something's Fishy

Since Amendment 3 achieved the majority of its goals and objectives, it was assumed that any fine tuning of the plan in 2003, through Amendment 4, would be considered the next logical step. However, when draft Amendment 4 was introduced it painted a somewhat different picture of the weakfish stock. New Jersey and Delaware anglers were looking at a potential 71% reduction in the bag limit. It seemed ironic that the two states that took action to manage weakfish in the early years of the plan were being called upon to bear the brunt of management now.

If the latest stock assessment was so promising, then why the drastic decrease in recreational bag limit? The Division decided to investigate to determine the *real* reason behind the proposed changes to weakfish management. The answers we discovered led to testimony by the Division at public hearings last October and, combined with *your public input*, became crucial to the management process. Without the Division's direct questioning of Amendment 4 and strong opposition by recreational anglers at New Jersey's public hearings, the process which follows would have never taken place.

Several meetings and conference calls were arranged by ASMFC staff to discuss possible solutions to what many New Jersey anglers and business owners (especially from the Delaware Bay area) perceived as a gross injustice wrought with severe economic impacts. As the process unfolded, the ASMFC Technical Committee (TC) reported that an incorrect methodology was used to estimate the creel limits under Amendment 3, resulting in the adoption of overly liberal creel limits in 1996. Consequently, the regulations for these higher minimum sizes failed to achieve the desired conservation goals, which was to reduce harvest by 32%. The option of a 14-inch minimum size and a 14-fish creel limit, adopted by New Jersey in 1996, actually resulted in a recreational harvest reduction of only 18% from the baseline period. This was not discussed at the 2002 public hearings. When the correct methodology for calculating the bag limits is applied to the Amendment 3 reference period (1990-1992), the actual bag limits should have been four or five fish instead of 14 fish.

Since the adoption of Amendment 3, the TC determined that the early 1980's best represented a less-fished stock with an expanded age and size structure and the catch rates of a healthy fishery. Therefore, the 1981-1985 time period became the new reference period for the recreational fishery. This reference period actually produced more liberal creel limits than the original reference

period under the corrected methodology. Confused? You are not the only one!

Why Create a Boundary?

Another aspect of the recreational fishery proposal included a north-south boundary split between Virginia and Maryland. This split was completely arbitrary and without biological justification. If adopted, this would have allowed drastically different bag limits at the same minimum size. Although there are catchability differences throughout the range of weakfish, including New Jersey waters, bag-limit discrepancies between these areas is not judicious. Public meetings put to rest this proposed geographical split.

After the final meeting of the TC, a new option was put on the table that based new size/bag limits on a straight 32% reduction in harvest, using the 1981-1985 reference period, to coincide with the target for the commercial harvest reduction of Amendment 3. This table was modified somewhat, but it is believed that any option will meet the conservation goals outlined in Amendment 4.

Final Management Plan

So what are the new weakfish regulations for 2003? All states were given the same bag and size limit options: seven fish at 12 inches, eight fish at 13 inches, nine fish at 14 inches or 10 fish at any size limit of 15 inches or greater. Recreational and commercial advisors to New Jersey's Marine Fisheries Council met in January and recommended the nine fish at 14 inch option. The Council convened in March, where additional public opinion convinced the Council to adopt the option of eight fish at 13 inches.

New Jersey accomplished much in the battle for equitable and sound fisheries management. As a whole, New Jersey anglers know how to search through all the rhetoric to find the full story. If it takes a fight, then so be it. Be proud of the way you handled the process and continue your public input because it really has an impact.

by Russell L. Allen, Principal Fisheries Biologist

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Fishery-related Conflicts: Some Solutions

Most fishery-related conflicts can be resolved without major difficulty. For example, while fishing for stripers in Great Egg Inlet last fall, one could observe other anglers darting among the clam boats working their inshore dredges. However, it's best to stay away from the clam boats and avoid the press of a large crowd of boats (up to 100 on some days). The clam boat captains do have the right of way, as their vessels' mobility is restricted when their dredges are down. That is one simple solution to a potential fishery-related conflict!

In some cases, however, fishery-related conflicts begin as simple misunderstandings which, when unresolved, give rise to difficult situations. Two common types of conflicts are: recreational vs. commercial; and disputes over bag and size limits in recreational fisheries. Conflicts also arise with regard to gear and spatial problems between commercial fishermen.

The New Jersey's Marine Fisheries Council is working to create a better marine environment for everyone involved. The Council provides a forum for commercial and recreational interests to remedy the lack of communication that has contributed to conflicts in the past.

Industry representatives are encouraged to craft compromises like last year's fisheries management regulations that eliminated unattended anchored gill nets during the summer and early fall in an attempt to lessen the impacts of bycatch on non-harvested species such as striped bass. Some conflicts require more complex solutions. One example of this was the effort to move the menhaden reduction boats farther out of state waters.

Communication can settle many conflicts. For instance, after discussions during the September 2002 Council meeting, commercial fish-

ermen avoided the Island Beach State Park area during last year's Governor's Surf Fishing Tournament. This had been a recurring issue due to the large number of recreational participants who enjoy the Governor's Tournament each year.

In September 2002, the Council convened a committee of recreational and commercial industry representatives to discuss ways to alleviate fisheries-related conflicts between commercial and recreational fishermen. Both groups supported this initiative.

The meeting resulted in a short article, *Improving Relations Between Recreational Anglers and Commercial Fishermen—Taking the First Step*, about the fall inshore gill net fishery which explains the fishery and how it relates to the recreational fishery along our beaches. The article also amplified the committee's discussions of solutions to problems encountered in various fisheries. (To read this article, see www.state.nj.us/dep/fgw/maratra.htm.)

Fishermen can also work to change the regulations that affect them. During this year, the Council may discuss the sale of recreationally harvested weakfish. Although such sales are not as common as they once were, the subject has been raised at several winter Council meetings and needs further discussion. A second such issue concerns the commercial gill net ocean fishery, which does not have a minimum required operating distance from the shoreline. Recreational surf anglers are advocating the adoption of a buffer by the Council.

Fishermen should also be aware that the Division of Fish and Wildlife is continually seeking comments and suggestions concerning potential problems as well as solutions to conflicts. Please let us know what you think are the major issues which should be addressed. We look forward to hearing from you. You can e-mail your suggestions or ideas to njwildlife@nac.net or call our Marine Fisheries office at 609-748-2020.

The Council meets every other month in Galloway Township, Atlantic County (see our website for the schedule.) If there is a topic or issue you would like the Council to consider, you are encouraged to attend and comment. Good communication can resolve fisheries-related conflicts. The Division will post news and material from the angling public regarding Council proceedings and interactions with industry representatives on our website at www.njfishandwildlife.com.

It is important for all interested parties to respect the rights of others to participate in the fishery.

Anglers must abide by the regulations which permit specified commercial or recreational fishing activities. The Division is working hard to establish better relations between the commercial and recreational fisheries and to make sound, practical management decisions to benefit our fisheries. Cooperation among the different sectors of the fishing public through education, communication and respect is essential.

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