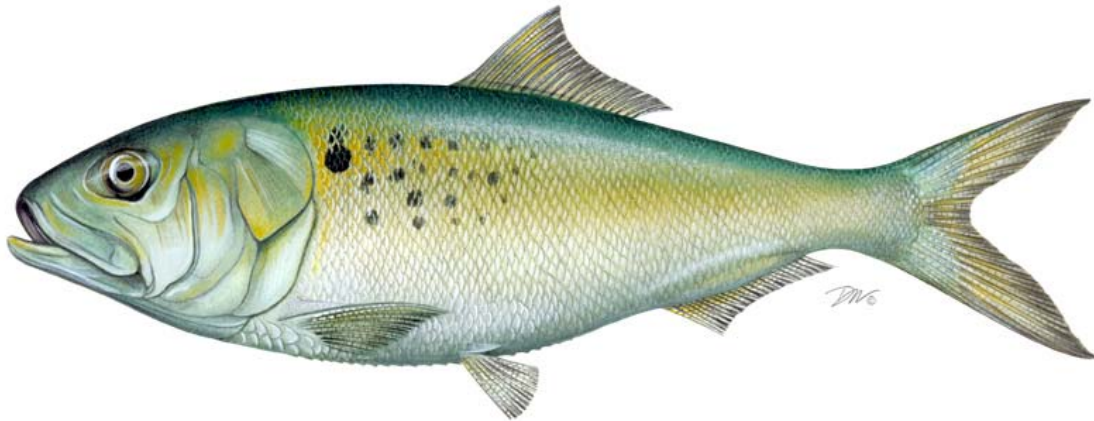


**2008 REVIEW OF THE FISHERY MANAGEMENT PLAN
AND STATE COMPLIANCE
FOR THE 2007
ATLANTIC MENHADEN (*Brevoortia tyrannus*) FISHERY**



Prepared by:

The Atlantic Menhaden Plan Review Team

Ellen Cosby, Potomac River Fisheries Commission
Steve Meyers, National Marine Fisheries Commission
Trish Murphey, North Carolina Division of Marine Fisheries
Braddock Spear, Atlantic States Marine Fisheries Commission, Chair
Douglas Vaughan, Ph.D., National Marine Fisheries Service

June 2008

2008 REVIEW OF THE FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR ATLANTIC MENHADEN (*Brevoortia tyrannus*)

I. Status of the Fishery Management Plan

Amendment 1 to the Interstate Fisheries Management Plan (FMP) for Atlantic Menhaden was approved at the 2001 Spring Meeting of the Atlantic States Marine Fisheries Commission (Commission). Management authority is vested in the states because the vast majority of landings come from state waters. All Atlantic coast states and jurisdictions except Pennsylvania and the District of Columbia have declared an interest in the menhaden management program. The goal of Amendment 1 is “to manage the Atlantic menhaden fishery in a manner that is biologically, economically, socially and ecologically sound while protecting the resource and those who benefit from it.”

Amendment 1 was developed during 1999-2000 and established new overfishing/overfished definitions based on fishing mortality and spawning stock biomass. Addendum I to Amendment 1 was approved in August 2004. This addendum revised the biological reference points, changed the frequency of stock assessments, and updated the habitat section. The new biomass target and threshold are based on Fecundity instead of Spawning Stock Biomass. A new fishing mortality target and threshold were also adopted. Stock Assessments will now take place every third year instead of annually, however the Technical Committee is required to meet annually to review the previous year’s landings and indices.

Addendum II, approved October 2005, initiated a research program that is aimed at examining the possibility of localized depletion of menhaden in Chesapeake Bay. Read more about the research in Section V of this report. Addendum III was approved in Fall 2006 and established a harvest cap for the reduction fishery in Chesapeake Bay. The annual total allowable harvest from the Chesapeake Bay by the reduction fishery is set at 109,020 metric tons. If harvest is greater than the cap in a given year, the cap will be reduced by the overage amount for the following year. Similarly, if harvest is less than the cap, the cap can be increased to a maximum of 122,740 metric tons for the following year.

II. Status of the Stock

Status of the coastwide stock is determined based on the terminal year (2005) estimate relative to its corresponding limit (or threshold). Benchmarks have been estimated based on the results of the updated base run. The terminal year estimate of fishing mortality rate (F_{2+}) was estimated to be 56% of its threshold (and 91% of its target). Correspondingly, the terminal year estimate of population fecundity was estimated at 158% of its fecundity target (and 317% of its threshold). Based on the 2006 assessment, the coastwide stock is not considered to be overfished, nor is overfishing occurring.

The model used in the assessment (ASMFC 2006) calculates the benchmarks referred to above using the method described in Addendum I of Amendment 1 to the Menhaden FMP. The values

used for benchmarks change each assessment as new data are added to the model. For a historical comparison of fishing mortality rate relative to its annually estimated threshold benchmark (F/F_{rep}) and population fecundity relative to its annually estimated target (FEC/FEC_{target}), please see Figure 7.5 of the Stock Assessment Report.

The current coastwide estimate of F is near the lowest of the time series (1955-2005). However, recent recruitment estimates are of concern because they are below the 25th percentile [Table 6.2, ASMFC 2006]. Most of the concern stems from the decline in juveniles seen in Chesapeake Bay as documented by the Virginia and Maryland seine surveys. The TC has provided research recommendations in the past to better understand poor recruitment in Chesapeake Bay. Several projects are ongoing to address this issue.

The current stock assessment model has several limitations. It cannot provide details on the status of the menhaden stock in geographical areas smaller than coastwide. However, the Stock Assessment Subcommittee is considering how to incorporate a spatial component into the stock assessment prior to the next peer review. In addition, the model is not capable of addressing questions of multispecies interactions. Many ongoing research projects are being conducted and the MSVPA-X is being implemented to provide more information to answer those questions.

III. Status of the Fishery

The 2007 coastwide harvest of Atlantic menhaden (reduction and bait [preliminary]) was 219,075 metric tons; this is up 19% over 183,583 metric tons landed in 2006. The 2007 harvest for reduction purposes only was 174,455 metric tons. This is up 11% from the 2006 landings of 157,385 metric tons, and up 5% over the previous 5-year average of 165,556 metric tons (Figure 1). Omega Protein's plant at Reedville, Virginia, with ten vessels in 2007, is the only active menhaden reduction factory on the Atlantic coast. Beaufort Fisheries Inc. has been closed since after the 2004 fishing season.

The preliminary estimate of the coastwide bait harvest for 2007 is 44,620 metric tons; this is up 70% over the 2006 bait harvest of 26,210 metric tons, and up 30% over the average harvest of the previous five years (2002-2006) of 34,380 metric tons (Figure 1).

The increase in bait landings in 2007 was most pronounced in the Mid-Atlantic region where landings of 17,180 metric tons nearly doubled those of 2006 (9,870 metric tons), and were the highest for the region since 1997 (17,610 metric tons) (Table 2). Bait landings in the Chesapeake Bay region in 2007 of 24,480 metric tons were also up substantially over bait landings for the region in 2006 (14,350 metric tons), but were up only slightly over the average of the previous five years (2002-2006) of 23,600 metric tons. Atlantic menhaden have been more abundant in southern New England since summer 2005, and although much smaller in magnitude, bait landings in the New England region for 2007 of 2,520 metric tons were nearly twice those of the previous year (1,490 metric tons). Bait landings in the New England region have shown a steady increase since 2004 when only 30 metric tons were reported.

IV. Status of Assessment Advice

The most recent assessment was conducted in 2006. It was an update of the peer-reviewed assessment conducted in 2003. The same methods used in the 2003 assessment were used for the 2006 assessment. The results of the 2006 assessment are summarized in Section II above. The next assessment is scheduled for completion in 2009 and for peer review in early 2010. The Technical and Stock Assessment Committees are in the process of exploring different models to use for this assessment. The Committees are interested in finding a model that can produce spatially explicit results (i.e. one that can generate outputs that indicate the status of menhaden in Chesapeake Bay).

V. Status of Research and Monitoring

The Population Dynamics Branch of the NMFS Laboratory in Beaufort, North Carolina, has the principal monitoring responsibility for the Atlantic menhaden fishery. Their monitoring and analytical work is expected to continue. Several states have improved their juvenile monitoring programs, which include data on menhaden. The industry continues to cooperate by providing set-by-set data through the Captains Daily Fishing Reports (CDFRs). The NMFS Population Dynamics Branch personnel enter current year and historical (since 1985) CDFR data into a database for analysis. In addition, the new SAFIS daily electronic dealer reporting system will be required for all federal permitted dealers. This system will allow near real time data acquisition for federally-permitted bait dealers. A bait fishery sampling program has been conducted since 1994 in Massachusetts, New Jersey, Virginia, and North Carolina.

In June 2005 the Technical Committee re-addressed the issue of research priorities to examine the possibility of localized depletion of Atlantic menhaden in Chesapeake Bay. The Board approved Addendum II that contained the following research priority areas:

- A. Determine menhaden abundance in Chesapeake Bay
- B. Determine the estimates of removal of menhaden by predators
- C. Exchange of menhaden between Chesapeake Bay and coastal systems
- D. Larval Studies (determining recruitment to Chesapeake Bay)

Each year the NOAA Chesapeake Bay Office holds a Fisheries Science Symposium that showcases recent research it has funded. Many of the research projects fall under one or more of the priority areas mentioned above. At its 2007 Symposium, it dedicated an entire day to recent menhaden-related studies.

VI. Status of Management Measures and Issues

Addendum II was approved in Fall 2006. It established a harvest cap on the reduction fishery in Chesapeake Bay through the 2010 fishing season. No other management proposals are currently being considered in the ASMFC process.

VII. Implementation of FMP Compliance Requirements for 2006

All states are required to submit annual compliance reports due April 1.

Amendment 1 to the Interstate FMP for Atlantic Menhaden requires all states to implement the reporting requirement contained in *Section 4.2.5.1*. All menhaden purse seine and bait seine vessels (or snapper rigs) are required to submit the Captain's Daily Fishing Reports (CDFRs). Existing reporting requirements may serve as an alternative to implementing this measure. Table 1 shows state compliance with this requirement and current regulations and reporting.

Table 1. Atlantic Menhaden Plan Review Team compliance review summary for 2006

State	Met Reporting Requirement of Section 4.2.5.1	Summary of Regulations and Reporting
ME	Yes	Reporting requirements cover all baitfish fisheries, including gillnets and purse seines.
NH	Yes	State law prohibits the use of mobile gear in state waters.
MA	Yes	No specific menhaden regulations. Purse seining prohibited in some areas (mostly nearshore). Mandatory dealer reporting (SAFIS).
RI	Yes	Menhaden harvest by purse seine for reduction (fish meal) purposes is outlawed. Mandatory dealer reporting (SAFIS).
CT	Yes	Purse seines prohibited in state waters. Menhaden can be caught by other gear and sold as bait.
NY	Yes	Mandatory reporting for all commercial food fish license holders, this includes all who harvest menhaden. Purse seines limited to certain times/areas.
NJ	Yes	Prohibited purse seining for reduction purposes in state waters. Mandatory reporting for purse seine (bait) fishery. Bait fishery subject to gear restrictions and closed seasons.
DE	Yes	Purse-seine fishery prohibited since 1992. No specific regulation of gillnetting for menhaden.
MD	Yes	Purse-seine fishing prohibited; menhaden harvested by pound net primarily.
PRFC	Yes	All trawling and purse nets are prohibited. Mandatory commercial fishing reporting.
VA	Yes	Implemented reporting requirement for bait seine/snapper rigs in 2002. The reduction fishery landings in VA are reported via daily catch records and CDFRs to the NMFS.

NC	Yes	Mandatory commercial fishery reporting (trip ticket). Combination of gear restrictions and seasonal and area closures (e.g., no purse seine fishing within 3 miles of coast of Brunswick Co. from May – October).
SC	Yes	Purse seines prohibited in state waters; mandatory dealer reporting; requests <i>de minimis</i> status.
GA	Yes	Mandatory commercial fishery reporting (trip ticket); state waters closed to purse seine fishing; requests <i>de minimis</i> status.
FL	Yes	Purse seines prohibited in state waters; primarily a cast net fishery; mandatory commercial fishery reporting (trip-ticket).

The cap for reduction landings from Chesapeake Bay was set at 122,740 metric tons for 2007. Reported reduction landings from Chesapeake Bay for 2007 were approximately 85,000 metric tons. The reported harvest was approximately 24,000 metric tons below the annual 109,020 metric tons cap. Therefore the underage is applied to the 2008 cap, which is set at 122,740 metric tons, the maximum allowed under Addendum III.

VIII. Recommendations of Atlantic Menhaden Plan Review Team

Compliance Recommendation

Georgia, South Carolina, and Florida have requested *de minimis* status for the 2008 fishing season. Amendment 1 does not exempt *de minimis* states from the compliance criterion (mandatory reporting for purse seine or bait seine vessels). All three states require mandatory reporting (South Carolina from dealers; Georgia and Florida from vessels), and purse seines are prohibited in their state waters. Florida provided adequate justification for *de minimis* status. However, the PRT is interested in their motivation for requesting this.

Annual compliance reports are required from all states, including those with *de minimis* status.

The PRT Recommends that South Carolina, Georgia, and Florida be granted *de minimis* status.

Reporting Recommendations

The PRT requests that:

- all menhaden bait landings are reported to the Technical Committee, even though the compliance criteria is only related to purse seines.
- Rhode Island, Connecticut, New York, and Delaware include in their annual compliance reports a summary table of menhaden landings by major gear type for each year. Landings by minor gear types can be grouped into one column.

- Maine and Maryland include in their annual compliance reports a summary table of menhaden landings by year by major gear type for at least the past five, preferably ten, years.

Research and Monitoring Recommendations

The PRT recommends that the Board continue to task the Technical Committee and others involved with the menhaden research program initiated by Addendum II to provide updates on progress. While there are many studies currently underway, clear results and conclusions may not be available for many years.

IX. Reference

Atlantic States Marine Fisheries Commission (ASMFC). 2006. 2006 Stock Assessment Report for Atlantic Menhaden. 149 pp.

Table 2. Menhaden Bait Landings by Region (1985 – 2007) [in 1,000s of metric tons]

Year	New England (ME – CT)	Mid-Atlantic (NY – MD Coast)	Chesapeake Bay (MD Bay, VA, PRFC)	South Atlantic (NC – FL)	Total (ME – FL)
1985	6.15	1.82	18.05	2.27	28.30
1986	13.75	1.31	13.64	2.44	31.15
1987	13.28	1.28	16.99	2.56	34.11
1988	19.73	1.20	12.38	2.88	36.19
1989	9.54	1.52	20.30	3.41	34.77
1990	11.19	4.38	13.98	4.07	33.61
1991	14.47	7.98	13.90	3.38	39.74
1992	12.44	12.73	14.15	3.10	42.43
1993	11.64	13.37	7.84	2.10	34.94
1994	0.43	17.79	5.76	3.17	27.15
1995	4.08	17.19	7.62	1.57	30.46
1996	0.04	16.21	6.47	0.58	23.29
1997	0.14	17.61	7.50	1.66	26.91
1998	0.21	15.17	23.71	1.33	40.42
1999	0.15	12.68	22.92	1.32	37.07
2000	0.19	14.25	19.68	0.93	35.05
2001	0.08	12.17	23.79	1.37	37.41
2002	0.69	11.29	24.11	1.13	37.22
2003	0.12	8.00	26.07	0.79	34.98
2004	0.03	9.59	25.20	0.50	35.32
2005	1.01	8.25	28.26	0.66	38.18
2006	1.49	9.87	14.35	0.50	26.21
2007	2.52	17.18	24.48	0.54	44.62

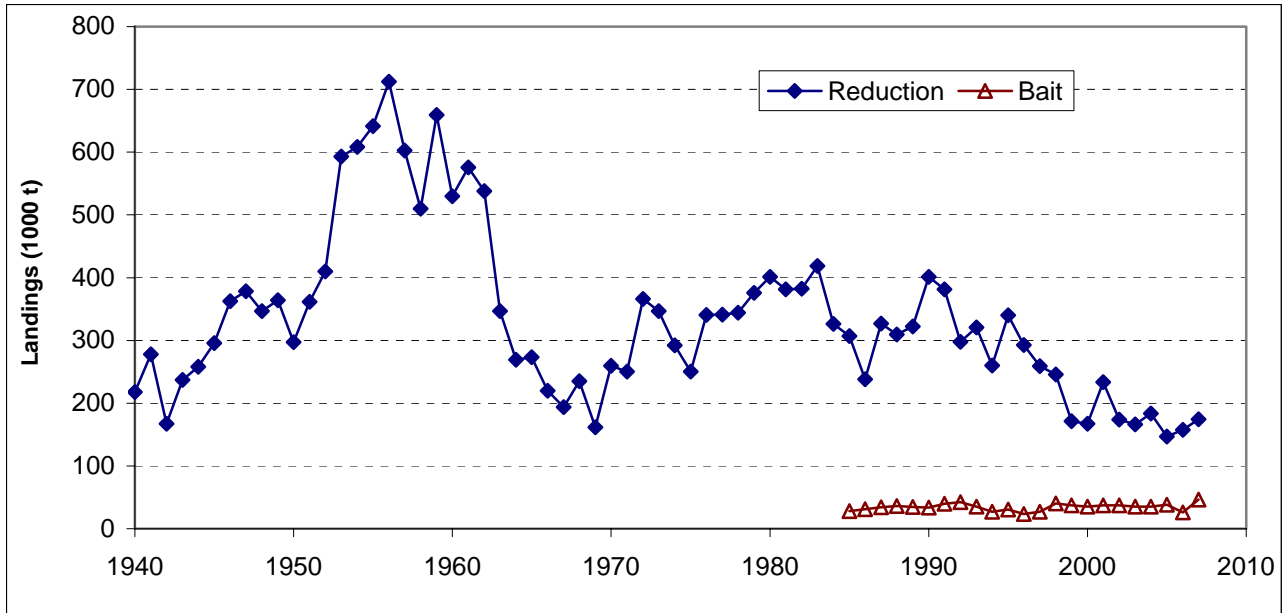


Figure 1. Landings from the reduction purse seine fishery (1940–2007) and bait fishery (1985–2007) for Atlantic menhaden.

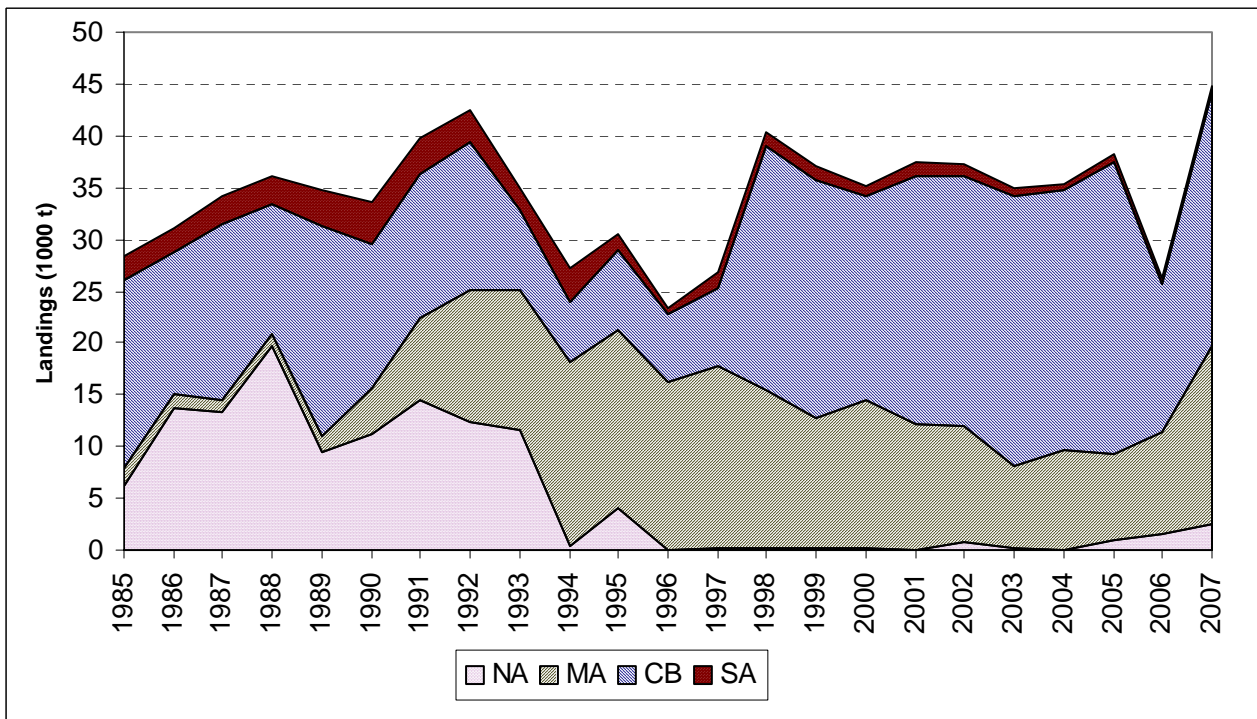


Figure 2. Annual landings by region from the bait fishery for Atlantic menhaden, 1985–2007. [NE = New England, MA = Mid-Atlantic, CB = Chesapeake Bay, SA = South Atlantic]