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2000 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR
SHAD AND RIVER HERRING
(Alosa sp.)

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And

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2000 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR THE AMERICAN SHAD AND RIVER HERRING(*Alosa sp.*) Covering Calendar Year 1999

I. Status of the Fishery Management Plan

<u>Date of FMP Approval:</u>	October, 1985
<u>Amendments:</u>	Amendment 1 (October 1998)
<u>Management Unit:</u>	Migratory stocks of American shad, Hickory shad, Alewife, and Blueback from Maine through Florida
<u>States With Declared Interest:</u>	Maine through Florida
<u>Active Boards/Committees:</u>	Shad & River Herring Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team

In 1994, the Plan Review Team and the Management Board determined that the original 1985 Fishery Management Plan (FMP) was no longer adequate for protecting or restoring the remaining shad and river herring stocks. As a result, Amendment 1 was adopted in October 1998 (completed April 1999).¹ Amendment 1 focuses on American shad regulations and monitoring programs, but also requires States to initiate fishery-dependent monitoring programs for river herring and hickory shad in addition to current fishery-independent programs. Such monitoring programs will seek to improve data collection and stock assessment capabilities. Furthermore, Amendment 1 contains specific measures to control exploitation of American shad populations while maintaining the status quo in the other Alosine fisheries. The newly amended goal of the FMP is to protect, enhance, and restore east coast migratory spawning stocks of American Shad, hickory shad, and river herrings in order to achieve stock restoration and maintain sustainable levels of spawning stock biomass. The Plan further specifies four (4) management objectives as follows:

- 1) Prevent overfishing of American shad stocks by constraining fishing mortality below F_{30} ,
- 2) Develop definitions of stock restoration, determine appropriate target mortality rates and specify rebuilding schedules for American shad populations within the management unit,
- 3) Maintain existing or more conservative regulations for hickory shad and river herring fisheries until new stock assessments suggest changes are necessary, and
- 4) Promote improvements in degraded or historic alosine habitat throughout the species' range.

Portions of this report were taken from 2000 State annual reports, the ASMFC FMP for Shad and River Herring, the ASMFC report *American shad and Atlantic Sturgeon Stock Assessment Peer Review: Terms of Reference and Advisory Report*

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II. Status of the Stocks

While the FMP addresses four species including American shad, Hickory shad, Alewife, and Blueback herring, lack of comprehensive and accurate commercial and recreational fishery data for the latter three species make it difficult to ascertain the status of these stocks. A stock assessment for American shad was completed in 1997 and submitted for peer review in early 1998 based on new information and Management Board recommended terms of reference. The 1998 assessment estimated fishing mortality rates for nine shad stocks and general trends in abundance for 13 shad stocks. Coastal fishing mortality rates, as reported in the 2000 annual reports, on shad stocks in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida were relatively low and well below the overfishing definition (F_{30} range: 0.39 – 0.48). The next stock assessment update to be peer reviewed is scheduled for fall of 2002.

III. Status of the Fisheries

American shad, hickory shad, and river herring formerly supported important commercial and recreational fisheries throughout their range. Fisheries are executed in rivers, estuaries, and oceans. Although recreational harvest data are scarce, most harvest is believed to come from the commercial industry. Commercial landings for all these species have declined dramatically from historic highs. Following is a summary of fisheries by species:

AMERICAN SHAD:

The commercial landings have decreased steadily from the high of 2,364,263 pounds in 1985 to 1,390,512 pounds in 1999. Landings from New York, New Jersey, Delaware, Virginia and South Carolina combined accounted for 83 % of commercial landings in 1999, with 19 % coming from the State of Virginia. Recent reductions in commercial harvest can be partially attributable to regulations and management initiatives employed by Amendment 1 to the FMP, which was adopted in 1998. Mixed stock fisheries comprised 875,500 pounds or 63% of total landings

According to MRFSS¹, 1999 recreational harvest was 1461 fish, or 637 pounds, which represents a slight increase in number of fish from 1998 (1375 fish) and in the weight from 1998 (280 pounds). Recreational landings have increased by 6 % since 1998. Landings from Maine and Delaware combined accounted for 100 % of recreational landings in 1999. Major sport fisheries for American shad were not incorporated into landings estimates during 1999, therefore MRFSS data should be considered cautiously.

¹ MRFSS Data for American Shad is uncertain. The proportional standard errors (PSEs) for Delaware and Maine during 1999 were 76.1 and 100.1 respectively. No data was recorded for the other states along the eastern seaboard. The PSEs for Maine and Massachusetts during 1998 were 99.4 and 100 respectively.

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HICKORY SHAD:

The commercial landings have decreased steadily from the high of 195,054 pounds in 1996 to 105,752 pounds in 1998. Landings from the State of North Carolina accounted for 88 % of commercial landings in 1998. Preliminary landings of Hickory shad for North Carolina in 1999 total 112,140 pounds.

According to MRFSS², 1999 recreational harvest was 44,566 fish, or 43,978 pounds, which represents a 31 % decrease in number of fish from 1998 (64,245 fish) and in the weight from 1998 (59,846 pounds). Most of the decrease was due to reduced landings from the states of Rhode Island, Connecticut, and Delaware. Landings from Rhode Island accounted for 76 % of recreational landings in 1999.

RIVER HERRING (BLUEBACK/ALEWIFE COMBINED):

The commercial landings have decreased steadily from 13,668,828 pounds in 1985, when the FMP was fully implemented by ASMFC member states, to 1,331,720 pounds in 1998. Landings from Maine, Maryland, and North Carolina combined accounted for 92 % of commercial landings in 1998, with 41 % coming from the State of Maine.

According to MRFSS³, 1999 recreational harvest was 31,554 fish, or 220 pounds, which represents a decrease in number of fish from 1998 (226,280 fish) and in the weight from 1998 (55,393 pounds). Recreational landings have decreased by 86 % since 1998. Landings from Rhode Island accounted for 76 % of recreational landings in 1999.

IV. Status of Research and Monitoring

Under Amendment 1 (April 1999), fishery-independent and fishery-dependent monitoring programs are now mandatory for American shad. Juvenile abundance index (JAI) surveys, annual spawning stock surveys, and hatchery evaluations are required for States/jurisdictions specified in the fishery management plan. In addition, Amendment 1 recommends that JAIs for other alosine species be reported when possible. In February 2000, the Shad Management Board indefinitely deferred the ocean-tagging requirement stipulated by Amendment 1, which was to begin in the year 2000 to analyze the mixed stock contribution to ocean landings coastwide.

² MRFSS data for Hickory Shad is uncertain. The proportional standard errors (PSEs) for Connecticut, Delaware, and Rhode Island during 1999 are 40.8, 86, and 56.3 respectively. No data was recorded for the other states along the eastern seaboard. The PSEs for Connecticut, Delaware, and Rhode Island during 1998 are 31.8, 53.4, and 87.3 respectively.

³ MRFSS data for River Herring is uncertain. The proportional standard error (PSEs) for Connecticut during 1999 is 100. No data was recorded for any other state during 1999. The PSEs for Delaware, Maine, Maryland, New Jersey, New York, and Rhode Island during 1998 are 100.1, 99.8, 100.1, 75.2, and 44.6 respectively. No data was recorded for Florida, Georgia, North Carolina, Virginia, Connecticut, or New Hampshire during 1998.

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All States are required to calculate mortality and/or survival estimates, while monitoring and reporting data relative to landings, catch, effort, and bycatch. States must submit annual reports including all monitoring and management program requirements, on or before July 1 each year. In addition, States were required to submit State recovery/fishing plans by July 1, 1999. All States had their plans approved by January 1, 2000 in order to implement Amendment 1.

In addition to the mandatory monitoring requirements stipulated under Amendment 1, some States/jurisdictions continue important research initiatives for these species. For example, Maine, Pennsylvania, Maryland, Virginia and North Carolina are actively involved in shad restoration using hatchery fry, fall fingerlings and wild adults. In 1999, Maine stocked the Androscoggin with 280,000 fry and the Saco with 152,000 fry. All fry released are marked with a tetracycline mark for future distinction from wild fish. Over 14 million shad fry were marked and released by Pennsylvania in 1999 into the Lehigh, Schuylkill, and Susquehanna Rivers. Maryland and the USFWS stocked the Potomac and Upper Bay tributaries with over 3 million marked american shad fry in 1999. Restoration efforts by Virginia and North Carolina continue via stocking initiatives in the James, Pamunkey, Mattaponi, and Roanoke rivers totaling over 18 million fry in 1999.

The success of fish passage facilities in effectively mitigating barriers to fish migration is encouraging. Table 1 illustrates the number of American shad passages at select dams during 1999.

TABLE 1. American Shad Fish Passage Counts at Select Dams - 1999

State	River	Site	Number of American Shad	Trend
Maine	Androscoggin	Brunswick	88	Increase
	Saco	Head-of-tide	4,629	Increase
New Hampshire	Exeter/Lamprey		132	Increase
Massachusetts	Merrimack	Essex Dam	68,228	Increase
	Connecticut	Holyoke	190,038	Decrease
Rhode Island	Pawcatuck	Potter Hill	2,149	Stable
Pennsylvania	Lehigh	Easton	2,346	Stable
Maryland/PA	Susquehanna	Conowingo	78,163	Increase
Virginia	James	Boshers Dam	188	1 st Year
South Carolina	Santee	St. Stephens	307,000	Stable

V. Status of Management Measures

As noted in Section VI, all state programs must implement commercial and recreational management measures under Sections 4.1 and 4.2 or an alternative program as approved by the Management Board. The current status of each state's compliance with these measures is provided in Section VI of this report (See Table 2).

As noted in Section I, the Management Board determined that the original Plan and its lack of mandatory measures were insufficient for protecting and restoring Alosid stocks along the East Coast. Accordingly, the 1985 fishery management plan was amended in 1999. The Plan Development Team developed Amendment 1 to expedite recovery of American shad populations

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and maintain current regulations in the hickory shad and river herring fisheries. Public hearings on the draft amendment were held during July-August 1998, and the Management Board reviewed public input before making a final decision on regulatory and monitoring programs to be implemented for American shad fisheries.

After careful consideration of stock assessment results, peer reviewers' comments, and public opinion, the Management Board voted to address "inriver" or estuarine American shad fisheries differently than oceanic intercept fisheries. Specifically, the Board decided to require states to submit in-river shad restoration plans for stocks under their jurisdiction. For those 7 river systems evaluated in the 1998 stock assessment (Connecticut R., Hudson R., Delaware R., Upper Bay MD, Edisto R., Santee R., and Altamaha R.), states could continue current regulations since overfishing was not detected for those respective stocks. States/jurisdictions must maintain a fishing mortality level at or below F_{30} . Also, reporting of catch and effort data for all Alosine fisheries is now mandatory under Amendment 1.

In addition, the Management Board voted to phase out all ocean intercept fisheries for American shad within 5 years of Amendment 1 implementation. States must demonstrate that they will achieve at least a 40% reduction in ocean intercept effort within 3 years beginning in January 1, 2000. States with non-directed harvest of American shad in ocean fisheries can permit the landing of shad bycatch, provided that American shad do not constitute more than 5% of the total landings (in pounds) per trip.

For recreational fisheries, the states voted to implement a 10 fish combined daily creel limit for American and hickory shad. Existing or more conservative recreational/personal use regulations for River herring will be maintained under Amendment 1.

In addition, the states will be required to submit annual reports on harvest and certain required fishery-independent/dependent monitoring programs. Implementation of these programs and reporting schedules is intended to improve future assessments of Alosine populations and permit adaptive management of fisheries as stock recovery is documented.

VI. Current State-by-State Implementation of Compliance Requirements

As of August 31, 2000, all states with the exception of South Carolina were in compliance with Amendment #1 to the Shad and River Herring Fishery Management Plan (See Attached Table 2). South Carolina continues to lack a 10 fish recreational creel limit within all state waters. The states of Florida, Pennsylvania, District of Columbia, Potomac River Fisheries Commission, Massachusetts, New Hampshire, and Maine remain *de minimis* states as defined in Amendment #1. Their landings for 1999 are well below the standard for *de minimis* of 1% of coastwide commercial and recreational directed landings for 1999.

VII. Recommendations of Plan Review Team

1. All State and Federal agencies should implement the requirements and recommendations of Amendment 1 including specific concerns presented to the Management Board in the PRT report on state compliance.

¹ ASMFC, 1999. Amendment 1 to the Interstate Fishery Management Plan for Shad & River Herring. April, 1999. Washington, D.C. 76 pp.

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