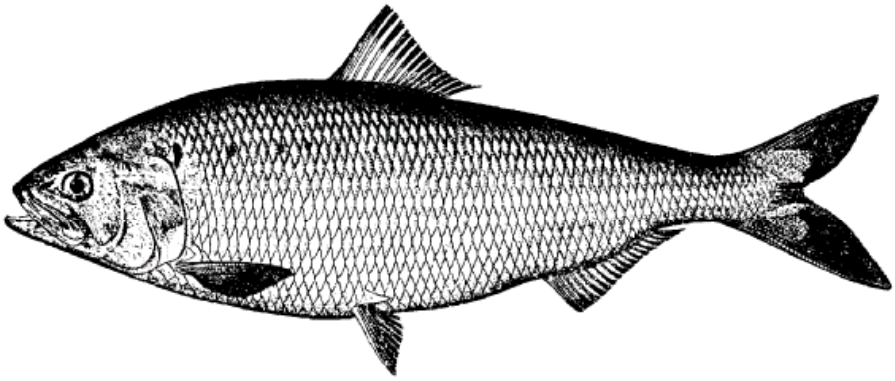
REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR
SHAD AND RIVER HERRING *(Alosa spp.)*
2007



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Prepared by

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2007 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR SHAD AND RIVER HERRING *(Alosa spp.)*

I. Status of the Fishery Management Plan

Date of FMP Approval:	October 1985
Amendments:	Amendment 1 (April 1999)
Addenda:	Technical Addendum #1 (February 9, 2000) Addendum I (August 28, 2002)
Management Unit:	Migratory stocks of American shad, hickory shad, alewife, and blueback herring from Maine through Florida
States With Declared Interest:	Maine through Florida, including the Potomac River Fisheries Commission and the District of Columbia
Active Boards/Committees:	Shad & River Herring Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team, Plan Development 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 other alosine fisheries. The amended goal of the FMP is to protect, enhance, and restore East Coast migratory spawning stocks of American shad, hickory shad, and river herring (collectively alewife and blueback herring) 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

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

Portions of this report were taken from 2006 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,* the ASMFC Amendment 1 to the ISFMP for Shad and River Herring, and the ASMFC report *American Shad Stock Assessment Report for Peer Review*.

4) Promote improvements in degraded or historic alosine habitat throughout the species' range

In the fall of 1999, the Technical Committee reviewed both state annual reports and fishing recovery plans. After doing so, the Technical Committee compiled a report that identified a number of technical errors requiring correction and/or clarification in Tables 2 and 3 of Amendment 1. Upon review by the Shad and River Herring Management Board, the Board concurred with the Technical Committee's report and suggested that a technical addendum be developed to address modifications to the states' fishery-dependent and independent monitoring program for American shad. The Board approved Technical Addendum #1 to Amendment 1 of the Interstate Fishery Management Plan for Shad and River Herring.

In February 2002, the Plan Review Team and the Technical Committee recommended several changes to both Amendment 1 and Technical Addendum #1. The Management Board approved the changes and directed the Commission staff to develop an addendum to both Amendment 1 and Technical Addendum #1. Addendum I does the following: changes the conditions for marking hatchery-reared alsosines; clarifies the definition and intent of *de minimis* status for the American shad fishery; and modifies and clarifies the fishery-independent and dependent monitoring requirements of Tables 2 and 3 of Technical Addendum #1. These measures went into effect on January 1, 2003.

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.

A coastwide American shad stock assessment was completed and accepted in August 2007. The 2007 assessment found that American shad stocks are currently at all-time lows and do not appear to be recovering. Recent declines of American shad were reported for Maine, New Hampshire, Rhode Island, and Georgia stocks, and for the Hudson (NY), Susquehanna (PA), James (VA), and Edisto (SC) rivers. Low and stable stock abundance was indicated for Massachusetts, Connecticut, Delaware, the Chesapeake Bay, the Rappahannock River (VA), and some South Carolina and Florida stocks. Stocks in the Potomac and York Rivers (VA) have shown some signs of recovery in recent years. Data limitations and conflicting data precluded the report from indicating much about the current status or trend of many of the stocks from North or South Carolina.

The 2007 report identified primary causes for stock decline as a combination of overfishing, pollution, and habitat loss due to dam construction. In recent years, coastwide harvests have been on the order of 500-900 metric tons, nearly two orders of magnitude lower than in the late 19th century. Given these findings, the peer review panel recommended that current restoration actions need to be reviewed and new ones need to be identified and applied. The peer review

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panel suggested considering a reduction of fishing mortality, enhancement of dam passage and mitigation of dam-related fish mortality, stocking, and habitat restoration.

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 (both freshwater and saltwater), estuaries, tributaries, 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:

Total combined river and ocean commercial landings decreased from a high of 2,364,263 pounds in 1985 to a low of 1,390,512 pounds in 1999, but increased in 2000 to 1,816,979 pounds. The closure of the ocean-intercept fishery has lowered the coastwide total landings of American shad. Based upon landings data provided in Compliance Reports from individual states and jurisdictions, 2005 landings totaled 754,068 pounds and 2006 landings totaled 663,067 pounds (Table 1). Combined landings from North Carolina, South Carolina, New York, New Jersey, and Georgia accounted for 86.8% of the commercial harvest in 2006. Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Pennsylvania, Maryland, the District of Columbia, the Potomac River Fisheries Commission, Virginia and Florida reported no directed shad harvest in their state Compliance Reports. The National Marine Fisheries Service reported no harvest from Maine, New Hampshire, Massachusetts, Pennsylvania, Georgia, and Florida.

Shad bycatch landings from ocean waters in 2006 increased from 2005 levels, comprising 12,529 pounds, or about 1.9% of the coastwide total. Only five states—Maine, Massachusetts, New York, New Jersey, and North Carolina—reported landings of ocean bycatch.

Substantial shad sport fisheries occur on the Connecticut (CT and MA), the Hudson (NY), the Delaware (NY, PA and NJ), the Susquehanna (MD), the Santee and Cooper (SC), the Savannah (GA), and the St. Johns (FL) Rivers. Shad sport fisheries are also pursued on several other rivers in Massachusetts, Virginia, North Carolina, South Carolina, and Georgia. In 2006, recreational creel limits ranged from zero to 10 fish per day. The exception to this is the Santee River (SC), which is permitted to have a 20 fish per day creel limit due to the approval of a conservation equivalency plan in 2000. Tens of thousands of shad are caught by hook and line from large East Coast rivers each year but detailed creel surveys are generally not available. Actual harvest (catch and removal) may amount to only about 20-40% of total catch, but hooking mortality could boost this "harvest" value substantially. Several comprehensive angler use and harvest surveys are planned or have been recently completed.

MRFSS Data for American Shad are unreliable due to the design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. For 2006, MRFSS reports that 83,123 American shad were caught, with 58,440 harvested. According to MRFSS, Massachusetts harvested 91% of recreational harvest (proportional standard error ranges from 54.2-100).

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Table 1. Commercial landings (lbs.) of American shad reported by ASFMC jurisdictions in 2006.

State	State Compliance Report Landings			NMFS Landings
	Ocean Bycatch	In-river	Total	
Maine	711	-	711	-
New Hampshire	-	-	-	-
Massachusetts	102	-	102	-
Rhode Island	-	-	-	2,292
Connecticut	-	38,547	38,547	38,547
New York	9,271	67,389	76,660	9,271
New Jersey	2,366	67,003	69,369	62,920
Pennsylvania	-	-	-	-
Delaware	-	39,411	39,411	39,959
Maryland	-	-	-	1,266
PRFC	-	4,669	4,669	-
DC	-	-	-	-
Virginia	-	889	889	3,087
North Carolina	79	184,965	185,044	184,978
South Carolina	-	185,492	185,492	335,042
Georgia	-	62,173	62,173	-
Florida	-	-	-	-
Total	**12,529**	**650,538**	**663,067**	**677,362**
Percent	**2%**	**98%**		
2004 Total	7,411	672,650	680,061	
2004 Percent	1%	99%		

In October 2006, the Management Board suspended the requirement to monitor the recreational fishery. Several states that were scheduled to complete creel surveys in 2006 were relieved of this requirement. North Carolina and South Carolina elected to perform their planned recreational monitoring in 2006. Recreational creel surveys were completed on the Roanoke River (NC), and Cooper River (SC). North Carolina reported that no American shad were harvested from the Roanoke River during the 2006 creel interview sessions, but creel clerks did get anecdotal reports of anglers catching and releasing American shad at other times during the spring. The 2006 Cooper River recreational hook-and-line fishery caught (retained) an estimated 2,767 fish, 34% of which were males. Catch-per-man-hour in this recreational fishery was 0.60 shad.

HICKORY SHAD:

New Jersey, North Carolina, South Carolina, and Georgia reported hickory shad commercial landings in 2006. North Carolina reported the highest landings with 78,765 pounds. In 2006, the coastwide commercial landings for hickory shad were 82,011 pounds (from 2007 State

Compliance Reports). This is a decrease from the 2005 total preliminary landings of 179,919 pounds.

MRFSS Data for hickory shad are unreliable due to the design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. For 2006, MRFSS reports that 253,905 hickory shad were caught and 86,347 were harvested. All reported fish were harvested from Connecticut, New York, Rhode Island, North Carolina, and Delaware (proportional standard error ranges from 40.9-100.2).

RIVER HERRING (BLUEBACK HERRING/ALEWIFE COMBINED):

Commercial landings of river herring declined 90% from over 13 million pounds in 1985 to about 1.33 million pounds in 1998. In 2006, river herring landings were reported from Maine, New Hampshire, New York, Delaware, the Potomac River Fisheries Commission, North Carolina, and South Carolina, totaling 1,390,892 pounds, up from 2005's total of 630,049 (from 2006 State Compliance Reports). Not all states reported their river herring landings.

MRFSS Data for river herring are unreliable due to the design of MRFSS that focuses on active fishing sites along coastal and estuarine areas. For 2006, MRFSS reported 14,657 river herring as being caught coastwide, with 2,261 river herring harvested (proportional standard error ranges from 71.9 to 99).

Table 2. Shad and River Herring Fish Passage Counts at Select Dams – 2006.

State	Shad	River Herring
Maine		
Androscoggin	3	34,239
Saco	883	7,994
St. Croix	0	11,829
Massachusetts		
Essex/Lawrence	1,205	1,105
Holyoke	154,772	21
Westfield River	1,543	0
Turner Falls	16,378	1
Rhode Island		
Potter Hill	92	
Pennsylvania/Maryland		
Conowingo	60,693	
Holtwood	35,968	
Safe Harbor	24,929	
York Haven	1,913	
Lehigh Dams	0	720
South Carolina		
St. Stephen Dam	283,225	
Total	**581,604**	**55,909**

Portions of this report were taken from 2006 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,* the ASMFC Amendment 1 to the ISFMP for Shad and River Herring, and the ASMFC report *American Shad Stock Assessment Report for Peer Review*.

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 and 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 due to the pending ocean fishery closures, which was to begin in the year 2000 to analyze the mixed stock contribution to ocean landings coastwide.

All States are required to calculate mortality and/or survival estimates, and monitor and report 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 of each year. In addition, States were required to submit State recovery/fishing plans by July 1, 1999. All States plans to implement Amendment 1 were approved by January 1, 2000.

In addition to the mandatory monitoring requirements stipulated under Amendment 1, some states and jurisdictions continue important research initiatives for these species. For example, Maine, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, and USFWS are actively involved in shad restoration using hatchery-cultured fry and fingerlings. All hatchery fish are marked with oxytetracycline marks on otoliths to allow future distinction from wild fish. During 2006, several jurisdictions from Maine to North Carolina (including USFWS) reared American shad, hickory shad, and alewife, stocking a total of 16,541,517 American shad, 12,061,349 hickory shad, and 90,000 alewife (Table 3).

V. Status of Management Measures

All state programs must implement commercial and recreational management measures or an alternative program approved by the Management Board. The current status of each state's compliance with these measures is provided in Section VII of this report (See Table 4).

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 alosine 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 and maintain current regulations in the hickory shad and river herring fisheries.

After careful consideration of the 1998 stock assessment results, peer reviewers' comments, and public opinion, the Management Board voted to address in-river 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 seven river systems evaluated in the 1998 stock assessment (Connecticut R., Hudson R., Delaware R., Upper Chesapeake 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.

Table 3. Stocking of Cultured Alosines in State Waters, 2006.

State	American Shad	Hickory Shad	Alewife
Maine			
Graham Lake			90,000
Kennebec River	262,131		
Massachusetts			
Merrimack River	1,785,622		
Pennsylvania			
Susquehanna River	3,570,675		
Lehigh	668,792		
Conowingo Reservoir	4,345,561	5,355,381	
Ridley Creek		350,000	
Pennypack Creek		5,358,968	
Delaware River		750,000	
Delaware			
Nanticoke Tributaries	520,000	247,000	
Maryland			
Choptank River	1,115,000 (larvae)		
	155,000 (juvenile)		
Patuxent River	720,000 (larvae)		
	222,300 (juvenile)		
Nanticoke River	500,000 (larvae)		
	140,500 (juvenile)		
District of Columbia			
Anacostia River	115,000		
North Carolina			
Roanoke River	2,420,936		
Total	**16,541,517**	**12,061,349**	**90,000**

In addition, the Management Board voted to phase out all ocean intercept fisheries for American shad within five years of Amendment 1 implementation. States were to comply with a 40% reduction in effort within the ocean intercept fishery by December 31, 2002. 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. As required, each state submitted a proposal for a 40% reduction in effort by December 31, 2002. All states have closed their ocean-intercept fisheries as of January 1, 2005.

For recreational fisheries, the states voted to implement a 10 fish combined daily creel limit for American and hickory shad. In 2000, South Carolina was found to be out of compliance due to a lack of creel limits on shad. In October of 2000, the Board approved a 10 fish per day creel limit (combined American and hickory shad) for all waters of South Carolina except the Santee River, which will have a 20 fish, combined daily limit. Existing or more conservative recreational/personal use regulations for river herring will be maintained under Amendment 1.

In addition, the states are required to submit annual reports on harvest and certain required fishery-independent and 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.

In February 2002, the Shad and River Herring Plan Review Team and Technical Committee recommended several changes to both Amendment 1 and Technical Addendum #1. The Shad and River Herring Management Board approved the changes and directed Atlantic States Marine Fisheries Commission (ASMFC) staff to develop an addendum to both Amendment 1 and Technical Addendum #1. The proposed changes in Addendum I supersede the requirements described in Technical Addendum #1. Addendum I changes the conditions for marking hatchery-reared alosines. The addendum clarifies the definition and intent of *de minimis* status for the American shad fishery. It also further modifies and clarifies the fishery-independent and fishery-dependent monitoring requirements in Tables 2 and 3 of Technical Addendum #1. These measures became effective upon approval by the Shad and River Herring Management Board in August of 2002.

V. Prioritized Research Needs

High Priority

- Continue to assess current aging techniques for American shad and river herring, using known age fish, scales, otoliths, and spawning marks. Conduct biannual aging workshops to maintain consistency and accuracy of aging fish sampled in state programs.
- Determine and update biological benchmarks used in assessment modeling (fecundity at age, mean weight at age for both sexes, partial recruitment vector/maturity schedules) for American shad and river herring stocks in a variety of coastal river systems, including both semelparous and iteroparous stocks.
- Validate the different values of M for shad stocks through verification of shad aging techniques and repeat spawning information and develop methods for calculating M.
- Investigate the relation between juvenile production and subsequent year class strength in American shad with emphasis on the validity of juvenile abundance indices, rates and sources of immature mortality, migratory behavior of juveniles, natural history and ecology of juveniles, and essential nursery habitat in the first few years of life.
- Evaluate additional sources of mortality for shad, including bait and reduction fisheries.
- Conduct population assessments on river herrings—particularly needed in the south.
- Determine which stocks are impacted by mixed stock fisheries (including bycatch fisheries). Methods to be considered could include otolith microchemistry, oxy-tetracycline otolith marking, and/or tagging.
- Evaluate predation by striped bass as a factor of mortality for alosines.
- Evaluate fish passage efficiency at all fishways.
- Conduct studies to improve fish passage design criteria.
- Quantify fishing mortality (in-river, ocean bycatch, bait fisheries) for major river stocks after ocean closure of directed fisheries.

Medium Priority

- Identify ways to improve fish passage efficiency using hydroacoustics to repel alosines or pheromones or other chemical substances to attract them. Test commercially available

acoustic equipment at existing fish passage facility to determine effectiveness. Develop methods to isolate/manufacture pheromones or other alosine attractants.

- Develop effective culture and marking techniques for river herring.
- Develop and implement techniques to determine shad and herring population targets for tributaries undergoing restoration (dam removals, fishways, supplemental stocking, etc.).
- Evaluate and ultimately validate large-scale hydroacoustic methods to quantify American shad escapement (spawning run numbers) in major river systems. Identify how shad respond (attract/repelled) by various hydroacoustic signals.
- Refine techniques for hormone induced tank spawning of American shad. Secure adequate eggs for culture programs using native broodstock.
- Develop comprehensive angler use and harvest survey techniques for use by Atlantic states to assess recreational fisheries for American shad.
- Determine the effects of passage impediments on all life history stages of shad and river herring, conduct turbine mortality studies and downstream passage studies.
- Conduct studies on energetics of feeding and spawning migrations of shad on the Atlantic coast.
- Encourage university research on hickory shad.
- Conduct studies of egg and larval survival and development.
- Suggest hard limits and range levels for water quality deemed appropriate and defensible for all alosines.

Low Priority

- Review studies dealing with the effects of acid deposition on anadromous alosines.
- Characterize tributary habitat quality and quantity for Alosine reintroductions and fish passage development.
- Identify and quantify potential American shad spawning and rearing habitat not presently utilized and conduct an analysis of the cost of recovery.
- Conduct and evaluate historical characterization of socio-economic development (potential pollutant sources and habitat modification) of selected shad rivers along the east coast.
- Development of appropriate Habitat Suitability Index Models for alosine species in the fishery management plan. Possibly consider expansion of species of importance or go with the most protective criteria for the most susceptible species.

VII. Current State–by–State Implementation of Compliance Requirements

Upon review of the state annual reports, the PRT has determined that all states have fully implemented the required provisions of Amendment 1 to the Shad and River herring Fishery Management Plan. The PRT notes, however, that some states did not document that landings were less than 5% in pounds per trip.

Maine, New Hampshire, and Massachusetts have been granted *de minimis* status in the past and they request the same status for this year. These states continue to meet the standards for commercial *de minimis* as defined in Amendment 1 and clarified in Addendum I. Qualification for *de minimis* status was calculated by using the highest reported landings for 2006 based upon data from the 2007 State Compliance Reports and the National Marine Fisheries Service. The

following states had landings that were reported to be less than 1% of the coast-wide commercial landings for American shad: Maine, New Hampshire, Massachusetts, Rhode Island, Pennsylvania, Maryland, PRFC, D.C., Virginia, and Florida.

VIII. Recommendations of Plan Review Team

1. The PRT recommends that the Technical Committee and Management Board consider an addendum to Amendment 1 to modify the ocean bycatch sub-sampling requirement. The PRT believes that low levels of bycatch make sampling a difficult task for states and law enforcement to undertake. The PRT questions the value of collecting this data because of the minimal landings and the inability to determine stock composition of the landed fish. States should still be required to "annually document that the 5% trip limit is not exceeded, report the extent and nature of the non-directed fisheries, and total landings of American shad bycatch" as is stated in Amendment 1 Section 4.1.A.

2. The PRT recommends that states report all stocking information. The value of the Hatchery Evaluation requirement is limited without the data on stocking of shad and river herring. The PRT would recommend that all states that stock shad and river herring be required to include stocking data in their compliance reports and evaluate hatchery contribution to the population. Amendment 1 requires that all states with active hatchery programs for American shad or other alosines annually report on hatchery contribution. Addendum I requires that all states, even those not listed in Table 2, that have hatchery programs provide a hatchery evaluation in annual state compliance reports. Multiple states and agencies are currently stocking American shad into the Potomac River. No state is reporting on the hatchery evaluation for this river. The Board should determine which state/organization is responsible for reporting the hatchery evaluation in their annual report.

3. The PRT recognizes that as new monitoring requirements or changes to regulations are required, water bodies that fall under multiple jurisdictions may not be properly monitored or the results of monitoring may not be reported to ASMFC. The PRT is concerned that ambiguity in responsibility for monitoring and reporting will lead to no monitoring and reporting by any party with jurisdiction over the system. To prevent lapses in reporting or monitoring, the PRT recommends that the Management Board determine the party responsible for monitoring and reporting the results of monitoring.

4. In light of the closure of all ocean-intercept fisheries for American shad along the Atlantic coast, the PRT recommends that Table 3 in Addendum I be modified. Currently, the table has fishery-dependent monitoring requirements that pertain to directed harvest of American shad from the Atlantic Ocean. The requirement to participate in an ocean landings stock composition study should be eliminated.

5. Trends observed in 2006 were consistent with the recently completed 2007 American Shad Benchmark Stock Assessment (the most recent data used in the assessment comes from 2005). Fish passage at dams on the Androscoggin, Saco, Exeter, Merrimack, Pawcatuck, Connecticut, Lehigh, Susquehanna, and James rivers continued to remain at low levels or in

decline. Mortality estimates exceeded Z_{30} on the Hudson, York, James and Rappahannock rivers and Albemarle Sound.

6. Recreational Creel Surveys are to be completed once every five years. The PRT requests that states include the year of the most recent creel survey and any plans for future surveys in the annual report.

7. Several of the states did not report all of the monitoring requirements listed under Amendment 1, Technical Addendum #1, and Addendum I. The states should take note of the required monitoring programs that were not reported and make concerted effort to report all monitoring programs in forthcoming annual reports.

8. Amendment 1, though focused on American shad monitoring programs, also requires states to report available fishery-dependent and independent information and recommends that states initiate fishery-dependent and independent monitoring programs for **river herring** and hickory shad in various river systems according to tables 4, 5, and 6 in Amendment 1 to the Interstate Fishery Management Plan for Shad and River Herring. States should also report landings (pounds) of river herring from their fisheries if available.

9. Amendment 1 requires each state report to include a Harvest and Losses Table. Many of the states followed the PRT's request from the 2006 PRT Report and included this table in their compliance report. The PRT requests that all states include this table in their 2008 compliance report. According to Amendment 1, Table 10 "Format Required for Annual State Report," the Harvest and Losses Table should have the following information:

   D. Table 1. Harvest and Loss – including all above estimates in numbers and weight (pounds) of fish and mean weight per fish for each gear type."

   An example of the format for the table would be:

Harvest and Losses	Number	Weight (pounds)	Mean weight per fish (pounds)
Commercial			
Gear			
Set Gill Nets			
Drift Gill Nets			
Recreational			
Gear			
Hook and Line			
Fish Passage Mortality			
Discarded Males			
Brood Stock Capture			
Research Losses			

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4. RENEWABLE ENERGY: Hydropower makes a quiet comeback *(10/28/2008)*

Environmentalists have long criticized hydropower because dams can pose a threat to fish, but amid that criticism and the the rush to trendier forms of renewable energy like wind and solar, hydropower is quietly making a comeback.

Pennsylvania Power and Light is spending $350 million to build a new powerhouse at **Holtwood** Hydroelectric Dam on the Susquehanna River that has not changed much since it started operating in 1910. The project will be the first new hydroelectric plan in the East in 20 years. There, two sets of larger turbines and generators will produce 125 megawatts, enough to power 100,000 homes.

The Holtwood expansion will also aid migrating fish. Currently, shad swimming upstream on the Susquehanna River to spawn often cannot find the dam's fish lift because of strong currents. But by siphoning some water to the new turbines and widening the river channel, the project will ease the flow, letting more fish pass, said **Holtwood** manager Chris Porse.

Other utilities are proposing more than 70 projects that would boost U.S. hydroelectric capacity by at least 11,000 megawatts during the next decade. Hydropower, the oldest and most widely used alternative energy, currently provides 10 percent of U.S. electricity generation.

As coal prices have doubled since last year, new hydropower additions are becoming more economically viable. Utilities are adding generators and hydroelectric plants to dams that have none (Paul Davidson, *USA Today*, Oct. 27). **-- KJH**