Atlantic States Marine Fisheries Commission

ADDENDUM II TO THE FISHERY MANAGEMENT PLAN FOR AMERICAN EEL

ASMFC Vision Statement:
Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015.

Approved October 23, 2008

INTRODUCTION

The Atlantic States Marine Fisheries Commission's American Eel Management Board initiated the development of Addendum II in January 2007 to propose measures that would facilitate escapement of silver eels during or just prior to their spawning migration as a means to improve American eel recruitment and abundance. Although the available data for American eel in the U.S. have not been sufficient to perform a reliable quantitative assessment of the population size or fishing mortality rates (ASMFC 2001, 2006), there has been evidence that the stock has declined and is at or near low levels (ASMFC 2000, 2001, 2006; USFWS 2007). The Management Board asked the Technical Committee (TC) and Advisory Panel (AP) to consider closed seasons, gear restrictions, size limits or a combination of these measures to reduce the harvest of emigrating eels. The public comment draft of Addendum II proposed these management measures, as well as recommendations for increased protection of American eels during their upstream and downstream migration.

This Addendum recommends stronger regulatory language to improve upstream and downstream passage of American eel to state and federal regulatory agencies. As such, there is no implementation schedule and there are no new compliance requirements. Member states are still required to submit annual compliance reports by September 1. This Addendum does not alter any other provisions from the Interstate Fishery Management Plan (FMP) and makes no changes to Addendum I to the FMP.

Background

The American eel occupies fresh, brackish, and coastal waters along the Atlantic from the southern tip of Greenland to northeastern South America. The species is catadromous, spending the majority of life in freshwater, but migrating to the Sargasso Sea to spawn. Newly hatched eels drift on oceans currents, eventually entering nearshore areas where they migrate up-river. Therefore, a comprehensive eel management plan and comprehensive set of regulations must consider the various unique life stages and the diverse habitats used, in addition to society's interest and use of this resource.

American eel (*Anguilla rostrata*) occupy a significant and unique niche in the Atlantic coastal reaches and its tributaries. Historically, American eel were very abundant in East Coast streams, comprising more than 25 percent of the total fish biomass. Eel abundance declined from historic levels but remained relatively stable until the 1970s. More recently, fishermen, resource managers, and scientists postulated a further decline in abundance based on harvest information and limited assessment data. This resulted in the development of the Atlantic States Marine Fisheries Commission FMP for American Eel. The goals of the FMP are:

1. Protect and enhance the abundance of American eel in inland and territorial waters of the Atlantic States and jurisdictions and contribute to the viability of the American eel spawning population; and
2. Provide for sustainable commercial, subsistence, and recreational fisheries by preventing overharvest of any eel life stage.

In support of these goals, the following objectives were included in the FMP:

- Improve knowledge of eel utilization at all life stages through mandatory reporting of harvest and effort by commercial fishers and dealers, and enhanced recreational fisheries monitoring.
- Increase understanding of factors affecting eel population dynamics and life history through increased research and monitoring.
- Protect and enhance American eel abundance in all watersheds where eel now occur.
- Where practical, restore American eel to those waters where they had historical abundance but may now be absent by providing access to inland waters for glass eel, elvers, and yellow eel and adequate escapement to the ocean for pre-spawning adult eel.
- Investigate the abundance level of eel at the various life stages, necessary to provide adequate forage for natural predators and support ecosystem health and food chain structure.

Status of the Stock

Current stock status (i.e., overfished or not overfished) for American eel is poorly understood due to limited and non-uniform stock assessment efforts and protocols across the species' range. No range-wide estimate of abundance exists and reliable indices of abundance of this species are scarce. Information on demographic structure is lacking and difficult to determine because the American eel is a single population (termed *panmixia*) with individuals randomly spread over an extremely large and diverse geographic range, with growth rates and sex ratios environmentally dependent. At present, limited data (fishery-dependent and independent) from indirect measurements (harvest by various gear types and locations) and localized direct stock assessment information are collected.

In 2003, declarations from the International Eel Symposium (AFS 2003, Quebec City, Quebec, Canada) and the Great Lakes Fishery Commission (GLFC) highlighted concerns regarding the health of American eel stock. Canada has recently applied the "Special Concern" designation to American eel. Available data attributes the population drop to decreasing recruitment combined with localized declines in abundance. This information is cause for concern and represents an opportunity for cooperation with other entities such as the GLFC to preserve the American eel stock.

The most recent peer reviewed stock assessment was presented to the Commission's American Eel Management Board in February 2006. The stock assessment did not meet some of the terms of reference according to the Terms of Reference and Advisory Report to the American Eel Stock Assessment Peer Review (ASMFC 2006). In May 2006, the Board tasked the American Eel Stock Assessment Subcommittee (SASC) with following up on specific recommendations in the peer review report to improve the 2005 stock assessment. The SASC follow-up to the Terms of Reference and Advisory Report to the American Eel Stock Assessment Peer Review was presented to the Board in October 2006. This report was inconclusive regarding the status of the stock. In their follow-up report, the SASC created a coastwide index for American eel using yellow eel indices that are monitored along the Atlantic Coast, both in the United States and Canada, and combing them with General Linear

Modeling (GLM). The SASC's report included a suggestion that the coastwide yellow eel GLM index could be used as a management trigger and would be a means to monitor coastwide, yet act locally.

In reaction to the extreme declines in eel abundance the Saint Lawrence River-Lake Ontario portion of the species' range, the Commission requested in 2004 that the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) conduct a status review of American eel. In February 2007, the USFWS announced the completion of a Status Review for American eel. The report concluded that protecting eel as an endangered or threatened species is not warranted. The USFWS did note that while the species' overall population is not in danger of extinction or likely to become so in the foreseeable future, the eel population has "been extirpated from some portions of its historical freshwater habitat over the last 100 years…[and the species abundance has declined] likely as a result of harvest or turbine mortality, or a combination of factors" (50 CFR Part 17).

Following the 2005 stock assessment, Terms of Reference and Advisory Report to the American Eel Stock Assessment Peer Review, and Stock Assessment Subcommittee's 2006 report, the Board initiated this Addendum to consider management options to halt the current decline in yellow eel abundance.

Status of the Fishery

American eel currently support important commercial fisheries throughout their range. Fisheries are executed in rivers, estuaries, and ocean. Commercial glass eel harvest is legal in Maine and South Carolina, although reported landings are minimal in South Carolina. Yellow and silver eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia. South Carolina and Georgia recorded no commercial yellow or silver eel landings in 2007.

Commercial

Commercial landings decreased from a high of 1.8 million pounds in 1985 to a low of 641,000 pounds in 2002. Landings of yellow and silver eel in 2007 totaled 834,500 pounds.[1] New Jersey and Delaware each reported landings over 100,000 pounds of eel and Maryland reported landings over 300,000 pounds in 2007. Combined, these three states accounted for 73% of the coastwide commercial landings. Massachusetts, Pennsylvania, Georgia, Florida, and the District of Columbia were granted *de minimis* status for the 2007 commercial fishing year. D*e minimis* is approved if a member states' commercial landings of yellow and silver eel for the previous year is less than 1% of the coastwide landings for the same year. Additionally, member states must request *de minimis* status.

Recreational

Few recreational anglers directly target eel and most landings are incidental when anglers are fishing for other species. Eel are often purchased by recreational fishermen for use as bait for larger sport fish such as striped bass, and some recreational fishermen may catch their own eel to utilize as bait. The NMFS Marine Recreational Fisheries Statistics Survey (MRFSS)

[1] Harvest data for 2007 comes from the 2008 State Compliance Reports. The landings are preliminary and some are incomplete.

shows a declining trend in the catch of eel during the latter part of the 1990s. According to MRFSS[2], 2007 recreational total catch was 140,372 fish, which represents a 63% increase in number of fish from 2006 (86,024 fish). About 59% of the eel caught were released alive by the anglers. MRFSS 2007 total recreational harvest was 57,986 fish.

For current commercial and recreational regulations for American eel by state, please see Appendix I.

STATEMENT OF THE PROBLEM

While the status of the American eel stock is uncertain, the latest stock assessment information indicates that the abundance of yellow eel (a juvenile life stage) has declined in the last two decades and the stock is at or near low levels. Further, relative abundance is likely to continue to decline unless mortality decreases and recruitment increases. The American Eel Management Board directed the American Eel Plan Development Team (PDT) to develop potential management measures for American eel that would facilitate an increase in the number of adult American eel (also known as silver eel) that are able to move from fresh and estuarine water to the ocean—also known as out-migrate—and spawn. The recommended management measures included gear and size restrictions, seasonal closures, and a recommendation to protect the upstream and downstream migration of American eel.

The Board initiated this Addendum based on a concern for the American eel population and sought public comment on measures that would facilitate escapement of silver eel on their spawning migration with the intent of halting any further declines in juvenile recruitment and eel abundance. The Board chose not to implement any additional restrictions on the fishery at this time and requested that a new stock assessment be initiated to better understand the stock status. The primary objective of this document is to recommend stronger regulatory language to improve upstream and downstream passage of American eel to state and federal regulatory agencies.

PROPOSED MANAGEMENT OPTIONS from the PUBLIC COMMENT DRAFT of ADDENDUM II

Gear restrictions, size limits, and seasonal closures employed individually or in combination can protect out-migrating silver eels by allowing more silver eel to reach the Sargasso Sea and spawn. American eel larvae and glass eel recruit to estuaries and freshwater at random; it is predicted that increased escapement from any part of the species' range has the potential to benefit the species throughout the entire range. While operating under the theory that allowing more silver eel to escape will result in increased juvenile recruitment, the PDT recognizes that several factors can influence the amount of silver eels that are allowed to out-migrate, including:

1. The time duration in which silver eel out-migrate;

[2] MRFSS Data for American Eel are unreliable. 2007 Proportional Standard Error (PSE) values for recreational harvest in Massachusetts, Rhode Island, New Jersey, Delaware, Virginia, and South Carolina are 100, 84.3, 70.2, 100.4, 100 and 100 respectively.

2. The portion of the out-migration period that is covered by the closed season;
3. The maximum size eel that gear can catch;
4. The maximum size eel that harvesters are allowed to possess.

The Board chose to delay action on commercial fishery management measures in order to incorporate the results of the upcoming stock assessment, which will present new and updated information on American eel stock status, including the long-term young-of-the-year index being conducted by the states. In addition, the Board received substantial public comment and advice from its Advisory Panel that further restrictions on American eel harvest would significantly impact fishermen. The states will revisit management measures upon completion of the American eel stock assessment.

RECOMMENDATIONS FOR IMPROVING UPSTREAM AND DOWN STREAM PASSAGE OF AMERICAN EEL

There are multiple factors that influence the American eel population across its range, as well as factors that influence their local abundance. Such factors include barriers to upstream and downstream migration, loss of habitat, and natural oceanographic conditions. On the Atlantic and Gulf coasts, 33,663 dams potentially hinder American eel movement. Of these dams, 1,511 (4.5 percent) are for hydropower (50 CFR Part 17).

Recommendations for Federal Energy Regulatory Commission Relicensing
The Commission recognizes that many factors influence the American eel population, including harvest, barriers to migration, habitat loss, and natural climatic variation. The Commission's authority, through its member states, is limited to controlling commercial and recreational fishing activity; however, to further promote the rebuilding of the American eel population, the Commission strongly encourages member states and jurisdictions, as well as the U.S. Fish and Wildlife Service, to consider and mitigate, if possible, other factors that limit eel survival. Specifically, the Commission requests that member states and jurisdictions request special consideration for American eel in the Federal Energy Regulatory Commission relicensing process. This consideration should include, but not be limited to, improving upstream passage and downstream passage, and collecting data on both means of passage.

Recommendations for Improving American Eel Passage at Non-Federally Licensed Dams
Of the 33,663 dams located on the Atlantic and Gulf Coasts that potentially hinder American eel movement, 95% are not licensed by the federal government. Therefore, the states should strive to remove these obstructions where feasible. If removal is not feasible, then upstream and downstream passage should be improved to provide access to inland waters for glass eel, elvers, and yellow eel and adequate escapement to the ocean for pre-spawning adult eel consistent with the goal of the FMP.

APPENDIX I

Table A1. Commercial Regulations by State*

State	Size Limit	License/Permit	Other
ME		· Harvester and dealer license · Dealer reporting	· Seasonal closures · Gear restrictions
NH	6"	· Commercial saltwater license · Coastal harvest permit · Monthly trip level catch & effort reporting of harvest	· 50/day for bait · Gear restrictions in freshwater
MA	6"	· Commercial permit with annual catch report requirement · Registration and reporting for all eel buyers	· Nets, pots, spears, and angling only · Mesh restrictions · Coastal towns may have additional requirements
RI	6"	· Commercial fishing license required for the sale of American eel · Quarterly reporting	
CT	6"	· Commercial license with dealer reporting	· Gear restrictions
NY	6”	· Commercial harvester and dealer license and harvester reporting	· Gear restrictions
NJ	6"	· License required · Monthly reporting for eel pot license	· Gear restrictions
PA		· No commercial fishery	
DE	6"	· License required · Monthly reporting with catch and effort	· Commercial fishing in tidal waters only
MD	6"	· Licensed required with monthly reporting.	· Prohibited in non-tidal waters · Gear restrictions · Commercial crabbers 50 eel pots/day max no harvest limit
DC		· No commercial fishery	
PRFC	6"	· Eel license · Harvester weekly reporting w/daily effort	· Gear restrictions
VA	6"	· License with two-year delayed entry system · Mandatory monthly reporting (at trip level)	· Mesh size restrictions on eel pots
NC	6"	· Standard Commercial Fishing License for all commercial fishing	· Mesh size restrictions on eel pots · Bait limit of 50 eels/day
SC		· Permits by gear and area fished · Mandatory monthly reporting · License for all commercial fishing and sale	· Various gear restrictions
GA	6"	· Personal commercial fishing license and commercial fishing boat license · Harvester/dealer reporting required	· Gear restrictions on traps and pots
FL		· Commercial fishing license · Mandatory permit for all commercial eel harvesters · Mandatory trip and monthly sales summary reporting for permittees	· Gear restrictions

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

Table A2. Recreational Regulations by State*

State	Size Limit	Possession Limit	Other
ME	6"	50 eels/person/day	· Gear restrictions · License requirement and seasonal closures (inland waters only)
NH	6"	50 eels/person/day	· Coastal harvest permit needed if taking eels other than by angling · Gear restrictions in freshwater.
MA	6"	50 eels/person/day	· Nets, pots, spears, and angling only · Mesh restrictions · Coastal towns may have additional requirements
RI	6"	50 eels/person/day	
CT	6"	50 eels/person/day	
NY	6”	50 eels/person/day	· Additional length restrictions in specific inland waters
NJ	6"	50 eels/person/day	
PA	6"	50 eels/person/day	· Gear restrictions
DE	6"	50 eels/person/day	· Two pot limit/person
MD	6"	No possession limit in tidal areas (hook & line); 25/person/day w/10 eel pot max for rec. crabber in tidal; 25/person/day in non-tidal	· Gear restrictions
DC	6"	10 eels/person/day	· Five trap limit
PRFC	6"	50 eels/person/day	· Recreational license
VA	6"	50 eels/person/day	· Recreational license, no reporting · Recreational commercial gear license, annual report required · Two eel pot limit (both licenses) · Mandatory annual catch report for eel pot license · Mesh size restrictions on eel pots
NC	6"	50 eels/person/day	· Gear restrictions · Noncommercial special device license, allowed two eel pots under Recreational Commercial Gear license
SC	None	None	· Gear restrictions
GA	None	None	
FL	None	None	· Mesh size and funnel opening restrictions on eel pots

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.