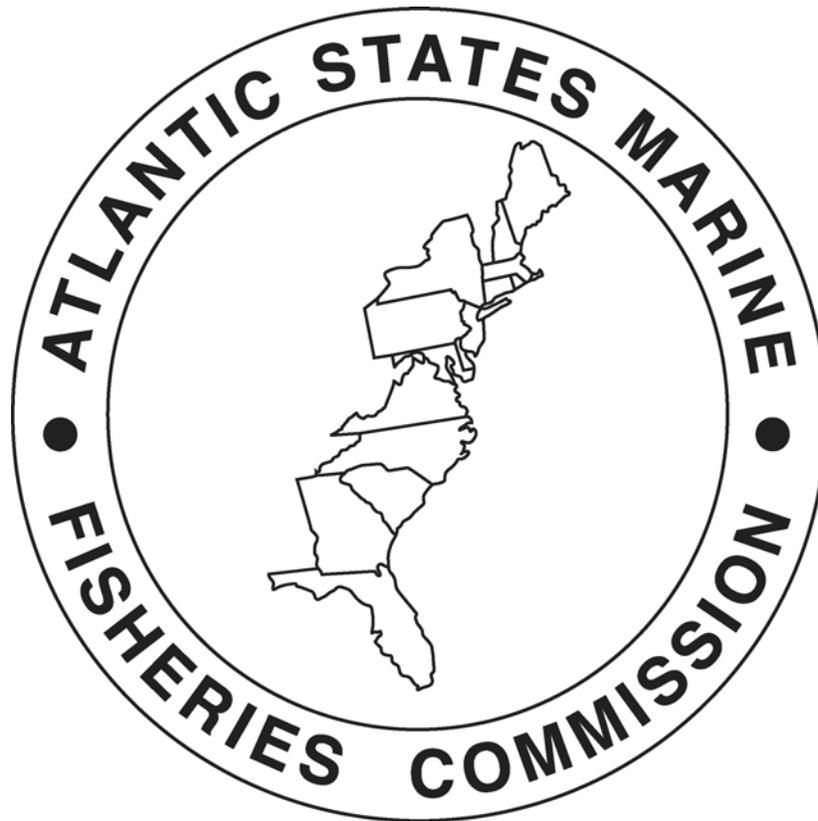


*Atlantic States Marine Fisheries Commission*

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



**Addendum I**

**To the Interstate Fishery Management Plan for American Eel**

Approved February 22, 2006  
Edited on January 5, 2007 to Reflect February 2006 American Eel Management  
Board Proceedings

## INTRODUCTION

Complete catch and effort data is needed in order to properly assess and manage the American eel population. The 2006 peer review highlighted a lack of eel catch and effort data as a major impediment to completing a quantitative stock assessment. To collect the necessary data for future stock assessments, the American Eel Technical Committee has recommended that, at a minimum, states be required to provide accurate catch and effort data. Specifically, the Technical Committee has recommended implementation of a specific eel harvester permit/license for each state, with each license requiring reporting of catch and effort. The permit/license should be required for all eel harvesters, including those who harvest eels for use as bait. Further, the Technical Committee has recommended a specific eel report and license/permit from dealers, including bait dealers. Harvester and dealer reports must differentiate between the amount of eels used or sold for food (human consumption) and the amount of eels used or sold for bait.

Based on these recommendations, the American Eel Management Board developed and subsequently approved this Addendum in order to establish a mandatory catch and effort monitoring program for American eel. The management measures in this Addendum are to be implemented by January 1, 2007 (states that are required to implement new management measures through legislation are permitted an addition six months to implement the Addendum).

### Background

American eel inhabit fresh, brackish, and coastal waters along the Atlantic from the southern tip of Greenland to northeastern South America. The species is catadromous, spawning only in the Sargasso Sea and then migrating toward land and into freshwater, where it spends the majority of its life. After hatching and ocean drift, initially in the pre-larval stage and then in the leptocephalus phase, metamorphosis occurs. In most areas, glass eel enter the nearshore area and begin to migrate up-river, although there have been reports of leptocephali found in freshwater in Florida. Eel are found in the marine environment during various parts of their life cycle. Elvers, yellow eel, and silver eel make extensive use of freshwater systems. Therefore, a comprehensive eel management plan and set of regulations must consider the various unique life stages and the diverse habitats of American eel, 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 (ASMFC) Interstate Fishery Management Plan (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 over-harvest of any eel life stage.

In support of this goal, 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 for American eel is poorly understood due to limited and non-uniform stock assessment efforts and protocols across the range of this species. Reliable indices of abundance of this species are scarce. Limited data from indirect measurements (harvest by various gear types and locations) and localized stock assessment information are currently collected.

Although eel have been continuously harvested, consistent data on harvest are often unavailable. Harvest data are often a poor indicator of abundance because harvest is dependent on demand and may consist of annually changing mixes of year classes. Most of the data collections were of short duration and were not standardized between management agencies. Harvest data from the Atlantic coastal states (Maine to Florida) indicate that harvest has declined after a peak in the mid-1970s. Annual eel catch ranged from 913,251 pounds to 3,626,936 pounds between 1970 and 2000. The lowest harvest (between 1970 and 2001) was 898,459 pounds and occurred in 2001. Because fishing effort data is unavailable, finding a correlation between population numbers and landings data is problematic.

As stated in Section 2 of the FMP, the purpose of this management program is to reverse any local or regional declines in abundance and institute consistent fishery-independent and dependent monitoring programs throughout the management unit.

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. Available data point 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.

In 2005, the ASMFC American Eel Stock Assessment Subcommittee (SASC) conducted a stock assessment for American eel. This assessment was reviewed by the ASMFC American Eel Technical Committee and underwent an independent peer review in December 2005. The results of the peer review can be found on the Atlantic States Marine Fisheries Commission website, [www.asmfc.org](http://www.asmfc.org).

### **Status of the Fishery**

American eel currently support important commercial fisheries throughout their range. Fisheries are executed in rivers, estuaries, and the ocean. Commercial fisheries for glass eel and elver exist in Maine, South Carolina, and Florida (though in South Carolina and Florida, no commercial glass eel or elver landings were recorded in 2004), whereas yellow and silver eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia.

### *Commercial*

Commercial landings decreased from the high of 1.8 million pounds in 1985 to a low of 649,000 pounds in 2002. Landings in 2004 totaled 921,896 pounds. The States of New Jersey, Delaware, Maryland, Virginia, and North Carolina each landed over 100,000 pounds of eel, and together accounted for 88 percent of the coastwide commercial total landings in 2004.

### *Recreational*

Few recreational anglers directly target eel. Hook and line fishermen, for the most part, catch eel incidentally when fishing for other species. The National Marine Fisheries Service (NMFS) Marine Recreational Fisheries Statistics Survey (MRFSS), which has surveyed recreational catch in ocean and coastal county waters since 1981, shows a declining trend in the catch of eel during the latter part of the 1990s. According to MRFSS<sup>1</sup>, 2004 recreational catch was 112,001 fish, which represents a slight decrease in number of fish from 2003 (156,381 fish). New Jersey and Delaware combined represented 40 percent of the recreational American eel catch, and New York and Delaware combined represented 62 percent of the recreational American eel harvest in 2004. About 79 percent of the eel caught were released alive by anglers in 2004 (MRFSS 2004; total recreational harvest was 23,442 fish). Eel are often purchased by recreational fishermen for use as bait for larger gamefish such as striped bass, and some recreational fishermen may catch eels and utilize them as bait.

## **STATEMENT OF THE PROBLEM**

The American Eel FMP includes a requirement for states to institute licensing and reporting mechanisms to ensure that annual effort (including total units of gear deployed) and landings information by life stage (glass eel/elver, yellow eel, and silver eel) are provided by harvesters and/or dealers. The stock assessment also recommends improved catch and effort reporting for improvement of future stock assessments. In addition, the ACCSP calls for a comprehensive permit/license system for all commercial dealers and fishermen.

The FMP requires states to report the following information each year:

#### Commercial Fishery

- Estimates of directed harvest, by month, by region as defined by the states
  - Pounds landed by life stage and gear type (defined in advanced by ASMFC)
  - Biological data taken from representative sub-samples to include sex ratio and age structure (for yellow/silver eels), length, and weight, if available
  - Estimated percent of harvest going to food versus bait
- Estimates of export by season (provided by dealers)
- Harvest data provided as CPUE (by life stage and gear type)
- Permitted catch for personal use, if available

#### Recreational Fishery

- Estimate of recreational harvest by season, if available
  - Biological data taken from representative sub-samples to include sex ratio, age structure, length, and weight, if available

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<sup>1</sup> MRFSS data for American eel are unreliable. 2004 Proportional Standard Error (PSE) values for recreational harvest in Connecticut, New York, New Jersey, Delaware, Maryland, and North Carolina are 100, 74.1, 100, 47.3, 83.5, and 100, respectively.

The 2005 stock assessment for American eel was still in draft form during development of this Addendum. An independent peer review of the stock assessment was held in December 2005. In the stock assessment, the Stock Assessment Subcommittee recommended the following for improving future stock assessments:

- Improve catch and effort monitoring by requiring trip-level landing and effort data by state.
- Require states to report catch and effort in standardized units.
- Require effort to be reported by gear type, the number of units of gear fished per person per trip, including soak time or fishing time. States should be required to report these effort data annually.
- Require states to implement commercial eel harvest and dealer permits as a measure of participation.

The ACCSP commercial data collection program includes a trip-based system with all fishermen and dealers required to report a minimum set of standard data elements (refer to the ACCSP Program Design Document for details). Commercial fishermen and dealer reports should be submitted after the 10<sup>th</sup> of each month.

Any marine fishery products landed in any state must be reported by a dealer or a marine resource harvester acting as a dealer in that state. Any marine resource harvester or aquaculturist who sells, consigns, transfers, or barter marine fishery products to anyone other than a dealer would themselves be acting as a dealer and would therefore be responsible for reporting as a dealer.

The ACCSP recreational data collection program for private/rental and shore modes of fishing is conducted through a combination telephone and intercept survey. Recreational effort data are collected through a telephone survey with random sampling of households until such time as a more comprehensive universal sampling frame is established. Recreational catch data are collected through an access-site intercept survey. A minimum set of standard data elements is collected in both telephone and intercept surveys (refer to the ACCSP Program Design Document for details). The ACCSP will implement research and evaluation studies to expand sampling and improve the estimates of recreational catch and effort.

States currently have varying types of commercial license structures and reporting requirements. Specifics of the existing state programs are summarized in Table 1 for the commercial fishery and Table 2 for the recreational fishery. All states except New Jersey and Rhode Island have implemented mandatory reporting for the commercial fishery, but the level of reporting varies from daily to monthly to annually/by season. Units of effort collected through these reporting programs include per month, pounds per unit of gear per day, and eels per pot-hour. Some states have a specific eel license, but a general commercial fishing license is the most common license type.

For the recreational sector, many states have a freshwater recreational fishing license but few require a saltwater recreational fishing license. Virginia has a recreational eel pot license with mandatory reporting, but no reporting is required for a saltwater license, which allows the license holder to use up to two eel pots. North Carolina has a Recreational Commercial Gear License, and 33 percent of license holders are surveyed each year to obtain an estimate of recreational catch and effort. The remaining states do not currently have recreational mandatory reporting.

The ASMFC American Eel Technical Committee noted that a large percentage of eel catch and effort takes place in inland areas under the jurisdiction of multiple state agencies. Full implementation of this Addendum will require cooperation and communication between state agencies to ensure coverage in all areas where eel harvest occurs.

Table 1. American eel commercial reporting and license requirements by state as of November 2005.

State	Commercial Mandatory Reporting?	Schedule of Commercial Reporting?	Commercial Effort Type Reported	Commercial License Type	Dealer or Harvest Data	Gear Types
ME - elver fishery	yes	season report	total pounds/month reported, pounds/net by month calculated assuming all gear fished	specific elver license	dealer	dip net, mostly fyke net
ME - pot fishery	yes	season report	pounds/month, pots fished, and days fished reported	specific license	harvest	pot
ME - weir fishery	yes	season report	pounds/month reported, days fished reported, pounds/weir/day calculated	specific license	harvest	weir
NH	yes	monthly reports with daily information	pounds landed, hours or days gear fished	general commercial license	harvest	pot
MA	yes	annual catch reports	pounds/pot/night (beginning in 2003)	general commercial license, specific endorsement for eel	harvest	pot
RI	no	n/a	n/a	multipurpose license	IVR system	pot
CT	yes	monthly reports with daily information	pounds/day	general commercial license		harvest
NY - marine district	yes	VTR	catch (pounds)/trip	general commercial license	VTR and IVR	pot
NY - inland	yes	season report	catch/unit of gear/day	each piece of gear is licensed	harvest	weir and pot
NJ	no	n/a	n/a	general commercial license	none	pot
PA	n/a	no commercial fishery	n/a	n/a	n/a	n/a
DE	yes	monthly	pounds landed, pots fished/day	specific eel license	harvest	pot
MD	yes	monthly reports with daily information	pounds/pot/area/day	general commercial license	harvest	pot
DC	n/a	no commercial fishery	n/a	n/a	n/a	n/a
PRFC			pounds/license, pounds/pot, pounds/day			pot
VA	yes	monthly reports with daily information	soak time for gear used, number of pots fished, pounds landed, water body	each gear has a specific license (including eel pots), dealer license required to purchase from harvester	harvester or dealer	mainly eel, fish and peeler pots
NC	yes	trip level	per trip (per purchase)	standard commercial fishing license (SCFL)	trip ticked (since 1994)	pot
SC	yes	monthly reports with daily information	eels/pot-hour	general freshwater commercial license, general saltwater commercial license	harvest	pot, dip net, fyke net
GA	yes	monthly reports with daily information	eels/pot-hour	commercial fishing license, commercial boating license	harvest	pot, trap
FL	yes	monthly	pounds/pot/day (since 2003)	specific permit for those who use HSC as bait (until July 2006), all commercial harvesters have a generic commercial license, specific eel permit will be required 7-1-06	harvest	pot

Table 2. American eel recreational reporting and license requirements by state as of November 2005.

State	Recreational License Type	Recreational Reporting?
ME - elver fishery	n/a (no recreational fishing for elvers)	n/a
ME - pot fishery	none	
ME - weir fishery	n/a (no recreational weir fishing)	n/a
NH	coastal harvest license (saltwater) for pot/trap gear, freshwater fishing license for hook and line	coastal harvest report (saltwater) if using gear other than hook and line
MA	none	none
RI	no saltwater recreational license	none
CT	no saltwater recreational license	none
NY - marine district	no saltwater recreational license	none
NY - inland	recreational license above first dam impassable to fish	none
NJ	no saltwater recreational license	none
PA	freshwater fishing license required	
DE	no saltwater recreational license	none
MD	tidal recreational license, non-tidal recreational license	none
DC	recreational fishing license	
PRFC		
VA	saltwater fishing license, freshwater fishing license, recreational eel pot license	saltwater license allows 2 eel pots with no reporting requirement (as of July 2005), no reporting for freshwater license, mandatory reporting for recreational eel pot license
NC	Recreational Commercial Gear License in marine waters, inland recreational license through WRC	RCGL survey: 33% of license holders, survey asks total # of trips/month, avg. # eel pots/trip, water body most often fished, catch information, species, # kept, # released
SC	tag required to use commercial gear in freshwater, saltwater recreational fishing license	none
GA	general state recreational fishing license (freshwater and saltwater)	none
FL	general state recreational fishing license	none

## **MANDATORY CATCH AND EFFORT MONITORING PROGRAM**

Following the recommendations of the American Eel Stock Assessment Subcommittee, Technical Committee, and Advisory Panel, the Management Board requires, through this Addendum, a catch and effort monitoring program for American eel. States and jurisdictions have the following options:

### **Option 1**

A permit allowing commercial harvest with mandatory reporting of eel catch and effort, applicable only to the commercial sector of the eel fishery.

### **Option 2**

A dealer permit with a mandatory purchase-reporting requirement.

The eel permit and reporting program is to be implemented in all areas, freshwater and saltwater, where eel are harvested to provide a complete picture of catch and effort for the commercial fishery and useful data for stock assessments. Permits are to be issued with a requirement to report eel catch and effort on a trip-level basis. Completion of reporting is to be a condition of permit renewal. Reports should include soak time, number of units of gear fished, and pounds landed by life stage.

Efforts to collect catch and effort data should be consistent with the ACCSP standards listed above.

## **MANAGEMENT PROGRAM IMPLEMENTATION**

### **Implementation Schedule**

The implementation deadline for Addendum I is January 1, 2007. States that are required to pass new regulations in their legislatures are permitted an additional six months to implement the Addendum, if needed. State implementation plans are due to the ASMFC by May 1, 2006. Upon receipt, the American Eel Technical Committee will review the implementation plans and provide feedback to the American Eel Management Board. The earlier deadline is intended to allow additional time for the states to make changes to their plans prior to the implementation process.