# 2019 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR **AMERICAN EEL** ***(Anguilla rostrata)***

## 2018 FISHING YEAR

Prepared by the American Eel Plan Review Team
Fall 2019

**Approved October 2019**

**2019 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR AMERICAN EEL**
***(Anguilla rostrata)***

## I. Status of the Fishery Management Plan

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|---|---|
| Date of FMP approval: | November 1999 |
| Addenda: | Addendum I (February 2006)<br>Addendum II (October 2008)<br>Addendum III (August 2013)<br>Addendum IV (October 2014)<br>Addendum V (August 2018) |
| Management unit: | Migratory stocks of American Eel from Maine through Florida |
| States with a declared interest: | Maine through Florida, including the District of Columbia and the Potomac River Fisheries Commission |
| Active committees: | American Eel Management Board, Plan Review Team, Technical Committee, Stock Assessment Subcommittee, and Advisory Panel |

The ASMFC American Eel Management Board (Board) first convened in November 1995 and finalized the Fishery Management Plan (FMP) for American Eel in November 1999 (ASMFC 2000). The goal of the FMP is to conserve and protect the American eel resource to ensure its continued role in the ecosystems while providing the opportunity for its commercial, recreational, scientific, and educational use. In support of this goal, the following objectives are included:

- 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.

The FMP requires all states and jurisdictions to implement an annual young-of-year (YOY) abundance survey to monitor annual recruitment of each year's cohort. In addition, the FMP requires a minimum recreational size, a possession limit and a state license for recreational

fishermen to sell eels. The FMP requires that states and jurisdictions maintain existing or more conservative American eel commercial fishery regulations for all life stages, including minimum size limits. Each state is responsible for implementing management measures within its jurisdiction to ensure the sustainability of its American eel population.

In August 2005, the Board directed the American Eel Plan Development Team (PDT) to initiate an addendum to establish a mandatory catch and effort monitoring program for American eel. The Board approved Addendum I at the February 2006 Board meeting.

In January 2007, the Board initiated a draft addendum with the goal of increasing escapement of silver eels to spawning grounds. In October 2008, the Board approved Addendum II, which placed increased emphasis on improving the upstream and downstream passage of American eel. The Board chose to delay action on management measures in order to incorporate the results of the 2012 stock assessment.

In August 2012, the Board initiated Draft Addendum III with the goal of reducing mortality on all life stages of American eel. The Addendum was initiated in response to the findings of the 2012 Benchmark Stock Assessment, which declared American eel stock along the US East Coast depleted. The Board approved Addendum III in August 2013.

Addendum III requires states to reduce the yellow eel recreational possession limit to 25 eel/person/day, with the option to allow an exception of 50 eel/person/day for party/charter employees for bait purposes. The recreational and commercial size limit increased to a minimum of 9 inches. Eel pots are required to be ½ by ½ inch minimum mesh size or have at least a 4" by 4 inch escape panel of ½ by ½ inch mesh escape panel. The glass eel fishery is required to implement a maximum tolerance of 25 pigmented eels per pound of glass eel catch. The silver eel fishery is prohibited to take eels from September 1st to December 31st from any gear type other than baited traps/pots or spears. The Addendum also set minimum monitoring standards for states and required dealer and harvester reporting in the commercial fishery.

In October 2014, the Board approved Addendum IV. This addendum was also initiated in response to the 2012 American Eel Benchmark Stock Assessment and the need to reduce mortality on all life stages. The Addendum established a coastwide cap of 907,671 pounds of yellow eel, reduced Maine's glass eel quota to 9,688 pounds (2014 landings), and allowed for the continuation of New York's silver eel weir fishery in the Delaware River. For yellow eel fisheries, the coastwide cap was implemented for the 2015 fishing year and established two management triggers: (1) if the cap is exceeded by more than 10% in a given year, or (2) the cap is exceeded for two consecutive years regardless of the percent overage. If either one of the triggers are met, then states would implement state-specific allocation based on average landings from 2011-2013. The addendum also requires any state or jurisdiction with a commercial glass eel fishery to implement a fishery independent life cycle survey covering glass, yellow, and silver eels within at least one river system.

In August 2018, the Board approved Addendum V. The Addendum increases the yellow eel coastwide cap starting in 2019 to 916,473 pounds to reflect a correction in the historical harvest. Further, the Addendum adjusts the method (management trigger) to reduce total landings to the coastwide cap when the cap has been exceeded, and removes the implementation of state-by-state allocations if the management trigger is met. Management action will now be initiated if the yellow eel coastwide cap is exceeded by 10% in two consecutive years. If the management trigger is exceeded, only those states accounting for more than 1% of the total yellow eel landings will be responsible for adjusting their measures. A workgroup will be formed to define the process to equitably reduce landings among the affected states when the management trigger has been met. Additionally, the Addendum maintains Maine's glass eel quota of 9,688 pounds. The Board also slightly modified the glass eel aquaculture provisions, maintaining the 200 pound limit for glass eel harvest, but modifying the criteria for evaluating the proposed harvest area's contribution to the overall population consistent with the recommendations of the Technical Committee.

## II. Status of the Stock

In 2009, the Board initiated a benchmark stock assessment. After reviewing over 100 surveys and studies, the American Eel Stock Assessment Subcommittee (SAS) selected 19 YOY surveys and 15 yellow eel surveys along the East Coast for use as indices of abundance in the assessment. Despite the large number of surveys and studies available for use, the American eel stock is still considered data-poor because very few surveys target eels and collect information on length, age, and sex of the animals caught. Additionally, eels have an extremely complex life history that is difficult to describe using traditional stock assessment models. Therefore, several data-poor methods were used to assess the American eel resource.

The first set of analyses (trend analyses) aimed to determine if there was a statistically significant trend in the fishery-independent survey data and whether or not there was evidence for significant trends on the regional and coastwide scales. The second approach involved a Depletion-Based Stock Reduction Analysis (DB-SRA) model, which uses trends in historical catch to estimate biomass trends and maximum sustainable yield. Both the trend analyses and DB-SRA results indicated that the American eel stock declined in recent decades, and the prevalence of significant downward trends in multiple surveys across the coast is cause for concern. Therefore, the stock status for American eels is depleted, although overfishing and overfished status in relation to the reference points could not be determined with confidence. The benchmark stock assessment was peer reviewed in March 2012 and was approved for management use in May 2012 (ASMFC 2012).

In 2003, declarations from the International Eel Symposium (AFS 2003, Quebec City, Quebec, Canada) and the Great Lakes Fisheries Commission (GLFC) highlighted concerns regarding the health of eel stocks worldwide. In 2010, the Canada Department of Fisheries and Oceans (DFO) conducted a stock assessment on American eels in Canadian waters and found that region-specific status indices show that abundance is very low in comparison to levels in the 1980s for

the Lake Ontario and upper St. Lawrence River stock, and is either unchanged or increasing in the Atlantic Provinces.

The 2017 American Eel Stock Assessment Update updates the 2012 American Eel Benchmark Stock Assessment with data from 2010-2016. The trend analysis results in this stock assessment update are consistent with the 2012 results, with few exceptions. Despite downward trends in the indices, commercial yellow American eel landings have been stable in recent decades along the Atlantic coast (U.S. and Canada), although landings still remain much lower than historical landings. The trend analysis and stable low landings support the Assessment Update's conclusion that the American eel population in the assessment range is similar to five years ago and remains depleted. Therefore, the resource is considered depleted and no stock status specific to overfishing determination can be made based on the trend analyses performed (ASMFC 2017).

## III. Status of the Fishery

American eel currently support commercial fisheries throughout their range in North America, with significant fisheries occurring in the US Mid-Atlantic region and Canada. These fisheries are executed in riverine, estuarine, and ocean waters. In the US, commercial fisheries for glass eel/elvers exist in Maine and South Carolina and a silver eel weir fishery exists in New York's Delaware River, whereas yellow eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia.

Although eel have been continuously harvested, consistent data on harvest are often not available. Harvest data from the Atlantic coastal states (Maine to Florida) indicate that the harvest fluctuated widely between 1970 and 1980, but showed an increasing trend that peaked in 1979 at 3,951,936 pounds. Harvest has declined since then, with the lowest harvest of 641,225 pounds occurring in 2002. Because fishing effort data are unavailable for the entire time series, finding a correlation between population numbers and landings data is difficult.

### *Commercial*

***Please Note: Landings information for the following section are from state compliance reports. The states are working with ACCSP to provide updated and correct landings information; as such, some of the information below may not reflect updated landings information.***

Commercial landings have decreased from a high of 3.95 million pounds in 1979 to a low of 641,000 pounds in 2002, and have only recently begun to exceed one million pounds. State reported landings of yellow/silver eels in 2018 totaled approximately 781,615 pounds[1] (Table 1, Figure 1), which represents a 8.24% decrease in landings from 2017 (851,391 pounds) and was the second lowest value in the last 20 years. Yellow eel landings decreased in eight states and jurisdictions, while increasing in three others. In 2018, state reported landings from Delaware, Maryland, PRFC, and Virginia together accounted for 82% of the coastwide commercial total

[1] Preliminary landings data for 2018 comes from state compliance reports.

landings. Landings of glass eels were reported from Maine and South Carolina, totaled approximately 9,194 pounds.

**Table 1. Preliminary 2018 Commercial Landings by State and Life Stage[1]**

| | State Reported | |
|---|---|---|
| | **Glass** | **Yellow** |
| **Maine** | 9,194 | 2,831 |
| **New Hampshire** | No Fishery | 0 |
| **Massachusetts** | No Fishery | 415 |
| **Rhode Island** | No Fishery | 3,988 |
| **Connecticut** | No Fishery | 2,047 |
| **New York** | No Fishery | 37,576 |
| **New Jersey** | No Fishery | 69,668 |
| **Pennsylvania** | No Fishery | No Fishery |
| **Delaware** | No Fishery | 31,378 |
| **Maryland** | No Fishery | 522,596 |
| **D.C.** | No Fishery | No Fishery |
| **PRFC** | No Fishery | 31,151 |
| **Virginia** | No Fishery | 57,271 |
| **North Carolina** | No Fishery | 18,058 |
| **South Carolina** | Confidential (<750 pounds) | 0 |
| **Georgia** | No Fishery | Confidential |
| **Florida** | No Fishery | 4,636 |
| **Total** | **Glass: Approx 9,194 Elver: 0** | **781,615** |

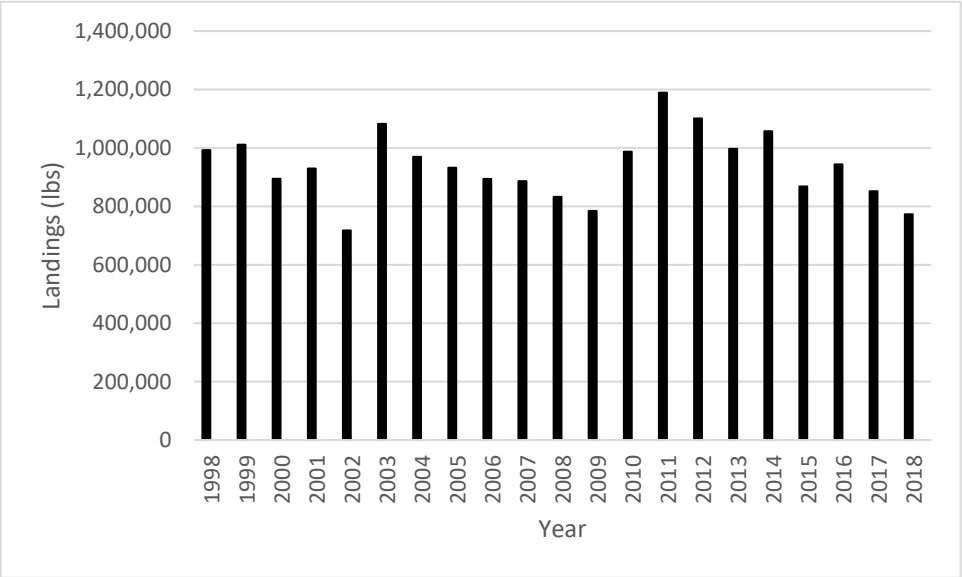


**Figure 1. American Eel Yellow-Life Stage Coastwide Landings 1998-2018**

**Table 2. State commercial regulations for the 2018 fishing year.***

| State | Min Size Limit | License/Permit | Other |
|---|---|---|---|
| ME | Glass<br>No minimum size | Daily dealer reports/swipe card program; monthly harvester report of daily landings. Tribal permit system in place for some Native American groups. | In 2017, the Legislature authorized the DMR commissioner to adopt rules to implement the elver fishing license lottery, including provisions for the method and administration of the lottery. |
| | Yellow<br>9” | Harvester/dealer license and monthly reporting. Tribal permit system in place for some Native American groups. | Seasonal closures. Gear restrictions. Weekly closures. |
| NH | 9” | Commercial saltwater license and wholesaler license. No dealer reports. Monthly harvester reporting includes dealer information. | Gear restrictions in freshwater. |
| MA | 9" | Commercial permit with annual catch report requirement. Registration for dealers with purchase record requirement. Dealer/harvester reporting. | Traps, pots, spears, and angling only. Mesh restrictions. |
| RI | 9" | Commercial fishing license. Dealer/harvester reporting. | Seasonal gear restrictions. |
| CT | 9" | Commercial license (not required for personal use). Dealer/harvester reporting. | Gear restrictions. |
| NY | 9" | Harvester/dealer license and monthly reporting. | Gear restrictions. Maximum limit of 14” in some rivers. |
| NJ | 9" | License required. No dealer reports. Monthly harvester reporting includes dealer information. | Gear restrictions. |
| PA | NO COMMERCIAL FISHERY | | |
| DE | 9" | Harvester reporting, no dealer reporting. License required. | Commercial fishing in tidal waters only. Gear restrictions. |
| MD | 9" | Dealer/harvester license and monthly reporting. | Prohibited in non-tidal waters. Gear restrictions. Commercial crabbers may fish 50 pots per day, must submit catch reports. |

| State | Min Size Limit | License/Permit | Other |
|---|---|---|---|
| DC | NO COMMERCIAL FISHERY | | |
| PRFC | 9" | Harvester license and reporting. No dealer reporting. | Seasonal gear restrictions. Mesh size restrictions on eel pots. |
| VA | 9" | Harvester license required. Dealer/harvester monthly reporting. | Mesh size restrictions on eel pots. Seasonal closures. |
| NC | 9" | Standard Commercial Fishing License for all commercial fishing. Dealer/harvester monthly combined reports on trip ticket. | Mesh size restrictions on eel pots. Seasonal closures. |
| SC | Glass No minimum size | Fyke and dip net only permitted. Dealer/harvester monthly combined reports on trip ticket. License required. | Max 10 individuals. Gear and area restrictions. |
| | Yellow 9" | Pots and traps permitted only. Dealer/harvester monthly combined reports on trip ticket. License required. | Gear restrictions. |
| GA | 9" | Personal commercial fishing license and commercial fishing boat license. Dealer/harvester monthly combined reports on trip ticket. | Gear restrictions on traps and pots. Area restrictions. |
| FL | 9" | Permits and licenses. Harvester reporting. No dealer reporting. | Gear restrictions. |

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

***Recreational***

Available information indicates that few recreational anglers directly target American eel. For the most part, hook-and-line fishermen catch eel incidentally when fishing for other species. American eel are often purchased by recreational fishermen for use as bait for larger gamefish such as striped bass, and some recreational fishermen may catch their own to use as bait.

The National Marine Fisheries Service (NMFS) Marine Recreational Information Program (MRIP) shows a declining trend in the catch of eel during the latter part of the 1990s. As of 2009, recreational data are no longer provided for American eel, due to the unreliable design of MRIP that focuses on active fishing sites along coastal and estuarine areas.

**Table 3. State recreational regulations for the 2018 fishing year.***

| State | Size Limit | Possession Limit | Other |
|---|---|---|---|
| ME | 9" | 25 eels/person/day | Gear restrictions. License requirement and seasonal closures (inland waters only). Bait limit of 50 eels/day for party/charter boat captain and crew. |
| NH | 9" | 25 eels/person/day | Coastal harvest permit needed if taking eels other than by angling. Gear restrictions in freshwater. |
| MA | 9" | 25 eels/person/day | Nets, pots, traps, spears, and angling only; seasonal gear restrictions and mesh requirements. Bait limit of 50 eels/day for party/charter boat captain and crew. |
| RI | 9" | 25 eels/person/day | Bait limit of 50 eels/day for party/charter boat captain and crew. |
| CT | 9" | 25 eels/person/day | |
| NY | 9” | 25 eels/person/day | Maximum limit of 14” in some rivers. Bait limit of 50 eels/day for party/charter boat captain and crew. |
| NJ | 9" | 25 eels/person/day | Bait limit of 50 eels/day for party/charter boat captain and crew. Mesh size restriction on pots. |
| PA | 9" | 25 eels/person/day | Gear restrictions. |
| DE | 9" | 25 eels/person/day | Two pot limit/person. |
| MD | 9" | 25 eels/person/day | Gear restrictions. |
| DC | 9" | 10 eels/person/day | |
| PRFC | 9" | 25 eels/person/day | |
| VA | 9" | 25 eels/person/day | Recreational license. Two pot limit. Mandatory monthly catch report. Gear restrictions. Bait limit of 50 eels/day for party/charter boat captain and crew. |
| NC | 9" | 25 eels/person/day | Gear restrictions. Non-commercial special device license. Two eel pots allowed under Recreational Commercial Gear license. Bait limit of 50 eels/day for party/charter boat captain and crew. |
| SC | 9" | 25 eels/person/day | Gear restrictions. Permits and licenses. Two pot limit. |
| GA | 9" | 25 eels/person/day | |
| FL | 9" | 25 eels/person/day | Gear restrictions. Wholesale/retail purchase exemption applies to possession limit for bait. |

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

## IV. Status of Research and Monitoring

The FMP requires states and jurisdictions with a declared interest in the species to conduct an annual YOY survey to monitor annual recruitment of each year's cohort. In 2018, the states and jurisdictions of Maine (West Harbor Pond), Connecticut (Fishing Brook Eel Pass), Delaware (Millsboro Pond), and Maryland (Turville Creek) had above average YOY counts. The 2018 catch at Maine's West Harbor Pond site was the eighth largest catch in 18 year time series. The 2018 catch at Connecticut's Fishing Brook Eel Pass was the highest in the 19 year time series. The 2018 catch at Delaware's Millsboro Pond was the eighth highest in the 19 year time series. The 2018 catch at Maryland's Turville Creek site was the eight highest in the 18 year time series. All other states with YOY surveys (New Hampshire, Rhode Island, New York, New Jersey, North Carolina, South Carolina, and Florida) had at or below average survey counts. The results from Virginia's YOY surveys are forthcoming. Pennsylvania, D.C., and Georgia do not have YOY surveys, but instead have yellow eel surveys. New Jersey additionally developed and implemented a fishery-independent eel pot survey to collect abundance data of yellow American eels within nursery grounds. This survey, which began in 2015, supplements the current glass eel survey by sampling more life stages and will allow biologists to collect additional biological samples (age-length-weight data).

As required by Addendum IV, Maine continued the fishery independent life cycle survey covering glass, yellow, and silver eels within at least one river system (Cobboseecontee Stream drainage) in 2018. Maine Department of Marine Resources staff will conduct the life cycle survey on at the West Harbor Pond YOY site starting in 2019.

Maine's glass eel aquaculture proposal was approved for the 2019 fishing season, allowing for an additional 200 pounds of glass eels to be harvested for aquaculture; this amount is in addition to the Maine's glass eel quota of 9,688 pounds. In 2019, a total of 130 pounds were harvested out of the 200 pound allocation.

North Carolina's aquaculture plan for an American Eel Farm was approved for 2019, allowing the harvest of up to 200 pounds of glass eel aquaculture. In 2019, the American Eel Farm (AEF) harvested 13 pounds though the facility suffered a total mortality event in June 2019 and no eels survived.

The FMP does not require any other research initiatives in participating states and jurisdictions. Nonetheless, the American Eel Technical Committee has identified several research topics to further understanding of the species' life history, behavior, and biology. Research needs for American eel include:

***High Priority***

- Accurately document the commercial eel fishery to understand participation in the fishery and the amount of directed effort.

- Investigate, develop, and improve technologies for American eel passage upstream and downstream at various barriers for each life stage. In particular, investigate low-cost alternatives to traditional fishway designs for passage of eel.
- Formulate a coastwide sampling program for yellow and silver American eels using standardized and statistically robust methodologies.
- Conduct regular periodic stock assessments and establish sustainable reference points for eel to develop a sustainable harvest rate and to determine whether the population is stable, decreasing, or increasing.
- Research coastwide prevalence of the swim bladder parasite *Anguillacolla crassus* and its effects on the American eel's growth and maturation, migration to the Sargasso Sea, and spawning potential.
- Evaluate the impact, both upstream and downstream, of barriers to eel movement with respect to population and distribution effects. Determine relative contribution of historic loss of habitat to potential eel population and reproductive capacity**.**

***Medium Priority***

- Investigate survival and mortality rates of different life stages (leptocephalus, glass eel, yellow eel, and silver eel) to assist in the assessment of annual recruitment. Continuing and initiating new tagging programs with individual states could aid such research.
- Tagging Programs: A number of issues could be addressed with a properly designed tagging program. These include:
    - Natural, fishing, and/or discard mortality; survival
    - Growth
    - Validation of aging method(s)
    - Reporting rates
    - Tag shedding or tag attrition rate
- Research contaminant effects on eel and the effects of bioaccumulation with respect to impacts on survival and growth (by age) and effect on maturation and reproductive success.
- Investigate fecundity, length, and weight relationships for females throughout their range; growth rates for males and females throughout their range; predator-prey relationships; behavior and movement of eel during their freshwater residency; oceanic behavior, movement, and spawning location of adult mature eel; and all information on the leptocephalus stage of eel.
- Assess characteristics and distribution of eel habitat and the value of habitat with respect to growth and sex determination.
- Identify triggering mechanism for metamorphosis to mature adult, the silver eel life stage, with specific emphasis on the size and age of the onset of maturity, by sex. A maturity schedule (proportion mature by size or age) would be extremely useful in combination with migration rates.

***Low Priority***

- Perform economics studies to determine the value of the fishery and the impact of

regulatory management.

- Review the historic participation level of subsistence fishers in wildlife management planning and relevant issues brought forth with respect to those subsistence fishers involved with American eel.
- Examine the mechanisms for exit from the Sargasso Sea and transport across the continental shelf.
- Research mechanisms of recognition of the spawning area by silver eel, mate location in the Sargasso Sea, spawning behavior, and gonadal development in maturation.
- Examine age at entry of glass eel into estuaries and fresh waters.
- Examine migratory routes and guidance mechanisms for silver eel in the ocean.
- Investigate the degree of dependence on the American eel resource by subsistence harvesters (e.g., Native American Tribes, Asian and European ethnic groups).
- Examine the mode of nutrition for leptocephalus in the ocean.
- Provide analysis of food habits of glass eel while at sea.

## V. Status of Management Measures and Issues

The FMP required that all states and jurisdictions implement an annual YOY abundance survey by 2001 in order to monitor annual recruitment of each year's cohort. Addendum III requires a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, as well as the use of ½ by ½ inch mesh in the commercial yellow eel pot fishery. The recreational bag limit is 25 fish/angler/day, and the silver eel fishery is restricted, as is the development of pigmented eel fisheries.

### Proposed Listing of American Eel

The US Fish and Wildlife Service (USFWS) reviewed the status of American eel in 2007 and found that, at that time, protection under the Endangered Species Act (ESA) was not warranted. American eel was later petitioned for listing as threatened under the ESA in April 2010 by the Center for Environmental Science, Accuracy, and Reliability (CESAR, formally the Council for Endangered Species Act Reliability). The USFWS published a positive 90 day finding on the petition in September 2011, acknowledging that the petition may be warranted and that a status review would be conducted. CESAR filed a lawsuit in August 2012 against the USFWS for failure to comply with the statutes of the ESA, which specifies a proposed rule based on the status review be published within one year of the receipt of the petition. A Settlement Agreement was approved by the court in April 2013, which required the USFWS to publish a 12-month finding by September 30, 2015. In the published finding, the USFWS determined that a listing under the ESA was not warranted.

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

The PRT reviewed the state compliance reports for the 2018 fishing year. Massachusetts has not submitted a compliance report as of October 1 due to challenges in finalizing landings data

(**Update**: Massachusetts compliance report was received prior to the 2019 Annual Meeting and data was incorporated into this document). The PRT notes the following changes with states implementing the required provisions of the American Eel Fishery Management Plan:

Silver Eel Fishery Measures:

- Florida does not have a regulation preventing harvest of eels from pound nets from September 1 through December 31, but the state is unaware of any active pound net fishery in the past 10-15 years.

Reporting Measures:

- New Hampshire and New Jersey do not have dealer reporting, but harvesters report some information on dealers. Delaware, the Potomac River Fisheries Commission, and Florida do not have dealer reporting.

Monitoring Efforts:

- Connecticut installed and tested eel passes at Chapmans Pond Fishway in 2017. This Irish Elver style eel pass ramp and trap operated for its first season in 2018, passing a total of 45,859 eels (45,804 YOY, 5,193 elvers, and 178 yellow phase). It is anticipated that the number of elvers will decrease as those fish that were previously prevented from migrating upstream are now able to pass.

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery-dependent monitoring elements for that life stage listed in Section 3.4.1.

Qualification for *de minimis* is determined from state-reported landings found in compliance reports. In 2018, New Hampshire, Massachusetts, Pennsylvania, District of Columbia, South Carolina, Georgia, and Florida requested *de minimis* status for their yellow eel fisheries. All states that applied for *de minimis* of the yellow eel fishery meet the *de minimis* criteria. The state of South Carolina additionally requested *de minimis* status for its glass eel fishery and does meet the 1% landings criteria for this life stage.

## VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends the Board consider state compliance issues as detailed in Section VI.

2. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, District of Columbia, South Carolina, Georgia, and Florida for their yellow eel fisheries, and South Carolina for their glass eel fishery.

3. The PRT had previously requested that the Board reevaluate the requirement that states provide estimates of the percent of harvest going to food versus bait, as there is a high level of uncertainty and subjectivity inherent in the data. The PRT requests that the Board task the Committee on Economic and Social Sciences (CESS) to conduct an analysis of the market demand for all life stages of eel, specific to food vs bait markets, as well as international market demand.

4. The PRT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries, and that the Board continue to encourage interstate enforcement actions with regards to poaching, due to the broad geographic scale at which the issue occurs. Specifically, the PRT recommends that information from law enforcement investigations such as Operation Broken Glass and the recent illegal glass eel harvest in Maine be provided to the Board (if allowable) for consideration of management action as soon as possible.

5. The PRT recommends that the Commission and USFWS work together to annually compare domestic landings data to export data for American eel across all life stages.

6. The PRT requests that New York separate its yellow and silver eel landings, if possible, when reporting harvest.

7. The PRT requests that states quantify escapements, changes in upstream and downstream passage (e.g. dam removals, new impediments to passage) annually and provide this information to the Technical Committee for evaluation.

**VIII. Works Cited**

Atlantic States Marine Fisheries Commission (ASMFC). 1998. Interstate Fishery Management Plan for American Eel (*Anguilla rostrata*). Washington D.C. NOAA Oceanic and Atmospheric Administration Award No. NA97 FGO 0034 and NA07 FGO 024.

Atlantic States Marine Fisheries Commission (ASMFC). 2012. American Eel Benchmark Stock Assessment. Arlington, VA.

Atlantic States Marine Fisheries Commission (ASMFC). 2017. American Eel Stock Assessment Update. Arlington, VA.