

**REVIEW OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
FISHERY MANAGEMENT PLAN FOR  
TAUTOG  
(*Tautoga onitis*)**

**2015 and 2016 Fishing Years**  
(January 1 – December 31)



**Prepared by the Tautog Plan Review Team**

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**Table 9 revised 6/18/18**

**2017 REVIEW OF THE  
ASMFC FISHERY MANAGEMENT PLAN FOR  
TAUTOG (*Tautoga onitis*)  
Fishing Years 2015 and 2016**

**I. Status of Fishery Management Plan**

<u>Date of FMP Approval</u>	March 1996
<u>Amendments</u>	None
<u>Addenda</u>	Addendum I (May 1997) Addendum II (November 1999) Addendum III (February 2002) Addendum IV (January 2007) Addendum V (August 2007) Addendum VI (March 2011, revised March 2012)
<u>Stock Assessments</u>	Benchmark: 1999, 2005, 2015 Update: 2011 (revised in 2012), 2016
<u>Management Unit</u>	US state waters from Massachusetts through North Carolina.
<u>States with Declared Interest</u>	Massachusetts Rhode Island Connecticut New York New Jersey Delaware Maryland Virginia
<u>Active Boards/Committees</u>	Tautog Management Board (Board) Tautog Plan Development Team (PDT) Tautog Plan Review Team (PRT) Tautog Technical Committee (TC) Tautog Stock Assessment Subcommittee (SAS) Tautog Advisory Panel (AP)

## History of Management

### *Fishery Management Plan for Tautog*

The FMP established the following goals and objectives:

#### **Goals**

- To perpetuate and enhance stocks of tautog through interstate fishery management so as to allow a recreational and commercial harvest consistent with the long term maintenance of self-sustaining spawning stocks.
- To maintain recent (i.e. 1982 – 1991) utilization patterns and proportions of catch taken by commercial and recreational harvesters.
- To provide for the conservation, restoration and enhancement of tautog critical habitat for all life history stages.
- To maintain a healthy age structure.
- To conserve the tautog resource along the Atlantic coast to preserve ecological benefits such as biodiversity and reef community stability, while maintaining the social and economic benefits of commercial and recreational utilization.

#### **Objectives**

- To establish criteria, standards, and procedures for plan implementation as well as determination of states' compliance with management plan provisions.
- To allow harvest that maintains spawning stock biomass in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, based on maintaining young-of-the-year indices, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan.
- To achieve compatible equitable management measures among jurisdictions throughout the fishery management unit.
- To enact management recommendations which apply to fish landed in each state, so that regulations apply to fish caught both inside and outside of state waters.
- To promote cooperative interstate biological, social, and economic research, monitoring and law enforcement.
- To encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program. Effective stock assessment and population dynamics modeling require more information on the status of the resource and the biology/community ecology of tautog than is currently available, in particular to facilitate calculation of F and stock trends.

- To identify critical habitats and environmental factors that support or limit long term maintenance and productivity of sustainable tautog populations.
- To adopt and promote standards of environmental quality necessary to the long term maintenance and productivity of tautog throughout their range.
- To develop strategies that reduce fishing mortality, restore size competition and the historical recreational/commercial split, consider ecological and socio-economic impacts and identify problems associated with the offshore fishery. Compatible regulations between the states and the EEZ are essential.

The FMP adopted a fishing mortality rate (F) target of 0.15 to rebuild the stocks and prevent overfishing; however, an interim target of 0.24 would apply for two years (1997–1998). States were required to implement state-specific, Board-approved plans to reduce F from the coastwide average of 0.58 (i.e., a 55% reduction), or an alternative state-specific F, if it could be demonstrated as equivalent. Recreational and commercial minimum size limits of 13” in 1997 and 14” beginning in 1998 were required. Tautog pots and traps were also required to have degradable fasteners on one panel or door.

#### ***Addendum I***

Addendum I modified the FMP’s compliance schedule to allow all states until April 1, 1998 to implement management measures to reach the interim F target. Several states were having difficulty determining a state-specific F to meet the original compliance schedule due to data deficiencies. In addition, the compliance schedule implemented the interim F target one year earlier in the area north of Delaware Bay (April 1, 1997) than further to the south (April 1, 1998). The addendum also delayed the implementation of management measures to achieve the permanent F target from April 1, 1999 to April 1, 2000. Finally, the Addendum included *de minimis* requirements and corrected several typographical errors in the FMP.

#### ***Addendum II***

Addendum II further extended the compliance schedule to achieve the permanent F target until April 1, 2002 because the effects of the regulations to achieve the interim F target were uncertain. It also listed four issues to be considered in subsequent revisions of the FMP: (1) development of alternative F targets that will allow states to quantify harvest reductions associated with a variety of management approaches, (2) clarification of the F targets to be met by sector or overall state program, (3) monitoring requirements to improve fisheries and biological data collection, and (4) data requirements to analyze management options by fishing modes within commercial and recreational fisheries.

#### ***Addendum III and Technical Addendum I***

Addendum III addressed the four issues listed in Addendum II. It adopted a new F target based on achieving 40% of the spawning stock biomass ( $F_{40\% SSB}$ ), which was estimated at 0.29 (compared to the coastwide average F estimate of 0.41). The addendum required states to maintain current or more restrictive measures for 2002 and implement measures to achieve the new F target—a 48% reduction through restrictions in the recreational fishery only—by

April 1, 2003. It also updated information on tautog habitat and established monitoring requirements to support stock assessments. Technical Addendum 1 corrected a typographical error in Addendum III.

#### ***Addendum IV***

Addendum IV established SSB target and threshold reference points based on a benchmark stock assessment completed in 2005. The target was set as the average SSB over 1982–1991, and the threshold at 75% of this value. It also set a new F target of 0.20 to initiate rebuilding. States were required to implement recreational management programs to achieve a 28.6% reduction in F relative to 2005 (and maintain existing commercial management programs) by January 1, 2008.

#### ***Addendum V***

As individual states developed management proposals to comply with Addendum IV's mandated reduction in fishing mortality, it became apparent that commercial harvest of tautog had grown in proportion to the recreational fishery in some states. The Board approved Addendum V to give states flexibility for implementing reductions in their recreational *and/or* commercial fisheries to reach the fishing mortality target rate of  $F = 0.20$  established in Addendum IV by January 1, 2008.

#### ***Addendum VI***

Based on the 2011 stock assessment update indicating that tautog were still overfished and experiencing overfishing, Addendum VI reduced the F target to 0.15 to rebuild the stock. States were required to implement Board-approved regulations in their commercial and/or recreational fisheries to reduce harvest by 39%. The addendum also allowed for regional considerations if a state or group of states could demonstrate that the local F is below the rates indicated in the stock assessment update.

## **II. Status of Stocks**

A benchmark stock assessment with data through 2013 was completed and peer-reviewed in 2014. The assessment proposed regional stock definitions based on life history characteristics and harvest patterns. While several stock structures were modeled, the Technical Committee preferred the following three-region breakdown: Southern New England (MA-CT), New Jersey-New York (NJ-NY), and Delaware-Maryland-Virginia (DMV). Each region was assessed independently using the statistical catch-at-age model ASAP.

The Board accepted the benchmark stock assessment for management use and initiated Draft Amendment 1 in May 2015 to develop regional management alternatives. To further develop a range of regional alternatives for Draft Amendment 1, the Board requested additional spatial resolution in the Mid-Atlantic region, specifically development of a separate assessment for Long Island Sound that includes Connecticut plus New York's north shore of Long Island (LIS), and an assessment for the rest of New York through New Jersey (NJ-NYB). ASAP assessments

for these two regions were conducted in early 2016 and subsequently accepted for management use. This resulted in the northernmost region including only Maryland and Rhode Island (MARI).

In 2016 a stock assessment update was completed in which all four regions (MARI, LIS, NJ-NYB, and DMV) were updated incorporating landings and index data through 2015. **The assessment update indicated that all regions except MARI were overfished in 2015. It also found overfishing was occurring in the LIS and NJ-NYB regions in 2015.** Overfishing was not occurring in the MARI nor DMV regions, although F was still above the target in the MARI region. F was at the target in the DMV region. The current overfishing and overfished definitions for management use are shown in Table 1, and spawning stock biomass (SSB) for each region relative to the respective targets and thresholds are shown in Figures 1-4. It is important to note that the status determinations were made using SPR reference points for the MARI and DMV regions, and MSY reference points for the LIS and NJ-NYB regions.

### III. Status of Assessment Advice

The current reference points for this fishery are based on a regional stock assessment update that includes data through 2015. The peer review panel in the 2005 and 2015 benchmark stock assessments advised a regional approach for tautog because of the potential for sub-stock structure; this species does not appear to make north-south migrations. The 2015 benchmark stock assessment peer review panel endorsed the use of estimates from the ASAP regional model and believes the new reference points should be used in conjunction with a regional management approach. The Board has approved the benchmark stock assessment and subsequent assessment updates for management use, but the regional reference points have not been adopted. Regional management alternatives are included in Draft Amendment 1, which went out for public comment in early 2017 and will be reviewed by the Tautog Management Board for approval in late 2017. The next assessment (update or benchmark) has not been scheduled.

### IV. Status of the Fishery

#### Total Harvest

Between 1981 and 2016<sup>1</sup>, the total coastwide harvest (recreational harvest + commercial landings) for tautog peaked at 17.8 million pounds in 1986. Landings have significantly declined, even before state regulations were implemented to restrict landings. Since the Tautog FMP was implemented in 1996, the highest total harvest was in 2002 at nearly 5.8 million pounds, which is about 32% of the historic peak. Total harvest during the managed period from 1996-2016 averaged 3.3 million pounds per year (Figure 6).

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<sup>1</sup> Systematic recreational data collection for tautog began in 1981, while commercial data exists back to 1950.

### Recreational Harvest

Tautog is predominantly taken by the recreational fishery, which accounts for a consistent average of 90% of coastwide landings by weight from 1981 to 2016 (Table 2). Coastwide, anglers caught a historic high of 16.9 million pounds of tautog in 1986 (Figure 6, Table 2). However, 1986 was a unique year in which recreational harvest in Massachusetts was unusually high. Since then, harvest has generally declined. The smallest harvests occurred in both 1998 and 2011, at 1.5 million pounds each year, which equal 9% of the historic high and 31% of the time series average. Recreational harvest increased from 2015 to 2016, with totals of 2.0 and 2.7 million lbs in each respective year. The time series average for recreational harvest from 1981-2016 is 4.7 million pounds per year. At the state level, Connecticut and New York anglers harvested the most tautog in 2015 and 2016, respectively (Tables 4 and 5).

Recreational live discards have generally increased relative to harvest over the time series. Prior to the FMPs implementation in 1996, discards were usually less than harvest, but since 1996 the estimated number of fish discarded annually has generally been 2-3 times greater than the harvested number (Table 4). In 2015 and 2016, live discards were 4.8 and 6 times the estimated harvest, respectively. Recreational discard mortality for tautog is estimated in the 2016 stock assessment update at 2.5%.

### Commercial Landings

Historically, tautog was considered a “trash fish” until the late 1970s, when demand increased and directed fishery developed. Landings quickly rose, peaking in 1987 with nearly 1.2 million pounds, then quickly began to decline. In 1992, states began to implement regulations, which contributed to a decline in landings (Figure 7, Table 2). The value (dollars per pound) for tautog has increased since the late 1970s, coinciding with the increase of landings. In 2015, the value reached \$3.76 per pound (Figure 7).

Commercial landings accounted for only 11% and 9% of all total landings coastwide in 2015 and 2016, respectively. Yet, in some states commercial landings were more significant; 2016 Massachusetts commercial landings made up 44.5% of total tautog landings by weight (Table 3). At the state level, New York’s commercial tautog fishery landed the greatest amount in both 2015 and 2016, with Massachusetts landing the second greatest amount in these years (Table 6). Data on commercial discards are not available.

## **V. Status of Research and Monitoring**

Addendum III requires all states to collect the following data to continue support of a coast-wide stock assessment: commercial and recreational catch estimates and 200 age and length samples per state, within the range of lengths commonly caught by the fisheries<sup>2</sup>. Table 9 lists

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<sup>2</sup> Addendum III also required a suitable time series of fisheries independent indices of abundance as determined by the Tautog Technical Committee; however the TC has not defined this and as such there are no fishery independent monitoring requirements

number and source of samples collected by states in 2015 and 2016. A list of monitoring programs performed by each state is given below. Details of monitoring results are found in the state compliance reports.

### **Massachusetts**

#### **Fishery-independent:**

- Directed sampling of pots and rod and reel for age and growth parameters
- Spring and fall coast-wide resource assessment trawl surveys
- Saltonstall-Kennedy grant through NOAA Fisheries to evaluate the efficacy of a rod and reel survey for tautog; pilot study began in 2016 and will evaluate a rod and reel survey's ability to address limitations in generating reliable indices of abundance from our trawl survey
- Tautog samples also obtained in ventless trap survey that is used primarily to assess lobster

#### **Fishery-dependent:**

- Commercial landings data are collected at the trip level from harvesters and primary buyers
- Market sampling for length data

### **Rhode Island**

#### **Fishery-independent:**

- Narragansett Bay monthly trawl survey
- Narragansett Bay beach seine survey
- RI coastal ponds beach seine survey

#### **Fishery-dependent:**

- Fall recreational fishery sampling for age and length
- Fish Pot Survey collects age data
- Commercial landings monitored by the Standard Atlantic Fisheries Information System (SAFIS). Recreational fishery monitored by Marine Recreational Information Program (MRIP) calculation methodology.

### **Connecticut**

#### **Fishery-independent:**

- Tautog abundance monitored since 1984 via Connecticut's Long Island Sound Trawl Survey.



**Fishery-dependent:**

- Mandatory commercial fishery reporting requirements include monthly logbooks of daily fishing activity and sales from fishermen and monthly reports of individual purchase transactions from dealers; reported annually to the ACCSP SAFIS Data Warehouse

**New York****Fishery-independent:**

- Finfish Trawl Survey: since 1987 (except for 2005 and 2006, when there were no data) uses small-mesh trawls to sample 60 to 80 randomly chosen stations each month from May through October.
- Long Island Sound Tautog Study: 35 fish traps were deployed between June 16 and November 1, 2016 between Mattituck Inlet, Mattituck NY, and Rocky Point in East Marion, NY. Traps were placed near submerged rocks where blackfish would be expected to be found. Traps were checked and all fish measured weekly.

**Fishery-dependent:**

- Samples collected from commercial markets and dockside in April, May, July, September, October and November 2016; Age data used to obtain an age-length key.

**New Jersey****Fishery-independent:**

- Five near shore (within the 15 fathom isobath boundary) trawl surveys are conducted each year in January/February, April, June, August, and October. All tautog are weighed and measured, and catch per unit effort (CPUE) in number of fish per tow and biomass (kilograms) per tow is calculated each year.

**Fishery-dependent:**

- Ongoing biological data collection since 1993 with emphasis in recent years of encompassing the entire year and seasonality of the fishery while amassing length, weight, sex and age data.
- Sampling from the commercial fishery and the party/charter boat sector of the recreational fishery.
  - Sampling on the commercial vessels focus on the collection of live length, weight and sex data from fish retained for sale in the live fish market
  - Age data from undersize fish donated to onboard New Jersey Atlantic Coastal Cooperative Statistical Program (ACCSP) staff members for biological sampling.
  - From the recreational fishery, length, sex and age data are collected strictly from fish retained for harvest

## Delaware

### **Fishery-independent:**

- Delaware Bay and Inland Bay surveys from April through October
  - Juvenile 16 ft. trawl survey conducted monthly from April through October
  - 30 ft. adult finfish abundance trawl conducted from March to December.

### **Fishery-dependent:**

- Mandatory, fisherman-reported, monthly logbook submissions to the State of Delaware.
- 100 operculum bones were collected in the spring recreational season and 101 operculum bones were collected in the fall season for constructing age-length keys.

## Maryland

### **Fishery-independent:**

- Maryland Department of Natural Resources (MDNR) Coastal Bays Fishery Investigations (CBFI) Trawl and Beach Seine Survey.  
CBFI SAV Habitat Survey was conducted in Sinepuxent Bay in 2016

### **Fishery-dependent:**

- Sampling for aging structures was conducted by hook and line during two charter boat trips in the spring of 2016.

## Virginia

### **Fishery-independent:**

- None

### **Fishery-dependent:**

- Biological Sampling Program collects biological data (lengths, weights, otoliths) from Virginia's commercial and recreational fisheries.
- Samples are collected from commercial hook-and-line gear, haul seines, pots and traps, and pound nets.
- Virginia's recreational fishery participates in the MRIP biological sampling program, Virginia Game Fish Tagging Program, and VMRC Marine Sport Fish Collection Project.

## **VI. Status of Management Measures and Issues**

Draft Amendment 1 was initiated by the Management Board in May 2015. The amendment updates the 1996 FMP with new fishery management principles and consolidates associated addenda into a single document. The document proposes regional management for tautog to address the overfishing stock status present in some regions. In addition, a commercial harvest tagging program is proposed to address an illegal, unreported and undocumented fishery that

has persisted for more than a decade. If approved, Draft Amendment 1 would be the comprehensive management document for tautog management in state waters.

The amendment went out for public comment in June and July 2017. The Board will consider final approval of Draft Amendment 1 at the October 2017 meeting.

## **VII. Implementation of FMP Compliance Requirements**

### **A. Submission of Compliance Report**

All states in the tautog management unit submitted state compliance reports for fishing years 2015 and 2016.

### **B. De Minimis Status Requests**

Addendum I established qualifications for *de minimis* status. A state must prove that its commercial landings in the most recent year for which data are available did not exceed the greater of 10,000 pounds or 1% of the coastwide commercial landings, whichever is greater. States must request *de minimis* status each year and requests for *de minimis* status will be reviewed by the PRT as part of the annual FMP review process.

A state that is granted *de minimis* status is still required to implement the 14" minimum size limit for the commercial fishery, the pot and trap degradable fastener provisions, and regulations in the commercial fishery that are consistent with those in the recreational fishery. If granted *de minimis* status, a state must continue to collect 200 age/length samples as required in Addendum III. *De minimis* status does not impact a state's compliance requirements in the recreational fishery.

The commercial landings threshold for *de minimis* status for both 2015 and 2016 is 10,000 pounds. The states of Delaware and Maryland qualify for and have requested continued *de minimis status* for the commercial sector. The PRT recommends that the Board approve the states of Delaware, Maryland, and North Carolina's requests.

### **C. Regulatory Requirements: 14" minimum size limit for recreational and commercial fisheries (FMP); degradable fasteners on one panel or door in fish pots and traps (FMP); and state-specific management programs to achieve the target F of 0.15 (Addendum VI).**

State regulations are summarized in Tables 7 and 8. The PRT finds that each state has met the regulatory requirements and recommends that Board find all states in compliance with the regulatory requirements.

#### **D. Biological Sampling Requirements: commercial and recreational catch estimates; and 200 age/length samples (Addendum III)**

Most states collected 200 or more age/length samples in 2015 and 2016 as required by Addendum III (Table 9). Rhode Island fell short with 178 and 158 samples. Sampling is dependent on the donation of tautog racks from the recreational fishery, and sampling on board recreational charter vessels. Staff were unable to obtain 200 samples due to low participation of recreational fishers. Additionally, in 2016 the Fish Pot Survey ended early due to vessel problems and therefore only a limited number of samples were obtained.

The PRT finds that all states meet (or tried to meet) the intent of the Addendum III sampling requirements and recommends the Board find all states in compliance with the sampling requirements of the FMP .

As some states are unable to meet the 200 age/length sample requirement, the PRT suggests that the required number of samples should be proportional to a state's harvest up to 200 samples, rather than set at a fixed number.

The PRT recommends that the TC be tasked with evaluating the biological sampling needs to support continued regional stock assessments for tautog, and recommending any revisions to the biological sampling requirements.

### **VIII. Prioritized Research Needs**

The Technical Committee identified the following research recommendations to improve the stock assessment and our understanding of tautog population and fishery dynamics. Research recommendations are organized by topic and level of priority. Research recommendations that should be completed before the next benchmark assessment are underlined. The Technical Committee will update these recommendations as part of the next benchmark stock assessment.

#### **8.1 Fishery-Dependent Priorities**

##### ***High***

- Expand biological sampling of the commercial catch for each gear type over the entire range of the stock (including weight, lengths, age, sex, and discards).
- Continue collecting operculum from the tautog catch as the standard for biological sampling in addition to collecting paired sub-samples of otoliths and operculum.
- Increase catch and discard length sampling from the commercial and recreational fishery for all states from Massachusetts through Virginia.

- Increase collection of effort data for determining commercial and recreational CPUE.
- Increase MRIP sampling levels to improve recreational catch estimates by state and mode. Current sampling levels are high during times of the year when more abundant and popular species are abundant in catches, but much lower in early spring and late fall when tautog catches are more likely.

## 8.2 Fishery-Independent Priorities

### *High*

- Conduct workshop and pilot studies to design a standardized, multi-state fishery independent survey for tautog along the lines of MARMAP and the lobster ventless trap survey.
- Establish standardized multi-state long-term fisheries-independent surveys to monitor tautog abundance and length-frequency distributions, and to develop YOY indices.
- Enhance collection of age information for smaller fish (<20 cm) to better fill in age-length keys.

## 8.3 Life History, Biological, and Habitat Priorities

### *Moderate*

- Define local and regional movement patterns and site fidelity in the southern part of the species range. This information may provide insight into questions of aggregation versus recruitment to artificial reef locations, and to clarify the need for local and regional assessment.
- Assemble regional reference collections of paired operculum and otolith samples and schedule regular exchanges to maintain and improve the precision of age readings between states that will be pooled in the regional age-length keys.
- Calibrate age readings every year by re-reading a subset of samples from previous years before ageing new samples. States that do not currently assess the precision of their age readings over time should do so by re-ageing a subset of their historical samples.

### *Low*

- Evaluate the potential impacts of climate change on tautog range, life history, and productivity.
- Conduct a tag retention study to improve return rates, particularly in the northern region.

- Define the status (condition and extent) of optimum or suitable juvenile habitats and trends in specific areas important to the species. It is critical to protect these habitats or to stimulate restoration or enhancement, if required.
- Define the specific spawning and pre-spawning aggregating areas and wintering areas of juveniles and adults used by all major local populations, as well as the migration routes used by tautog to get to and from spawning and wintering areas and the criteria or times of use. This information is required to protect these areas from damage and overuse or excessive exploitation.
- Define larval diets and prey availability requirements. This information can be used as determinants of recruitment success and habitat function status. Information can also be used to support aquaculture ventures with this species.
- Define the role of prey type and availability in local juvenile/adult population dynamics over the species range. This information can explain differences in local abundance, movements, growth, fecundity, etc. Conduct studies in areas where the availability of primary prey, such as blue mussels or crabs, is dependent on annual recruitment, the effect of prey recruitment variability as a factor in tautog movements (to find better prey fields), mortality (greater predation exposure when leaving shelter to forage open bottom), and relationship between reef prey availability/quality on tautog condition/fecundity.
- Define the susceptibility of juveniles to coastal/anthropogenic contamination and resulting effects. This information can explain differences in local abundance, movements, growth, fecundity, and serve to support continued or increased regulation of the inputs of these contaminants and to assess potential damage. Since oil spills seem to be a too frequent coastal impact problem where juvenile tautog live, it may be helpful to conduct specific studies on effects of various fuel oils and typical exposure concentrations, at various seasonal temperatures and salinities. Studies should also be conducted to evaluate the effect of common piling treatment leachates and common antifouling paints on YOY tautog. The synergistic effects of leaked fuel, bilge water, treated pilings, and antifouling paints on tautog health should also be studied.
- Define the source of offshore eggs and larvae (in situ or washed out coastal spawning).
- Confirm that tautog, like cunner, hibernate in the winter, and in what areas and temperature thresholds, for how long, and if there are special habitat requirements during these times that should be protected or conserved from damage or disturbance. This information will aid in understanding behavior variability and harvest availability.

## **8.4 Management, Law Enforcement, and Socioeconomic Priorities**

### ***Moderate***

- Collect data to assess the magnitude of illegal harvest of tautog and the efficacy of the tagging program.

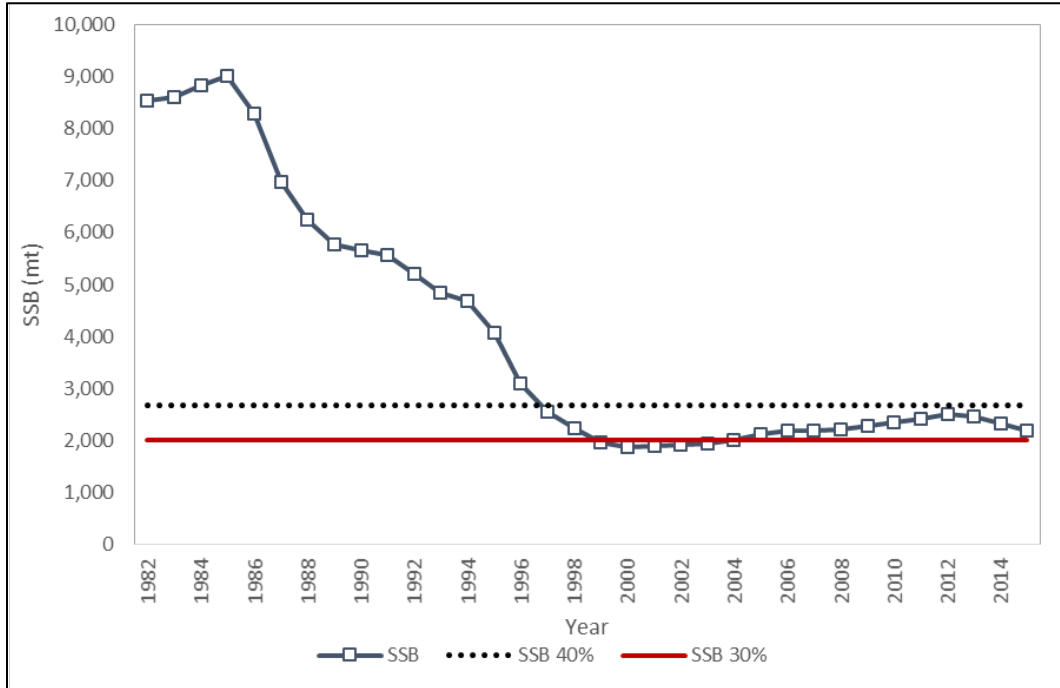
### ***Low***

- Collect basic sociocultural data on tautog user groups including demographics, location, and aspects of fishing practices such as seasonality.

## Figures & Tables

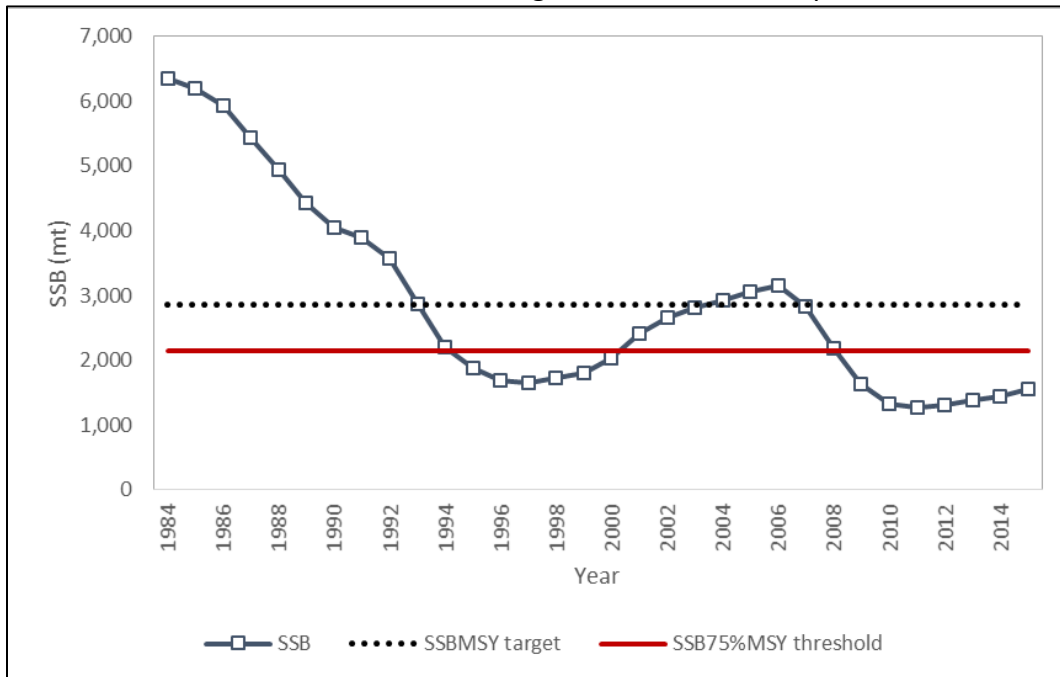
**Figure 1. Spawning Stock Biomass targets and thresholds for MARI region.**

Source: 2016 ASMFC Tautog Stock Assessment Update.



**Figure 2. Spawning Stock Biomass targets and thresholds for LIS region.**

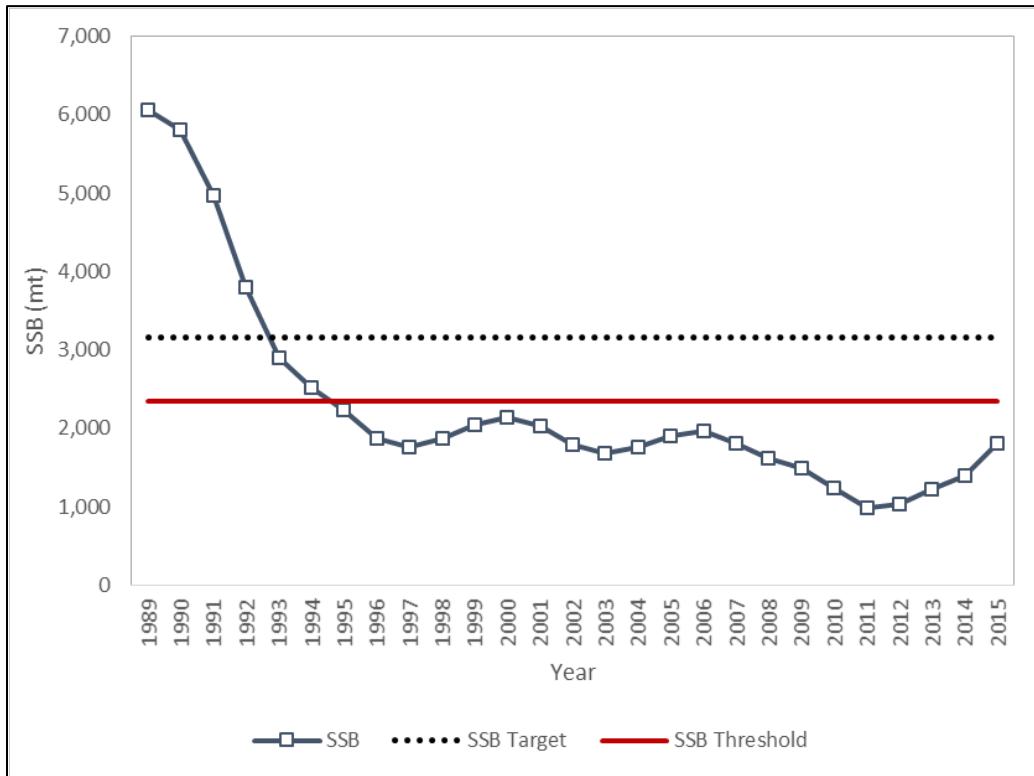
Source: 2016 ASMFC Tautog Stock Assessment Update.





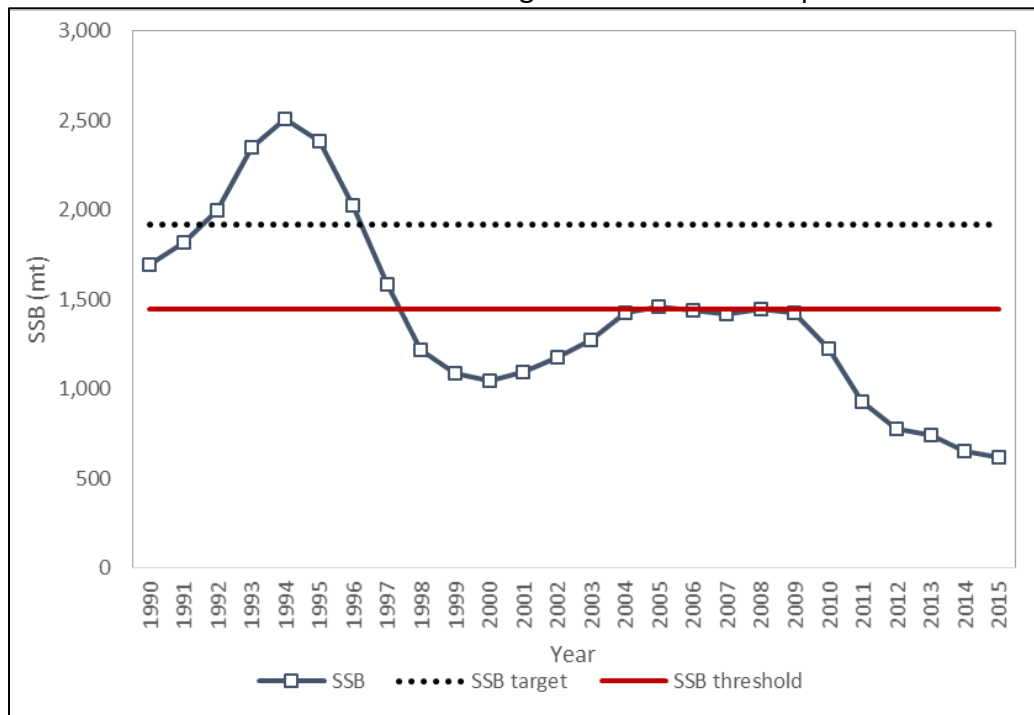
**Figure 3. Spawning Stock Biomass targets and thresholds for NJ-NYB region.**

Source: 2016 ASMFC Tautog Stock Assessment Update.

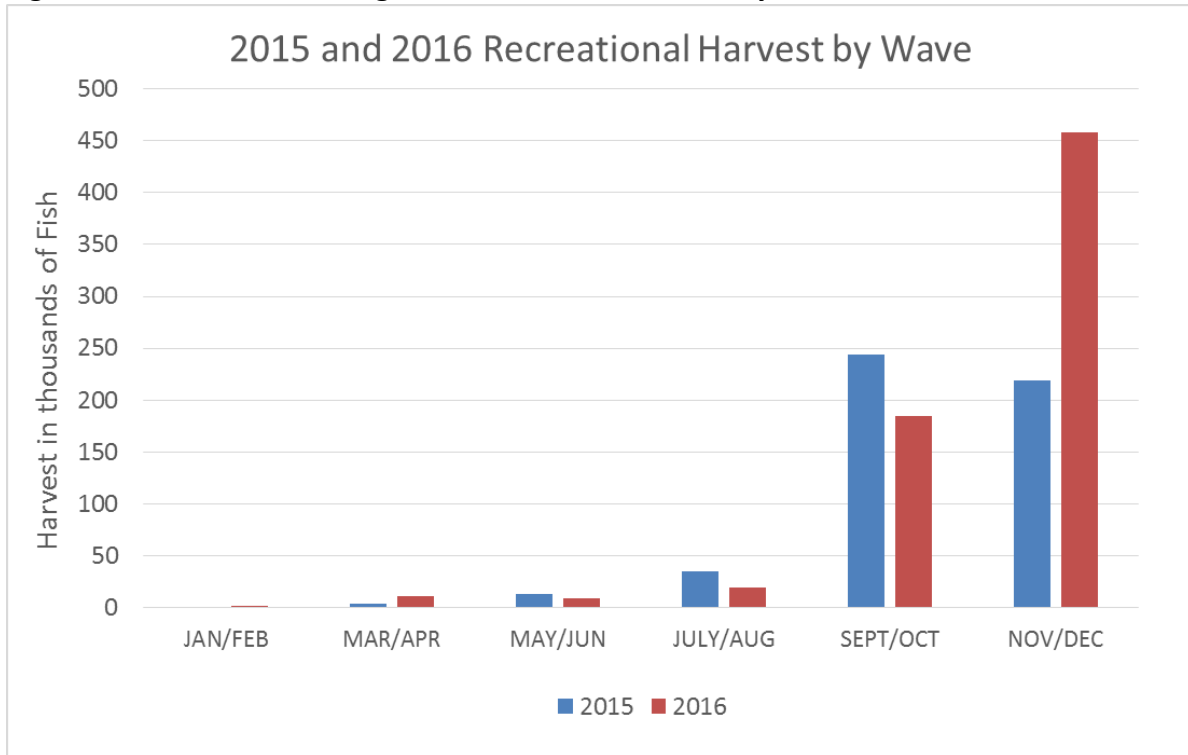


**Figure 4. Spawning Stock Biomass targets and thresholds for DMV region.**

Source: 2016 ASMFC Tautog Stock Assessment Update.

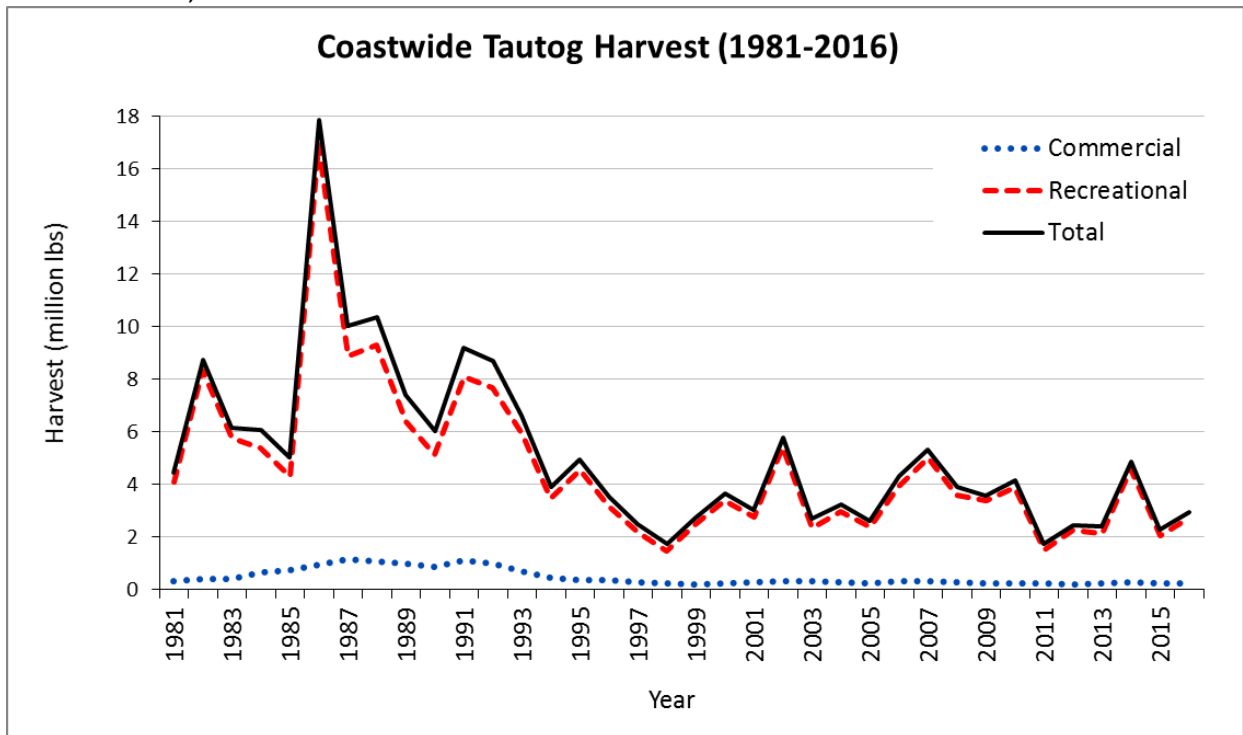


**Figure 5. Recreational tautog harvest in 2015 and 2016 by wave.**



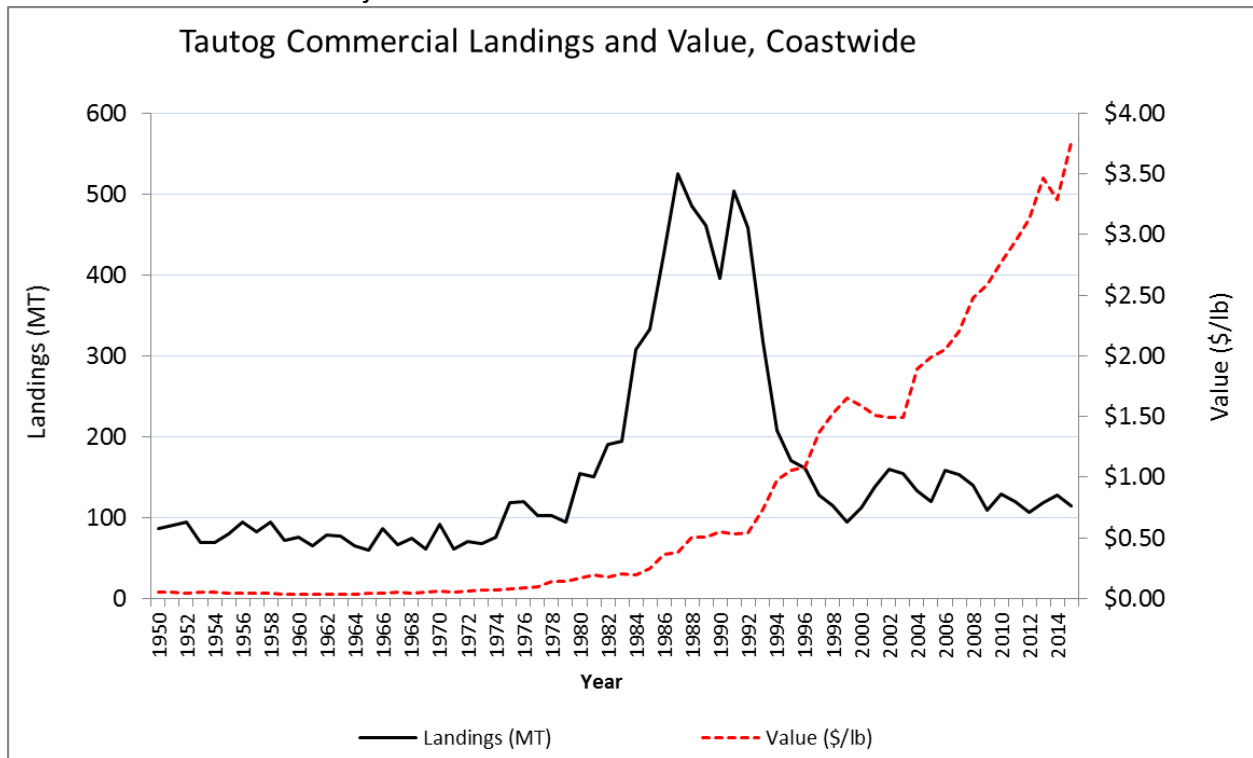
**Figure 6. Total tautog harvest (recreational A+B1 and commercial, excluding discard).**

Source: NMFS, MRIP.



**Figure 7. Changes in tautog commercial landings (lbs) and value (\$/lb) over time.**

Source: NMFS. Values unadjusted for inflation.



**Table 1. Current fishing mortality and biomass targets and thresholds for each region. Source: 2016 Tautog Assessment Update (ASMFC).**

<b>Region</b>	<b>F<sub>target</sub></b>	<b>F<sub>threshold</sub></b>	<b>F<sub>3yravg</sub></b>	<b>SSB<sub>target</sub></b>	<b>SSB<sub>threshold</sub></b>	<b>SSB<sub>2015</sub></b>	<b>MSY or SPR</b>	<b>Status</b>
MARI	0.28	0.49	0.23	3,631 mt	2,723 mt	2,196 mt	SPR	Not overfished, overfishing not occurring
LIS	0.28	0.49	0.51	2,865 mt	2,148 mt	1,603 mt	MSY	Overfished, overfishing
NJ-NYB	0.20	0.34	0.54	3,154 mt	2,351 mt	1,809 mt	MSY	Overfished, overfishing
DMV	0.16	0.24	0.16	1,919 mt	1,447 mt	621 mt	SPR	Overfished, overfishing not occurring

**Table 2.** Tautog recreational and commercial landings from 1981 – 2016, in pounds.  
Source: State Compliance Reports, NMFS, and ACCSP Data Warehouse.

<b>Year</b>	<b>Commercial Landings (lbs)</b>	<b>Recreational Harvest, A + B1 (lbs)</b>	<b>Total Harvest (lbs)</b>	<b>%Recreational</b>
1981	332,000	4,115,046	4,447,561	92.5
1982	419,656	8,337,959	8,757,614	95.2
1983	427,919	5,749,537	6,178,736	93.1
1984	677,615	5,381,193	6,058,808	88.8
1985	734,370	4,305,086	5,039,457	85.4
1986	941,012	16,906,397	17,847,409	94.7
1987	1,157,280	8,888,783	10,046,062	88.5
1988	1,071,017	9,301,700	10,372,717	89.7
1989	1,016,631	6,377,750	7,395,958	86.2
1990	873,510	5,156,175	6,029,685	85.5
1991	1,110,344	8,101,442	9,215,355	87.9
1992	1,012,176	7,671,225	8,683,401	88.3
1993	698,493	5,927,020	6,625,513	89.5
1994	459,529	3,468,112	3,927,641	88.3
1995	375,567	4,567,374	4,942,941	92.4
1996	357,434	3,184,899	3,542,335	90.0
1997	280,912	2,204,039	2,484,951	88.7
1998	254,186	1,479,761	1,733,948	85.3
1999	208,825	2,532,689	2,741,515	92.4
2000	247,456	3,398,349	3,645,804	93.2
2001	305,487	2,749,700	3,055,188	90.0
2002	351,451	5,431,146	5,782,596	93.9
2003	342,651	2,357,940	2,700,591	87.4
2004	299,602	2,959,167	3,250,218	91.2
2005	292,194	2,379,790	2,665,337	90.2
2006	349,602	3,923,886	4,312,596	91.0
2007	340,898	5,009,022	5,309,156	94.4
2008	310,896	3,589,421	3,909,229	91.9
2009	242,723	3,408,159	3,576,790	95.3
2010	286,724	3,885,106	4,192,231	93.7
2011	262,226	1,503,075	1,754,723	85.8
2012	213,854	2,248,763	2,419,740	91.3
2013	259,744*	2,158,564	2,408,672	89.3
2014	279,541**	4,608,252	4,878,458	94.5
2015	245,168	2,043,033	2,285,615	89.4
2016	268,425***	2,704,453	2,968,569	91.1

\* 2013 commercial landings do not include data from Maryland, which was confidential.

\*\*2014 commercial landings did not include Connecticut, which was confidential

\*\*\*2016 commercial landings did not include Maryland, which was confidential

**Table 3.** Tautog landings by sector for 2015 and 2016: percent recreational (A + B1) and commercial based on weight.

State	2015		2016	
	Commercial Landings (%)	Recreational (A+B1) (%)	Commercial Landings (%)	Recreational (A+B1) (%)
MA	25.4	74.6	44.5	55.5
RI	11.1	88.9	13.0	87.0
CT	1.4	98.6	1.1	98.9
NY	23.1	76.9	10.4	89.6
NJ	3.3	96.7	3.1	96.9
DE	7.6	92.4	2.0	98.0
MD	8.5	91.5	confidential	confidential
VA	12.0	88.0	10.3	89.7
NC	3.4	96.6	1.0	99.0
Coastwide	11.1	88.9	9.0	91.0

**Table 4. Recreational harvest (A+B1) and discards for tautog in number of fish, 1981-2016 (MRIP).**

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Coastwide Total	Coastwide Live Discards (B2)
1981	228,736	233,508	100,308	721,062	132,271	3,457	4,670	236,768	3,072	1,663,852	386,614
1982	1,051,022	214,938	231,187	646,693	583,550	137,328	35,105	71,599	15,062	2,986,485	292,888
1983	670,508	245,796	200,676	612,163	344,580	4,350	2,126	579,795	36,549	2,696,543	676,332
1984	258,256	490,128	287,470	286,077	516,086	28,388	42,835	207,192	NA	2,116,431	647,963
1985	100,941	115,404	182,318	1,105,234	840,627	62,001	486	91,957	8,252	2,507,218	718,180
1986	1,980,719	671,592	333,396	1,183,114	2,369,852	141,290	5,476	322,905	12,660	7,021,003	1,103,147
1987	617,068	130,729	312,430	929,887	1,015,123	99,706	90,523	126,783	3,698	3,325,949	1,405,775
1988	621,679	207,799	234,198	828,183	564,286	94,491	107,570	368,320	4,462	3,030,988	1,244,947
1989	250,077	116,506	303,782	562,549	710,958	249,928	34,709	284,477	11,354	2,524,340	1,068,626
1990	233,444	153,433	75,871	953,622	841,770	61,526	45,467	111,998	3,428	2,480,562	1,237,775
1991	176,905	291,946	191,137	871,221	1,067,283	128,985	26,770	168,068	6,804	2,929,119	2,260,230
1992	357,949	193,786	319,221	413,236	1,018,205	68,769	106,255	100,952	5,249	2,583,621	1,607,758
1993	216,553	118,775	180,055	505,632	773,213	82,475	60,231	300,484	4,785	2,242,204	1,971,467
1994	78,483	82,304	150,109	196,937	208,003	65,837	157,260	231,740	2,271	1,172,942	1,480,320
1995	72,461	54,570	120,259	118,006	707,963	300,303	43,542	222,186	3,178	1,642,466	2,103,564
1996	79,798	55,528	72,558	82,826	470,431	57,751	9,695	224,447	6,605	1,059,640	1,158,157
1997	39,075	70,628	32,200	92,907	196,724	65,133	85,682	106,678	11,432	700,457	1,090,444
1998	25,034	56,084	66,797	68,887	11,667	62,584	6,512	50,923	9,487	357,975	1,398,973
1999	91,476	52,136	15,701	196,564	165,505	95,309	20,180	42,880	8,437	688,187	2,286,716
2000	87,552	38,687	10,648	79,245	462,371	113,686	20,129	34,725	5,555	852,596	1,731,884
2001	115,658	39,993	16,579	45,913	467,728	50,541	23,715	28,985	2,418	791,532	2,033,955
2002	102,662	62,423	100,240	629,772	347,831	185,684	42,038	25,987	4,514	1,501,153	3,177,322
2003	46,808	120,061	167,875	128,729	102,593	63,181	13,555	76,236	12,185	731,221	1,679,385
2004	21,816	124,419	16,464	278,749	90,214	70,608	8,690	150,703	9,137	770,799	1,739,740
2005	72,038	160,524	35,699	84,280	43,055	60,831	28,129	60,484	13,603	558,646	1,456,161
2006	79,639	81,611	200,708	246,882	200,725	111,028	14,894	105,137	1,234	1,041,857	2,648,386
2007	91,304	125,233	352,819	223,798	300,179	99,605	43,308	60,992	15,181	1,312,419	3,629,353
2008	34,237	103,760	167,179	318,899	172,518	101,735	19,128	56,384	689	974,528	2,495,079
2009	24,879	85,416	85,915	346,276	127,403	119,941	37,963	60,470	2,895	891,160	2,309,449
2010	45,743	197,062	116,058	145,663	374,599	56,505	57,338	127,221	3,720	1,123,910	2,878,417
2011	32,828	19,304	25,823	111,406	136,674	45,483	11,853	46,441	981	430,792	1,923,086
2012	24,796	104,425	194,101	61,508	37,611	46,570	5,356	13,920	9,936	498,222	2,021,177
2013	57,736	136,190	104,451	76,797	111,377	38,368	3,851	5,976	5,963	540,706	2,185,251
2014	100,297	68,768	318,201	300,399	169,879	50,467	494	25,917	3,997	1,038,419	4,066,058
2015	39,860	98,404	125,819	99,119	157,008	7,483	2,988	11,540	2,014	544,235	2,579,952
2016	24,243	86,528	165,315	270,944	83,466	30,032	1,870	17,127	1,517	681,042	4,105,503

**Table 5. Recreational harvest (A + B1) for tautog in pounds, by state, 1981-2016.**

Source: MRFSS/MRIP, State Compliance Reports.

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC
1981	790,610	664,568	242,337	1,496,039	161,423	6,584	10,296	742,653	536
1982	3,226,868	777,930	610,608	1,674,949	1,241,155	428,036	90,645	271,919	15,849
1983	1,837,262	615,595	458,582	1,124,844	414,957	4,437	6,551	1,267,165	20,144
1984	733,876	1,809,822	733,710	541,805	717,261	95,740	79,110	669,869	NA
1985	328,041	277,384	471,185	2,034,903	741,656	144,859	1,107	298,797	7,154
1986	7,862,584	2,042,584	838,346	2,833,208	2,132,571	264,744	10,049	918,138	4,173
1987	1,751,372	507,424	1,106,606	2,288,076	2,130,955	387,075	266,094	442,751	8,430
1988	2,255,930	612,123	610,171	2,380,285	1,331,833	249,803	446,947	1,410,003	4,605
1989	1,076,366	296,889	1,038,217	1,018,015	1,289,185	743,339	78,391	806,336	31,012
1990	895,327	389,579	200,000	1,980,289	1,256,488	142,627	59,720	229,442	2,703
1991	798,889	1,007,549	648,634	2,352,646	2,189,144	354,498	106,223	619,214	24,645
1992	1,668,485	656,712	1,048,639	1,199,558	2,485,693	183,854	159,730	255,995	12,559
1993	752,598	389,733	531,023	1,800,794	1,361,612	217,881	105,231	758,410	9,738
1994	373,189	328,668	417,438	585,037	330,551	152,033	177,358	1,101,130	2,708
1995	309,224	237,093	402,616	369,643	1,722,713	793,339	115,993	613,348	3,405
1996	397,284	248,840	245,816	193,045	1,123,174	158,751	26,483	778,315	13,191
1997	166,042	301,109	84,297	331,529	483,639	204,419	182,995	391,258	58,751
1998	96,695	316,339	231,622	208,743	41,431	257,348	27,648	273,515	26,420
1999	363,471	223,763	61,142	761,446	511,673	358,328	37,677	203,249	11,940
2000	442,816	203,602	58,475	258,100	1,812,960	373,581	56,126	188,187	4,502
2001	502,247	165,380	63,157	171,927	1,482,613	159,961	72,357	127,555	4,503
2002	521,611	265,116	447,140	2,135,221	1,184,560	652,007	104,246	116,797	4,448
2003	221,843	479,345	603,861	315,384	164,327	200,618	43,212	308,838	20,512
2004	104,513	682,329	77,219	965,837	276,724	243,467	21,633	553,866	33,579
2005	376,624	815,377	148,564	310,961	145,311	221,132	89,237	242,590	29,994
2006	296,636	380,140	842,213	782,424	734,509	406,336	47,463	430,157	4,008
2007	349,950	635,094	1,383,278	823,475	1,065,237	301,005	144,111	246,827	60,045
2008	106,871	491,403	715,317	1,094,903	518,813	365,619	62,710	232,557	1,228
2009	70,806	322,955	305,077	1,478,263	414,249	400,120	130,369	268,314	18,006
2010	163,057	918,693	409,370	508,487	1,044,598	151,793	201,769	477,734	9,605
2011	129,669	80,300	88,728	450,171	381,449	152,899	33,859	184,445	1,555
2012	94,699	534,716	982,891	252,745	133,048	171,329	17,670	49,988	11,677
2013	197,775	629,896	389,918	355,232	395,539	138,051	18,681	23,836	9,636
2014	399,812	297,955	1,643,470	1,365,338	579,934	187,915	3,004	121,352	9,472
2015	181,119	376,395	512,650	373,240	508,685	25,580	11,897	50,787	2,680
2016	72,342	338,501	705,146	1,162,729	262,665	100,253	7,708	52,236	2,873



**Table 6. Commercial landings for tautog in pounds, by state, 1981-2016.**

Source: personal communication from the National Marine Fisheries Service, Fisheries Statistics Division, Silver Spring, MD (commercial 1981 – 2009) and ACCSP Data Warehouse (2010). States are sorted from north to south.

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC
1981	102,900	69,800	20,500	81,400	54,400	1,000	1,200	700	na
1982	69,300	86,300	21,200	90,400	148,200	800	100	2,600	656
1983	57,600	142,600	33,500	88,400	100,600	800	na	1,700	319
1984	68,100	334,700	32,700	102,500	129,700	1,400	2,600	1,200	4,715
1985	63,300	403,200	50,100	84,500	125,500	3,200	2,400	1,639	531
1986	165,800	363,100	104,200	201,300	100,700	300	2,600	1,800	1,006
1987	250,000	420,500	159,200	225,200	95,200	500	3,800	2,700	80
1988	277,100	328,900	112,100	255,000	88,000	600	6,100	2,800	214
1989	352,100	214,800	99,700	285,400	51,900	500	4,000	7,500	531
1990	289,074	211,084	82,008	181,543	99,112	500	3,954	5,151	1,079
1991	354,346	371,597	54,000	226,413	93,022	1,300	3,164	5,058	1,211
1992	292,291	359,767	65,700	169,011	116,332	200	4,058	4,389	424
1993	160,336	201,593	86,064	89,467	153,474	300	1,432	5,423	351
1994	37,062	130,719	43,000	71,375	162,641	400	1,718	11,441	1,134
1995	35,298	94,989	20,466	72,879	115,970	600	4,416	30,020	929
1996	32,579	64,817	33,327	105,466	89,435	1,599	3,622	26,137	452
1997	64,240	39,601	14,519	78,228	49,726	841	7,663	25,471	623
1998	91,319	20,304	6,905	68,892	42,426	1,715	5,682	14,770	2,173
1999	75,619	26,090	12,961	37,886	27,307	844	6,489	20,901	728
2000	96,001	43,719	8,504	39,953	39,636	272	3,896	14,794	674
2001	84,330	56,065	22,259	62,795	60,152	287	4,591	14,587	414
2002	148,073	50,007	26,781	60,805	36,605	629	5,010	22,834	705
2003	86,205	56,749	40,784	72,264	66,766	3,816	5,213	10,705	98
2004	88,192	36,581	26,037	76,606	49,910	3,064	6,049	13,079	84
2005	99,344	42,838	24,053	52,525	61,163	2,210	4,338	5,667	56
2006	147,609	46,629	16,841	68,432	55,532	433	5,411	8,533	47
2007	95,820	63,428	30,002	73,787	62,979	2,814	3,293	8,588	187
2008	73,867	48,024	20,160	88,552	63,958	2,253	2,942	10,946	194
2009	54,703	50,896	20,298	87,289	14,591	2,116	1,638	11,132	61
2010	75,317	44,054	16,484	92,487	49,213	1,770	1,285	6,081	34
2011	57,787	47,427	14,205	82,534	42,125	2,192	1,333	14,590	28
2012	67,870	50,127	5,638	69,786	4,112	1,444	1,040	49,983	227
2013	69,686	53,433	5,886	110,680	7,662	415	confid	11,776	206
2014	63,191	53,384	confid	121,538	31,665	1,071	1,147	7,545	137
2015	61,752	47,137	7,250	111,925	17,219	2,107	1,103	6,937	94
2016	58,095	50,686	7,558	135,487	8,486	2,083	confid	5,884	30

**Table 7. State recreational regulations implemented for tautog in the 2015 and 2016 fishing years.**

<b>STATE</b>	<b>SIZE LIMIT</b> (inches)	<b>POSSESSION LIMITS</b> (number of fish/ person/ day)	<b>OPEN SEASONS</b> (dates inclusive)
Massachusetts	16"	3	Jan 1 – Dec 31
Rhode Island	16"	3	Apr 15 – May 31
		3	Aug 1 – Oct 15
		6 (up to 10 per vessel)	Oct 16- Dec 15 (private)
		6	Oct 20 – Dec 15 (party, charter)
Connecticut	16"	2	Apr 1-Apr 30
		2	July 1 – Aug 31
		4	Oct 10 – Dec 6
New York	16"	4	Oct 5 – Dec 14
New Jersey	15"	4	Jan 1 – Feb 28
		4	Apr 1 – Apr 30
		1	Jul 17 – Nov 15
		6	Nov 16 – Dec 31
Delaware	15"	5	Jan 1 – Mar 31
		3	Apr 1 – May 11
		5	July 17 – Aug 31
		5	Sept 29 – Dec 31
Maryland	16"	4	Jan 1- May 15
		2	May 16 – Oct 3
		4	Nov 1 – 26
Virginia	16"	3	Jan 1 - Apr 30 Sept 20 - Dec 31

**Table 8. State commercial regulations implemented for tautog in the 2015 and 2016 fishing years.**

STATE	SIZE LIMIT	POSSESSION LIMITS (number of fish)	OPEN SEASONS	QUOTA (pounds)	GEAR RESTRICTIONS
Massachusetts	16"	40	April 16-28% Quota Sept 1-100% of Quota*	54,984, 57,985	Mandatory pot requirements. Limited entry and area/time closures for specific gear types.
Rhode Island	16"	10	Apr 15 - May 31 Aug 1 - Sept 15 Oct 15 - Dec 31	51,348**	Harvest allowed by permitted gear types only.
Connecticut	16"	4 (restricted licenses) 10 (all other)	Apr 1- Apr 30 Jul 1 - Aug 31 Oct 8 - Dec 24	-	Mandatory pot requirements.
New York	15"	25 (10 fish w/ lobster gear and when 6 lobsters are in possession)	Jan 1 - Feb 28 Apr 8 - Dec 31	-	Mandatory pot requirements. Gill or trammel net is prohibited.
New Jersey	15"	> 100 lbs requires directed fishery permit	Jan 1 - 15 June 11 - 30 Nov 9 - Dec 31	103,000	Mandatory pot requirements.
Delaware	15"	5 3 5 5	Jan 1 - Mar 31 Apr 1 - May 11 July 17 - Aug 31 Sept 29 - Dec 31	-	Mandatory pot requirements.
Maryland	16"	4 2 4	Jan 1- May 15 May 16 - Oct 31 Nov 1 - 26	-	Mandatory pot requirements.
Virginia	15"	-	Jan 1 – Jan 21 Mar 1 – Apr 30 Nov 1 – Dec 31	-	Mandatory pot requirements. Pots prohibited in tidal waters.

\* Massachusetts' spring open season closes when the Director projects that 28% of the quota is taken, and fall season closes when the Director projects 100% of the quota is taken.

\*\* Rhode Island's quota of 51,438 lbs is divided equally among the three sub-periods.

**Table 9. Number of age/length samples by state in 2015 and 2016.** Addendum III requires all states to collect 200 samples per year. Source: State compliance reports

<b>State</b>	<b>2015 Samples</b>	<b>2016 Samples</b>	<b>Sample Sources</b>
<b>MA</b>	553	574	Fishery independent pot, rod and reel, and trawl surveys, ventless trap survey for Lobster
<b>RI</b>	178	158	Recreational fishery sampling, RIDFW Fish Pot Survey
<b>CT</b>	318	276	Long Island Sound Trawl Survey
<b>NY</b>	256	232	Commercial markets and dockside sampling
<b>NJ</b>	425	621	Recreational fishery, commercial sampling and NJ Bureau of Marine Fisheries Ocean Trawl Survey
<b>DE</b>	200	201	Recreational sampling
<b>MD</b>	200	200	Coastal Bays Fishery Investigations Trawl and Beach Seine Survey
<b>VA</b>	491	221	Commercial sampling and Marine Sport Fish Collection Project