

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

2013 Fishing Year
(January 1 – December 31)



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**2014 REVIEW OF THE
ASMFC FISHERY MANAGEMENT PLAN FOR
TAUTOG (*Tautoga onitis*)
Fishing Year 2013**

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, 2014 Update: 2011 (revised in 2012)
<u>Management Unit</u>	US waters of the northwest Atlantic Ocean from the shoreline to the seaward boundary of the exclusive economic zone, and from US/Canadian border to the southern end of the species range.
<u>States with Declared Interest</u>	Massachusetts Rhode Island Connecticut New York New Jersey Delaware (<i>de minimus</i>) Maryland Virginia North Carolina (<i>de minimis</i>)
<u>Active Boards/Committees</u>	Tautog Management Board (Board) Tautog Plan Review Team (PRT) Tautog Technical Committee Tautog Stock Assessment Subcommittee (SAS) Tautog Advisory Panel (AP)

History of Management

Fishery Management Plan for Tautog (1996)

Tautog is a relatively long-lived species of wrasse found along the Atlantic coast from Nova Scotia through North Carolina. It is a reef species that is popular with recreational fishermen. In fact, the recreational sector accounts for about 90% of coastwide harvest.

The tautog fishery was relatively small until it gained popularity in the late 1970s, when landings quickly rose, followed by a significant decline in the late 1980s. In response, the Atlantic States Marine Fisheries Commission (Commission) adopted the Fishery Management Plan (FMP) for Tautog in March 1996 because of the species' vulnerability to overfishing. The management unit spans from Massachusetts through North Carolina (although North Carolina has been granted *de minimis* status for the last decade). The FMP required a 14" minimum size limit to increase the spawning stock biomass and yield to the fishery. It also set an interim fishing mortality rate of 0.24 for two years, until 1999, after which states must achieve the target the fishing mortality target of 0.15 to rebuild the stocks and to prevent overfishing.

The 1996 Fishery Management Plan for Tautog 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.

Addendum I (May 1997)

Addendum I to the FMP was approved by the Tautog Management Board in response to the states' difficulties in meeting the FMP's compliance schedule, due to data deficiencies. Specifically, several states expressed concerns that the plan did not allow adequate time to determine state-specific fishing mortality rates. In addition, the original FMP contained a compliance schedule that required states in the northern range of the species to implement management measures prior to states at the southern extent of the species range. The Management Board believed that compliance dates should be consistent for states throughout the range of tautog.

Addendum I required all states to implement management measures to reach the interim fishing mortality target ($F = 0.24$) and a 14" size limit by April 1, 1998. It also required all states to implement management measures to achieve the fishing mortality target of 0.15 (same as natural mortality) by April 1, 2000. Finally, the Addendum included *de minimis* requirements and corrected several typographical errors in the original FMP.

Addendum II (November 1999)

Addendum II extended the compliance schedule to achieve $F_{\text{target}} = 0.15$ by April 2, 2002 because the **stock assessment** completed in the summer and fall of 1999 was based on limited data. It also listed a variety of issues for the FMP to address: (1) development of alternative fishing mortality targets that will allow states to quantify harvest reductions associated with a variety of management approaches, (2) clarification of the fishing mortality targets to be met by sector or overall state program, (3) monitoring requirements to improve fisheries and biological data collection, (4) and data requirements to analyze management options by fishing modes within commercial and recreational fisheries.

Addendum III and Technical Addendum I (February 2002)

Addendum III addressed the four issues listed in Addendum II. It revised the plan target and compliance requirement from $F = 0.15$ to $F = 40\%$ of the spawning stock biomass ($F_{40\% \text{ SSB}}$), which is 0.29, and updated information on tautog habitat and data collection compliance requirements under the Atlantic Coastal Cooperative Statistics (ACCSP) and tagging programs. Technical Addendum 1 corrected a typographical error in Addendum III.

Addendum IV (January 2007)

Addendum IV established SSB target and threshold reference points based on a benchmark stock assessment completed in 2005. These reference points allow the Commission to determine whether the stock is overfished and overfishing is occurring. It also set a new fishing mortality rate of $F = 0.20$ to initiate rebuilding. This required a coastwide reduction of 28.6% in the overall fishing mortality rate relative to the 2005 estimates. States will only get credit for reductions in their recreational fisheries and must implement management measures consistent with Addendum IV by January 1, 2008.

Addendum V (August 2007)

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 has 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.

Addendum VI (April 2011)

Addendum VI, revised in March 2012, reduced the fishing mortality target to $F_{\text{target}} = 0.15$. This provision was necessary to end overfishing and rebuild the stock. States are required to implement a coastwide 39% harvest reduction relative to the 2008-2009 average total harvest by January 1, 2012. To achieve the reduction, states must implement Board-approved regulations in the commercial and/or recreational fisheries. The addendum also allowed for regional considerations if a state or group of states can demonstrate that the local F is below the rates indicated in the stock assessment update.

II. Status of Stocks

The Commission completed a benchmark stock assessment for tautog in 2005, using a coastwide virtual population analysis. The assessment was updated in March 2011 to include data from 1982 through 2009, with a correction in March 2012. The following reference points used to define stock status were established by the 2005 assessment:

Overfishing Definition

$$F_{\text{rebuild}} = 0.20$$

Overfished Definition

$$SSB_{\text{target}} = 26,800 \text{ mt (59.1 million pounds)}$$

$$SSB_{\text{threshold}} = 20,100 \text{ mt (44.3 million pounds)}$$

The coastwide status for tautog is overfished and experiencing overfishing, based on the 2011 update. Fishing mortality rate for 2009 was estimated to be 0.23, above the target $F = 0.20$ needed for rebuilding. Spawning stock biomass has remained at low levels for the last decade, with the 2009 estimate at 23.5 million pounds (10,663 metric tons). This equals 40% of the target SSB (26,800 metric tons) and 53% of the threshold levels (21,100 mt) (Figure 1).

The Commission initiated a benchmark stock assessment in 2013, with a peer review scheduled for late 2014.

III. Status of Assessment Advice

The 2005 stock assessment peer review panel advised a regional approach for tautog because of the potential for sub-stock structure; this species does not appear to make north-south migrations. Individual states were encouraged to continue state-specific assessments and research to monitor local abundance, recruitment, and ageing. In 2012, the Commission initiated a benchmark stock assessment for tautog, scheduled for peer review in 2014. In the new stock assessment, the Tautog Technical Committee and Stock Assessment Subcommittee are analyzing available fisheries-independent data and indices in consideration of a regional stock structure to replace the coastwide model.

Ageing Workshop: In May 2012, the Commission conducted a parts exchange and ageing workshop to address concerns about consistency in methods among states. Tautog are typically aged using opercular bones, however, the state of Virginia's technique used sectioned otoliths. Due to this difference, Virginia's ageing data after 2001 was not included in the 2005 stock assessment. The ageing workshop concluded that there were no significant differences between age estimates using opercula and those using otoliths. Therefore, Virginia's age data are acceptable for the 2014 stock assessment. Operculum remains the recommended standard reference for ageing tautog.

IV. Status of the Fishery

Tautog is predominantly taken by the recreational fishery, which accounts for a consistent average of 90% of coastwide landings by weight from 1981 to 2013 (Table 1). At the state level, commercial landings on average account for 11% of the total harvest, but may account for up to 33% of their total landings in some recent years, as in Virginia in 2013 (Table 2).

The tautog fishing year runs from January 1 – December 31 annually. In 2013, most landings occurred in state waters between Cape Cod and the Chesapeake Bay in the months of September through December (Figure 2). Some Mid-Atlantic fishermen pursue tautog year-round and there is an active fishery off the Virginia Coast in winter.

Total Harvest

From 1981-2013¹, the total coastwide harvest (recreational harvest + commercial landings) for tautog peaked at 8,095 mt (17.8 million pounds) in 1986. Landings have significantly declined,

¹ Recreational data collection for tautog began in 1981, while commercial data exists back to 1950.

even before state regulations were implemented to restrict landings. Since 1996, when the Tautog FMP was implemented, the highest total harvest was nearly 2,623 mt (5.8 million pounds), which is about 32% of the historic peak. Total harvest during the managed period from 1996 – 2013 averaged 1,498 mt (3.3 million pounds) per year (Figure 3).

Recreational Harvest

Coastwide, anglers caught a historical high of 7,669 mt (16.9 million pounds) of tautog in 1986 (Figure 3, Table 1). However, 1986 was a unique year in which recreational harvest in Massachusetts was unusually high. Since then, harvest has generally declined. Both 1998 and 2011 had the lowest amount caught, at 1.5 million pounds (671 mt), which equal 9% of the historic landings and 30% of the time series average. There was an increase in 2013 from 2012. In 2013, recreational fishermen caught a coastwide total of 550,886 tautog weighing a cumulative 2.2 million pounds, an increase from 486,031 harvested in 2012. Coastwide recreational harvest made up 89.4%, slightly down from the time series average of 90%. On average, recreational catches were 2,180 mt (4.8 million pounds) per year over the time series.

On the state level, Rhode Island anglers harvested the most tautog, bringing in 137,095 tautog weighing a total of 634,964 pounds in live weight in 2013. New Jersey caught the second largest amount with 116,170 fish weighing a total of 413,021 lbs (Tables 3 and 4). North Carolina anglers harvested the lowest level by weight, at 9,636 lbs.

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 4, Table 1). The value (dollars per pound) for tautog has increased since the late 1970s, coinciding with the increase of landings. In 2013, value reached \$3.46 per pound (Figure 4).

On the state level, New York’s commercial tautog fishery harvested the greatest amount at 110,680 lbs in 2013, compared to Massachusetts at the second highest amount at 69,686 lbs (Table 5).

V. Status of Research and Monitoring

Addendum III requires all states to collect data to continue support of a coast-wide stock assessment until such time that there are sufficient data and analyses to allow for regional or redefined regional assessment approaches. As such, states are required to collect and report commercial and recreational catch estimates, a suitable time series of fisheries independent indices of abundance as determined by the Tautog Technical committee, and 200 age and length samples per state, within the range of lengths commonly caught by the fisheries. Table 8 lists number of samples collected by states in 2013 and a summary of each states monitoring program is given below.

Massachusetts

Fishery-independent: In 2013, Massachusetts Division of Marine Fisheries' fisheries-independent monitoring program for tautog consisted of sampling for age and growth parameters through purchase of specimens from local commercial fishermen and limited directed sampling from pots and rod and reel. In total, 267 fish were collected for biological samples.

The Division also obtains some limited age and maturity samples and biomass data (stratified mean number and mean weight per tow) from our synoptic spring and fall otter trawl surveys. This coast-wide state waters survey of approximately 100 twenty-minute tows has a random stratified design. The index for tautog includes data from all strata south of Cape Cod. While the index of abundance obtained from the survey can be quite variable from year to year the spring index series appears to track long term trends for adult tautog, and was used for tuning of the recent Coast-wide VPA stock assessment update and for a regional VPA with Rhode Island. The 2013 indices depict a decline in the numbers of fish per tow and weight relative to 2012.

Fishery-dependent: The MADMF dealer reporting system monitors commercial harvest. In addition, monthly logbook reports are required for all commercial fishermen. There was no directed monitoring of the recreational tautog fishery except for the for-hire sampling component of the Marine Recreational Information Program (MRIP). MADMF relied on the MRIP data for aggregate catch and landings data and catch frequencies.

Rhode Island

Fishery-independent: Tautog in RI waters are sampled using two fisheries-independent surveys by the Rhode Island Division of Fish and Wildlife: the Narragansett Bay monthly trawl survey and Narragansett Bay Seasonal Trawl Survey conducted in the fall. According to the monthly trawl survey, abundance was 0.372 mean fish/tow, down from 0.422 in 2012 and 0.529 in 2011. Mean weight per tow for the 2013 monthly trawl survey was 0.570 mean kg/tow, a decrease from 0.722 kg/tow in 2012. For the 2013 fall seasonal trawl survey, abundance increased to 0.409 fish/tow at 0.616 mean kg/tow, compared to 2012's 0.295 fish/tow and 0.111 mean kg/tow.

Indices of abundance of juvenile tautog from the Narragansett Bay beach seine survey decreased to 3.27 mean number/seine compared to 2012's 3.89 fish/seine. Indices of abundance of juvenile tautog as reported for the RI coastal ponds beach seine survey also decreased, from 0.80 mean fish/seine from 0.80 in 2012.

Fishery-dependent: Rhode Island sampled 282 tautog from the fall recreational fishery for aging. Commercial landings were monitored by the Standard Atlantic Fisheries Information System (SAFIS). The recreational fishery is monitored by MRIP's calculation methodology.

Connecticut

Fishery-independent: Tautog abundance has been monitored since 1984 via Connecticut's Long Island Sound Trawl Survey. The spring 2013 index of 0.43 fish per tow (geometric mean) is about 60% of the time-series mean (0.70) and generally in line with the spring indices of the previous ten years when the index has ranged from 0.25 to 0.64. Survey results are summarized in detail in annual reports to the US Fish and Wildlife Service and are available online at CT DEP's website.

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. Commercial landings are reported to NMFS. Recreational harvest is now monitored through MRIP. CT DEP manages the field component of the survey within the state, while the telephone survey is conducted by an MRIP contractor.

New York

Fishery-independent: New York State Department of Environmental Conservation (NYDEC) conducts two surveys for tautog: Finfish Trawl Survey and Long Island Sound Tautog Study. The NYSDEC has been conducting a small-mesh trawl juvenile finfish survey since 1987 (except for 2005 and 2006, when there was no data) to sample 60 to 80 randomly chosen stations each month from May through October. The CPUE of tautog from 1987 – 2013 ranged from 0.19 in 2011 to 1.37 fish per tow in 2002. The average annual CPUE over the time series was 0.6 fish per tow. The CPUE for 2010 was 1.43, but then dropped to 0.19 in 2011 and 0.64 in 2012. In 2013, the catch per tow was 1.16 tautog per tow.

The Long Island Sound Survey was delayed until August 2013 because the vessel's GPS and depth finder had to be replaced. 35 fish traps were deployed on August 15 and 16 between Mattituck Inlet; Mattituck, NY; and Rocky Point. Efforts were made to deploy the traps near submerged rocks, where blackfish would be expected to be found. The traps were checked weekly, weather permitting, and all fish were counted and measured. 232 tautog were captured in the traps. Black Sea Bass were the most numerous (320) fish species followed by scup (280). The mean size for tautog was 244 mm total length with a range of 109 to 422 mm. the majority of the tautog were captured in September. CPUE of fish traps was considerably lower compared to 2012, probably due to the late deployment of traps.

Fishery-dependent: In 2013, NYDEC's recreational fishery monitoring consisted of four trips on party boats fishing for tautog and collected samples from 3 other fishing trips (one party, one private angler). A total of 108 fish were measured for lengths and 88 samples were collected for age analysis. The size range of all fish measured from the recreational fishery was 260 mm to 590 mm total length. Age samples collected from the for hire sector were pooled with those collected from the commercial fishery (195 samples) to generate an age-length key.

NYDEC did not conduct any commercial monitoring trips in 2013. However, commercial fishery samples were obtained from commercial markets when available. There has been anecdotal

evidence that, in recent years, the majority of tautog caught commercially is going to the live market and are not available for collecting age samples. Unlike other years, samples were readily available from commercial markets in 2013. The reason for the higher availability of tautog in the commercial markets is unclear.

New Jersey

Fishery-independent: The New Jersey Bureau of Marine Fisheries conducts five near shore trawl surveys each year. These surveys occur in January/February, April, June, August, and October. All tautog taken during these surveys are weighed and measured. CPUE in number of fish per tow and biomass per tow is calculated each year. The indices of abundance and weight have been mostly flat throughout the time series. The abundance in 2013 was 0.7 fish/tow with a mean weight of 0.5 kg/tow, an increase above 2010 through 2012's abundance and mean weights. This New Jersey trawl survey is the only fishery independent survey in the Southern Region (New Jersey through North Carolina).

Fishery-dependent: Bureau of Marine Fisheries and New Jersey ACCSP staff sampled the recreational harvest during the winter fishery, obtaining 435 racks from party/charter boats. An additional seven specimens were obtained from recreational catches confiscated by New Jersey Division of Fish and Wildlife Law Enforcement Officers in the spring. An additional 29 length and weight measurements were obtained on party/charter boats during the winter fishery. Due to temporary staff shortages, no commercial sampling was undertaken in 2013. The fish racks and confiscated specimens were taken to the Nacote Creek facility where length and sex data were recorded and opercular bones were processed in preparation for ageing. Only permitted fishermen are allowed to take tautog for purposes of sale in New Jersey. There are only forty (40) directed fishery and twenty-two (22) non-directed fishery permittees in the New Jersey commercial tautog fishery. All permittees are required to submit monthly reports identifying tautog landings by day, gear, and location, as well as any by-catch.

Delaware

Fishery-independent: Delaware Division of Fish & Wildlife conducted Delaware Bay and Inland Bay surveys from April through October. No tautog were encountered in the Delaware Bay adult trawl survey nor the 16-foot juvenile finfish survey.

Fishery-dependent: 419 opercular bones were sampled in the spring and fall fishery in 2013, as was done in previous years for constructing age-length keys and catch-curve analyses. Commercial fishery landings statistics are compiled from mandatory, fisherman-reported, monthly logbook submissions to the State of Delaware. Recreational fishery statistics are estimated from MRIP.

Maryland

Fishery-independent: Maryland Department of Natural Resources (MDNR) obtained 165 tautog for biological data collection in 2013, including sub-legal fish.. All tautog sampled were measured for total length, age, sex, gear type, and sample date. Sampled fish lengths ranged in size from 350 to 675 mm, with a mean of 360 mm and median of 354 mm for both females and males combined. Weights ranged from 350 g to 5,660 g, with a mean of 990 g and a median of 890 g. Of 162 samples, females comprised 61% and averaged 348 mm in length, with a median of 340 mm. Mean female weight was 909 g with a median of 805 g. Males were longer than females (mean TL 378 mm) and weighed more (mean weight 1,123 g). Age data were collected from opercula on 163 samples.

Fishery-dependent: Maryland DNR's annual trawl and beach seine surveys, part of the Investigation of Maryland's Coastal Bays and Atlantic Ocean Finfish Stocks, is a multispecies survey program that is not well suited for determining tautog abundance due to the limitations of gear types used to sample tautog habitat, thus both the trawl and seine gears suffer from low tautog catches. .In 2012, tautog were captured in zero of 140 trawls (0%) and in one of 38 beach seines (2.6%) samples conducted on Maryland's Coastal Bays in 2013.

Virginia

Fishery-independent: There are currently no fishery-independent surveys in Virginia waters that observe sufficient quantities of tautog to be considered adequate for monitoring species trends.

Fishery-dependent: The Virginia Marine Resources Commission (VMRC) Biological Sampling Program collects biological data from Virginia's commercial and recreational fisheries. The lengths and weights of all samples are recorded and otoliths are removed from selected species, including tautog, for ageing. From the commercial fishery, a total of 86 lengths, weights, and ages were taken from tautog sampled from Virginia's commercial fisheries. Sample lengths ranged from 15 to 25 inches total length and averaged 17 inches. The average weight of tautog sampled from the commercial landings was 3.7 pounds. The tautog sampled from the commercial fishery ranged in age from 3 to 12 years. The MRIP program routinely samples fish encountered in its angler intercept survey to collect biological data.

Virginia's recreational fishery participates in the MRIP biological sampling program, Virginia Game Fish Tagging Program, and VMRC Marine Sport Fish Collection Project. The MRIP program routinely samples fish encountered in its angler intercept survey to collect biological data. The average weight of the tautog sampled was 4.0 pounds. The total lengths of sampled fish ranged from 13 to 25 inches fork length, with an average of 17.2 inches. The MRIP program also conducts at-sea sampling surveys of headboat fishing trips. These surveys are the only source of biological data characterizing discarded catch that are collected by the MRIP.

In 2013, Virginia's tagging program tagged 1,064 tautog and recaptured 119 of these fish. Since 1995, there have been a total of 18,108 tautog tagged and 2,731 recaptured, for an overall

recapture rate of 15.1%. The tag-recapture data for tautog have provided evidence of strong fidelity to initial tagging sites, with little seasonal movement between inshore and offshore (such seasonal movements have been observed for tautog occurring in waters from New York north). Tautog tagged in Virginia's state and offshore waters do not migrate in significant numbers to waters north of Delaware.

Since 2007, VMRC's Marine Sport Fish Collection Project encourages tournament anglers to voluntarily donate whole fish for research. In 2013, a total of 166 tautog were donated by recreational hook-and-line fishermen (up from 105 donations in 2012, but down from 314 in 2011), resulting in 166 lengths, 13 weights, and 162 ages. The total lengths ranged from 14 to 30 inches, with an average of 18.4 inches. Average weight was 12.6 pounds. Sampled ages ranged from 3 to 18 years.

North Carolina

Fishery-dependent: Sampling by the North Carolina Division of Marine Fisheries occurs throughout North Carolina each year. However, due to the extremely low number of total commercial fishery trips containing tautog landings, no tautog were measured during sampling in 2013.

Fishery-independent: Thirteen tautog were recorded in fishery-independent finfish surveys in 2013. Eight were from North Carolina Estuarine Reef Essential Fish Habitat Survey, four from the North Carolina Estuarine Gag Trawl Survey and one from the Fisheries Independent Assessment Program/Ocean Gillnet. The average length for these fish was 214 mm. No surveys are specifically designed to sample tautog and it is unusual that any would be caught in regular fishery-independent monitoring conducted by North Carolina Division of Marine Fisheries.

VI. Status of Management Measures and Issues

The following management measures are required by the Tautog FMP:

- The Interstate Fishery Management Plan for Tautog specifies a 14" minimum size limit for the recreational and commercial fishery and requires the use of degradable fasteners on fish pots and traps.
- Addendum III requires all states to collect 200 age/length samples to continue support of a coast-wide stock assessment until such time that there are sufficient data and analyses to allow for regional or redefined regional assessment approaches.
- Addendum IV & V specified a rebuilding fishing mortality rate = 0.20 which required a 25.6% reduction in exploitation from the coastwide average based on the 2006 Assessment update. Addendum IV & V also allows states to reduce less "if a state can provide evidence, at the same level of precision as most recent assessment, of fishing mortality rates below those indicated in the assessment, then that state is only required to implement restrictions that will be sufficient to reach the target fishing mortality level."

- Addendum VI required a coastwide reduction in harvest by 39% from the 2008-2009 average and lowered the fishing mortality rate to 0.15. State proposals must be submitted to the TC and approved by the Board.

VII. Implementation of FMP Compliance Requirements

All states in the tautog management range submitted state compliance reports for fishing year 2013. Summary tables of state regulations are in Tables 6 and 7. *The Plan Review Team (PRT) reviewed the reports and finds that each state has met the regulatory requirements of the FMP.*

A. Biological Sampling (Addendum III)

Most states collected 200 or more age/length samples in 2013 as required by Addendum III (Table 8). New York and Maryland did not collect 200 samples.

- Maryland collected 165 tautog from hook and line from two cooperating headboat captains for biological data collection.
- New York collected 195 samples. Efforts were limited possibly due to a greater number of fish being sold through the live market.

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

B. States are required to implement regulations to achieve $F = 0.15$ (Addendum VI).

All states implemented regulations as proposed and approved by the Board in 2013 to meet Addendum VI's requirements (Tables 6 and 7).

C. 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 is 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 2013 coastwide commercial landings totaled 259,744 pounds; 1% of this total is 2,597 pounds. Therefore, the threshold for *de minimis* status in 2013 is 10,000 pounds because this amount is larger than 2,597 pounds.

The states of Delaware (2,302 pounds in 2013) and North Carolina (205 pounds in 2013) have requested *de minimis status* for the 2015 fishing season for the commercial sector. These two states meet or exceed the criteria, and the PRT recommends that the Board approve the states of Delaware and North Carolina's requests.

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.

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.

Low

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

8.5 Research Recommendations That Have Been Met

- ✓ Sample hard parts for annual ageing from the catches of recreational and commercial fisheries and fishery-independent surveys throughout the range of the stock. *Being conducted by all participating states.*
- ✓ Conduct hard part exchange and ageing workshop to standardize techniques and assess consistency across states. *Conducted May 2012, report available at http://www.asmfc.org/uploads/file/2012_Tautog_Ageing_Workshop_Report.pdf*

Figures & Tables

Figure 1. Tautog Spawning Stock Biomass from 1982 – 2009.

Source: Revised 2011 ASMFC Tautog Stock Assessment Summary Update.

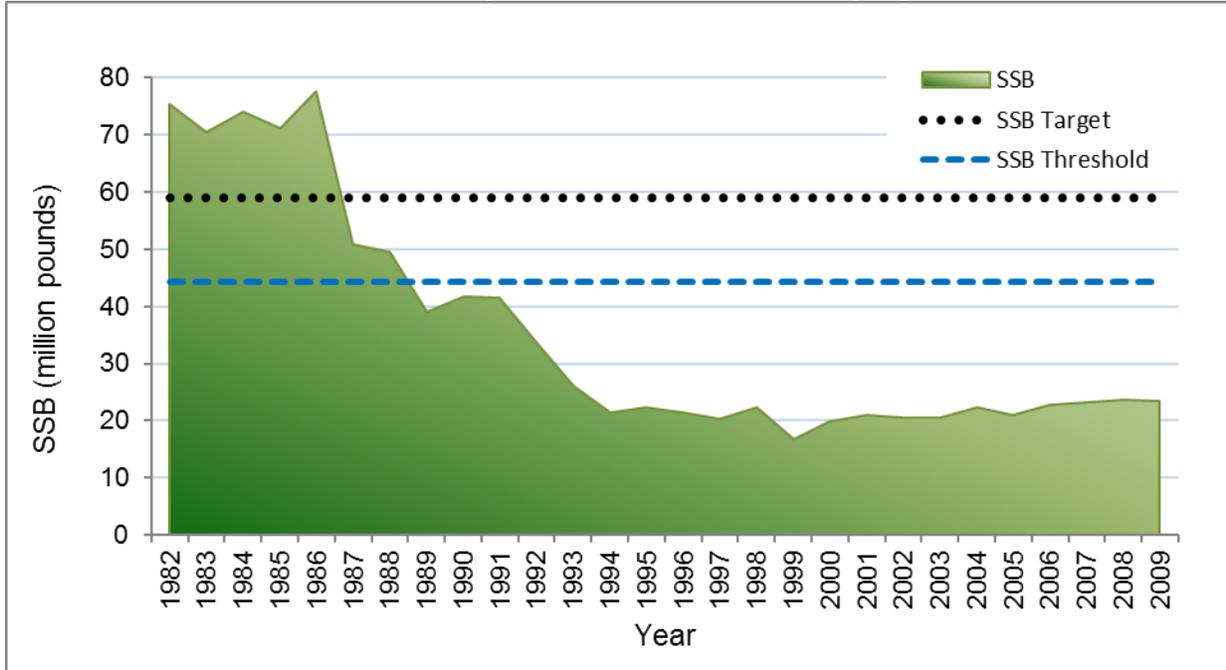


Figure 2. Recreational tautog harvest in 2013 by wave.

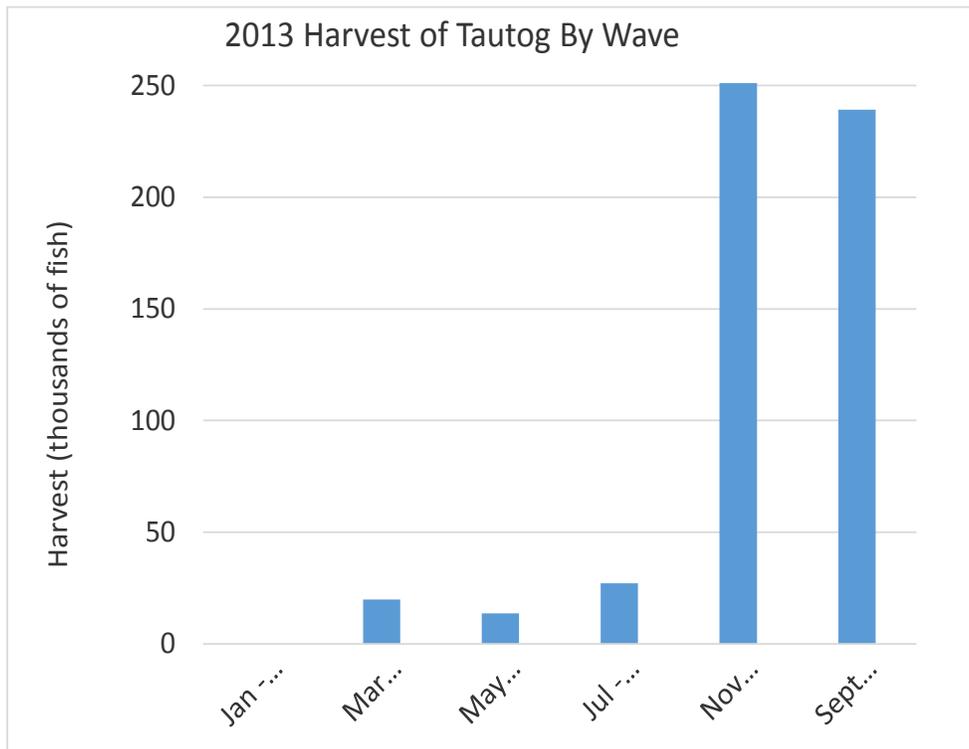


Figure 3. Total tautog harvest (recreational A+B1 and commercial, excluding discard).
Source: NMFS, MRIP.

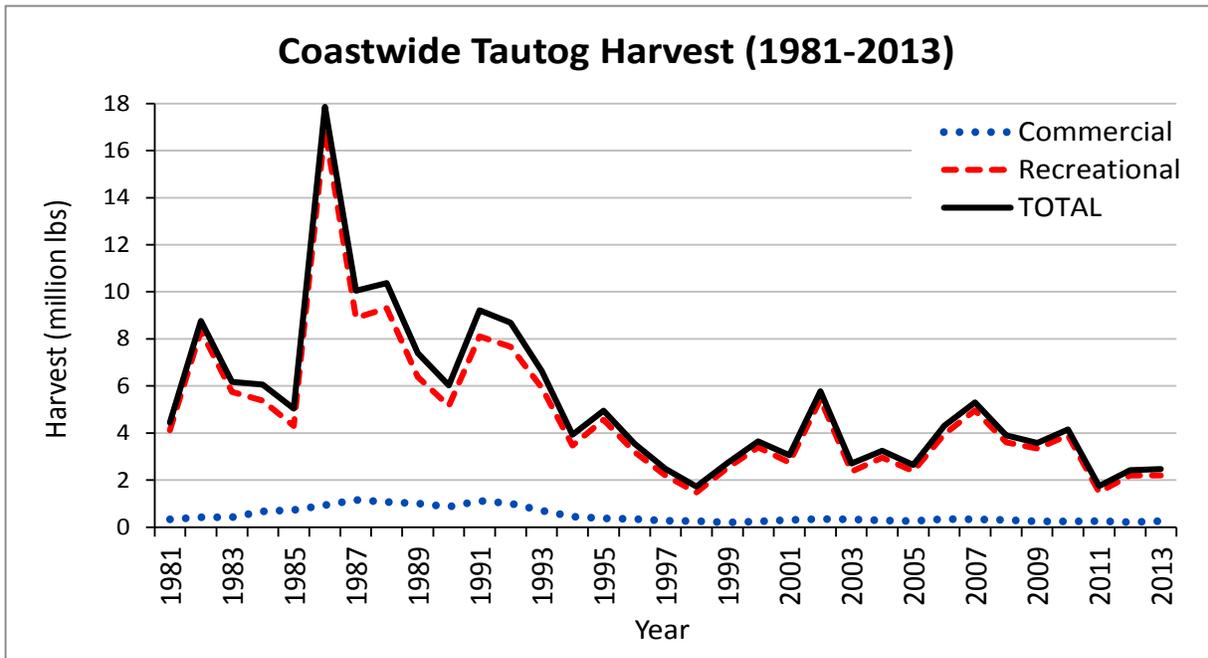


Figure 4. Changes in tautog commercial landings (lbs) and value (\$/lb) over time.
Source: NMFS.

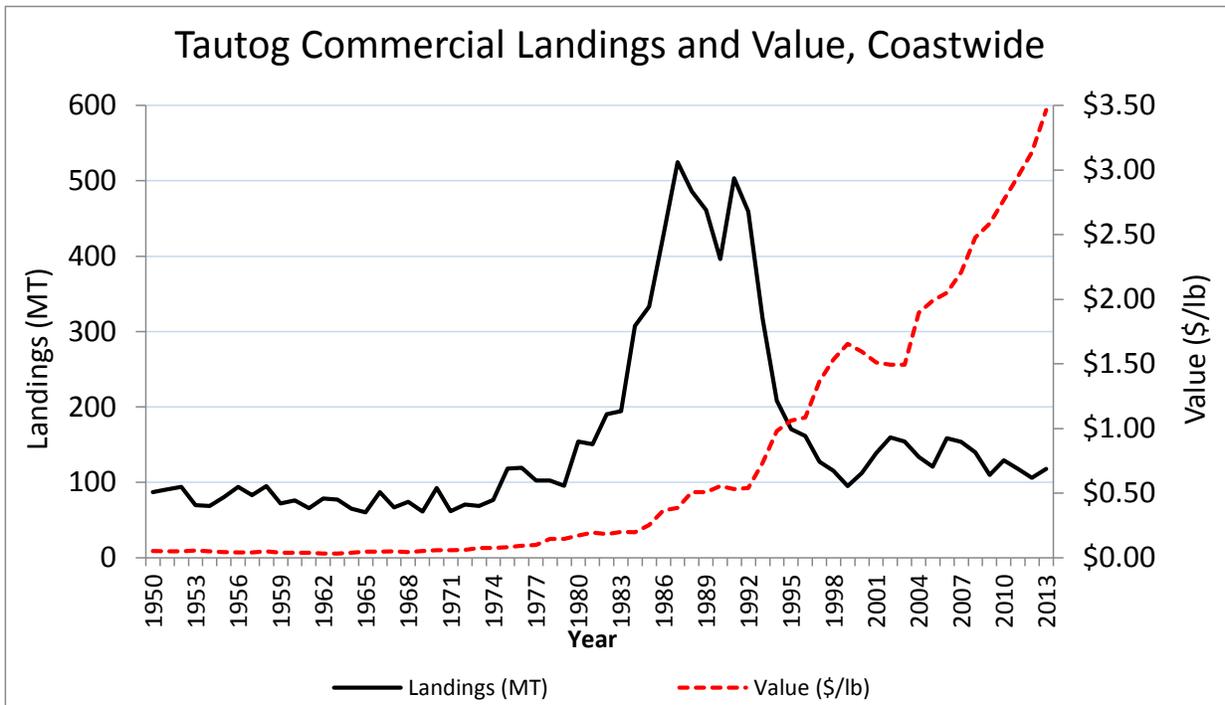


Table 1. Tautog recreational and commercial landings from 1981 – 2013, in pounds.
Source: State Compliance Reports, NMFS, and ACCSP Data Warehouse.

Year	Commercial Landings (lbs)	Recreational Harvest, A + B1 (lbs)	Total Harvest (lbs)	% Recreational
1981	332,000	4,115,561	4,447,561	92.5%
1982	419,656	8,337,958	8,757,614	95.2%
1983	427,919	5,750,817	6,178,736	93.1%
1984	677,615	5,381,193	6,058,808	88.8%
1985	734,370	4,305,087	5,039,457	85.4%
1986	941,012	16,906,397	17,847,409	94.7%
1987	1,157,280	8,888,782	10,046,062	88.5%
1988	1,071,017	9,301,700	10,372,717	89.7%
1989	1,016,631	6,379,327	7,395,958	86.3%
1990	873,510	5,156,175	6,029,685	85.5%
1991	1,110,344	8,105,011	9,215,355	88.0%
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	3,184,901	3,542,335	89.9%
1997	280,912	2,204,039	2,484,951	88.7%
1998	254,186	1,479,762	1,733,948	85.3%
1999	208,825	2,532,690	2,741,515	92.4%
2000	247,456	3,398,348	3,645,804	93.2%
2001	305,487	2,749,701	3,055,188	90.0%
2002	351,451	5,431,145	5,782,596	93.9%
2003	342,651	2,357,940	2,700,591	87.3%
2004	299,602	2,950,616	3,250,218	90.8%
2005	292,194	2,373,143	2,665,337	89.0%
2006	349,602	3,962,994	4,312,596	91.9%
2007	340,898	4,968,258	5,309,156	93.6%
2008	310,896	3,598,333	3,909,229	92.0%
2009	242,723	3,334,067	3,576,790	93.2%
2010	286,724	3,905,507	4,192,231	93.2%
2011	262,226	1,492,497	1,754,723	85.1%
2012	213,854	2,205,886	2,419,740	91.2%
2013	259,744*	2,204,787	2,434,047	89.5%

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

Table 2. Tautog landings by sector for 2013: percent recreational (A + B1) and commercial based on weight.

State	Recreational (A+B1) (%)	Commercial Landings (%)
Delaware	99.7	0.3
Connecticut	98.6	1.4
New Jersey	98.2	1.8
North Carolina	97.9	2.1
Rhode Island	92.2	7.8
New York	76.6	23.4
Massachusetts	72.7	27.3
Virginia	67.1	32.9
Maryland	confidential	confidential
Coastwide (excludes MD)	89.5	10.5

Table 3. Recreational harvest (A+B1) for tautog in number of fish, 1981-2013 (MRIP).

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC
1981	228,736	233,508	100,308	721,062	132,271	3,457	4,670	236,768	3,072
1982	1,051,022	214,938	231,187	646,693	583,550	137,328	35,105	71,599	15,062
1983	670,508	245,796	200,676	612,163	344,580	4,350	2,126	579,795	36,549
1984	258,256	490,128	287,470	286,077	516,086	28,388	42,835	207,192	NA
1985	100,941	115,404	182,318	1,105,234	840,627	62,001	486	91,957	8,252
1986	1,980,719	671,592	333,396	1,183,114	2,369,852	141,290	5,476	322,905	12,660
1987	617,068	130,729	312,430	929,887	1,015,123	99,706	90,523	126,783	3,698
1988	621,679	207,799	234,198	828,183	564,286	94,491	107,570	368,320	4,462
1989	250,077	116,506	303,782	562,549	710,958	249,928	34,709	284,477	11,354
1990	233,444	153,433	75,871	953,622	841,770	61,526	45,467	111,998	3,428
1991	176,905	291,946	191,137	871,221	1,067,283	128,985	26,770	168,068	6,804
1992	357,949	193,786	319,221	413,236	1,018,205	68,769	106,255	100,952	5,249
1993	216,553	118,775	180,055	505,632	773,213	82,475	60,231	300,484	4,785
1994	78,483	82,304	150,109	196,937	208,003	65,837	157,260	231,740	2,271
1995	72,461	54,570	120,259	118,006	707,963	300,303	43,542	222,186	3,178
1996	79,798	55,528	72,558	82,826	470,431	57,751	9,695	224,447	6,605
1997	39,075	70,628	32,200	92,907	196,724	65,133	85,682	106,678	11,432
1998	25,034	56,084	66,797	68,887	11,667	62,584	6,512	50,923	9,487
1999	91,476	52,136	15,701	196,564	165,505	95,309	20,180	42,880	8,437
2000	87,552	38,687	10,648	79,245	462,371	113,686	20,129	34,725	5,555
2001	115,658	39,993	16,579	45,913	467,728	50,541	23,715	28,985	2,418
2002	102,662	62,423	100,240	629,772	347,831	185,684	42,038	25,987	4,514
2003	46,808	120,061	167,875	128,729	102,593	63,181	13,555	76,236	12,185
2004	21,816	124,419	16,464	278,749	90,214	70,608	8,690	150,703	9,137
2005	72,038	160,524	35,699	84,280	43,055	60,831	28,129	60,484	13,707
2006	79,639	81,611	200,708	246,882	200,725	111,028	14,894	105,137	1,234
2007	91,304	125,233	352,819	223,798	300,179	99,605	43,308	60,992	15,250
2008	34,237	103,760	167,179	318,899	172,518	101,735	19,128	56,384	734
2009	24,879	85,416	85,915	346,276	127,403	119,941	37,963	60,470	2,895
2010	45,743	197,062	116,058	145,663	374,599	56,505	57,338	127,221	3,720
2011	32,828	19,304	25,823	111,406	136,674	45,483	11,853	46,441	981
2012	24,796	104,425	194,101	58,127	30,705	44,807	5,216	13,918	9,936
2013	54,259	137,095	106,724	78,554	116,170	40,488	5,617	6,016	5,963

Table 4. Recreational harvest (A + B1) for tautog in pounds, by state, 1981-2013. Dark and light shaded areas indicate the states with the highest and second highest landings for each year, respectively. 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	
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	107,905	698,737	77,219	966,022	283,109	240,288	21,633	524,251	31,226
2005	382,866	807,715	145,342	314,691	144,423	220,642	84,538	242,650	30,277
2006	294,785	380,009	842,213	793,999	726,554	406,499	47,484	468,246	3,204
2007	333,668	621,747	1,384,528	823,257	1,064,250	298,500	137,026	246,802	58,480
2008	109,932	491,953	720,575	1,081,693	520,100	380,729	69,331	222,485	1,535
2009	85,414	323,717	303,047	1,431,273	408,567	387,643	108,297	268,102	18,006
2010	162,488	923,690	412,775	502,526	1,067,379	146,044	201,753	479,462	9,389
2011	129,669	80,300	88,728	450,171	381,449	152,895	33,859	173,871	1,555
2012	94,699	534,716	984,372	240,415	108,053	164,604	17,006	49,983	11,676
2013	185,314	634,964	399,464	362,367	413,021	145,497	30,481	24,040	9,636

Table 5. Commercial landings for tautog in pounds, by state, 1981-2013.

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. Dark and light shaded areas indicate the states with the highest and second highest landings for each year, respectively.

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

Table 6. State recreational regulations implemented for tautog in the 2013 fishing year.

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/ person/ day)	OPEN SEASONS (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
North Carolina	-	-	-

Table 7. State commercial regulations implemented for tautog in the 2013 fishing year.

STATE	SIZE LIMIT	POSSESSION LIMITS (number of fish)	OPEN SEASONS	QUOTA (pounds)	GEAR RESTRICTIONS*
Massachusetts	16"	40	April 14-May 16 Sept 1-Oct 31	61,180*	Mandatory pot requirements. Limited entry and area/time closures for specific gear types.
Rhode Island	16"	10	Apr 15 - May 30 Aug 1 - Sept 15 Oct 15 - Dec 31	49,476**	Harvest allowed by permitted gear types only.
Connecticut	16"	10	Apr 1- Apr 30 Jul 1 - Aug 31 Oct 8 - Dec 24	NA	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 1 - 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.
North Carolina	-	-	-	-	Mandatory pot requirements.

* Massachusetts' base commercial quota of 61,180 lbs was reduced by the 2012 overage of 3,573 lbs for a 2012 quota of 61,180 lbs.

** Rhode Island's quota of 49,476 lbs is divided equally among the three sub-periods, with 2012 overage deducted from the Aug-Sept sub-period.

Table 8. Number of age/length samples by state in 2013. Addendum III requires all states to collect 200 samples per year. Source: State compliance reports

State	2012 Samples
MA	267
RI	282
CT	211
NY	195
NJ	442
DE	419
MD	165
VA	246
NC	0