

**This draft document is intended for Board Review**

**2013 REVIEW OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
FISHERY MANAGEMENT PLAN FOR  
TAUTOG  
(*Tautoga onitis*)**

**2012 Fishing Year**  
(January 1 – December 31)



**Prepared by the Tautog Plan Review Team**

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**Draft for Board Approval**

**2013 REVIEW OF THE  
ASMFC FISHERY MANAGEMENT PLAN FOR  
TAUTOG (*Tautoga onitis*)  
Fishing Year 2012**

**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 (initiated) 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.

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- 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

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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 (Figure 1). 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 2).

## 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 91% of coastwide landings by weight from 1950 to 2011 (Table 1). At the state level, commercial landings for some states (Rhode Island and Massachusetts) have comprised as much as 42% of their total landings in some recent years, as in 2012 (Table 2).

The tautog fishing year runs from January 1 – December 31 annually. Most landings occur in state waters between Cape Cod and the Chesapeake Bay in the spring and fall months. Some Mid-Atlantic fishermen pursue tautog year-round and there is an active fishery off the Virginia Coast in winter.

### Total Harvest

From 1981-2011<sup>1</sup>, the total coastwide harvest (recreational harvest + commercial landings) for tautog peaked at 17.8 million pounds (8,095 mt). Landings have significantly declined, even before state regulations were implemented to restrict landings. Since 1996, when the Tautog FMP was implemented, the highest total harvest was nearly 5.8 million pounds (2,623 mt), which is about 32% of the historic peak. Total harvest during the managed period averaged 3.4 million pounds (1,547 mt) per year (Figure 3).

### Recreational Harvest

Coastwide, anglers caught a historical high of 16.9 million pounds (7,669 mt) 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 declined in recent years, although there was an increase in 2012. 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. In 2012, recreational fishermen caught a total of 486,031 tautog weighing a cumulative 2.2 million pounds, an increase from 2011. Recreational harvest made up 91.2% of all harvest from all fisheries. On average, recreational catches were 5.0 million pounds (2,256 mt) per year over the time series.

On the state level, Connecticut anglers harvested the most tautog, bringing in 194,101 tautog weighing a total of 984,372 pounds in live weight in 2012. Rhode Island caught the second largest amount with 104,425 fish weighing a total of 534,716 lbs (Tables 3 and 4). Maryland anglers landed the fewest tautog, with 5,216 fish, while North Carolina anglers harvested the lowest level by weight, at 11,676 lbs.

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

### 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 2011, value reached \$3.00 per pound (Figure 4).

## **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 2012 and a summary of each states monitoring program is given below.

### Massachusetts

**Fishery-independent:** In 2012, Massachusetts Division of Marine Fisheries’ fisheries-independent monitoring program for tautog consisted of sampling for age and growth parameters obtained from 256 fish. Samples were collected through purchased specimens from local commercial fishermen and limited directed sampling using pots and rod and reel. 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 2012 indices depict a drop in numbers of fish per tow and weight from 2011.

**Fishery-dependent:** The MADMF dealer reporting system monitors commercial harvest. In addition, monthly catch reports are now 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:** Rhode Island Division of Fish and Wildlife continued the Narragansett Bay monthly trawl survey in 2012. The mean number per tow was 0.422 fish/tow, down from 2011's 0.529. Mean weight per tow for the 2012 monthly trawl survey increased to 0.722 kg/tow. Mean number per tow decreased during the 2012 seasonal trawl survey (Fall) in RI waters to 0.295 fish/tow and the mean weight per tow decreased to 0.111 kg/tow.

Indices of abundance of juvenile tautog as reported for the Narragansett Bay beach seine survey increased from 2011 indices to 3.89 fish/seine. Indices of abundance of juvenile tautog as reported for the RI coastal ponds beach seine survey, increased from 2011 indices to 0.80 fish/seine.

**Fishery-dependent:** Rhode Island sampled 134 tautog from the fall recreational fishery for aging. Commercial landings were monitored by the Standard Atlantic Fisheries Information System (SAFIS). The recreational fishery is now monitored by MRIP's calculation methodology.

### **Connecticut**

**Fishery-independent:** Tautog abundance has been monitored since 1984 via Connecticut's Long Island Sound Trawl Survey. 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. The spring 2011 index of 0.44 fish per tow (geometric mean) is about half of the time-series mean (0.72) and generally in line with the spring indices of the previous eight years when the index has ranged from 0.25 to 0.64. Indices from 1993 to 1999 mostly ranged from 0.40 to 0.49, with the 1995 index being exceptionally low (0.15 fish per tow, the lowest in the time-series). Indices improved to 0.57 in 2000 and to 0.70 in 2001 before reaching 0.91 in 2002.

**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.

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The NYSDEC has been conducting a small-mesh trawl juvenile finfish survey since 1987 (except for 2005 and 2006, when there was no data). The survey runs from May through October and uses a small mesh, sixteen-foot, semi-balloon shrimp trawl to sample 60 to 80 randomly chosen stations each month. The CPUE of tautog from 1987 – 2012 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 2009 was 1.34, but then dropped to 0.43 in 2010 and 0.19 in 2011. In 2012 the catch per tow was 0.64 tautog per tow.

For its Long Island Sound Survey in 2011, thirty-five (35) fish traps were deployed on May 24, 29, and June 6 between Mattituck Inlet 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. All of the traps were removed for the season by October 26, 2012. Tautogs were the most numerous species (4,653 fish) followed by black sea bass (1,034) and scup (502). The mean size for tautog was 226 mm total length with a range of 97 to 490 mm. 274 females and 419 males were identified. The remaining 3,960 were of unknown sex. Most tautogs were captured in October.

**Fishery-dependent:** In 2012, NYDEC's recreational fishery monitoring consisted of four trips on party boats fishing for tautog and collected samples from 2 other fishing trips (one party, one private angler). A total of 288 fish were measured for lengths and 51 samples were collected for age analysis. The size range of all fish measured from the recreational fishery was 145 mm to 605 mm total length. Age samples collected from the for hire sector were pooled with those collected from the commercial fishery (15 samples) to generate an age-length key. Due to the damage from tropical storm Sandy on October 29, NYDEC was unable to conduct any trips in November.

NYDEC did not conduct any commercial monitoring trips in 2012. However, commercial fishery samples were obtained from commercial markets when available. Fifteen samples were obtained from two commercial markets in July and August. The age data was pooled with the recreational age data to obtain an age-length key. There is anecdotal evidence that the majority of tautog caught commercially is going to the live market and are not available for collecting age samples.

### **New Jersey**

**Fishery-independent:** The New Jersey Bureau of Marine Fisheries conducts five (5) 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. This New Jersey trawl survey is the only fishery independent survey in the Southern Region (New Jersey through North Carolina).

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**Fishery-dependent:** Bureau of Marine Fisheries and New Jersey ACCSP staff sampled the recreational harvest during the winter fishery, obtaining 220 racks from party/charter boats. An additional 26 specimens were obtained from recreational catches confiscated by New Jersey Division of Fish and Wildlife Law Enforcement Officers in the summer and fall. Twelve samples were obtained from the commercial hook and line fishery in December, along with six length measurements from fish harvested for the live market. No samples were obtained from the spring recreational fishery or from the June commercial fishery. The fish racks were taken to the Nacote Creek facility where length and sex data were recorded and opercular bones were processed and used to develop an age/length key for the 2012 New Jersey fishery.

### **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:** 157 opercular bones were collected in the spring recreational charter boat spring season and 351 were collected in the fall season 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 248 tautogs for biological data collection in 2012, 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 246mm to 838mm, with a mean of 373 mm and median of 360 mm for both females and males combined. Weights ranged from 180 g to 8732 g, with a mean of 1096 g and a median of 840 g. Of 132 samples, females comprised 53% and averaged 362 mm in length, with a median of 338 mm. Mean female weight was 958 g with a median of 710 g. Males were longer (mean TL 387 mm) and weighed more (mean weight 1267 g) than females. Age data were collected from opercula on 244 samples. At the time of the report submission, the age data have only been observed by one biologist and has not been verified by a second biologist.

**Fishery-dependent:** Juveniles of many species were sampled in the 2012 MDNR annual trawl and beach seine survey, components of the Investigation of Maryland's Coastal Bays and Atlantic Ocean Finfish Stocks. However, it should be noted that this multi-species survey 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, tautogs were captured in zero of 140 trawls (0%) and in zero of 38 beach seines (0%) samples conducted on Maryland's Coastal Bays in 2012.

## **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 94 lengths, weights, and ages were taken from tautog sampled from Virginia's commercial fisheries. Sample lengths ranged from 15 to 22 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 15 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 3.7 pounds, down from 3.9 lbs observed in 2011. The total lengths of sampled fish ranged from 15 to 21 inches, with an average of 17.2 inches, an increase from 2011's average length of 16.8 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 2012, Virginia's tagging program tagged 1,041 tautogs and recaptured 95 of these fish. Since 1995, there have been a total of 17,044 tautogs tagged and 2,612 recaptured, for an overall recapture rate of 15.3%. 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 2012, a total of 105 tautog were donated by recreational hook-and-line fishermen (down from 314 in 2011), resulting in 105 lengths, 9 weights, and 105 ages. The total lengths ranged from 14 to 30 inches, with an average of 16.3 inches. Average weight was 9.9 pounds. Sampled ages ranged from 2 to 14 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, only three tautog were measured during sampling in 2012. The average length was 430 mm.

**Fishery-independent:** Thirteen tautogs were recorded in fishery-independent finfish surveys in 2012, all from the juvenile finfish estuarine trawl survey which occurs mainly in May and June each year. However, in 2012 all tautog caught by this survey were from a single day at a single station in July. The average length for these fish was 48 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 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 specify 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.

## VII. Implementation of FMP Compliance Requirements

All states in the tautog management range submitted state compliance reports for fishing year 2012. Summary tables of state regulations are in Tables 6 and 7. *The Plan Review Team (PRT) reviewed the reports and find 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 2012 as required by Addendum III (Table 8). Rhode Island and Connecticut did not collect 200 samples.

- Rhode Island collected 134 samples. The RI sampling program utilized volunteer anglers to collect biological samples. The program was ended when it was discovered that the volunteers were illegally selling the undersized tautog.
- New York's sampling efforts were limited due to Hurricane Sandy.
- Connecticut collected 131 age/length samples.

*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. 39% Reduction from 2008-2009 Average Harvest (Addendum VI)

**All states implemented regulations as proposed and approved by the Board in 2012 to meet Addendum VI's requirements (Tables 6 and 7).**

In order to achieve the 39% reduction from the average 2008-2009 harvest, the **coastwide total harvest of tautog must be below 614,229 fish**. This is calculated by subtracting 39% from the 2008-2009 average total harvest (recreational + commercial) of 1,006,932 fish.

To be consistent with the methodology used to calculate the target F, the number of fish was used to assess the state and coastwide fishery performance since 2008-2009. Commercial harvest was calculated by converting 2008-2009 average total weight (lbs) for each state by the average weight per fish harvested by its recreational fishery in 2012.

**Coastwide, the 39% harvest reduction required by Addendum VI was achieved in 2012, since the cumulative reduction based on the number of fish was 53%.** The total harvest by fish (commercial and recreational harvest, excluding discards) was 527,293fish. This equates to a 52.7% reduction from the 2008-2009 average harvest. The average reduction by individual states was 43.8%, and the percent change ranged from an 81.1% reduction (Maryland) to a 48.4% increase (Connecticut) in harvest (Table 9).

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Table 9 shows the % reduction or increase by states relative to the average 2008-2009 total harvest. North Carolina's harvest was not included, since its data was not used in the 2005 stock assessment.

- **Connecticut's** total harvest was 195,213 fish in 2012, an increase of 48% from the 2008-2009 average. Although Connecticut's commercial harvest decreased by 78%, its proportionately larger recreational harvest increased by 53%.
- **Massachusetts and Rhode Island** were not required to take the 39% reduction because these two states demonstrated a lower regional fishing mortality rate (F) than the coastwide F of 0.26. This decision was approved by the Board in its March 28, 2012 conference call.

### **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 2012 coastwide commercial landings totaled 213,854 pounds; 1% of this total is 2,138 pounds. Therefore, the threshold for *de minimis* status in 2012 is 10,000 pounds because this amount is larger than 2,138 pounds.

**The states of Delaware (1,444 pounds in 2012) and North Carolina (227 pounds in 2012) have requested *de minimis status* for the 2013 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 North Carolina and Delaware's requests.**

## **VIII. Prioritized Research Needs**

### **Fishery-Dependent Priorities**

#### ***High***

- Initiate biological sampling of the commercial catch for each gear type over the entire range of the stock (including weight, lengths, age, sex, and discards).
- 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.

### **Fishery-Independent Priorities**

#### ***High***

- Establish standardized state by state long-term fisheries-independent surveys to monitor tautog abundance and length-frequency distributions, and to develop YOY indices.
- Continue collecting operculum from the tautog catch as the standard for biological sampling in addition to collecting paired sub-samples of otoliths and operculum.

### **Life History, Biological, and Habitat Priorities**

#### ***Moderate***

- 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 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. More clarification is required on what the southern part of the range is and to clarify the need for local and regional assessment.
- 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.



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- 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.
- 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.

### ***Low***

- 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.
- 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.

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

#### ***Low***

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

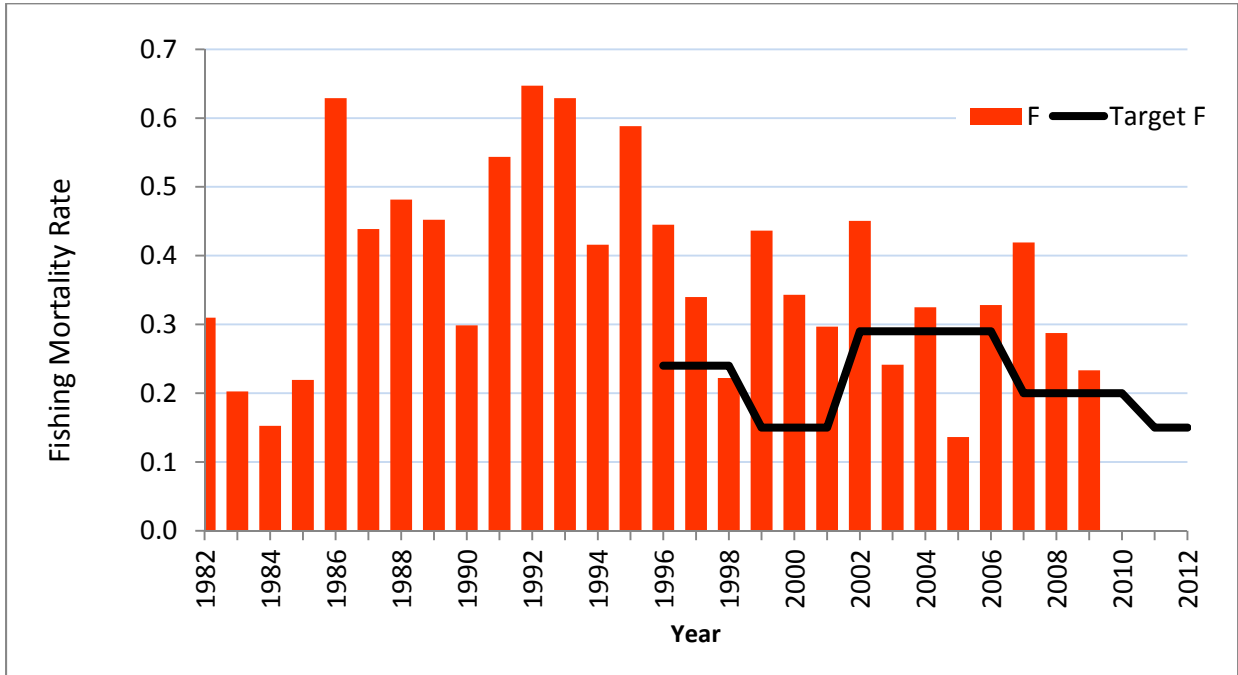
### **Tautog Research Priorities Identified as Being Met**

- ✓ Sample hard parts for annual ageing from the catches of recreational and commercial fisheries and fishery-independent surveys throughout the range of the stock (this is *being conducted by all participating states*).

## Figures & Tables

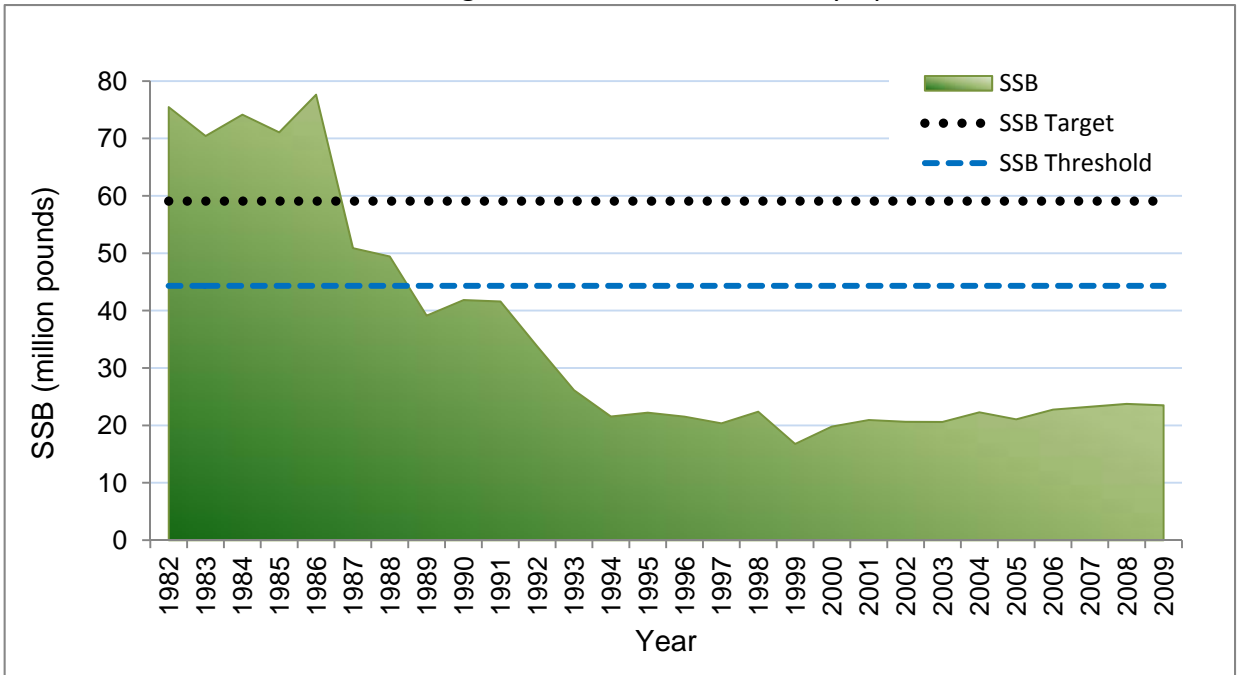
**Figure 1. Tautog Fishing Mortality Rates and Targets from 1982 – 2009.**

Sources: Revised 2011 ASMFC Tautog Stock Assessment Summary Update, Tautog FMP and addenda.



**Figure 2. Tautog Spawning Stock Biomass from 1982 – 2009.**

Source: Revised 2011 ASMFC Tautog Stock Assessment Summary Update.



**Figure 3. Total tautog harvest (recreational A+B1 and commercial, excluding discard).**

Source: NMFS, MRIP.

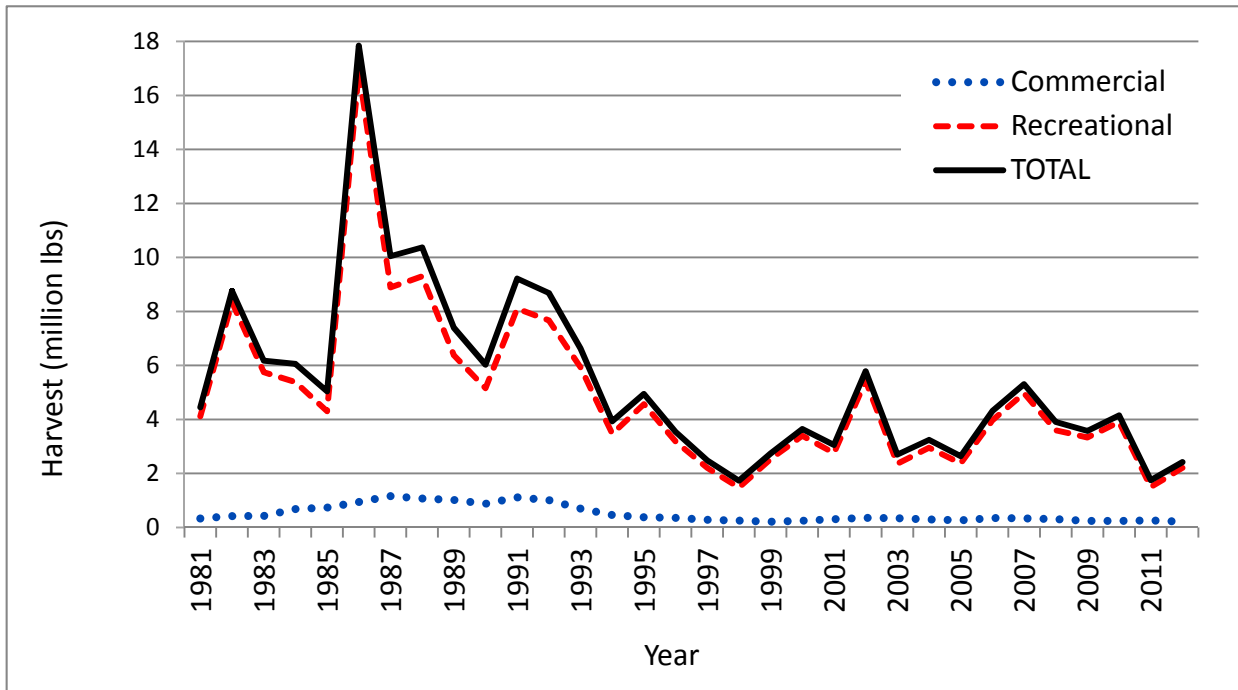
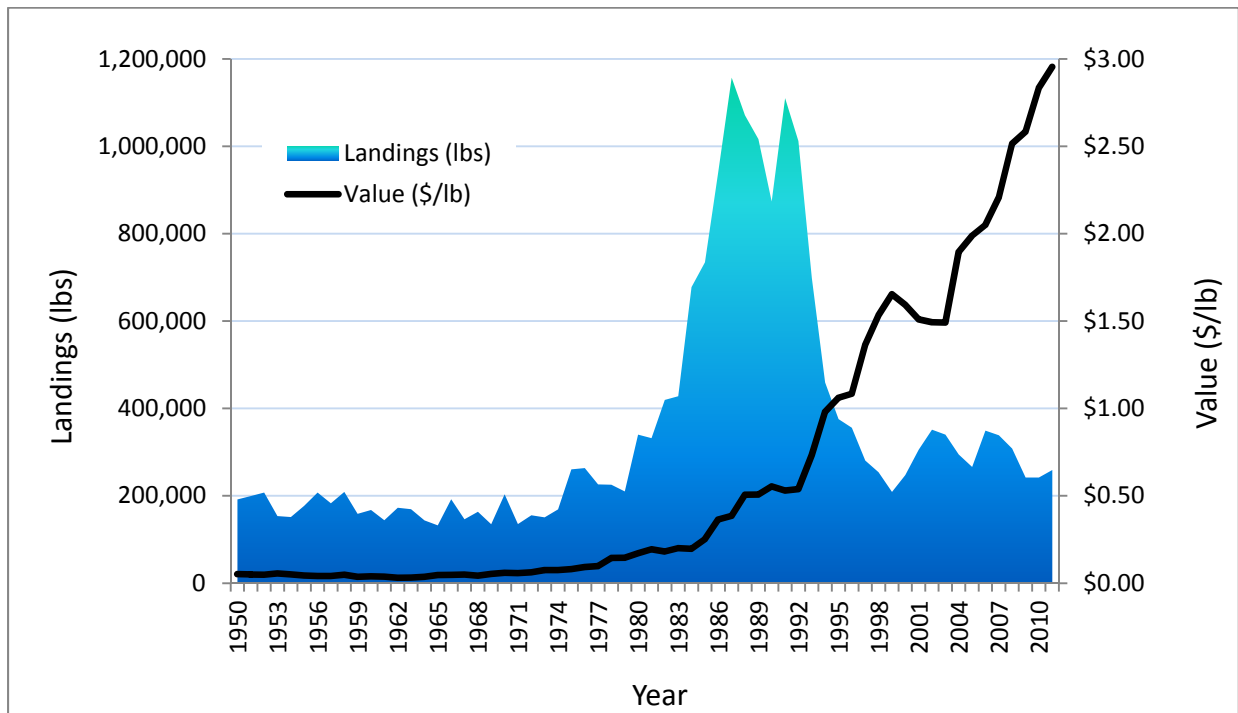


Figure 4. Changes in tautog commercial landings (lbs) and value (\$/lb) over time.  
Source: NMFS.



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**Table 1.** Tautog recreational and commercial landings from 1981 – 2012, in pounds.  
Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division, Silver Spring, MD 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	4,115,561	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%

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**Table 2.** Tautog landings by sector for 2012: percent recreational (A + B1) and commercial based on weight.

<b>State</b>	<b>Recreational (A+B1) (%)</b>	<b>Commercial Landings (%)</b>
Connecticut	99.4	0.6
Delaware	99.1	0.9
Maryland	94.2	5.8
Massachusetts	58.3	41.7
New Jersey	96.3	3.7
New York	77.5	22.5
North Carolina	98.1	1.9
Rhode Island	91.4	8.6
Virginia	78.6	21.4
Coastwide	91.2	8.8

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**Table 3.** Recreational harvest (A+B1) for tautog in number of fish, 1981-2012 (MRIP).

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

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**Table 4. Recreational harvest (A + B1) for tautog in pounds, by state, 1981-2012.** Data for 2012 is final (MRIP).

Source: personal communication from the National Marine Fisheries Service, Fisheries Statistics Division, Marine Recreational Information Program, Silver Spring, MD. 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	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

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**Table 5. Commercial landings for tautog in pounds, by state, 1981-2012.**

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



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**Table 6. 2012 Recreational Tautog Regulations**

<b>STATE</b>	<b>SIZE LIMIT (inches)</b>	<b>POSSESSION LIMITS (number of fish/ person/ day)</b>	<b>OPEN SEASONS</b>
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 15
			Sept 24 - Dec 31
North Carolina	-	-	-

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**Table 7. 2012 commercial regulations pertaining to tautog.**

<b>STATE</b>	<b>SIZE LIMIT</b>	<b>POSSESSION LIMITS</b> (number of fish)	<b>OPEN SEASONS</b>	<b>QUOTA</b> (pounds)	<b>GEAR RESTRICTIONS*</b>
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	51,348 (17,116 per period)	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 17 Mar 16 – Apr 30 Nov 13 – Dec 31	-	Mandatory pot requirements. Pots prohibited in tidal waters.
North Carolina	-	-	-	-	Mandatory pot requirements.

\* Please see State Compliance Reports for additional details.

\*\* Massachusetts' base commercial quota of 64,753 lbs was reduced by the 2011 overage of 3,573 lbs for a 2012 quota of 61,180 lbs.

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**Table 8. Number of age/length samples by state in 2012.** Addendum III requires all states to collect 200 samples per year.

Source: State compliance reports

State	2012 Samples
MA	256
RI	134
CT	131
NY	66
NJ	246
DE	~ 500
MD	248
VA	199
NC	3

**Table 9. 2012 total harvest compared to the 2008-2009 average total harvest (commercial + recreational A+B1) in numbers of fish.** Commercial harvest was calculated by converting 2008-2009 average total weight (lbs) for each state by the average weight per fish harvested by its recreational fishery in 2012. North Carolina's harvest was not included, since its data was not used in the 2005 stock assessment.

Source: NMFS, MRIP

State	2008-2009 Average Total Harvest (number of fish)	2012 Total Harvest (number of fish)	% change from 2008-2009 Ave Total Harvest
Connecticut	131,549	195,213	48.40
Delaware	111,468	45,200	-59.45
Maryland	29,282	5,535	-81.10
Massachusetts	49,038	42,563	-13.20
New Jersey	162,630	31,873	-80.40
New York	355,847	74,983	-78.93
Rhode Island	106,064	114,215	7.69
Virginia	61,055	17,709	-70.99
<b>Coastwide</b>	<b>1,006,932</b>	<b>527,293</b>	<b>-52.72</b>



*Martin O'Malley, Governor*  
*Anthony G. Brown, Lt. Governor*  
*John R. Griffin, Secretary*  
*Joseph P. Gill, Deputy Secretary*

## Proposal to Adjust MD's Tautog Recreational Size Limit to 15 Inches

In November 2011, ASMFC Tautog Management Board approved changes to Maryland's management regulations developed to achieve a 49% reduction in exploitation required by Addendum VI. Options proposed in this document were calculated per the methodology approved by the Technical Committee guidance document prepared in May 2011, which was given a 'risk neutral' rating by the ASMFC Tautog TC in September 2011.

In March, 2012, the Board agreed that corrections to the coast-wide assessment update would allow states to take a 39% reduction to the harvest. Current Maryland regulations and percent savings for each measure, after making adjustments to meet the required reduction of 39% reduction in harvest, are presented in Tables 1 and 2. These regulations apply to both the recreational and commercial fisheries.

Preliminary 2012 MRIP estimates of tautog harvest under Maryland's 2012 regulations show a significant reduction in the harvest (A+B1) to a historically low level (5,012 fish, PSE=69.6), an increase in discards, and a very significant increase in the discarded/kept fish ratio. Specifically, the harvest in numbers of fish in 2012 declined by 81% from the average of the 2008 and 2009 harvest used as a reference period in original proposal. The harvest in 2012 declined by 82% relative to the average of 2000 -2011 Maryland tautog harvest. The ratio of discarded and kept fish in 2012 has risen to 21.6, while the 2000-2011 average ratio was 6.25 (Table 4, Figure 1).

Maryland Department of Natural Resources Fisheries Service received numerous comments from recreational anglers regarding the inability to catch a legal size fish, while having to release a large number of undersized fish. Considering MRIP survey results and Maryland constituency reports, Fisheries Service concluded that new regulations adopted in 2012 resulted in a much more significant reduction in harvest than expected. While this reduction was likely to result in increased population abundance, it appears to have been excessively restrictive.

Based on the analysis or the available data, **Maryland DNR proposes a reduction of the minimum size for all seasons from 16 to 15 inches**, while maintaining current bag and season limits (4 fish during the period of January 1 to May 15, 2 fish during May 16 to Oct. 31, and 4 fish during November 1 to 26). According to the original table of percent savings as a function of minimum size (Table 3), the increase of minimum size from 14 to 15 inches is expected to produce 28.83% savings in numbers of harvested fish and increase from 14 to 16 inches is expected to produce 36.27% of savings.

Based on these numbers, the harvest at a 15-inch minimum size is expected to be  $(100 - 28.83)/(100 - 36.17) = 111.5\%$  of harvest under the 16-inch minimum size, an 11.5 % increase. Since the total Maryland harvest in 2012 with the 16-inch minimum size in effect was estimated at 5,012, the 2012 harvest under 15 inch minimum size would have been  $5,012 * 1.115 = 5,588$  fish, significantly below the expected harvest of 17,413 tautog based on average 2008-09 harvest and 39% target reduction. While the actual number might deviate from theoretical calculations, there is a substantial buffer between the expected harvest (5,588) and the target harvest (17,413) that equates to 39% reduction. Based on these calculations, **Maryland believes that proposed changes in regulations will continue to comply with Addendum VI requirements.**

Table 1. Maryland Recreational and Commercial Tautog Regulations

Regulations Effective Date	Size	Season	Creel
2008-2011	14 inches	May 16 <sup>th</sup> – October 31	2 fish
2008-2011	14 inches	January 1 – May 15 <sup>th</sup> , and November 1 – November 30	4 fish
2012 - 2013	16 inches	January 1 – May 15 <sup>th</sup> , and November 1 – November 26	4 fish
2012 – 2013	16 inches	May 16 <sup>th</sup> – October 31	2 fish

Table 2. Percent Harvest Reduction for each Measure used in 2011 MD proposal to establish Maryland regulations to achieve Addendum VI target;

Total Reduction $X + \{(1-X) * Y\}$	Original Reduction (48%)	Corrected Reduction (39%),
X (Season)	0.186 (15 day closure)	0.0496 ( Four day closure)
Y (Size/Bag)	36.17 (16" size)	36.17 (16" size)

Table 3. Percent reduction calculations used in original MD proposal in 2011 to estimate required bag limits and season closures to achieve target % harvest reduction.

$$\text{Total reduction} = X + \{(1-X) * Y\}$$

Where X = season closure, Y= size/bag reduction

Parameters

X =	0.0496 (4 days reduction)
Y=	0.3617

**% Reduction 39.3**

**4 Fish bag limit - Waves 2 and 6**

Percent reduction							
Bag size	14	14.5	15	15.5	16	16.5	17
1	9.41%	9.58%	16.51%	16.51%	16.64%	27.90%	38.68%
2	2.80%	4.94%	15.76%	15.78%	15.99%	27.29%	38.16%
3	0.32%	4.44%	15.27%	15.36%	15.62%	27.01%	37.96%
4	0.00%	4.13%	15.00%	15.12%	15.44%	26.88%	37.89%

**2 Fish bag limit - Waves 3, 4, and 5**

Percent reduction							
Bag size	14	14.5	15	15.5	16	16.5	17
1	7.00%	7.00%	14.01%	19.94%	20.90%	21.25%	21.74%
2	0.00%	6.83%	13.84%	19.76%	20.73%	21.08%	21.74%
<b>Sum</b>	<b>0.00%</b>	<b>10.96%</b>	<b>28.83%</b>	<b>34.89%</b>	<b>36.17%</b>	<b>47.96%</b>	<b>59.63%</b>

Estimated seasonal harvest reductions expressed as a proportion of total harvest per wave day rates.

Wave	1	2	3	4	5	6
<b>MD</b>	0	0.002	0.0062	0	0.0022	0.0124
Total days in Wave		61	61	62	60	30
Days reduced in Wave		0		0		4
Total wave reduction		0	0	0	0	0.0496

Table 4. Tautog recreational harvest and discards in MD.

Year	Total Harvest (A+B1)	PSE	Released Alive (B2)	PSE	released/kept ratio
2000	20,129	50.3	128,284	29.7	6.37
2001	23,715	40.9	137,821	30.1	5.81
2002	42,038	29.2	294,850	30.8	7.01
2003	13,555	31.4	96,365	31.1	7.11
2004	8,690	75.6	23,681	47.6	2.73
2005	28,129	41.2	147,401	38.6	5.24
2006	14,894	49.9	186,462	53	12.52
2007	43,308	37.4	178,029	59.7	4.11
2008	19,128	42.3	151,035	74.1	7.90
2009	37,963	32.5	132,545	30.5	3.49
2010	57,338	29	361,392	34.7	6.30
2011	11,853	35.5	76,120	31.4	6.42
<b>2012</b>	<b>5,012</b>	<b>69.6</b>	<b>108,340</b>	<b>43.9</b>	<b>21.62</b>
08-09 average	28,546		141,790		5.69
2000-2011 average	26,728		159,499		6.25

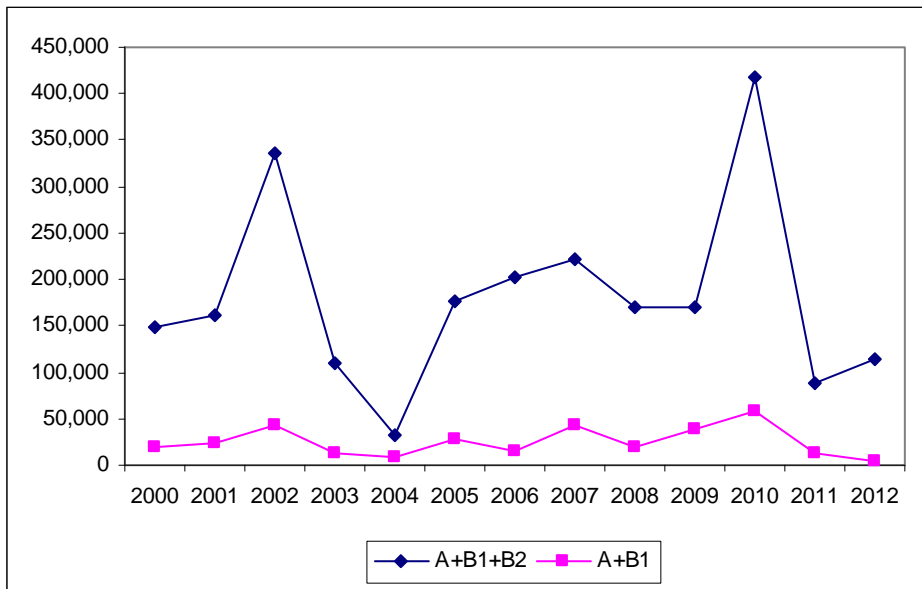


Figure 1. Tautog recreational harvest and discards in MD.



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## Maryland's Recreational Regulations Proposal

### Tautog Technical Committee

#### Conference Call Summary

May 7 and May 14, 2013

#### Technical Committee Members:

Jason McNamee (TC Chair, RI DEM)  
Paul Caruso (MA DMF)  
Linda Barry (NJ DFW)  
Joe Cimino (VMRC)

Sandra Dumais (NY DEC)  
Scott Newlin (DE DFW)  
Alexei Sharov (MD DNR)  
Tom Wadsworth (NC DENR)

#### ASMFC Staff:

Melissa Yuen, Fishery Management Plan Coordinator  
Katie Drew, Stock Assessment Scientist

#### Summary

Maryland Department of Natural Resources (MD DNR) submitted a proposal to lower its recreational size limit for tautog from the current 16 inches to 15 inches. It seeks approval/validation from the TC that the proposed change will continue to be consistent with Addendum VI's required 39% coastwide reduction in exploitation. The Tautog Technical Committee (TC) held two conference calls to discuss MD DNR's proposed regulation and supporting data. A majority of the TC will provide a contingent approval for the proposal because the proposed 15-inch size limit does adhere to the addendum's requirement based on a new analysis of the previous reduction calculations for that state. A minority of the TC was not support the proposal, citing that effort data, and the potential for a change in effort in the future, was not considered.

The TC wanted to make an additional point for the Board's consideration. The TC cautions that an approval by the Board of the modified reduction plan may set a precedent for making regulatory changes. The tautog FMP has not previously operated on an annual conservation equivalency strategy (i.e. the program for summer flounder), nor does it have the annually updated stock assessment to support such a program, so the approval of the amended MD plan would be setting forth a new and unique precedent. This could lead to additional states requesting similar action.

## **Background**

Following the 2011 stock assessment update, which found that the coastwide stock of tautog was overfished and experiencing overfishing, Addendum VI (April 2011) was implemented to set the target fishing mortality rate (F) at 0.15. This  $F_{\text{target}}$  is projected to rebuild spawning stock biomass (SSB) to 17,424 MT by 2015. To achieve  $F_{\text{target}}$ , a 39% coastwide reduction in exploitation was required by all states in the management range by January 1, 2012. States can implement regulations in the commercial and/or recreational sector. Addendum VI also allowed for regional considerations if a state or group of states can demonstrate that the local/regional F is below the rates indicated in the stock assessment update. Each state must submit a proposal to be reviewed by the TC and approved by the Board.

To meet the 39% reduction, Maryland implemented commercial and recreational management measures by tightening size limits and adjusting seasons. The size limits for both sectors was increased from 14" to 16" for the 2012 fishing season (Table 1). MD DNR found that harvest in 2012 declined by 82% relative to the state's 2000-2011 average harvest. In addition, MD DNR received many comments from recreational fishermen requesting a less stringent size limit. Therefore, MD DNR submitted a proposal for reducing the size limit to 15" and provided an estimated harvest level at the 15" minimum size limit using MRIP data. They concluded that a 15" size limit will continue to comply with Addendum VI requirements.

*Table 1. Recreational and Commercial Size Limits for Tautog, Fishing Years 2011 and 2012 for each state.*

<b>State Regulations for Tautog Minimum Size Limits (Inches)</b>				
	<b>Commercial</b>		<b>Recreational</b>	
<b>State</b>	<b>2011</b>	<b>2012</b>	<b>2011</b>	<b>2012</b>
Massachusetts	16	16	16	16
Rhode Island	16	16	16	16
Connecticut	14	16	14	16
New York	14	15	14	16
New Jersey	14	15	14	15
Delaware	14 (15" from April– May 11)	16	14 (15" from April-May11)	16
Maryland	14	16	14	16
Virginia	14	15	14	16



### **TC Analysis of MD DNR's Proposal**

The TC reviewed the proposal, supporting data, and methodology used for making the case for a minimum size limit of 15", and raised the following points of concern.

1. Reductions in landings may be due to reductions in effort, not the 16-inch size limit. In fact, other states, such as Virginia, New Jersey, and New York, also saw significant reductions in harvest for a variety of reasons (ex. Hurricane Sandy). Following this logic, this can set a precedent in which other states can propose to adjust their regulations.
2. There are concerns about the validity of presented data, which used the MRFSS data from 2011's proposed regulations that MD submitted for compliance with Addendum VI. Recreational landings would differ depending on whether MRFSS or MRIP data is used to estimate harvest. Both have very high PSEs (particularly for tautog due to the nature of the fishery and data collection intercept protocols). However, it was noted that for Maryland, the estimated landings are subject to high inter-annual variance, particularly for one year's worth of data. Still, using either MRFSS or MRIP data is below the target level needed to meet the reduction as required by Addendum VI.
3. Another note on the precision of the estimates was that even if you increased the point estimate by 50%, the MD harvest value would continue to be below the reduction necessary to meet Addendum VI requirements.
4. Tautog is currently undergoing a stock assessment that is scheduled for peer review in summer of 2014. The new assessment's status determination will likely result in another set of management measure changes. There would, however, be an additional year between now and when any potential management changes from the new assessment would be required. Therefore the TC requested that were an approval to be given, the regulations in this proposal would be in effect for one year at which point they should be re-evaluated and any necessary adjustments should be made if harvest increased dramatically.
5. One final discussion the group had was whether MD DNR could review the length frequency information available for 2012 from the MRIP type 9 intercepts. After discussion the group decided that this was not directly applicable to the reference period (i.e. the proposal submitted by MD DNR in 2011) from which the reduction was calculated and was therefore not useful as a metric of potential harvest increases in subsequent years resulting from a lower (15 inch) size limit.
6. The TC noted that the target reduction should be 17,413 fish, not 16,034 as stated in the original proposal. MD DNR has corrected this in a revised proposal (dated May 7).

## **Conclusion**

The TC's responsibility is to focus on the technical aspect of the proposal. The TC was split in its review of the proposal. Most TC members approved of MD DNR's proposed regulation change to a minimum size limit of 15", which should continue to meet the required 39% reduction in exploitation based on a new analysis of the previous calculations made by the MD TC member. However, a minority of the TC membership have reservations about the proposal, particularly because the variance in effort has not been considered. There are problems with the uncertainty of data used to estimate recreational harvest. The TC recommends for MD DNR to correct their target harvest level and, if the proposal gets approved (see above, #6), review their harvest in one year (early 2014) to assess whether the required reduction per Addendum VI is still being met or if an adjustment is needed. The TC cautions that it is not normal practice to revisit regulations outside of an addendum process for tautog and may prompt additional states to avail themselves of the same opportunity.