



Introduction

This document provides an overview of the 2025 stock assessment update for tautog (*Tautoga onitis*), which includes four regional stock assessments. The update uses the assessment methodology that was approved for management use as part of the 2016 Regional Benchmark Stock Assessment and subsequently used in the 2017 and 2021 updates. The following overview provides a mix of general information that applies to all four regional assessments and region-specific information that covers stock status and landings.

Management Overview

Currently, tautog is managed under Amendment 1 (2017) to the Fishery Management Plan. Amendment 1 delineated the stock into four regions due to differences in biology and fishery characteristics, and limited coastwide movement: Massachusetts–Rhode Island (MARI), Long Island Sound (LIS), New Jersey–New York Bight (NJ-NYB), and Delaware–Maryland–Virginia (DMV). Amendment 1 established new regional biological reference points, fishing mortality targets, and stock rebuilding schedules. The Amendment requires each region to implement measures that have at least a 50% probability of achieving the regional fishing mortality target. If the current fishing mortality exceeds the regional threshold, the Board must initiate corrective action within one year.

Amendment 1 required the LIS region to reduce harvest by at least 20.3%, and the NJ-NYB region to reduce harvest by at least 2% in response to 2017 assessment update, which found that all regions except MARI were overfished, and overfishing was occurring in the LIS and NJ-NYB regions. The MARI and DMV regions were not required to reduce harvest but adjusted their regulations to establish consistent measures across all the states within each region where possible.

Additionally, Amendment 1 established a commercial harvest tagging program to address the pervasive issue of illegal harvest of undersized and unreported tautog. Under the tagging program, all states within the management unit must require commercially permitted harvesters to tag all tautog at the time of harvest or prior to offloading. Tautog must be landed in the state that is identified on the tag. The selected tags are non-lethal and are applied to fish intended for both live and fresh markets. State implementation of the tagging program began in 2020.

What Data Were Used?

The assessment update used both fishery-dependent and independent data as well as information about tautog biology and life history. Fishery-dependent data come from commercial and recreational fisheries, while fishery-independent data are collected through scientific research and surveys.

Life History

Tautog are a species of wrasse found on the Atlantic coast. Unlike most wrasse species, which inhabit tropical waters, tautog are most abundant from the southern Gulf of

Maine (lower Massachusetts Bay and southern Cape Cod Bay) to Chesapeake Bay. Like their warm-water cousins, they are very structure-oriented and prefer to live on rocky reefs. Tagging data suggest tautog may make some offshore migrations during colder weather, but they do not make extensive north-south migrations along the coast. In fact, some tautog have been recaptured multiple times on the same reef. Because of this, tautog are assessed as four separate, regional stocks: MARI, LIS, NJ-NYB, and DMV. The stock boundaries were determined by life history information and exploitation patterns.

Age and growth studies indicate tautog are slow-growing and long-lived. Fish as old as 30 years have been caught in Rhode Island, Connecticut, and Virginia, but most of the fish caught are 4 to 8 years old. The largest record catch was 28 pounds.

Commercial and Recreational Data

While tautog are targeted by both commercial and recreational fisheries, over 90% of the total harvest comes from the recreational fishery. Total catch included estimates of recreational landings and discards from the Marine Recreational Information Program (MRIP) conducted by NOAA Fisheries, and commercial landings from the Atlantic Coast Cooperative Statistics Program (ACCSP) Data Warehouse. Tautog are not well-sampled by MRIP, resulting in higher percent standard errors (as high as 40% for some regions even in some recent years) and large year-to-year swings in catch estimates. More detailed information on recreational catch and commercial landings can be found under each region's section.

Because collection of age data began at different times in each of the regions, the MARI assessment starts in 1982, the LIS in 1984, the NJ-NYB in 1989, and the DMV in 1990. All regional assessments use data through 2024, the most recent year of available catch and index data.

Indices of Abundance

Tautog are not easily sampled by standard trawl-based fishery independent surveys, because it's hard to trawl over their preferred habitat of rocky reefs. The assessments investigated fishery-independent surveys from Massachusetts through Maryland, and each region used fishery-independent indices specific to that region.

In addition, regional fishery-dependent indices of abundance (catch per unit effort, CPUE) were developed from the MRIP intercept data.

What Models Were Used?

The previous assessment update completed in 2021 was based on the accepted statistical catch-at-age (ASAP) model run from 1990 to 2020. The 2025 update included four more years of data on catch, age structure and index of abundance, but continued to use the same previously accepted model structure and estimation process. ASAP is a statistical catch-at-age model that estimates annual fishing mortality, recruitment, and population size from catch-at-age data and indices of abundance.

Status of the Stock in a Snapshot

Spawning stock biomass (SSB) and fishing mortality (F) reference points for all four regions were updated during the assessment (see below table). Stock status varied across the regions. Tautog were not overfished nor experiencing overfishing in MARI and LIS; not overfished but experiencing overfishing in NJ-NYB; and overfished and experiencing overfishing in DMV. Stock status remained unchanged for the MARI and LIS regions from the 2021 update but did change for the NJ-NYB and DMV regions. The NJ-NYB

region went from being overfished but not experiencing overfishing in the 2021 update to not being overfished but experiencing overfishing in this update. The DMV region was previously not overfished nor experiencing overfishing but was considered overfished and experiencing overfishing in the 2025 update. Based on ASMFC’s formal criteria, all four regions required an adjustment of SSB and 3-year average F in the terminal year to adjust for the retrospective pattern in the assessment.

Since the 2021 update, fishing mortality has increased in all four regions. Recruitment has been high in recent years for the LIS, NJ-NYB, and DMV regions, but has declined in the MARI region. SSB has been increasing in the LIS, NJ-NYB, and DMV regions in recent years as well, although it is still below the threshold in the DMV. SSB has been above the target and relatively flat in the MARI region.

Stock Status of Tautog in the MARI, LIS, NJ-NYB, and DMV Regions

Spawning Stock Biomass				
Region	Target	Threshold	2024	Status
MARI	6,143 mt	4,595 mt	9,572 mt	Not overfished
LIS	9,799 mt	7,349 mt	13,718 mt	Not overfished
NJ-NYB	7,910 mt	5,929 mt	7,900 mt	Not overfished
DMV	4,400 mt	3,236 mt	2,687 mt	Overfished

Retrospective adjustment applied to 2024 SSB for all regions

Fishing Mortality				
Region	Target	Threshold	2024	Status
MARI	0.27	0.46	0.26	Not overfishing
LIS	0.25	0.35	0.25	Not overfishing
NJ-NYB	0.20	0.33	0.44	Overfishing
DMV	0.18	0.29	0.36	Overfishing

Retrospective adjustment applied to 2024 F for all regions.

What is a retrospective pattern?

As we add more years of data to an assessment, our estimates of SSB and F in the most recent years can change as we get more information on what happened to the stock. Since we don’t want to wait until the next assessment to understand that potential source of uncertainty, we perform a *retrospective analysis*, where we drop one year of data at a time and re-run the model. For example, for tautog, our last year of data was 2024, so we ran the model again but stopped in 2023, then ran it again but stopped in 2022, and so on. Then we can compare the estimates of SSB and F in 2020, for example, from the model that stopped in 2020 to the estimates from the models that stopped in 2021, 2022, 2023, and 2024. If adding more years of data consistently makes the estimates higher or lower, we call that a *retrospective pattern*. Retrospective patterns are common in these types of assessments, and we have a set of criteria to evaluate whether the pattern is significant enough to adjust the estimates of SSB and F in the last year of the assessment based on whether the retrospective analysis indicates we are over- or underestimating those values. For tautog, all four regions had a significant enough pattern to warrant an adjustment. For the MARI, LIS, and NJ-NYB region, the pattern indicated the model was underestimating SSB and overestimating F , while in the DMV, the model was overestimating SSB and underestimating F .

Region-specific Overviews of Landings and Population Trends

Massachusetts-Rhode Island

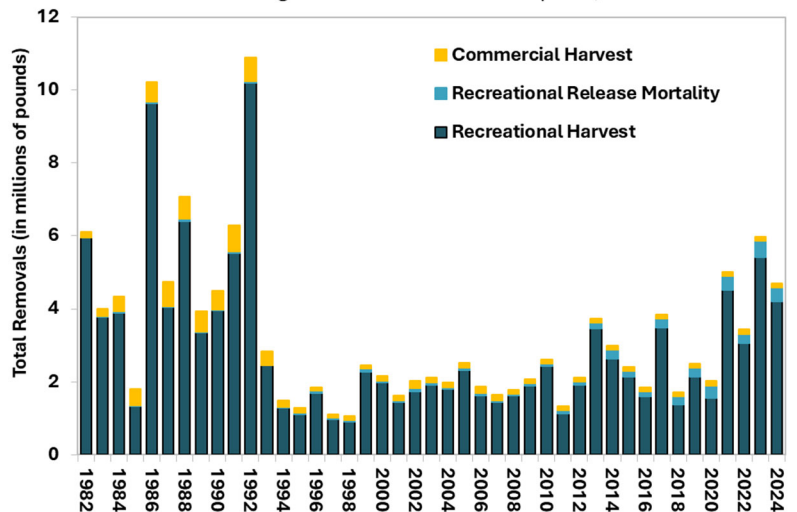
In the MARI region, the tautog fishery is primarily recreational with recreational removals accounting for 93% of the total removals with a series high of 98% in 2023. Total removals have doubled since the last assessment update, going from an average of 2.4 million pounds from 2016-2020 to an average of 4.8 million pounds for 2021-2024. This increase was driven by increases in recreational landings for the region, along with increases in recreational releases. Commercial landings have remained relatively stable over this time period.

Fishery-independent indices used for the MARI region include two adult surveys: the MA Trawl Survey and the RI Fall Trawl Survey, and one young-of-year (YOY) survey: RI Narragansett Bay Seine. The assessment also used a region-specific MRIP CPUE index of adult abundance. The index in recent years (2020–2024) is the highest observed since 1996.

Tautog in MARI are not overfished and not experiencing overfishing. In 2024, SSB was estimated at 21.1 million pounds, above the SSB target and threshold. The three-year average of fishing mortality (F) was estimated at 0.26, below the $F_{\text{THRESHOLD}}$.

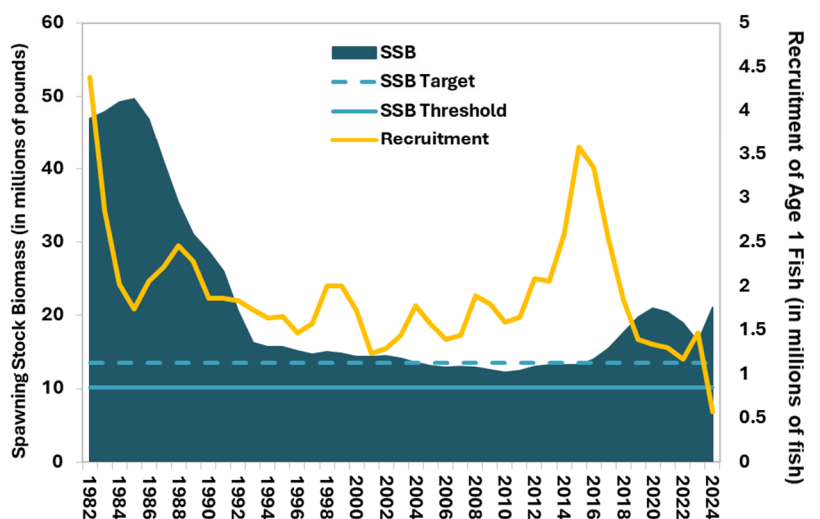
Total Removals by Sector for the MARI Region

Source: Regional Stock Assessment Update, 2025



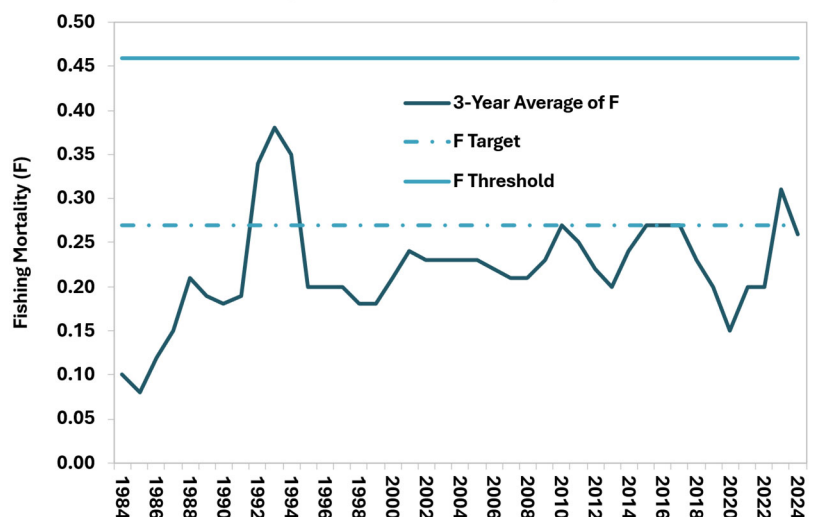
Spawning Stock Biomass & Recruitment for the MARI Region

Source: Regional Stock Assessment Update, 2025



3-Year Average of Fishing Mortality for the MARI Region

Source: Regional Stock Assessment Update, 2025



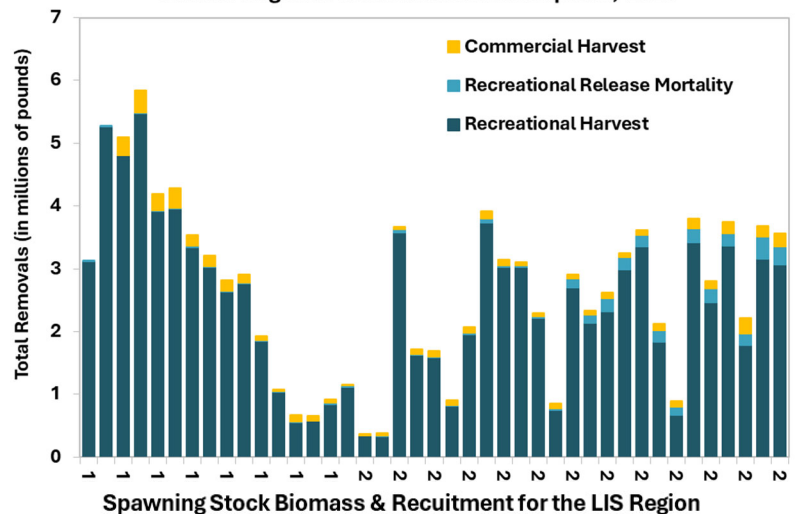
Long Island Sound

The tautog fishery in the LIS region is predominantly recreational. Harvest has remained relatively stable since 2007, with years of low harvest in 2011 and 2018. Total removals have increased since the last assessment update, averaging 2.6 million pounds from 2016-2020 and 3.3 million pounds from 2021-2024. Recreational release mortality has become a higher proportion of total removals since 2021, with 2024 having the highest number of recreational discard mortality. Commercial harvest remains a small portion of overall mortality. Commercial harvest was highest in the 1980s before declining to a series low in 1999. However, commercial harvest has been higher in 2021-2024, including a 4-year high of approximately 241,448 pounds in 2022, which is similar to commercial harvest in the 1980s.

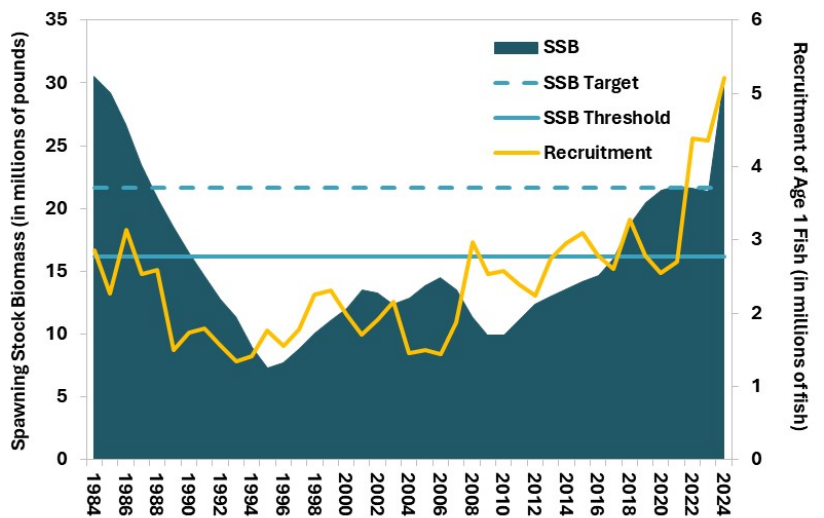
Fishery-independent indices used for the LIS region include one adult survey: the CT-LIS Trawl Survey, and two YOY surveys: NY Peconic Bay Trawl Survey and the NY YOY Seine Survey. The assessment also used a region-specific MRIP CPUE index of adult abundance, which was high and somewhat variable at the beginning of the series before declining through the mid-1990s to lower, stable, levels throughout the 2000s. The index increased from 2021 to 2024.

Tautog in the LIS region are not overfished and not experiencing overfishing. In 2024, SSB was estimated at 30.2 million pounds, above the SSB threshold and target. The three-year average of fishing mortality was estimated at 0.25, below the $F_{\text{THRESHOLD}}$, although still above the F_{TARGET} .

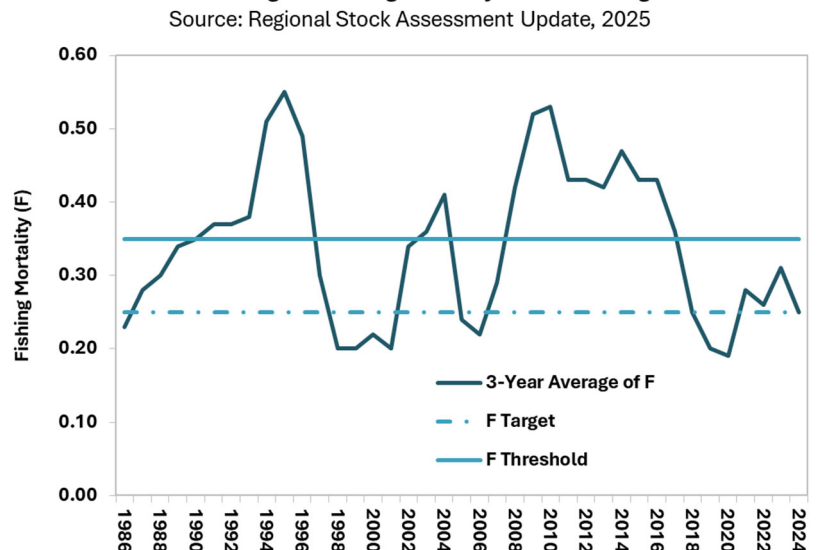
Total Removals by Sector for LIS Region
Source: Regional Stock Assessment Update, 2025



Spawning Stock Biomass & Recruitment for the LIS Region
Source: Regional Stock Assessment Update, 2025



3-Year Average of Fishing Mortality for the LIS Region
Source: Regional Stock Assessment Update, 2025



New Jersey-New York Bight

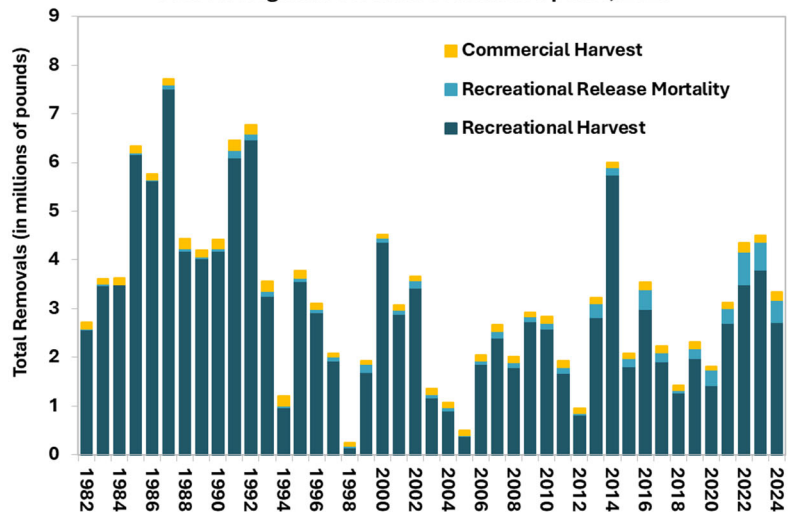
The tautog fishery in the NJ-NYB region is predominantly recreational. Total removals have increased significantly since the last assessment, averaging 3.8 million pounds from 2021-2024 compared to an average of 2.3 million pounds for 2016-2020. There was a peak in estimated recreational release mortality in 2022, with 2021-2024 overall showing an increased proportion of release mortality to total recreational removals. Commercial landings remained a small component of overall removals, but also showed an increasing trend over this time period.

Fishery-independent indices used for the NJ-NYB region include one adult survey: the NJ DEP Ocean Trawl Survey, and one YOY survey: the NYSDEC Western Long Island Seine Survey. The assessment also used a region-specific MRIP CPUE index of adult abundance. The MRIP CPUE has increased markedly from 2021 onward.

Tautog in the NJ-NYB region are not overfished but are experiencing overfishing.

In 2024, SSB was estimated at 17.4 million pounds, above the $SSB_{THRESHOLD}$ and slightly below the target. The three-year average of fishing mortality was estimated at 0.44, above the $F_{threshold}$.

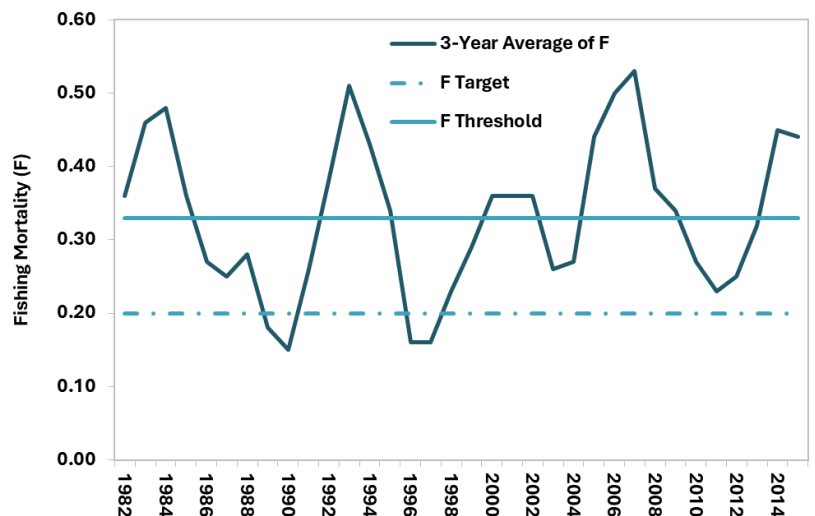
Total Removals by Sector for NJ-NYB Region
Source: Regional Stock Assessment Update, 2025



Spawning Stock Biomass & Recruitment for the NJ-NYB Region
Source: Regional Stock Assessment Update, 2025



3-Year Average of Fishing Mortality for the NJ-NYB Region
Source: Regional Stock Assessment Update, 2025



DelMarVa

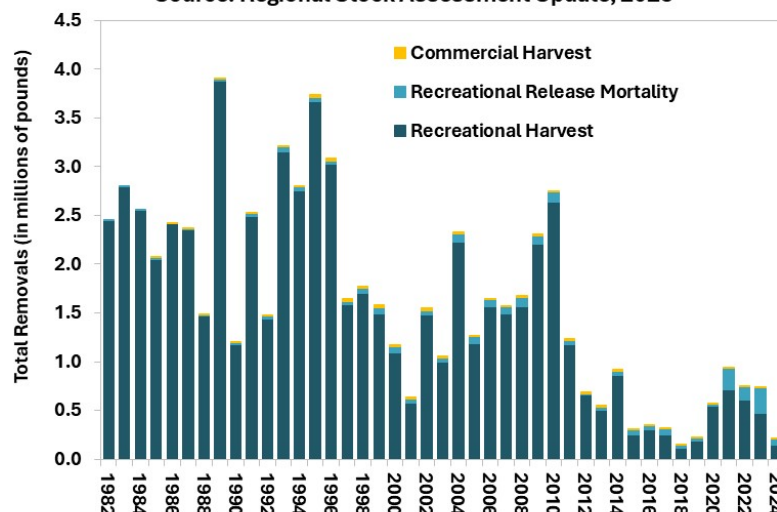
The tautog fishery in the DMV region is predominantly recreational, as in the other regions. Total removals of tautog for the DMV region have been variable but generally declining, reaching a time-series low of 147,730 pounds in 2018. Total removals have increased since the last assessment going from an average of 320,730 pounds from 2016-2020 to an average of 656,150 pounds for 2021-2024. Commercial landings were relatively steady over this time period and made up less than 1% of total removals for 2021-2024.

No fishery-independent indices of abundance were available for the DMV region, but the assessment was able to use a region-specific MRIP CPUE index of adult abundance. The MRIP index in 2021-2024 showed a substantial increase compared to the variable but lower average in prior years.

Tautog in the DMV region are overfished and experiencing overfishing. In 2024, SSB was estimated at 5.9 million pounds, below the $SSB_{THRESHOLD}$. The three-year average of fishing mortality was estimated at 0.36, above the $F_{THRESHOLD}$.

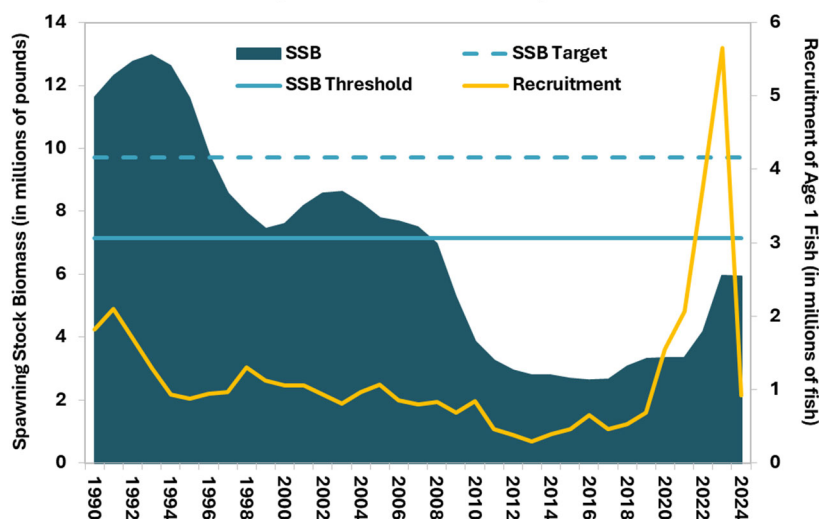
This was a change from the previous assessment update, which indicated that the stock was not overfished or experiencing overfishing. However, this change is likely due to the significant retrospective pattern in the assessment, which suggests that the 2021 update overestimated SSB and underestimated F in the last few years of the assessment.

Total Removals by Sector for DMV Region
Source: Regional Stock Assessment Update, 2025



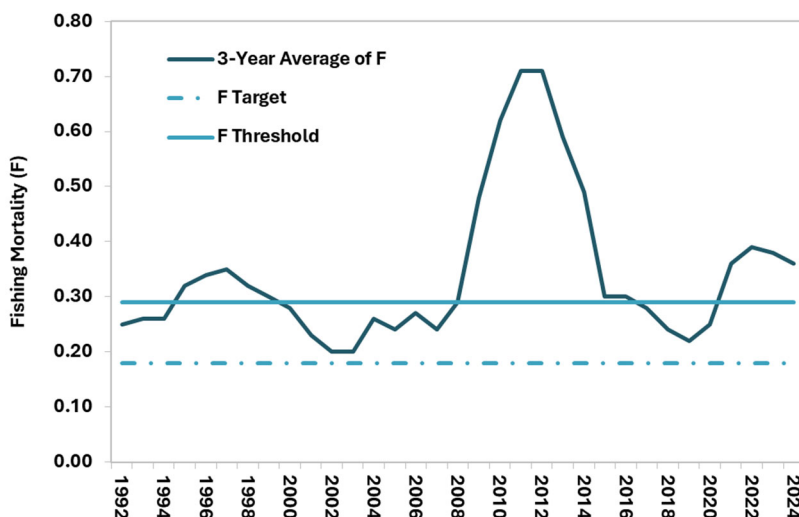
Spawning Stock Biomass & Recruitment for the DMV Region

Source: Regional Stock Assessment Update, 2025



3-Year Average of Fishing Mortality for the DMV Region

Source: Regional Stock Assessment Update, 2025



Data and Research Needs

Developing a fishery-independent index for tautog in the DMV is a high priority research recommendation. Since the last benchmark two have been started: MD DNR has started a seagrass survey that has the potential to serve as a YOY index for tautog and DE DFW has started a ventless trap survey that catches fish from a wide size range, which has the potential to serve as an additional index of abundance. The Tautog Stock Assessment Subcommittee recommends that these surveys be continued and considered for use in the next benchmark.

Understanding the sources of the retrospective pattern in each region and eliminating it is a high priority for the next benchmark assessment. Additionally, there is a need to improve the precision of the recreational harvest. Recreational harvest estimates for tautog in the DMV area often have high PSE estimates, which indicates the need for higher sampling rates to intercept more trips that have tautog in the harvest. Winter months are poorly sampled due to the lack of sampling in wave 1 and low sampling effort in waves 2 and 6. For hire trips sampling should be also a high priority during those waves. There is either no sampling of commercial catch, or very low sampling.

Furthermore, there is a need to improve the data on size structure of the commercial catch and the level of discards, as well as to update the basic biological information tautog and investigate alternative model structures.

Whom Do I Contact For More Information?

Atlantic States Marine Fisheries Commission
1050 N. Highland Street
Arlington, VA 22201
703.842.0740
info@asmfc.org

Glossary

Fishing mortality (F): the instantaneous (not annual) rate at which fish are killed by fishing

Recruitment: A measure of the weight or number of fish that enter a defined portion of the stock, such as the spawning stock or fishable stock.

Spawning Stock Biomass (SSB): The total weight of the mature females within a stock of fish; frequently used instead of total biomass as a better measure of the ability of a stock to replenish itself

Statistical catch-at-age model: an age-structured stock assessment model that works forward in time to estimate population size and fishing mortality in each year. It assumes some the catch-at-age data have a known level of error.

Young-of-the-Year (YOY): An individual fish in its first year of life; for most species, YOY are juveniles.

References

ASMFC. 2025. [Tautog Regional Stock Assessment Update](#). Atlantic States Marine Fisheries Commission, Stock Assessment Report, 488 p.

ASMFC. 2009. [Guide to Fisheries Science and Stock Assessments](#). Washington, DC.