

# ***Atlantic States Marine Fisheries Commission***

## **DRAFT ADDENDUM I TO AMENDMENT 1 OF THE TAUTOG INTERSTATE FISHERY MANAGEMENT PLAN FOR BOARD REVIEW**

### ***Regional Response to 2025 Stock Assessment Update***



**August 2026**

***This draft document was developed for Management Board review and discussion at the August 2026 meeting week. This document is not intended to solicit public comment as part of the Commission/State formal public input process. However, comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting. Also, if approved, a public comment period will be established to solicit input on the issues contained in the document.***



*Sustainably Managing Atlantic Coastal Fisheries*

**Atlantic States Marine Fisheries Commission  
Seeks Your Input on Tautog Management**

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until **TBD**. Regardless of when they were sent, comments received after that time will not be included in the official record.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction.
2. Refer comments to your state's members on the Tautog Management Board or Tautog Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

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[comments@asmfc.org](mailto:comments@asmfc.org) (subject line: Tautog Draft Addendum I)

If you have any questions please call James Boyle at 703.842.0740.

**Commission's Process and Timeline**

| <b>Date</b>                  | <b>Action</b>                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------|
| October 2025                 | Tautog Board Tasks Staff to Develop Draft Addendum I                                                |
| November 2025<br>– July 2026 | Staff Develops Draft Addendum I for Board Review                                                    |
| <b>August 2026</b>           | <b>Tautog Board Reviews Draft Addendum I and Considers Its Approval for Public Comment</b>          |
| August– October<br>2026      | Board Solicits Public Comment and States Conduct Public Hearings                                    |
| November 2026                | Board Reviews Public Comment, Selects Management Options and Considers Final Approval of Addendum I |
| TBD                          | Provisions of Addendum I are Implemented                                                            |

## 1. INTRODUCTION

The Atlantic States Marine Fisheries Commission (ASMFC) coordinates tautog (*Tautoga onitis*) management in state waters (0–3 miles from shore) under the authority of the Atlantic Coastal Fisheries Cooperative Management Act and has done so through an interstate fishery management plan (FMP) since 1996. The states of Massachusetts through Virginia have a declared interest in the fishery and are responsible for implementing management measures consistent with the FMP. Management authority in the Exclusive Economic Zone (3-200 miles from shore) lies with NOAA Fisheries.

At its October 2025 meeting, the ASMFC's Tautog Management Board (Board) approved the following motion:

*Move to initiate an addendum to respond to the 2025 Stock Assessment Update for two stock regions: NJ-NY Bight and DMV. Additionally, the addendum should also allow for the MARI and LIS regions to modify management for precautionary or alignment purposes.*

Since then, the Board has provided additional guidance on the range of options for inclusion in this draft addendum. The addendum proposes options to achieve a 50% probability of reaching the fishing mortality ( $F$ ) target in both the New Jersey-New York Bight (NJ-NYB) and Delaware-Maryland-Virginia (DMV) regions by 2030, as well as options for alignment changes in the Long Island Sound (LIS) region.

## 2. OVERVIEW

### 2.1 Statement of the Problem

#### Regional Overfishing Status

The [2025 tautog stock assessment](#) estimated that the stock is experiencing overfishing in the NJ-NYB and DMV regions (Table 1). Additionally, the DMV region stock was found to be overfished. Reductions in harvest are necessary to achieve the  $F$  target and prevent the NJ-NYB stocks from becoming overfished.

Under [Amendment 1](#), if the current  $F$  exceeds the threshold level (overfishing), then the Board must initiate corrective action through a management document within one year of receiving the overfishing status and implement measures in two years based on harvest projections requested by the Board. The Board may request projections from the Technical Committee (TC) to determine the harvest reductions necessary to have at least a 50% probability of achieving the  $F$  target in a timeframe determined by the Board. From those projections, specific measures (e.g. possession limit, minimum size, seasonal closures, quotas, etc.) are developed to achieve the necessary reductions. Because the NJ-NYB and DMV regions are both experiencing overfishing, this draft addendum presents options to reach a 50% probability of achieving the  $F$  target by 2030.

**Table 1. Stock status of tautog in the MARI, LIS, NJ-NYB, and DMV regions from the 2025 tautog stock assessment update.**

| Region                                                        | Fishing Mortality |           |      | Status          |
|---------------------------------------------------------------|-------------------|-----------|------|-----------------|
|                                                               | Target            | Threshold | 2024 |                 |
| 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     |
| <i>Retrospective adjustment applied to F for all regions.</i> |                   |           |      |                 |

| Region                                                         | Spawning Stock Biomass |           |           | Status         |
|----------------------------------------------------------------|------------------------|-----------|-----------|----------------|
|                                                                | Target                 | Threshold | 2024      |                |
| 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     | Not overfished |
| DMV                                                            | 4,400 mt               | 3,236 mt  | 2,687 mt  | Overfished     |
| <i>Retrospective adjustment applied to SSB for all regions</i> |                        |           |           |                |

### **New York Lobster Bag Limit**

Based on the 2025 assessment update, the LIS region is not overfished and overfishing is not occurring. No harvest reduction is required for the region, and the current recreational measures would remain unchanged. New York is proposing a change to its commercial measures in the LIS region to address an inconsistency in possession limits on commercial lobster vessels fishing lobster pots where there is a reduced possession limit. Under current measures the commercial possession limit is 25 fish per vessel, per day, except vessels fishing lobster pot gear and in possession of more than 6 lobsters are limited to 10 tautog per vessel per day. Removing this restriction would apply a single, consistent possession limit of 25 fish per vessel per day to all commercial trips in the region, simplifying compliance and enforcement.

### **Commercial Tagging Issues**

In response to concerns of significant illegal harvest of tautog, Amendment 1 implemented a commercial harvest tagging program to increase accountability in the fishery. Currently, all states must use the same single-use tag, inscribed with the year of issue, state of issue, and a unique number. Since implementation, harvesters, particularly in the live market fishery, have raised concerns about the health and appearance of fish after receiving the tag. Harvesters report lesions developing from the tag causing lost product and a decline in marketability of the fish. Since the FMP requires all states to use the same tag, if a new tag was found that alleviated the concerns of the live market fishery, the entire coast would need to convert to that tag for it to be applied, which may increase the cost burden on harvesters who are not in

the live market fishery and approve of the current tag. This draft addendum contains options that would allow the Board to use Board Action (i.e., a majority vote) to permit a state to implement a second tag if a suitable one were tested and approved by the Board.

## **2.2 Background**

### **2.2.1 Stock Status**

Tautog harvest is controlled through state regulations designed to restrain  $F$  at or below the  $F$  target. States implement regulations to achieve the same  $F$  target but are allowed to select seasons, bag limits, quotas, etc., to achieve the target as best meets the state's individual fishery needs.

The 2015 stock assessment proposed splitting the tautog stock into smaller, regional stock units to account for the life history of tautog and to reduce the risk of overfishing. Tautog is managed in 4 regions, MARI (Massachusetts - Rhode Island), LIS, NJ-NYB, and DMV.

From the 2021 to 2025 stock assessment updates, stock status did not change for the MARI or LIS regions 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 the 2025 update. The DMV region was previously not overfished nor experiencing overfishing but was considered overfished and experiencing overfishing in the 2025 update.

Based on the TC harvest projections, a 40% reduction is needed for the NJ-NYB region to have a 50% probability of achieving the  $F$  target in 2030. In the DMV region, maintaining status quo removals (i.e., removals equal to the 2022-2024 average) would result in a 61% probability of being at or below the  $F$  target in 2030, meaning no reduction is needed. This is likely due to the very strong year-classes in 2020-2023 that will be moving into the exploitable size classes over the next few years and that the three-year average of removals is lower than the 2021-2023 removals, which were recent highs.

Additionally, the projections indicate that if NJ-NYB removals remain at status quo levels, SSB is expected to decline below the threshold by 2030. If  $F$  is reduced to the  $F$  target by 2030, SSB will remain at or above the SSB target (Figure 1). In the DMV, if removals remain at status quo levels, SSB is expected to decline slightly from 2025-2027 and then increase as recent strong year-classes mature (Figure 1); however, by 2030, there will only be a 12% chance that SSB will be at or above the SSB target.

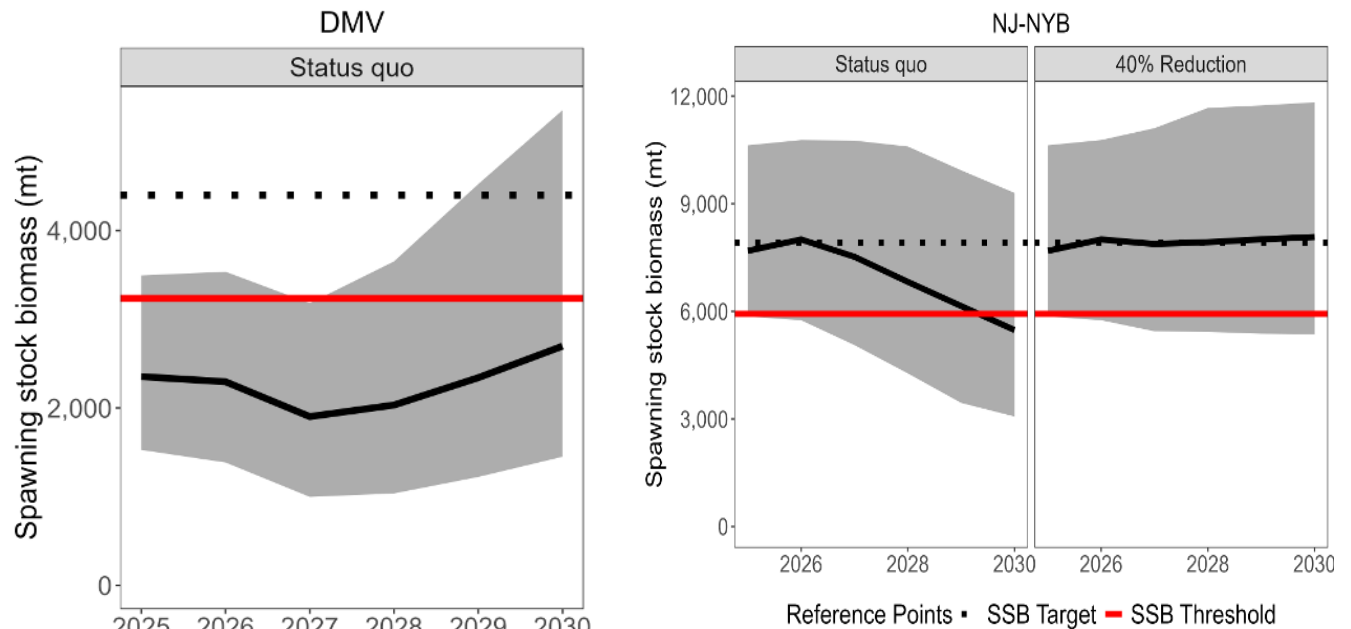


Figure 1. NJ-NYB and DMV SSB trajectory under status quo and NJ-NYB if removals are reduced by 40% from the 2022-2024 average.

## 2.2.2 Description of the Fishery

### Massachusetts-Rhode Island

The tautog fishery in the MARI region is primarily recreational, with recreational landings accounting for an average of 93% of total removals annually. Total (commercial and recreational) removals have increased since 2020, increasing from an average of 2.4 million pounds from 2016-2020 to an average of 4.8 million pounds from 2021-2024. This was primarily driven by an increase in recreational landings and releases (2023 represents the highest percentage of recreational removals at 98% for the year) in the region.

Prior to Amendment 1, tautog management measures in the MARI region were state specific. Both states had the same minimum size (16") but varying seasons and possession limits for the recreational fishery. During the Amendment process, both states proposed to work towards regional management options for consideration, with both states adjusting their recreational seasons and possession limits to come closer to alignment. There were still small differences between the states; namely, Massachusetts has a 1-fish possession limit during the Rhode Island spawning closure (Table 2). Since Amendment 1 was implemented, both states implemented additional regulations on their recreational fisheries. In 2022, Rhode Island implemented a limited maximum size of 21", such that only 1 fish per harvester may be greater than 21". Massachusetts followed suit with a complementary regulation the following year.

**Table 2. Current recreational regulations for the MARI region**

| State         | Minimum Size | Limited Maximum Size                | Season           | Possession Limit* |
|---------------|--------------|-------------------------------------|------------------|-------------------|
| Rhode Island  | 16"          | Only 1 fish may be greater than 21" | April 1 - May 31 | 3 fish/day        |
|               |              |                                     | Aug 1 - Oct 14   | 3 fish/day        |
|               |              |                                     | Oct 15 - Dec 31  | 5 fish/day        |
| Massachusetts | 16"          | Only 1 fish may be greater than 21" | April 1 - May 31 | 3 fish/day        |
|               |              |                                     | June 1 - July 31 | 1 fish/day        |
|               |              |                                     | Aug 1 - Oct 14   | 3 fish/day        |
|               |              |                                     | Oct 15 - Dec 31  | 5 fish/day        |

\*Vessel limit of 10 fish per day, licensed party/charter vessels are not subject to the vessel limit.

Both states have continued to manage their commercial fisheries utilizing quotas; however, seasons and possession limits varied between states (Table 3). In both states, the hook and line fishery accounts for a majority of the commercial landings – 52% in Rhode Island and 78% in Massachusetts— for 2025), other gear types utilized in both states include pots/traps, trawls, and gillnets.

**Table 3. Current commercial regulations for the MARI region.**

| State         | Annual Quota | Minimum Size | Season                                   | Possession Limit |
|---------------|--------------|--------------|------------------------------------------|------------------|
| Rhode Island  | 51,348       | 16"          | April 1 - May 31 (42.5% of annual quota) | 10 fish/day      |
|               |              |              | Aug 1 - Sept 15 (15% of annual quota)    |                  |
|               |              |              | Oct 15 - Dec 31 (42.5% of annual quota)  |                  |
| Massachusetts | 61,347       | 16"          | Sept 1 - Dec 3                           | 40 fish/day      |

### Long Island Sound

The tautog fishery in LIS is predominantly recreational. Recreational harvest was at its peak in the mid to late 1980s. It decreased in the mid-1990s and increased again in the early 2000s, never surpassing the historical peak. Recreational harvest has been relatively stable since about 2007, with 2018 being an exceptionally low harvest year. Commercial harvest was highest in the mid-1980s and increased again in the most recent 6-7 years (2019-2024). However, commercial harvest remains modest compared to recreational harvest.

The LIS region states of Connecticut and New York have different regulations for tautog (Tables 4 and 5). Across the region, most of the recreational harvest occurs in each state's respective fall season making up 89.6% (CT) and 86.7% (NY) of the total harvest from 2022-2025.

**Table 4. 2026 LIS recreational regulations.**

| State       | Size Limit | Possession Limits | Open Seasons      |
|-------------|------------|-------------------|-------------------|
|             |            | (fish/person/day) | (dates inclusive) |
| Connecticut | 16" min    | 2                 | Apr 1 - Apr 30    |
|             |            | 2                 | July 1 - Aug 31   |
|             |            | 3                 | Oct 10 - Nov 28   |
| New York    | 16" min    | 2                 | Apr 1 - Apr 30    |
|             |            | 3                 | Oct 11 - Dec 9    |

**Table 5. 2026 LIS commercial regulations.**

| State       | Size Limit | Possession Limits                                                             | Open Seasons                      | Gear Restrictions                                           |
|-------------|------------|-------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------|
|             |            | (fish/person/day)                                                             | (dates inclusive)                 |                                                             |
| Connecticut | 16" min    | 3 (restricted licenses)<br>10 (all others)                                    | Apr 1 - Apr 30                    | Mandatory pot requirements                                  |
|             |            |                                                                               | July 1 - Aug 31                   |                                                             |
|             |            |                                                                               | Oct 8 - Dec 24                    |                                                             |
| New York    | 15" min    | 25<br>(10 per vessel with lobster gear and when 6 lobsters are in possession) | May 7 - July 31<br>Sep 1 - Nov 23 | Mandatory pot requirements. Gill or trammel nets prohibited |

**New Jersey-New York Bight**

Recreational harvest accounts for approximately 90% of landings within the NJ-NYB region. Recreational harvest exceeded 1 million fish per year in most years between 1988 and 1993, with a peak of 1.56 million fish in 1991. Harvest declined quickly following the peak, reaching a time series low of 24,000 fish in 1998 with an average annual harvest of 415,000 fish between 1994 and 2002. Recreational landings declined again in 2003, falling below 200,000 fish before recovering slightly by 2006.

Commercial harvest during the late 1980s to mid-1990s fluctuated around 154,324 pounds (70 mt) annually but declined rapidly to 44,092 pounds (20 mt) by 1999. Landings rebounded to 132,277 pounds (60 mt) by 2007 and 2008, and since then fell to 88,185 pounds (40 mt) and below. Commercial harvest during 2013 to 2015 has shown a declining trend falling from 99,207 pounds (44 mt) in 2013 to nearly 86,000 pounds (39 mt) in 2015 with an average harvest of 90,389 pounds (41 mt) for this time period.

Total removals have increased since the last assessment, averaging 1,843 mt from 2021-2024 compared to an average of 1,029 mt for 2016-2020. The Marine Recreational Information Program (MRIP) CPUE showed an increasing trend since the last update, while the New Jersey Ocean Trawl index showed a declining trend in the most recent years. The New York Seine young-of-the-year index has been highly variable over the time-series but has shown a number of high values over the most recent years. Estimates of SSB showed that the increasing trend seen in the 2021 assessment update had been reversed, with SSB declining from a recent high

in 2022; the three-year average  $F$  showed the opposite pattern, with  $F$  increasing since 2021 after a decline from 2016. The model indicated that the stock was not overfished (SSB was above the threshold and slightly below the target) but overfishing was occurring in 2024. This was a change from the 2021 update, where the stock was overfished, but overfishing was not occurring. Short-term projections (2025-2027) based on the 3-year average of recent removals indicated there was a high probability (81%) that the stock would be above the SSB threshold in 2027 (i.e., not overfished) but a low probability that  $F$  would be below the  $F$  threshold (i.e., overfishing occurring).

**Table 6. 2026 NJ-NYB recreational regulations.**

| State      | Size Limit (inches) | Possession Limits (number of fish/person/day) | Open Seasons    |
|------------|---------------------|-----------------------------------------------|-----------------|
| New York   | 16"                 | 2                                             | Apr 1-Apr 30    |
|            |                     | 4                                             | Oct 15-Dec 22   |
| New Jersey | 15"                 | 4                                             | Jan 1 – Feb 28  |
|            |                     | 4                                             | Apr 1 – Apr 30  |
|            |                     | 1                                             | Aug 1 – Nov 15  |
|            |                     | 5                                             | Nov 16 – Dec 31 |

**Table 7. 2026 NJ-NYB commercial regulations.**

| State      | Size Limit (inches) | Possession Limits (number of fish/vessel/day)                        | Open Seasons                       | 2026 Quota (pounds.) | Gear Restrictions                                            |
|------------|---------------------|----------------------------------------------------------------------|------------------------------------|----------------------|--------------------------------------------------------------|
| New York   | 15"                 | 25<br>(10 per vessel with lobster gear and 6 lobsters in possession) | Apr 16-Jan 25                      | -                    | Mandatory pot requirements. Gill or trammel nets prohibited. |
| New Jersey | 15"                 | > 100 pounds requires directed fishery permit                        | Jan 1 - May 15<br>Sept 19 - Dec 31 | 103,000              | Mandatory pot requirements.                                  |

### **Delaware-Maryland-Virginia**

Recreational harvest in DMV peaked in 1995 at more than 1 million fish. Following implementation of the FMP, harvest levels decreased by half. Average recreational harvest declined from 366,997 fish during 2006-2015 to 117,704 fish during 2016-2025. Recreational harvest in DMV decreased from 795,449 fish in 2010 to 66,134 fish in 2015. The decline coincided with the regulatory measures (minimum size increase and seasonal closures)

implemented in 2012 to reduce fishing mortality.

Following the implementation of Amendment 1 in 2018, recreational landings increased beginning in 2020 and exceeded 100,000 fish every year until 2025 excluding 2024 when they declined to 41,705 fish. Recreational discards have also increased from 426,143 released fish in 2015 to 1,544,074 released fish in 2025.

Commercial landings have increased in the most recent years, primarily due to an increase in Virginia landings, which account for the majority of commercial effort. However, average commercial landings for 2006-2015 were approximately 14,017 pounds. Average commercial landings for 2016-2025 were 4,314 pounds, with 2025 being higher at 5,960 pounds . Data on commercial discards were not available, but discards are believed to be minimal.

**Table 8. 2026 DMV recreational regulations.**

| State    | Size Limit | Possession Limits | Open Seasons      |
|----------|------------|-------------------|-------------------|
|          |            | (fish/person/day) | (dates inclusive) |
| Delaware | 16" min    | 4                 | Jan 1 – May 15    |
|          |            |                   | Jul 1 – Dec 31    |
| Maryland | 16" min    | 4                 | Jan 1- May 15     |
|          |            | 2                 | Jul 1 – Oct 31    |
|          |            | 4                 | Nov 1 – Dec 31    |
| Virginia | 16" min    | 4                 | Jan 1 – May 15    |
|          |            |                   | July 1 – Dec 31   |

**Table 9. 2026 DMV commercial regulations.**

| State    | Size Limit | Possession Limits | Open Seasons      | Gear Restrictions                                            |
|----------|------------|-------------------|-------------------|--------------------------------------------------------------|
|          |            | (fish/person/day) | (dates inclusive) |                                                              |
| Delaware | 16" min    | 4                 | Jan 1 – May 15    | Mandatory pot requirements.                                  |
|          |            |                   | Jul 1 – Dec 31    |                                                              |
| Maryland | 16" min    | 4                 | Jan 1- May 15     | Mandatory pot requirements.                                  |
|          |            | 2                 | Jul 1 – Oct 31    |                                                              |
|          |            | 4                 | Nov 1 – Dec 31    |                                                              |
| Virginia | 15" min    | -                 | Jan 1 – Jan 21    | Mandatory pot requirements. Pots prohibited in tidal waters. |
|          |            |                   | Mar 1 - May 15    |                                                              |
|          |            |                   | Nov 1 – Dec 31    |                                                              |

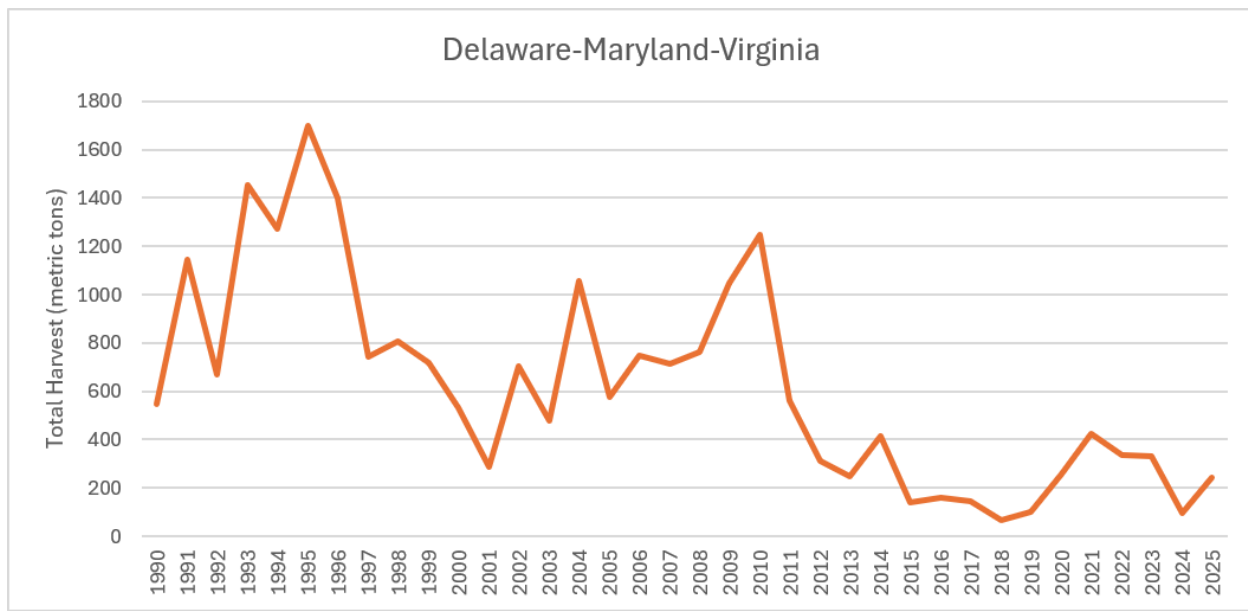


Figure 2. Total (recreational and commercial) tautog harvest in DMV region from 1990-2025.

### 2.2.3 History of Commercial Tagging Program

The commercial tautog fishery has a subset of harvesters that sell fish in live markets, with steady demand increasing the price for live tautog. Increased prices for live market fish led to reports from law enforcement of significant illegal harvest, and a commercial tagging program was recommended to increase accountability in the fishery. The objectives of the program included using a single-use tag for both the live and dead markets that had minimal to no impact on the appearance or condition of live fish for the amount of time the fish are kept alive until consumption.

Since implementation in 2021, harvesters began reporting varying issues with the application of the tag. In April 2023, the [TC surveyed](#) harvesters and dealers to assess the extent of the issues coastwide, and while the most concerning problems were associated with the live market in New York, stakeholders in other states reported similar issues. Tagging injuries were reported to cause external wounds that manifest over time, reducing the value of the fish or sometimes resulting in mortality. The severity of the wounds was associated with longer holding time periods in captivity, mainly greater than two weeks. Subsequently, [New York State DEC performed a study](#) of three alternative tags but did not identify a viable alternative.

If a viable alternative tag were identified, the options in the draft addendum would allow any state, with Board approval, to implement a second commercial tag in their fishery to provide relief to the live market harvesters while still allowing harvesters who prefer the current tag to continue using it.

## 2.3 Social and Economic Impacts

To assess the social and economic impacts of hypothetical reductions to the NYB-NJ tautog stock, the CESS consulted Dr. Andrew Carr-Harris, an economist and contractor for the Northeast Fisheries Science Center. Dr. Carr-Harris' analysis models hypothetical 10%, 20%, and 40% reductions in recreational trips and commercial harvest based on 2021–2025 baseline averages (Figure 3). In this economic analysis, the output is defined in “exposure” or the total gross dollar amount tied to affected fishing trips or commercial landings that could be disrupted by a policy change. Using average trip expenditures (\$50 in NJ; \$67 in NY Bight), the analysis shows annual recreational trip expenditure exposure ranging from \$7.28M (10% reduction) to \$29.11M (40% reduction) in NJ, compared to \$2.02M (10%) to \$8.09M (40%) in the NY Bight, with peak exposure in April and November. On the commercial side, applying the same reduction percentages to average ex-vessel revenues results in NJ commercial gross revenue that has minimal exposure, ranging from \$720 to \$2,881. However, New York faces vastly higher exposure, ranging from \$105,144 to \$420,574. It's important to note that these figures represent gross dollars at risk rather than net economic loss. Actual financial losses will likely be lower because anglers and commercial fishers adapt by rescheduling trips, targeting alternative species, or benefiting from supply-driven price increases.

## 3. PROPOSED MANAGEMENT PROGRAM

When the Board considers final action on the addendum, there is the opportunity to select any measure within the range of options that went out for public comment, including combining options across issues. Additionally, for each state or region, the Board may approve multiple options or the full suite of options to allow the state(s) to select final measures from among the approved options. This would allow states to select final management measures following public comment and consultation with the state's recreational and commercial fishing constituents without the need for further Board action.

### 3.1 LIS and NJ-NY Bight Proposed Commercial Management Measures

*If adopted, this would modify section 4.2.3 of Amendment 1*

Option A (Status Quo): Maintain current commercial measures for LIS (See Table 10).

Option B: The possession limit for all New York permitted commercial vessels (LIS and NJ-NYB) would be 25 fish. All other LIS measures would remain the same (see Table 10). The maximum potential effect of this change (increasing the possession limit for lobster vessels) is estimated to be a 5% increase to the LIS commercial landings as compared to the 2022-2024 average, which has a negligible impact on the probability of achieving the *F* target (Appendix A.1.1).

The estimated increase in NYB commercial landings associated with this change was only slightly greater than 0% and is considered negligible; it does not measurably affect the reductions presented in Table 13.

**Table 10. Options for LIS and NJ-NYB possession limit for New York permitted vessels for trips fishing lobster pot gear.**

| Option                                      | Minimum Size | Possession Limit (number of fish/vessel/day)                                                          | Open Season                                                    | Estimated Change in Harvest                                  |
|---------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------|
| A. Status Quo                               | 15"          | 25 (except, 10 per vessel when fishing lobster pot gear and more than six lobsters are in possession) | LIS: May 7 – Jul 31, Sep 1 – Nov 23<br>NJ-NYB: Apr 16 – Jan 25 | No change                                                    |
| B. Remove Lobster Pot Gear Possession Limit | 15"          | 25                                                                                                    | May 7 – Jul 31, Sep 1 – Nov 23<br>NJ-NYB: Apr 16 – Jan 25      | +5% LIS commercial harvest<br><br>Negligible for NJ-NY Bight |

### **3.2 NJ-NYB Proposed Management Measures**

*If adopted, this would modify section 4.2.4 of Amendment 1*

#### **3.2.1 New Jersey**

Seven options (A-G) (see table 11) are proposed for New Jersey-specific reductions using a 50% probability of achieving the *F* target, which is associated with a minimum harvest reduction of 40% by 2030. Each option proposes a minimum size limit, a bag limit and season.

New Jersey's options are for the recreational fishery; no commercial reduction was considered at this time. Commercial reductions can be considered if deemed necessary for the region.

**Table 11. New Jersey Proposed Recreational Management Options**

| <b>Option</b>        | <b>Minimum Size</b> | <b>Open Season</b>                 | <b>Possession Limit</b> | <b>% Harvest Reduction</b> |
|----------------------|---------------------|------------------------------------|-------------------------|----------------------------|
| <b>A. Status Quo</b> | 15"                 | Jan 1 – Feb 28                     | 4                       | 0%                         |
|                      |                     | Apr 1 – Apr 30                     | 4                       |                            |
|                      |                     | Aug 1 – Nov 15                     | 1                       |                            |
|                      |                     | Nov 16 – Dec 31                    | 5                       |                            |
| <b>B.</b>            | 15"                 | Jan 1- Feb 28                      | 4                       | -40.12%                    |
|                      |                     | April 1- April 30                  | 3                       |                            |
|                      |                     | Aug 1 - Nov 15 (closed)            | 0                       |                            |
|                      |                     | Nov 16 - Dec 31                    | 5                       |                            |
| <b>C.</b>            | 16"                 | Jan 1- Feb 28                      | 4                       | -40.89%                    |
|                      |                     | April 1- April 30 (15 day closure) | 4                       |                            |
|                      |                     | Aug 1 - Nov 15                     | 1                       |                            |
|                      |                     | Nov 16 - Dec 31                    | 5                       |                            |
| <b>D.</b>            | 16"                 | Jan 1- Feb 28                      | 4                       | -40.55%                    |
|                      |                     | April 1- April 30                  | 2                       |                            |
|                      |                     | Aug 1 - Nov 15 (50 day closure)    | 1                       |                            |
|                      |                     | Nov 16 - Dec 31                    | 4                       |                            |
| <b>E.</b>            | 16"                 | Jan 1- Feb 28                      | 4                       | -40.31%                    |
|                      |                     | April 1- April 30                  | 4                       |                            |
|                      |                     | Aug 1 - Nov 15 (60 day closure)    | 1                       |                            |
|                      |                     | Nov 16 - Dec 31                    | 4                       |                            |

| Option    | Minimum Size | Open Season                      | Possession Limit | % Harvest Reduction |
|-----------|--------------|----------------------------------|------------------|---------------------|
| <b>F.</b> | 17"          | Jan 1- Feb 28                    | 4                | -41.04%             |
|           |              | April 1- April 30                | 4                |                     |
|           |              | Aug 1- Nov 15 (40 day closure)   | 1                |                     |
|           |              | Nov 16 - Dec 31                  | 5                |                     |
| <b>G.</b> | 15"          | Jan 1- Feb 28                    | 4                | -41.25%             |
|           |              | April 1- April 30                | 2                |                     |
|           |              | Aug 1- Nov 15 (77 day closure)   | 1                |                     |
|           |              | Nov 16 - Dec 31 (15 day closure) | 2                |                     |

The options from Table 11 were developed with, but not limited to, the following considerations: access to the fishery, maximizing the resource, and addressing ongoing conservation law enforcement concerns about the harvest of undersized fish and possession limit violations.

New Jersey options considered changes in minimum size, season length, and possession limits based on ASMFC methodology (see Appendix 2) and requests the Board approve the full suite of options presented in Table 11 rather than a single preferred option. If approved by the Board, New Jersey would implement a final option with input from the New Jersey Marine Fisheries Council and Advisors.

### 3.2.2 New York

Each NJ-NYB option in Table 13 is presented as a paired set of state-specific recreational and commercial measures that collectively achieve New York's required harvest reduction.

Six options are proposed to achieve a 40% reduction in New York's total removals from the NYB portion of the region. New York's 2022–2025 removals were 2,209,248 pounds from the recreational sector and 914,103 pounds from the commercial sector, for a total of 3,123,351 pounds; a 40% reduction corresponds to 1,249,340 pounds. Because each sector contributes to total removals in proportion to its share of the harvest, recreational and commercial measures were developed as paired options in which the combined, harvest-weighted reduction across both sectors meets the 40% requirement.

Recreational options were developed using combinations of minimum size, possession limit, and closures within the fall season, which accounts for the majority of annual harvest. Where practicable, options were constructed to align NYB seasons with the seasons currently in place in the LIS region in order to improve parity between the north shore, south shore, and east end of Long Island. Each option in Table 13 achieves the required 40% reduction and is presented as a paired recreational and commercial package; the 2 sets of measures within an option are not interchangeable across options. See Appendix 2 for the methods to estimate the impact of recreational measures and Appendix A.1.2 for methods to estimate the impact of commercial measures.

Option A: Status Quo: The current commercial and recreational measures would remain the same (See Table 12)

**Table 12. 2026 NJ-NYB Recreational and Commercial Regulations (Status Quo Measures)**

| <b>Option</b>              | <b>SIZE LIMIT<br/>(inches)</b> | <b>POSSESSION LIMITS<br/>(number of<br/>fish/person/day)</b>                                                   | <b>OPEN SEASONS</b>               |
|----------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Recreational<br>Status Quo | 16"                            | 2<br>4                                                                                                         | Apr 1 – Apr 30<br>Oct 15 – Dec 22 |
| <b>Option</b>              | <b>SIZE LIMIT<br/>(inches)</b> | <b>POSSESSION LIMITS<br/>(number of<br/>fish/vessel/day)</b>                                                   | <b>OPEN SEASONS</b>               |
| Commercial<br>Status Quo   | 15"                            | 25 (except, 10 per vessel<br>when fishing lobster pot<br>gear and more than six<br>lobsters are in possession) | Apr 16 – Jan 25                   |

Options B-G: Proposed Changes to commercial and recreational measures to achieve a 40% reduction in New York's total removals from the NYB portion of the region (See Table 13). Each option proposes a recreational minimum size limit, bag limit, and season closure as well as a commercial season closure. The recreational fall season closure is the number of days that would be removed from the current recreational fall season (Oct 15 – Dec 22). Commercial closure is the number of days that would be removed from the current commercial open season (Apr 16 – Jan 25). Total reduction is the harvest-weighted combination of recreational and commercial reductions. Under Options D and G, the NYB commercial season would align with the current LIS commercial season; under Option C the NYB recreational season would align with the current LIS recreational season.

| Option | Recreational |                  |                     |             | Commercial                     |          |             | Total Reduction |
|--------|--------------|------------------|---------------------|-------------|--------------------------------|----------|-------------|-----------------|
|        | Minimum Size | Possession Limit | Fall Season Closure | % Reduction | Open Season                    | Closure  | % Reduction |                 |
| B.     | 16"          | 2                | -20 days            | 40.4%       | May 7 – Jul 31, Sep 1 – Nov 15 | 125 days | 39.4%       | 40.1%           |
| C.     | 16"          | 2                | 21 days             | 41.5%       | May 7 – Jul 31, Sep 1 – Nov 19 | 121 days | 36.4%       | 40.0%           |
| D.     | 16"          | 2                | 22 days             | 42.6%       | May 7 – Jul 31, Sep 1 – Nov 23 | 117 days | 34.1%       | 40.1%           |
| E.     | 17"          | 2                | 10 days             | 46.9%       | May 1 – Jul 8, Sep 1 – Dec 31  | 69 days  | 23.5%       | 40.1%           |
| F.     | 17"          | 3                | 12 days             | 40.4%       | May 7 – Jul 31, Sep 1 – Nov 15 | 125 days | 39.4%       | 40.1%           |
| G.     | 17"          | 3                | 14 days             | 42.4%       | May 7 – Jul 31, Sep 1 – Nov 23 | 117 days | 34.1%       | 40.0%           |

With the exception of the proposed commercial possession limit changes (Section 3.1), the options B-G were brought forward as a complete suite for Board approval by New York. New York requests the Board approve the full suite of options presented in Table 13 rather than a single preferred option. If approved by the Board, New York would implement a final option with input from its stakeholders.

### 3.3 DMV Proposed Management Measures

*If adopted, this would modify section 4.2.5 of Amendment 1*

Tautog management measures in the DMV region are state-specific. Stock projections conducted by the TC and Stock Assessment Subcommittee show that fishery removals at the average 2022-2024 level are sufficient to achieve the *F* target with 61% probability by 2030, greater than the 50% threshold requested by the board, therefore Status Quo commercial and recreational measures meet the Board and FMP guidance.

Options B -E (See Table 15) address Board direction to consider options to shorten seasons, better aligning the differing bag limits between states, and incorporating a separate trophy bag limit. Since there is no specific harvest reduction needed to achieve the *F* target, these options are motivated by other benefits to the fishery. However, a range of predictions for the effect of these options on the change in total removals is provided (see Appendix 2 for methods). Options include shortening seasons to protect more of the breeding season or to reduce discard mortality at problematic times of year, changing the seasonal bag limits to align measures between states, and incorporating a trophy bag limit.

NOTE: Delaware and Maryland match commercial and recreational regulations. If an Option B-E is selected, then the regulations in Table 15 will apply to both the commercial and recreational fisheries in those states. Virginia commercial regulations will remain status quo (Table 9).

**Table 15. DMV Recreational Measures Options. State and Regional Changes in total removals are estimated under a range of assumptions (see Appendix 2).**

| Option                                       | State | Minimum Size | Possession Limit | Open Season       | State Change   | Regional Change |
|----------------------------------------------|-------|--------------|------------------|-------------------|----------------|-----------------|
| A. Status Quo                                | DE    | 16"          | 4                | Jan 1-May 15      | 0%             | 0%              |
|                                              |       |              |                  | Jul 1-Dec 31      |                |                 |
|                                              | MD    |              | 4                | Jan 1-May 15      | 0%             |                 |
|                                              |       |              | 2                | Jul 1-Oct 31      |                |                 |
|                                              |       |              | 4                | Nov 1-Dec 31      |                |                 |
|                                              | VA    |              | 4                | Jan 1-May 15      | 0%             |                 |
|                                              |       |              |                  | Jul 1-Dec 31      |                |                 |
| B1. Shorten Jan 1 - May 15 season by 15 days | DE    | 16"          | 4                | B.1 Jan 1-Apr 30  | -0.6% to -0.9% | -1.7% to -2.0%  |
|                                              |       |              |                  | Jul 1-Dec 31      |                |                 |
|                                              | MD    |              | 4                | B.1 Jan 1-Apr 30  | -0.8% to -1.0% |                 |
|                                              |       |              | 2                | Jul 1-Oct 31      |                |                 |
|                                              |       |              | 4                | Nov 1-Dec 31      |                |                 |
|                                              | VA    |              | 4                | B.1 Jan 1-Apr 30  | -3.7% to -4.1% |                 |
|                                              |       |              |                  | Jul 1-Dec 31      |                |                 |
| B2. Shorten Jan 1 - May 15 season by 15 days | DE    | 16"          | 4                | B.2 Jan 16-May 15 | -0.6% to -0.9% | -1.7% to -2.0%  |
|                                              |       |              |                  | Jul 1-Dec 31      |                |                 |
|                                              | MD    |              | 4                | B.2 Jan 16-May 15 | -0.8% to -1.0% |                 |
|                                              |       |              | 2                | Jul 1-Oct 31      |                |                 |
|                                              |       |              | 4                | Nov 1-Dec 31      |                |                 |
|                                              | VA    |              | 4                | B.2 Jan 16-May 15 | -3.7% to -4.1% |                 |
|                                              |       |              |                  | Jul 1-Dec 31      |                |                 |
| C. Shorten season in July by 15 days         | DE    | 16"          | 4                | Jan 1-May 15      | -4.0% to -5.8% | -2.7% to -4.0%  |
|                                              |       |              |                  | Jul 16-Dec 31     |                |                 |
|                                              | MD    |              | 4                | Jan 1-May 15      | -1.7% to -3.6% |                 |
|                                              |       |              | 2                | Jul 16-Oct 31     |                |                 |
|                                              |       |              | 4                | Nov 1-Dec 31      |                |                 |
|                                              | VA    |              | 4                | Jan 1-May 15      | -1.5% to -1.6% |                 |
|                                              |       |              |                  | Jul 16-Dec 31     |                |                 |

|                                         |    |                                |   |               |                  |                  |
|-----------------------------------------|----|--------------------------------|---|---------------|------------------|------------------|
| D. Raise MD bag to 4 in July 1 - Oct 31 | DE |                                | 4 | Jan 1-May 15  | 0%               | +0.7% to +4.2%   |
|                                         |    |                                |   | Jul 1-Dec 31  |                  |                  |
|                                         | MD |                                |   | Jan 1-May 15  | +3.4% to +21.9%  |                  |
|                                         |    |                                |   | Jul 1-Dec 31  |                  |                  |
|                                         | VA |                                |   | Jan 1-May 15  | 0%               |                  |
|                                         |    |                                |   | Jul 1-Dec 31  |                  |                  |
| E. Trophy Bag                           | DE | 16" (max 1 fish > Trophy Size) | 4 | Jan 1-May 15  | -0.00% to -0.01% | -0.00% to -0.01% |
|                                         |    |                                |   | Jul 16-Dec 31 |                  |                  |
|                                         | MD |                                | 4 | Jan 1-May 15  | -0.00% to -0.03% |                  |
|                                         |    |                                | 2 | Jul 16-Oct 31 |                  |                  |
|                                         |    |                                | 4 | Nov 1-Dec 31  |                  |                  |
|                                         | VA |                                | 4 | Jan 1-May 15  | -0.00%           |                  |
|                                         |    |                                |   | Jul 16-Dec 31 |                  |                  |

## **Discussion of Options B-E**

### **Season Changes (Options B and C)**

The current breeding season closure does not cover the entire the spawning season, which in Virginia, runs from April through June (Hostetter and Munroe 1993, White *et al.* 2003). Extending the closure could protect more fish from harvest during the spawning season. Option B.1 extends the current spawning season closure throughout the month of May, while Option C extends it further into July.

Additionally, there is anecdotal evidence that during Wave 1 (January-February), fishing effort shifts to deeper reefs where tautog remain active, and that barotrauma-related release mortality might be higher under those circumstances than other times and places. Therefore, Option B.2 institutes a short new closure during this window in order to reduce that release mortality. It is uncertain when during Wave 2 (March-April) this closure would be most impactful. Additional uncertainty for Option B.2 comes from the fact that there is no MRIP intercept data for Wave 1, therefore the estimate relies on data from the portion of the current season (Jan 1 - May 15) for which there is MRIP Data (March 1 - May 15).

### **Aligning Seasonal Bag Limit Differences (Option D)**

All three states agree there is value in aligning recreational measures across the region. Option D promotes alignment by raising the Maryland bag limit in Jul 1-Oct 31 from 2 to 4 fish, which would match Delaware and Virginia. This change only increases the regional total removals by 0.7% to 4.2% depending on the assumptions of angler behavior (see Appendix 2.2.4). Since the original projections showed a 61% chance of achieving the *F* target, greater than the board requested 50% probability, additional projections were conducted to show that options with a regional increase in total removals of up to 8% would still be compatible with the 50%

probability of reaching the *F*-target by 2030 (see Appendix 3). Therefore, option D, while a small liberalization, would be compatible with achieving the *F*-target by 2030.

### **Trophy Bag Limits (Option E)**

Female fecundity (a measure of reproductivity) increases dramatically as a function of size in tautog (LaPlante and Schultz 2007, White *et al.* 2003), such that larger individuals can disproportionately contribute to the next generation. Therefore, extra protections for the largest breeding fish may disproportionately improve recruitment. Option E would implement a trophy bag limit. Under this option, within the 4-fish (or 2-fish) bag limit, only one fish above a trophy size limit may be harvested, others must be released. Relatively few trips harvest more than 1 trophy sized fish, so the reduction in total removals is small, just -0.01% at a trophy size limit of 21", which matches current regulation in the MARI region, and less than that at a trophy size limit of 25".

### **3.4 Commercial Harvest Tagging Program Proposed Measures**

*If adopted, this would modify Section 4.4.2 of Amendment 1*

Option A. Status Quo. All states must use the same single-use tag.

Option B. Alternative tag can be approved through Board Action (i.e., Management Document Not Required). A state can request permission to implement an alternative commercial tag, either to replace or in conjunction with the current tag, if the state can show to the Board's satisfaction that the alternative tag will meet the objectives of the Commercial Harvest Tagging Program in Section 4.4.1 of Amendment 1. States may submit alternative region/state proposals following the procedures outlined in the Commission's Conservation Equivalency Policy and Technical Guidance Document.

Under Option 2 and through the ASMFC Conservation Equivalency Process, if a state were to propose the use of a suitable alternative tag, then following review by the TC, Law Enforcement Committee, and Advisory Panel, the Board could approve the use of the alternative tag through Board Action.

## **4. COMPLIANCE SCHEDULE**

The Tautog Management Board will determine a compliance schedule upon approval of Addendum I.

## 5. LITERATURE CITED

ASMFC. 2017. Amendment 1 to the Interstate Fishery Management Plan for Tautog. ASMFC, Arlington, Virginia 142p.

ASMFC. 2021. Tautog Regional Stock Assessment Update 2021. ASMFC, Arlington, Virginia 97p.

ASMFC. 2025. 2025 Tautog Regional Stock Assessment Update. ASMFC, Arlington, Virginia 488p.

Hostetter, E.B. and T.A. Munroe. 1993. Age, growth, and reproduction of tautog *Tautoga onitis* (Labridae: Perciformes) from coastal waters of Virginia. U.S. National Marine Fisheries Service Fishery Bulletin 91:45-64.

LaPlante, L.H. and E.T. Schultz. 2007. Annual Fecundity of Tautog in Long Island Sound: Size Effects and Long-Term Changes in a Harvested Population. Transactions of the American Fisheries Society 136:1520-1533.

White, G.G, T.A. Munroe, and H.M. Austin. 2003. Reproductive seasonality, fecundity, and spawning frequency of tautog (*Tautoga onitis*) in the lower Chesapeake Bay and coastal waters of Virginia. U.S. National Marine Fisheries Service Fishery Bulletin 101:424-442.

## **APPENDIX 1. REGIONAL COMMERCIAL OPTION DEVELOPMENT**

### **A.1.1 LIS**

New York estimated the maximum potential effect of this change by assuming that every trip carrying lobster gear that had previously landed tautog would land the new possession limit. That assumption yields an increase in LIS commercial landings of approximately 5% of the 2022–2024 average New York commercial harvest in the LIS management region. The stock assessment status quo projections were re-run with this increase included, using 2022–2024 average removals for 2025–2026 and assuming the change would take effect for 2027–2030, with removals increasing from 1,428 mt to 1,443 mt for 2027–2030. The change had a negligible effect on the population: under both the status quo scenario and the increased harvest scenario, the probability of being above the  $F$  target in 2030 and the probability of being below the SSB target in 2030 were both 0%.

Projections including the estimated 5% increase in commercial harvest resulted in a 0% probability of being above the  $F$  target and a 0% probability of being below the SSB target in 2030, unchanged from the status quo projections.

### **A.1.2 NJ/NYB**

In New York commercial options were developed using seasonal closures only, reflecting the structure of New York’s commercial fishery, which is managed under a possession and size limit rather than a quota. Total reported harvest from trip level reporting in 2022–2025 was calculated for each month and converted to a percent of total annual harvest. This was divided by the number of days in the month to provide an average daily percent of total annual harvest. It was then possible to look at seasonal closures that would reduce cumulative harvest by the required amount.

In addition, New York proposed to remove the stricter possession limit for vessels fishing lobster pot gear with more than 6 lobsters in possession. The estimated increase in NY Bight commercial landings associated with this change was only slightly greater than 0% and is considered negligible; it does not measurably affect the reductions presented in Table 13.

### **A.1.3 DMV**

While no commercial options were developed for the DMV region, recreational options apply to commercial harvesters in Delaware and Maryland.

## **APPENDIX 2. REGIONAL RECREATIONAL OPTION DEVELOPMENT**

The TC and Plan Development Team (PDT) developed a consistent methodology and dataset for the NJ-NYB and DMV regions to use to achieve the management objectives for each region. The data, methods, and sources of uncertainty for each type of option are described in this document.

### **A.2.1 DATA USED**

The TC recommended using pooled MRIP data from 2022-2025. The terminal year of the assessment was 2024, with 2022-2024 used for the 3-year average  $F$  to determine overfishing status and for the status quo removals in the projections. Final 2025 MRIP data were available during the option development process. MRIP data for New York were split into LIS and NJ-NYB data based on the uncollapsed area fished field in the intercept data as was done for the assessment update.

### **A.2.2 METHODS**

#### **A.2.2.1 Minimum Size Increases**

Pooled length frequencies for 2022-2025 were developed for each state in each region using 1-inch length bins. Total removals under a new, smaller size limit was calculated by converting the harvest that occurred in previously legal bins to live releases; total harvest would be reduced and total dead releases would increase. Noncompliance was estimated as the percent of total harvest in length bins that were smaller than the minimum size for each state. It was assumed that the non-compliant harvest that occurred under the current size limit would continue to occur under a new size limit. In addition, the observed non-compliance rate under the current size limit was applied to the fish that would be illegal to retain under the new size limit.

#### **A.2.2.2 Season Reduction**

For each state, individual intercepts that caught tautog were assigned to the state's current seasons based on the date of the intercept and assigned a target category based on whether they reported targeting only tautog, tautog and another species, or only other species/no species (except for Delaware and Virginia, which were assigned the three seasons that Maryland uses, rather than the two that they currently use, in order assess options for better alignment across the region). Total harvest, total live releases, and total trips were summed by season and target category, and harvest and releases per day were calculated based on the length of the current seasons. Noncompliance (i.e., harvest of tautog during closed seasons) was negligible to zero for both regions; existing non-compliant harvest was included in the annual total removals, but no additional non-compliance with season changes was assumed.

The TC explored two assumptions about how effort would be affected by shortening the season. One assumption was that all trips that had previously landed tautog would still occur

during a new closure, but all harvested tautog would be converted into releases. In addition, all previously released tautog would still be released at the same rate.

The other assumption was that trips that targeted only tautog would no longer occur, so both the harvest and releases from those trips would be reduced to zero. Trips that reported targeting tautog and another species and trips that did not report targeting tautog at all would still occur, but they would not harvest tautog, and both types of trips would release tautog at the rate of trips that did not target tautog. This assumption resulted in a higher overall reduction compared to the assumption that the number of trips would not change.

#### **A.2.2.3 Bag Limit Reduction**

Each record in the MRIP public intercept data represents one angler-trip. In some cases, the harvested fish that are available to be inspected and measured (type A fish) are a mix of fish from multiple anglers and cannot be assigned to individual anglers during the interview. In this case, one angler is identified as the “group catch leader” and the total number of type A fish of each species is entered for that intercept, along with the total number of anglers who contributed to that catch, while the others in the party who contributed to that catch are recorded as trips with no type A fish and are assigned a “leader” code to link their interview with the interview of the catch they contributed to.

To deal with grouped catch trips, code was developed to loop over each unique LEADER code to sum the total harvest (type A plus type B1 tautog) for each set of grouped catch interviews. The total was divided by the number of contributors to the grouped catch to calculate the catch-per-angler for each angler-trip. If total harvest divided by contributors was not a whole number (e.g., five tautog were caught by a party of two anglers), the remaining fish were distributed over the contributors’ interviews until they were all accounted for. In the example with five tautog and two anglers, each angler would get two fish and the remaining fish would be assigned to the first angler, so that one angler-trip would have a bag of three tautog and one angler-trip would have a bag of two tautog.

The total number of trips was calculated by season and bag (i.e., how many trips caught one tautog, how many caught two, etc.) for each state. If the observed bag was less than or equal to the new, lower bag limit, that harvest continued to occur. If the observed bag was greater than the new, lower bag limit but less than or equal to the current bag limit, the harvest of those trips would be reduced by the number of tautog that would have to be thrown back. For example, if the current bag limit was four tautog per angler and the new bag limit was three tautog per angler, then the total tautog harvest for that season would be reduced by one fish times the number of angler-trips that caught four tautog. A non-compliance rate was applied based on the percent of trips that caught more than the current bag limit for that season. It was assumed that all harvest from trips that exceeded the current bag limit would still occur under a new bag limit. Total removals for each season under the new bag limit were calculated as the new, lower harvest plus the old dead releases plus 2.5% of the fish released under the new bag limit.

#### **A.2.2.4 Bag Limit Increase**

A method was developed to calculate the potential increase in removals that would occur if Maryland increased its bag limit from 2 fish to better align with other states in the region during the July 1 – October 31 season. The fish distribution approach described in the Bag Limit Reduction section was extended to include distribution of live releases as well, so that each record had information on the number of tautog harvested per angler-trip and the number of tautog released per angler-trip. However, not all fish that are released are of legal size and eligible to be kept under a higher bag limit. For each angler-trip record, a sample equal to the number of released fish for that trip was drawn from the pooled 2022-2024 live release length frequency data for MD. The number of legal fish in that sample was recorded for each angler-trip as an estimate of the number of fish available to that trip to retain under a higher bag limit.

The total number of trips was calculated for the MD summer season by the number of fish harvested and the number of legal releases (e.g., how many trips harvested one tautog and released no legal fish, harvested one tautog and released one legal tautog, harvested one tautog and released two legal tautog, etc.). Two assumptions about which trips would retain more fish under a liberalized bag limit were explored for this scenario. In one scenario, only trips that met the current bag limit would retain additional fish if they had released legal fish under the existing rules. Trips that only harvested one tautog were assumed to remain at one tautog, even if they released fish, under the assumption that those anglers were unable or unwilling to retain more than one legal tautog. Trips that caught the current bag limit would retain additional fish if they had released one or more legal tautog under the current rules, with the additional number of tautog retained being either the number of legally-sized fish that had previously been releases or the new bag limit, whichever was lower.

The other scenario assumed that all trips that harvested at least one tautog would retain additional fish under a liberalized bag limit if they had released at least one legal size fish. This assumption resulted in a higher increase in removals, since a large number of trips during MD's summer season harvested only one fish.

Trips that released tautog but did not harvest tautog were assumed to be intentionally catch and release only or trips that were not interested in retaining any tautog and therefore would not liberalize in either scenario. Non-compliance for MD's summer season was 0%, so no non-compliance with the increased bag was assumed.

The new total removals for the summer season under both assumptions was calculated as the current total removals plus the new expected harvest from trips that were able to liberalize, minus 2.5% of the new harvest (to account for dead releases that were converted to harvest).

This analysis was bootstrapped by repeating the drawing of live release size data for the angler-trip dataset 500 times. For each replicate, the expected increase was calculated, and the median of the replicates was used as the estimate of the expected increase in removals for each scenario.

#### **A.2.2.5 Trophy Limit**

The size data were used to calculate how many fish greater than or equal to a proposed trophy limit (e.g., 21") were caught on each trip; grouped catch records were excluded for this analysis, so only trips where all catch was attributed to the angler being interviewed were used. The total number of trips was calculated for each combination of total harvested tautog and tautog greater than or equal to the trophy limit. Under a trophy limit, anglers could only retain one fish equal to or greater than the trophy limit. Trips that harvested zero or one trophy-size fish would not be affected by this regulation. Trips that harvested two or more trophy-size fish would have the total number of tautog harvested per trip reduced by the number of excess trophy-size fish on that trip (e.g., trips that caught two trophy-size fish would release one fish per trip, trips that caught three trophy-size fish would release two fish per trip, etc.). A non-compliance rate based on the overall noncompliance with the existing bag limit was assumed, and all trips that exceeded the current bag limit were assumed to harvest the same number of tautog regardless of the number of trophy-size fish that they harvested. This analysis also assumed that none of the trophy-size fish would be replaced by a fish that had been released on that trip. Total annual removals under the new trophy limit were calculated as the new, lower harvest plus the old dead releases from non-grouped catch trips plus 2.5% of the fish released under the new trophy limit. The percent change was calculated relative to the removals from non-grouped catch trips and assumed to apply to the fishery as a whole.

#### **A.2.2.6 Combining Reductions**

The impact of regulatory changes that do not overlap in space and time were added together to calculate a total reduction for the year. For example, if a 15-day closure in the January-May season results in a 5% reduction in annual removals and a 15-day closure in the July-December season results in a 10% reduction in annual removals, then the total reduction from implementing both closures would be  $5\% + 10\% = 15\%$  for the year.

However, when combining regulations that overlap (for example, combining a bag limit change with a season change or a size limit change), a different equation was used in order to avoid "double-counting" saved fish. In this case, the annual reduction expected from implementing regulatory changes A and B would be:

$$\text{Annual reduction} = A + B - A \times B$$

For example, if we expect a 20% reduction from a size limit increase and a 10% reduction from a 15-day closure in the July-December season, then the expected reduction from implementing both measures would be  $0.2 + 0.1 - (0.2 \times 0.1) = 0.28$ , or 28%.

#### **A.2.2.7 Source of Uncertainty**

While the TC and PDT have tried to capture some uncertainty by evaluating different assumptions and bootstrapping the data for some analyses, there remain large sources of uncertainty that are unaccounted for with these calculations.

All of these analyses rely on the MRIP intercept data, which has a low overall sample size for tautog, especially at the state level. Pooling data over multiple years helps mitigate this issue, but it remains a source of uncertainty, particularly when the data are partitioned by other factors like season or target species.

All of these analyses, with the exception of one part of the season change analysis, rely on the assumption that effort will not change in the future. When we calculate the catch-per-trip and how that changes under a new bag or size limit, we assume that the same number of trips will occur under the new regulations. If the number of trips increases or decreases, then the realized total removals will be larger or smaller than predicted. The season change analysis did evaluate the assumption that trips that targeted only tautog will not occur during closed days, which leads to an overall decrease in effort. If effort shifts instead, with anglers targeting other species and potentially encountering tautog, or if effort increases, then the overall reduction may not be as large as calculated. Angler behavior is a function not just of regulations and abundance of tautog, but also regulations and availability of other species like black sea bass (which tautog is often caught with) or bluefin tuna (which tautog is not caught with), along with other socioeconomic factors. As a result, it is difficult to predict what effort will be in the near future.

Similarly, the size limit, trophy limit, and bag increase analyses rely on recent information on the length structure of harvested and released alive fish. If the length structure of the catch changes in the future, for example due to strong or weak year-classes moving into the exploitable population, then the realized changes in removals may be different from what is estimated based on current length information. The length information for released alive fish is also less robust than the information for harvested fish, since the sample size is smaller and relies either on volunteer information or information from a small component of the fishery (for-hire trips).

### APPENDIX 3. ADDITIONAL PROJECTION METHODS AND RESULTS FOR DMV REGION

In April 2026, the TC and SAS provided stock projections to the Board to determine the amount of reduction in removals necessary to achieve the  $F$  target with a probability of 50% as set forth in the FMP. The results of those analyses showed that removals at the average level from 2022-2024 would result in a 61% chance of achieving the  $F$  target by 2030. Currently Maryland has a stricter 2-fish bag limit from July 1 – October 31, while Delaware and Maryland have a 4-fish bag limit. One of the objectives of the FMP is to “Adopt compatible management measures among states within a regional management unit.” This could be achieved either by decreasing the bag limit in Delaware and Virginia or increasing the bag limit in Maryland during the July 1 - October 31 season. To understand if liberalizing Maryland regulations was compatible with achieving the  $F$  target by 2030, the TC/SAS re-ran the previous projections while iteratively increasing the rate of removal until the  $F$  target was achieved by 2030 with a 50%, rather than the 61% probability predicted by continuing average 2022-2024 removals. A regional increase in removals by 8% above the average 2022-2024 removals results in a 50% chance of achieving the  $F$  target by 2030 (Figure A.3.1). Therefore, liberalizations predicted to increase regional removals by up to 8% are compatible with that goal.

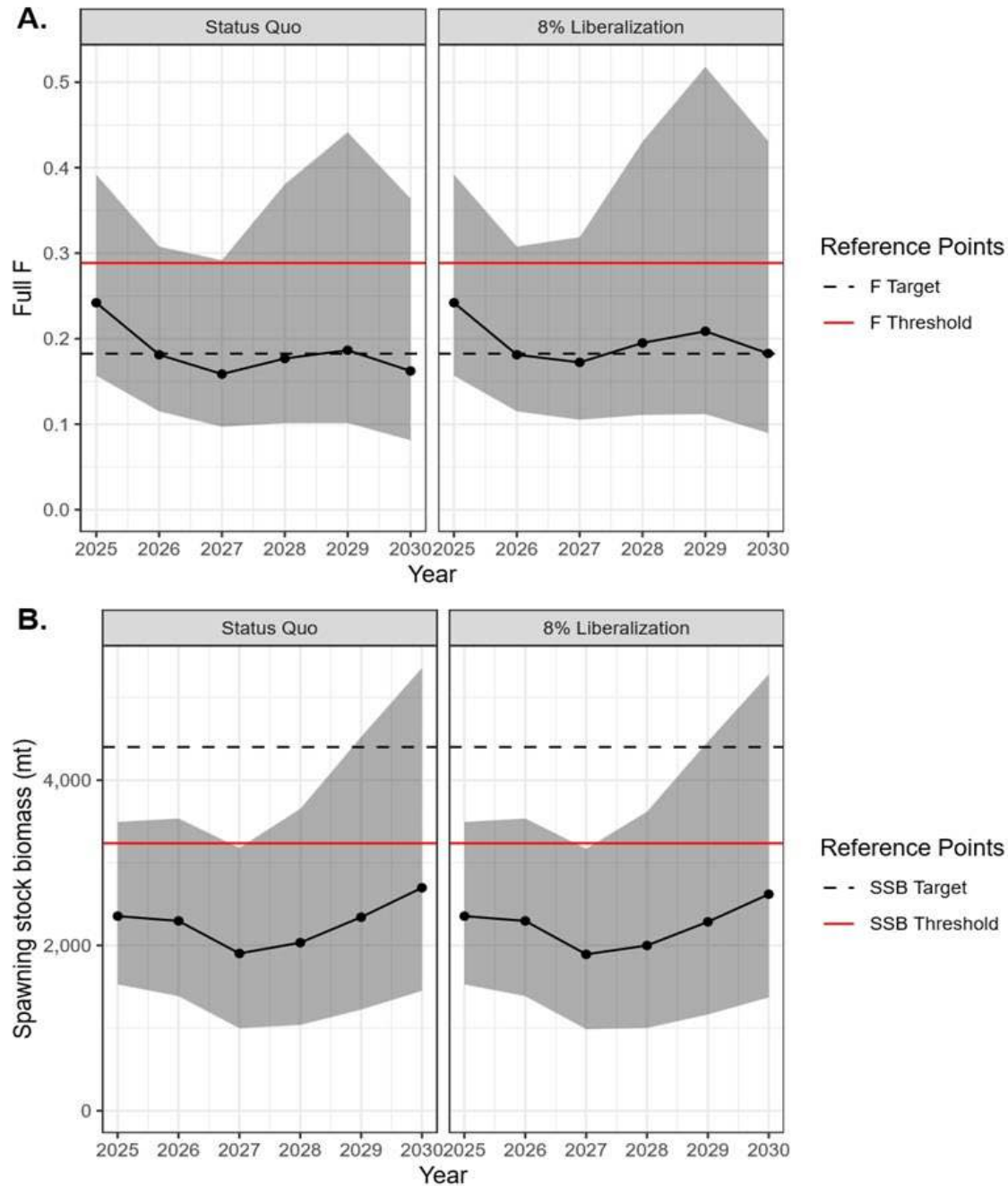


Figure A.3.1. Results of projections of the DMV stock. (A.) shows fully selected fishing mortality (F), and (B.) shows spawning stock biomass in metric tons. On the left are plots for the simulations using removals at current levels (the average removals from 2022-2024), on the right are plots. The black lines show the median (50% probability) outcome of multiple simulations, the gray shaded area shows the 90% confidence interval around that median, the horizontal red lines show the threshold reference points, and the dashed black horizontal lines show the target reference points.

## **APPENDIX 4. SOCIOECONOMIC ANALYSIS**

### **Analysis Summary**

The analysis conducted by Dr. Andrew Carr-Harris evaluates the relationship between historical recreational tautog harvest and regulations as a tool to consider the impacts of new regulations. MRIP data from 2010–2025 were used to estimate monthly recreational fishing effort and harvest within each management area: NJ-NYB. Management documents were used to reconstruct the corresponding recreational regulations in effect during each month.

The analysis proceeds in 3 steps. First, monthly datasets of recreational trips, tautog catch and harvest, and recreational regulations were assembled and merged into a single management-area-by-month panel. Second, reduced-form regression models were estimated to quantify the relationship between recreational harvest, fishing effort (trips), and the regulations in effect during each month, while controlling for seasonal and annual variation using month and year fixed-effects. Finally, the estimated regression models were used to predict harvest under alternative combinations of bag limits, minimum size limits, and season lengths. Management scenarios were evaluated relative to a predicted 2025 baseline to estimate the percentage reduction in harvest expected under each regulatory alternative.

The resulting framework provides a transparent and computationally efficient approach for comparing a range of management options. Rather than attempting to explicitly model angler behavior or fish population dynamics, the analysis uses historical relationships between regulations, fishing effort, and observed harvest to estimate how changes in regulations have historically affected recreational harvest. The results are intended to help identify combinations of regulations capable of achieving target harvest reductions and to compare the relative effectiveness of alternative management strategies.

Because the reduced-form harvest model estimates changes in harvest rather than broader socioeconomic outcomes, the analysis also includes illustrative commercial and recreational exposure analyses. For the commercial fishery, historical landings, ex-vessel revenues, and prices are summarized, and hypothetical 10%, 20%, and 40% reductions in commercial harvest are applied to average 2021–2025 ex-vessel revenues to illustrate the magnitude of gross revenue exposure. For the recreational fishery, hypothetical 10%, 20%, and 40% reductions in directed tautog trips are applied to average 2021–2025 fishing effort to estimate the number of trips and associated trip expenditures potentially affected under a range of behavioral responses. These exposure analyses are intended to provide context for the potential scale of socioeconomic effects and should not be interpreted as predictions of changes in regional economic activity or angler welfare associated with any regulatory shift.

### **Data**

The analysis combines three monthly datasets covering 2010–2025: estimated recreational tautog trips, estimated tautog catch and harvest, and historical recreational fishing regulations. Each dataset is constructed at the management-area, year, and month level and then merged into a common panel. The underlying processing and analysis code is available in a public GitHub repository ([https://github.com/acarrharris/tautog\\_rec\\_analysis](https://github.com/acarrharris/tautog_rec_analysis)).

### *Recreational fishing trips and harvest*

Recreational fishing trip and harvest estimates were developed from MRIP Access Point Angler Intercept Survey data for New York and New Jersey. A tautog trip was defined as an intercepted fishing trip on which tautog were either reported as the primary target species or caught.

Trips were assigned to one of three management areas:

1. New Jersey (includes all New Jersey observations)
2. LIS, identified for New York observations using the MRIP fishing area codes 2 (“Sound”), 4 (“Bay”), and C (“Long Island Estuary”)
3. NYB, which includes all New York observations outside the Long Island Sound area.

Although trip and harvest estimates were developed for all three areas, the final reduced-form policy analysis focuses on NJ-NYB. The resulting dataset contains estimated monthly numbers of tautog trips by management area from 2010 through 2025 (Figures A.4.1 and A.4.2). The MRIP trip and harvest estimation processes are contained in `code/mrip_trips.do` and `code/tautog_monthly_catch_totals.do`

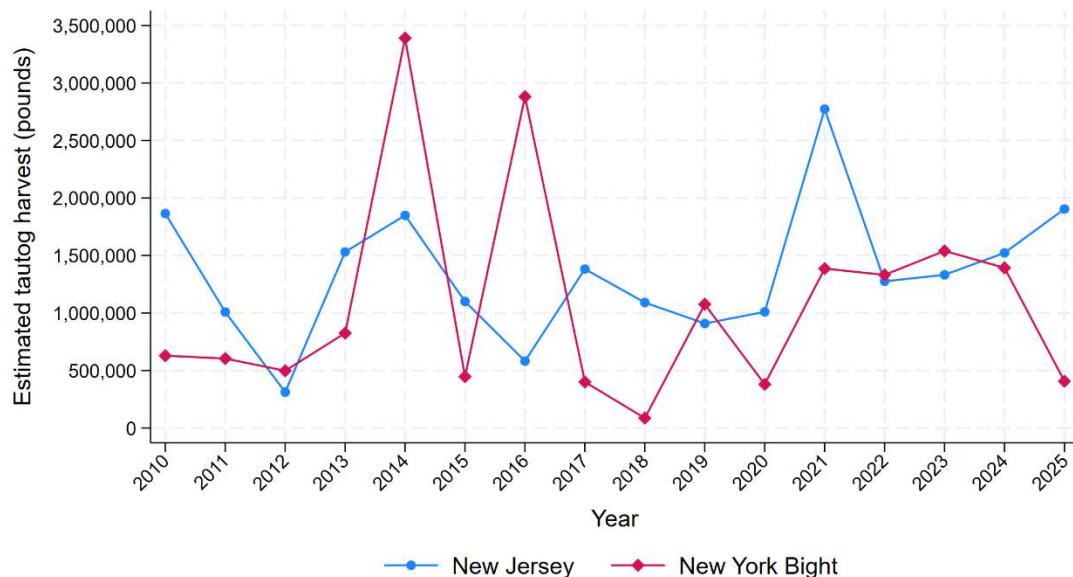


Figure A.4.1. MRIP-based estimates of tautog harvest in New Jersey and New York Bight.

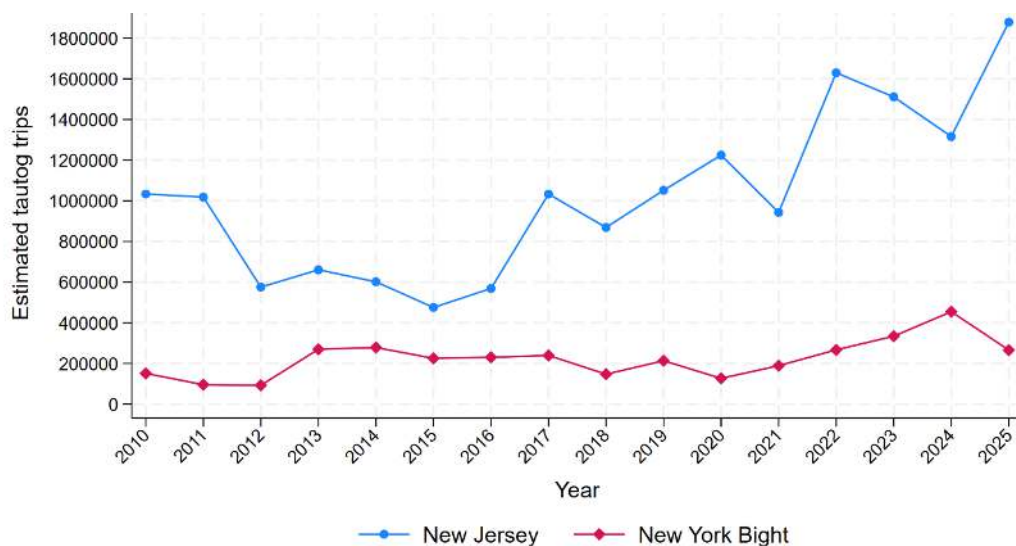


Figure A.4.2. MRIP-based estimates of directed tautog trips in New Jersey and New York Bight.

### Recreational fishing regulations

Historical recreational tautog regulations were compiled for New Jersey, the New York Bight, and LIS for 2010–2025. Regulations were obtained from Atlantic States Marine Fisheries Commission annual Fishery Management Plan Review documents. Regulations were directly documented in the available reviews for 2010, 2012, 2015, 2017, 2018, and 2021. Regulations for intervening years were carried forward when consecutive reviews indicated that no change had occurred. Regulations after 2021 were carried forward through 2025 based on guidance that the New Jersey and New York regulations had remained unchanged. The regulations were initially coded at the daily level. For every calendar day and management area, the dataset identifies whether recreational tautog harvest was open, the daily possession limit, and the minimum total-length requirement.

Daily regulations were then aggregated to the monthly level. A month was classified as open when recreational harvest was permitted for at least 10 calendar days during that month. This rule allows months with meaningful partial openings to enter the analysis as open while treating very short openings as closed.

For months containing more than one possession limit, such as November in New Jersey, the principal monthly bag-limit variable was defined as the bag limit applying for the greatest number of open days. If two limits applied for the same number of days, the lower and more conservative limit was selected. The dataset also retains the open-day-weighted average bag limit, the maximum bag limit, and the exact number of open days in each month. The corresponding processing is contained in code/tautog\_monthly\_regulations.do and summaries of regulations across the two management areas and time series are shown in Figures A.4.3 and A.4.4.

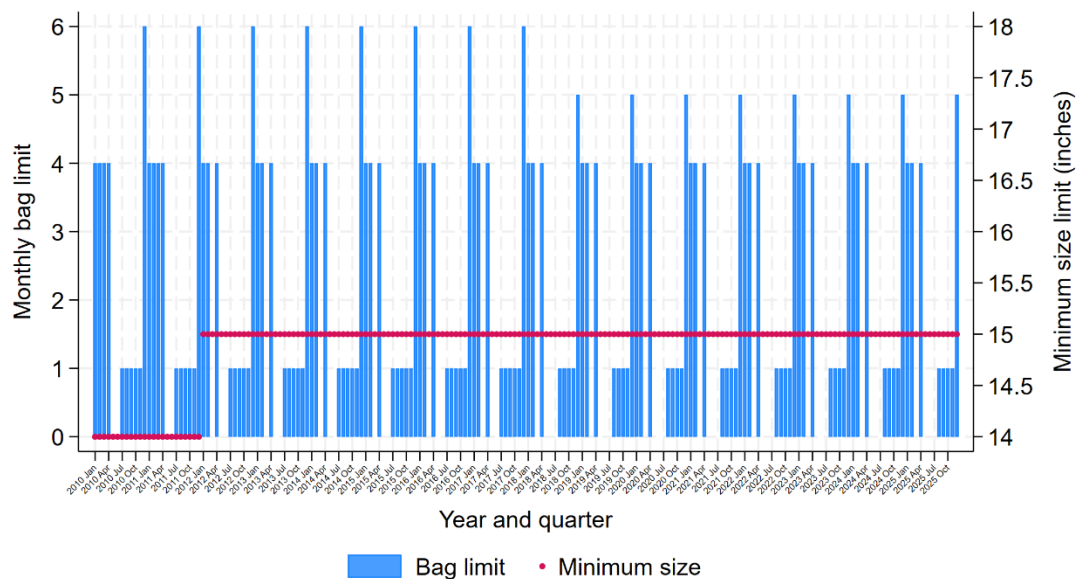


Figure A.4.3. New Jersey recreational tautog regulations.

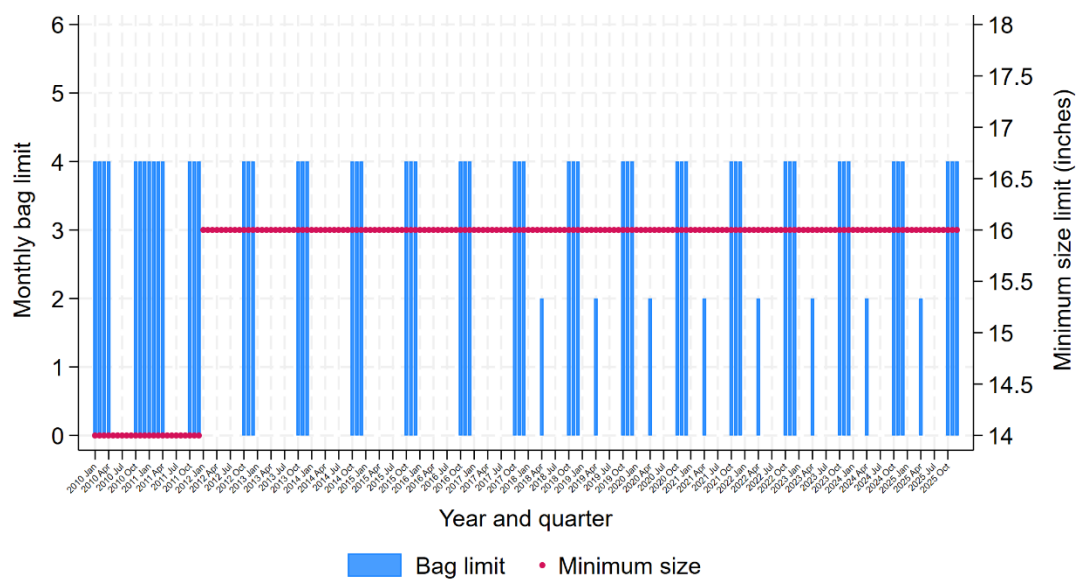


Figure A.4.4. New York Bight recreational tautog regulations.

## Methods

### *Reduced-form harvest model*

The trip, catch, and regulation datasets were merged by management area, year, and month to create a monthly panel covering 2010–2025. The analysis was restricted to New Jersey and the New York Bight because these areas are the focus of the proposed management alternatives. Separate regression models were estimated for monthly recreational tautog harvest measured in (1) numbers of fish harvested and (2) pounds harvested.

Monthly harvest was modeled as a function of fishing effort, recreational regulations, and fixed effects for management area, year, and month:

$$H_{aym} = \beta_0 + \beta_T T_{aym} + \beta_B (Bag_{aym} \times Open_{aym}) + \beta_S (Size_{aym} \times Open_{aym}) + \alpha_a + \gamma_y + \delta_m + \varepsilon_{aym}$$

where  $H_{aym}$  is monthly recreational harvest in management area  $a$ , year  $y$ , and month  $m$ ;  $T_{aym}$  is the estimated number of recreational tautog trips;  $Bag_{aym}$  is the monthly bag limit;  $Size_{aym}$  is the monthly minimum size limit; and  $Open_{aym}$  is an indicator equal to one when the fishery was open for at least ten days during the month and zero otherwise. Management-area fixed effects ( $\alpha_a$ ) account for persistent differences between New Jersey and the New York Bight, year fixed effects ( $\gamma$ ) account for annual changes common to all months (e.g., stock abundance, environmental conditions, or other annual influences), and month fixed effects ( $\delta$ ) account for recurring seasonal patterns in recreational fishing activity. The interaction terms between regulations and the open indicator ensure that bag and size limits influence predicted harvest only during months in which the fishery was open. The models were estimated using ordinary least squares with heteroskedasticity-robust standard errors. The corresponding code is contained in `code/regression_and_heatmap_plots.do`.

### *Baseline prediction*

The estimated regression models were used to predict harvest under a hypothetical continuation of the 2025 fishery into 2027. Because future fishing effort and stock conditions are unknown, the observed monthly conditions from 2025 were used as the baseline. Specifically, monthly trip estimates, regulations, and seasonal patterns from 2025 were retained, while the estimated 2025 year fixed effect was used during prediction. Consequently, the baseline represents the harvest expected if 2025 conditions continued into the following year. Predicted monthly harvest under the baseline was calculated as:

$$\widehat{H_{aym}^0} = \widehat{\beta}_0 + \widehat{\beta}_T T_{aym} + \widehat{\beta}_B (Bag_{aym} \times Open_{aym}) + \widehat{\beta}_S (Size_{aym} \times Open_{aym}) + \widehat{\alpha}_a + \widehat{\gamma}_{2025} + \widehat{\delta}_m$$

Monthly predictions were summed to obtain predicted annual harvest for each management area. Because harvest cannot be negative, any negative monthly predictions from the linear regression were truncated to zero before annual totals were calculated.

### *Policy simulations*

Alternative management scenarios were evaluated by modifying one or more regulations while holding the remaining baseline conditions constant. Policy scenarios included changes in daily bag limits, minimum size limits, season length, and combinations of these measures.

For each proposed regulation, the modified regulations and (when applicable) modified trip totals were substituted into the estimated regression model to predict monthly harvest:

$$\widehat{H_{aym}^p} = \widehat{\beta}_0 + \widehat{\beta}_T T_{aym}^p + \widehat{\beta}_B (Bag_{aym}^p \times Open_{aym}^p) + \widehat{\beta}_S (Size_{aym}^p \times Open_{aym}^p) + \widehat{\alpha}_a + \widehat{\gamma}_{2025} + \widehat{\delta}_m,$$

where the superscript  $p$  denotes the proposed management scenario.

Season reductions were implemented by removing fishing days from the end of the fall season, beginning with the latest open month and proceeding backward as necessary. Monthly trips were assumed to decline in proportion to the fraction of open fishing days remaining. Months with fewer than ten remaining open days were treated as closed. This approach assumes that trips lost because of shorter seasons disappear rather than being redistributed to other months or remaining open days. Consequently, the estimated effects of season-length changes should be interpreted as conditional on that behavioral assumption. Predictions were generated over a range of alternative bag limits, minimum size limits, and season lengths to evaluate a broad set of potential management strategies.

### *Predicted harvest reductions*

Predicted monthly harvest under each management scenario was summed to obtain predicted annual harvest. The effect of each proposed regulation was expressed as the percentage reduction relative to the predicted baseline harvest:

$$R_a^p = 100 \times \left( \frac{\widehat{H}_a^0 - \widehat{H}_a^p}{\widehat{H}_a^0} \right),$$

where  $\widehat{H}_a^0$  is the predicted annual harvest under the baseline (2025) regulations and  $\widehat{H}_a^p$  is the predicted annual harvest under the proposed regulation. Positive values indicate reductions in recreational harvest relative to continuation of the 2025 regulations. Results are summarized using heat maps that compare the predicted effects of alternative combinations of bag limits, minimum size limits, and season lengths.

## **Results**

Table A.4.1 reports the estimated reduced-form harvest models. As expected, monthly harvest increased significantly with the estimated number of recreational trips. Higher daily bag limits were associated with higher harvest, while more restrictive minimum size limits tended to reduce harvest. The average differences in harvest in NYB compared to NJ was not statistically significant.

Table A.4.1. Reduced form model estimates.

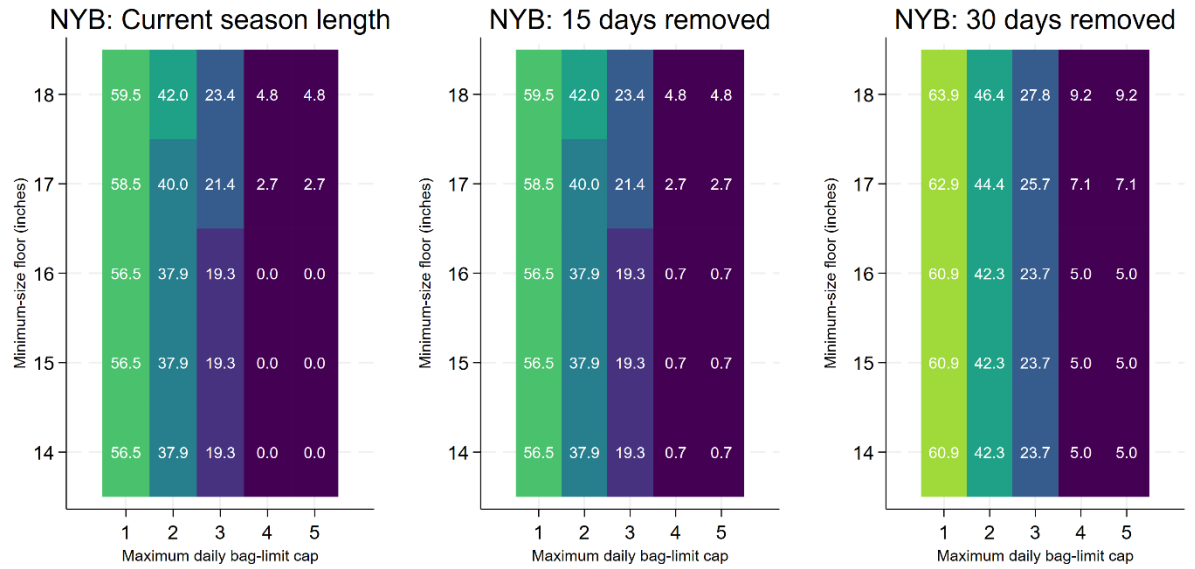
|                     | harvest<br>numbers     | harvest<br>pounds       |
|---------------------|------------------------|-------------------------|
| trips               | 0.358***<br>(0.095)    | 1.061***<br>(0.322)     |
| bag_open            | 22196.2***<br>(6072.7) | 83119.5***<br>(24029.1) |
| min_open            | -2475.8***<br>(683.3)  | -7167.4***<br>(2289.2)  |
| NYB                 | 6167.5<br>(10763.8)    | 55860.6<br>(48957.6)    |
| constant            | -7476.38<br>(18453.4)  | -75611.8<br>(63084.3)   |
| Observations        | 268                    | 268                     |
| R-squared           | 0.56                   | 0.505                   |
| Year fixed-effects  | Y                      | Y                       |
| Month fixed-effects | Y                      | Y                       |

Notes: Standard errors in parentheses. \*, \*\*, \*\*\* indicate statistical significance at the 10%, 5%, and 1% level of significance, respectively.

The estimated regression models were used to predict recreational harvest under a range of alternative management scenarios. Simulations considered combinations of daily bag limits, minimum size limits, and season lengths while holding all other 2025 fishing conditions constant. Predicted harvest under each policy was compared with the predicted harvest under continuation of the 2025 regulations.

Figures A.4.5 through A.4.8 summarize the predicted percentage reduction in annual harvest across combinations of bag limits and minimum size limits under alternative season-length assumptions. Several consistent patterns emerge across both management areas. First, reducing the daily bag limit produces the largest reductions in recreational harvest. Second, increasing the minimum size limit produces additional but generally smaller reductions in harvest. Finally, shortening the fall season shifts the predicted harvest reductions upward, particularly for the more restrictive bag-limit scenarios.

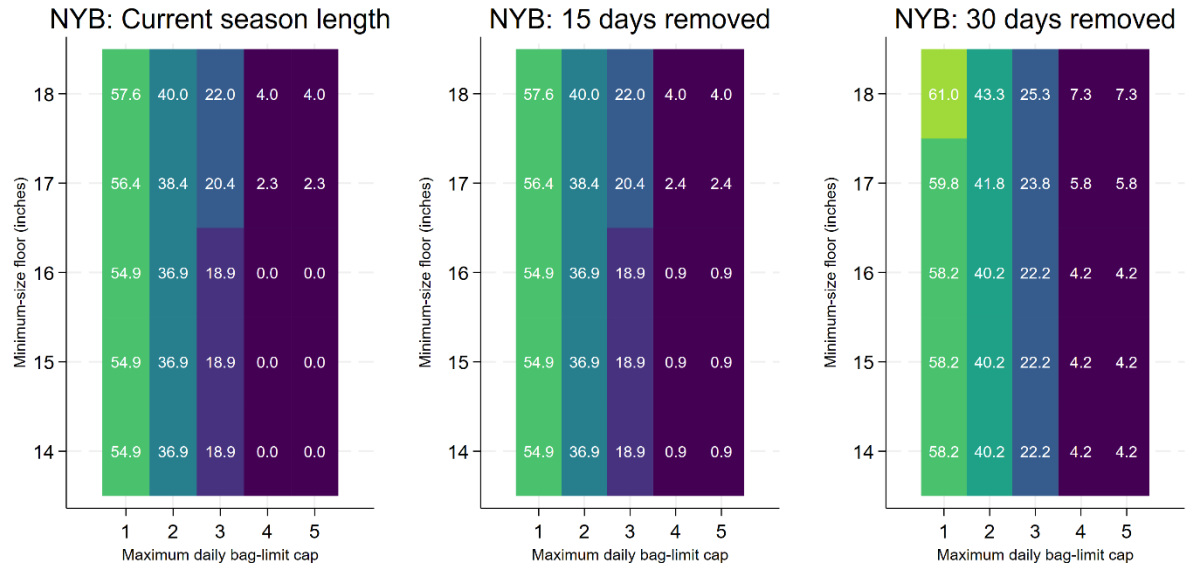
### Predicted reduction in annual harvest numbers



Relative to predicted 2025 baseline harvest; 2025 year effect used.

Figure A.4.5. Predicted reductions in harvest numbers, New York Bight.

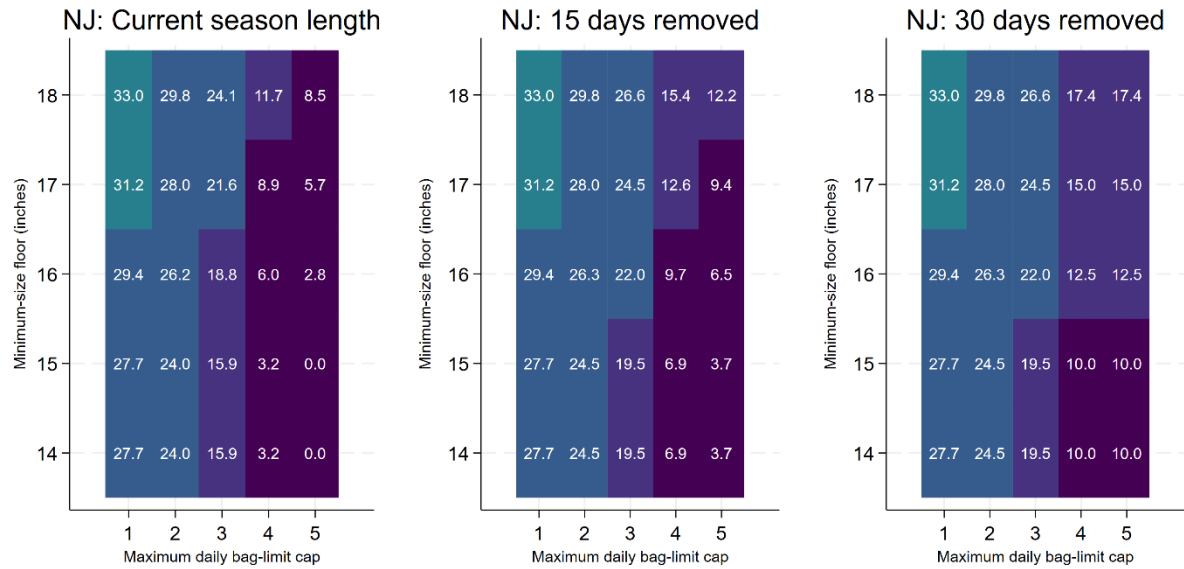
### Predicted reduction in annual harvest weight



Relative to predicted 2025 baseline harvest; 2025 year effect used.

Figure A.4.6. Predicted reductions in harvest weight, New York Bight.

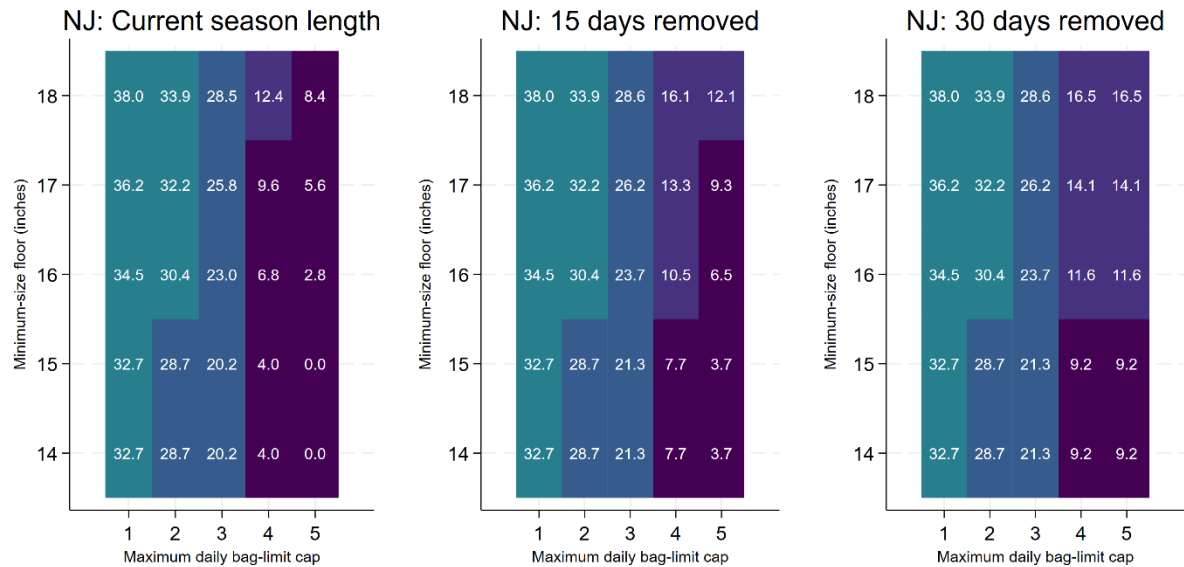
### Predicted reduction in annual harvest numbers



Relative to predicted 2025 baseline harvest; 2025 year effect used.

Figure A.4.7. Predicted reductions in harvest numbers, New Jersey.

### Predicted reduction in annual harvest weight



Relative to predicted 2025 baseline harvest; 2025 year effect used.

Figure A.4.8. Predicted reductions in harvest weight, New Jersey.

## **Management implications**

The analysis suggests that daily bag limits are the primary driver of recreational harvest reductions in both management areas, while increases in the minimum size limit provide additional but generally smaller reductions. Season-length reductions can further reduce harvest, although these results depend on the assumption that trips lost because of shortened seasons are not redistributed to other months or remaining open days. The heat maps demonstrate that multiple combinations of bag limits, minimum size limits, and season lengths may achieve harvest reductions within the management target range.

Because the analysis is based on historical empirical relationships rather than a structural model of angler behavior or fish population dynamics, the predictions should be interpreted as approximate policy guidance rather than precise forecasts. Nevertheless, the framework provides a transparent and computationally efficient method for comparing a broad range of recreational management alternatives using historical fishery data.

## **Limitations**

Several simplifying assumptions should be considered when interpreting the results. First, the regression models estimate historical associations between regulations and harvest rather than causal behavioral responses. Second, future harvest was predicted assuming that fishing effort, stock conditions, and annual effects remain similar to those observed in 2025. Third, season-length reductions assume that trips removed from shortened seasons disappear rather than being redistributed to other open periods. Finally, the models do not account for future changes in fish abundance, recruitment, or angler preferences that could alter recreational harvest under future regulations.

## **Social and economic impacts**

### *Recreational fishery*

Constraining recreational harvest through more restrictive recreational regulations will affect the angling community through channels not measured by the reduced from harvest model. Lower bag limits, higher size limits, and season reductions reduce opportunities to retain tautog and may increase recreational discarding. If the average angler places a higher value on harvesting rather than catching-and-releasing tautog, this will reduce the value or satisfaction of fishing trips and may affect for-hire and other fishing dependent businesses if anglers take fewer trips due to reduced harvest opportunities. The magnitude of these effects depends on anglers' behavioral responses. Anglers may continue to take tautog trips under more restrictive regulations, shift trips to other open periods, target other species, change fishing locations or modes, or discontinue some trips entirely. Because the present analysis does not estimate these behavioral adjustments, changes in recreational expenditures, business activity, or angler welfare cannot be quantified from the predicted harvest reductions.

To provide context for the potential scale of recreational economic effects, the analysis below illustrates exposure scenarios based on the distribution of trips that caught or primarily targeted tautog during 2021–2025. These scenarios assume that 10%, 20%, or 40% of directed trips are affected under more restrictive management measures. The percentages are not predictions from the harvest model and should not be interpreted as expected reductions in

fishing effort. Instead, they show the number of trips that would be affected under a range of hypothetical behavioral responses.

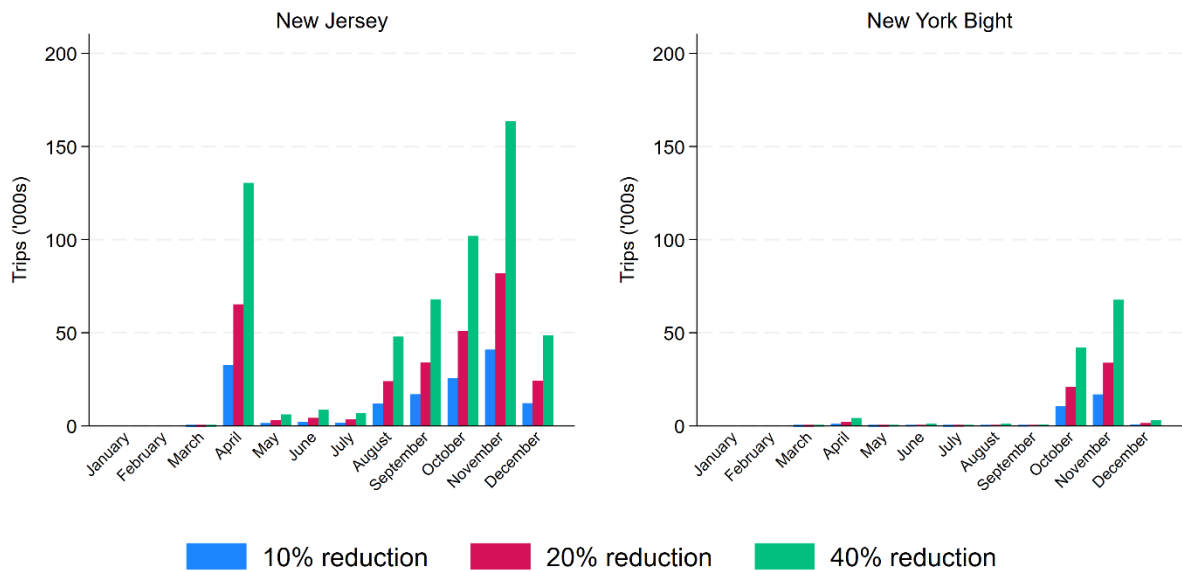
Monthly exposure estimates are calculated by applying each percentage to average directed tautog trips in each month (Figures A.4.9 and A.4.10). These estimates illustrate how the timing of potential trip reductions affects the angling community. Months with greater baseline tautog activity have correspondingly greater exposure, while months with relatively few directed trips contribute less to the annual total. The monthly figures are therefore useful for identifying periods in which restrictions or changes in angler behavior could affect the greatest number of trips.

Annual exposure (Figure A.4.11) is calculated by summing the monthly estimates within each management area. The resulting values represent 10%, 20%, and 40% of average annual directed tautog trips in New Jersey and the New York Bight. These aggregated scenarios provide a simple comparison of the scale of potential recreational effects across the two areas and are presented in parallel with the commercial revenue-exposure analysis below.

Potential expenditure exposure is calculated by multiplying the number of affected trips by estimated mean expenditures per directed tautog trip. Mean trip expenditures are assumed to be \$50 for New Jersey and \$67 for the New York Bight (based on NOAA's 2022 expenditure survey data for trips whose primary or secondary target was tautog in New York or New Jersey). The monthly and annual expenditure estimates therefore represent spending associated with the hypothetical number of affected trips under each scenario. These values should be interpreted as trip-expenditure exposure, rather than predicted losses in business revenue. The estimates do not account for substitution behavior. For example, anglers may reschedule trips, target another species, fish in a different area, or spend money on other recreational activities. Some expenditures may also occur outside the affected management area or may not accrue directly to fishing-dependent businesses. Consequently, the expenditure estimates indicate the scale of economic activity associated with potentially affected trips, but they do not measure net economic losses, regional economic impacts, or changes in angler welfare from changes in trip outcomes relative to a baseline of more liberal recreational regulations.

The monthly and annual scenarios provide a range of recreational exposure without assuming a specific behavioral response to the proposed regulations. The actual effect of more restrictive regulations could fall outside this range and would depend on the specific management measures adopted, the timing of those measures, fishing conditions, and anglers' behavioral responses and ability/willingness to substitute trips among dates, locations, modes, and target species.

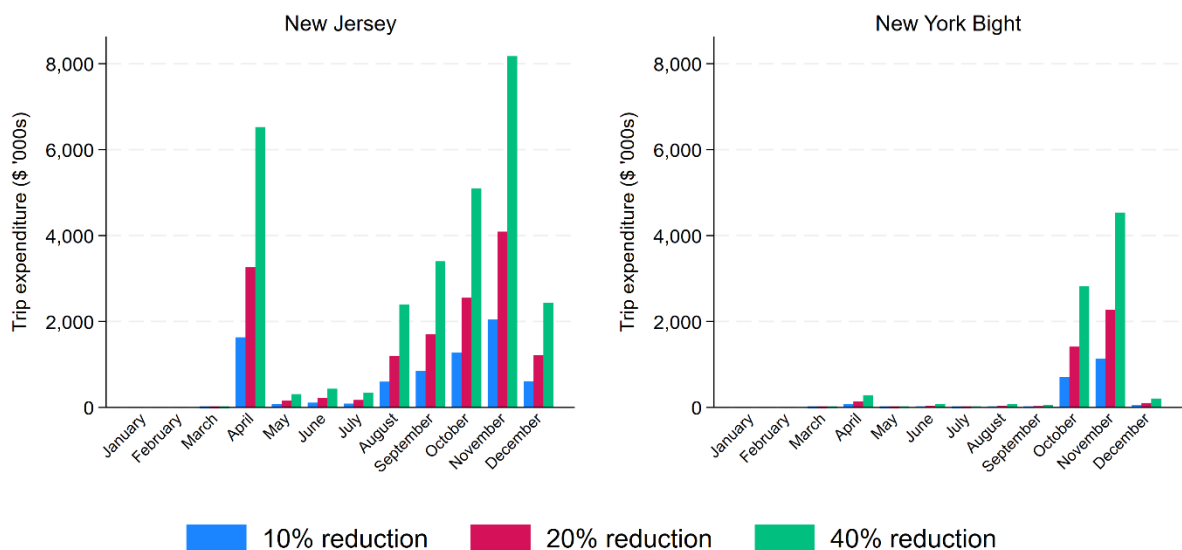
### Illustrative monthly reductions in directed tautog trips Based on 2021–2025 average monthly trips



Each scenario represents a separate hypothetical reduction in directed trips.

Figure A.4.9. Monthly directed trips under alternative trip reduction scenarios.

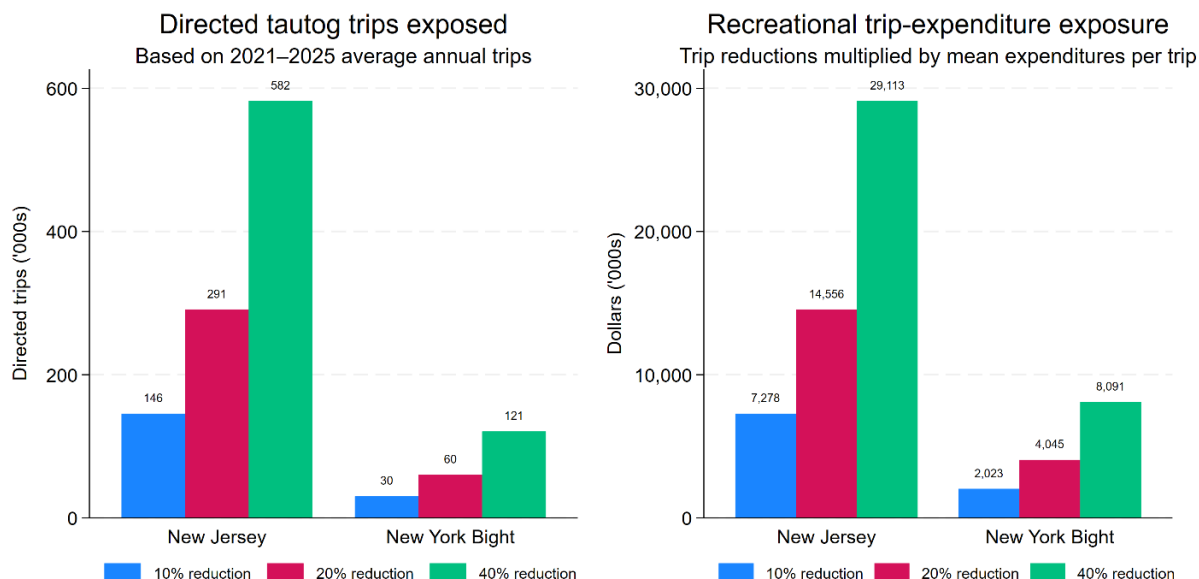
### Illustrative monthly recreational trip-expenditure exposure Based on 2021–2025 average trips and mean expenditures per trip



Mean trip expenditure is on trips where tautog was primary or secondary \$50 in NJ and \$67 in NYB.  
Each scenario is based on a hypothetical reduction in trips.

Figure A.4.10. Monthly recreational trip-expenditure exposure under alternative trip reduction scenarios.

## Illustrative recreational exposure



Mean trip expenditure is on trips where tautog was primary or secondary \$50 in NJ and \$67 in NYB.

Figure A.4.11. Annual recreational trip and trip trip-expenditure exposure under alternative trip reduction scenarios.

### Commercial fishery

Commercial landings, ex-vessel revenues, and ex-vessel prices provide historical context for the economic importance of the tautog fishery in New Jersey and New York (Figure A.4.12). However, historical trends alone do not indicate how future management actions may affect commercial fishing businesses because the relationship between harvest reductions and fishing revenues depends on fishermen's behavioral responses, market conditions, and changes in ex-vessel prices.

To illustrate the potential scale of commercial exposure, this analysis presents a series of hypothetical gross revenue exposure scenarios based on average annual ex-vessel revenues during 2021–2025 based on non-confidential landings and revenue from the ACCSP Data Warehouse (Figure A.4.13). Three illustrative scenarios are considered in which commercial harvest, and therefore gross ex-vessel revenue, is reduced by 10%, 20%, or 40%. These scenarios are intended only to provide context for the magnitude of revenues associated with different levels of harvest reduction and should not be interpreted as predictions of the effects of any specific management alternative.

Gross revenue exposure is calculated by applying each hypothetical percentage reduction to the average annual ex-vessel revenue observed during 2021–2025. The resulting estimates represent the portion of recent commercial revenues associated with the specified reduction scenarios. Because the calculations are based on recent average revenues, they provide a simple benchmark for comparing the relative scale of potential commercial exposure between New Jersey and New York.

The exposure estimates should not be interpreted as net economic losses. Commercial fishermen may adjust to more restrictive regulations by modifying fishing effort, changing the timing or location of fishing activity, targeting alternative species, or responding to changes in market prices. In addition, reductions in harvest may be partially offset if lower landings increase ex-vessel prices, while changes in operating costs or substitution among fisheries may further influence net economic outcomes. These behavioral and market responses are not captured in the present analysis.

Accordingly, the commercial exposure scenarios are intended only to illustrate the scale of gross ex-vessel revenues associated with hypothetical reductions in commercial harvest. Together with the historical trends in landings, revenues, and prices, these scenarios provide a benchmark for evaluating the relative economic importance of different levels of commercial harvest reduction without attempting to predict realized economic impacts.

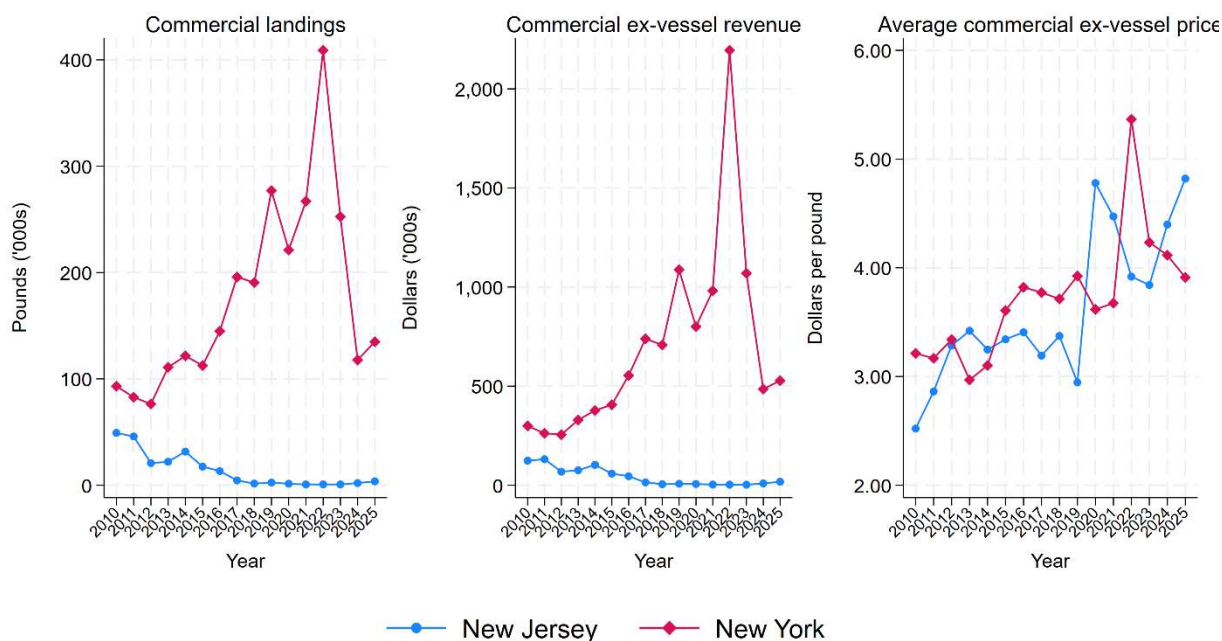


Figure A.4.12. Trends in commercial tautog landings, ex-vessel revenue, and price by year and state.

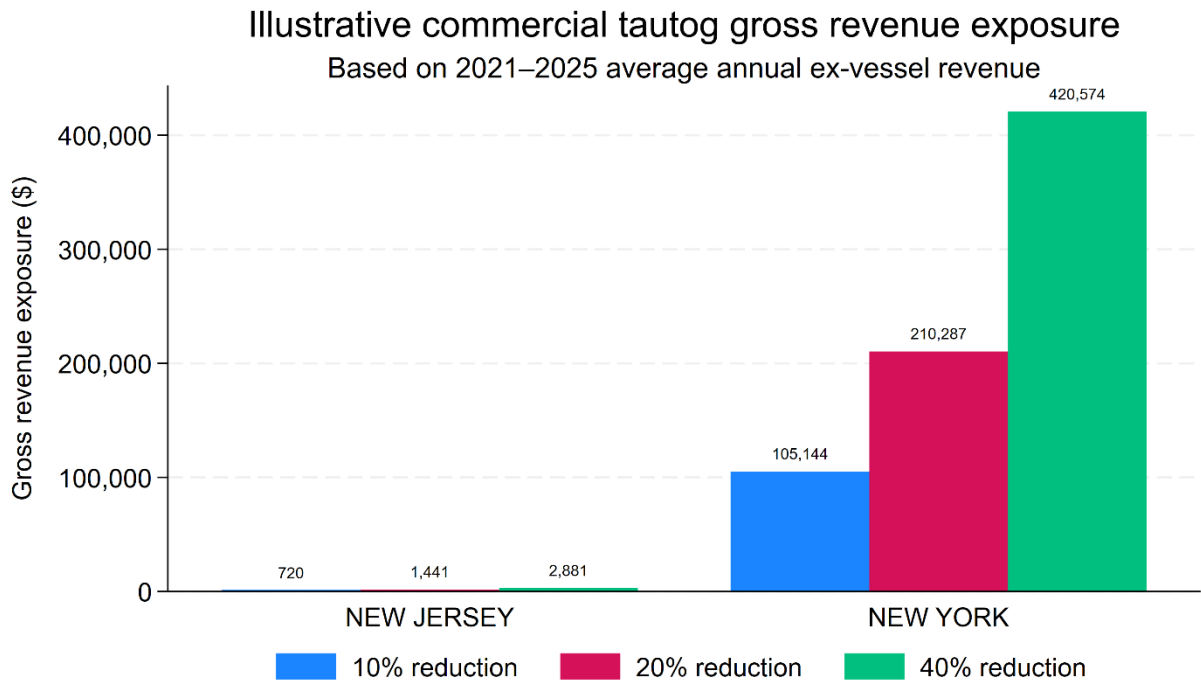


Figure A.4.13. Commercial ex-vessel revenue exposure under alternative harvest reduction scenarios.