Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Atlantic Menhaden Management Board**

FROM: **Atlantic Menhaden Plan Development Team**

DATE: **April 20, 2026**

SUBJECT: **PDT Analyses and Rejected Options on Draft Addendum II to Amendment 3**

At the 2026 Winter Meeting, the Atlantic Menhaden Management Board provided additional guidance to the Plan Development Team (PDT) on drafting options to reduce the Chesapeake Bay Reduction Fishery Cap by up to 50% and distribute the cap more evenly throughout the fishing season. The Board also requested analyses for further consideration including:

- Compare reduction effort with harvest data within quota periods
- Investigate pound net and reduction catch rates to determine if pound net landings are correlated with the timing of the reduction fishery
- Pound net participation over time

Below are the results of the PDT's analyses, as well as options that were considered and rejected by the PDT for inclusion in the draft addendum.

Additional Analyses

Reduction Harvest vs. Effort

The proposed options consider potential ways to spread reduction fishery harvest more evenly and/or later in the fishing season in the Chesapeake Bay. The Board also requested information on the distribution of reduction fishery effort during the season. Since 2020, the distribution of effort is generally spread relatively evenly across the fishing season with about 5-10% of the total effort occurring in most weeks with occasional spikes and drop-offs (Figure 1). In 2018, more effort occurred early in the fishing season, and in 2019, effort occurred primarily in two stanzas with very little effort for most of the month of July. The relative trend in catch per unit of effort (CPUE) was most variable in 2018 and 2019 (Figure 2). The approximate average (2018-2024) percent of landings and effort per quota period for the options in Table 4 of Draft Addendum II are presented in Memo Table 1.

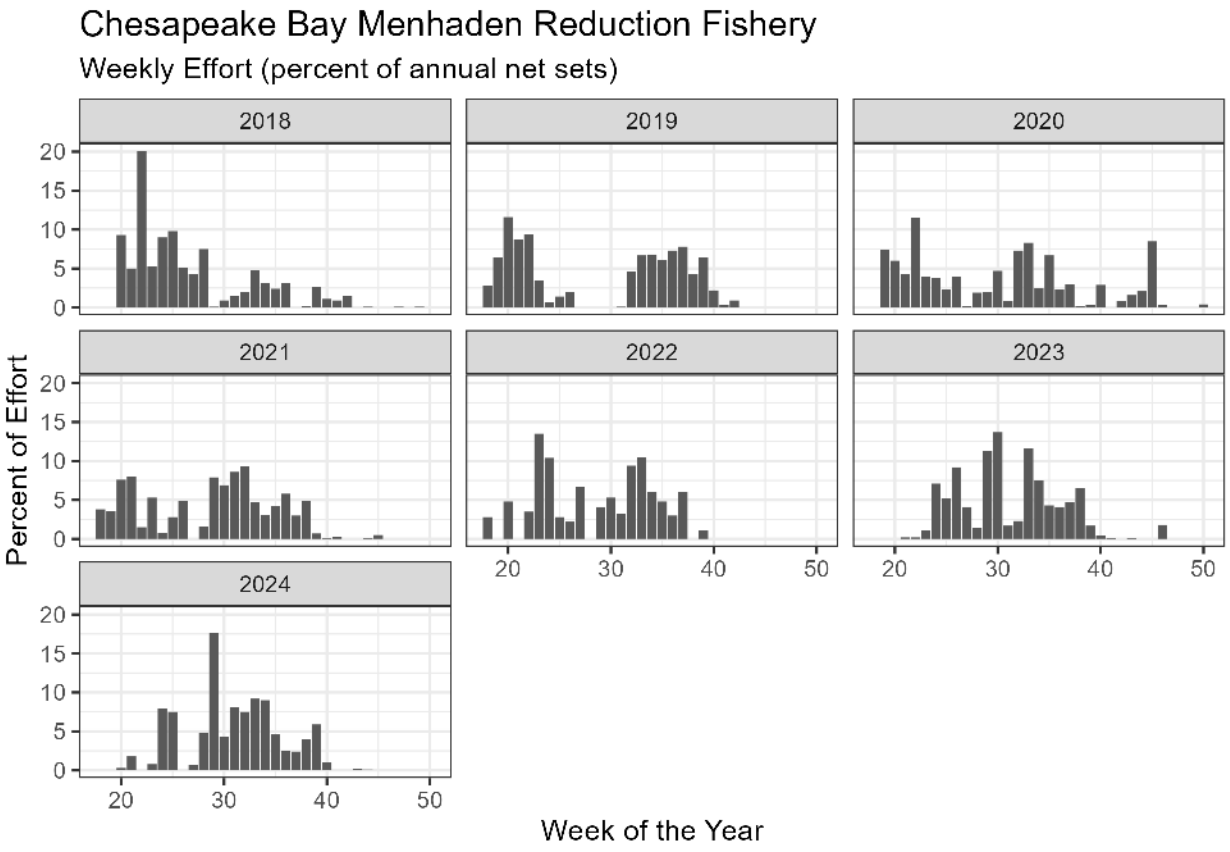

Figure 1. Percent of annual effort (number of net sets) by week for the menhaden purse seine reduction fishery in the Chesapeake Bay 2018-2024.

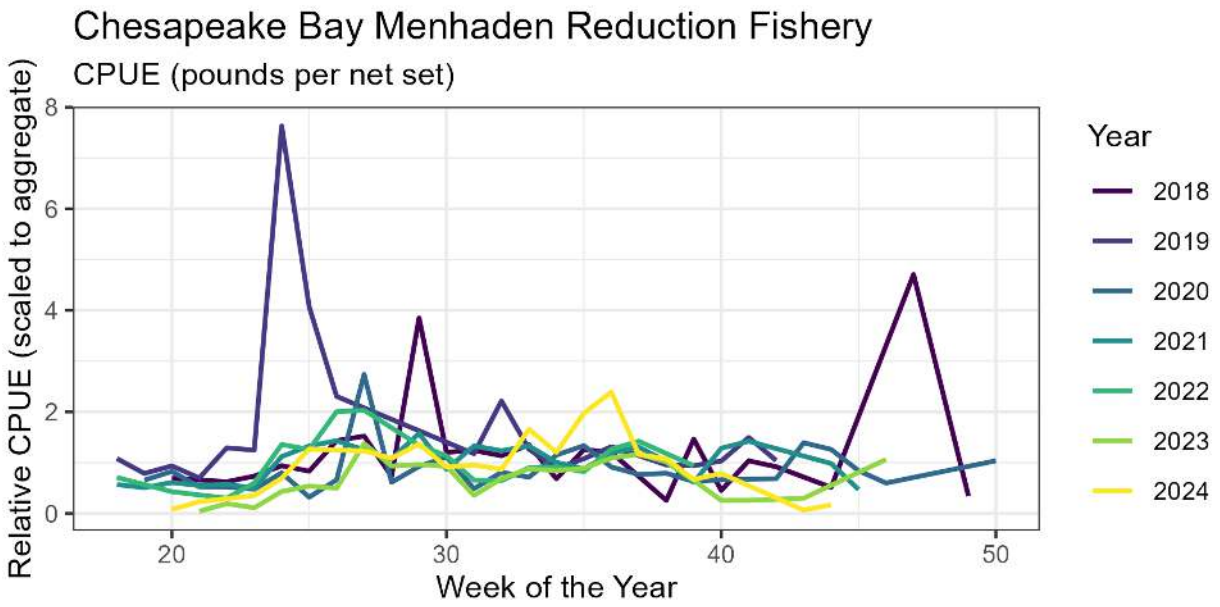

Figure 2. Catch per unit of effort (CPUE in pounds per net set) scaled to the time series aggregate CPUE by week for the menhaden purse seine reduction fishery in the Chesapeake Bay 2018-2024

Table 1. Approximate average percent purse seine reduction landings and effort in the Chesapeake Bay 2018-2025 corresponding to the quota periods as presented in Options B-G in section 3.2.1 of Draft Addendum II.

Option	Length of Quota Period	Average (2018-2024) Percent Landings	Average (2018-2024) Percent Effort
B/D	9 weeks	30%	39%
	10 weeks	54%	48%
	11 weeks	16%	13%
C/E	7 weeks	20%	31%
	7 weeks	33%	28%
	7 weeks	41%	35%
	8 weeks	7%	7%
F/G	11 weeks	38%	44%
	6 weeks	36%	34%
	12 weeks	26%	22%

Pound Net and Reduction Catch Rates

The Atlantic Menhaden Management Board has recently expressed concern that a recent shift in timing of the Chesapeake Bay menhaden reduction fishery has resulted in reduced availability of fish in the upper bay and consequent reductions in Maryland pound net harvest of menhaden. The PDT conducted a preliminary analysis using readily available data to evaluate any potential link between the two fisheries but recommends to the Board that the Technical Committee would be a more appropriate avenue to conduct a detailed analysis.

Menhaden harvest in MD's pound net fishery varied without trend during 2018-2022 but had declined by over 60% by 2024 (Figure 3). Generally speaking, changes in harvest may be caused by changes to abundance or availability, changes to effort, and/or changes to fishing efficiency. Assuming there were no major changes to the fishery that would affect efficiency (*e.g.* gear modifications), the PDT investigated variability in effort and availability as potential causes for the decline in harvest.

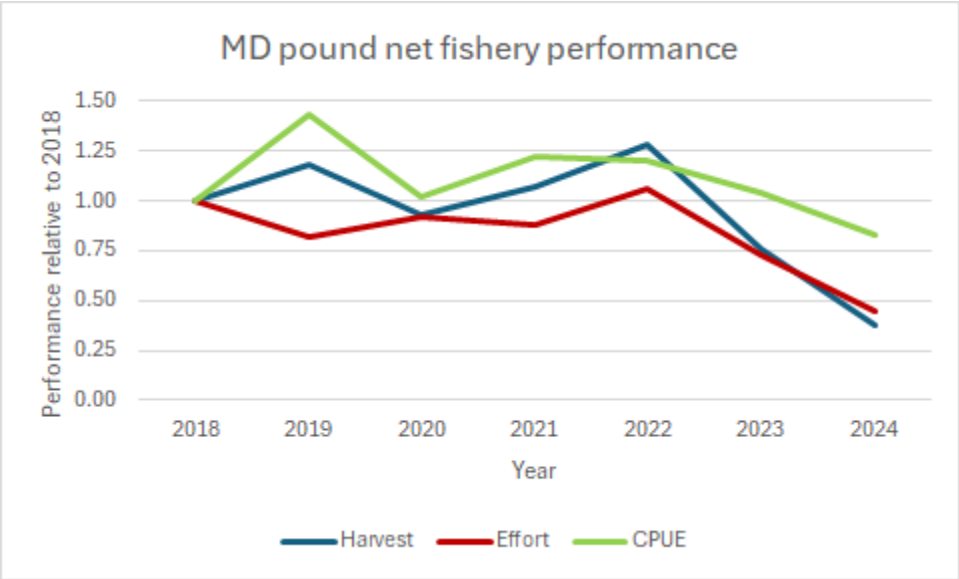

Figure 3. Relative performance of the Maryland pound net fishery in 2018-2024 for harvest (pounds), effort (net trips) and CPUE (pounds per net trip). Annual values are scaled to the 2018 value for each metric to preserve confidentiality.

Effort in the MD pound net fishery is reported on mandatory monthly reporting forms as nets used per trip. Annual effort for this analysis is the sum of nets per trip across all trips within a year. Figure 3 shows that, similar to harvest, total effort in the pound net fishery was stable during 2018-2022, followed by a 50% decline during 2023-2024.

While true abundance (or availability) is not known, catch per unit effort can be used as a proxy for abundance if it is assumed there are no major changes to how the fishery operated between years. For this analysis, CPUE was calculated as annual harvest divided by annual effort (sum of nets per trip). These data show that although CPUE has declined in recent years, the decline is not as dramatic as observed in catch and effort (Figure 3). This suggests that the decline in landings in recent years is primarily driven by reduced effort.

Data were also available from a fishery independent survey of the Choptank River in Maryland (Figure 4). The survey has been conducted by MD DNR using gillnet gear during June-Aug since 2013. Between 2018 and 2023, the abundance appears to have been relatively stable with moderate interannual variability. In 2024, abundance dropped dramatically and remained low in 2025.

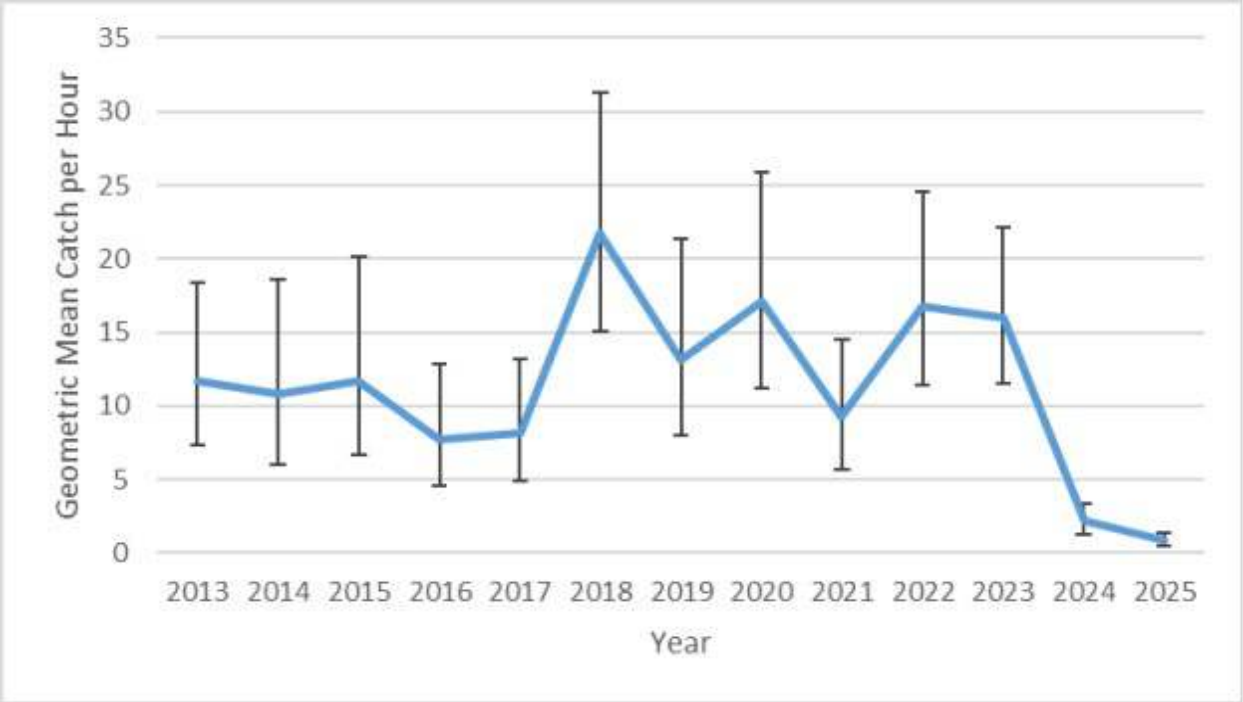

Figure 4. MD DNR Choptank River Gillnet Survey geometric mean catch per effort.

While the annual data suggest that availability has remained relatively constant, the PDT was concerned that data at the annual scale may mask variability at the seasonal level. To investigate seasonal impacts, CPUE was evaluated on a weekly scale (weekly harvest divided by weekly net trips), beginning in week 13 of each year.

During weeks 13-26, weekly CPUE in both 2023 and 2024 is low relative to the average in 2018-2022 (Figure 5). It is unlikely that this is due to the reduction fishery, as reduction harvest does not usually begin until week 19 and was delayed until after week 23 in 2023-2024 (Figure 6).

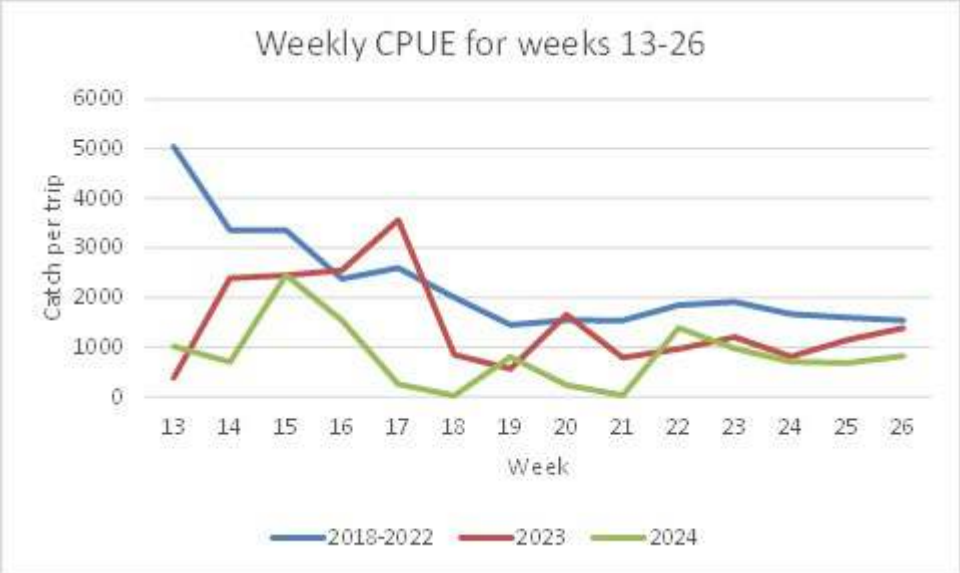

Figure 5. Weekly CPUE in MD pound net fishery for weeks 13 to 26.

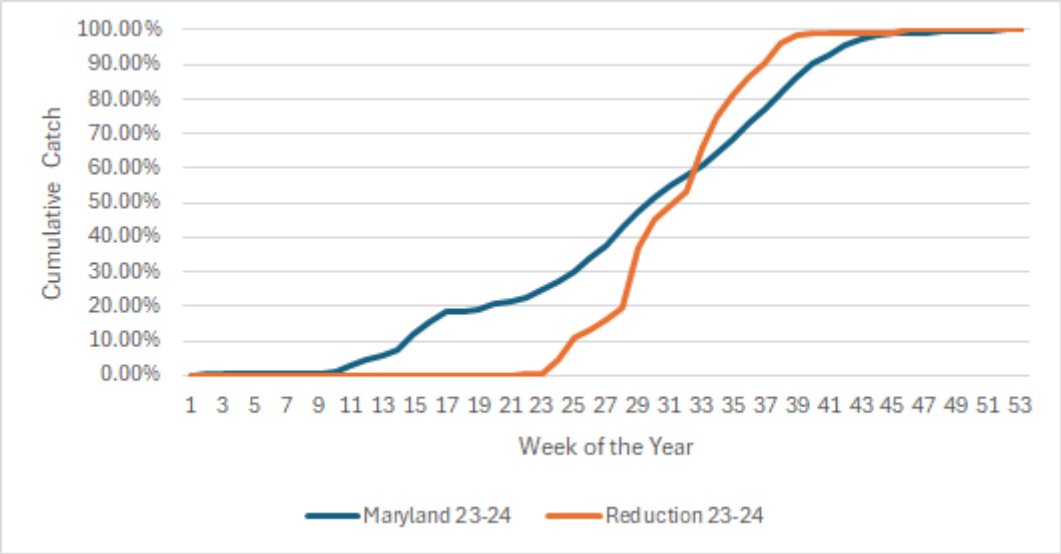

Figure 6. Timing of the MD pound net fishery relative to the Chesapeake Bay reduction fishery.

During the second half of the year (weeks 27+), weekly CPUE in 2023 is generally equal to or greater than the 2018-2022 average (Fig 7), suggesting little influence of the reduction fishery on pound net catches. Starting in week 46, pound net CPUE in 2023 falls below the 2018-2022 average, but by this time both fisheries have achieved greater than 95% of the annual catch and are winding down for the year.

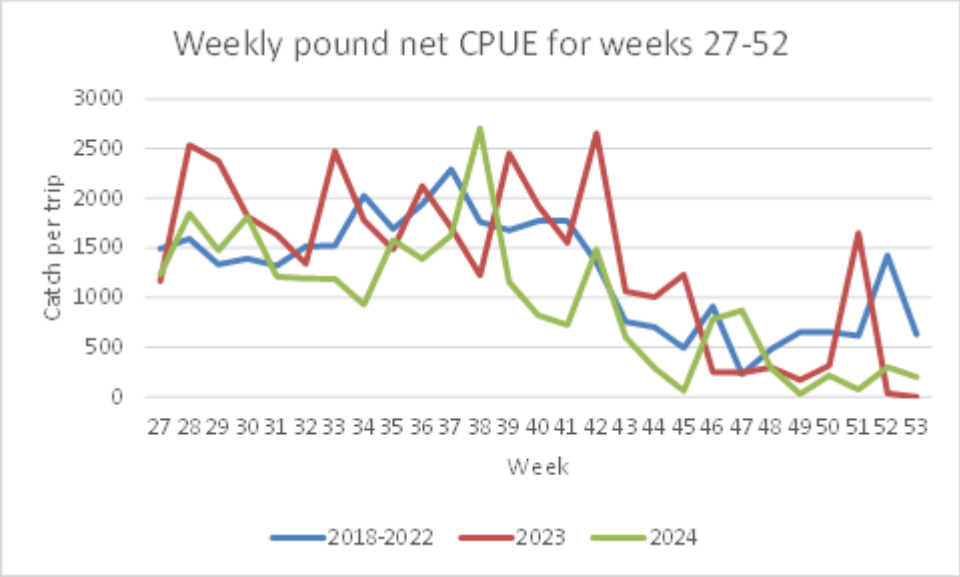

Figure 7. Weekly CPUE in MD pound net fishery for weeks 27-52.

Weekly pound net CPUE in 2024 shows a different pattern. Beginning in week 31 and continuing through the end of the year, CPUE in 2024 is generally below the 2018-2022 average (Fig 7). Just prior to this time period, the reduction fishery was experiencing higher than normal catch rates (Figure 8). The reduction fishery began in week 23, approximately five weeks later than 2018-2022, but by week 33 had caught approximately 60% of the annual catch, which is in

line with earlier years. It is possible that these higher than normal catch rates may have affected availability of fish in the upper bay, thereby affecting pound net catches. However, these data are inconclusive at the resolution at which they were evaluated. Although catch rates were higher than normal, total catch was equivalent among years. Any link between reduction harvest and availability in the upper bay would be a joint function of fishery dynamics and migratory patterns (*e.g.* timing and location) at a finer scale than were considered for this analysis.

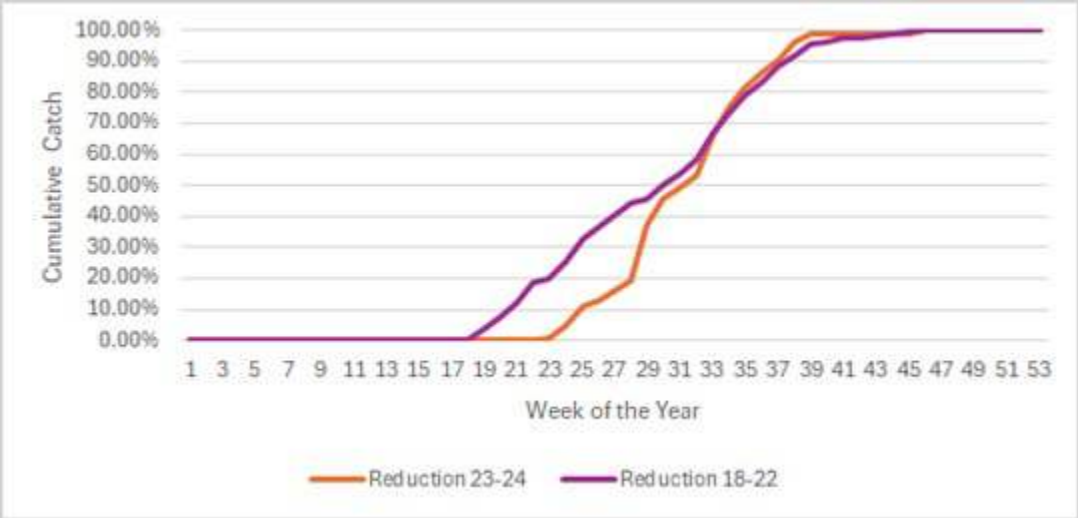

Figure 8. Timing of the Chesapeake Bay reduction fishery showing a delayed start with higher than average catch rates in weeks 23-33 in 2023-2024.

Results of this analysis suggest that reduced pound net harvest in 2023 was a result of lower than normal effort. CPUE in the Choptank River gillnet survey in 2023 was approximately equal to the 2018-2022 average, and weekly CPUE in the Maryland pound net fishery was generally higher than the 2018-2022 average. These two observations suggest continued availability of menhaden to the pound net fishery. Assuming no change to fishery efficiency, reduced effort remains as the primary cause of reduced harvest.

In contrast, higher than normal catch rates in the reduction fishery in 2024 may have reduced availability to the pound net fishery, although this cannot be confirmed at the resolution at which this analysis was conducted. Higher than average harvest rates in the Chesapeake Bay reduction fishery during weeks 23-33 were followed by lower than average pound net CPUE beginning in week 27. Although reduction harvest rates were higher than normal, overall removals were typical. A more detailed analysis would be required to elucidate the effects of reduction harvest on the pound net fishery.

Pound Net Participation Over Time

The Board requested additional analysis to explore trends in the number of participants in the pound net fisheries for Maryland, Potomac River Fisheries Commission (PRFC), and Virginia. Overall, all three jurisdictions saw a decline in the number of unique participants from 2018 through 2024, with Maryland seeing the biggest decline from 2018 through 2021 (Figure 9). Since 2021, all three states have seen between 10 to 16 participants per year.

PRFC notes that the pound net fishery has been a limited entry fishery since the 1970's, and allows for a maximum of 100 pound nets in the Potomac Mainstem. They have not noted any major historical trends in the number of participants fishing for menhaden.

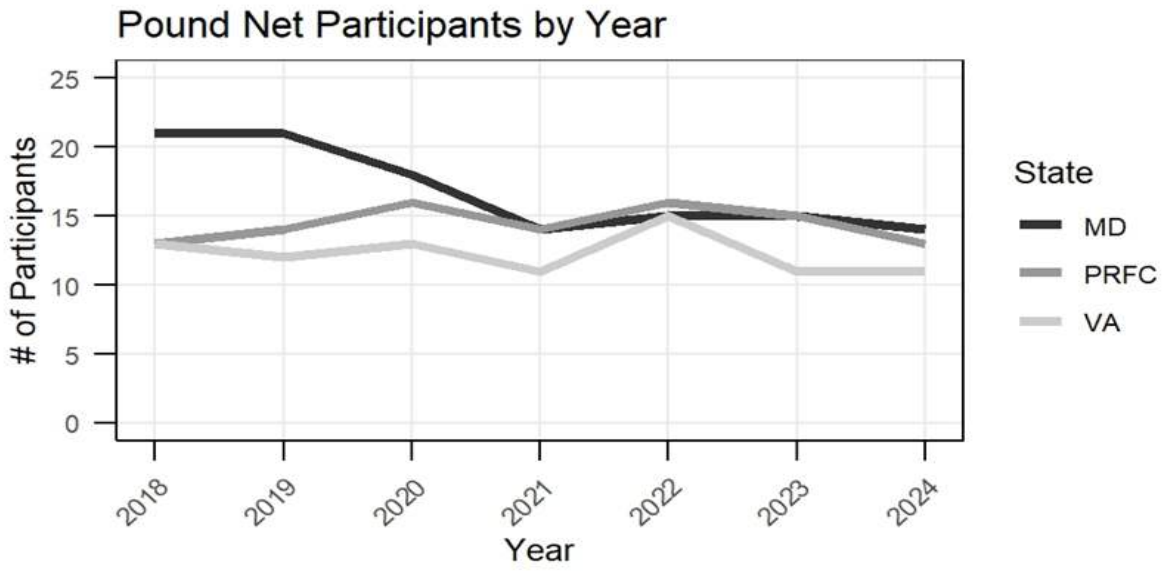

Figure 9. Number of Pound Net Participants by year for Maryland, Potomac River Fisheries Commission and Virginia, 2018-2024.

When looking at the number of unique participants by month there appears to be less participants by month during 2023 and 2024 for all three jurisdictions when compared to 2018 through 2022 (Fig. 10, Fig. 11, Fig. 12). However, there seems to be consistent variability by month throughout this time series with no clear trends.

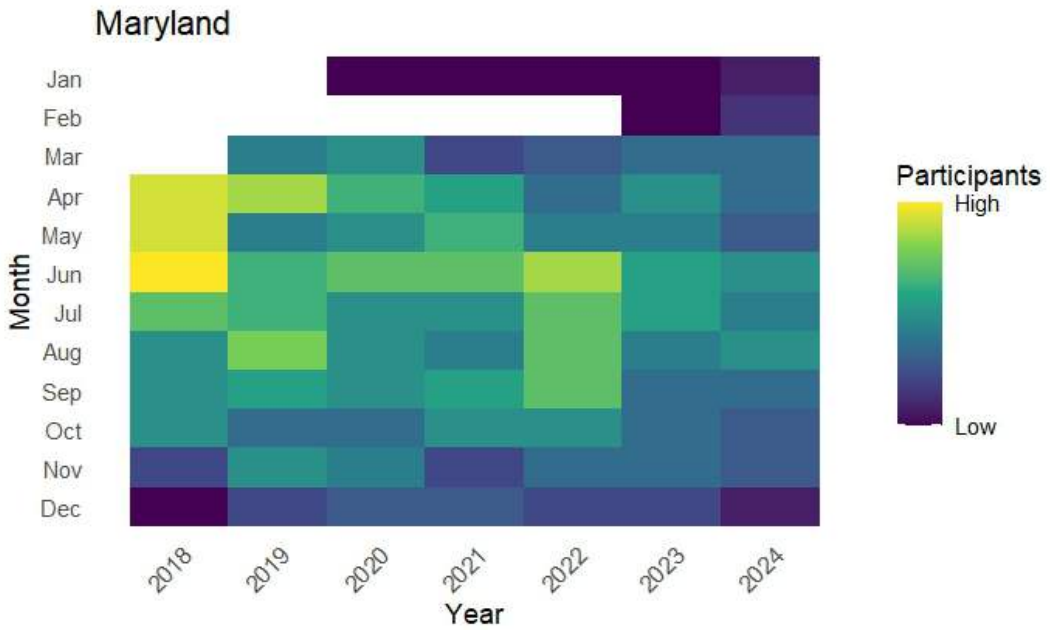

Figure 10. Number of Pound Net Participants by month for Maryland, 2018-2024.

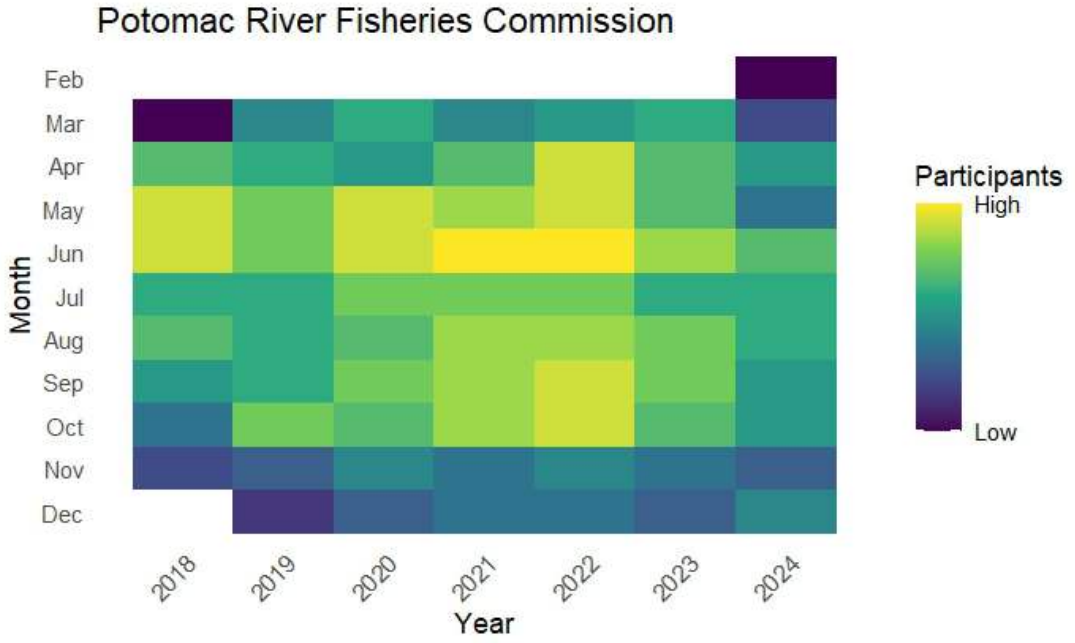

Figure 11. Number of Pound Net Participants by month for Potomac River Fisheries Commission, 2018-2024.

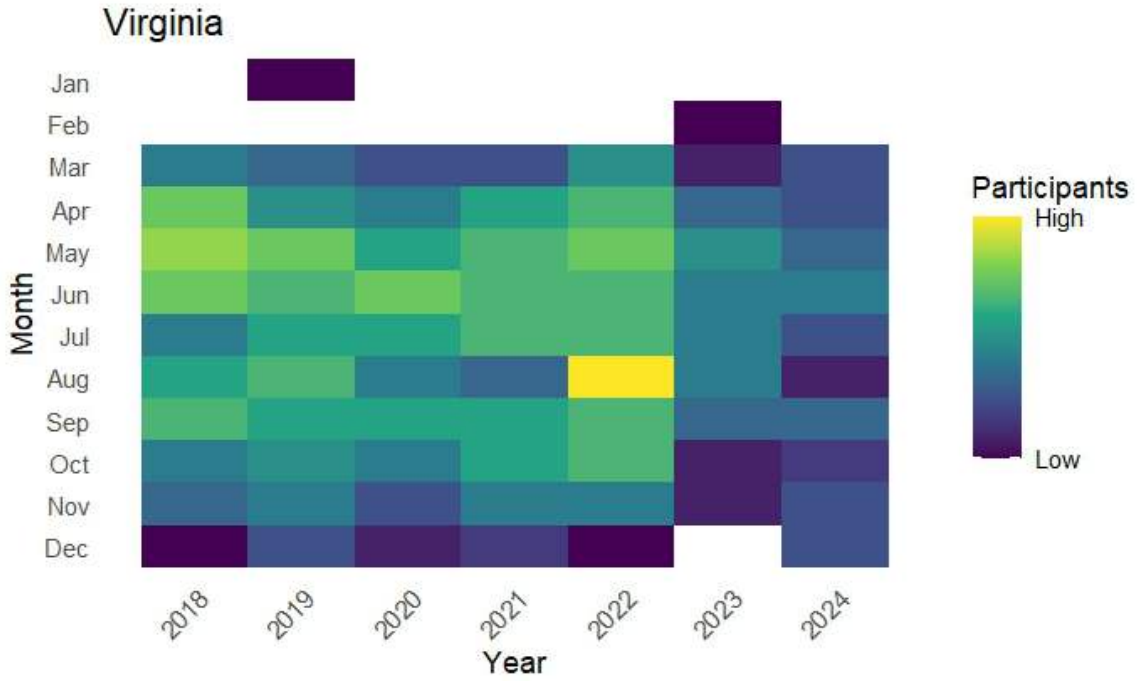

Figure 12. Number of Pound Net Participants by month for Virginia, 2018-2024.

Rejected Options

Overages and Rollovers

The options below were developed in consideration of quota period overages that did not result in an overage of the total Bay Cap. In the draft addendum options, once a quota period is exceeded, the overage amount is deducted from the equivalent period in the subsequent year. However, since the Bay Cap is not exceeded, the options in the draft addendum do not subtract the overage amount from the total Cap, which requires the deducted quota to be redistributed to a different quota period.

The first option below would subtract a quota period overage from the total Bay Cap in addition to reducing the equivalent quota period the following year, thereby eliminating the need to redistribute the deducted quota to a different quota period. The PDT rejected this alternative option to prevent reducing the total Bay Cap when it is not exceeded the previous year. Similarly, the PDT considered and rejected an option to prohibit rollover to prevent reducing the total Bay Cap when it is not exceeded due to an overage only in the final quota period.

The third option below would have distributed the deducted quota proportionally over the remaining later quota periods, given the stated objective to shift harvest later in the year. The PDT believes that the option in the document, which redistributed the overage to the final quota period, satisfies the objectives of the draft addendum and removed this option to simplify the document.

Quota Period Overage Deducted from Total Bay Cap: Any overage of a quota period will be deducted from the same quota period in the following year.

Rollover Prohibited: No rollover of unused quota is permitted within a year. This would lead to unused quota not being available later in the year. If the final quota period is exceeded, then there is a pound for pound payback in the Cap the following year.

Proportional Redistribution of Quota Period Overage Payback: All quota that is deducted from early periods in the following year will be redistributed to the remaining quota periods based on the proportion of the remaining quota periods that did not need a reduction. See table for example.

Automatic Chesapeake Bay Reduction Fishery Cap Adjustment

The PDT considered the option below as it would utilize both the TAC and Bay Cap for 2027 to set the conversion factor to use moving forward (2027 Bay Cap/2027 TAC). However, the PDT rejected this option as it is uncertain what the 2027 TAC might be, which makes giving numeric examples difficult. Utilizing the 2026 TAC that is in place while the decision on the Bay Cap level is being made is also logical and allows for known conversion factor values to be included in the draft for public comment.

Adjust Based on Potential Changes to the 2027 Coastwide TAC*:* Option to set the Bay Cap to Coastwide TAC conversion factor in 3.1.2 (Automatic Chesapeake Bay Reduction Fishery Cap

Adjustment with Changes to the Coastwide TAC) based on the Coastwide TAC for 2027 selected by the Board later this year and the Bay Cap selected in this Addendum in section 3.1.1.