



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
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MEMORANDUM

TO: Atlantic Menhaden Management Board
FROM: Atlantic Menhaden Plan Development Team
DATE: January 28, 2026
SUBJECT: Progress Report on Draft Addendum II to Amendment 3

At the 2025 Annual Meeting, the Atlantic Menhaden Management Board initiated draft Addendum II to Amendment 3 to consider options to reduce the Chesapeake Bay Reduction Fishery Cap by up to 50% and distribute the cap more evenly throughout the fishing season. Due to a delay in gaining access to confidential data, the Plan Development Team (PDT) was unable to complete the analyses necessary to draft options regarding quota periods for Board review at the Winter Meeting. This memo summarizes the PDT's work and seeks Board guidance to aid the PDT in continuing development of the Draft Addendum. Please note that a status quo option will be included in the addendum for each management issue per ASFMC policy, but these are not listed below for brevity.

Issue 1. Dividing the Chesapeake Bay Reduction Fishery Cap into Quota Periods

Statement of the Problem: As noted in the report of the Work Group on Precautionary Management in Chesapeake Bay, from 2015-2024, 49.5% of the reduction fishery effort and 46.09% of the reduction fishery landings in Chesapeake Bay occurred before July 15th. However, in 2023 and 2024, catch and effort have been well below the average until the end of June (Figure 1). The shift in harvest later in the season has corresponded with significant declines in harvest of pound net bait fisheries in Maryland, Virginia, and the Potomac River (Figure 2), which typically peak during the summer months.

Management Approaches

1) Divide Chesapeake Bay Cap into 3 to 5 periods:

Figure 1 shows an example of 3-5 quota periods based on equal harvest distribution from average landings between 2018-2024. Member(s) of the Board expressed interest in limiting harvest in any individual quota period to no more than one-third of the total Bay Cap to protect ingress into the Bay. However, the Board also requested options to delay harvest until later in the season. Delaying harvest until later in the season may require some quota periods to receive more than one-third of the Bay Cap and/or unequal period lengths. The PDT also notes the logistical difficulty in monitoring quota effectively over short periods due to the lag time in reporting/processing and recommends removing the 5-period option. The PDT is evaluating data from 2018-2024 to reflect the time period since the Bay Cap was implemented at its current level.

M26-12

Questions for the Board:

- i. Does the Board want to maintain a maximum of one-third of the Cap in each quota period?
- ii. Does the Board want to maintain equal season lengths or can unequal season lengths be considered?
- iii. Does the Board want to maintain a 5-period option?

2) Overages and Rollover Between Periods:

In the event that the reduction fishery does not harvest the full suballocation of the Bay Cap during a given quota period, the PDT is considering options for how the unused portion of the quota period sub-allocation is dealt with:

- i. No rollover: the remaining portion is unavailable for use later in the season
- ii. Proportional rollover: the remaining portion is divided proportionally across the remainder of the season and added to the remaining quota periods. For example: If the reduction fishery in the Bay was divided into three quota periods, and the first quota period was under harvested by 200,000 pounds, 100,000 pounds would be added to both the second and third quota period.
- iii. Delayed rollover: the remaining portion is added to the final quota period

The PDT is considering options for how overages should be paid back in the event that the reduction fishery exceeds the sub-allocation of the Bay Cap during a given quota period:

- i. Pay back in full during the subsequent period (i.e., subtract the overage from the next quota period's suballocation)
- ii. Pay back distributed throughout the remaining periods (i.e., divide the overage and subtract from each remaining quota period's suballocation).

Questions for the Board:

- i. If the Board maintains the limit of one-third of the Bay Cap per quota period, does the limit include rollover?
- ii. Are there options that the Board wants added or removed?

Table 1. Potential quota periods and average cumulative harvest from the Chesapeake Bay reduction fishery and the Maryland, PRFC, and Virginia pound net fisheries by week of the year, 2018-2024. Red bold type and black bold type indicate the first week in which 50% or 75% of harvest occurred or was exceeded, respectively.

Week of the Year	Date 1st Week of the	Quota Periods			Average Cumulative Harvest			
		Reduction			Reduction	MD PN	PRFC PN	VA PN
		Even 3	Even 4	Even 5				
8	2/19/2026					0.12%	0.00%	0.09%
9	2/26/2026					0.16%	0.16%	0.12%
10	3/5/2026					0.24%	0.37%	0.98%
11	3/12/2026					0.99%	2.52%	2.28%
12	3/19/2026					3.45%	5.29%	5.07%
13	3/26/2026					5.85%	8.21%	7.83%
14	4/2/2026					9.33%	12.38%	9.35%
15	4/9/2026					14.33%	15.97%	11.03%
16	4/16/2026					17.79%	20.24%	13.31%
17	4/23/2026					21.51%	23.77%	16.87%
18	4/30/2026					23.73%	26.35%	22.13%
19	5/7/2026	1	1	1	2.65%	25.33%	28.96%	27.64%
20	5/14/2026	1	1	1	5.45%	27.62%	31.47%	31.76%
21	5/21/2026	1	1	1	8.97%	29.89%	34.16%	35.31%
22	5/28/2026	1	1	1	13.48%	32.69%	36.82%	39.28%
23	6/4/2026	1	1	1	14.69%	36.53%	39.85%	42.78%
24	6/11/2026	1	1	1	19.60%	40.47%	43.03%	46.32%
25	6/18/2026	1	1	2	26.53%	44.17%	46.24%	49.29%
26	6/25/2026	1	2	2	30.29%	48.05%	49.15%	51.30%
27	7/2/2026	1	2	2	33.66%	51.17%	51.32%	52.85%
28	7/9/2026	2	2	2	37.52%	54.68%	53.22%	54.12%
29	7/16/2026	2	2	3	43.31%	57.77%	55.36%	55.44%
30	7/23/2026	2	2	3	48.80%	60.41%	58.01%	57.02%
31	7/30/2026	2	2	3	52.49%	63.19%	60.79%	59.73%
32	8/6/2026	2	3	3	56.98%	65.91%	63.20%	62.44%
33	8/13/2026	2	3	4	66.74%	68.93%	66.48%	65.40%
34	8/20/2026	3	3	4	73.81%	72.34%	69.28%	68.64%
35	8/27/2026	3	4	4	79.42%	75.99%	72.86%	71.27%
36	9/3/2026	3	4	5	84.12%	79.32%	76.02%	73.95%
37	9/10/2026	3	4	5	88.95%	83.03%	79.15%	77.00%
38	9/17/2026	3	4	5	93.14%	86.34%	81.52%	79.81%
39	9/24/2026	3	4	5	96.56%	89.15%	85.21%	82.00%
40	10/1/2026	3	4	5	97.22%	92.20%	88.05%	84.79%
41	10/8/2026	3	4	5	97.79%	95.01%	90.88%	86.61%
42	10/15/2026	3	4	5	98.17%	96.65%	93.39%	89.34%
43	10/22/2026	3	4	5	98.23%	97.47%	94.62%	92.20%
44	10/29/2026	3	4	5	98.77%	98.00%	95.86%	93.42%
45	11/5/2026	3	4	5	99.28%	98.69%	96.88%	94.71%
46	11/12/2026	3	4	5	99.88%	98.88%	97.54%	96.02%
47	11/19/2026	3	4	5	99.95%	98.97%	98.34%	96.81%
48	11/26/2026	3	4	5	99.95%	99.20%	98.95%	97.53%
49	12/3/2026	3	4	5	99.95%	99.38%	99.55%	98.01%
50	12/10/2026	3	4	5	100.00%	99.58%	100.00%	98.34%
51	12/17/2026					99.82%		99.50%
52	12/24/2026					99.99%		99.68%
53	12/31/2026					100.00%		100.00%

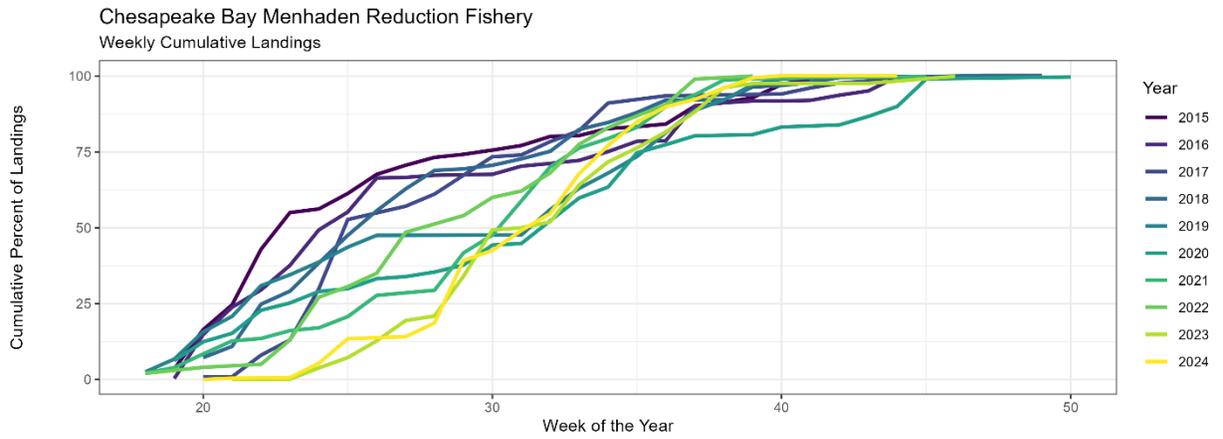


Figure 1. Cumulative percent of annual landings in the Chesapeake Bay menhaden reduction fishery 2015-2024.

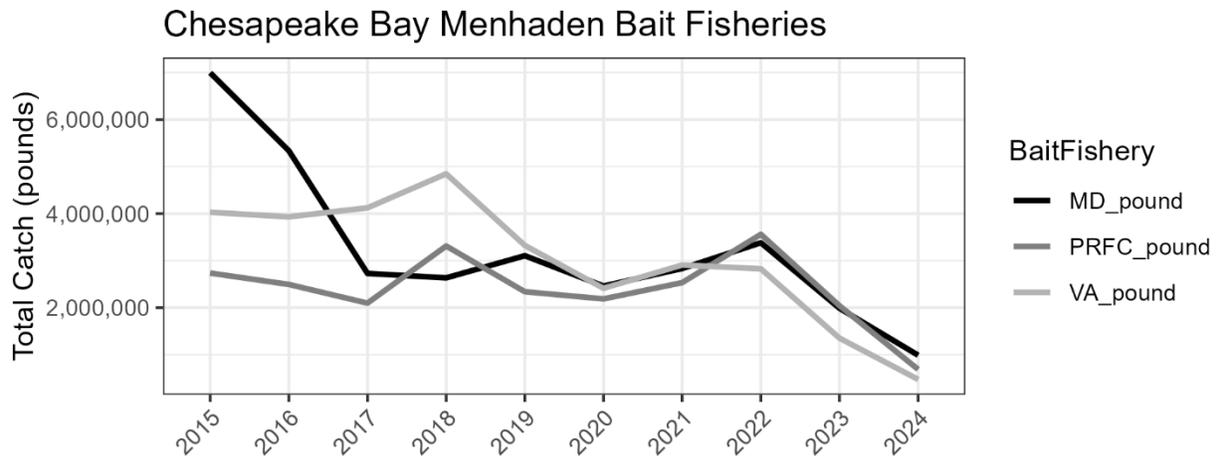


Figure 2. Total catch in MD, PRFC, and VA menhaden pound net fisheries 2015-2024.

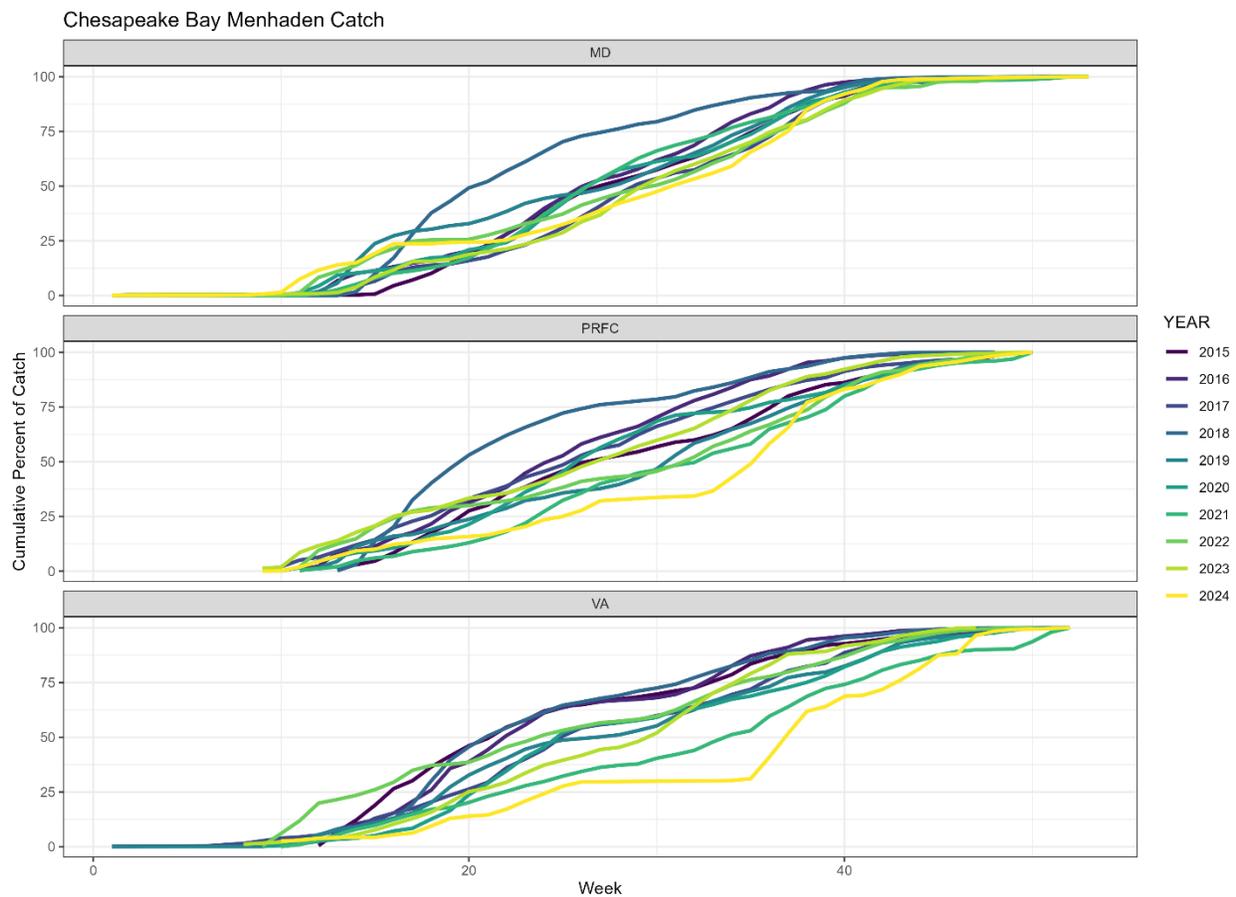


Figure 3. Cumulative percent of annual catch in MD, PRFC, and VA menhaden pound net fisheries in Chesapeake Bay 2015-2024.

Issue 2. Reducing the Chesapeake Bay Reduction Fishery Cap

Statement of the Problem: The Chesapeake Bay Reduction Fishery Cap was first implemented in 2006 as a precautionary measure due to the importance of menhaden’s role in the ecosystem and the uncertainty of its status in Chesapeake Bay. The cap was most recently updated in 2018 to 51,000 mt as an approximation of the average annual reduction landings in the Bay from 2012-2016. While the coastwide Total Allowable Catch (TAC) has fluctuated since 2018, the cap has remained constant. The Board initiated action to develop options to reduce the cap by up to 50% as a further precautionary action and reflect recent cuts to the TAC.

Draft Management Alternatives

Option B. Reduce the Chesapeake Bay Reduction Fishery Cap by 10% (value may change once we look at the data): The Bay Cap will be reduced to 45,900 mt. This reduction coupled with the in-year quota periods selected in Issue 1 may provide a similar reduction to the TAC cut adopted by the Atlantic Menhaden Management Board in October 2025 in an average year.

Option C. Reduce the Chesapeake Bay Reduction Fishery Cap by 20%: The Bay Cap will be reduced to 40,800 mt. This reduction in the Bay Cap approximates the same reduction in the

coastwide TAC adopted by the Atlantic Menhaden Board in October of 2025 for the 2026 fishing year.

Option D. Reduce the Chesapeake Bay Reduction Fishery Cap by 30%: The Bay Cap will be reduced to 35,700 mt. This reduction in the Bay Cap provides an additional buffer, compared to the coastwide TAC reduction of 20% adopted for the 2026 fishing year, to account for the uncertainty in how abundance in the Chesapeake Bay correlates to the abundance of the coastwide stock.

Option E. Reduce the Cap by 50%: The Chesapeake Bay Reduction Fishery Cap is reduced to 25,500 mt. This option provides the most conservative buffer to Atlantic menhaden migrating into Chesapeake Bay for ecological and socioeconomic benefit of the middle and upper portions of tidal rivers and main stem Chesapeake Bay.



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Atlantic Menhaden Technical Committee Meeting Summary

January 7, 2026

Technical Committee Members: Caitlin Craig (NY, Chair), Claire Pelletier (NC), Keilin Gamboa-Salazar (SC), Nichole Ares (RI), Jeff Brust (NJ), Matt Cieri (ME), Ingrid Braun-Ricks (PRFC), Micah Dean (MA), Kelli Mosca (CT), Catherine Wilhelm (VA), Chris Swanson (FL), Sydney Alhale (NMFS), Alexei Sharov (MD), Garry Glanden (DE)

ASMFC Staff: James Boyle and Katie Drew

The TC met via webinar on January 7, 2026 to review the tasks set by the Board at the 2025 Annual Meeting and receive an update on the task to review the FMP's biological sampling requirement for the bait fishery.

Review of Board Task on Changing Environmental Conditions

The Board provided two tasks to the Technical Committee to evaluate the effects of changing environmental conditions on the Atlantic menhaden stock:

1. Evaluate information available from NOAA's Ecosystem Dynamics and Assessment Branch and Chesapeake Bay Office, and the Woods Hole Oceanographic Institution, to evaluate the possible effect of cold water on the Continental Shelf on menhaden migration and migratory patterns, particularly in relation to the timing of osprey arrival, nesting, and breeding.
2. Consider what role water temperature, dissolved oxygen levels, shoreline hardening, and other environmental factors play in the local abundance of menhaden and other forage species in the Chesapeake Bay.

The TC considered a range of options to proceed in responding to the Board task including performing a literature review, a correlation analysis, and developing a spatial distribution model, each of which represented significantly different workloads and timeframes. In the discussion, the TC considered the data limitations for more quantitative analyses, particularly the disconnect between targeted ages and sizes between osprey and the fishery, as well as the seasonal limitations of fishery-independent data. Additionally, they noted that the intended management goal could provide more information on what level of analysis is necessary and that a detailed analysis may be better incorporated into the assessment process. The TC decided to perform an initial literature review with the goal to present a report to the Board at the 2026 Spring Meeting.

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Update on Bait Sampling Task

The TC continued a discussion from the previous meeting evaluating whether the current biological sampling requirement for the bait fishery is sufficient. The TC discussed two paths forward: to continue analyses of the requirement with NOAA sampling data or to pause further analyses until there is an acceptable dataset of state bait ages as states are preparing to transition to processing samples. It was noted that the most recent ageing exchange continued to show inconsistencies between different readers, and there was concern with the applicability of the results if analyses are performed prior to the change from NOAA to state datasets. The TC decided to pause further analyses until there is a more consistent dataset from state processed samples and to maintain the current requirement size of 10-fish samples. They also noted that in the northern end of the range where there are larger menhaden, there is a greater variance of ages within a certain size. When analyses continue, the TC will review the sampling size requirement, including whether different sample sizes are necessary for different states to account for the greater variance in age and size.

James Boyle

To: Brian Collins
Subject: RE: [External] Menhaden Quota adjustment

From: Brian Collins <brian.c1@me.com>
Sent: Monday, January 5, 2026 10:32 PM
To: James Boyle <JBoyle@ASMFC.org>
Subject: Re: [External] Menhaden Quota adjustment

James, happy new year! I hope 2026 is a good one for you.

What makes the Bay Cap precautionary when we do not know whether or not the 51,000 MTs leaves any for the ecosystem? There is no data available about how many Menhaden enter the Chesapeake Bay or how many are needed for the fishery, birds and crabs.

What makes it a good idea to make averages from 2012-2016 for the years 2022-2025? What if the number of Menhaden entering the Bay decreases during the time from 2016 to 2025?

What I know you see and hear about is that the Chesapeake Bay is the nursery for Striped Bass, Menhaden, and the breeding center for Osprey and that blue crabs, rockfish and Osprey breeding success are at or heading towards all time lows for abundance and all of these species, with the exception of blue crabs, are crucial indicators used to measure whether there are enough Menhaden in the ecosystem. They are the pillars of the Atlantic Coast Ecological Reference Points (ERP) that is currently non-existent for the Bay.

How I see it we need to make sure there is a quota set for the fish birds and crabs before allowing industry to remove any Menhaden. How can we do that - Rhode Island does it for Narragansett Bay - we can do it for the Chesapeake Bay.

Thanks, Brian
Brian Collins
Alexandria, VA
703-795-8169



Atlantic Menhaden Management Board

Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington, VA 22201

Dear Chairman Clark:

We submit this letter regarding the Board's Plan Development Team's preparation of an addendum to the Atlantic Menhaden Fishery Management Plan ("FMP") focusing on the purse seine fishery in the lower Chesapeake Bay. We respectfully request that this letter, and the exhibits included herein, be included in the supplementary materials in advance of the Board's meeting, and also distributed to Board members.

As it stands, the premise for the Board's proposed addendum is that the recent decline in Maryland menhaden pound net catches can be ascribed to Ocean Harvesters' purse seine fishery in the lower Bay creating a "gauntlet" that has prevented the fish from reaching pound nets in the mid and upper Bay. Significantly, neither the Board nor the PDT have examined this premise, but rather have just accepted it as fact. Ocean Harvesters respectfully submits that the Board should task the PDT to examine the premise because the information presented below demonstrates that other more plausible factors may be causing declining pound net catches.

Pound Net Effort in the Bay Has Declined Dramatically in Recent Years

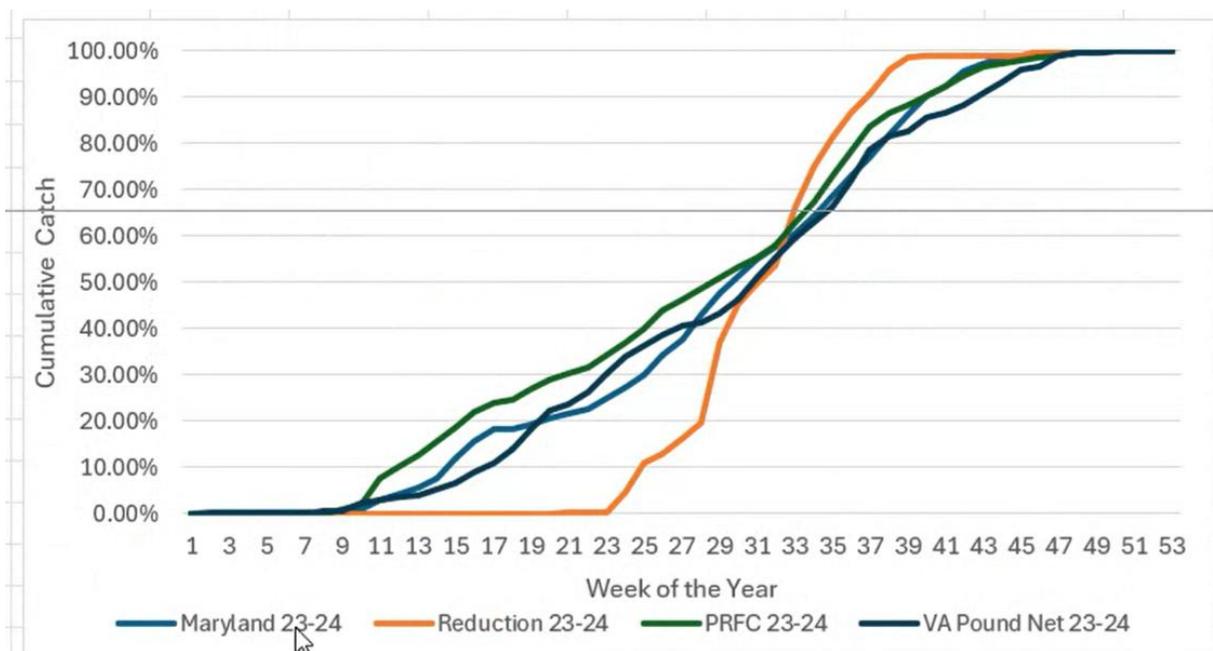
We recently received data from the Atlantic Coastal Cooperative Statistics Program ("ACCSP") Data Warehouse pursuant to an August data request of a month-by-month data pull of Maryland pound net effort and catches. Please refer to Exhibit A for a condensed version of the raw data.¹ That data highlighted a trend that can directly explain declining catches. Maryland's pound netting enterprise is in decline. From the years 2013 to 2024, the total number of trips reported by Maryland pound net fisherman decreased from 1,835 in 2013 to a mere 284 in 2024. A substantial drop-off occurred between 2016 and 2017, when Maryland pound net catches stair-stepped down. The maximum number of vessels operating in any month during these years also decreased, from a high of 25 in 2013, to 6 in 2024, with the total number of fishermen associated with these pound nets decreasing at the same level.

¹ The raw excel data files received pursuant to the ACCSP data pull are available upon request.

In years where catches for the purse seine fleet decreased, such as in 2017, when ASMFC lowered the catch cap for Atlantic menhaden by more than 40%, pound net landings in 2018 and 2019 did not proportionately skyrocket in response. Thus, to the extent a gauntlet exists (and it doesn't), the gauntlet should have been more of an impediment to pound net fishing when both pound net effort and catches were higher.

Catch Rates and Fishing Effort Do Not Show Negative Correlation or Causation

The graph below was presented to the PDT last week. As indicated, the graph lays out weekly catch rates for the reduction and pound net fisheries. In particular, we draw the Board's attention to weeks 21 through 40 of the year as indicated on the X-axis. If the purse seine fleet was indeed creating a gauntlet preventing Atlantic menhaden from traveling into the upper-Bay during those weeks, the Bay's pound net fishery numbers *should* indicate a corresponding steep decline in catch rate during these weeks. Instead, the catch rates remain on a relatively steady increase throughout the year; put differently, the slope of the lines depicting pound net catch rates from week 9 to week 45 is remarkably consistent.



The relationship, or lack thereof, demonstrated in this graph aligns with a preliminary analysis we asked Georgetown Economic Services of Washington, D.C. to conduct using public data presented to the Board in August 2025.² Based on records of reduction purse seine effort, which is indicative

² See Atlantic Menhaden Board Presentations, Slides as Presented by Lynn Fegley (MD DNR), at https://asmfc.org/wp-content/uploads/2025/08/AtlMenhadenBoardPresentations_August2025.pdf.

of menhaden's presence in the lower Bay, in the months during 2022-2024 when the number of reduction purse seine net sets exceeded its 10-year average, the Maryland pound net harvest size also tended to be above its 10-year average. The converse was also true. In fact, the direct relationship was statistically significant over these years. Attached hereto as Exhibit B is the more detailed memorandum of the statistical analysis prepared by Georgetown Economic Services. As with the chart included above, if the so-called gauntlet theory posed by Maryland were the reason behind the falling landings of Atlantic menhaden by Maryland pound-netters, the relationship between purse seine effort and pound net landings would instead be inversely related. However, the relationship does not bear out such a conclusion. The PDT should conduct its own examination using the biweekly purse seine set data that Director Fegley excerpted from the April Work Group Report and the ACCSP data pull providing monthly Maryland pound net menhaden landings.

In conclusion, our brief submission only scratches the surface of what appears to be a more complicated set of reasons for the decline in Maryland pound net menhaden catches. Before ascribing blame to Ocean Harvesters and implementing further restrictions in the Bay via a premature addendum, the Board should task the PDT to examine a range of considerations, including environmental and economic conditions, that may be a more direct cause of declining pound net catches.

Thank you for your consideration of this letter and the issues it presents. Our representatives will be available at the Board meeting to discuss these matters in more detail.

Respectfully submitted,

Ben Landry
Vice President of Public Affairs
Ocean Fleet Services

Exhibit A – Condensed Data Pull of Pound Net Catches and Effort from the Atlantic Coastal Cooperative Statistics Program

YE A R	MONTH	LIVE POUNDS	DOLLARS	TOTAL FISHERME N	TOTAL VESSELS	TRIP COUNT
2013	JANUARY	3153	378.36	3	3	7
2013	MARCH	29326	3225.86	4	4	33
2013	APRIL	811000	98827.31	21	23	239
2013	MAY	1543416	170094.95	25	23	328
2013	JUNE	1292318	184752.25	28	25	355
2013	JULY	833336	93911.32	17	16	228
2013	AUGUST	690168	89430.24	20	17	226
2013	SEPTEMBER	468509	60997.64	17	17	200
2013	OCTOBER	398620	51820.6	7	6	109
2013	NOVEMBER	194753	21422.83	10	9	65
2013	DECEMBER	119455	14334.6	5	5	34
2014	JANUARY	8730	785.7	5	4	11
2014	APRIL	543687	71968.17	17	16	129
2014	MAY	857710	112749.08	21	19	241
2014	JUNE	1031236	155653.72	22	22	289
2014	JULY	972667	167804.37	19	18	250
2014	AUGUST	919085.67	210418.66	17	15	210
2014	SEPTEMBER	1092636	282085.11	22	16	245
2014	OCTOBER	594188	154902.88	16	14	159
2014	NOVEMBER	179532	23219.16	14	11	82
2014	DECEMBER	51650	5681.5	5	5	22
2015	JANUARY	6650	864.5	3	3	5
2015	APRIL	545015	81752.25	10	11	104
2015	MAY	1148126	149373.42	19	20	272
2015	JUNE	1421704	227603.92	18	17	309
2015	JULY	784689	125619.68	16	14	225
2015	AUGUST	1025680	163558.8	15	16	211
2015	SEPTEMBER	1110189	177915.24	17	15	237
2015	OCTOBER	549020	87843.2	11	11	129
2015	NOVEMBER	115980	15193.4	9	8	47
2015	DECEMBER	86720	12975.2	8	7	33
2016	MARCH	339075	50861.25	9	7	51
2016	APRIL	433176	68888.16	13	11	105
2016	MAY	609640	90966	15	10	147
2016	JUNE	1253667	188410.05	17	13	224
2016	JULY	682170	115968.9	14	8	179

2016	AUGUST	1054217	284638.59	14	8	200
2016	SEPTEMBER	660337	79240.44	10	8	150
2016	OCTOBER	132150	21144	7	6	56
2016	NOVEMBER	16770	2683.2	4	3	19
2016	DECEMBER	45553	7288.48	4	4	18
2017	MARCH	37621	5643.15	4	3	14
2017	APRIL	314830	53521.1	6	4	75
2017	MAY	178413	28546.08	7	4	75
2017	JUNE	424190	68327.4	7	7	95
2017	JULY	530662	122052.26	10	6	129
2017	AUGUST	325802	74934.46	13	9	111
2017	SEPTEMBER	621406	99424.96	10	9	123
2017	OCTOBER	262240	86539.2	7	6	84
2017	NOVEMBER	26375	8703.75	9	6	27
2018	APRIL	794300	127344	13	9	121
2018	MAY	650790	104126.4	12	8	145
2018	JUNE	475682	80865.94	14	11	181
2018	JULY	191730	34511.4	11	7	105
2018	AUGUST	262990	36818.6	8	5	89
2018	SEPTEMBER	85900	15462	7	6	55
2018	OCTOBER	161740	27495.8	7	7	52
2019	MARCH	174740	24463.6	7	4	29
2019	APRIL	740970	103735.8	12	9	127
2019	MAY	230600	36896	6	4	70
2019	JUNE	295350	44302.5	10	6	78
2019	JULY	397570	59635.5	10	7	93
2019	AUGUST	518040	82886.4	11	6	104
2019	SEPTEMBER	519697.5	83151.6	9	6	92
2019	OCTOBER	176270	28203.2	6	6	58
2019	NOVEMBER	38980	5067.4	6	6	25
2019	DECEMBER	6570	1051.2	4	3	11
2020	MARCH	224280	35884.8	8	7	44
2020	APRIL	172430	27588.8	10	7	58
2020	MAY	169830	30569.4	7	5	70
2020	JUNE	626760	125352	10	9	112
2020	JULY	290350	232280	7	5	102
2020	AUGUST	264420	87258.6	7	5	75
2020	SEPTEMBER	407690	163076	7	5	81
2020	OCTOBER	190924	30547.84	6	5	61
2020	NOVEMBER	22210	3553.6	6	5	19
2020	DECEMBER	32890	5262.4	5	4	14
2021	MARCH	63750	9562.5	4	4	13
2021	APRIL	259134	41461.44	9	7	59

2021	MAY	320902	64180.4	10	8	63
2021	JUNE	698086	111693.76	11	10	132
2021	JULY	553935	88629.6	8	6	92
2021	AUGUST	325630	52100.8	7	5	75
2021	SEPTEMBER	298214	47714.24	9	7	72
2021	OCTOBER	254650	40744	8	7	64
2021	NOVEMBER	10820	1731.2	4	4	11
2021	DECEMBER	45120	7219.2	5	4	23
2022	MARCH	365270	65748.6	5	4	33
2022	APRIL	471150	89518.5	6	5	76
2022	MAY	125963	20154.08	6	5	43
2022	JUNE	395126	79025.2	12	9	125
2022	JULY	343940	61909.2	10	8	101
2022	AUGUST	565990	101878.2	11	8	121
2022	SEPTEMBER	571080	114216	11	8	101
2022	OCTOBER	369740	44368.8	8	6	71
2022	NOVEMBER	80600	13702	5	4	23
2022	DECEMBER	42030	7145.1	4	3	19
2023	APRIL	282120	64887.6	8	5	68
2023	MAY	102450	24588	7	5	42
2023	JUNE	238020	57124.8	9	7	75
2023	JULY	432930	86586	8	6	81
2023	AUGUST	286420	63012.4	6	6	69
2023	SEPTEMBER	318940	70166.8	6	5	66
2023	OCTOBER	253400	55748	6	5	63
2023	NOVEMBER	34320	7550.4	5	5	26
2023	DECEMBER	10160	2032	4	3	11
2024	MARCH	134510	29592.2	6	5	48
2024	APRIL	96020	20164.2	6	5	42
2024	MAY	8022	2165.94	5	4	13
2024	JUNE	10696	2353.12	7	6	39
2024	JULY	2965	1719.7	6	5	15
2024	AUGUST	55240	13257.6	7	6	37
2024	SEPTEMBER	156925	36092.75	5	5	45
2024	OCTOBER	64780	13603.8	4	3	33
2024	NOVEMBER	7540	1583.4	5	4	12

Exhibit B – Analysis of Maryland Harvest Sizes and the Number of Virginian Nets Set

I was provided the following data:

- 1) semi-monthly number of nets set by Virginian fisheries for the period 2015 to 2024, along with the ten-year average for each month (Table 2 in Atlantic Menhaden Board Presentation); and
- 2) monthly Maryland Pound Net Harvest for the period 2022 to 2024, along with the 10-year average harvest for each month (Figure 11 in Atlantic Menhaden Board Presentation).

I aggregated the number of nets set by year and month in order to transform it from a semi-monthly series to a monthly series. Further, both the nets set, and the Maryland harvest data, show monthly seasonality. I de-seasonalized the data by subtracting the 10-year average for each month from each series. This resulted in two series of deviations: (1) the monthly deviation of the number of nets set from the 10-year average number of nets set and (2) the monthly deviation of the Maryland harvest size from the 10-year average harvest size.

Next, I regressed the monthly Maryland harvest size deviation (the dependent variable) on the following independent variables: (1) the monthly number of nets set deviation and (2) the one-month lag of the Maryland harvest size deviation. I included the second independent variable because the monthly harvest size deviations show strong autocorrelation. That is, the size of the harvest deviation in one month affects the harvest deviation in the following month.

The table below shows the results of the regression:

	Estimate	Standard Error	t value	p value	
Intercept	-24.1612	23.0497	-1.048	0.30239	
Number of nets set deviation	0.6742	0.2165	3.115	0.00387	**
1-month lagged harvest size deviation	0.8164	0.1141	7.152	4.05E-08	***

The coefficient of the number of nets set deviation variable is 0.6742 and – with a p value of 0.00387 – is statistically significant at the 1 percent level. This result indicates a strong, positive relationship between the number of nets set deviation and the Maryland harvest deviation. Thus, when the number of Virginian nets set exceeds its 10-year average, the Maryland harvest size also tends to be above its 10-year average. Conversely, when the number of Virginian nets set is below its 10-year average, then the Maryland harvest size also tends to be below its 10-year average. Since it is highly unlikely that the number of Virginian nets set could be causing the size of the Maryland harvest (or vice versa), the most likely interpretation of this positive relationship is that both variables are responding to a common cause – namely, the extent of the fish presence in the bay.