The Commonwealth of Massachusetts
Division of Marine Fisheries

(617) 626-1520 | www.mass.gov/marinefisheries

MAURA T. HEALEY, Governor | KIMBERLEY DRISCOLL, Lt. Governor | REBECCA L. TEPPER, Secretary | THOMAS K. O'SHEA, Commissioner | DANIEL J. MCKIERNAN, Director

MEMORANDUM

TO: Marine Fisheries Advisory Commission (MFAC)

FROM: Daniel McKiernan, Director

DATE: January 21, 2025

SUBJECT: **Future Public Hearing Item: Commercial Striped Bass Management**

Proposal

This memorandum serves to inform the MFAC that I intend to go out to public hearing this winter with several potential revisions to the state's commercial striped bass management measures for 2025. Specifically, I am proposing to: (1) modify the commercial size limit, including the adoption of a maximum size limit in the range of 38" to 44" and a reduction in the minimum size limit to as low as 32"; and (2) prohibit gaffing in the commercial fishery. These are being proposed as conservation measures (independent of any interstate mandates) to enhance stock productivity and reduce release mortality.

Background

Commercial Size Limit Management

Massachusetts' commercial striped bass fishery has been managed with a 35" minimum size limit since 2020; this was preceded by a 34" minimum size limit since 1995. These relatively large minimum sizes arose from a combination of interstate fishery management plan (FMP) requirements in the 1980s followed by state-specific management choices.

The interstate plan's approach to rebuilding the stock from the 1980s collapse required states to protect the 1982 year-class with annual size limit adjustments (until a pre-determined trigger based on the Maryland juvenile index was reached) or implement a harvest moratorium. Massachusetts opted to maintain a commercial fishery during this rebuilding period, and consequently, the state's commercial size limit increased from 24" in 1982 to 36" in 1989. When in 1990 the FMP allowed states to lower the commercial minimum size to 28", DMF opted to retain the 36" minimum due to recreational anglers' concerns about relaxing the regulations too soon, and only went to a 34" minimum in 1995 based on certain commercial anglers' preference (Nelson, 2018). This 34" minimum size remained in effect for the next quarter century (despite the opportunity to lower it) until 2020 when it was set at 35". This one-inch increase responded to the adoption of the 28–35" recreational slot limit (per interstate mandate) and DMF's interest in establishing a clear size difference between the commercial and recreational fisheries to enhance compliance and enforcement.

Each change in the state's commercial size limit affects the state's resulting commercial quota through analyses meant to maintain the same spawning potential across each size limit and quota combination ("conservation equivalency"). In general, moving the commercial fishery to smaller sized fish results in a quota reduction and moving the commercial fishery to larger sized fish results in a quota increase. Massachusetts' and other states' use of conservation equivalency to deviate from former coastwide standards (e.g., a 28" minimum size) has resulted in there being no uniform FMP requirement for the

commercial fishery size limits. The current FMP requirement is for each state to maintain their 2022 size limit(s) under a quota representing a 7% reduction from 2022. For Massachusetts, this is a 683,777-pound quota at a 35" minimum size. States may still request to deviate from their individual standard through an approved conservation equivalency proposal that adjusts their commercial quota.

Gaffing Regulations

DMF first adopted a gaffing rule for striped bass in 2019 in response to the 2018 stock assessment's finding that striped bass were overfished—with release mortality playing a significant role in this determination. While our initial proposal for public hearing was to prohibit any striped bass from being gaffed, DMF and the MFAC ultimately moved forward with a prohibition on gaffing *undersized* striped bass in the state's recreational or commercial fisheries. This modification was made on account of fishers raising safety concerns, explaining that they primarily gaffed large fish well over the minimum size limit and gaffing allowed for the expedient removal of these large fish from the water while fishing at night, in rough weather, in the presence of white sharks, or other dangerous conditions.

This rule was revised a year later—relative to the recreational fishery only—to require the use of non-lethal devices in the removal (or return) of striped bass from the water, thereby banning the use of a gaff (or other injurious tool) by a recreational striped bass angler. This change occurred alongside the adoption of the 28–35" recreational slot limit. Eliminating the harvest of large fish over 35" by recreational anglers diminished the safety concerns previously raised in support of continuing gaffing in the recreational fishery. Given the continuation of the state's 35" commercial minimum size, the no-gaffing-undersized-fish measure remained in the commercial fishery. Prohibiting gaffing in the recreational striped bass fishery also became an interstate mandate in 2023 through Amendment 7. Gear restrictions have been increasingly incorporated into the interstate plan to address recreational release mortality concerns (e.g., circle hook requirement) but have not yet been mandated in the commercial fishery.

Rationale

Commercial Size Limit Management

I am proposing a maximum size limit in the range of 38 to 44" for the commercial striped bass fishery as a conservation measure to protect the largest striped bass from targeted exploitation in Massachusetts and hopefully enhance stock productivity. This could also include lowering the minimum size limit to as low as 32". Any of these changes would also require a quota adjustment per interstate FMP conservation equivalency procedures. Refer to Table 1 for the range of size limit options.

While the Atlantic States Marine Fisheries Commission (ASMFC) has taken aggressive action to limit fishing mortality in support of stock rebuilding, continued poor recruitment[1] may render the need for even more restrictive fishery regulations. What the resource needs most at this time is multiple stronger year classes to recover. Although the drivers of poor recruitment are most likely environmentally related (e.g., warmer, dryer winters), certain stock characteristics can contribute to spawning success, including maintaining a broad age structure within the spawning stock biomass (Secor, 2007). This is an outcome that may be best controlled with size limits (as opposed to the more typical ASMFC commercial management tool of adjusting the quotas).

The scientific literature points to the importance of "big old fat fecund female fish (BOFFS)" in fostering stock productivity and stability across a range of fishes, as explained by Hixon et al. (2014):

[1] Below average recruitment has been indicated in the Maryland Chesapeake Bay index for the past six years (including the lowest ever in 2023), as well as the Virginia Chesapeake Bay and New York Hudson River indices for the past two years. Additionally, the New Jersey (Delaware River), Maryland, and Virginia indices met the criteria of the Amendment 7 recruitment trigger in the ASMFC's last evaluation in 2024 (i.e., the 2021–2023 values were below the 25th percentile for the high recruitment period of 1992-2006).

"Compared with smaller mature females, BOFFFFs in a broad variety of marine and freshwater teleosts produce far more and often larger eggs that may develop into larvae that grow faster and withstand starvation better. As (if not more) importantly, BOFFFFs in batch-spawning species tend to have earlier and longer spawning seasons and may spawn in different locations than smaller females. Such features indicate that BOFFFFs are major agents of bet-hedging strategies that help to ensure individual reproductive success in environments that vary tremendously in time and space. Even if all else were equal, BOFFFFs can outlive periods that are unfavourable for successful reproduction and be ready to spawn profusely and enhance recruitment when favourable conditions return (the storage effect)."[2]

The likelihood of larger striped bass producing higher quality eggs released across a wider time or area that can help buffer stock productivity during poor environmental conditions speaks to the need to give these fish additional protection particularly at this time. Fish greater than 35" have been sheltered from recreational harvest coastwide since 2020, with fish between 31–35" added in mid-2023. Whereas the complaints we often heard in prior years about the high commercial size limit removing the best breeders could be countered with data showing that the recreational fishery harvested more of these large fish than the commercial fishery, this is no longer true.

Moreover, across the commercial fisheries coastwide, Massachusetts can be expected to harvest more of the largest striped bass than any other jurisdiction due to a combination of quota, size limit, and size availability (Table 2)[3]. We have the largest ocean quota and the largest minimum size. Second in ocean quota amount is New York, which has a 28–38" commercial slot. The only other state with a minimum size above 28" is Rhode Island, with a 34" minimum for part of its quota which is 1/5th the size of MA's (and only part of which is for the gear type with the 34" minimum). While the Chesapeake Bay quotas are much larger (e.g., the Bay quota totals 2.79 million pounds versus the ocean quota totaling 2.24 million pounds), the fishery in the Bay is largely prosecuted on smaller fish that have yet to join the ocean stock, and the Bay jurisdictions have either year-round or seasonal maximum sizes ranging from 28" to 36".

My range of options for a new commercial slot limit considers the length frequency distribution for commercially landed fish in Massachusetts; the most recent four years available of commercial market length sampling data are in Figure 1. The sampled lengths range from (just below) the 35" minimum size to as large as 49" across the years, with the mode for each year ranging between 36 and 42" (with some year class effects evident). On the upper end for a proposed maximum size, I've included 44"; roughly only 15% on average of the sampled fish were above this size (Table 3), suggesting a limited negative impact on the fishery but also less contribution to protecting larger fish. On the lower end for a proposed maximum size is 38", mirroring several other states' maximum sizes. The same data indicate that 73% of the harvest has been above this size, suggesting a significant impact on the fishery but considerably more contribution to protecting larger fish. Due to the impact of the lower maximum sizes included, I've also included an option to reduce the minimum size to as low as 32". This minimum size reflects my continued preference to size segregate the commercial and recreational fisheries and incorporates recent Law Enforcement Focus Group discussion on the benefit of having at least a one-inch separation between legal sizes.

---

[2] Work by Zastrow et al (1989) specific to striped bass is included in this meta-analysis of maternal effects; the authors found a significant relationship between the size of spawning female and the size of resulting eggs. Further studies, including Monteleone and Houde (1990) and Brown et al. (2024) supported this theory, showing that larvae from larger bass were also larger and grew faster than larvae from smaller striped bass and that fecundity at length increased faster than weight at length.

[3] In addition to Table 1, DMF intends to review the commercial catch-at-age data compiled for the last stock assessment to further support this statement and better describe the state-by-state contributions to commercial harvest of striped bass by size/age.

My preferred range of options would either retain the 35" minimum size and adopt a 42 to 44" maximum size, or reduce the minimum size to 32" and adopt a 38 to 40" maximum size. This range of options produces a slot width of between six and nine inches. In contrast, the current combination of minimum size and fish availability is effectively a 14-inch slot width.

Much recent ASMFC discussion has considered year class strength and possible protections for stronger year classes, so this may be a point of interest. The above average 2015-year class (which caused the 2022 recreational harvest spike) will be age 10 in 2025 with an average size of around 35.5" and consequently recruited to the commercial fishery under either a 32" or 35" minimum size. The above-average 2018 year-class will be largely within the recreational 28–31" slot in 2025. Of course, commercial quota management contributes to limiting the commercial fishery's exploitation of any particular year class, unlike the recreational fishery.

The proposed commercial size limits would require an adjustment in our commercial quota (through conservation equivalency to maintain spawning potential[4]); preliminary quota adjustments for the range of options are in Table 1. Within my preferred range of size limit options, the effect on the commercial quota ranges from a preliminarily calculated 6% reduction to a 30% reduction.

I anticipate questions about DMF taking unilateral action to propose a maximum commercial size limit outside of an ASMFC mandate. While coastwide action is generally preferred, it appears unlikely that a maximum size limit would be adopted into the FMP. A set of alternatives (including a 38", 40" or 42" maximum size limit with corresponding quota reduction) was considered but removed from consideration during the development of Addendum II as a measure to enhance spawning. It is notable that the reasons for this exclusion are not particularly germane to Massachusetts' commercial striped bass fishery. The major concerns included: potential for increased discard mortality especially in gillnet fisheries; perceived inequity in state quota adjustments; and general misalignment with the addendum's stated goal of reducing fishing mortality.

Release Mortality Considerations

While we don't have gillnet fisheries for striped bass in Massachusetts to contend with in this proposal, I am still sensitive to the issue of increasing discards (and consequent release mortality) in our hook and line commercial fishery. It can be expected that adopting a maximum size will result in additional releases of the largest fish to the water; however, reducing the minimum size to 32" may offset this based on the uneven availability of fish at length (i.e., less fish at those highest lengths). Fortunately, hook and line fishing has the lowest estimated release mortality among gears of 9% (as also used in the recreational fishery). Still, it is responsible for us to reconsider mechanisms to reduce release mortality in the commercial fishery.

Consequently, I am also proposing to prohibit the use of gaffs in the commercial striped bass fishery and require that only non-injurious devices be used in the removal of fish from the water. This would standardize this rule between the commercial and recreational fisheries. With the proposed narrowing of harvestable sizes in the commercial fishery, the ability to discern a legal sized fish while still in the water becomes more challenging and the largest fish will no longer be harvestable, supporting the removal of the current allowance in the commercial fishery. Other less injurious removal devices (e.g., nets) are also readily available.

I am also interested in public input on other measures to reduce release mortality in the commercial fishery.

[4] ASMFC conservation equivalency methods for commercial size limit changes affecting the quota incorporate the maternal effect of size of female fish on the quantity of eggs. Other possible maternal effects, such as on quality of eggs and length of spawning season, are not included, from which we anticipate a conservation benefit.

Tables and Figures

Table 1. Commercial size limit alternatives with preliminary state quota adjustments. DMF's preferred range of options are highlighted.

Size Limit(s)	Slot Width	Quota (lb)	% Change in Quota
35" minimum	n/a	683,773	
35 – 40"	5-inch slot	541,859	-20.75%
35 – 42"	7-inch slot	590,736	-13.61%
35 – 44"	9-inch slot	642,222	-6.08%
32 – 38"	6-inch slot	481,433	-29.59%
32 – 40"	8-inch slot	529,156	-22.61%
32 – 42"	10-inch slot	579,128	-15.30%
32 – 44"	12-inch slot	618,923	-9.48%

Table 2. 2024 commercial size limits and quotas for Atlantic coast states with active commercial fisheries (i.e., excludes states that prohibit commercial harvest) and 2022 fishery gear and length characteristics

State	2024 Measures under Addendum II		2022 Commercial Sampling Results	
	Size Limit(s)	Quota (lb)	% Landings by Gear Type	Mean Length (and Range), TL inches
Massachusetts	35" min	683,773	100% hook & line	40 (35–48)
Rhode Island	34" min general category 26" min floating fish trap	138,467	Confidential (61% allocated to GC, 39% to FFT)	35 (H&L: 34–52) (FFT: 26–52)
New York	28 – 38" slot	595,868	63% gill net 18% hook & line 7% fixed gear 5% trawl	30 (24–38)
Delaware	28", except 20" for gill nets in DE Bay/River 2.15-5.31	132,501	100% gill net	35 (20–45)
Maryland – Ocean	24"	82,857	100% gill net	41 (32–48)
Maryland – Chesapeake Bay	18 – 36"	1,344,216	53% pound net 42% gill net 5% hook & line	22 (GN: 18–35) (PN/H&L: 18–34)
Potomac River Fisheries Commission	18" min, 28" max during 2.15-3.25	532,760	67% gill net 23% pound net 9& hook & line	24 (18–48)
Virginia – Chesapeake Bay	18" min, 28" max during 3.15-6.15	914,555	84% gill net 12% pound net 4% hook & line	GN: 25 (18–49) PN: 23 (17–36) H&L: 36 (18–28 & 41–49)
Virginia – Ocean	28"	116,282	100% gill net	40 (29–51)
North Carolina	28"	274,810	NA (no landings)	NA

Source: ASMFC, 2024.

Figure 1. Commercial striped bass length frequency from DMF market sampling, 2020-2023.

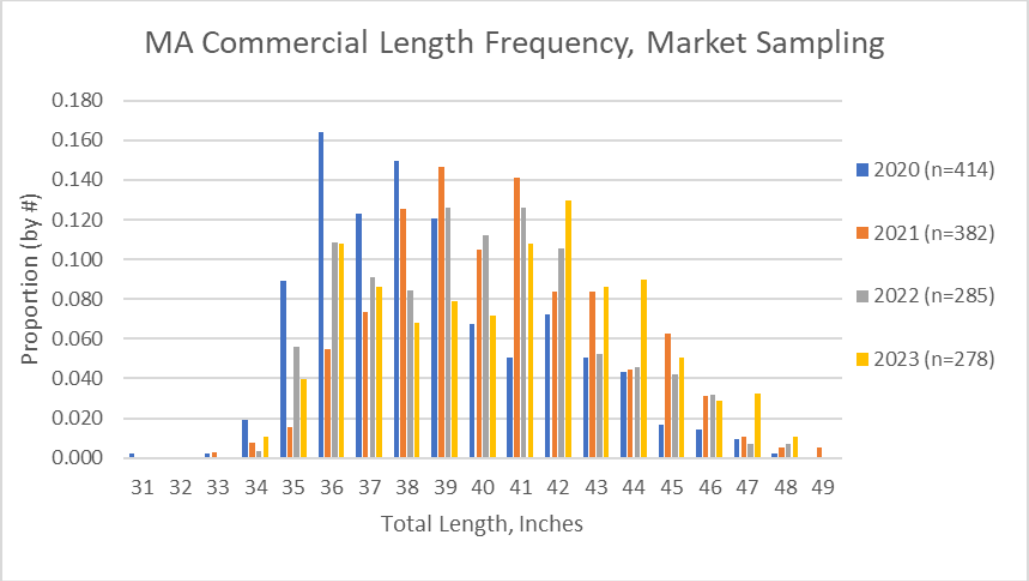

Table 3. Cumulative proportion of market sampled fish above a specific size.

Size (TL)	**Year**				
	2020	2021	2022	2023	**Average**
% ≥ 38"	59.9%	84.6%	74.0%	75.5%	**73.51%**
% ≥ 40"	32.9%	57.3%	53.0%	60.8%	**51.0%**
% ≥ 42"	21.0%	32.7%	29.1%	42.8%	**31.4%**
% ≥ 44"	8.7%	16.0%	13.3%	21.2%	**14.8%**

References

Atlantic States Marine Fisheries Commission (ASMFC), 2024. Addendum II to Amendment 7 to the Interstate Fishery Management Plan for Atlantic Striped Bass. 34pp.

Brown, SC, AM Giuliano, BA Versak. 2024. Female age at maturity and fecundity in Atlantic Striped Bass. *Marine and Coastal Fisheries*. 16(1).

Hixon, MA, DW Johnson, and SM Sogard. 2014. BOFFFFs: on the importance of conserving old-growth age structure in fishery populations. *ICES Journal of Marine Science*. 71(8): 2171–2185.

Monteleone, DM, and ED Houde. 1990. Influence of maternal size on survival and growth of striped bass Morone saxatilis Walbaum eggs and larvae. *Journal of Experimental Marine Biology and Ecology*. 140(1-2): 1-11.

Nelson, G. 2018. Historical Review of Commercial Fishery Regulations for Striped Bass (*Morone saxatilis* Walbaum) in Massachusetts. *Northeastern Naturalist*. 25(1): 143-160.

Secor, DH. 2007. The year-class phenomenon and the storage effect in marine fishes. *Journal of Sea Research*. 57(2-3): 91-103.

Zastrow, CE, ED Houde, EH Saunders. 1989. Quality of striped bass (Morone saxatilis) eggs in relation to river source and female weight. Progr. Rep. Md. Dep. Nat. Resourc., Ref. No. [UMCEES] CBL 88–146.