2024 • 1st and 2nd Quarters • Volume 53

DMF News

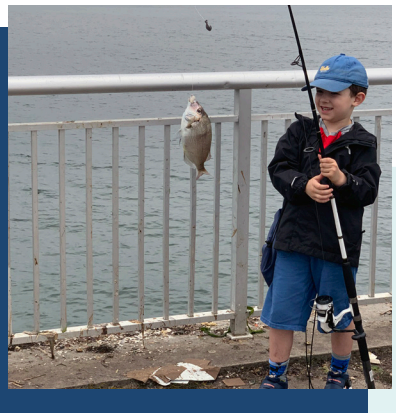
Published by the Massachusetts Division of Marine Fisheries (DMF) to inform and educate its constituents on matters relating to the conservation and sustainable use of the Commonwealth's marine resources.

Inside

A new no-harvest closure during April 15–June 7 now protects spawning horseshoe crabs, such as these coming ashore to mate in Stage Harbor, Chatham.

Horseshoe Crab Protection Enhanced in Massachusetts

Beginning this year, spawning horseshoe crabs received the added protection of a continuous 7 ½ week no-harvest closure from mid-April through June 7. This new rule replaced the state's intermittent 5-day "lunar closures" that surrounded each new and full moon in the spring. This proposal was supported by the Massachusetts Marine Fisheries Advisory Commission to enhance conservation by maximizing the spawning potential of the local populations. Based on data collected by DMF that describe the timing of spawning activity, this closure will protect about 90% of spawning crabs, allowing them to deposit eggs on Massachusetts beaches undisturbed. The greatest benefit of this new regulation will likely be observed on spawning beaches in about ten years, when the young crabs produced by this year's eggs will return as mature adults to spawn.



DMF's 2024 Season of Youth Fishing Clinics is Underway!

Join us this summer in a fun and engaging fishing clinic where your family will learn all the basics to become avid saltwater anglers. Our summer schedule is growing, with over 15 planned events and perhaps more. An updated list is available at **mass.gov/saltwater-angler-education**. Adult fishing clinics can also be requested and scheduled according to staff availability.

The fishery is also managed by two quotas that we feel are conservative and sustainable: the quota for crabs harvested as bait is 140,000 crabs—far below the state's 330,377 crab allowance in the interstate management plan; and the quota for crabs retained for biomedical purposes is 200,000 crabs, shared by the two licensed companies. This careful approach, including the newly adopted spawning closure, aligns with much of the public's strong desire for this natural resource to be managed conservatively. While DMF has added the spawning closure to its management approach, it is important to recognize that Massachusetts horseshoe crab populations appear to be increasing in recent years. Nonetheless, DMF's philosophy is to manage this species conservatively with precautionary management and rigorous oversight.

Horseshoe crabs have been around between 350 to 450 million years; they were here long before the dinosaurs and have been so successful that they have remained largely unchanged for millennia. Commercial horseshoe crab fisheries have existed since the 1800s when they were harvested by the millions in Delaware Bay for use as fertilizer. The use of horseshoe crabs as fertilizer declined in the early 1900s and ceased in the 1970s as other sources of fertilizer became more common. While the fertilizer fishery was mostly confined to Delaware Bay, two newer fisheries started in the 1970s along the east coast: a bait fishery, providing horseshoe crabs for use as bait in traps used to catch eels or whelk (also referred to locally as "conch"), and a biomedical fishery which collects crabs, draws a portion of their blood, then returns the crabs back to the sea. This blood is used to make *Limulus amebocyte lysate*, or LAL, which is used to test for bacterial contamination on or in products such as medical devices, insulin, vaccines, or anything else implanted or injected into the human body. The collection of horseshoe crab blood to make LAL started in Massachusetts, and the fishery has operated here for about 50 years, longer than anywhere else in the world. The harvest of crabs for biomedical use is regulated by DMF and harvesters and dealers are subject to many regulatory requirements to ensure the maximum survival of released crabs.

DMF has been confronted by a narrative circulated by some prominent conservation groups that horseshoe crab populations are declining in Massachusetts and are even at "historical lows." However, this narrative is not supported by the data from surveys in Massachusetts. In fact, most data sources suggest the Massachusetts population is increasing, with some data sets at or near time series highs (**see Horseshoe Crab Monitoring Results in Massachusetts, next page**). Nor is it supported by the coastwide 2024 Horseshoe Crab Stock Assessment conducted by the Atlantic States Marine Fisheries Commission. This stock assessment, which was vetted by every state and federal horseshoe crab biologist from Massachusetts to Florida, shows that horseshoe crabs have increased coastwide, as well as in the Northeast region of Massachusetts-Rhode Island, since horseshoe crab fisheries management started in 1998.

DMF devotes substantial resources into monitoring horseshoe crab fisheries and populations in Massachusetts. DMF monitors the Massachusetts population of horseshoe crabs through three different surveys: spring and fall bottom trawl surveys; springtime spawning beach surveys; and an annual beach seine survey. These surveys can have some substantial interannual variability in the results, so the assessment scientists focus on the long-term trends to assess the populations. Our biologists also collect data at the various stages of the fishery, at harvest and in the case of biomedical crabs, holding and release back to the water. DMF biologists have been going into biomedical facilities and bait markets since 2000 to monitor the size, sex, and condition of horseshoe crabs. Observation of the biomedical fishery increased in 2022, when a second biomedical firm opened in the state. Conservationists, concerned about the impacts of a second biomedical company, requested that DMF increase our biomedical sampling intensity. The biomedical industry also requested increased observation of their operations, due to their concerns over the spread of what they consider misinformation regarding their methods and the impact on crabs.

Horseshoe crab biologist Derek Perry talks to NPR Cape and Islands reporter Eve Zuckoff while demonstrating a horseshoe crab spawning beach survey.

Eleven different DMF biologists collected data on nearly 12,000 horseshoe crabs during 51 commercial horseshoe crab sampling trips in 2023. The 51 sampling trips made the horseshoe crab fishery the second most observed fishery in the state, behind only the lobster fishery. DMF biologists collect commercial horseshoe crab fishery data aboard fishing vessels at-sea during harvest, at bait and biomedical dealers, at biomedical crab holding areas (e.g. pens), and at-sea aboard commercial vessels releasing biomedical crabs. DMF biologists found that only 1.5% of females and 1.0% of males died during the biomedical process from the time the crabs were caught until they were released; the remainder were successfully released alive. MA DMF is currently designing a study to look further into the long-term survival rates of biomedically bled—and released—crabs. We are committed to the sustainable management of this shared public resource.

By Derek Perry, Horseshoe Crab Biologist; Dr. Tracy Pugh, Invertebrate Fisheries Program Manager; and Dan McKiernan, Director

Horseshoe Crab Monitoring Results in Massachusetts

DMF Trawl Survey (Figure 1): This survey has a 46-year time series and covers state waters from the Rhode Island border to the New Hampshire border, which allows us to monitor long-term trends in horseshoe crab abundance in the state. Horseshoe crab abundance is generally higher south of the Cape than north, since Massachusetts is close to the northern extent of the species' geographic range. Abundance trends over time are mixed, depending on region or survey season. In the northern region, survey trends are relatively flat in recent years except for slight downturns in the fall for females. In the southern region where population levels—as well as harvest rates—are higher, spring survey trends are positive for both sexes, while the fall survey results have been relatively stable in recent years.

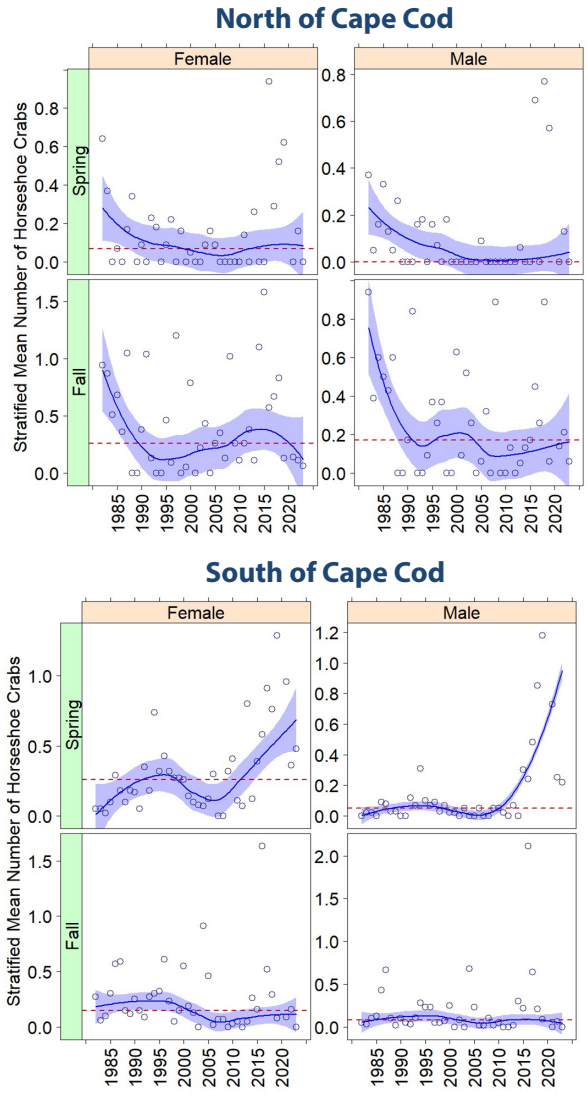


Figure 1. Time series of relative abundance trends of horseshoe crabs in the DMF Trawl Survey, by region, sex, and survey season. The values shown are the stratified mean number of horseshoe crabs per tow. The dashed red line is the time series median. The solid blue line is a trend line (Loess smoother) fitted to the data, and the shaded area is the confidence interval around the trend line.

DMF Horseshoe Crab Spawning Beach Survey (Table 1): This volunteer-based survey, conducted since 2008, monitors the number of spawning crabs at 16 survey beaches, mostly located on the Cape and Islands. The number of spawning females observed in the survey has increased at 72% of the beaches consistently surveyed over the last ten years. This survey is the best method we have for looking at changes in abundance in specific locations, such as in Pleasant Bay, Orleans, where horseshoe crabs have been harvested for biomedical purposes for about 50 years. While the spawning survey doesn't go back that far, there is one site in Pleasant Bay that has been surveyed somewhat intermittently since 2001, first by a University of Rhode Island graduate student, and then by Mass Audubon as part of the Massachusetts Horseshoe Crab Spawning Survey. Over the period for which we have data, there is no evidence of a decline at this site; in fact, the last three years have been the highest data points in the time series. DMF is grateful for the time and effort put in by the following organizations who coordinate survey volunteers and collect Spawning Beach Survey data: Mass Audubon, North and South Rivers Watershed Association, Southeastern Massachusetts Pine Barrens Alliance, U.S. Fish and Wildlife Service, Maria Mitchell Association, Nantucket Conservation Foundation, and Erik Hunter.

Region	Beach	Time of Day	2023 vs Median	10-year trend	5-year trend
Cape Cod Bay	Duxbury	Day	below	decreasing	increasing
	Duxbury	Night	above	decreasing	increasing
	Long Beach	Day	below	NA	decreasing
	Long Beach	Night	below	NA	increasing
	Millway	Day	below	increasing	increasing
	Millway	Night	above	increasing	increasing
	Long Pasture	Day	above	increasing	increasing
	Sanctuary Beach	Day	below	increasing	increasing
	Indian Neck	Day	below	decreasing	decreasing
	Indian Neck	Night	below	increasing	decreasing
	Great Island	Day	below	increasing	increasing
Outer Cape Cod	Priscillas Landing	Day	above	increasing	decreasing
	Marsh 2-3	Day	above	increasing	increasing
	Erica's Beach	Day	below	increasing	decreasing
Nantucket Sound	Stage Harbor	Day	NA	NA	NA
	Stage Harbor	Night	NA	NA	NA
	Bass River	Day	below	NA	increasing
	Bass River	Night	above	NA	increasing
	Monomoy	Day	equal	increasing	NA
	Monomoy	Night	below	increasing	NA
	Warrens Landing	Day	above	increasing	increasing
	Warrens Landing	Night	above	increasing	increasing
	Tashmoo	Day	NA	increasing	NA
	Tashmoo	Night	NA	increasing	NA
Buzzards Bay	Tahanto	Day	NA	increasing	increasing
	Tahanto	Night	NA	increasing	NA
	Swifts Beach	Day	below	decreasing	decreasing
	Swifts Beach	Night	below	decreasing	increasing

Table 1. Summary table of Massachusetts Horseshoe Crab Spawning Beach Survey sites by region and time of day. The "2023 vs Median" column shows whether the 2023 data point was above or below that site's time series median. The 10- and 5-year trend columns show whether a site has an increasing or decreasing linear trend over the given period. NAs are given if a site was not surveyed in 2023, has not reached the 5- or 10-year threshold, or has not been surveyed regularly.

Horseshoe Crab Monitoring Results Continued...

DMF Seine Survey (Figure 2): This survey has consistently collected information on horseshoe crabs since 1984 and is conducted by DMF biologists in six embayments on the south side of Cape Cod from Falmouth to Chatham. Most of the crabs observed in this survey are found in Stage Harbor, Chatham. The survey has shown an increasing trend since the mid-2000s. The 2023 data point was the second highest of the time series.

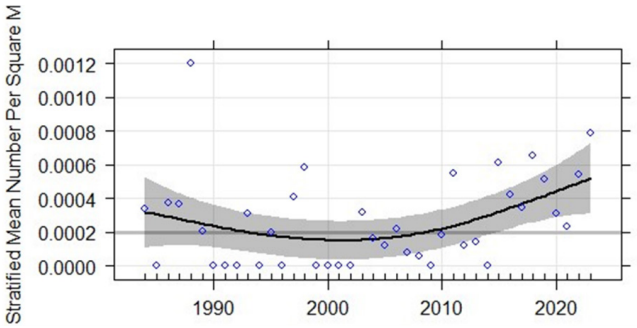


Figure 2. Stratified mean number of horseshoe crabs per square meter from the DMF Seine Survey. Light gray line is the time series median. Circles are annual averages. Black line is a model fit (generalized additive model) to the data. The gray-shaded area is the 95% confidence interval around the black line.

DMF Shellfish Labs Tackle New Climate Change Threats

DMF operates three laboratories to generate data in support of the state's Shellfish Sanitation and Management Program. The labs, located in Newburyport, Gloucester, and New Bedford, historically analyzed water and shellfish samples for indicators of sewage pollution and naturally occurring biotoxins produced by marine algae to protect public health and the $450-million annual shellfish industry in Massachusetts, the most valuable in the country. In recent years, the shellfish resource in Massachusetts has been increasingly impacted by new threats driven largely by climate change which necessitated a major expansion of the analytical capabilities of our labs.

Massachusetts, like many states, has seen a dramatic rise in intense rain events, leading to increased stormwater runoff and combined sewer overflow (CSO) events. Consequently, we have observed a growing number of impactful shellfish bed closures. Coupled with the National Shellfish Sanitation Program's (NSSP) mandate for buffer zones around wastewater treatment plant outfalls and sewage overflow locations, these climate-driven storms severely affect our shellfishing industry. The NSSP has recently adopted the use of male-specific coliphage (MSC) as a viral indicator. MSC are a group of viruses known as bacteriophages that infect piliated *Escherichia coli*, exhibiting morphological and seasonal characteristics similar to those of Norovirus (NoV), which is a leading cause of shellfish and other food-borne illness around the country. Unlike traditional detection methods for NoV, MSC can be quantified using a simple and cost-effective method that generates results in less than 24 hours.

The combined use of both MSC and the traditional fecal coliform results provides a more precise indicator of the public health risk associated with these contaminated discharges. In some circumstances this testing can reduce the mandatory closure times following discharges by up to 14 days. With one DMF lab complete and the two other labs busy conducting the necessary method verification work, we expect all three of our labs to soon be certified to utilize this new test. MSC will be a game changer in terms of both increasing harvest opportunities and better protecting public health in Massachusetts. This will be a particularly valuable new capability on the South Coast where we have the unique combination of a burgeoning shellfish aquaculture industry in close proximity to our older industrial cities.

A typical phytoplankton composition of a water sample taken off Cape Cod with cells of *Alexandrium* highlighted, the PSP-causing organism common in Massachusetts waters.

Perhaps even more directly related to climate change is the dramatic increase in the occurrence of Harmful Algal Blooms (HABs) being observed around the globe in both freshwater and marine environments. Caused by a combination of increased nutrient pollution, local changes in temperature and salinity, and large-scale shifts in water mass circulation, these blooms of algae can produce myriad types of chemical toxins that can be harmful to both wildlife and people. Shellfish can concentrate these toxins in their bodies when they filter feed on the algae, making them dangerous to eat if the toxin-producing species are present in high enough numbers. Historically, DMF has been primarily concerned with HABs caused by a single species called *Alexandrium catenella* which caused the notorious "red tides" which previously affected mostly the North Shore and the Outer Cape. This species produces a suite of neurotoxins known as saxitoxin that causes Paralytic Shellfish Poisoning (PSP) which can cause paralysis or even death if consumed in high enough concentrations. Unfortunately, *Alexandrium* recently began showing up all over the State and other species also known to cause HABs are increasingly becoming common in our waters leading to wide-

spread concern. In recent years, DMF has had to institute shellfish bed closures because of blooms of various species of *Pseudo-nitzschia*, which causes Amnesic Shellfish Poisoning (ASP), as well as *Dinophysis*, which causes Diarrheic Shellfish Poison (DSP). Even species of *Karenia*, which cause Neurotoxic Shellfish Poisoning (NSP) and were historically thought to only impact southern waters, have recently been detected by DMF lab staff in Massachusetts!

Unlike PSP, which is analyzed using a long-established bioassay method, the detection of new toxins in our waters is more complex. Until now, DMF primarily relied on collecting seawater samples, counting toxin-producing species, conducting basic screening tests, and sending samples out of state for further testing to inform shellfish bed closure decisions. With the increasing frequency, severity and complexity of HABs, this approach is no longer feasible, prompting DMF to invest in enhancing our capability to monitor these species and toxins.

Last year, DMF received internal grant funding through the state's Hazard Mitigation and Climate Adaption Plan to procure two High Performance Liquid Chromatography (HPLC) instruments for both the New Bedford and Gloucester laboratories. These instruments can test for virtually any chemical compound in liquids and foods and will allow us to test shellfish for the presence of algal toxins. These sophisticated instruments will provide advanced analytical capabilities previously unavailable in our shellfish that not only will improve our ability to protect public health but also allow for more precise and targeted shellfish bed closures, potentially mitigating the impact of these increasingly common and unpredictable threats to our waters. Additionally, DMF received grant funding to purchase two advanced epifluorescense microscopes which will greatly aid our ability to distinguish amongst various closely related marine algae species known as "look-a-likes" which can confound our ability to assess actual risk.

Gloucester shellfish laboratory staff receiving professional training on DMF's new High Performance Liquid Chromatography (HPLC) instruments which will be used to assess Harmful Algal Bloom toxicity and other chemical threats to shellfish safety.

With these new capabilities, our shellfish laboratories are far better equipped to respond to the new threats caused by our rapidly changing marine environment.

By Jake Madden, Brianne Shanks, and Wayne Castonguay, DMF Shellfish Program

STRIPED BASS UPDATE

Addendum II Approved, All Eyes on 2024 Stock Assessment

This past January, the interstate Striped Bass Management Board approved Addendum II to the management plan with the goal of keeping the stock on a positive track to rebuild by 2029. The Addendum, which all states implemented by the May 1 deadline, continued the 28–31" slot limit for the ocean recreational fisheries that was adopted by emergency action in 2023. Additionally, the addendum established new Chesapeake Bay recreational limits (1 fish in a 19–24" slot limit); set standards for states that allow filleting in their recreational fishery; reduced commercial quotas coastwide by 7%; and adopted a provision allowing the Board to more expediently respond to a future stock assessment with new management measures if the stock is not projected to rebuild on time. Collectively, the newly established 2024 fishing limits are expected to result in fishery removals—at least for this year—approximating the target fishing mortality rate needed for stock rebuilding.

In Massachusetts, Addendum II results in an ongoing 1 fish at 28 to <31" slot limit, year-round, for our recreational fishery. In 2023, these regulations placed Massachusetts in the top four states for striped bass harvest, overall catch (harvest plus releases), and fishery removals (harvest plus dead discards). It's estimated that over 4.5 million striped bass were caught by recreational anglers in Massachusetts in 2023. With similar amounts of harvest and dead discards (both over 300,000 fish) contributing to our recreational fishery removals, it's never been more important that anglers follow best practices for reducing post-release mortality. These include:

- Limiting fight time and handling time
- Dehooking with the fish in the water or at least using wet hands or rag
- Holding fish under the belly and at the tail fin, never at the eyes or gills
- Releasing fish gently, in a horizontal position, head facing into the current, and holding there until revived
- Using tackle that minimizes injury. (This last one is an area of active study by DMF's Striped Bass Citizen Science Project, as discussed below.)

On the recreational filleting issue, Addendum II mandates that states allowing filleting require the racks (or carcasses) of filleted fish be retained on the vessel and that no more than two fillets per fish be possessed, to aid in compliance and enforcement with size and possession limits. For striped bass, Massachusetts has only ever allowed at-sea filleting in the for-hire fishery, where captains or crew of chartered vessels can fillet their customers' catch for them as an added service. Now, the racks of these fish must be kept onboard the vessel until it docks and the customers have departed. State rules already limited the customers' possession of striped bass fillets to two. (See the Regulatory Updates section for information on other changes to the state's private vessel/shore angler filleting rules.)

As for the commercial fishery in Massachusetts, Addendum II's 7% quota reduction lowers the state's baseline quota from 735,240 pounds to 683,773 pounds at the existing 35" minimum size limit. (The term "baseline" is used to refer to the state's initial annual quota which may be reduced by a prior year quota overage in a pound-for-pound payback as required by the interstate plan. Such an overage occurred in 2022 which meant that Massachusetts' effective quota in 2023 was 700,379 pounds. No overage occurred in 2023, so the commercial fishery has the full 683,773 pounds available for 2024.) This combination of minimum size and quota, if taken in full, is expected to amount to about 34,000 fish being harvested commercially in Massachusetts (based on an average weight of 20 lb/fish). In response to this quota reduction, the Division reduced the number of open commercial fishing days from three to two (Tuesday and Wednesday), although a third day (Thursday) will be added on August 1 if at least 30% of the quota remains. The season opened Tuesday, June 18 this year.

With the dust largely settled on Addendum II, the Management Board's attention has turned to the pending 2024 stock assessment. The last assessment in 2022 indicated that spawning stock biomass (SSB) remained below its threshold level in 2021—resulting in an overfished designation—but that fishing mortality was at a level allowing for stock regrowth. Of course, that was followed by the unexpected increase in recreational harvest in 2022 that resulted in the emergency action in 2023 for fear of a repeat performance jeopardizing that trend.

This year's assessment will include data through 2023 and tell us whether overfishing actually occurred in 2022 and if the combination of resource availability, fishing effort, and new management measures in 2023 was enough to make it just a one-year blip. There is some optimism here because preliminary coastwide recreational catch estimates for 2023 show a 25% reduction in recreational harvest, as well as a 13% reduction in dead discards, combining for a 20% reduction in recreational removals compared to 2022.

The assessment will also project future years' stock biomass and fishing mortality under the management measures implemented in 2024 through Addendum II. These projections simulate the aging of the current population, accounting for natural mortality and fishing mortality, while also adding in new year classes of fish (i.e., recruitment). Of course, no one has a crystal ball that can tell us how many juvenile fish will successfully recruit to the population in any given year; this is among the largest sources of uncertainty in stock projections. Year-class strength is randomly generated in the model from the observed history of recruitment; which at this time for striped bass is pulled from an abbreviated set of years (post-2008), reflecting a period of lower recruitment. Spawning stock biomass is still plentiful enough to generate a strong year-class, but we'll need several of them to make up for the five poor year classes coming out of the Chesapeake Bay (the primary spawning ground) between 2019 and 2023. These weak year classes will negatively impact the projections of spawning stock biomass as they age and reach maturity (beginning in 2027).

The 2024 stock assessment and projections will shape the fate of striped bass management for the next two to three years (until the next stock assessment). The Management Board is due to review the results this October. If the stock projections indicate that the stock is not likely to rebuild by 2029, the Board will need to correct for this through one of two approaches that prioritizes either stakeholder engagement (an addendum which includes a public comment period) or management expediency (a Board action which can change measures in time for 2025 rather than 2026). If action is needed, the Board has signaled that it will be focusing, at least in part, on recreational release mortality. In May, the Board agreed to establish a Workgroup to discuss the topic and produce a report in time for the October 2024 meeting (coinciding with the assessment results). Specifically, the Workgroup's plan includes reviewing available information on no-targeting closures and gear modifications (two possible tactics for reducing release mortality), identifying modeling approaches to evaluate tradeoffs between reducing the number of releases versus reducing the release mortality rate, and considering methods to still incorporate public input into management decisions should the Board want to fast-track a response to the stock assessment.

On the subject of gear modifications that could reduce release mortality, the Workgroup will be reviewing data collected through DMF's Striped Bass Citizen Science Project. We are in year two of collecting information from anglers about the tackle they use, other factors about their catch (e.g., temperature, fight time), and the injury sustained by the fish. The more anglers participating, the better these critical data will be. Go to **mass.gov/striper** to sign up and help supply the science needed for the sustainable management of this magnificent natural resource.

By Nichola Meserve, Fisheries Policy Analyst and ASMFC Striped Bass Board Member

Navigating On the Water User Group Conflicts in the Boston Harbor Menhaden Fishery

Our state waters are a rich environment and help support commercial and recreational fisheries among many other opportunities for access and enjoyment of our coastline. At times, whether due to the vagaries of nature or demand for some species or experience, conflicts can arise between different user groups. When these situations occur, a central role of DMF is helping to reduce conflict around our publicly held natural resources. Such a situation arose during the summer of 2023 when a relative shortage of menhaden in and around Boston Harbor led to conflicts on the water and multiple calls for DMF to act.

Menhaden have a long history in the United States as an important commercial fish and provide a substantial ecosystem function as a forage base for larger predatory fish, whales, and birds. While not a food fish, anglers value having large numbers of menhaden in local waters because they attract striped bass and tuna to nearshore waters, leading to excellent fishing opportunities. Additionally, the purse seine fishery for menhaden is a historic commercial fishing activity in Massachusetts and our local commercial fleet provides bait for our lobster industry, as well as other local fishers and tackle shops. These competing activities, often happening at the same time and in similar locations, have driven a persistent user group conflict over the use of menhaden in our nearshore waters. However, this is a shared resource, and a collective effort is needed to de-escalate conflicts, in both how we manage this fishery and how different users interact on the water.

Menhaden is managed at the coastwide level by the Atlantic States Marine Fisheries Commission, which sets coastwide and state-by-state commercial quotas; each state then manages its own quota. In 2024, Massachusetts commercial quota is 10,838,902 lbs. DMF manages the harvest of this quota, caught primarily by purse seine vessels, through a detailed program with the goals of landing the quota while providing consistent bait for local fisheries and minimizing conflict with other users on the water. The management program includes a season start date, limited entry permitting, daily possession limits that drop through quota utilization triggers, no fishing days on Saturday and Sunday, and limitations on fishing activity in certain harbors and embayments. Additionally, DMF issues permit conditions on the seiner's permits that require them to "avoid concentrations of recreational fishing vessels." Click **here** for details on the 2024 rules.

Last year was particularly challenging because of the limited availability of menhaden in Massachusetts' inshore waters during the summer season. This localized low abundance increased the competition between the commercial and recreational fishers for limited schools of fish. This was particularly problematic in Boston Harbor. DMF received numerous comments and complaints from both recreational anglers and commercial seiners about on the water conflicts and competition for schools of menhaden. Often these reports were conflicting and difficult to sort out.

Menhaden, a baitfish used by both commercial and recreational harvesters, being brailed from the purse seine to the commercial fishing vessel's hold.

To help reduce conflict in 2024, DMF held a meeting in late March between recreational striped bass anglers and commercial menhaden purse seine vessels that operate in Boston Harbor. The specific goals of the meeting were to bring key representatives of both groups together to discuss the issues, learn more about menhaden management, enhance communication, and begin to create a culture of cooperation on the water. Representatives from both user groups attended, along with members of the Marine Fisheries Advisory Commission and DMF staff. DMF appreciated the chance to meet with representatives from both sectors and hear their concerns and foster a dialogue between the groups. This meeting was a positive step and has hopefully laid the groundwork for communication and cooperation among users rather than conflict.

As of the writing of this article, it is still early in the 2024 fishing season and purse seining has only been allowed in Boston Harbor for two weeks. No reports of conflicts have been received to date. Conflict may also have been reduced through regulatory changes; in 2024, the commercial menhaden fishery opened on May 15, a month earlier than 2023. This has resulted in 61.5% of the quota being caught through June 12, mostly outside of the inshore harbors and embayments. Conflicts over limited resources are inevitable over time and DMF is committed to helping all of the user groups in Massachusetts waters better communicate and cooperate so that we can all enjoy our waters and the outstanding opportunities they provide.

By Ben Gahagan, Recreational Fisheries Program Leader, and Story Reed, Assistant Director

The 2024 Right Whale Season

Thus far, 2024 has been a mixed bag for the North Atlantic right whale population with some setbacks in protection and recovery, as well as bright spots in conservation efforts. Here in Massachusetts, we had another successful right whale season through collaborations with the Center for Coastal Studies, the Massachusetts Environmental Police, trap fishermen, and other researchers. DMF worked with environmental law enforcement and contracted commercial fishermen to ensure the seasonal trap gear closure in the Massachusetts Restricted Area (MRA) was free of derelict fishing gear prior to the arrival of right whales. This seasonal closure is a critical conservation tool to ensure right whales are protected from entanglement when they aggregate each winter and spring in Cape Cod Bay, the Outer Cape, Massachusetts Bay, and the North Shore. In 2024, we conducted 18 recovery trips and removed 373 traps and 193 buoy lines from state waters portions of the MRA.

Right whales returned once again in strong numbers to Massachusetts waters in winter and spring 2024, although at slightly lower levels than recent years. Approximately 47% of the known population (n=168 individuals) was observed in Cape Cod Bay (CCB) and Mass Bay over the course of the season, which is the fewest individuals observed since 2015. A season high of 88 individual right whales was documented in CCB on March 13. While the large aggregations we're used to seeing didn't show up this year, a handful of right whales lingered past May 1, causing the MRA closure to be extended until May 8.

Although the right whale population continues to be impacted by entanglement and vessel strikes, the population decline that began in 2010 appears to have slowed in recent years, with reductions in mortality and improved calving. As of 2022, there were approximately 356 individual right whales in the known population. 2024 got off to a rough start for right whales, however. Although 20 new calves were documented in the 2024 calving season, four are missing and presumed dead, and one died of injuries from a vessel strike off South Carolina. Five of the surviving 15 calves were seen in Cape Cod Bay in 2024. In addition to the calf deaths, two right whale females were killed by vessels—one off Georgia in February and another off Virginia in April. The latter was a calving female in the 2024 season and her calf is among the missing and presumed dead. Another right whale was found dead off Martha's Vineyard in January, which necropsy and gear analysis determined was caused by a chronic entanglement in Maine state lobster gear.

Additional protections for right whales are currently paused due to Congress' passageof the Consolidated Appropriations Act 2023, which stated that the current Atlantic Large Whale Take Reduction Plan is sufficient to meet the mandates of the Marine Mammal Protection Act and Endangered Species Act until December 31, 2028. This raised questions about NOAA Fisheries' ability to expand the MRA to close an area in Massachusetts Bay known as 'The Wedge', a narrow zone left open between the state waters closure line and the western portion of the federal closure covering Stellwagen Bank, which it had done by emergency action in 2022 and 2023. In March 2024, NOAA Fisheries published a final rule permanently adding the Wedge to the seasonal MRA closure. However, six days later a judge in the US District Court of Massachusetts ruled that the Consolidated Appropriations Act barred the Wedge rule until December 31, 2028, making the rule void and unenforceable. NOAA Fisheries is reviewing the decision and considering other options for protecting right whales in this important seasonal habitat.

Photo courtesy of Center for Coastal Studies, taken under NOAA permit #25740-02.

In 2024, DMF continued to support the testing of ropeless or on-demand fishing gear by collaborating with the Northeast Fisheries Science Center (NEFSC) on trials of ropeless systems under their Exempted Fishing Permit. The permit allows the testing of alternatives to traditional buoy lines in the seasonal trap closure areas, however authorization from DMF is required to test ropeless gear in the state waters portion of those closures. During the 2024 closure season, NEFSC worked with six commercial fishermen in state and federal waters portions of the MRA and the South Islands Restricted Area to test fully ropeless systems and collect data on the functionality of the gear, catch rates, hauling efficiency, gear proximity, and potential gear conflict issues. During this testing, DMF and NEFSC observers collected data on timing elements of hauling for inclusion in DMF's on-demand economic impacts model.

The Consolidated Appropriations Act 2023 also provided funding to States for right whale monitoring, gear innovation research, and assistance for fishermen to comply with the regulations of the Atlantic Large Whale Take Reduction Plan. DMF is using the funds provided to Massachusetts to expand right whale aerial surveillance, develop a right whale acoustic monitoring network, conduct on-demand gear research, and provide assistance to fishermen to comply with weak rope and buoy line marking requirements.

By Erin Burke, Protected Species Specialist

Environmental DNA: A New Tool for Monitoring Marine Resources

The analysis of environmental DNA (eDNA) is an emerging technique that can be used to monitor species' presence, distribution, and habitat use. eDNA is genetic material that is naturally shed into the environment by organisms that can be easily collected by water sampling and filtration. eDNA analysis has the potential to improve our understanding of the distribution of a variety of marine species and to complement existing monitoring methods. Through a laboratory technique known as quantitative polymerase chain reaction (qPCR), eDNA of a single species can be detected at the time and place of sampling. Genetic metabarcoding of eDNA characterizes biodiversity to allow for an ecosystem-level assessment. In the marine environment, metabarcoding can be used to characterize entire vertebrate and invertebrate assemblages, from the base of the food web up through top predators and can provide detailed information about changes in community structure when water samples are collected in a consistent spatial and temporal framework.

qPCR eDNA Case Study: Winter Flounder

Since 2021, DMF's Habitat Program has been collaborating with the Gloucester Marine Genomics Institute (GMGI) on eDNA projects designed to improve our understanding of winter flounder habitat use in Cape Cod embayments. Winter flounder enter southern New England embayments to spawn in winter months. Their eggs are laid directly on the seafloor, where they are sensitive to turbidity impacts, leading to time of year (TOY) restrictions on dredging. Current spatiotemporal habitat use in response to climate change and stock declines is not well understood. The resulting precautionary approach to TOY implementation broadly restricts dredging in space and time, which often conflicts with available construction windows. DMF collected water samples for winter flounder eDNA detection from 10–13 stations in six Cape Cod embayments for 12 consecutive months in 2021–2022. Detections peaked in winter months when adults are presumed to be aggregating in these systems to spawn and also in early summer when the resulting young-of-year biomass is at its peak (see figure). However, patterns differed among estuaries suggesting system-specific habitat use.

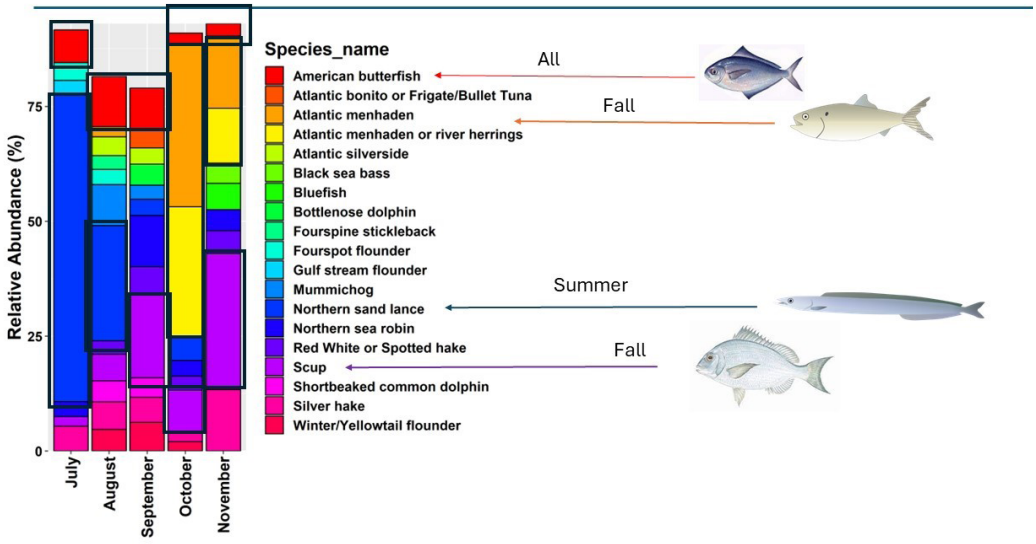
eDNA detections of winter flounder in Waquoit Bay during representative sampling months. Symbols represent the 13 water sampling stations. White triangles indicate non-detections while colored circles reflect positive detections with warmer colors reflecting higher eDNA concentrations. Detections were infrequent before the entry (early winter) and after the departure (early spring) of spawning adults. Highest detections were observed in late winter and early summer when spawning adults and resulting young-of-year winter flounder were likely most abundant.

During winter 2023 and 2024, the Habitat Program initiated a joint eDNA-fyke net survey in Waquoit Bay, Falmouth, MA to improve our understanding of the prior eDNA survey results. Fyke nets were installed at four locations in Waquoit Bay and monitored weekly while eDNA samples were collected throughout Waquoit Bay on a biweekly schedule. Fyke catches confirmed the presence of mature, reproductively active winter flounder with peak catches occurring in January and February followed by a sharp decline from March through April. Preliminary eDNA results mirror this pattern and provide additional support for using eDNA as an independent monitoring tool.

eDNA Metabarcoding Case Study: Offshore Wind

In collaboration with GMGI and the New England Aquarium (NEAq), the Habitat Program initiated an eDNA monitoring program in the Offshore Wind Lease Areas off southern Massachusetts in 2023. These areas also support many recreationally and commercially important fishing activities. With multiple offshore wind projects already underway, there is a need for coordinated research efforts to measure the potential impacts of offshore wind development and construction on fisheries and the marine ecosystem in southern New England. Monthly eDNA sampling was initiated in May 2023 with surface and bottom water collected from 40 stations split between the Vineyard Wind 1, South Fork, and Revolution Wind lease areas in addition to nearby reference sites outside the regions of active development). Sampling continued through November 2023.

For this project, eDNA metabarcoding is being used to characterize the diversity of invertebrate and vertebrate fauna in these lease areas pre-, during, and post-construction to address concerns of potential ecosystem-level impacts. DMF initiated a second field season of sampling in May 2024 with plans to maintain the same monthly sampling schedule completed in 2023. Continued sampling will provide a longer-term record of marine biodiversity in these offshore southern New England waters. Preliminary results for vertebrates detected a total of 77 species of bony fishes, elasmobranchs, marine mammals, birds, and sea turtles. Northern sand lance accounted for most of the eDNA detections in summer months with scup and menhaden taking its place in fall samples. American butterfish were also consistently detected across seasons (see figure). These results highlight the ability of eDNA to characterize the dominant species at the base of the food web and its capacity to detect any ecosystem



Preliminary eDNA results from the offshore wind lease areas showing the most prevalent bony fish species. Northern sand lance was the most highly detected species in summer months while scup and menhaden were dominant in fall sampling months. American butterfish was observed consistently across survey months.

shifts over time. eDNA results will complement other ongoing monitoring efforts (e.g., acoustic telemetry, bottom trawl, ventless trap) to help us understand ecosystem-level responses to offshore wind development.

Next Steps

In addition to continuations of the winter flounder and offshore wind monitoring programs, the Habitat Program has begun partnering with other DMF monitoring programs to explore the potential for eDNA to provide complementary information to these existing survey methods. Water samples for eDNA analysis have been collected during the past four Resource Assessment Bottom Trawl Surveys for comparison with trawl catches as well as alongside the Resource Assessment Program's young-of-year winter flounder seine survey and Habitat Program's baited remote underwater video (BRUV) surveys of artificial reefs in Nantucket Sound. Continuation of these eDNA monitoring programs and synthesis with existing survey data will help to broaden our understanding of marine resources in Massachusetts waters.

By Dr. John Logan, Fisheries Biologist, Habitat Program

Offshore Wind Update

DMF engages in offshore wind by conducting technical and environmental review of offshore wind projects, leading fisheries working groups on offshore wind, fulfilling advisory roles for regional research efforts, providing best management recommendations to state and federal agencies, and contributing to fisheries compensation discussions. We are committed to engaging fishery stakeholders in all phases of industry development.

In the last six months, DMF engaged in numerous stakeholder events, participated in scientific conferences and workshops, submitted letters to BOEM, and has been heavily engaged in the Gulf of Maine planning. DMF also assisted in the development and review of fisheries compensations plans among a variety of offshore wind projects in Southern New England including for South Coast Wind that will be used to offset economic impacts to Massachusetts commercial and for-hire fishermen for loss of access or reduction of harvest during construction and operation, including within the wind energy area and the export cable. All drafts of the fisheries compensation and economic exposure analyses were presented to the MA Fisheries Working Group in January 2024. Southcoast Wind's compensation package totaled $5,717,000 of which $4,217,000 will go to the direct compensation program, $1,500,000 for a fishery innovation fund that will finance initiatives, research, and projects supporting the co-existence of the fishing and wind industries.

Southern New England Wind Projects

Three of the nine offshore wind projects in Southern New England south of Martha's Vineyard are under active construction: Vineyard Wind 1, South Fork Wind, and most recently Revolution Wind with its first turbine installed in May (Fig. 1). Vineyard Wind 1 began delivering electricity to shore early this year. Up next, New England Wind is anticipated to begin construction by the end of 2024.

DMF continues to support EEA in hosting and administering the $1.75-million Fisheries Innovation Fund established through an MOA between Vineyard Wind LLC and EEA to enhance fisheries coexistence with offshore wind development. DMF is working with the fund's advisory panel to provide recommendations for the disbursement of funds. DMF chairs the panel and has discretion on how the funds should be disbursed. The purpose of the fund is to finance grant programs that promote co-existence of fishing activities with offshore wind development. Funds may be spent on a variety of areas including fishing vessel safety upgrades, improved fishing gears, and research examining the impacts of offshore wind development on fisheries resources.

In Spring 2024, Vineyard Wind 1 and South Fork Wind opened their fisheries compensation program applications for economic losses attributed to offshore wind development. Vineyard Wind 1's compensation was open to commercial fishing vessels that fished within the Vineyard Wind 1 lease area in the pre-construction baseline period (2016-2022). South Fork Wind's compensation program is open to both commercial and for-hire vessels/operators but requires applicants to provide evidence of fishing loss or access attributed to construction activities or offshore wind vessel interactions during the operation phase. Orsted also opened applications for their navigation enhancement and training program (currently for South Fork Wind) in which commercial and for-hire vessels can receive a voucher toward the purchase and installation of pre-approved navigation equipment and up to two crew members can receive up to $1000 for pre-approved mariner training.

To-date, fisheries compensation for offshore wind projects has been negotiated by states and offshore wind developers following draft guidance from BOEM on fisheries compensatory mitigation associated with offshore wind development. However, recognizing the fact that vessels fish and transit across multiple regions and that there is a lack of consistency on compensation across developers and wind projects, eleven states from the Atlantic Coast (ME to NC) have formed the Eleven States Initiative on Offshore Wind. This Initiative will establish a credible regional fund administrator (RFA) for managing and distributing fisheries compensatory mitigation funds across the US eastern seaboard in a manner that ensures consistency among projects and fairness across home state and landing port and increases scale and efficiencies and avoids duplication. A Design and Oversight Committee (DOC) which is comprised of commercial fishermen, state, and developer representatives will guide and advise the RFA on the development of the claims process to maximize its effectiveness and comprehensiveness. DMF has been involved in the Eleven States Initiative discussions and is currently assisting with drafting the DOC charter. The RFA will be selected in summer 2024. It is expected that the claims process from the Eleven States Initiative will take two years to complete.

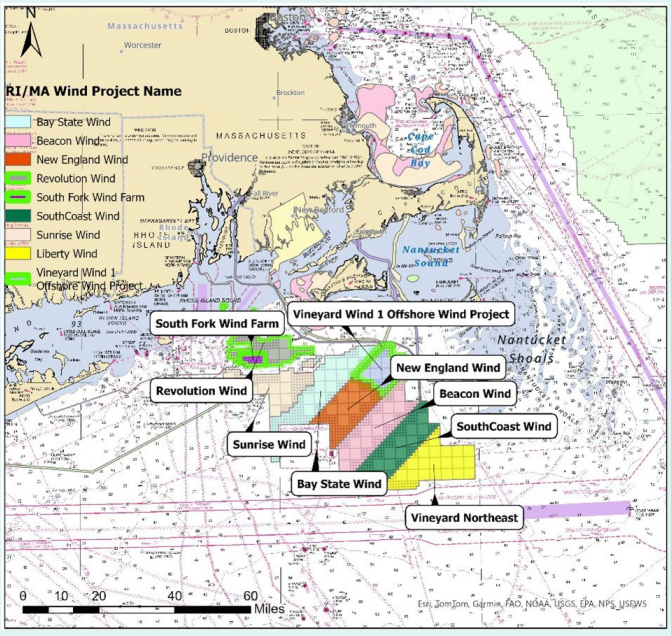


Figure 1. Southern New England wind project areas and proposed export cable routes. Green highlighted areas denote wind projects with active construction.

Gulf of Maine Updates

In March 2024, BOEM released the final Wind Energy Area (WEA) for the Gulf of Maine. The area encompasses about 2 million acres (an 80% reduction from the Call Area and 43% reduction from the draft WEA). The final WEA has a combined capacity of 32 Gigawatts, which exceeds the current combined offshore wind planning goals for the area by Gulf of Maine states (10 GW for Massachusetts and 3 GW for Maine). All areas currently identified in the final WEA are deeper than 60m and at least 20nm offshore. Given this depth, all potential offshore wind development will likely consist of floating technology. BOEM removed areas representing the top 10% of revenue for multispecies groundfish vessels through Vessel Trip Reports and included a 5-mile buffer around the Cashes Ledge Groundfish Closure Area. After the Final WEA was announced, BOEM sought comments on the related Environmental Assessment (EA) which will contain a comprehensive evaluation of the reasonably foreseeable environmental impacts and socioeconomic effects. DMF submitted comments which included quantifying risk of vessel displacement and co-use fisheries conflicts during surveys, evaluation of the fishing vessel transit/fishing impacts from important ports and identifying potential impacts of site assessment and characterization activities on the spatiotemporal distribution of commercially important species and habitats.

On May 1, BOEM announced the Proposed Sale Notice (PSN) of eight potential lease areas in within the Final WEA (Fig. 2). These lease areas encompass 969,999 acres total with 944,422 acres being developable, and have the potential to generate 15 GW of clean, renewable energy to power over 5 million homes. The potential electricity generational capacity from these leases is sufficient for current regional and state goals (13-18 GW based on Maine, Massachusetts, and ISO-New England). The individual lease areas range in size from 106,039 acres to 134,149 acres, with a distance to shore ranging from 24–73 miles. The current minimum for transit corridors is 2.5

nautical miles. BOEM conducted a series of in-person open houses from Maine to Massachusetts in May to allow the public to talk with BOEM's scientists and other personnel on the PSN. DMF attended these meetings to understand stakeholder concerns. For the PSN, BOEM will be using a bidding auction system that will combine monetary and non-monetary factors, with bidders receiving credits for such non-monetary factors as workforce training, supply chain development, and fisheries compensatory mitigation funding. At the minimum, compensation must address gear loss/damage and lost fishing income that results directly from preconstruction, construction, operations, and decommissioning of an offshore wind project.

In addition to comments on bidding credits, BOEM requested feedback on the size and delineation of the lease areas, user conflicts, transit corridors, baseline monitoring for protected and threatened marine mammals and their habitats, and limits on the number of lease areas per bidder. BOEM also sought comment on areas to include and exclude within the PSN lease areas and the Final WEA in case future lease areas are delineated within the Gulf of Maine. There is anticipated to be another round of proposed lease sales by BOEM within the Gulf of Maine in 2028.

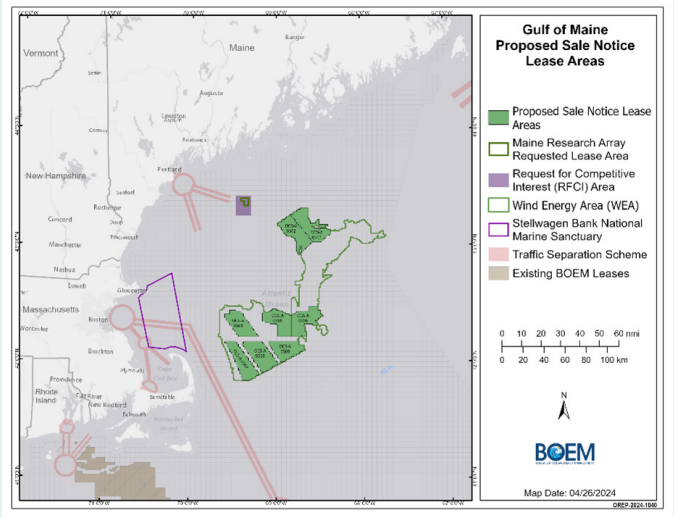


Figure 2. Gulf of Maine Proposed Sale Notice Lease Areas (green blocks) with the Final Wind Energy Area outline (green).

Once the PSN comment period closes, BOEM will publish a Final Sale Notice aimed at developers which provides the final terms and conditions for a lease sale, including the date, time, and location for the sale itself. The Final Sale Notice will also include the list of the companies that have legally, technically, and financially qualified to participate in the lease sale. After at least 45 days from the Final Sale Notice, BOEM will hold a lease sale and will subsequently identify the winner through an auction (final lease sales expected between November and December 2024).

In 2020, the State of Maine announced an intent to apply for a research lease for a floating offshore wind array and had many discussions with stakeholders and user groups to identify a Narrowed Area of Interest and Research Framework. In 2024, BOEM offered the research lease to Maine (Fig. 3). BOEM has restricted the proposed area for development to 9,700 acres and will be located 28 nautical miles from the mainland coast of Maine and could potentially have up to 12 floating offshore wind turbines. The Research Lease is expected to be built before commercial floating wind farms and therefore, will inform the commercial process and provide lessons learned on impacts to fisheries and the environment. In addition to lessons learned, research leases must support the future production, transportation, or transmission of renewable energy.

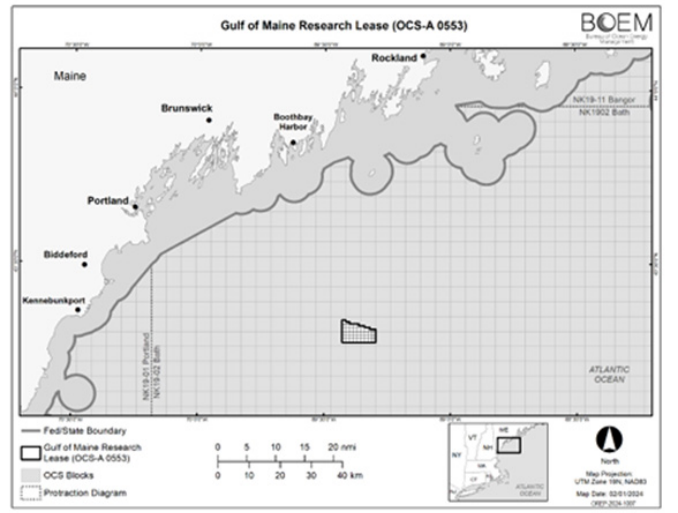


Figure 3. Gulf of Maine Research Lease Array.

General Commonwealth Offshore Wind Updates

On October 4, 2023, Governor Healey announced a multi-state memorandum of understanding (MOU) between CT, RI, and MA to procure up to 6,000 MW of electricity to New England states. Through this MOU, the three states will review multi-state offshore wind proposals with project selection depending on each state's evaluation criteria in their respective request for proposals (RFPs). Any two or three states may agree to select a multi-state proposal(s) up to each state's procurement authority and split anticipated MW from a single project.

DMF and other MA EEA agencies assisted with the review of pre-proposals from the Mass Clean Energy Center's RFP for Advancing Offshore Wind Research and Science in April 2024. Grant prizes could range from $50,000 to $1,500,000. This RFP sought applied research projects that are relevant to the planning, deployment, and operations of offshore wind in southern New England and the Gulf of Maine, as well as growing capacity in Massachusetts and the region for offshore wind science and applied research. Topics included in the solicitation encompassed wildlife and fisheries, oceanography, offshore wind engineering, remote sensing, policy and planning, transmission, and floating technology. Final awards will be provided by Fall 2024.

On April 20, 2023, Secretary Tepper announced the establishment of the EEA Interagency Offshore Wind Council (IOWC) to advance the responsible development of offshore wind to meet the Commonwealth's climate goals. The IOWC will be responsible for developing and maintaining an Offshore Wind Strategic Plan (Plan) with stakeholder and community input. The Plan will: 1) lay out status of the offshore wind industry to the Commonwealth, existing legal and policy frameworks, and progress made to date; 2) identify key drivers, gaps, needs and findings; and 3) recommend specific actions and strategies necessary to advance the Plan's goals and objectives before 2040. The Plan's objectives will be relevant to its three primary components for balancing economic development, socio-environmental, and energy advancement needs. VHB, the contractor for developing the strategic plan, carried out listening sessions with fishermen and other stakeholders in MA in April and May 2024 to hear their concerns and recommendations. The Commonwealth's strategic plan will be drafted in summer 2024 with an opportunity for public comment and will be finalized in September 2024.

By Dr. Justin Bopp, Offshore Wind Specialist

Creature Feature: Atlantic Sturgeon

Sturgeon are ancient fish dating back at least 70 million years (with fossil records as old as 120 million years). Two species can be found along the East Coast of North America from southern Canada to northern Florida: the Atlantic sturgeon (*Acipenser oxyrinchus*) and the shortnose sturgeon (*A. brevirostrum*). While both species are distinguishable from most other fish due to their bony armor plating called scutes, Atlantic sturgeon grow much larger in size—attaining lengths in excess of 6 feet, with records of 16 feet and weighing up to 800 pounds, compared to the shortnose's maximum length of 5 feet and weight of 60 pounds. Although both are anadromous, migrating between freshwater (to spawn) and saltwater, shortnose sturgeon spend relatively little time in the ocean, and when they do, it is generally close to shore. Because Atlantic sturgeon regularly inhabit the open ocean, they are subject to MA Division of Marine Fisheries regulation (rather than our inland counterpart, as is the case for shortnose) as well as interstate management through the Atlantic States Marine Fisheries Commission (ASMFC). Neither species may be fished, and any sturgeon incidentally caught must be immediately returned to the water. Both species are protected by the Massachusetts Endangered Species Act and the federal Endangered Species Act.

Atlantic sturgeon range between southern Canada and northern Florida. They may live up to 70 years, with females not reaching sexual maturity until somewhere between ages of 7 to 30, and males between the ages of 5 to 24. Age of maturity increases with increasing latitude with southern populations maturing faster and growing larger than those in the northern part of the range. They are iteroparous, capable of spawning multiple times throughout their lives; every 1–5 years for males and every 2–5 years for females. They return to their natal river to spawn, migrating upstream to riverine spawning areas in the spring or early summer (or later further south). The number of eggs produced by females increases with size and age ranging between 400,000 in smaller females to 8 million eggs in larger females. In the northern part of their range, females typically exit the rivers within 4 to 6 weeks after spawning whereas males may remain in the river or lower estuary until the fall. Juveniles may spend between one and six years in their natal rivers before migrating to the ocean. Tagging data indicate that Atlantic sturgeon travel widely up and down the East Coast and as far east as Iceland. In Massachusetts, Atlantic sturgeon utilize the Connecticut River and Merrimack River; historical records indicate they were also present in the Taunton River, but surveys have not confirmed their presence in recent years.

Indigenous tribes harvested sturgeon for their meat and eggs (roe) as early as 4,000 years ago, and since colonial times, Atlantic sturgeon supported important commercial fisheries in which their eggs were valued and sold as high-quality caviar. The sturgeon fishery peaked in the late 1800s, a period known as the "Black Gold Rush" in which landings exceeded 3,000 metric tons annually. However, sturgeon populations drastically declined coast-wide by the beginning of the 1900s with landings reduced to 9 metric tons by 1905 and further declined to less than 1 metric ton by 1989. Many states had closed their directed fisheries and in 1998 a complete coastwide harvest and possession moratorium was implemented under the interstate management plan through at least 2038, in order to build up 20 year classes. ASMFC stock assessments have since determined that a combination of historic overfishing, incidental catch, habitat loss largely due to dam construction, poor water quality, dredging within spawning areas, ship strikes and climate change have severely depleted their populations coastwide.

While overall levels of Atlantic sturgeon remain low, the population appears to be recovering slowly since the implementation of the coastwide moratorium and the designation and protection of critical habitats. However, in 2012, NOAA Fisheries listed Atlantic sturgeon under the Endangered Species Act (joining shortnose which had been listed decades prior); in so doing, they categorized the stock into five so-called "distinct population segments" or DPSs. The Gulf of Maine DPS was declared threatened, and the remaining DPSs—New York Bight, Chesapeake Bay, Carolina, and South Atlantic—were declared endangered. As an ESA listed species, Atlantic sturgeon are subject to a recovery plan, part of which for sturgeon is focused on reducing incidental catch in commercial fisheries. Recently, the Mid-Atlantic and New England fishery management councils adopted new measures (expected to be implemented in 2025) to reduce the incidental catch of Atlantic sturgeon in federal large-mesh gillnet fisheries targeting monkfish and spiny dogfish. A 2024 stock assessment and additional federal status review will determine if additional measures to reduce sturgeon bycatch in these fisheries is needed.

By John Sheppard, Diadromous Fish Biologist

Public Access Update: Your Saltwater License Fees at Work

By state law, one third of the fees collected from the sale of saltwater recreational fishing permits are dedicated to supporting public access for saltwater fishing. Over the years, this funding source has supported projects ranging from multi-million-dollar fishing piers to forty-five-dollar garbage receptacles. Here's what your saltwater license fees have been funding lately.

Pier Construction Underway at Salem Willows

Steel piling being installed this spring for the new Salem Willows fishing pier.

The Division of Marine Fisheries in partnership with the Office of Fishing and Boating Access (OFBA) and the City of Salem has been working for many years to replace the original and historic Salem Willow Park fishing pier, which was condemned in 2021 (see DMF's 2022 Q3&4 Newsletter, **mass.gov/doc/dmf-news-2022-q3-q4**). Over the past year, the design and engineering for this $5-million project ($2-million provided by DMF) was finalized and this spring, construction began at last! The new pier will span 346 feet, matching the length of the original pier, but with the addition of a 60 x16 foot "T" at its terminus, allowing for more fishing frontage at the most popular location of most fishing piers, the end! The new pier should be ready to be fished from by the time the fall run of fish begins!

Next Planned Pier to Provide Taunton River Fishing Access in Somerset

While construction is taking place in Salem, engineering services are just beginning in Somerset along the Taunton River in the shadow of the now retired Brightman Street Bridge. This bridge was a favorite fishing spot for many in the Fall River, Somerset, Swansea, and Dighton area for decades. This new facility will offer an ADA-compliant fishing pier, cartop launch for kayaks and canoes, and off-street parking. This project is being funded with DMF saltwater fishing permit dollars in partnership with OFBA and the town of Somerset.

Small Grant Program

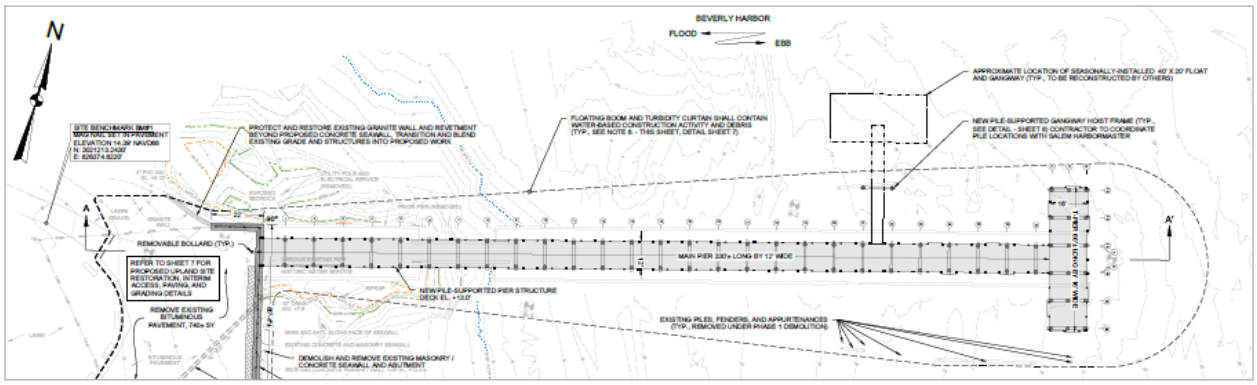
The Small Grant Program allows for municipalities and NGOs to apply for funding to improve access for saltwater fishing. The application process is intentionally easy and has yielded some impressive improvements at many locations. Since the program's inception over a decade ago, 42 projects have been funded, including the five most recent reviewed below.

Three projects funded in 2022 were ready for use in 2023. In Cohasset, two cartop access floats were installed in the downtown area to help reduce user conflicts at the town boat ramp; these floats are designed to enhance the ability of canoe, kayak, and stand-up paddleboard users to access the water. In Barnstable, repairs were made to the concrete boat ramp at Blish Point. And in Newburyport, solar lights and running water were added to the Cashman Park fishing pier on the Merrimack River.

Two more grants were awarded this year. The Trustees of Reservations received $25,000 to perform maintenance for over-sand vehicle trails on Tom's Neck in the Chappaquiddick portion of Edgartown on Matha's Vineyard. This improvement will make over-sand vehicle travel along that trail possible for anglers throughout the coming season and especially for the famed Martha's Vineyard Fishing Derby.

The second grant was issued to Beverly for $25,000 and is funding maintenance on a city-owned pier where fishing takes place. This is the third grant awarded to Beverly and will complete all decking replacement on that pier. The city is performing the installation.

By Ross Kessler, Public Access Coordinator



Plan set showing top view of the new Salem Willows Park fishing pier.

MOOR Grant Funds Enhanced Angler Clinic in New Bedford

New anglers learning how to saltwater fish from the Fort Taber Pier.

DMF's Angler Education Program applied for and received $7,800 from the Massachusetts Office of Outdoor Recreation (MOOR) through their Inclusive and Accessible Outdoor Recreation Grant Program. With these funds, DMF partnered with the New Bedford Parks, Recreation and Beaches Department to host an in-person saltwater angler education fishing clinic at the Fort Taber Fish Pier on June 22. Despite rain in the forecast over 50 people attended this free, public event, at which DMF staff taught basic saltwater angling skills such as knot tying, casting, fish measuring, fish identification, proper handling techniques, and catch and release fishing. Plenty of scup were caught throughout the day plus a number of tautog.

With the funds provided by the MOOR grant, DMF was able to purchase over 120 rods and tackle kits for all of the participants to take home at the end of the event so they can recreate the experience on their own and become avid saltwater anglers! To further increase the chances that youth anglers would be more likely to go fishing again, not only did participants leave with a rod, but one attending adult was also able to take home a rod if they chose. Some participants enjoyed the clinic so much they registered for future upcoming clinics offered by DMF or went home and purchased a saltwater permit. To measure the success of the program every participant was asked to fill out an exit survey. With the remaining gear and tackle not distributed at Fort Taber, DMF will either distribute at other 2024 Saltwater Angler Education fishing clinics or use to increase the participation capacity of events limited by the gear and tackle we currently have for clinic use.

In addition, to increase our ability to reach and engage a broader community in recreational activities, we translated our most popular educational materials, including our youth angler saltwater fishing guidebook, into Spanish for distribution at this event and all other clinics and outreach events. These materials will also be available to download on our website.

By Kim Fine, Recreational Fishing Clinics Coordinator

Recent Publications

The following publications are recent articles written or co-written by DMF staff and published in scholarly journals or the DMF technical series. A full list of publications can be found at **mass.gov/marine-fisheries-publications**.

Contributions

Ben Gahagan was co-author to an article titled, "An Eulerian perspective on habitat models of striped bass occurrence in an offshore wind development area," published in the *ICES Journal of Marine Science*.

Mark Rousseau was co-author to an article titled, "Artificial reef footprint in the United States ocean," published in the journal *Nature Sustainability*.

Iris Seto, **Kate Frew**, **Mark Rousseau**, and **Forest Schenk** (along with former DMF staff **Tay Evans** and **Jill Carr**) were co-authors to an article titled, "Recovery of Eelgrass Zostera marina Following Conversion of Conventional Chain Moorings to Conservation Mooring Systems in Massachusetts: Context-Dependence, Challenges, and Management," published in the journal *Estuaries and Coasts*.

John Sheppard was co-author to an article titled, "A video monitoring and computational system for estimating migratory juvenile fish abundance in river systems," published in the journal *Limnology and Oceanography: Methods*.

The articles above represent those published in journals and added to the DMF Contributions list thus far in 2024. Due to staffing changes, most 2023 journal publications by DMF staff were delayed in being added to the Contribution list and thus not noticed in last year's DMF News. These included many important articles co-authored by **Forest Schenk** (seagrass wasting disease), **Chrissy Petitpas** (plankton distribution), **Tracy Pugh** and **Bob Glenn** (lobster mating; lobster recruitment), **Micah Dean** (cod spawning), **Dave Chosid** and former DMF staff **Mike Pol** (trawl net conservation engineering), **Greg Skomal** (white shark dynamics), **John Logan** (dolphinfish migration; Atlantic bluefish tuna habitat use), **Tara Dolan** (empirical dynamics modeling), **Derek Perry** (lobster settlement index), **Sam Truesdell** (climate impact on groundfish assessment), and **Michael Armstrong** and **Elise Koob** (black sea bass spawning).

Dr. Michael P. Armstrong named recipient of 2024 Belding Award

2024 Belding Award recipient Dr. Michael Armstrong (second from right) holds up the award plaque on which his name is freshly inscribed. He is joined by MFAC members Kalil Boghdan, Michael Pierdinock and Ray Kane (holding up Mike's gift) and DMF Director Dan McKiernan (far right).

In June, the Division of Marine Fisheries and the Marine Fisheries Advisory Commission bestowed the 2024 Belding Award on DMF's Dr. Michael P. Armstrong. This award honors individuals whose work does the most to promote the conservation and sustainable use of the Commonwealth's marine resources. Mike has achieved this status across his 30-plus years as a marine biologist and fisheries manager at DMF, were above-all he has fought the good fight for data-driven conservation and sound management.

This award was created in 1989 by Dr. David L. Belding's descendants in his memory. Over for the first half of the 20th century, Dr. Belding conducted two distinguished careers simultaneously—in human medicine and as the Commonwealth's lead marine biologist. His wide array of research including dozens of papers on marine biology, and particularly local river herring and shellfish populations and their respective fisheries, remains continually referenced today.

Like Belding, Mike possesses incredible knowledge of vertebrate anatomy and physiology which makes him such an effective fish biology expert. As a very talented and knowledgeable fish biologist, he has overseen many Division programs: in fish biology, recreational and diadromous fisheries, and stock assessment and surveys. Mike's passion for applied research to address fisheries management questions is evident in a long list of publications in fisheries science (both his own and his staff's) and his endless initiatives to tackle knowledge gaps. In recent years under Mike's leadership, DMF has worked on cod stock structure and site fidelity, assessed striped bass hook-and-release release mortality, studied black sea bass spawning behavior, and researched winter flounder spawning and habitat use. Mike has also focused attention on improving the quality of recreational data collection and catch estimation, and shaped the Division's use of recreational permit fees to address critical recreational fisheries needs and give back to anglers with public access improvements. Mike was personally responsible for the creation of the DMF Age & Growth Lab located at DMF's field office in Gloucester that provides fish and shellfish ageing results critical to stock assessments and which has been a major contributor to standardizing and advancing aging techniques across states. More recently, it was his vision to have in the DMF portfolio a functional marine lab with running sea water and saltwater impoundment that motivated DMF to re-acquire the Cat Cove Marine Laboratory in Salem to advance fisheries science and education and outreach to visiting scholars and the public. Mike has helped attract and develop some of the best talent in fisheries science at the Division and created partnerships with numerous institutions to increase the Division's productivity and reach. He has served as mentor to many inside and outside of DMF, and continues to lecture university classes to produce the next wave of fact-driven fisheries scientists and managers.

Mike was also the recipient of two additional awards this spring. First, the Atlantic States Marine Fisheries Commission bestowed upon Mike the 2024 David H. Hart Award for his many notable scientific and management contributions to the betterment of the fisheries of the Atlantic coast. The Commission instituted the Hart Award in 1991, named for one of the Commission's longest serving members, to recognize individuals who have made outstanding efforts to improve Atlantic coast marine fisheries. Second, the American Saltwater Guides Association named Mike the first-ever recipient of its new annual award to recognize individuals that embody their conservation ethos.

Introducing the Massachusetts Department of Fish & Game's Strategic Plan for 2025–2030

The Massachusetts Department of Fish & Game is proud to present *Connections: Working Together for Nature*, a bold five-year strategic plan for conserving nature for people and wildlife. Created collaboratively across the four divisions—including the Division of Marine Fisheries—*Connections: Working Together for Nature* creates a unifying vision for the Department, focusing our work on solutions at the intersection of biodiversity, climate change, and environmental justice.

By aligning our efforts, this plan will allow us to leverage the necessary funding and resources to respond with urgency to some of the greatest challenges of our time and expand our impact to better serve the people of the Commonwealth. Three themes—

biodiversity & climate, environmental justice, and relevance, visibility, & capacity—frame the goals, objectives, actions, and key results that we seek to accomplish by 2030. When achieved, the actions outlined move the Commonwealth towards a more nature-positive future where plants and animals thrive and all people feel a sense of appreciation, belonging, and connection to nature.

Numerous key results outlined are relevant to the Division of Marine Fisheries, including the following. By 2030, we will:

- Improve diadromous fish species access through barrier removal and effective fish passage structures by completing eight cooperative fishway improvements and three projects of high regional significance in large and mid-sized coastal watersheds.
- Increase acres of eelgrass restored by 50% above the August 2024 baseline.
- Increase monitoring and response capacity to address emerging biotoxin and ocean acidification impacts, protect public health, and support the Massachusetts shellfish and aquaculture industry. Harmful algal bloom monitoring frequency/stations are increased by 25% over December 2024 baseline.
- Increase access to affordable, fresh fish and shellfish and increase access to recreationally caught seafood as a nutritional resource. Identify opportunities to connect EJ communities with seafood dealers and commercial fishermen to market undervalued species such as scup, whiting, and redfish.
- Develop and implement a comprehensive EJ communication plan to ensure that all are informed of DFG and Division programs, efforts, and actions occurring in or near their neighborhoods, and given meaningful opportunities to provide feedback and be involved in the planning, design, and implementation.
- In collaboration with project partners, identify potential locations for new accessible shore fishing or sport fishing piers, located on public land and waterbodies, and within designated EJ populations or within a 2-mile walking radius, and initiate permitting and design process for feasible, high-priority locations.
- In collaboration with new and existing partners, identify and implement opportunities and strategies to expand capacity for DMF's Saltwater Angler Education Program to offer more family saltwater fishing clinics and other educational events.
- Identify and implement opportunities to expand DMF's Seafood Marketing Program to continue to increase consumer demand and preference for local seafood products, and to support the Commonwealth's fishing and seafood industry and the residents and communities that benefit from these activities.

Through a year-long process, our Department came together to develop the goals, objectives, actions, and key results you see outlined in this five-year strategic plan. This effort would not have been possible without the leadership of Department of Fish & Game Commissioner Tom O'Shea and Division of Marine Fisheries Director Dan McKiernan and the significant contributions of DMF staff members including: Deputy Director Bob Glenn, Deputy Director Mike Armstrong, Chief Fiscal Officer Kevin Creighton, Fiscal Manager Stephanie Cunningham, Outreach Coordinator Neil McCoy, Assistant Deputy Director Christian Petitpas, Assistant Director Story Reed, and Habitat Program Manager Mark Rousseau.

Explore the full strategic plan online at **mass.gov/dfg-strategicplan**.

By Julia Hopkins, DFG Communications Director, and Bob Glenn, DMF Deputy Director

Developing Biodiversity Goals for the Commonwealth

Public Input Sought

What is biodiversity? Biodiversity, quite simply, is the extraordinary abundance and variety of life. This includes all the species, their habitats, and complex interactions that form the interdependent web of life. In the marine environment, biodiversity is the abundance of fish, marine mammals, plants, and microorganisms in our ocean waters, coastlines, and estuaries.

Conserving marine biodiversity is critically important. As commercial fishers, shellfishers, seafood dealers, recreational anglers, marine scientists, and more—you're no stranger to the value of conserving our marine environment. Thriving oceans, barrier beaches, estuarine envi-

ronments, salt marshes, and working waterfronts are part of our state's identity, anchoring our history, culture, and future. Biodiversity sustains our health, well-being, and nation-leading seafood economy, ensuring we have clean water, air, and healthy, local food resources. And, biodiversity is a key climate solution—nature protects our coastal communities from the impacts of flooding, drought, and extreme heat.

Despite its vital importance—biodiversity is in crisis. Habitat loss and fragmentation, pollution of our lands and waters, invasive species, alter the resilience of our ocean ecosystems. Climate change is accelerating these impacts—warming temperatures, increasing precipitation, and extreme storms are bringing real challenges to our coastlines and marine resources.

In September 2023, Governor Maura Healey made history by signing Executive Order No. 618 which directs the Department of Fish & Game to develop nation-leading biodiversity conservation goals, including for coastal and marine habitats, for 2030, 2040, and 2050. To do this, the Department and its Division of Marine Fisheries are assessing all existing state initiatives and crafting recommendations to conserve biodiversity for generations to come.

Sustaining our nation-leading blue economy will be a key priority of this initiative—recommendations will seek to boost fish productivity, support species migration, and enhance the resilience of marine habitats. Draft goals discussed include: restoring salt marshes and eelgrass beds, two critically important nursery habitats; reducing nutrient pollution to ensure no net loss of shellfish resources; restoring free flowing coastal rivers to support river herring; conserving endangered species like North Atlantic right whales, and much more.

As we develop our final recommendations to the Healey-Driscoll Administration this fall, we are looking for public feedback. As supporters of the Division of Marine Fisheries, your voice is critically important—**we want to hear what your priorities are for conserving marine biodiversity and sustainable fisheries for future generations**. That's why the Department of Fish & Game is hosting **two virtual public listening sessions** on July 17, 12-2 pm and July 23, 6-8 pm to share an update on progress to develop nation-leading biodiversity conservation goals and offer an opportunity for the public to offer feedback. **Register today at mass.gov/biodiversity**. These meetings will kick off a month-long public comment period open through August 30, 2024, where people will be able to provide written feedback. An online survey will be available at **mass.gov/biodiversity**.

By Julia Hopkins, DFG Communications Director, and Bob Glenn, DMF Deputy Director

DMF Director Dan McKiernan, Katie Balzarini of John Nagle Company, MDAR Commissioner Ashley Randle, and DFG Commissioner Tom O'Shea at the 2024 Seafood Expo.

Promoting Massachusetts Seafood

DMF's Seafood Marketing Program seeks to increase consumer awareness and preference for local seafood products. The program supports the state's commercial fishing and seafood industries and communities. Its programming is supported in large part by revenue collected from the issuance of commercial fisherman and seafood dealer permits.

A few highlights of the program's activities so far this year include:

- The Seafood Marketing Program coordinated a Massachusetts Seafood Pavilion at the New England Restaurant & Bar Show in February. More than a half dozen seafood businesses were featured, and DMF staff provided seafood marketing materials and answered questions at the Program's booth at the event.
- A half dozen seafood businesses made up Mass Ave at the Seafood Expo North America. As in previous years, this cluster of businesses from the Commonwealth is promoted by the Seafood Marketing Program and received a 50% cost-share for the show via the MA Dept. of Agricultural Resources (MDAR) and the US Dept. of Agriculture. MA Dept. of Fish and Game Commissioner Tom O'Shea and MDAR Commissioner Ashley Randle visited with those businesses and other Massachusetts businesses scattered throughout the show in March.
- The Seafood Marketing Program was a sponsor of the Massachusetts Farm & Sea to School Conference in late March. This 7th annual event centered on issues of climate change and community leadership in the farm and sea to school movement. Participants learned new tools and developed new connections to expand food education and local food in school meals.

By Wendy Mainardi, Seafood Marketing Program Coordinator

Dish on Fish:
Black Sea Bass & Asparagus in Rice Paper En Papillote

From Chef Estebán Martinez, Associate Professor of Culinary Arts, Bristol Community College

This recipe comes to DMF via our Seafood Marketing Grant Program. The New Bedford Fishing Heritage Center published this recipe in a School of Fish Recipe Book to infuse sustainable seafood into culinary arts programs. While black sea bass are featured as the seafood ingredient, other white fish may be substituted.

Ingredients (4 Servings)

- 8 rice paper spring roll wrappers
- 9-12 ounces of sea bass fillets, cut into 4 even portions
- 8 asparagus spears, blanched
- 1 cup baby arugula
- 4 large leaves of Thai basil
- 4 dill sprigs
- 4 tsp lemon juice
- Salt & pepper to taste
- Canola oil as needed

Directions

1. Preheat the oven to 375°F
2. Season the fillets with salt, pepper, and lemon juice.
3. Soften the rice paper spring roll wrappers in warm water. If they get too soft, they will rip apart. Set one sheet on a cutting board and the second sheet on top of it halfway to the bottom. The two sheets should only overlap in the middle.
4. Place ¼ cup of arugula in the center of the rice paper. Take two asparagus spears, cut in halves or thirds, and place on top of arugula. Add one Thai basil leaf.
5. Place one portion of fish on top and add one dill sprig.
6. Start at the bottom of the rice paper and wrap the contents, tucking the sides inward as you go. Repeat steps 3–5 for the other three portions.
7. Heat an oven-safe sauté pan with canola oil and sear the fish wrapped in rice paper, seam-side down first. Sear both sides until golden brown and finish in the oven for 5-7 minutes until fish is cooked thoroughly.
8. Serve immediately and enjoy!

DMF Comings and Goings

Comings

We welcomed the return of **Wayne Castonguay** to DMF this past February, filling the role of the north shore Regional Shellfish Program Supervisor working out of the Gloucester office. Wayne worked within the Shellfish Program as a bacteriologist during 1988–1998, before working for The Trustees of Reservation for 14 years and then becoming the Executive Director of The Ipswich River Watershed Association for the past 12 years. Wayne is an accomplished leader who will bringing his skills to oversee all Shellfish Program operations out of the Newburyport depuration plant and Gloucester office, including the two shellfish laboratories.

Jacob "Jack" Wilson joined the Resource Assessment Project this April, working out of the New Bedford Office. A University of Rhode Island graduate, Jack had been a contractor working with the NOAA Cooperative Research Branch for the last five years, where his primary duties included acting as survey chief and providing technical assistance with the bottom long line survey as well as working with the commercial fishing industry on various collaborative projects. Jack also served as an at-sea observer and later an observer trainer for five years.

DMF welcomed **Jillian Swinford** to the Invertebrate Fisheries Project this past May. Jillian will be working out of the New Bedford Office on all aspects of the lobster Ventless Trap Survey, assisting with various other lobster-related work and data analyses, and contributing to all of the Program's other field sampling efforts. Jillian comes to DMF after several years with Texas Parks & Wildlife where she worked as a fisheries biologist implementing a number of applied research projects for various fish and shrimp species. She has a master's degree from Christopher Newport University in Virginia.

Laura Tomlinson was hired into a full-time position with the Invertebrate Fisheries Project this past April after serving as a seasonal fisheries technician for the project the last year. She has a marine biology degree from the University of Maine and worked previously while at U Maine with early benthic phase lobster settlement collectors. Laura will be based out of the New Bedford Office.

Mitchell Parizek joined DMF in March as a Shellfish Classification Biologist. He will plan and conduct field investigations leading to the classification of shellfish growing areas, including collection and interpretation of water quality data, shoreline surveys to identify contamination sources, and sanitary surveys in support of classification decisions. Mitchell graduated from the University of Rhode Island in 2023 with a B.S. in Aquaculture and Fisheries Science. He spent two seasons with the Rhode Island Department of Environmental Management as a student researcher working with brook trout, river herring, and American eels and most recently was a hatchery technician for the University of Rhode Island Graduate School of Oceanography.

Emma Gallagher joined DMF in March as a Shellfish Classification Biologist. She will plan and conduct field investigations leading to the classification of shellfish growing areas, including collection and interpretation of water quality data, shoreline surveys to identify contamination sources, and sanitary surveys in support of classification decisions. Emma graduated from UMass SMAST in 2023 with an M.S. in Living Marine Resources where she focused on harmful algal blooms in Nasketucket Bay. Most recently, she spent two years with DMF as a contracted Environmental Review Assistant for the Habitat Project before joining the Shellfish Program as a fulltime employee.

In March, **Michael Burgess** joined the ranks of DMF as a diadromous fisheries biologist. Mike recently earned his Master of Science at the University of Connecticut, where his thesis focused on the conservation and restoration of river herring populations through studying and understanding juvenile out-migration dynamics, particularly in relation to the effect of drought on juvenile growth and body condition among different juvenile nursery sites which differed in size, food availability, and adult run densities. He also set out to monitor juvenile alewife out-migration timing through the use of time-lapse photography.

Goings

In late 2023, **Rachel Vollemans** parted ways with DMF to take on a middle school teaching position in Florida. She had been working since early 2021 on the Invertebrate Fisheries Program as a field biologist and diver for the team, primarily focused on lobster work. We wish Rachel all the best with her new undertaking!

DMF wished **Vincent Manfredi** a fond farewell this past January, as he embarked on a new opportunity with the Massachusetts Department of Environmental Protection's Waterways Program, working on navigational dredging and coastal construction permit review, issuance and enforcement within their Southeast Region. After starting as a contractor in DMF's Conservation Engineering Project in 2001 and a two-year stint with the state of Maine working on the ME/NH trawl survey, Vinny returned to DMF and dedicated his next 20 years to the successful operation of the Division's Resource Assessment Project. Vinny's mark will long be left on the Division, especially as it relates to his spearheading of major technological improvements to survey operations. His eagerness to assist others on projects throughout DMF, as well as his humor, culinary skills, institutional knowledge, and species identification prowess will be missed.

Julia Kaplan, DMF's Communications Specialist for the past four years, departed the Division in April for a new position with National Grid as a Senior Specialist for Stakeholder Engagement. During her time with us, Julia effectively maintained and enhanced DMF's internal and external communications, and supported many Division activities including the adjudicatory hearings process, meetings of the Marine Fisheries Advisory Commission and other advisory panels, and public hearings. Among Julia's strengths was her ability and willingness to tackle and make meaningful contributions to various ad hoc projects that she helped get past the finish line during her tenure.

John Mendes retired from DMF's Shellfish Sanitation and Management Program in April after over 45 years of public service. John began his career with the Department of Environmental Quality Engineering (now DEP) where he first started working on water quality monitoring, pollution source assessment, oil spill response and marine biotoxin monitoring. In 1988, DMF absorbed the Shellfish Sanitation Program from DEQE and fortunately for DMF, John came over with the program. In his role with DMF John continued his water quality monitoring duties and was instrumental in implementing the newly established federal standards for classifying coastal waters in the Commonwealth for shellfish harvesting. Over his 36 plus years with DMF, John has been the consummate team player, always willing to help out with any and all projects. His unique ability to get along with everyone made him a true asset in communicating with the wide array of interest groups that DMF serves, from local government officials and environmental groups to shellfish industry members at all levels. In recent years the shellfish team has leaned heavily on John to train our many new employees in safe boating and trailering skills, which he has always done with a smile and many a good story to tell. John will be truly missed by all at DMF, especially the shellfish crew.

In February, DMF wished **Kaley Towns** good luck on her future endeavors as an Environmental Analyst with the Massachusetts Department of Environmental Protection in their PFAS Program. Kaley joined the Division's Shellfish Program as a biologist in 2020, supporting classification of shellfish growing areas, including collection and interpretation of water quality data, shoreline surveys to identify contamination sources, and sanitary surveys in support of classification decisions. Kaley was a true team player always willing to help her co-workers with anything from sampling to reports and notices to GIS and tech support.

Maggie Leary bid adieu to the Division in January to join the Massachusetts Department of Environmental Protection as an Environmental Analyst in their Wastewater Program. As a Shellfish Classification Area Biologist, Maggie supporting classification of shellfish growing areas, including collection and interpretation of water quality data, shoreline surveys to identify contamination sources, and sanitary surveys in support of classification decisions. We wish Maggie good luck in her future role with the Commonwealth.

Conor Byrne, the Division's Depuration Program Coordinator for the Newburyport facility left the agency for the private sector in February after four years with the Shellfish Program. Conor oversaw the labor staff at the plant, managing their daily schedule as well as receiving and releasing shellfish to Master Diggers and wholesale dealers. We wish Conor well as he pursues other opportunities.

In June, **Dr. Justin Bopp** left DMF for a new position with the Michigan Department of Natural Resources, as an aquatic invasive species fisheries biologist. Justin served as DMF's Offshore Wind Specialist for the past year helping drive solutions to promote the long-term coexistence of the offshore wind and fishing industries. His passion for conservation and resource management was reflected by the leadership roles he was increasingly taking on for numerous related committees. We wish him well in his new role.

In April, **Peter Kimball** retired from the Shellfish Program where he helped facilitate depuration operations at the Newburyport Shellfish Depuration Plant for the past 25 years. We wish Pete a long and happy retirement.

Staff Transitions

In January, **Brendan Reilly** continued his growth within the Division by transitioning from Invertebrate Fisheries Project biologist to the role of Protected Species Gear Specialist. In February, **Dr. Chrissy Petitpas** was promoted to DMF's management team as our new Assistant Deputy Director of Shellfish, bringing with her over 15 years of experience across multiple Division projects including habitat, aquaculture, and shellfish. Also in February, **Elise Koob**, was hired into DMF's Stock Assessment Specialist position, having shown her promise first in the Age and Growth Project and later in the Fisheries Research and Monitoring Project. In June, bacteriologist **Jacob Madden** was promoted to lead the Division's north shore shellfish laboratories in Gloucester and Newburyport.

Adjudicatory Proceedings

Under state law, DMF may sanction commercial and recreational fishing permits for violations of the state's marine fishery laws and regulations subject to a due process adjudicatory proceeding. These adjudicatory proceedings are held before a magistrate. They may be initiated by the agency, the Environmental Police, or municipal officials (constables) authorized to enforce the marine fishery laws of the Commonwealth.

During the period of January 1, 2024 through present, DMF initiated two new adjudicatory proceedings. The first matter involved an individual who failed to comply with a seasonal permit suspension, as stipulated in a prior settlement agreement involving protected species violations. This matter resulted in the individual permanently transferring out of commercial fixed gear fishing. The second matter involved an individual who failed to comply with the seasonal trap gear closure. This matter was resolved through a settlement agreement. The settlement agreement conditionally reinstates the Coastal Lobster Permit with a reduced trap allocation of 200 traps, a seasonal suspension during November–January for three years, and a period of permit probation through January 31, 2027.

DMF also resolved two matters that were previously initiated. The first matter involved one individual fishing two Coastal Lobster Permits, one belonging to the active fisher and another belonging to an immediate family member. This was done without a Letter of Authorization, resulting in trap allocation, trap tag, and permit violations. This matter was resolved through a settlement agreement. The Coastal Lobster Permit belonging to the fisher was forfeited and permanently retired. The other Coastal Lobster Permit is subject to annual permit conditions that reduces the trap allocation from 800 traps to 200 traps and eliminates the ability for the fisher to be onboard the vessel when fishing is occurring. The second matter involved the direct sale of shellfish to an entity other than a primary buyer and catch reporting violations. This matter was resolved through a settlement agreement. The individual was required to correct their reporting and the permit is subject to a probationary period occurring through December 31, 2027.

Regulatory Updates

Below find the changes made to DMF fishing rules by regulation, emergency action, and in-season adjustment from January 1–June 30, 2024. Regulatory changes follow an extensive public process and remain in effect permanently unless otherwise amended; emergency actions go into effect immediately upon adoption without public comment but for a period of 90 days only (unless extended on a permanent basis following the public process); and in-season adjustments go into effect immediately upon adoption after a truncated public process but affect that calendar year only.

Recreational Gulf of Maine Cod and Haddock (322 CMR 6.03). DMF matched federal rules for recreational Gulf of Maine (GOM) cod and haddock. For GOM cod, the recreational fishing season is September 1–October 31 with a 1-fish bag limit and 23" minimum size. This increases the minimum size by 1" compared to last year. For GOM haddock, the recreational fishing season is April 1–February 28 with a 15-fish bag limit and 18" minimum size. This eliminates the split mode management approach taken last year by managing for-hire vessel and private anglers under uniform rules, rather than having private anglers be subject to a 10-fish bag limit at a 17" minimum size.

Commercial Striped Bass (322 CMR 6.07). In response to a coastwide quota reduction, recent fishery performance, and enforcement and compliance concerns, DMF: (1) eliminated Monday as an open fishing day; (2) reduced the number of open fishing days to start the season from three to two (Tuesdays and Wednesdays); (3) added Thursday as an open fishing day on August 1 should more than 30% of the quota remain available; and (4) required dealers to be present and tag fish immediately upon primary purchase from a commercial fisher.

Recreational Striped Bass Filleting (322 CMR 6.07). DMF filed emergency rules affecting the filleting of recreationally caught striped bass in response to Addendum II to the Interstate Fishery Management Plan for Atlantic Striped Bass. In the for-hire fishery, operators and crew may continue to fillet lawfully sized striped bass for patrons; however, the racks of all filleted striped bass must now be retained through the end of the trip in a manner whereby they are measurable. No patron may possess more than two striped bass fillets and each fillet must have at least two-square inches of skin present. For all other recreational fishers, the emergency rule prohibits the filleting of striped bass at sea or along any shoreside location, except for immediate and complete consumption. However, the Marine Fisheries Advisory Commission recently approved a final regulation to go into effect later this summer to allow the shoreside filleting of striped bass by all anglers once all fishing has concluded, subject to a two fillet limit each with a two-square inch patch of skin .

Commercial Summer Flounder (322 CMR 6.22). In response to a coastwide quota reduction and recent fishery performance, DMF: (1) reduced the winter fishery (January 1–April 22) trip limit from 10,000 pounds to 5,000 pounds; (2) adopted a new trip limit trigger for the summertime fishery (April 23–September 30) whereby the trip limits reduce from 600 pounds to 400 pounds for net fishers and from 400 pounds to 250 pounds for hook fishers should 75% of the annual quota be taken before August 1; and (3) reduced the fall fishery (October 1–December 31) trip limit from 10,000 pounds to 5,000 pounds while also increasing the trigger for this elevated trip limit from 5% of the quota remaining after September 30 to 10% (otherwise 800 pounds). DMF also renewed the Consecutive Daily Trip Limit program that allows vessels participating in the summertime mixed species trawl fishery south of Cape Cod to possess and land two days' trip limits of summer flounder and other commonly caught species (e.g., horseshoe crabs, whelks, black sea bass) subject to conditions.

Recreational Summer Flounder (322 CMR 6.22). For 2024, there was a mandate to reduce coastwide recreational summer flounder harvest by 28%. To achieve this in Massachusetts, DMF increased the minimum size limit for vessel-based anglers by 1" (from 16.5" to 17.5") and shortened the season for all anglers by nine days (from May 21–September 29 to May 24–September 23). The possession limit remained 5 fish for all anglers, and the minimum size limit 16.5" for shore-based anglers.

Commercial Whelk Minimum Size (322 CMR 6.21). DMF paused scheduled increases to the whelk gauge for a period of three years (2024–2026). The purpose of this pause is to provide the industry with economic relief while the University of Massachusetts School for Marine Science and Technology conducts a management strategy evaluation that may be used to inform future management.

Recreational Scup (322 CMR 6.27). For 2024, there was a mandate to reduce coastwide recreational scup harvest by 10%. This was achieved on a regional basis among Massachusetts, Rhode Island, Connecticut, and New York through a 1/2" increase to the minimum size limit for vessel-based fishers (10.5" to 11"). In Massachusetts, this resulted in a May 1–December 31 open fishing season with a 30-fish bag limit and an 11" minimum size limit for vessel-based fishers and a 9.5" minimum size limit for shore-based fishers. The for-hire sector maintained its May 1–June 30 "bonus season" whereby fishers on for-hire trips have a 40-fish bag limit.

Recreational Black Sea Bass (322 CMR 6.28). DMF adjusted the recreational fishing season for black sea bass so that it would continue to open on the third Saturday of May. This resulted in an open fishing season of May 18 through September 3 with a 4-fish bag limit and 16.5" minimum size limit.

Commercial Horseshoe Crab Management and Spawning Protections (322 CMR 6.34). DMF implemented a series of new horseshoe crab management regulations for 2024. Foremost is a complete ban on harvest by all sectors from April 15–June 7 to protect spawning horseshoe crabs. DMF also adopted a uniform 300 horseshoe crab trip limit for all commercial fishers participating in the limited entry bait fishery regardless of the gear

type; regulations previously allowed a 400-crab limit for hand harvesters. This trip limit automatically increases to 400 horseshoe crabs should more than 50% of the quota remain available on August 1 and automatically reduces to 200 horseshoe crabs should 80% of the quota be taken before September 15. Lastly, DMF adopted a state regulation to match federal prohibitions on harvesting horseshoe crabs within the boundaries of the Monomoy National Wildlife Refuge and the Cape Cod National Seashore.

Smooth Dogfish Trip Limit (322 CMR 6.37). DMF increased the smooth dogfish trip limit from 100 pounds to 300 pounds by regulation. DMF had similarly increased the trip limit in 2023 through an in-season adjustment.

Commercial Menhaden (322 CMR 6.43). DMF adopted several adjustments to its commercial menhaden management rules in response to fishery performance in 2023. First, the directed purse seine fishery opening date was moved up to May 15 (formerly June 15); this did not alter the June 1 date to access the inshore restricted areas with nets. Second, the limited entry trip limits were further amended with two quota-use provisions: (1) for the 50% quota use trigger that drops the trip limit to 25,000 pounds, should this not occur until after August 31, the trip limit will remain at 120,000 pounds through 90% quota use; and (2) if more than 10% of the quota remains on October 15, the trip limit will increase to 360,000 pounds with a requirement the vessel call into DMF at least 48-hours prior to landing.

Commercial Mackerel Trip Limits (322 CMR 6.44). DMF adopted a new state-waters commercial trip limit for Atlantic mackerel. The trip limit starts at 5,000 pounds and is reduced to 2,500 pounds once 80% of the annual federal mackerel quota is taken. This matches the federal open access trip limit. Vessels may possess non-conforming quantities of mackerel provided they were lawfully caught in another jurisdiction and all gear is stowed and no fishing is occurring.

Permitting (322 CMR 7.00). DMF made several revisions to its commercial permitting regulations. First, commercial fishers may now display their permit electronically, rather than having to produce a hard copy. This change is occurring now that DMF has transitioned to a new permitting system that will begin to issue commercial fishing permits in a PDF format. Second, DMF has modernized the definition of "immediate family" to be inclusive of step and adoptive relationships, and will accommodate the transfer of latent (but otherwise transferable) permits among immediate family members. Lastly, DMF has lowered the transferability standards for summer flounder, black sea bass, and tautog regulated fishery permit endorsements. Whereas previously these endorsements would have had to been actively fished four out of the past five years to be transferable, now they only need to be actively fished two out of the past five years. This was done to enhance the transferability of these endorsements to allow existing commercial fishers to build more diverse permit portfolios and to accommodate new entrants.

Commercial May Groundfish Closure (322 CMR 8.05). DMF reduced the spatial extent of the May commercial groundfish closure by moving the southern boundary of the closure north from 42°20' N latitude (Boston) to 42°25' N latitude (Nahant). This action was taken in response to a request from a commercial gillnetter to provide additional access to available flounder resource without affecting known seasonal cod spawning aggregations. The northern boundary and seaward closure boundaries remain the maritime border between Massachusetts and New Hampshire and the state-federal waters line, respectively.

Shellfish Harvest and Handling (322 CMR 16.00). Several adjustments were made to the state's shellfish harvest and handling regulations for 2024. DMF clarified that only ice made from approved sources may be applied to shellfish for any purposes. Approved sources of ice include ice made from fresh potable water and ice made from seawater taken from shellfish growing areas classified as Approved or Conditionally Approved and in the open status. DMF adopted less prescriptive oyster icing standards during the *Vp* Control Season. Rather than having to surround oysters with specific dimensions of ice, the rules now require oysters or bags thereof to be completely and continuously covered. Additionally, primary buyers may take on the burden of icing oysters should the oysters be landed and sold within the time-to-icing window. DMF is refining the shellfish tagging regulations to make clear that the harvester tag must include the most specific alpha-numeric sequence for the shellfish growing area. DMF has also adopted a state-wide prohibition on harvesting shellfish at night, rather than relying on a myriad of state and local rules to accomplish this. Lastly, to accommodate congestion at landing sites, DMF has codified an accommodation to allow the primary sale of shellfish at approved municipally managed lots.

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DMF News

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