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DMF News

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Inside

DMF biologists Bob Glenn and Steve Wilcox reel in black sea bass as part of a spawning characterization study that began this spring.

Successful Appeal Ushers in More Liberal Recreational Black Sea Bass Season

This spring, DMF announced welcome news for fans of recreational black sea bass fishing. Massachusetts anglers will benefit from 15 days being added to the 2018 recreational season for this plentiful species. The fishery opened on May 19 and will run through September 12. Compared to 2017, that's one additional day on the front end (maintaining a Saturday opening) and two weeks on the tail end. The size and bag limits are unchanged from last year: 15-inch minimum and 5-fish maximum.

The initial outlook for the 2018 season was not so rosy. It took the success of a hard-fought appeal to the Atlantic States Marine Fisheries Commission (ASMFC) to not have Massachusetts' recreational season instead close on September 1. Even with this win, DMF recognizes

Angling Tips

The best time to fish for black sea bass is from May through summer, when they are closest to shore. Any underwater structures—wrecks, jetties, piers, and rock piles—will attract this species. They can be found near shore to depths of 120 feet, with larger males closer to the end of this depth range.

Bait fishing with crab, fish, or squid is the most productive method. Occasionally, black sea bass will strike at plugs, jigs, or lures. Although these fish have large mouths, use a smaller hook with a small sinker tied below it.

that there is still more work to be done to regain a season (and bag limit) that corresponds to the local availability of black sea bass.

Addendum XXX

A new addendum to the ASMFC interstate management plan established the framework for the coastal states' management of the 2018 recreational black sea bass fishery. Addendum XXX instituted regional allocations of the coastwide recreational harvest limit (RHL). The distribution of the resource was used to allocate the RHL between MA–NY and NJ–NC, and recreational harvest estimates were subsequently used to partition the southern allocation between NJ and DE–NC. The states within each region were then to agree upon measures to restrict regional harvest to their allocation, subject to guidelines meant to reduce regulatory disparity between the states in a region.

Massachusetts' goal in supporting the development of Addendum XXX was to provide a management approach that reflects the current high availability of black sea bass in northern waters, particularly in recent years, which has links to increased productivity and stock redistribution caused by climate change, while also bringing more equity to the state-by-state measures within the Northeast. The addendum made good strides towards those goals, but was fatally flawed by the southern states' insistence that stock distribution data as old as 2006 be incorporated into the regional allocations. Yet black sea bass stock dynamics have changed remarkably in just the last few years. The Northern Region states make up a minority of the species management board and could not override the Southern Region.

The result was that Addendum XXX allocated too little RHL to the MA–NY region. The Northern Region would be forced to reduce regional harvest by 12% in 2018 while NJ would be allowed to liberalize rules by 47% and DE–NC by 22%. Under the north's intraregional plan, Massachusetts would have been granted a 5% liberalization while the other states took cuts to meet the regional reduction, a reflection of how the northern states' regulations have evolved in recent years, with MA winding up with arguably the most restrictive rules.

Northern Region Appeal

This decision could not stand. Massachusetts joined with Rhode Island, Connecticut, and New York to submit an appeal to the ASMFC Policy Board requesting reconsideration of the timeframe of exploitable biomass estimates used to allocate the RHL. Our appeal provided ample justification for adopting the 2011–2015 timeframe that was considered in the draft addendum.

ASMFC leadership agreed that our appeal should be heard by the Policy Board based on multiple arguments: that the result of Addendum XXX was inconsistent with the goals and objectives of the fishery management plan; that harvest data with significant impacts

The Dish on Fish: Sauteed Black Sea Bass with Sweet Red Peppers

Bringing locally caught sustainable seafood to a table near you!

Black sea bass, a mild and tender white fish, can be found in local markets starting in July and are typically available through early fall (quota dependent). It's a great alternative seafood option because it is delicious and sustainably managed along the East Coast.

Red's Best at the Boston Public Market offers whole scup, mackerel and black sea bass. Photo courtesy of Red's Best.

Ingredients:

- 4 6-ounce sea bass fillets with skin on
- Salt and freshly ground pepper to taste
- 3 tablespoons milk
- 2 tablespoons flour
- 2 tablespoons olive oil
- 2 sweet red bell peppers, cut into 1 1/4-inch pieces
- 2 tablespoons finely chopped shallots
- 2 tablespoons butter
- 2 tablespoons lemon juice
- 4 tablespoons coarsely chopped fresh basil or parsley

Directions:

Sprinkle fillets with salt and pepper.

Pour milk into a shallow bowl and put flour in a flat dish. Dip each fillet in milk and then dredge in the flour, making sure the flour adheres.

Heat oil in a nonstick skillet large enough to hold fillets in one layer. Add fillets skin-side down over medium to high heat and cook about 3 minutes or until golden brown on one side. Fast cooking is important.

Turn fish pieces and cook until golden brown, about 2 to 3 minutes.

Transfer fish to a warm serving dish. Add red pepper pieces to skillet and salt and pepper to taste. Cook and stir over medium heat for about 1 minute. Add shallots and cook briefly but do not brown. Add butter and cook, stirring. Add lemon juice and stir. Pour mixture over fish. Sprinkle with basil and serve immediately. Recipe by Pierre Franey.

A satisfied recreational angler enjoying black sea bass season. She reeled in a 21.6-inch fish at Cleveland Ledge off Falmouth.

on the outcome had been inadequately known at the time of the decision; and that the impacts of climate change had been insufficiently considered during decision-making.

Application of the 2011–2015 timeframe in Addendum XXX would have mitigated the Northern Region's reduction for 2018 to a degree, reducing it from -12% to -6%, while still allowing NJ a 31% increase and DE–NC a 7% increase. This is what our written appeal requested; however, as the Policy Board meeting to consider the appeal drew near, an insurmountable obstacle arose. We learned that NOAA Fisheries would feel compelled to implement conservative coastwide measures if every state's rules were not known coming out of the May 3 meeting. The appeal would fail unless we found a way to allow NJ–NC to keep their previously approved regulations for 2018, while at the same time securing more favorable regulations for the Northern Region.

Alternative Approach

Our solution was to incorporate expected resource availability in 2018 into the process. Based on the natural decline of the bountiful 2011 year-class, spawning stock biomass is projected to decline 16% this year (hence a similar reduction in the RHL for 2018). This suggests that harvest in the Northern Region, where the fisheries have been heavily focused on the 2011 year-class the last few years, would decline some on its own.

To be fair, this approach also meant incorporating the recruitment of the strong 2015 year-class to the southern states' fisheries, where the size limit is lower. Even after doing this and granting the southern states their planned liberalizations, the northern states' regulations could collectively be liberalized by 4% while still keeping the coastwide projected harvest within the RHL. Our alternative approach for 2018 management, which was ultimately approved by the ASMFC, scrapped Addendum XXX's allocations and instead allowed for new state-by-state measures for the Northern Region without modifying the southern states' previously approved 2018 regulations.

Importantly, the new regulations for the Northern Region were still developed under Addendum XXX's parameters for greater consistency within the region. In other words, a 4% regional liberalization would not translate to a 4% liberalization for each state, but be distributed in a manner to provide for more equitable access between the states.

Under the agreement, Massachusetts' liberalization grew from 5% to 15%, more than what was possible from our initial appeal request. While MA's season is still shorter than the other states' in our region, we also have a shorter period of local sea bass availability and an intense spring fishery. Only CT opened the same day as us, a loss of 18 days for them (and none for us); RI and NY didn't open until late June. In other words, the equity of the seasons should not be judged solely on the number of open days. The addendum's guidelines also meant that no state within the Northern Region could have a bag limit greater than 7 fish, which reduced CT and NY without affecting MA or RI.

Looking ahead, a new approach will be developed for the 2019 fishery. That was also part of the appeal's request. Specifically, the Management Board has been directed to consider management options based on the distribution of the resource. Furthermore, the Plan Development Team has been tasked to develop a white paper to consider the impacts of changes in black sea bass abundance and distribution to the management of both the recreational and commercial fisheries. While the pace of management corrections for these fisheries may be slower than we desire, we are optimistic that we are on the path towards resolution.

By Nichola Meserve, Fisheries Policy Analyst

Black Sea Bass Week!

Celebrate the diversity of Massachusetts seafood by trying something new, fresh, and sustainable.

As part of the Division's Seafood Marketing Program, we are partnering with local restaurants to highlight and promote locally caught black sea bass. These juicy, handsome fish are found off of the coast of the Commonwealth all summer long. Look for local black sea bass in restaurants **July 22–29** and enjoy off-menu black sea bass dishes, Black Sea Bass Week-only exclusives and specials at participating locations all week long.

The majority of black sea bass is harvested in nearshore waters by hook-and-line or pots. The commercial season is quota dependent; however, in Massachusetts it typically begins in July and lasts through early fall. Massachusetts' black sea bass quota makes up 13% of the coastwide commercial quota. In 2017, approximately 400 Massachusetts commercial fishermen landed over 535,000 pounds of black sea bass, with an ex-vessel value of $1.1 million.

Stay in touch with us on social media for an announcement of participating restaurants that are helping us increase consumer awareness by bringing local seafood products to a plate near you! We plan to coordinate future "Weeks" featuring other Massachusetts-landed species when they are in-season.

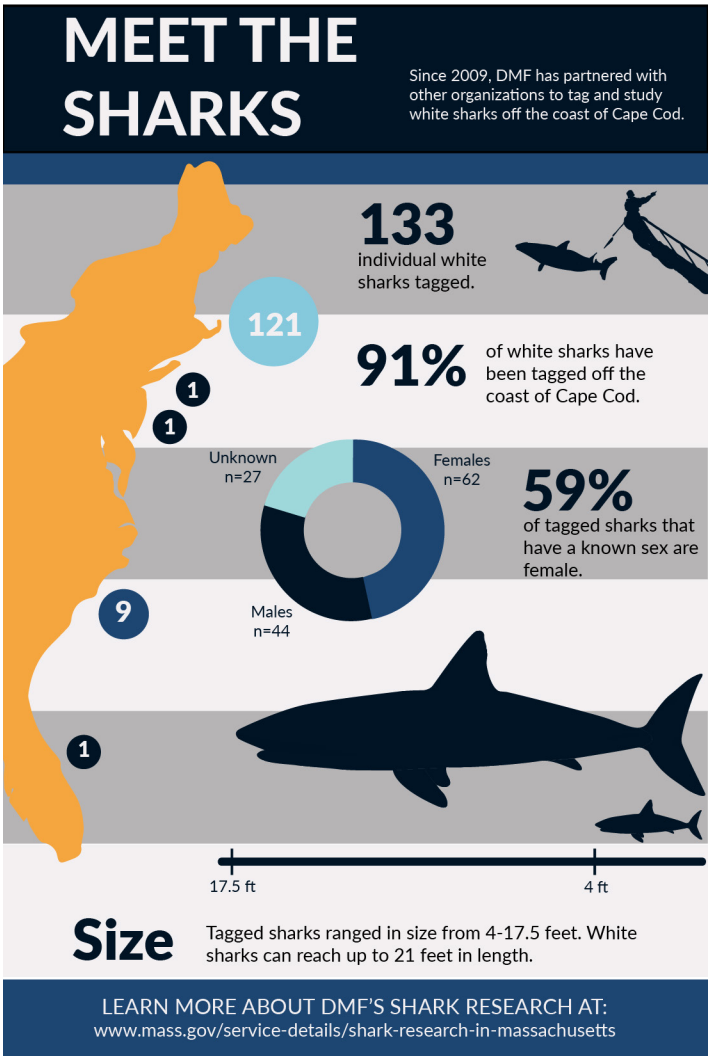
White Shark Research Update

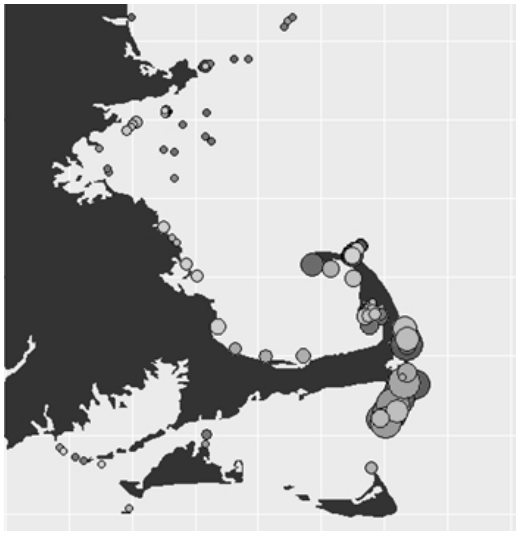
Every summer, the seasonal presence of white sharks off the coast of Massachusetts causes quite the buzz, perhaps more now than ever given their growing numbers. This species' nearshore proximity, while it may cause unease for some beachgoers, has afforded DMF the opportunity to intensively study their biology, behavior, and population dynamics the last eight years. Our understanding of white sharks continues to grow with each year's efforts.

Movement Ecology

Since 2009, DMF has been tagging white sharks with various types of acoustic, telemetry, and satellite transmitters in order to examine fine and broad-scale movements, habitat use, site fidelity, residency, and feeding behavior off Massachusetts and along the east coast of the US. Through the 2017 season, DMF and collaborating researchers have tagged 133 sharks. This number is anticipated to increase with the 2018 field work starting this summer. In addition, five of these sharks were tracked with an autonomous underwater vehicle. Most of these sharks were tagged off Cape Cod, but others were tagged off New York, New Jersey, South Carolina, and Florida. The sharks ranged in total length from 4.0-17.5 feet representing juveniles, subadults, and adults of both sexes. Much of this work was conducted in partnership with the University of Massachusetts School for Marine Science and Technology (SMAST) and supported by the non-profit Atlantic White Shark Conservancy.

Using acoustic tag technology, DMF has been examining the seasonal residency and habitat use of white sharks along the coastline of Massachusetts. To do so, we've partnered with local harbormasters to distribute acoustic receivers throughout the state. When a white shark tagged with an acoustic transmitter swims within the range (typically 200 yards) of one of these receivers, the date, time, and shark ID of the acoustic ping is recorded and archived. When the receivers are retrieved, the data can be uploaded to examine when sharks arrive in our waters and where they spend their time. Based on more than 150,000 acoustic detections to date, white sharks appear in our coastal waters in late May, peak in August–October, and rapidly decline in November and December. Although these sharks can be found throughout the coastal waters of Massachusetts, they spend the bulk of their time off the western and eastern shorelines of the Outer Cape. This is likely driven by the high densities of seals in these areas.



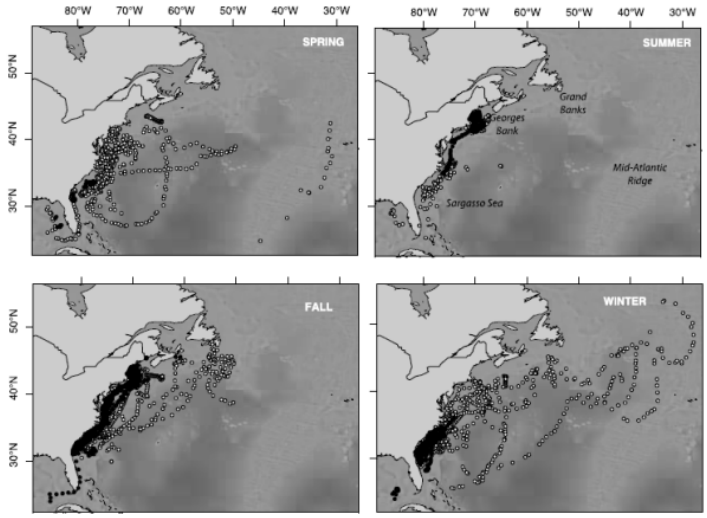


Distribution of white sharks along the coast of Massachusetts based on 85 acoustically-tagged sharks. Each circle represents an acoustic receiver and the size is proportional to the number of sharks detected. Data are from 2009–2017.

Although data analysis is ongoing, some of the broad-scale movement data were published last year in the journal Marine Ecology Progress Series (Skomal et al., 2017). Based on satellite tag data from 32 white sharks out for up to four years, we found that that white sharks move more broadly throughout the North Atlantic than previously understood. All of the sharks migrated seasonally from Massachusetts waters and the northeast shelf in the summer to overwintering habitat off the southeastern US and the Gulf of Mexico, staying at depths less than 200 feet. However, larger white sharks, over 9 feet, also moved beyond the continental shelf into the open Atlantic as far as the Azores, while diving to depths as great as 3,700 feet. These findings extend the known essential habitat for the white shark in the North Atlantic beyond existing protection with implications for future conservation.

Population Study

Working with the SMAST lab of Professor Gavin Fay and student Megan Winton, DMF initiated a five-year study in 2014 to examine the relative abundance and population size of white sharks off the coast of Massachusetts using sophisticated spatial models. With funding from the Atlantic White Shark Conservancy and SMAST, we have been conducting a structured survey to examine the distribution and abundance of individual white sharks using a spotter pilot and a research vessel. The objective of this project is to extend existing modeling methods to develop and test a novel, spatially-explicit integrated assessment framework to estimate the abundance and relative density of white sharks off Cape Cod from photographic mark-recapture, aerial line transect (i.e., distance sampling), and acoustic telemetry data. Data collected from our acoustic tagging



Broad-scale seasonal movements of white sharks (n=32) in the North Atlantic with individuals showing coastal (black points) and pelagic (white points) behavior.

efforts are also directly incorporated into the population models to account for local movements and shifts in the distribution of sharks over the course of each survey season. To date, we have identified more than 320 individual white sharks during vessel-based surveys conducted from mid-June through October, 2014–2017. The field component of this study is expected to be completed in 2018, with subsequent analyses extending through spring, 2019.

By Gregory Skomal, PhD, Recreational and Diadromous Fisheries Program Manager

Free Youth Fishing Clinics

Ready, set....cast! DMF kicked-off its 2018 Youth Fishing Clinic series this summer. This year, we've coordinated four fishing clinics which will occur through September. These events are free to the public and are often geared to children ages 7–15. Most fishing clinics are three hours long. Rods, tackle, and bait are all provided and a fishing permit is not necessary to participate.

To register for one of our clinics, visit the Saltwater Angler Education webpage at https://www.mass.gov/service-details/salt-

2018 Events

June 23
Cape Cod Canal Boating and Water Safety Day in Sandwich

June 30
Fort Taber Pier in New Bedford

August 8
Bass River Fishing Pier in South Yarmouth

September 15
Fort Taber Pier in New Bedford

More events are in the works, so be sure to check our webpage for updates!

Assessing the Utility of Rod and Reel to Monitor Trends in Tautog Abundance

Tautog supports recreational and commercial fisheries in Massachusetts south coastal waters from the spring through the fall. Known to prefer rocky, structured habitats for forage and shelter, their structure-dwelling behavior creates challenges for assessment of the status and trends in the population. Since 1978, DMF has used our inshore trawl survey to provide an index of relative abundance for tautog; however, there are concerns that the trawl index may not be representative of true trends in the population. Bottom trawls are commonly used to monitor marine finfish species, but they are limited to sampling areas of relatively featureless bottom. The rocky outcroppings that tautog frequently occupy are inaccessible to bottom tending mobile gear. A disconnect between our perception of the population and true population dynamics could mean failure to achieve our conservation objectives and implementation of inappropriate management measures. To address these concerns, we recently designed a pilot study to evaluate the feasibility of using rod and reel to monitor tautog as an alternative and potentially complementary tool to the trawl survey.

In October 2016 DMF began an 18-month, grant-funded, pilot study to assess the utility of using rod and reel sampling gear to survey tautog abundance in the structured habitats of Buzzards Bay and Vineyard Sound. We employed a depth-stratified random sampling design of 96 pre-selected complex habitat locations for sampling throughout the fall and spring months through November 2017. Each sampling month we attempted to sample 48 of the 96 locations by conducting two fishing trips (on average) per week. On each trip, we used either a DMF vessel or a local charter vessel (*F/V Fishnet*, Captain Mel True) with three to five volunteer anglers aboard. Using side-scan sonar, we identified structured bottom within the sampling area and anchored up on it. Angling was conducted for 45 minutes at each station using standardized fishing gear and green crabs for bait. All fish caught during the sampling event were identified to species, counted, and measured for length, and largely released alive. The tautog to be further subsampled were sacrificed for otolith removal and to determine sex and maturity. Pelvic fin spines for aging purposes were removed from tautog that were released alive.

The primary objective of this study was to assess rod and reel sampling as a potential long-term monitoring tool. One of the challenges in developing an index of relative abundance is proper standardization to control for outside factors influencing catch rates beyond population fluctuations. We developed a suite of variables predicted to influence catch rates, and at each sampling location we recorded relevant information regarding environmental conditions (e.g., water temperature, fishing depth, wave height, salinity, tidal phase) and the sampling event (e.g., time, location, anglers). We used statistical models to determine the influence each of these factors had on catch rates and which would be important to include for standardizing catch rates.

Our results showed considerable spatial and temporal variability in catch rates; however, our top models did a reasonable job of

DMF staff member Ross Kessler shows off his catch during a sampling trip. Photo courtesy of Captain Mel True.

predicting the observed catches. Variables that emerged as being important fixed effects included year, month, depth strata, vessel, bottom water temperature, tidal phase, and angler skill. We also quantified the variability associated with sampling location, fishing day, and individual angler. Temperature was indicated as an important influence on tautog presence or absence at a given sampling location; specifically, zero catches were predicted when the water temperature dropped below 50° F.

In addition to the modeling of catch rates, we also sought to quantify the ability to detect meaningful changes in the tautog population using the rod and reel sampling design as compared to the trawl survey. Our analyses indicated that the rod and reel survey had reasonable ability to detect changes in the tautog population, with a slightly greater ability to detect a decline than an increase in abundance. We estimated about a 20–40% chance of detecting a 20% change in the population. Although these results seem modest, the trawl survey has less than a 10% chance of detecting up to a 50% change in the tautog population.

Our results suggest that rod and reel shows promise as a viable monitoring tool; however, it is not without challenges. Appropriate standardization is one of the primary hurdles to using a rod and reel survey as an index of abundance. Trawl gears are effective survey tools because they can be easily repeated and readily produce density estimates. Standardizing rod and reel gear can be more difficult for a suite of reasons including accurately quantifying effective fishing time (due to hang ups, rig replacement, retrieval speed, etc.), as well as hook saturation, an important consideration with a sampling gear that has finite capture capacity.

Despite the limitations, we find that rod and reel has promise for fishery-independent monitoring of tautog in Massachusetts waters. The development of a survey to explicitly sample the preferred, complex habitats is warranted given uncertainties in the current assessment and limitations of the trawl survey. Multiple years of data are needed to fully vet the benefits of a rod and reel survey and to compare how indices of abundance generated by the rod and reel and trawl surveys differ. Until we gain a better understanding of tautog population dynamics, using multiple and complementary survey gears to characterize this population may help to ensure management actions are appropriate.

By Tiffany Cunningham, PhD, Stock Assessment Specialist

Celebrating MA Water's 5th Year as a No Discharge Zone

2018 marks the 24th year that Massachusetts has participated in the Clean Vessel Act (CVA) Grant Program. This program works to ensure that pumpout facilities are both free and convenient to recreational boaters by funding their purchase, operation, and maintenance. Since inception, the Commonwealth's CVA Program has prevented 10 million gallons of sewage from contaminating our coastal waters. Providing adequate pumpout facilities was key to all Massachusetts waters being designated, in 2014, as a No Discharge Zone, where the release of all boat sewage (whether treated or not) is prohibited.

On average each year, DMF's CVA Program provides free pumpout service to over 26,000 recreational boaters, keeping more than 620,000 gallons of human waste out of our coastal waters. We annually award over $750,000 in pumpout facility operation and maintenance funds, and approximately $200,000 for new pumpout infrastructure, expanding service along the coast. Operation and maintenance funds help support service for 64 pumpout boats, 83 fixed-location pumpout stations, and 13 mobile pumpout carts available to Massachusetts recreational boating public. Our CVA-funded pumpout operators include 44 private marinas, one non-profit organization, and 49 cities and towns.

DMF is planning a pumpout operators meeting this fall to share important program updates. Among these is that operators will have to be entered into our state procurement system to receive reimbursements for fiscal year 2019. CVA Program personnel are making preparations to assist operators through the procurement system set-up process and ensure a smooth transition. This is crucial because it is only through the participation of municipalities and marinas, as well as boaters, that the CVA Program is the success it is today!

By Whitney Sargent, CVA Program Assistant Coordinator

Choices: DMF Backed into Difficult Position on GOM Cod

Years ago, I heard of a Hobson's choice. Renowned Scituate fisherman Frank Mirarchi said many of our federal fishing regulations provided such a choice for commercial fishermen. I had to look that one up. A Hobson's choice is an apparent freedom of choice with no real alternative.

This spring I had an unfortunate choice to make regarding private anglers' recreational fishing rules for Gulf of Maine (GOM) cod and haddock beginning May 1. My Hobson's choice was forced by a New England Fishery Management Council recommendation to the National Marine Fisheries Service (NMFS) about recreational fishing removals for GOM cod. Either DMF adopt no cod for private anglers fishing from shore or in small boats throughout state waters, or NMFS would restrict the entire recreational fishery for abundant GOM haddock by way of a May closure for private anglers and a possession limit cut from 12 to 10 fish for anglers aboard charter and party boats.

According to NMFS, these additional haddock restrictions would

be needed to keep cod catch below the recreational sub-ACL of 485,000 pounds if MA did not eliminate its one-fish allowance for private anglers. Given that GOM cod is already the limiting factor in the recreational fishery, anglers in New England are not expected to come near to harvesting the full haddock sub-ACL of 7.4 million pounds even under status quo rules. Any additional restrictions to haddock harvest would only further limit that opportunity for recreational fishermen. With MFAC agreement, I "chose" no cod—a true Hobson's.

I did not support the federal year-round closure for private anglers when it was adopted for May 2015, and I maintain it is poor public policy. Zero possession was unprecedented and represented a difficult-to-defend policy because it prohibited private citizens from accessing a public resource while continuing to allow a commercial fishery to access the same resource. For this reason, among others (e.g., discard mortality in the commercial fishery), I had authorized a very limited retention by private anglers. Now there is none.

Making my decision even more regretful, I have learned from NMFS of incidents of elevated levels of cod discards (2,000–3,000 pounds of cod per trip). Although not intending to create this waste of a valuable resource in need of rebuilding, many commercial net fishermen have been unable to avoid cod while targeting haddock. Low cod allocations coupled with an expensive leasing market mean these fishermen have had to discard unconscionable amounts of cod.

Many commercial and recreational fishermen continue to be put in a disconcerting position by having their own Hobson's choice: discard or don't fish for groundfish. Such is groundfish management in New England that continues to confound fisheries managers and scientists always trying to make the best choices under very difficult circumstances.

By David E. Pierce, PhD, Director

Diadromous Fisheries Project Highlights

This spring had the foreboding of a warm February and a stormy March, followed by a cool April. Through all this, river herring have returned to the Massachusetts coast with positive news and their own brand of rejuvenation. Overall, many spawning run counts have been improved over 2015–2017, with several prominent runs shaping up to have the best counts in recent years. Further, river herring have shown up and generated excitement at the following locations where they have been scarce or absent for a long time, validating past restoration efforts and providing natural guidance for future restoration efforts.

Mill River, Taunton. A large-scale, cooperative restoration effort removed three dams on the Mill River and built a fishway at Morey's Street Dam leading to Lake Sabbatia. DMF designed and installed a video counting station at the fishway this year. On April 12, the station observed the first river herring to move into Lake Sabbatia in two hundred years, with several hundred passed since. Colonizing new habitat by instinct, these fish hail the 10-year efforts of the project partners, which include The Nature Conservancy, NOAA Restoration, US Fish and Wildlife Service, MA Division of Ecological Restoration, and MA Department of Conservation and Recreation.

Bourne Pond, Falmouth. In 2016, the DMF Fishway Crew, working with the Town of Falmouth and the property owner, removed a concrete dam below Bog Pond and installed a concrete fishway at the impassible Bog Pond Dam to allow herring to reach Bourne Pond. Weekly visual monitoring in 2017 found eels passing the restoration site but no river herring. Monitoring continued this spring with observations of a dozen river herring above the Bog Pond Dam for the first time since at least 1917.

Cold Brook, Harwich. Decades of cranberry bog water operations reduced Cold Brook's suitability for river herring migrations. The purchase of a cranberry bog next to Cold Brook by the Harwich Conservation Trust in April allowed changes in water control management that provided strong flow in the brook. Starting on April 15, river herring were observed at an impassible flume below Grassy Pond and dozens were present for over a month; a promising sign for restoring herring to Cold Brook. DMF is conducting a study this year to determine the habitat suitability for river herring. Additionally, an evaluation on flume hydraulics and brook hydrology are expected as part of a large-scale cooperative project that seeks to restore the former bog habitat, improve nitrogen attenuation and fish passage.

Eels passing through the restoration site at Bourne Pond.

Forge Pond Dam, Kingston. Herring were seen below the Forge Pond Dam on the Jones River in Kingston this April after many years of no possible passage to this point. A cooperative effort removed the downstream Wapping Road Dam in 2011. DMF worked with the Jones River Watershed Association from 2014–2016 on stream channel maintenance downstream of Forge Pond. The high spring flows of 2018 brought much anticipation of the chance for herring to reach the dam. They did not disappoint as monitoring found herring at the dam in early April, with several dozen present for over a month.

On a more routine level, project staff has been active this spring with fishway and stream channel maintenance, and fish counting station installations. In addition, two fishway construction projects on Martha's Vineyard were completed in time for the spring migration. Working with the Towns of Oak Bluffs and Tisbury, our crew gave the Lagoon Pond fish ladder at Oak Bluffs a full tune-up. Working with the Town of West Tisbury, our crew built a culvert entrance box to improve passage from James Pond to Fresh Pond for river herring and eel. As the spring spawning runs wind down, we will shift from monitoring and maintenance to planning mode for several fishway construction projects slated for 2018.

By Brad Chase, Diadromous Fisheries Project Leader

DMF and Environmental Police Raise the Stakes

Recreational and commercial permit sanctions increasingly used to stop poaching.

There is an alarming increase in illegal fishing activity in Massachusetts. Reasons include rebuilt stocks resulting in abundant schools of fish close to shore; increased fishing activity and participants allowing poachers and poaching to go unnoticed or unreported; a vast coastline for the Massachusetts Environmental Police (MEP) to patrol; and sadly a poor conservation ethic among some commercial and recreational harvesters. These violations threaten the public welfare because they can have an indirect effect on the quotas of fish that the Commonwealth receives in futures years.

Many publicized violations have become high profile on social media and the talk of the waterfront. In turn, the conservation oriented majority of commercial and recreational fishermen are frustrated with the negative impacts poaching continues to have on particular stock health and future fishing quotas and limits. Supporters of strict adherence to the conservation and management regulations of DMF are demanding stronger measures for violations. In response, DMF and the MEP are seeking a number of remedial measures, including an increase in permit sanctions such as suspensions, revocations and non-renewals. The use of such remedial action is subject to the Commonwealth's Administrative Procedures Act which establishes specific due process requirements in the form of an adjudicatory procedure to be conducted by agencies that issue permits they seek to suspend, revoke or not renew.

A June 2018 bust on a recreational vessel that had over the legal limit of black sea bass. Photo courtesy of the MA Environmental Police.

Adjudicatory proceedings are not a new approach. State, federal and municipal agencies that are authorized by legislature to issue permits are also authorized to revoke such permitting instances where the use of the permit is being abused by permit holders who violate applicable regulations. DMF has historically utilized this process to suspend, revoke and not renew commercial fishing permits as well as seafood dealer permits in response to egregious or repetitive violations. What is new is the number of adjudicatory proceedings that DMF is conducting and first-ever sanctions on recreational fishing permits—both individual anglers and for-hire boats.

Whereas prior years included only a handful of hearings annually to address commercial fishery violations, this past year DMF has conducted 15 adjudicatory proceedings for recreational and commercial fishing permits for violations of fishery regulations.

To sanction a commercial, recreational or seafood dealer permit, DMF is required to comply with strict legal requirements such as adequate notice of the alleged violation; a full and fair evidentiary hearing before an impartial magistrate; the use of witness testimony and documentary evidence; the right to cross-examination; the accused's right to retain counsel to challenge and contest the alleged violations and present their own evidence and defenses; conferencing of the parties to reach a partial or full settlement of the alleged violations; opportunity to provide written comments to the magistrate's tentative decision; a final decision made by the Director based on the administrative record of the proceedings and the magistrates final recommended decision; and the right to judicial review of permit sanctions, if any, taken by the Director.

A May 2016 bust on a commercial fisherman who was cited for black sea bass overages, black sea bass and tautog minimum size violations, and failure to display catch. Photo courtesy of the MA Environmental Police.

Recreational and commercial poaching comes in many forms and no fishery is exempt. Last year there was an unprecedented mid-summer striped bass blitz along the Cape Cod Canal. This produced incredible catches, as well as infamous levels of poaching. Many citations were issued for anglers taking more than the 1-fish per day recreational limit. Additionally, commercial fishermen were cited for exceeding commercial limits, fishing commercially on closed fishing days, and not clipping the fins of their recreational catch.

Some of the perpetrators were blatant in their concealing of fish and lying to officers about their catch. For 2017 violations, five anglers have had their recreational fishing permits suspended for one to three years. Two of the five also held a commercial permit and those permits were suspended as well. This is in addition to several commercial permit suspensions and revocations for striped bass violations over the past several years.

While there are strict conservation regulations governing the size, number and times when black sea bass may be possessed, the abundance of black sea bass along the state's south coast produces high catch rates and makes this one of our most popular summertime fisheries. Unfortunately, great fishing conditions coupled with a conservative bag limit and short open season results in a temptation for anglers to ignore the rules. This temptation is more than some can resist. Over the past several years, there have been numerous cases

of recreational black sea bass bag limit and size limit violations. Often perpetrators possess 100–200 more fish than the limit, including on charters, which suggests an economic motive to make quick and easy money by selling the fish. In response, DMF has sanctioned one for-hire permit and permanently revoked another, and revoked one commercial fisherman permit. We are currently seeking to revoke and suspend the commercial and recreational fishing permits held by an individual for his role in a poaching incident last year.

Shellfish violations are another high profile issue. One of the biggest issues with shellfish violations is that they often involve contaminated waters or shellfish mishandling, which present substantial public health concerns. DMF spends enormous resources classifying waters to ensure shellfish on the market are safe to eat. Law abiding harvesters are subject to a litany of handling and tagging requirements critical for tracking shellfish in commerce. In the past two years, three north shore commercial diggers' permits were revoked for fishing in closed areas and another was revoked for selling untagged shellfish. Additionally, the dealer involved in purchasing untagged shellfish was stripped of the ability to directly buy shellfish from harvesters.

Exasperated by this unwillingness or inability to comply with marine fisheries regulations, DMF and the Environmental Police have successfully revoked numerous recreational and commercial permits, for violating regulations the permit holder had agreed to comply with as a condition of their permit. DMF is, essentially, taking back the permits that it has issued to individuals who use them to poach. We expect these sanctions will serve as deterrents to poaching but may only be the first of many steps necessary to improve the conservation ethic among Massachusetts fishermen.

By Dan McKiernan, Deputy Director

DMF also maintains a website for its Administrative Law Section. The pages on this site provide the public with more information regarding the Administrative Law Section's work and how adjudicatory hearings are conducted. It serves as a repository of final decisions, dating back to 2010.

New Saltwater Fishing Derby Divisions!

In an effort to promote the Massachusetts Saltwater Derby to a variety of angler skill levels and target species, DMF has created three new divisions for the 2018 event: **Inshore**, **Groundfish**, and **Large Pelagic**. All three divisions will continue following the established rules from last year's Derby.

For those anglers just getting started in the sport, the Inshore division offers a perfect opportunity to enter and compete against anglers of a similar skill level. In past years, many of the species featured in this inshore group, including scup, tautog, black sea bass, and fluke, have been awarded to Junior anglers as young as six years old . The other two divisions provide great comptetion for those anglers that enjoy a long day on the water reeling in some of the most iconic and physically demanding species found in our waters.

We want to encourage everyone to share their amazing catches with us on social media. Simply use @massmarinefisheries or #MAsaltwaterderby on any photos when posting to Instagram and we will feature them on our stream.

Want to enter your catch in the derby?

Full derby rules and entry forms are available on our website (www.mass.gov/saltwater-fishing-derby) and at most bait and tackle shops. Entry forms and photos should be sent to John Boardman at john.boardman@state.ma.us or mailed to the address listed below:

Division of Marine Fisheries
Attn: John Boardman
836 S. Rodney French Blvd.
New Bedford, MA 02744

Make Sure Your Recreational Catch Counts!

The cornerstone of any successful fishery management plan is the collection of accurate, timely, and consistent data. Here at DMF, we strive to operate the most robust and thorough data collection system in the country. A valid estimate of the number of fish harvested recreationally is critical for assessing the stock and setting appropriate regulations to maintain a healthy and sustainable fish population for generations to come.

Recreational catch is estimated through a survey called the Marine Recreational Information Program (MRIP). Although it is a federal program, MRIP is administered and implemented at the state level. Each year from April through November, DMF posts field staff along the Massachusetts coastline to interview anglers about their catch. During these months we interview about 5,000 anglers. The interview is quick, anonymous, and contains only a few standardized sets of questions about your fishing trip. The most valuable pieces of data we collect are how many and what kind of fish were caught on the trip.

For those individuals who have voiced concern over potential inaccuracies in the MRIP estimates from years past, the message we want to impart is that increasing the number of interviews each season will only serve to improve the data. We consider the MRIP program to be so fundamentally important to the future of recreational fishing in Massachusetts that we dedicate a portion of your permit money to its operation. While we can understand some of the reasons why anglers may not want to be interviewed (you're tired after a long day, worried about the confidentiality of the interview, that your data could cause a cutback in future seasons, etc.), **please understand that your interview is completely confidential and your catch data can only help improve management strategies of stocks**. Our primary goal is to preserve and improve upon the recreational saltwater fishing experience with each successive year through the invaluable (and accurate!) data you provide as a recreational angler.

This season, when approached by an interviewer we strongly encourage you to participate in the interview. Remember, your recreational catch counts in the MRIP! Your cooperation is essential to our ability to manage our fisheries on a sustainable basis. Thank you in advance for helping us maintain Massachusetts' status as one of the most incredible saltwater angler experiences in the country!

By Mike Armstrong, PhD, Assistant Director

DMF Implements Emergency Regulations amid Another Exceptional Right Whale Season

Despite another record high sighting in Cape Cod Bay, the overall population is still at risk

The Right Whale Surveillance Program has proved once again how important Massachusetts waters are to this imperiled species. The 2018 field season will be remembered for another year of incredible abundance of whales (145 whales in a single flight) and a very late departure, resulting in extended and new protection measures.

As we have done since 1998, DMF partnered with the Center for Coastal Studies and the National Marine Fisheries Service to conduct aerial monitoring of right whales in Cape Cod Bay and surrounding areas. The 2018 season saw an exceptional number of right whales return to Massachusetts with peak sightings occurring later than usual and a broader distribution of whales across our waters. The season-high of 145 whales was documented on April 27, which is typically the tail end of the season. The peak occurrence and departure times seem to be delayed by 2–3 weeks from the averages seen in the past 21 years of aerial surveys. Thus far in the analysis of 2018 data, around 55% of the known right whale population was observed in Cape Cod Bay and surrounding areas, though that number is likely to rise as photo analysis continues.

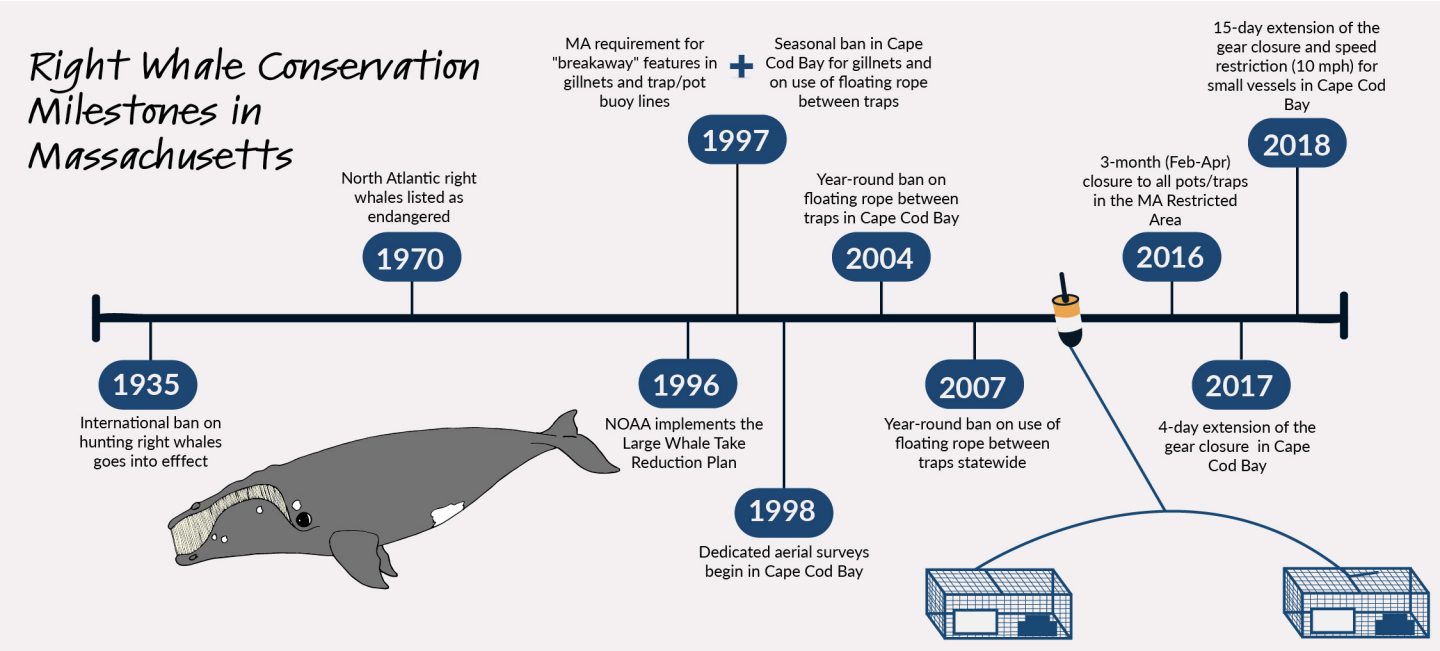
We also saw dense aggregations of right whales along the western shore of Cape Cod Bay, which also occurred in 2013 and 2015 and appears to be part of a new trend. However, in 2018 that western distribution extended up into Massachusetts Bay and waters north of Boston, beyond the fixed gear closure area, although the largest aggregations still occurred within Cape Cod Bay. This season was slow to get going, possibly due to a delay in the development of zooplankton resources related to lingering cold water temperatures, causing the whales' departure to be later than usual.

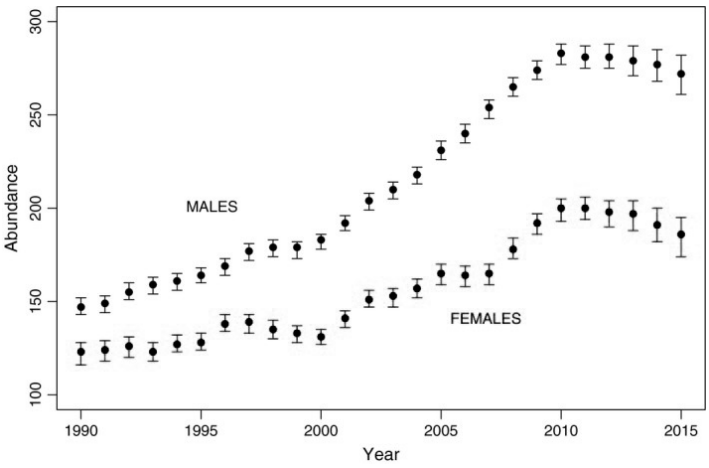
As a result of the prolonged presence of right whales, we extended the 3-month (February–April) fixed gear closure (in Cape Cod Bay only) by 15 days to prevent entanglements. The Division also implemented by emergency action a speed restriction (10 mph) for small vessels, less than 65' in length, in Cape Cod Bay to minimize the risk of vessel collision. Vessels 65' and larger were already subject to a federally imposed speed limit. DMF will consider making the small vessel speed limit a permanent seasonal rule through rulemaking later this year.

In the big picture, the results from the Massachusetts surveys are a confounding contrast. Cape Cod Bay continues to seasonally host a large and increasing proportion of the right whale population, while at the same time the overall population is in decline. This makes Massachusetts, and particularly the Massachusetts Restricted Area, increasingly important to the conservation and survival of the North Atlantic right whale population. Despite Massachusetts fishermen's adherence to the seasonal trap gear closure and similarly intentioned rules, the right whale population continues to struggle outside of the protection provided in Cape Cod Bay. This past year, the North Atlantic right whale population faced an unprecedented number of deaths. Seventeen mortalities were documented in 2017, most of which occurred in Canadian waters of the Gulf of St. Lawrence (see *DMF News* 3rd and 4th Quarters 2017).

In the wake of the right whale deaths, an observed decline in the birth rate related to a loss of female right whale fitness is cause for further concern. During the 2017/2018 winter calving season, no right whale birth events were observed and only 5 were observed in the 2016/2017 season. Researchers are hopeful that some mother/calf pairs will be seen opportunistically over the summer and fall. There is precedence for this. In 2013, a mother and newborn calf not observed during the winter calving survey were seen off Plymouth in early winter. Researchers assume the birth was local, not 1,000 miles away where the aerial survey is conducted off Florida and Georgia.

These troubling signs for the right whale population are spurring additional actions to protect the species. Canada has taken aggressive proactive steps in the Gulf of St. Lawrence by shifting fishing seasons and closing some areas to fixed fishing gear where whales are present and expected to reside based on last year's trends. Canada has also instituted speed limits in discrete areas to reduce vessel collisions. Meanwhile in the US and Canada, fishermen's groups,





Abundance of male and female right whales from 1990 to 2015. Despite an overall trend in growth, the difference in abundance of males and females is problamatic for the right whale population. Figure courtesty of Pace et. al, 2017 (https://doi.org/10.1002/ece3.3406).

conservationists, and government agencies are struggling to devise safer fixed gear fishing techniques including weak rope and/or traps set without vertical lines. These are both extremely challenging and a work in progress.

By Dan McKiernan, Deputy Director

Offshore Wind Update

The pace of activities for offshore wind development, both locally and regionally, has been relatively slow…until this year. Now there are so many things happening it's hard to keep track. MA DMF is an active player in the development of Massachusetts offshore wind energy, particularly as it relates to fishing and fishery resources. We participate on the Massachusetts Intergovernmental Task Force advising the Bureau of Ocean Energy Management (BOEM) on its leasing of wind energy areas, bringing with us stakeholders feedback collected through the MA Administration's Fisheries Working Group on Offshore Wind Energy. Here's the rundown of recent activities between Nantucket and the New York Bight.

The Massachusetts Wind Energy Area

- The Mass Wind Energy Area has a total of four lease blocks, one of which has been leased to Offshore MW who is proposing to build a project called Vineyard Wind, and one to Ørsted (formerly DONG Energy) who has partnered with Eversource to propose to build a project called Bay State Wind. The two remaining lease areas are being auctioned off later this year, probably in the fall. The Proposed Sale Notice about the auction format was announced April 6, 2018, with public comment accepted through June 11, 2018.
- State legislation commits Massachusetts to generating 1,600 MW of offshore wind energy by mid-2027. In order to meet this mandate, Massachusetts issued the right to negotiate a power purchase agreement for 800 MW to Vineyard Wind on May 23, 2018. The next procurement for 800 MW is expected by June 2019.
- The Vineyard Wind project conducted offshore survey work last year and is doing more again this year. Their Construction and Operations Plan (COP), submitted in March 2018, details their design for an 800-MW facility of about 100 turbines, with cable landfall occurring at either Barnstable or Yarmouth (up to 3 cables in 1 corridor). BOEM initiated the public scoping process to develop an Environmental Impact Statement (EIS) for the wind farm and cables in late March. The Draft EIS is expected in the fall and the Final EIS in the spring of 2019. Once BOEM completes the EIS, the agency will decide whether to approve, approve with modification, or disapprove the Vineyard Wind Construction and Operations Plan. For the cable crossing state waters, Vineyard Wind has submitted their Massachusetts Environmental Policy Act documents; the Draft Environmental Impact Report was out for comments until June 8, 2018.
- Vineyard Wind has projected they will start construction at the end of 2019 and the first 400 MW (~50 turbines) will be finished by end of 2021. Construction of the remaining 400 MW may occur concurrently or after a gap of up to 5 years. The turbines are planned to be in organized rows with an average distance of 0.8 nautical miles apart with 1 nautical mile transit corridors crossing the area.
- The Bay State Wind project conducted offshore survey work last year and is doing more again this year. They are planning on submitting their Construction and Operations Plan this fall or early winter. Initial plans are for a wind farm with about 100 wind turbines and a cable landfall at Brayton Point in Somerset. They are also considering a cable landfall in Woods Hole.

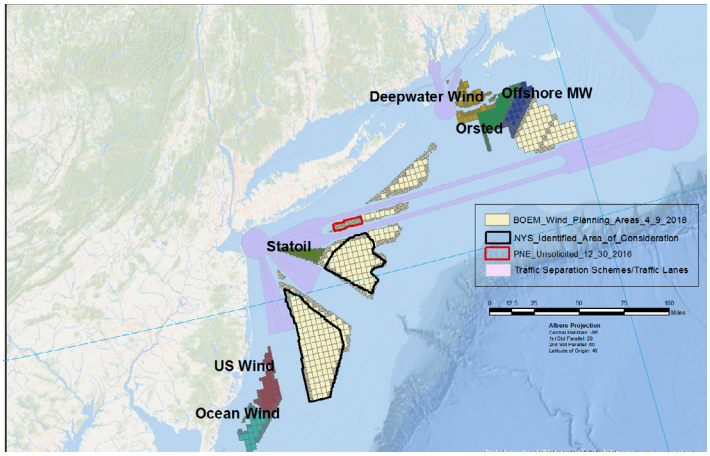
The Rhode Island-Massachusetts Wind Energy Area

- To the west, the RI-MA Wind Energy Area was leased by Deepwater Wind. This company already has one active wind farm, a 5-turbine farm off of Block Island called Block Island Wind. They are planning two more: South Fork and Revolution Wind. South Fork is further ahead in planning and is proposed to be a 15-turbine project with a cable landfall on the south side of Long Island in East Hampton, NY. Deepwater has a Power Purchase Agreement for 90 MW of South Fork wind energy with Long Island Power Authority. Deepwater is working on offshore surveys, including assessing cod spawning activity. Construction on South Fork is expected to start in 2021.
- On May 24, 2018 Rhode Island awarded Deepwater Wind the right to negotiate a power purchase agreement for 400 MW. Deepwater is working on a plan for up to 50 turbines for the Revolution Wind project which would provide the power to RI.

New York Bight

- In New York, the first Wind Energy Area developed for leasing was based upon an unsolicited lease application that BOEM received in September 2011, from the New York Power Authority (NYPA). After considerable analysis and stakeholder engagement, the original call area was reduced in size and announced as a Wind Energy Area in March 2016. Statoil Wind was the winner of a lease auction held in December 2016 and is proposing to build Empire Wind, with about 100 turbines in the 10–15 MW size range.
- Also in the New York/New Jersey area, an extensive planning process was undertaken last year, culminating in the release of the New York State Offshore Wind Master Plan in which the New York Department of State proposed two areas for considering offshore wind development. In response, BOEM released a Call for Information covering four broader areas for the purpose of soliciting information about activities in this region in order to propose one or more Wind Energy Areas. Comments were due on May 29. This wider planning process subsumed an area just south of Long Island that was submitted by PNE Wind in December 2016 as an unsolicited lease request.

In addition to all of the state activities, BOEM has also announced it is working on planning for future wind energy area development.



Map of the eastern seaboard wind energy areas.

BOEM's Proposed Path Forward for Future Offshore Renewable Energy Leasing on the Atlantic Outer Continental Shelf provides an initial screening assessment of areas that should be prioritized for future offshore wind energy development. Public comment is being accepted through July 5, 2018. Thus far, BOEM has issued 13 commercial leases on the Atlantic from North Carolina to Massachusetts.

Key Issues for MA's Fisheries

The Commonwealth supports the co-existence of wind energy development and fishing. However, to ensure the two industries are compatible, several issues are outstanding.

Transit: The Coast Guard announced at the May 7 meeting of the Massachusetts Fisheries Working Group on Offshore Wind Energy that the three developers in Massachusetts and Rhode Island have committed to working together to develop a proposal for transit corridors. The Coast Guard is expecting a joint proposal at the end of May 2018. Fishermen have requested transit lanes that are 4 nautical miles wide. Adding transit time to navigate around or through wind farms is of great concern to them.

Fishing in wind farms: Spacing between turbines has been proposed at 0.7–1.0 nautical miles. Fishermen have suggested they need 1.25–4 nautical miles between turbines to fish. Several gear types assume the risk will be too great regardless of spacing. Radar interference has been examined in other wind farms but remains a concern here. Comments regarding orientation suggest that providing for east-west and north-south corridors, following TD lines, is best.

Cables, gear loss, and mitigation: Developers are proposing to bury cables 5–8 feet. However, areas where burial cannot be achieved are expected to occur. Gear interactions could also occur in areas where cables get unburied. Mitigation for gear loss or fishing revenue losses due to inability to fish has not yet been developed.

Impact studies: It is unknown specifically how these wind turbines will impact the fishery resources of the Southern New England Bight. The Massachusetts Fisheries Working Group has a subcommittee focused on establishing a framework and proposing studies to assess environmental and socioeconomic impacts. Individual developers are also forming strategies to design fisheries studies.

By Kathryn Ford, PhD, Fisheries Habitat Program Leader

For More Information

Do you have concerns about the development of offshore wind, and how it might impact you as a fisherman? Please reach out to the developers' fisheries representatives, DMF, the Commonwealth, or BOEM to express your concerns. If you want to join the Fisheries Working Group, or attend the meetings as an interested party, please let us know.

- **Vineyard Wind:** Jim Kendall (nbsc@comcast.net, 508-287-2010) and Crista Bank (cbank@vineyardwind.com, 508-525-0421).
- **Bay State Wind:** John Williamson (john@seakeeper.org, 207-939-7055).
- **Deepwater Wind:** Rodney Avila and Julia Prince (Montauk).
- **Statoil:** Stephen Drew (stephencdrew@searisksolutions.com).
- **BOEM:** Jessica Stromberg (Jessica.stromberg@boem.gov, 703-787-1730); Brian Hooker (brian.hooker@boem.gov).
- **DMF:** Kathryn Ford (kathryn.ford@state.ma.us, 508-742-9749).
- **Commonwealth:** offshorewind@state.ma.us.

For current and background information, BOEM has a website where all of the state activities are described and access to all of the funded research is available (https://www.boem.gov/Renewable-Energy/).

To build maps of the wind energy areas visit the Northeast Ocean Data Portal and the Mid-Atlantic Ocean Data Portal.

Creature Feature: Whelk

Massachusetts waters are home to two species of large marine snails, the channeled whelk (*Busycotypus canaliculatus*) and the knobbed whelk (*Busycon carica*). While both species are often referred to as "conch" they are both actually whelks. Whelks are carnivorous predators/scavengers found in temperate waters while conchs are herbivorous and commonly found in tropical waters. Channeled and knobbed whelks are found from Florida to Massachusetts in less than 100 feet of water. Within Massachusetts, most are found south of Cape Cod, with those north of the Cape being restricted to the shallower harbors.

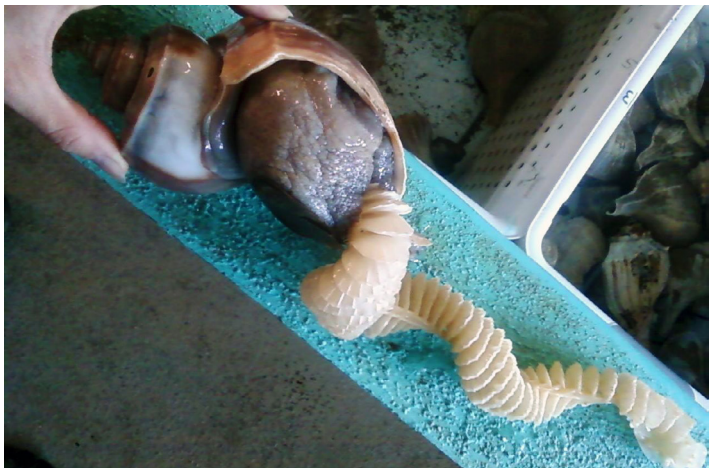
Both of these whelk species are edible marine gastropods that breathe using gills. As with most gastropods they are benthic, have a muscular foot, and a coiled shell. Whelks either scavenge on dead organisms or feed on live shellfish. They use their muscular foot to grasp the shellfish, then use the outside edge of their shell and foot muscle to forcefully open the bivalve. Once the shellfish is partially open, the whelk inserts its proboscis (a protruding tube-like structure containing its mouth) into the gaped shell to feed. In the past, their affinity for preying on live shellfish drew the ire of fishermen and shellfish managers, and both whelks and their egg cases were part of a bounty program in Massachusetts. However, times have changed and now whelks are considered a delicacy and the fisheries are worth $4–6 million a year for Massachusetts fishermen.

While not everyone realizes it, many people are at least familiar with the egg casings of these two whelk species. Sometimes referred to as a mermaid's necklace, the distinctive egg casings of these whelks make them very popular with beach combers. These intricate structures are produced by a mature female whelk over a one to two week period. The female starts by anchoring one end into the sediment and then deposits fertilized eggs into each capsule as the structure is slowly extruded. Each egg strand can be two to three feet long and each individual capsule can contain more than thirty individual eggs. The whelk slowly develops within the egg casing for about nine months before emerging. Unlike many marine organisms, whelk have no free swimming larval phase and when they emerge they look like miniature adults around 1/10 of an inch at the longest point.

In Massachusetts, whelks generally deposit their egg casings in late summer or early fall; however, there are reports that a portion of knobbed whelk spawn in spring. The egg cases are very susceptible to disturbances such as storms, fishing, or boating activities. If an egg casing is unanchored from the sediment prior to the new whelk emerging, they will not survive. Other egg casings naturally get uprooted over time after the whelk have hatched out. Uprooted egg casings that were unable to hatch may still have tiny unviable whelk shells inside each capsule.

After emerging from egg capsules, whelks immediately burrow into the sediment. Little is known about their behavior for the next several years as they live under the sediment scavenging for food. Adolescent whelk can more readily be observed in both fishing gear and scientific studies around age 4, at 2 inches width. As they continue to grow, male channeled whelk mature first at age 6 around 2 ¾ inches width with females becoming mature at age 9 or 10 at around 3 ⅞ inches width. Both males and females reach the current legal harvest size for the commercial fishery around age 7 at about 3 ⅛ inches width. The largest whelk are believed to be about 20 years old reaching a width of 5 ½–6 inches.

Whelk have fairly limited movements, usually less than a mile per year. They seem to have different depth preferences seasonally associated with sea bottom water temperature, and are rarely found outside of embayments or sounds. Whelks are most active in Massachusetts when bottom water temperature ranges from 50°F to70°F. When bottom water drops below 50°F, they begin to slow down and eventually burrow into the sediment and stop feeding. They remain dormant until water temperatures begin to warm the following spring. They also become less active in the midst of summer when bottom water temperatures exceed 70°F.



Channeled whelk laying egg casing. Photo courtesy of Kathrine Thompson.

Knobbed whelk inside a washed up egg capsule.

Due to behavioral differences, there are two distinct fisheries for channeled and knobbed whelks. Channeled whelk are primarily caught using traps. For largely unknown reasons knobbed whelk are unlikely to climb into a trap to feed; thus most knobbed whelk are harvested by mobile gear fisheries like bottom trawlers or dredge boats. Over time, small niche markets developed domestically selling whelk. Over the last 15 years or so, the demand in foreign markets has rapidly escalated, primarily in the Far East. The increased demand for channeled and knobbed whelk is largely due to the crash of similar gastropod fisheries worldwide due to overexploitation, allowing our local whelk to fill the market niche. With the price of whelk tripling over the last decade and other local fisheries being less profitable, considerable effort has been redirected to whelk fishing here.

Stock Assessment

DMF and the Marine Fisheries Advisory Commission are responsible for the management and regulation of the channeled and knobbed whelk fisheries occurring within state waters. It is our goal to maintain a healthy whelk resource that supports a sustainable and profitable fishery within Massachusetts coastal waters. Successful fisheries management requires a strong understanding of fishery and population trends, as well as an accurate assessment of stock status. Recently DMF conducted the first ever stock assessment of channeled whelk in Massachusetts.

Stock assessments require large amounts of information on the life history of the species as well as survey and landings data. To support the assessment needs, DMF performed a comprehensive study from 2010–2011 and again in 2015 to determine the size and age of maturity of channeled whelk in Massachusetts. This involved collecting 1,800 whelk samples of all sizes and dissecting them in the lab. Staff biologists removed the whelk's shell, and then determined the sex and the stage of maturity based on examining the reproductive organs. Aging whelk is possible because the operculum and statolith are hard body parts that accumulate annual growth rings. The operculum is the hard plate that protects the whelk's shell opening when it retracts into its shell, and the statolith is a tiny structure that allows whelk to sense gravity and aids in balance. At our Age and Growth Lab in Gloucester, the statolith and operculum of each whelk were examined and age was determined by counting growth rings.

To determine the range of sizes caught by the commercial fleet, staff went onboard commercial vessels with volunteer captains to measure the whelks caught in their traps. Landings and effort data are reported by fishermen and dealers, and this information is used to

describe trends in the fishery. Finally, DMF's annual bottom trawl survey is used as an independent way to monitor long term trends in whelk distribution and abundance.

Collectively, all of this information was used to assess the current stock status for channeled whelk. Since this was the first stock assessment, our assessment specialist examined multiple types of models. Each model has different strengths and weaknesses and certain models work better for certain fisheries. In this case the results from every model were in agreement that the channeled whelk stock in Nantucket Sound is overfished and overfishing is occurring. Based on the results of this assessment, the Division will work further with the Marine Fisheries Advisory Commission to determine the best course of action to protect and rebuild this valuable resource. For more information on the stock assessment please see Division of Marine Fisheries Technical Report 66 (TR-66). For knobbed whelk, further commercial fisheries catch data are needed to perform a comprehensive stock assessment.

By Steve Wilcox, Invertebrate Biologist

Accolades

This past May, the Atlantic States Marine Fisheries Commission (ASMFC) bestowed upon Deputy Director **Dan McKiernan** its Annual Award of Excellence for outstanding contributions to fishery management and policy. For over three decades, Dan has been—and continues to be—an integral part of the ASMFC's interstate management of Atlantic coastal fishery resources. During his time as Chair of the American Lobster Management Board, he navigated the Board through tough management decisions that stemmed from the findings of the 2015 benchmark assessment. Dan was integral to right-sizing the industry in response to the decline of the Southern New England stock. He also played a key role in the development and implementation of Amendment 1 to the Tautog Fishery Management Plan, working closely with Rhode Island officials on regional management measures and spearheading the creation of a commercial harvester tagging program. These are just two examples of Dan's pragmatic and collaborative approach to finding effective solutions to difficult interstate fisheries management problems. Throughout his career, he has worked tirelessly to meet the needs of Massachusetts' fishermen while ensuring the health of the fisheries resources on which they depend. Congratulations, Dan!

(From left) DMF Director David Pierce, Deputy Director Dan McKiernan, and ASMFC Executive Director Bob Beal at the awards presentation.

Comings and Goings

Glenn Casey retired in March after more than 19 years with the Division's Shellfish Sanitation and Management Program in Gloucester. Following decades centered on the water with time in the Navy, teaching, and the US Geological Survey, Glenn joined the Shellfish Program in January 1999. Throughout his tenure with the Division as a shellfish classification biologist, he was responsible for monitoring and classifying shellfish growing waters in Boston, Gloucester, Revere, Saugus, Weymouth, and Winthrop amongst others. Due to his background in water quality studies, Glenn became the state's expert on hydrographic dye studies working closely with the US Food and Drug Administration on numerous pollution source tracking studies. Glenn was committed to keeping and expanding clamming opportunities for Massachusetts shellfish harvesters while upholding the public health with comprehensive evaluations, timely monitoring, and an unmatched dedication to his work. His experience in the field, as well as good humor in the office, will be missed by his fellow staff and the industry he served. We wish him and his family the very best in retirement.

Collin Farrell left the Division in March to peruse a graduate degree through Colorado State University. Collin came to the Division early in 2015 and was a valuable part of the Age and Growth Lab. There, Collin prepared and aged multiple structures and species and happily tackled some of the most tedious tasks we could dish out. He was also always ready and eager to get out in the field to help any project that needed another set of hands. We wish him luck in his future endeavors.

Tim Brady of Plymouth recently joined the Division's Marine Fisheries Advisory Commission. He is a USGC-certified Captain with over 40-years of experience in the for-hire industry. He is currently the owner and CEO of Capt. Tim Brady and Sons Deep Sea Fishing Inc., and is a long-standing member of the Stellwagen Bank Charter Boat Association. Tim also works as a full-time professor at the Massachusetts Maritime Academy, where he earned his Bachelor's Degree in Science.

Kevin Blinkoff of Bourne recently joined the Division's Marine Recreational Fisheries Development Panel. Kevin is the Executive Editor for On The Water Media Group, managing and producing content for three leading Northeast-region recreational fishing magazines and related media. He is an avid angler, serves on several recreational fishing advisory boards including the Stellwagen Bank Advisory Council, and holds a master's degree in marine biology.

Marine Fisheries Updates
Public hearings, regulations, and legislation

During the period of January 1, 2018 through June 30, 2018 the following regulatory changes were enacted by DMF after public hearings and Marine Fishery Advisory Commission approval or by the Director under his declaratory and emergency authorities.

Commercial Black Sea Bass Spring Bycatch Allowance for Trawlers and Summertime Open Days
A new rule allows draggers to retain black sea bass during the springtime small mesh trawl fishery for squid (April 23–June 9). Draggers may now retain a bycatch allowance of black sea bass weighing up to 50 pounds. The total harvest of black sea bass by draggers during the springtime small mesh trawl fishery for squid is capped at 50,000 pounds; if this cap is reached then retention of black sea bass by draggers becomes prohibited until the directed fishery opens. DMF also adjusted the sequence of the open fishing days during the summertime directed fishery. For 2018, the open fishing days will be Sundays, Tuesdays and Thursdays (previously Sundays, Tuesdays and Wednesdays).

Commercial Menhaden Bycatch Limit
To comply with the interstate fishery management plan for menhaden, the commercial menhaden bycatch limit has been modified to exclude large purse seines. Fishermen may retain a bycatch of up to 1,000 pounds of menhaden once the commercial quota is taken and the fishery is closed, provided menhaden do not compose more than 5% of the total weight of the catch and that the fishermen are not using large purse seine gear measuring more than 150 fathoms length or 8 fathoms depth. The prior rule did not address the size of the purse seine gear.

Commercial Menhaden Permit Conditions (use of carrier vessels)
New permit conditions affect the commercial menhaden fishery. DMF will allow up to two permitted harvester vessels to offload to a single carrier vessel, provided that each harvester vessel does not offload more than 125,000 pounds per day or per trip, whichever period is longer, and the carrier vessel does not possess or land more than 250,000 pounds menhaden per day or per trip, whichever period is longer. Once 75% of the annual quota is taken, carriers will be limited to one trip limit from one vessel. For the purposes of compliance monitoring, all vessels (harvester and carrier) will be required to maintain a daily logbook. Additionally, fishing with purse seines for menhaden will be prohibited on Saturdays, Sundays, Memorial Day, the 4th of July, and Labor Day.

Commercial Scup Seasons and Bycatch Limits
DMF enacted two measures to comply with the federal and interstate fishery management plan for scup. First, the timing of the commercial seasons has changed to encourage quota utilization. The summertime state-managed season now runs from May 1–September 30 (rather than May 1–October 31), and the federally managed Winter II fishery now runs from October 1–December 31 (rather than November 1–December 31). Second, DMF has implemented a federal rule that limits scup bycatch in trawls with mesh below the minimum size of 5" diamond. During May 1–September 30 vessels fishing with small mesh are limited to 200 pounds of scup and from October 1–April 30 vessels fishing with small mesh are limited to 1,000 pounds of scup.

Commercial Sea Herring Fishing Days
For the Management Area 1A commercial sea herring fishery begining June 1, DMF has issued permit conditions that establish Mondays–Thursdays as open fishing and landing days and Fridays–Sundays as prohibited fishing and landing days. These days may be revisited in response to quota utilization and the permit conditions establishing the fishing and landing day schedule may be revised.

Commercial Spiny Dogfish Trip Limits
A 6,000 pound trip limit has been established by declaration and permit condition for the 2018/2019 commercial spiny dogfish fishery. This is unchanged from 2017/2018. This limit applies per day or per trip, whichever period is longer. The limit is in effect from May 1, 2018 until April 30, 2019, unless the quota for the Northern Region (ME–CT) is harvested before the end of the season.

Commercial Striped Bass Fishing Days
DMF has prohibited commercial striped bass fishing on the 3rd and 4th of July and on Labor Day. This action was taken to prevent user group conflicts on the water and at boat ramps, which were prevalent over the 4th of July holiday weekend last year.

Ellisville Surf Clam Dredge Closure
DMF closed the nearshore waters between Ellisville Beach and the Cape Cod Canal to surf clam dredge fishing from May 15–October 15. This closed area includes all waters south of 41° 55' north latitude and west of 70° 29' west longitude. The closure was implemented to ameliorate ongoing gear conflicts between lobstermen and surf clam dredge boats fishing in the area and to address concerns raised by lobstermen regarding the impact the dredge gear may seasonally have on newly molted lobsters.

Recreational Black Sea Bass Limits
For 2018, the recreational black sea bass fishery will open on May 19 and close on September 12 with a 5-fish bag limit and 15" minimum size. The open season is 15 days longer compared to 2017, with a status quo bag limit and minimum size.

Recreational Georges Bank Cod Limits
For 2018, the recreational Georges Bank cod fishery will be open year round with a 10-fish bag limit and a 23" minimum size(up by 1"). These rules apply within the Southern New England Management Area, which includes all state waters south of 42° north latitude, excluding Cape Cod Bay and the Cape Cod Canal. Anglers are advised to consult NOAA fisheries for fishing limits in federal waters.

Recreational Gulf of Maine Cod Limits
For 2018, the recreational fishery for Gulf of Maine cod was closed to all anglers. These rules apply within the Gulf of Maine Management Area, which includes all state waters north of 42° north latitude, as well as the waters of Cape Cod Bay and the Cape Cod Canal. The federal fishery has been closed for several years. In prior years—despite the federal closure—DMF had allowed private anglers to retain a 1-fish bag limit while fishing exclusively in state-waters. However, this practice has ended due to constraints its continuation would have had on the federal management of the haddock fishery.

Recreational Fluke Limits
For 2018, the recreational fluke fishery will open on May 23 and close on October 9 with a 5-fish bag limit and 17" minimum size. This year's rule change liberalizes the bag limit by one fish and the open fishing season by 15 days (previously May 22–September 23).

Recreational Scup Limits
For 2018, the recreational scup minimum size has been decreased from 10" to 9". The bag limits and seasons remain status quo. From May 1 – December 31 private anglers have a bag limit of 30 scup. For anglers onboard for-hire vessels, the bag limit for scup is 45 fish from May 1–June 30 and 30 scup from July 1–December 31.

Recreational Tautog Limits
To comply with the Amendment 1 of the interstate fishery management plan, MA and RI worked cooperatively to develop joint recreational fishery management measures. As a result of these efforts, the recreational tautog fishery is open from April 1–May 31 with a 3-fish bag limit; June 1–July 31 with a 1-fish bag limit; August 1–October 14 with a 3-fish bag limit; and October 15–December 31 with a 5-fish bag limit. During these open seasons, the minimum size will be 16". The fishery is closed from January 1–March 31.

Bleach Use Prohibited for Harvesting Shellfish
DMF has explicitly prohibited the possession and use of bleach while commercially fishing for soft shell clams and razor clams. The use of a solution to extract clams from the sediment is common practice. While there are various state laws that prohibit the discharge of bleach into marine waters, until now DMF had not explicitly prohibited bleach being used in this manner.

Right Whale Conservation: Emergency Actions
In late April 2018, more than 100 right whales were sighted in Cape Cod Bay. This represents approximately 25% of the known population of this critically endangered species. To ensure these whales were adequately protected while aggregating in our waters, DMF enacted two rules. First, from April 24–May 14, DMF implemented a 10-knot vessel speed limit for the waters of Cape Cod Bay. This limit applied to vessels smaller than 65' overall length; a similar rule already apples to vessels 65' overall length or greater. Second, DMF extended the February 1–April 30 seasonal trap gear closure through May 14 for the waters of Cape Cod Bay.

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