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New Start at the Newburyport Shellfish Plant

It's the dawn of a new era at the *MarineFisheries* Shellfish Purification Plant in Newburyport, the oldest such facility in the world. For 83 years, the plant has operated solely as a purification facility; taking contaminated softshell clams harvested commercially within the Commonwealth and cleaning them for consumption. This changed in March when the plant started offering a new service to Massachusetts wholesale shellfish dealers – wet storage processing. Purification and wet storage processing are similar; both involve placing bushel baskets of shellfish in tanks filled with sterilized seawater and both produce shellfish that are clean and safe for market. The difference between purification and wet storage processing lies in what is flushed out of the shellfish. During the purification process, seawater is used to flush pathogens (disease-causing bacteria) out of the shellfish, making them safe for market. In the wet storage process, seawater is used to flush sand, mud, and grit out of the shellfish, enhancing them for market.

Purifying contaminated shellfish in controlled purification (also called depuration) plants is a process that has been practiced worldwide for over 100 years. In 1927, the Massachusetts Department

DMF Staff Photo

Plant Foreman Ralph Stevens sending racks of wet stored shellfish through the washer for final cleaning.

of Public Health conducted experiments on Plum Island to see if contaminated softshell clam beds in the Merrimack River could be re-opened to fishing using this new technique of shellfish purification. Based on these trials, a seasonal purification facility was built by the City of Newburyport on the northern end of Plum Island the following year. The building was then converted and upgraded to a permanent structure in 1930. Depuration of softshell clams continues at this location today. In 1961, operation of the facility was transferred to the Commonwealth of Massachusetts' Division of Marine Fisheries, leading to many significant improvements.

Today, the plant has nine purification tanks, each having the capacity to hold 108 dealer bushels or racks of clams. Each tank holds 3,500 gallons of seawater and is equipped with an ultraviolet light sterilization system as well as supplemental air supply. The plant's seawater source is a salt water aquifer beneath the barrier beach of Plum Island. Two salt water wells, each 125 feet deep, provide pure, sand filtered seawater on demand at a constant 48°F and 30 ppt salinity year round. The plant has a walk-in cooler and a customized washer that sprays each clam rack with filtered seawater. There is also an onsite NSSP (National Shellfish Sanitation Program) certified microbiology laboratory which is used to test shellfish, seawater, ultraviolet light effectiveness, and chemical operational parameters daily.

While *MarineFisheries* can provide a perfect environment for depuration to occur, it is the clams themselves that do the work. When placed in a tank of seawater, clams will take in water to obtain oxygen and food. As shellfish draw in sterilized seawater through their incurrent siphons, their gut contents will be expelled through their excurrent siphons into the surrounding tank water. The tank water is continuously being recirculated and disinfected by the ultraviolet light sterilizer. The shellfish will gradually flush themselves clean through this pumping action and the continual re-sterilization of the tank water. The NSSP requires controlled purification to continue for a minimum of 44 hours. Depuration has been found to be very effective in decreasing bacterial concentrations but it cannot reduce red tide or PSP (paralytic shellfish poisoning) toxicity. PSP occurs from a chemical toxin which cannot be treated using this method.

Wet storage processing at Newburyport utilizes the same tanks, seawater, ultraviolet sterilizers and the same biological flushing of the shellfish as the depuration process. The primary distinction between wet storage and depuration is the bacterial levels of the shellfish at the beginning of the process. Wet storage shellfish are harvested from NSSP classified Approved areas. These shellfish are already at safe bacterial levels so the focus of the process is on de-sanding. There is no mandatory process time established or microbial testing required since bacterial levels do not have to be reduced. This is in contrast to shellfish for depuration which can be harvested from NSSP classified Restricted areas. These harvest areas are slightly impacted by pollution so shellfish harvested must be brought to a depuration plant for processing. After the mandatory processing time microbiological testing of the shellfish is required to verify the purification process. Both wet storage and depuration are regulated by the NSSP and overseen by the United States Food and Drug Administration and MDPH (Massachusetts Department of Public Health's) Food Protection Program. In addition, wet storage and depuration must comply with strict controls and standards including compliance with seafood HACCP (Hazard Analysis and Critical Control Point) and traceability requirements to assure a safe market product.

In October 2012, *MarineFisheries* sent a questionnaire to 160 licensed MA wholesale shellfish dealers to determine potential interest and scope for wet storage processing. Of the 160 firms, 29% responded, with 11 firms indicating an interest in wet storage

DMF Staff Photo

Each rack of wet stored shellfish is tagged with its duration of storage.

services. Public meetings were held in November in Gloucester and New Bedford. From this public input, *MarineFisheries* in conjunction with MDPH designed a softshell clam wet storage pilot program as a natural extension of the Newburyport depuration plant operation. Finally, on March 4, 2013 the first lot of clams for wet storage was received. It is hoped in the upcoming months that wet storage operations will continue to grow and complement depuration processing at the facility.

Commonwealth shellfish dealers utilizing depuration and wet storage post-harvest processing are able to provide their customers with the added assurance their shellfish will be clean, fresh and sand free. If you have any questions about wet storage or depuration or if you are a commercially licensed wholesale shellfish dealer and would like to inquire about utilizing the plant's wet storage services, please contact the Newburyport Shellfish Purification Plant at 978-465-3553 or email Jeff Kennedy, the Newburyport Shellfish Plant Manager at Jeff.Kennedy@state.ma.us.

By Diane Regan, Shellfish Bacteriologist

Groundfish size limit reductions

Is it a keeper? This is the question fishermen always ask themselves when they reel in or catch in their nets the fish they have struggled to find either by long hours on the water patiently awaiting that strike or having set and then hauled their nets while hoping for a bonanza. Or, is it a throw-back because it's too small by the rules and regulations set by fisheries managers?

Minimum size regulations have been a traditional and smart way to allow fish to grow to a size when they are mature and able to reproduce. As any recreational or commercial fisherman knows, without young fish to replace those taken for pleasure or sale, the future of fishing becomes one of scarcity and a spiraling down of abundance as fishing mortality takes its toll.

Before fish grow to minimum size, they can be found in great numbers just below the size that makes them legal to keep and land. Poised to enter the fishery, these fish are tempting because they can be caught, but then must be released. They are sometimes discarded or released dead due to handling, hooking, and mortality caused by time spent in nets or on the deck. This is a waste of a valuable resource.

Then again, taking too many small, immature fish is illogical and a recipe for a fishery failure, especially because that catch eventually will lead to undesirable and costly low catch limits for larger and mature fish and all the socioeconomic woes caused by those low limits. What's a fishery manager to do?

The New England Fishery Management Council (NEFMC) and NOAA Fisheries have answered that question in a strange and surprising way by lowering the minimum sizes. In fact, effective July 1 the following reductions in minimum sizes for the federally-permitted commercial fishery were implemented: cod (22 to 19"), haddock (18 to 16"), gray sole or witch flounder (14 to 13"), yellowtail flounder (13 to 12"), plaice or dabs (14 to 12"), and redfish (9 to 7"). As a NEFMC voting member, *MarineFisheries* opposed these decreases, especially the 3-inch decrease for cod and the 2-inch decrease for long-lived and live-bearing redfish to a size that no fish processor or dealer really want – except for use as bait.

Commercial fishermen in groundfish sectors are now required to land all their allocated groundfish meeting the new minimum size requirements, meaning they cannot discard legal-sized fish. These sectors are self-organized groups of fishermen banded together to acquire NEFMC-allocated, individual-fisherman catch shares (based on past fishing history) which are masked as sector annual catch entitlements or ACEs.

MarineFisheries was not surprised that most sector leaders appeared to support the size decreases. We understand the intent is to reduce discards since discarded fish – real or assumed – count against sector fishermen's allocations and reduce potential profit. We worry, however, that the lure to maximize catch of smaller, now legal-sized fish will lead to targeting these fish.

We believe fostering a land-everything attitude and a renewed dependence on smaller and more immature fish will slow stock recovery and damage markets for high-quality seafood products. Fishermen should instead avoid areas where smaller fish abound or use fishing gear that reduces catch of smaller fish. Admittedly, some gear modifications have trade-offs; for example, increased net mesh size to reduce the catch of small fish also means more legal-sized fish can escape. But at a time when we believe certain stocks are on the verge of collapse, such tradeoffs are warranted.

NOAA Fisheries and the NEFMC risked putting commercial fishermen in jeopardy by adopting and implementing the minimum sizes without Massachusetts' support – a lack of support made clear from the outset. Federal minimum sizes lower than a state's sizes, combined with a federal requirement that fishermen keep all legal-sized fish, creates an impossible situation for fishermen. For example, a 19" cod caught in federal waters must be kept and landed, but Massachusetts (and other states) has prohibited the landing of 19" cod – until now. Despite *MarineFisheries'* strong objection to the reduced minimum sizes, we have had to adopt them.

Following a public hearing in late July, the Division and our Marine Fisheries Advisory Commission decided to, as a final rule, continue with the reduced sizes. However, this decision was not made lightly or without condition. The Division recommended and the Commission agreed that if by September 30 NOAA Fisheries has not provided a protocol for monitoring the length frequency of catch in the groundfish fishery to determine if a change in selectivity has occurred, i.e., fishermen are targeting smaller fish, then we will propose to reinstate the larger minimum sizes and hold hearings on that proposal. Both the Division and the NEFMC requested that the federal government explain how it will monitor the fishery to determine if fishermen's behavior changes in this manner. If this targeting occurs, even NOAA Fisheries admits there will be adverse long-term consequences for the fishing industry.

Dr. David Pierce, Deputy Director

River Herring Restoration on the Parker River

While cod may be the fish most easily associated with Massachusetts, river herring also hold an important place in the culture of the Commonwealth. Once found in nearly every coastal river in the northeast, river herring historically supported large commercial and recreational fisheries. As a forage fish, they also play a key link in the ecosystem between plankton and carnivorous fish, birds, and marine mammals. The term "river herring" encompasses two species, the alewife and the blueback herring, which are strikingly alike in appearance and ascend Massachusetts rivers for spawning at similar times in the spring. River herring are *anadromous* fish, meaning that their life history is split between freshwater – where spawning and juvenile development occurs – and marine environments, where they spend the remainder of their lives feeding and maturing. This evolved life history means that river herring depend on waterways being clear of obstruction for their migrations to and from spawning areas.

It's no surprise then that the decline of river herring populations dates back to the wide-scale damming of rivers during the Industrial Revolution. More recently, predation and climate have contributed to worse conditions, leading to closures in Massachusetts and many other states over the past decade. In 2012, the National Marine Fisheries Service (NMFS) evaluated the status of river herring for potential listing under the federal Endangered Species Act, but have yet to make a determination.

In light of these developments, *MarineFisheries* has increased our efforts to better manage and restore river herring populations in the Commonwealth. These efforts have ranged from employing new technologies, improving communications

DMF Staff Photo

Biologist Scott Elzy installing a radio tag antenna at the Parker River. Several antennas detect tagged fish as they climb the ladder.

DMF Staff Photo

Biologists Ben Gahagan and Scott Elzy tagging a river herring.

with river herring researchers and other partners, and rehabilitating degraded fishways. An excellent example of these activities can be found in the Parker River, on the North Shore of Massachusetts. Through the 1970s, the Parker hosted a robust run of river herring. Stories were told of the river turning silver with herring from the first dam at Central Street in Byfield up to Pentucket and Rock Ponds in Georgetown. By the early 2000s this run had diminished to the point where only a few thousand fish per year were ascending the ladder at Central Street and a handful, if any, were able to access the historical spawning habitat in Georgetown. Realizing what had been lost at this historic river, *MarineFisheries* initiated a broad program to restore the run at the Parker.

An initial survey in 2012 showed that fish passage was an issue on the Parker River. The river has six fishways that fish must pass in order to reach Pentucket Pond; however, many of these were old structures that had fallen into disrepair. During late summer 2012, *MarineFisheries* staff repaired leaking walls and floors as well as broken weirs on the first and third fishways of the river. This work was done in cooperation and with the assistance of the dam owners, including the Town of Newbury. With the cooperation of the dedicated volunteers of the Parker River Clean Water Association (PRCWA) and help from our sister-agency, *MassWildlife*, our staff removed beaver blockages that could also impede passage. This effort continues in 2013, with plans to rehabilitate the second, fourth, and fifth ladders in the river.

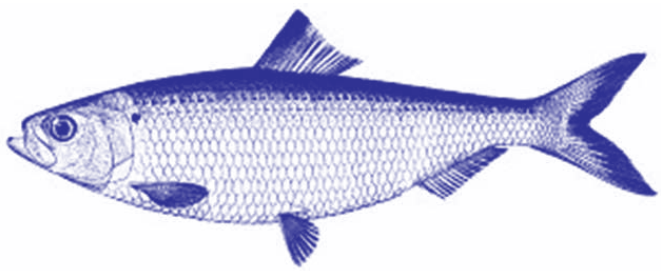
In addition to rebuilding the fishways, *MarineFisheries* has also invested in several technologies to improve understanding of how river herring are faring at the first dam. Starting in 2013, an electronic counter installed at the site counts fish around the clock and records when they pass, allowing biologists to not only get an accurate estimate of passage but also examine patterns in passage at daily and seasonal scales. This information can also be compared to visual counts performed by the PRCWA, helping gauge the accuracy of the visual count method employed by many volunteer groups across the Commonwealth.

Further, *MarineFisheries* is tagging fish below this fishway with small uniquely coded radio frequency tags. Antennas installed in the fishway activate the tags as they pass and record the unique codes along with the date and time. This allows us to determine the proportion of (tagged) fish that enter the fishway and how many of those that enter successfully climb the ladder and enter the freshwater portion of the Parker River.

Finally, after determining that river herring could no longer ascend to the optimal spawning habitat in Pentucket Pond, *MarineFisheries* captured spawning adults at the head of tide and transported them to the pond to help boost the number of spawning fish in future years. Trap and transport of mature adults is traditional methodology that has been employed by many agencies, with varying results. To help better understand the potential gains of trap and transport, *MarineFisheries* is working with researchers from UMass-Amherst to quantify the number of juveniles produced by trap and transport and answer important questions about genetic consequences that could influence restoration.

MarineFisheries has undertaken these river herring restoration efforts at the Parker River with a multitude of partners and the involvement of the community including private property owners, volunteers, municipal governments, and academic researchers. The vast interest in river herring underscores the widespread concern and importance of these small but integral fish.

By Ben Gahagan, Diadromous Fish Biologist



BIG Grant to Fund Transient Boater Slips in Lynn

Transient boaters will once again be able to find a safe berth in Lynn Harbor thanks to upcoming renovations at the City of Lynn's Seaport Landings Marina. Lynn will use a $267,700 grant from the Boating Infrastructure Grant (BIG) program to construct enhancements at the 155-slip municipal marina owned and operated by the city for the past 25 years. Seaport Landing has floating concrete docks and first class amenities including a fuel dock, laundry room, shower facilities, and a limited chandlery that make it attractive to both the full-time and transient boater. BIG funds will allow the city to undertake a project focused on creating a transient dockage area.

The proposed project will be suitable for a minimum of 12 recreational vessels ranging from 26 to 60 feet in length. The aging floating transient dockage area, known as C-dock, was damaged beyond repair during winter storms of 2012. The damage has made this area un-useable for transient tie up of vessels larger than 26 feet. Currently, there are no adequate public facilities within Lynn Harbor area for transient boaters to safely berth their boats. The 12 ADA accessible transient berths will fulfill this transient boating need while boosting tourism and business development in the area and continuing the effort to revitalize the Lynn Waterfront by attracting more activity.

Upon completion, this project will offer the recreational boater access to the city owned waterfront area including the adjacent Heritage State Park as well as nearby retail, cultural, historic, and recreational attractions and amenities. These improvements will effectively complement the city's efforts to tie the waterfront to its downtown. Area attractions include the historic art and entertainment district, gourmet restaurants, and shopping; yacht clubs offering marine seminars and safe boating courses; and North Shore Community College which hosts many local cultural events. The Seaport Landing Marina is within a short walking distance of the MBTA commuter rail in one direction, and Lynn Beach in the other direction, offering not only access to Boston with connections to Logan International Airport, but also panoramic views of the Boston skyline. Lynn Harbor is centrally located in Massachusetts Bay and is an ideal waypoint for boaters travelling the Atlantic coast between Cape Cod and Portland, Maine.

This project represents Massachusetts' first Tier II BIG grant. BIG is designed as a two-tiered grant program funded to improve access and amenities specific to boats 26 feet and longer over-nighting for up to 10 days at public and private boating facilities. Under Tier I, grants are available up to $100,000 per year to states. Tier II proposals (like that awarded to Lynn) can be much larger in scope and funding than those in Tier I and are judged in a highly competitive national process. Enhancing connections between water and land is a cornerstone of BIG. Therefore, access to communities, landmarks, recreational opportunities, and other significant historic and cultural destinations are considered in reviewing potential projects. Improvements may include construction and updating of transient slips, mooring fields, fueling stations, dingy docks, showers, and restrooms.

Administered locally by *MarineFisheries*, funding for the BIG program comes from boaters and anglers. More specifically, the programs are paid for with money from the Sport Fish Restoration and Boating Trust Fund which in turn is funded by excise taxes, import duties on recreational fishing tackle, and a small percentage of the Federal Gasoline Tax – an amount which represents fuel purchased by boaters across the nation. This innovative and successful "user-pay, user-benefit" concept is the result of the Sport Fish Restoration Act. The US Fish and Wildlife Service's Wildlife and Sport Fish Restoration Program (WSFR) administers these Trust Fund monies and assists states through annual appropriations and competitive grants. Congress created the BIG Program in 1998 through passage of the Fishing and Boating Safety Act to enhance transient boating and local tourism economies, while meeting specific needs of recreational boaters traveling long distances in large boats.

Public access to the water is the gateway to enjoying recreational boating and fishing activities that so many in Massachusetts enjoy. The BIG Program provides essential access with waterfront facilities and amenities catering to boaters that help keep these beloved activities thriving.

By Stephanie Cunningham, Federal Aid and Grants Coordinator

Photo: Lynnhappens.com

Lynn's Seaport Landings Marina has received a $267,700 grant for transient dockage improvements.

Photo: Cape Cod Commercial Fishermen's Alliance

Jeffrey Eldredge setting conch pots.

Changes in Commercial Whelk Regulations

MarineFisheries has moved forward with a series of new regulations that affect the commercial conch pot fishery for channeled whelk. These regulations were approved by the Massachusetts Marine Fisheries Advisory Commission at its May 16, 2013 business meeting. These regulatory amendments: 1) establish a standard procedure for measuring knobbed and channeled whelks and eliminate the undersized possession tolerance for these species; 2) prohibit the baiting of all pot gear, other than conch pots and eel pots, with horseshoe crabs; and 3) beginning in 2014, increase the minimum shell width for channeled whelk from 2 ¾ inches to 3 inches, through two consecutive annual ⅛ inch increases.

From 2010 to 2012, *MarineFisheries'* biologist Steven Wilcox engaged in a study of the conch pot fishery and channeled whelk resource. This was a groundbreaking life history study for this species drawing some startling conclusions. He found that throughout southern Massachusetts, female channeled whelks are not sexually mature at the current minimum shell width of 2 ¾ inches. Additionally, the resource conservation issues associated with allowing the commercial harvest of sexually immature whelks were exacerbated by an increase in fishing effort and landings over the past decade, a trend attributable to the decline of the Southern New England lobster stock and a substantial increase in the price of channeled whelks. The result of this convergence of factors is a substantial decline in channeled whelk abundance and increased reports from conch fishermen of areas that have become devoid of whelks. To address this, *MarineFisheries* took draft regulations to public hearing in April 2013 and is now putting into place the final regulations designed to enhance channeled whelk reproduction and hinder additional fishing effort from moving into the conch pot fishery.

The channeled whelk minimum shell width increase is the most critical component of these regulatory changes. The current minimum size, at which no female channeled whelk have reached sexual maturity, was established over 20 years ago based on market preference, rather than conservation. Now, with the Wilcox study, *MarineFisheries* can use size-at-maturity data to establish a biologically sound minimum shell width for this species. In fisheries management, the size where half of females reach sexual maturity often represents a reasonable minimum threshold for setting a biologically based minimum size. This study determined that about half of female channeled whelks reach sexual maturity at 3 ½ inches (there is some spatial variability, particularly in Nantucket Sound, where sexual maturity is reached at larger shell widths).

To begin bringing the state's minimum size to this standard, *MarineFisheries* is moving to increase the minimum shell width to 3 inches through two ⅛ inch per year increases beginning in 2014. Given that whelks grow about ¼ inch per year, this stepwise increase in the size limit will minimize negative impacts on landings. At the request of industry, further pre-arranged increases to the size limit were dropped from the immediate rule changes. Our biologists will continue to study size-at-maturity and if additional minimum shell width increases are necessary to safeguard against further depletion of this stock, they will be proposed in 2015.

These minimum size increases will apply only to channeled whelk (*Busycotypus canaliculatus*). Our recent size-at-maturity study did not address knobbed whelk (*Busycon carica*). Therefore, there are insufficient data to support an increase to the minimum shell width for this species. *MarineFisheries* does intend to extend our research to include knobbed whelk and, based on these findings, may propose size increases in the future.

To improve enforcement of the minimum size limit, *MarineFisheries* moved forward to eliminate a poorly-designed possession allowance for undersized knobbed and channeled whelks. Additionally, the Division developed and manufactured a new whelk measuring device, with the hopes it would become the industry's standard gauge. Over the past year, we have distributed more than 200 of these inexpensive but effective "slide" gauges to industry and Law Enforcement. As theses gauges are not adjustable, we will encourage industry to build a new version for each minimum size change. These actions should improve compliance with the minimum size.

Regulations to constrain additional entry of commercial fishing effort were also pursued. *MarineFisheries* is establishing a prohibition on the baiting of any pot, other than a conch pot or an eel pot, with horseshoe crabs. Horseshoe crabs are the preferred bait in the conch pot fishery, and *MarineFisheries* has found fishermen baiting their lobster traps or fish pots to attract whelk. In doing so, commercial fishermen could fish for whelks without a limited entry conch pot permit or could use traps designed to attract whelks in excess of the 200 conch pot limit. By prohibiting this activity, *MarineFisheries* hopes to constrain illegitimate fishing effort.

To control the influx of latent effort into the conch pot fishery, *MarineFisheries* proposed to retire all commercial conch pot permits that were not fished from 2007 to 2011. We have decided to set aside this proposal at this time. However, there was support from a broad contingent of conch pot fishermen to

DMF Staff Photo

The new whelk gauge has been well-received by the industry.

require the conch pot permit holder be onboard the vessel when commercial fishing is occurring. Therefore, *MarineFisheries* will take to public hearing a regulation to require that the conch pot fishery, as well as our other fish pot fisheries, be "owner/operator". This has been part of our long term strategic vision to maintain family run businesses in our coastal commercial fisheries. In the 1990s we implemented such a rule in the coastal lobster fishery and it has since helped to stabilize effort, improve compliance, and maintain the independently run, small boat dynamic of the coastal lobster fishery. We believe that such a rule will have a similar effect on our other commercial pot fisheries.

By Jared Silva, Regulations Coordinator

Diadromous Fish Runs in Massachusetts

The annual migrations of sea-run fish into Massachusetts coastal rivers were underway this past May. Movements into rivers this year were delayed by the cool spring weather, unlike the fast start to fish runs in the warm spring of 2012. By mid-May, we saw signs of strong runs of river herring in most regions of our coast. This followed the improvement in runs across our coast in 2012. The sight of large schools of river herring moving up against the flow is a thrill that never grows old.

River herring advocates are buzzing at the spawning run numbers seen this year at some locations. What's the excitement about? To name a few rivers, the Charles and Back rivers in the Boston Harbor region and Stony Brook and Monument River on the Cape had large runs of river herring, the likes of which haven't been seen in at least a decade. Are these growing numbers a result of the 2006 state-wide harvest ban, favorable environmental conditions, habitat improvements, federal and interstate strategic management efforts to reduce herring mortality, or a combination thereof? A third strong spawning run season will certainly boost this hopeful discussion.

MarineFisheries has also increased its focus to restore sea-run fish populations with help from a portion of funds from the state's new Recreational Saltwater Fishing Permit. Several new monitoring stations were deployed with project partners this spring to track river herring using video counting, electronic counting, and PIT (passive integrated transponder) tagging technologies. New video stations were launched with project partners in the Charles River, Watertown; Jones River, Kingston; and Nemasket and Mill rivers, Taunton. A fifth station is under development in Herring River, Harwich. A new electronic counting and PIT station was installed in the Parker River, Newbury while the Monument River counting station was upgraded with new counting technology. These additions will improve our capability to monitor population changes and demonstrate restoration success. The process will then be exported to other sites, gathering more data to better manage fish runs in the future.

MarineFisheries has had an active year monitoring other diadromous fish, like smelt and American eel, and collaborating on habitat and passage restoration projects. Unfortunately, smelt monitoring in 2013 raised long-term concerns over the populations' health as the lowest catches in our eight-year time series were experienced at most of our coastal river fyke-net stations. Also of immediate concern is the wave of illegal harvest of "glass" eels in our coastal rivers. Possession is banned of these juvenile American eel in Massachusetts, but high prices for the Asian export market has brought unprecedented poaching activity via the glass eel fishery in Maine, where harvest is allowed. *MarineFisheries* is working with state and local

DMF Staff Photo

An electronic counting array at the Parker River monitors the upstream passage of tagged river herring.

environmental law enforcement to understand and limit this illicit and damaging practice. Regarding fish passage restoration projects, the National Resources Conservation Service's Cape Cod Restoration Plan is breaking ground on two large-scale fishway projects this year, one in Cedar Lake, Falmouth and the other in Santuit Pond Dam, Mashpee. These state-of-the-art fishways and supporting infrastructure projects will improve passage efficiency and take these sites off the repair list for decades to come.

The big story this spring is the fish themselves and the excitement they generate. It is too soon to gauge the significance of the improvements we are seeing in several river herring runs in 2012 and 2013. This has not altered the growing number of people stopping to take in the mesmerizing view of river herring charging up a fishway, circling with grace in a resting pool, or frenetically spawning at the edges of ponds. Public perception of the value of these sea-run fish is changing; growing numbers can only help spur the stewardship that will keep them in a cherished role within our coastal culture.

By Brad Chase, Senior Biologist

Rainbow Smelt Spawning Habitat Restoration

Two projects in Massachusetts recently applied innovative designs to restore rainbow smelt spawning habitat. In Massachusetts, many of the streams used by these anadromous fish for spawning have been subject to urban development causing changes in water flow. The two following projects represent unique efforts to mitigate such changes; they are the first engineering model-based smelt habitat restoration projects in New England.

Weir River Smelt Habitat Restoration: The Foundry Pond Dam is located at the head-of-tide on the Weir River in Hingham. Historically, there was such high abundance of smelt at this site that excess eggs were routinely collected for stocking other rivers in Massachusetts. However, reconstruction of the dam during the late 1990s nearly eliminated all suitable smelt spawning habitat below the dam. Normally, fast-flowing riffles near the head-of-tide cue adult smelt to spawn. Adhered to the river bottom, smelt eggs need the swift water flow to keep the substrate clean, provide oxygen, and deter predators while they incubate for up to three weeks. The dam reconstruction resulted in a widened spillway that eliminated the riffle habitat that served as smelt spawning habitat for centuries. It also removed a vegetated island in the spillway.

DMF Staff Photo

***MarineFisheries* biologists monitor rainbow smelt spawning activity and habitat conditions at the Weir River restoration site.**

MarineFisheries hired the engineering firm, Gomez and Sullivan, to design a low-flow island for the spillway with spawning channels on either side providing suitable water depth, velocity, and substrate size for the fish. Gomez and Sullivan developed a hydraulic model to relate river flows to habitat conditions needed to support smelt life history. In the fall of 2012, with the Town of Hingham as a project partner, *MarineFisheries* hired SumCo, a construction firm with environmental restoration experience, to construct the new island and spawning channels. The job was completed in October with the plantings of 80 bushes and trees to provide habitat and cover on the island. *MarineFisheries* returned to the site this spring to monitor the response of smelt spawning and to document the habitat performance relative to the modeled predictions. Weekly monitoring provided encouraging results: the water depth and velocity in the spawning channels matched the design specifications. Moreover, spawning smelt demonstrated their approval, as smelt eggs were found throughout each channel.

Town Brook Smelt Habitat Restoration: Town Brook is a small coastal stream that flows through downtown Quincy, mostly through underground tunnels. The brook has a long history of degradation due to channel alterations, storm water pollution, and flood control flow diversions. Despite these hurdles, the brook maintains a run of rainbow smelt each spring. The City of Quincy and Street-Works Development are conducting a wide-scale redevelopment project in downtown Quincy that was permitted to move 1,700 feet of Town Brook from its present path. As a result of the *Mass*DEP permitting process, the project resulted in two specific efforts to improve smelt spawning habitat in Town Brook. First, a flow restoration plan was developed, under which *MarineFisheries*, Quincy (and project agents), and the state Department of Conservation and Recreation will conduct culvert and channel repairs to recapture water flow presently diverted away from smelt spawning habitat by the brook's flood control system. Construction for the flow restoration plan will begin in July 2013.

Second, the permissions to move Town Brook came with a requirement to uncover nearly 200 feet of brook and construct over 300 feet of spawning substrate. Similar to the Weir River Project, *MarineFisheries* provided specifications to the project's engineer, the Stephenson Design Group, who designed trapezoidal low-flow channels with riffle-pool sequences specifically for smelt spawning habitat. This project grew from a challenging permitting process to a cooperative restoration effort with support from all project partners and essential guidance from *Mass*DEP. Construction of the daylighted section and spawning channels was completed just before the smelt spawning season in March. Weekly monitoring is also occurring at this site. Monitoring to date has found suitable depth and velocity and smelt eggs deposited at each section of the new spawning substrate. Two additional years of monitoring will be conducted by the City of Quincy to confirm the spawning channels function as designed.

DMF Staff Photo

Substrate ideal for smelt spawning was included in the Town Brook restoration project.

These two restoration projects substantially increased the amount of available spawning habitat with high quality riffles designed for the nuptial pursuits of smelt. These improvements will provide immediate help to smelt population recruitment to the benefit of smelt fisheries and the marine environment of Massachusetts Bay. The irregular substrata of these habitats are expected to provide expanded spawning and nursery areas for other diadromous fish such as white perch, Atlantic tomcod and American eel. Monitoring the success of these novel projects will also provide valuable lessons for future efforts to improve rainbow smelt spawning habitat in coastal Massachusetts and elsewhere in their Western Atlantic range.

By Brad Chase, Senior Biologist

DMF Staff Photo

Right whale mother and calf in Cape Cod Bay.

Newborn Right Whale Calf Seen in Cape Cod Bay

The 2013 right whale season was one for the record books – it started early, brought lots of whales to the bay (over 200), and had a few surprises along the way. The biggest shock came from a whale named Wart, one of the most productive females in the North Atlantic Right Whale Catalog. In mid-January, she was seen in shallow water off Plymouth with a small calf, estimated to be two weeks old. Based on the estimated age, this calf was likely born in northern waters, possibly Cape Cod Bay - a far cry from the warm waters off Florida and Georgia where right whales typically give birth.

Most calves are born off the Southeast United States from December through March, but as Wart demonstrates individual whale behavior can vary. Historical records suggest that some right whales may have calved as far north as Delaware Bay. In the 1950s, Woods Hole scientists reported small calves appearing in Cape Cod Bay with mothers that had recently been seen without a calf. None of those early cases have photo-documentation to support them. There is, however, another recent and photo-documented instance of a right whale calf likely born in northern waters. That event occurred in May 2007 in the Great South Channel in relatively warm conditions (Patrician et al. 2009).

In the case of Wart and her calf, scientists were concerned about how the near-freezing January waters of Cape Cod Bay would affect the calf and its ability to thrive. We hoped to monitor them over the course of the season but Wart had other plans. The pair were sighted by a scallop boat off Race Point, Provincetown in late January and then disappeared.

Although the Provincetown Center for Coastal Studies conducted aerial surveillance in Cape Cod Bay during February and March, they never spotted Wart and her calf. Perhaps the two headed south to warmer waters. Finally in mid-April they were photographed off Plymouth by the New England Aquarium. Both appeared healthy.

This sighting of mother and calf may not have happened without the Provincetown Center for Coastal Studies disentanglement team. In May 2010, Wart was two years into an entanglement she couldn't shake. The disentanglement team was able to free her using a unique tool – a cross-bow flying cutter commercially available for turkey hunting that was modified so it would only slice deep enough to cut the rope, not the whale. The use of this innovative method was successful in cutting the rope, which eventually slid out of Wart's mouth. She swam away and was not seen again until showing up off Plymouth with her newborn calf. It is unlikely that Wart would have calved again without the sharp-shooting of the disentanglement team.

Literature Cited: Patrician, M. R., I. S. Biedron, H. C. Esch, *et al.* 2009. Evidence of a North Atlantic right whale calf (*Eubalaena glacialis*) born in northeastern U. S. waters. Marine Mammal Science 25:462–477.

By Erin Burke, Protected Species Biologist

New Commercial Quota and Trip Limits for Menhaden

Atlantic menhaden – a fish that has been called the most important in the sea due to its ecological role – are subject to new management measures in Massachusetts this year. All Atlantic coast states are implementing regulations to comply with the latest revisions to the interstate fishery management plan for menhaden to reduce fishing mortality. The revisions focus on the commercial fishery for menhaden as mortality from the recreational fishery is minor in comparison.

Amendment 2 to the interstate plan established the first ever coastwide commercial quota at a level representing a 20% decrease from the average landings in 2009 – 2011; the roughly 376.5 million pound coastwide quota is allocated to states based on each state's landings during that period. Virginia, where the sole remaining menhaden reduction plant operates, receives the lion's share of the quota, 85.32% or around 321 million pounds, of which no more than about 192 million pounds can be harvested from the Chesapeake Bay. The remaining states have allocations based on their contributions to the landings of menhaden for use as bait.

Massachusetts' share is 0.84% of the coastwide quota, or roughly 3.1 million pounds for 2013. Like all states, Massachusetts is required to 1) implement measures to close its directed fishery when its quota is harvested, 2) limit bycatch to 6,000 lbs after the directed fishery's closure, 3) ensure timely monitoring of the quota, 4) repay any quota overage in the following year, and 5) collect biological samples from a portion of landed fish.

Due to the implementation due date, *MarineFisheries* developed emergency regulations to comply with these requirements. In doing so, the Division considered the Commonwealth's

DMF Staff Photo

The ecologically important Atlantic menhaden.

landings history and the varied composition of the fleet. The landings in Massachusetts used to determine our allocation come from a fishery composed of four scales of operation: 1) large-capacity transfer vessels landings hundreds of thousands of pounds of menhaden per trip caught out of state waters that supply important commercial bait markets for lobster and other fisheries; 2) large purse seine vessels landing tens of thousands of pounds of menhaden per trip caught out of state waters that also supply commercial bait markets; 3) small purse seine vessels landing thousands of pounds of menhaden per trip from nearshore state waters that supply commercial and recreational bait markets; and 4) small-scale gillnet and cast net vessels landing hundreds of pounds of menhaden per trip for sale as commercial and recreational bait or kept for personal bait use.

With Massachusetts' quota representing a reduction from past years' harvest, unrestricted landings could cause early closure of the fishery. This would negatively impact menhaden harvesters as well as the commercial and recreational fishermen who use menhaden for bait. To prevent this, new permitting and trip limit rules were developed to control the landing of menhaden in the state. Only those operators with a new limited entry menhaden permit endorsement are allowed to land more than 6,000 pounds per trip. Only those operators with a history of landing more than 6,000 pounds of menhaden in a trip during 2009, 2010, or 2011 (the years upon which our allocation is based) or who hold a limited entry regulated inshore net permit endorsement authorizing the use of purse seine gear are eligible to receive this permit endorsement. Please note that these eligibility criteria are still under consideration and may change slightly in the final regulations that will take the place of the temporary emergency regulations. All other fishermen are restricted to landing less than 6,000 lbs of menhaden per trip during the open season.

To inhibit the limited entry fishery from too quickly consuming the quota, the menhaden permit endorsement holders are also restricted by trip limits that vary based on quota availability. The emergency regulations stipulated that the fishery open with no trip limit for menhaden permit endorsement holders, but once 50% of the quota is harvested, a 200,000-lb trip limit applies. Furthermore, when 85% of the quota is harvested, the limit is lowered to 6,000 lbs, essentially relegating the remaining quota to small vessels fishing in state waters. Further consideration of these trip limits, prompted by comment received during a subsequent public hearing, led the Division and Marine Fisheries Advisory Commission to select alternative quota trigger levels and trip limits that better reflect the objectives for seasonal longevity and historical user participation. The final regulations will establish a 125,000-lb trip limit for the limited entry fishery, which reduces to 25,000 lbs once 75% of the quota is taken, and then to 6,000 lbs once 95% of the quota is taken.

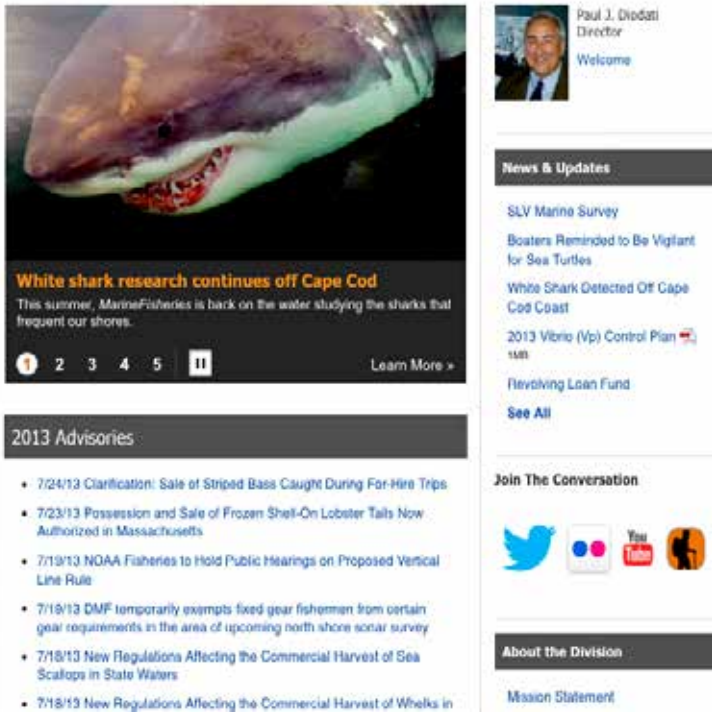
If the quota is fully-utilized, all directed fisheries close and menhaden may only be landed if it is less than 5% the weight of the entire catch being landed, up to 1,000 pounds. Bycatch landings of menhaden after the fishery's quota closure do not count against the quota.

As with other quota managed species, *MarineFisheries* uses dealer-reported data for quota monitoring. Dealers that buy directly from fishermen are required to report their purchases of menhaden (and all other species) on a weekly basis. In addition, because of the large capacity of some vessels expected to land menhaden in Massachusetts relative to the size of the Commonwealth's quota, new rules require the limited entry menhaden permit endorsement holders to also obtain a bait dealer permit and report their landings daily during the open season. Harvester records will also be monitored when submitted monthly for landings of menhaden kept for personal use (and thus not recorded by dealers).

The final regulations to permanently adopt these commercial menhaden management measures are expected shortly. Check the Division's website or the next newsletter for updates.

By Nichola Meserve, Policy Analyst

MarineFisheries has a new look...*on the web*



In early June, *MarineFisheries* – along with the Division of Fish and Wildlife, the Division of Ecological Restoration, the Office of Fishing and Boating Access, and the Department of Fish and Game – launched the new Division website. The website is consistent with the Mass.gov format, so things will look different but all the content is still there, plus more. Don't panic! Call or email us if you can't find the information you're looking for.

With the launch of the revised website, *MarineFisheries* also has entered into the social media realm. With YouTube, flickr, and twitter, *MarineFisheries* is reaching out to anglers and those interested in Massachusetts marine resources on a personal level. Visit, follow, and join the conversation. Each account is accessible through our website (***www.mass.gov/marinefisheries***) or by going directly to each social media webpage.

YouTube:
www.youtube.com/user/massmarinefisheries
Twitter:
www.twitter.com/massdmf
Flickr:
www.flickr.com/photos/mamarinefisheries

DMF Staff Photo

Deputy Director Dan McKiernan (far right) congratulates the 2013 Commonwealth Outstanding Performance award winners: (from the left) Vincent Malkoski, Steve Wilcox, Kelly Whitmore, Bob Glenn, Tracy Pugh, and Kerry Allard (not pictured: Derek Perry and Mike Trainor).

Accolades

In January, the Massachusetts Lobstermen's Association presented **Kerry Allard** and **Tracy Pugh** with Recognition Awards at the Association's 50th Annual Weekend and Industry Trade Show. Kerry, *MarineFisheries* permitting coordinator, was presented the award for her continued effort and support given to the commercial lobster industry of Massachusetts, particularly her assistance in applying for permit renewals and transfers, ordering trap tags, and understanding regulations. Tracy, *MarineFisheries* lobster biologist, was recognized for her continuing efforts with the goal of protecting the lobster resource of Massachusetts; Tracy coordinates the Division's lobster trap sampling programs and is conducting research on the reproductive biology of the American lobster.

Multiple *MarineFisheries* staff members were presented with a 2013 Commonwealth Citation for Outstanding Performance this July. **Kerry Allard** was recognized for her commendable customer service to the Commonwealth's commercial fishing constituents. A group award was presented to the Division's Invertebrate Fisheries Project staff, consisting of project leader **Bob Glenn, Vincent Malkoski, Derek Perry, Tracy Pugh, Mike Trainor, Kelly Whitmore, and Steve Wilcox**. The Invertebrate Fisheries Project is responsible for researching and monitoring commercially important marine invertebrates including American lobster, horseshoe crab, channeled whelk, Jonah crab, and northern shrimp. Project staff has demonstrated exemplary work performance, recently conducting ground breaking research on American lobster and channeled whelk that affected the management of these species.

Comings and Goings

Christopher Schillaci was recently hired as an aquatic biologist in the Division's Gloucester office. He is the field coordinator for the Boston Harbor Shellfish Enhancement Project, working to improve the presence of softshell clams in Boston Harbor through plantings and research. Part of Chris' time is spent in the Shellfish Depuration Plant in Newburyport, testing seawater and shellfish for bacteria and traceable chemicals. Chris began his time with *MarineFisheries* as a contracted technician in 2009. Before then, he worked on threatened/endangered shore bird and invasive plant management. Christopher holds a BSc in conservation biology from the University of Wisconsin at Madison. He is working towards his MSc in environmental conservation from the University of New Hampshire. Chris enjoys having a hand in creating novel management and enhancement techniques ensuring the health and sustainability of shellfish and their fishery in Boston Harbor.

Gulf of Maine Winter Flounder: "Q & A" on the Recent Commercial Trip Limit Increase

Late last year, *MarineFisheries* enacted regulations to increase the commercial trip limit for Gulf of Maine (GOM) winter flounder from 250 lbs to 500 lbs. This increase has aroused some curiosity as it comes when most groundfish harvest levels are being reduced throughout the northeast. We are providing this "Questions & Answers" fact sheet to better explain this action and its effect.

Q. Why did *MarineFisheries* increase the commercial trip limit for Gulf of Maine winter flounder?

A. For the 2012 fishing year (May 1, 2012 to April 30, 2013), the federal management entities, the New England Fishery Management Council and NOAA Fisheries, increased the total annual catch limit (ACL) for GOM winter flounder by 450% (from 231 metric tons in 2010 to 1,040 metric tons in 2012), in response to the finding that the fishing mortality rate was well below the threshold. Groundfish ACLs are allocated to federally permitted fishing vessels, with set-asides for state water vessels and other sub-components. So, concurrent with the large increase to the total ACL, the state waters set-aside of GOM winter flounder increased from 60 mt to 272 mt. This set-aside is meant to account for all commercially and recreationally caught GOM winter flounder caught by non-federal vessels, both commercial and recreational, in Maine, New Hampshire, and Massachusetts.

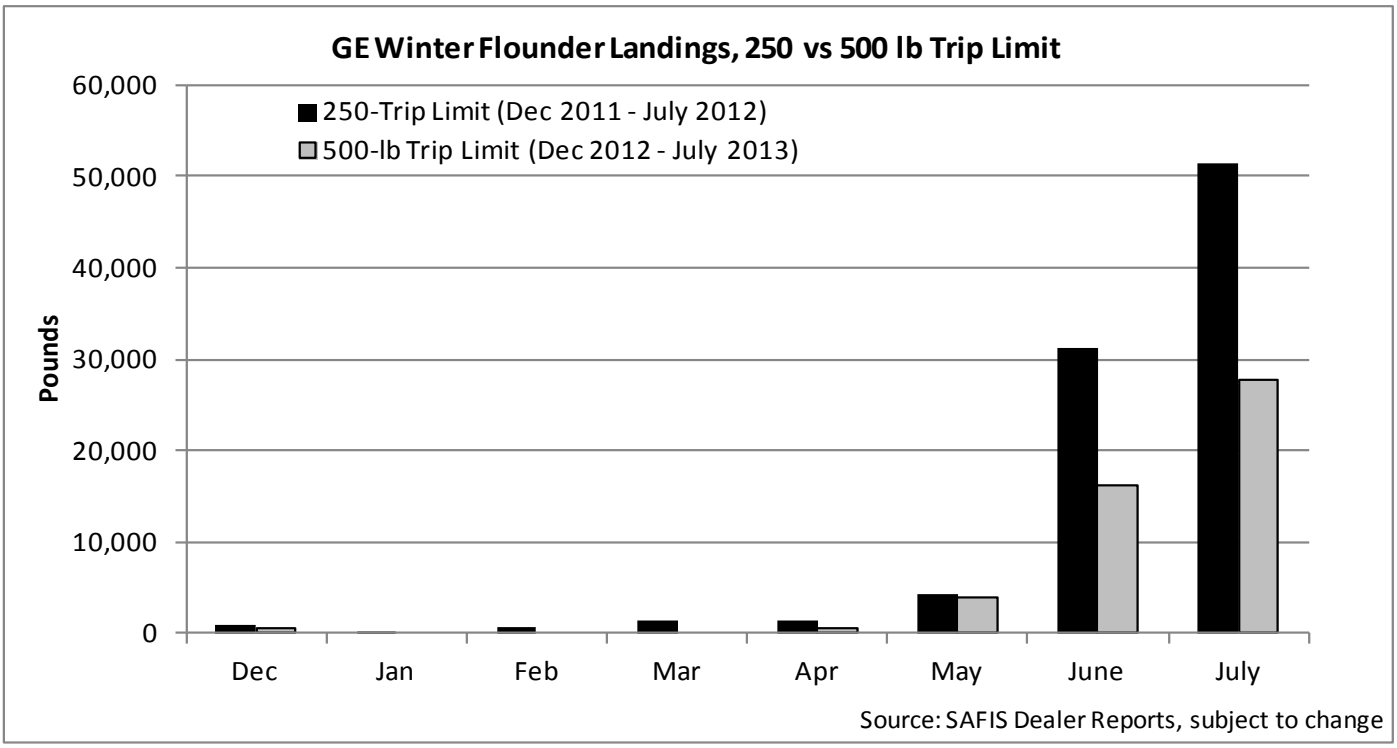
With the state waters commercial and recreational fisheries (ME – MA) landing well below the 272 mt set-aside in both 2010 (64.2 mt) and 2011 (113.3 mt), the interstate management entity, the Atlantic States Marine Fisheries Commission, saw fit to allow states to increase the commercial trip limit from 250 lbs to 500 lbs and eliminate the seasonal recreational fishery closures for state waters vessels. *MarineFisheries*, with the support of its citizen's board, the Marine Fisheries Advisory Commission, implemented these modest liberalizations to the commercial and recreational state waters fisheries, effective November 26, 2012.

Q. How many vessels does the state waters trip limit increase effect?

A. In Massachusetts, the 500-lb trip limit only applies to vessels that have a state groundfish permit endorsement (or GE) that authorizes them to fish for groundfish in state waters. New entry into the state waters groundfish fishery is closed and the number of GEs has declined each year as people retire from the fishery. Additionally, because these vessels are prohibited from also holding a federal groundfish permit to fish in federal waters, many vessels opted into the federal fishery rather than the state fishery when the GE was created in 2006. Furthermore, many GEs are not actively fished. In 2011 and 2012, only 50 and 47 GE holders landed GOM winter flounder, respectively.

These Massachusetts state water groundfish fishermen land only a fraction of the winter flounder caught. Federally-permitted vessels were responsible for 97.7% and 96.8% of all winter flounder landed commercially in Massachusetts ports in fishing years 2011 and 2012, respectively. Most federal groundfish vessels are exempt from trip limits through participation in sector management; currently, this exemption extends into state waters in the case of winter flounder. However, *MarineFisheries* plans to take this exemption to public hearing for reconsideration in the near future.

Regardless of whether a vessel has a state or federal groundfish permit, all are restricted in state waters by numerous seasonal closures, some gear specific and some all encompassing. For example, all of Massachusetts Bay is closed to groundfish fishing during April, May, October and November. More nearshore portions of Massachusetts Bay are also closed to groundfish fishing (except by longline) during February and March. Numerous designated inshore waters, including Boston Harbor, Quincy Bay and Hingham Bay are closed to trawls and gillnets year-round, with additional seasonal closures for these gears in Massachusetts Bay. Many of these closures help protect important spawning, nursery, and juvenile habitat for winter flounder.



Q. Have commercial GOM winter flounder landings increased since the 500 lb trip limit went into effect?

A. No. Take a look at the preceding graph which compares the GE landings of winter flounder (all stocks, although Southern New England landings are a minor component given the 50-lb trip limit for that overfished population component) between December 2011 – July 2012, when the GOM trip limit was 250-lbs, and December 2012 – July 2013, when the GOM trip limit was 500-lbs. Landings of winter flounder are actually down in each month! *MarineFisheries* will continue to monitor these landings; generally, about 95% of the GOM winter flounder landings by GE vessels occur between May and September.

Q. What is the outlook for the stock's recovery in inshore areas?

A. Evidence indicates that environmental conditions, rather than fishing, may be a larger driver of resource recovery in inshore areas. There have been major changes over the last few decades in the discharge of sewage in Boston Harbor including the cessation of sludge dumping (1991), the addition of secondary treatment (1997), and the piping of effluent to outside the harbor (2000). As a result, organic loadings to Boston Harbor decreased >90% during the period 1992-2000 (Diaz et al., 2008). The large decrease in organic material within the bottom sediments has resulted in significant changes in the benthic infauna community. While some of the observed changes such as greater species diversity are considered indicators of the increasing health of the benthic community, the overall trend has been a lowered overall abundance of benthic infauna over the last decade (Pembroke et al., 2012), resulting from lower productivity associated with decreased organic input and nutrients (in the form of sewage).

While Boston Harbor appears to be a healthier system for winter flounder to reside in, as evidenced by greatly decreased prevalence of skin ulcers and liver disease (Moore et al. 2012), their prey base has been lowered significantly compared to historic values as a majority of winter flounder's diet is composed of benthic infauna such as amphipods and polychaetes (Armstrong, 1995; Carlson et al., 1997). This likely means that Boston Harbor can no longer support the level of winter flounder abundance seen in 1960-1990. Therefore, our expectation is, with the cleansing of Boston Harbor, we will see a permanent decline in the availability of winter flounder as compared to decades ago.

Further, there is evidence from our inshore research trawl survey (1978-2012), that winter flounder are moving deeper as a species, likely in response to increasing water temperatures in shallow areas and coastal embayments. This long term survey demonstrates decreased catch rates in recent years in the nearshore, shallowest areas, and increased abundance in deeper waters further offshore. This will impact the availability of winter flounder to anglers fishing close to shore and in embayments such as Boston Harbor. The weight of the evidence therefore indicates that winter flounder, owing to reduced food availability and water temperature increases, will unlikely reach the level of abundance in Boston Harbor experienced in prior decades even when stock levels are considered healthy.

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MarineFisheries Staff Teach Spatial Mapping and Statistical Models To Fisheries Researchers

MarineFisheries staff held a workshop on spatial mapping and statistical models in program R at the agency's Annisquam River Marine Field Station in Gloucester, MA on March 6, 2013. Twenty-three fisheries researchers from *MarineFisheries*, the National Marine Fisheries Service in Woods Hole, the University of Massachusetts in Dartmouth and Amherst, and Applied Science Services of Kingstown, Rhode Island participated in the one-day workshop. The focus of this program R workshop was to map and model geo-referenced fisheries data. *MarineFisheries* biologists Brant McAfee, Micah Dean, and Dr. Gary Nelson co-taught the workshop. Brant McAfee reviewed basic concepts of cartography and showed participants how to use R to import GIS shapefiles and create basic maps. Micah Dean focused on annotating maps, importing and manipulating raster images, and animating time series of spatial data. Dr. Gary Nelson reviewed the use of generalized additive models to model spatial fisheries data and demonstrated how to plot model predictions as contours and color scales on maps and as 3-D images.

DMF Staff Photo

Brant McAfee lecturing on basic concepts of cartography.

DMF *Rules UPDATE*

Public Hearings • Regulations • Legislation

During the period of January 1, 2013 through July 15, 2013 the following regulatory changes were enacted by MarineFisheries after public hearings and Marine Fishery Advisory Commission (MFC) approval. Annual specifications and emergency regulations promulgated during this period are also listed.

American Lobster

To comply with the Interstate Plan for American Lobster, *MarineFisheries* increased the minimum size for lobster taken from Lobster Management Area 3 by 1/32 inch from 3 ½ inch to 3 17/32 inch. Additionally, *MarineFisheries* promulgated regulations that clarify all coastal and offshore lobster permit holders, regardless of gear type used, must declare the Lobster Management Areas they intend to fish in any calendar year and abide by the most restrictive regulations of the Lobster Management Areas declared.

Atlantic Sea Herring

The Director has declared that during the June 1 through September 30 period, vessels participating in the Atlantic sea herring fishery in Management Area 1 may fish for and land Atlantic sea herring 7-days per week. The ASMFC's Atlantic Sea Herring Section will meet again in late summer 2013 to review catch rates and may choose to adjust the number of open commercial fishing days to ensure bait availability during the fall months.

Black Sea Bass

To address on-going quota utilization issues in the commercial black sea bass fishery, *MarineFisheries* adjusted the commercial fishing regulations for black sea bass. Beginning in 2013, the commercial black sea bass fishery is closed from April 1 until the first Tuesday in August (the 6th for 2013) for all commercial anglers, potters and draggers. On that first Tuesday in August, the commercial black sea bass fishery will open with open fishing days on Sundays, Tuesdays and Wednesdays and a 300 pound daily trip limit for potters and a 150 pound daily trip limit for anglers and draggers. The weir fishery has been allocated a small 10,000-pound set aside and is exempt from season closures and closed fishing days.

On the recreational side, anglers may take four black sea bass per day from May 11 through October 31, at a minimum size of 14 inches. Additionally, eligible for-hire boats were authorized to opt into an exempted fishery which authorizes their clients to keep black sea bass in accordance with the 2012 bag limits (in excess of the 2013 bag limits), provided the exempted vessel does not take for-hire trips for black sea bass during specified closed periods.

Frozen Shell-On Lobster Tails

Governor Patrick and the Massachusetts Legislature approved legislation to amend M.G.L. c. 130 § 44. This amendment authorizes the possession and sale of frozen shell-on lobster tails that weigh in excess of 3 ounces. Accordingly, *MarineFisheries* has enacted emergency regulations to compliment the statute. All Massachusetts seafood dealers and food establishments may now sell this product and all consumers within the state may possess it for personal use.

Groundfish

On July 1, *MarineFisheries* promulgated emergency regulations to decrease the minimum sizes for certain groundfish species to complement federal changes; see the table below. The federal changes, pursuant to Frameworks 48 and 50, are intended to improve fleet efficiency and reduce regulatory discards. The state took a complementary action to allow the federal commercial groundfish fleet to continue to land their catch in Massachusetts. See Page 2 for more information.

Commercial Minimum Size Changes for Groundfish Species		
Species	Minimum Size Through 6/30/13	Minimum Size Effective 7/1/13
Cod	22 inches	19 inches
Haddock	18 inches	16 inches
Yellowtail Flounder	13 inches	12 inches
Witch Flounder (grey sole)	14 inches	13 inches
American Plaice (dabs)	14 inches	12 inches
Redfish	9 inches	7 inches

The federal action also increased the minimum size for haddock caught recreationally in the Gulf of Maine from 19" to 21" to limit the risk that recreational harvest in 2013 will exceed its target. *MarineFisheries* aligned state regulations.

In addition, *MarineFisheries* has promulgated regulations to complement federal rules by prohibiting the recreational possession and landing of ocean pout and windowpane flounder and liberalizing commercial monkfish possession limits.

Horseshoe Crabs

The May and June horseshoe crab lunar spawning closures have been extended to include the last two weeks of April (April 16th – 30th). These closures were initially implemented in 2010 and are five day closures that surround each new and full moon event, designed to protect spawning horseshoe crabs from commercial harvest.

Atlantic Menhaden

To comply with the Interstate Management Plan, Massachusetts has implemented a commercial quota, trip limits, and new permitting requirements for Atlantic Menhaden through emergency regulations. See page 9 for more information.

Northern Shrimp

The Director declared the 2012 – 2013 northern shrimp specifications. These specifications allowed commercial fishermen in the trawl fishery to land northern shrimp two days per week, beginning on January 22, 2013, with no trip limits.

River Herring and Shad

To reconcile state regulations with the Interstate Fishery Management Plan for River Herring and American Shad, a number of new regulations were implemented affecting the harvest of these species. With regards to shad, all rivers systems with the exception of the Merrimack and the Connecticut are now

catch and release only. For fishermen fishing on the Merrimack River, the Connecticut River or the tributaries thereof, an angler may retain up to three shad per day. As for river herring, new rules clarified that the river herring bycatch tolerance applies only to commercial bait fisheries conducted in federal waters. The harvest of river herring in state-waters is prohibited, as is the landing of river herring caught in the waters of other states.

Scup

In recent years, the state's commercial fishery has fallen short of its scup quota, which will remain at about 2 million pounds through 2015. To increase commercial landings, *MarineFisheries* liberalized the commercial scup regulations for pot fishermen and anglers, effective May 1, 2013. Commercial fishing regulations for mobile gear and weir fishermen remain status quo.

For commercial anglers and potters, during the period of May 1 – May 31, commercial trip limits for these gear types were increased from 800 to 1,500 pounds per day and were increased from 3-days per week (Sun/Tue/Wed) to 5-days per week (Sunday – Thursday). During the period of June 1 – June 30, which was previously closed to the commercial harvest of scup by potters and anglers, commercial fishermen using these gears may now land 400 pounds of scup per day, 3-days per week (Sun/Tue/Wed). Lastly, during the period of July 1 – October 31 (or quota) commercial fishermen may now possess 1,500 pounds of scup five days per week (Sun – Thurs), as opposed to 800 pounds.

On the recreational side, the bag limit was increased from 20 fish to 30 fish per angler per day and the minimum size was reduced to 10 inches. Additionally, the recreational for-hire bonus season was extended to include all of May and June; previously the season was May 11 through June 24. The bonus season bag limit remains at 45 fish per angler per day.

Sea Scallops

In 2011, *MarineFisherie*s established a series of permit conditions to establish trip limits and gear modification in the state-waters sea scallop fishery. These permit conditions were codified as regulation in July 2013. Commercial fishermen fishing with a sea scallop dredge must be using dredge rings with a minimum opening of 4" and twine top with a minimum inside diameter of 10" square or diamond. Additionally, commercial fishermen are prohibited from fishing in the federal zone without a federal permit, discarding live sea scallops in harbors or estuaries, or possessing or landing sea scallops meats in excess of 200 pounds or whole in-shell sea scallops in excess of 2,000 pounds. Federally permitted vessels may transit state-waters in possession of sea scallops that exceed state limits provided the gear is stowed and no fishing activity is occurring.

Spiny Dogfish

For 2013/2014, the Director has declared that the commercial spiny dogfish trip limit shall be 4,000 pounds per day, up from 3,000 pounds per day, as allowed by the Atlantic States Marine Fisheries Commission.

Striped Bass

Beginning in 2014, commercial striped bass permit endorsements must be applied for or renewed prior to March 15.

Summer Flounder (Fluke)

The recreational minimum size for summer flounder was decreased by ½ inch from 16 ½ inches to 16 inches. Commercial summer flounder regulations remain status quo for 2013.

Winter Flounder

MarineFisheries filed final regulations liberalizing the recreational and commercial harvest of winter flounder in the Gulf of Maine Management Area. The commercial trip limit was increased from 250 to 500 pounds per day. Additionally, the September 1 through October 31 recreational winter flounder closure was lifted, allowing recreational anglers to harvest winter flounder year round. Commercial and recreational fishing limits for winter flounder in the Southern New England Groundfish Management Area remain status quo.

Whelk

MarineFisheries implemented a series of regulations affecting the state's commercial channeled whelk fishery. Effective July 2013, it is unlawful to set any pot or trap gear that is baited with horseshoe crabs that is not a conch pot or an eel pot. Beginning in 2014, *MarineFisheries* will increase the minimum shell width for channeled whelk by ⅛" per year for two years. For 2014, the minimum shell width will be 2 ⅞" and in 2015 the minimum shell width will be 3". *MarineFisheries* will continue to study the channeled and knobbed whelk resource in Massachusetts and may propose additional minimum size increases. See Page 6 for more information.

Additionally, *MarineFisheries* is looking into requiring all conch pot (and other fish pot) permit holders to be on board their vessel when commercial fishing is occurring.

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INSIDE...

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http://www.mass.gov/marinefisheries

DMF NEWS

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MarineFisheries receives state and federal funds to conduct research, management and development of the Commonwealth's marine fishery resources. Information in this publication is available in alternative formats.

Deval L. Patrick, Governor
Richard K. Sullivan, Jr., Secretary, EEA
Mary B. Griffin, Commissioner, DFG
Paul J. Diodati, Director, *MarineFisheries*

Comments and suggestions for the newsletter are welcome. Please contact the Editors at (617) 626-1520, or write to:
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