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A Commonwealth of Massachusetts Agency

In Search of Groundfish Fishery Economic Relief

On November 15, 2011 Governor Deval Patrick submitted new economic analyses to the Secretary of Commerce in support of the Governor's original 2010 request for $21 million in direct economic relief to the Massachusetts groundfish fleet. The Secretary of Commerce had initially rejected the case made by the Commonwealth that the implementation of hard quotas and transition to catch shares has caused groundfishermen significant economic harm. The Commonwealth found the dual implementation of sectors and hard quotas resulted in many fishermen (about 50%) unable to break even, i.e., expenses exceeding revenues, given their recent years' groundfish landings.

The Governor's recent response relied on a cooperative state/federal break-even analysis of the groundfish fishery by *MarineFisheries*, the UMass-Dartmouth School for Marine Science and Technology (SMAST), and NOAA Fisheries, and on *MarineFisheries*' "Comparative Economic Survey and Analysis of Northeast Fishery Sector 10" detailing losses for that specific South Shore groundfish sector. Both the "Break-Even Analysis of the New England Groundfish Fishery for Fishing Years 2009 and 2010" and Sector 10 report may be found on the *Information Publications* page of the *MarineFisheries* website: ***www.mass.gov/marinefisheries***.

In his response, Governor Patrick said: "As NOAA's own data confirms, the Massachusetts groundfish fleet is experiencing a significant and rapid consolidation, imperiling our historic and economically important commercial fishing industry. DMF's report details $11 million in losses across 12 of the 17 sectors and the common pool. When the additional information available from NOAA's 2010 Performance Report, DMF's Sector 10 Analysis, and the Break-Even Analysis are taken together, the total disaster assistance needed for Massachusetts fishermen approaches the $21 million in our original request."

The Commonwealth stands ready to work with NOAA Fisheries to develop a transparent and expeditious plan for disbursing any federal fishing disaster fund to assist those in need. As of this writing, the Secretary of Commerce has not formally responded to the revised disaster request. However the Commonwealth can report that a federally-funded Massachusetts Commercial Fisheries Revolving Loan Fund is being launched to aid smaller operations in the groundfish fishery.

The New Year has come and gone, and the prognosis for the groundfish fleet is even grimmer, only furthering arguments in favor of the Governor's request. Recently discovered through an independently reviewed Northeast Fisheries Science Center (NEFSC) stock assessment was a very unexpected and disappointing 2012 outlook for Gulf of Maine (GOM) cod. Instead of the anticipated rebuilding of GOM cod to its biomass target by 2014, we find ourselves with a stock bordering on collapse.

What accounts for this shocking change in events? Early indications are that the 2005 year-class (young produced in 2005) was overestimated by an astonishing amount. Thought to be strong (24 million age-1 fish) when last

	2007 Estimate of 2007 Status	2011 Estimate of 2007 Status	2011 Estimate for 2010 Status	2011 Reference Point Estimate
SSB	33,877 mt	10,714 mt	11,868 mt	Stock is overfished if SSB < 27,124 mt
F on Ages 5-7	0.46 (33% stock removal)	0.68 (45% stock removal)	1.11 (62% stock removal)	Overfishing is occurring if F > 0.23

Comparisson of spawing stock biomass (SSB) and fishing mortality (F) estimates from 2007 and 2011 Stock Assessments for Gulf of Maine Cod.

DMF Staff Photo

A low or nonexistent GOM cod quota could prevent fishing for other species, due to the multispecies nature of the fishery.

assessed at the Groundfish Assessment Review Meeting in 2007, this year-class, at 5 million fish, now appears to be just 1/5th of its previously calculated size. The fishing mortality and spawning stock biomass information reported for Council action in 2007 was also much too optimistic (see table).

The NEFSC now concludes, against the assessment's revised biological reference points, that GOM cod is far below the biomass threshold and we cannot rebuild the overfished stock to its target before the current deadline of 2014. Overfishing is now concluded to be occurring; in fact, fishing mortality appears to be at a historic high.

These conclusions about the status of GOM cod are controversial in part because, if the results stand, the 2012 GOM quota will plummet and with it the shares of cod held by fishermen enrolled in groundfish sectors. Non-sector fishermen (in the common pool) and recreational fishermen would also find their pool of fish drained to a puddle. With GOM cod being the mainstay of the GOM groundfish fleet, we project that far fewer fishermen would break-even and the fishery would undergo even more undesirable consolidation, that is, many more fishermen would sell their permits or lease away even more or all of their allocations. Importantly, without enough cod in their catch portfolios, fishermen would not be able to fish for other groundfish they've been allocated because cod also would be caught.

Considering the seriousness of this situation for our commercial and recreational fisheries in the Gulf of Maine and the Governor's request for federal relief, *MarineFisheries* and SMAST, through their collaborative Massachusetts Marine Fisheries Institute (MFI), are taking a closer look at the new GOM cod stock assessment. This examination of scientific data and assumptions not addressed in the assessment itself has been requested by Senator John Kerry and supported by Governor Patrick.

Hoping to work with the NEFSC on what NOAA Fisheries Administrator Eric Schwaab has recognized as an extraordinary situation, the MFI expects to offer some scientific advice, not to confuse the situation, but possibly to reveal a way to minimize the otherwise dire consequences of the GOM cod assessment on the groundfish industry in the Commonwealth and New England.

By David Pierce, Deputy Director

Boston Harbor Softshell Clam Enhancement and Outreach

During the spring of 2011, *MarineFisheries* undertook a sixth year of enhancement and monitoring of softshell clams (*Mya arenaria)* in Boston Harbor. The work is part of *MarineFisheries*' Boston Harbor Softshell Clam Enhancement Project. Through decades of environmental degradation, disease, poor larval recruitment and overfishing, these populations have reached a critical tipping point. The enhancement project's goal is to ameliorate this decline through a joint venture between the commercial harvesters, harbormasters, shellfish constables, conservation commissions, and Salem State University's Northeast Massachusetts Aquaculture Center. Due to the hard work and dedication of this cooperative group, over six million seed clams have been planted in almost four hundred enhancement plots at

DMF Staff Photo

Volunteers plant seed clams and place predator-exclusion netting on top at Thompson Island this past August.

28 sites in five communities around Boston Harbor. After a two-decade decline in softshell clam landings from Boston Harbor, *MarineFisheries* and its partners hope this project will help restore the fishery back to a robust, sustainable seafood source, protecting current jobs and encouraging future industry growth.

Clam enhancement is accomplished by distributing juveniles (known as "seed") across the mudflat. The seed are then covered with netting to prevent crabs, waterfowl, and other clam-predators from feasting on the ½ inch sized clams. These nets remain entrenched in the intertidal sediment through the first summer and fall seasons; they are removed in early winter before ice sets in to protect the nets for re-use the following year.

These planted clams serve as a broodstock, reproducing and contributing millions of larvae to nearby mudflats. After three years, the enhanced plots are opened to controlled commercial harvest. Harvestable shellfish flats within the harbor are classified as Conditionally Restricted for shellfishing due to mild contamination to the water quality. Clams harvested from these restricted areas must undergo a purification process called depuration prior to consumption. When the areas are open, only softshell clams may be harvested by specially-licensed commercial harvesters (Master and Subordinate diggers), then transported directly to the *MarineFisheries*' Shellfish Purification Plant in Newburyport for depuration prior to sale to a seafood dealer.

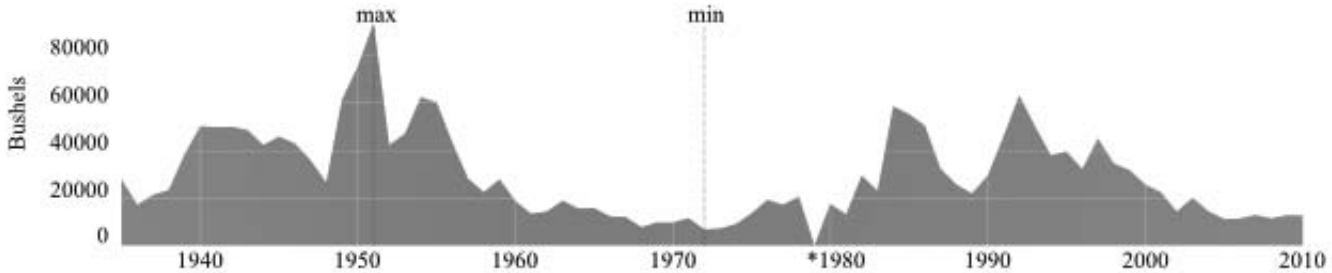
This enhancement project has expanded over the last six years, from strictly planting and monitoring softshell clams, to become a common ground for diverse stakeholders to collaborate to protect the long-term commercial and biological sustainability of shellfish resources in Boston Harbor.

In the case of softshell clams, not just the fishery is impacted when stocks decline; clams serve as an important food source for a number of recreational and commercial fish species in Massachusetts including winter flounder, striped bass, and horseshoe crabs to name just a few. This type of bottom-up enhancement should benefit the hundred specially-licensed commercial shellfish harvesters in Boston Harbor, while helping to improve the greater harbor ecosystem.

With the goal of educating local communities on the historic and current role shellfish play in the ecology and economy of Boston Harbor, the project welcomed three new partners during the summer of 2011. Thompson Island Outward Bound, the City of Boston, and the National Park Service joined with *MarineFisheries* to develop and implement a pilot outreach initiative based at the Thompson Island Outward Bound Education Center. Building upon Boston Harbor Island Alliance's educational programs, last summer's project brought volunteers from surrounding communities to the intertidal mudflats to participate in educational talks and hands-on activities led by *MarineFisheries*, Park Service staff, and local researchers. To continue Outward Bound's tradition of students mentoring students, UMass-Boston undergraduates and park service staff—under the direction of the enhancement project's biologists—trained Boston high school students to lead volunteers in the seeding of softshell clams. The highlight of the summer program occurred in August when volunteers and leaders from multiple environmental advocacy groups, state agencies, and the Enhancement Project partners planted over 100,000 softshell clams on the flats surrounding Thompson Island.

The success of this past summer's educational collaborative has sparked plans to continue and expand the outreach initiative into the future. This winter, Park Service volunteers and *MarineFisheries* biologists will venture out to the clam flats of Thompson Island to remove the predator-exclusion netting. Then this upcoming summer, Outward Bound campers and visitors to the island will have the opportunity to join in monitoring the progress of the seeded clams. Participants will learn to sample and measure clam shell lengths and determine growth and survivorship of planted clams, as well as identify and quantify other invertebrates within the plots. It is our hope that through outreach projects like these, residents and visitors of Boston Harbor communities will not only learn about the biology, ecology, and local fishery of softshell clams but will become the stewards of the future.

By Christopher Schillaci, Fisheries Technician and Gregory Bettencourt, Aquatic Biologist



DMF Staff Graphic

Total annual bushels of softshell clams depurated at the Newburyport Shellfish Purification Plant. Note the recent decline starting in the early 1990s. (*) Data missing for 1979.

Development of a Low Cost, Underwater, Self-Closing Cod-End

MarineFisheries' Conservation Engineering Project has developed and tested an innovative and inexpensive self-closing cod-end (the back-end of a trawl where fish collect after entering the net) that activates once the desired amount of fish is caught. The design grew from an initial concept by Gloucester-based trawlerman Dan Murphy, captain of the F/V *Bantry Bay*, who was concerned about catching too many fish and exceeding his individual quotas. With support from NOAA Fisheries, his idea was further developed in cooperation with regional fishermen, net makers, and the School of Marine Science and Technology (SMAST) at UMass-Dartmouth.

Introduction

Federal groundfish fishermen like Capt. Murphy are under new pressures to avoid exceeding their allowable catch limits for target and non-target species. Catches of all groundfish species are subtracted from quotas whether discarded or landed. Limited catches of "choke species" that have very small quotas or large catches of more abundant species can lead to premature termination of both the vessel's and fellow sector members' fishing year or to the expensive acquisition of additional quota.

High concentrations of fish can present a challenge to fishermen operating under catch limits. With the rebound of many fish stocks, fishermen often encounter unexpectedly large catches which can even create a safety hazard for the vessel due to the bulk. To avoid catching large fish concentrations, tow durations have often been shortened. However, shorter tows mean more work, increased costs, and a demanding knowledge of fish distribution patterns.

Acoustic catch sensors are an increasing popular, high-tech solution to avoiding large catches by signaling real-time catch information to the vessel's wheelhouse. However, these sensor systems are beyond the financial means of much of the local fishing industry and do not solve the problem of large fish concentrations that fill the net's cod-end very quickly, other than to suggest a speedy retrieval.

Our innovative self-closing cod-end gives peace of mind by predetermining the net's total catch limit. Fishermen can continue towing without wasted time and fear of catching too much fish, prematurely ending their fishing season. All additional fish that have not been captured in the cod-end are directed out of the net with little or no injury.

The prototype for the self-closing cod-end was designed and built by netmaker Jon Knight from Superior Trawl, located in Narragansett, RI. Testing on land and at sea on the F/V *Bantry Bay* was guided by scientists from *MarineFisheries* and SMAST. The resulting prototype is successful and brings together inexpensive, existing, and familiar technologies in an original way.

Description of Technology

The concept is simple: the expansion of a filling cod-end causes the release of a line that allows the lower portion of the cod-end to fall back and cinch shut, allowing additional fish in the net to escape. The process has three steps:

1. Cod-end Expansion: A "trigger line" encircling the cod-end is pulled tight as fish collect in and expand the cod-end. The trigger line encircles at the approximate location of the desired volume of catch. The catch volume is adjustable and proper trigger line placement is easily learned and changed.

2. Cod-end Release: The trigger line pulls open a trigger (a spring loaded door bolt) which releases the "zipper line" holding together the upper and lower cod-end sections. Once released, the lower cod-end falls aft. A parachute is also released by the opened trigger; the parachute opens from water pressure increasing the drag, alerting the vessel that it is time to retrieve the net, thus eliminating excess tow time and fuel usage.

3. Cod-end Cinch: As the lower cod-end falls aft, it is closed by "cinch lines" connected to the upper cod-end. The upper cod-end remains open and any fish forward of this section can escape; fish in the lower cod-end are trapped. Once hauled and emptied, the self-closing cod-end can be reset in approximately three minutes

This design can easily be adapted for use on any groundfish or pelagic otter trawl. It is easy to modify an existing standard cod-end (square or diamond mesh) into a self-closing cod-end. Modification of an existing cod-end or new construction of a self-closing cod-end is inexpensive, especially compared to an acoustic catch sensor system.

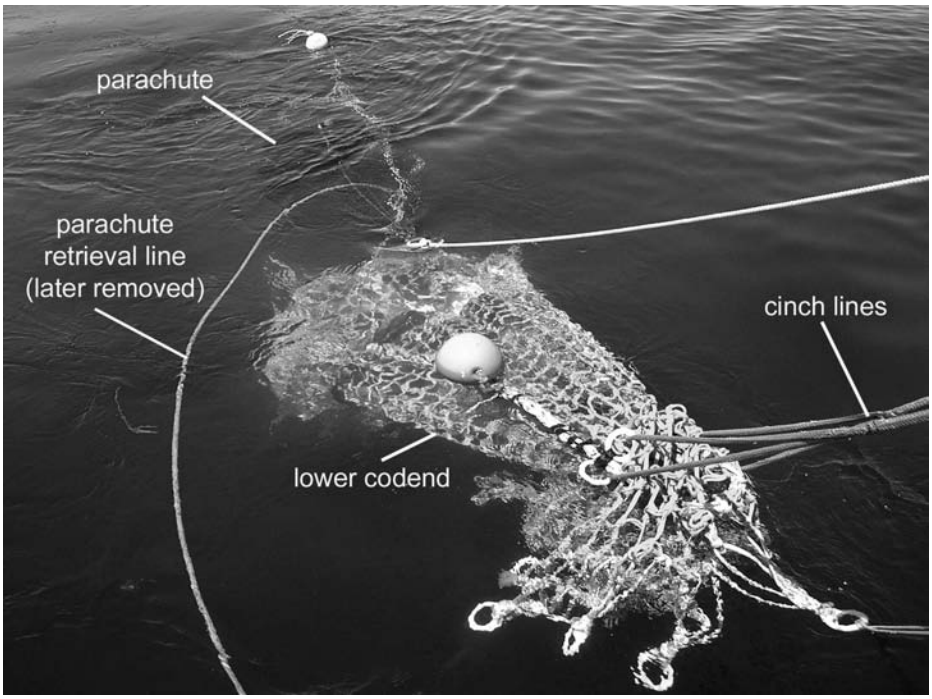
Completed Research

Our initial testing shows that the self-closing cod-end works. After the prototype construction, testing was conducted on dry land at Superior Trawl by suspending the cod-end from a crane and filling a large bag in the bottom of the cod-end with water to simulate catch.

We later field tested and fine-tuned on-board Capt. Murphy's vessel in June and July, 2011; underwater video was acquired on 15 tows. We found good repeated separation of the cod-end when enough fish were caught; when too little fish were caught, the cod-end stayed open underwater.

DMF Staff Photo

Jon Knight (left, Superior Trawl) and Dan Murphy (F/V Bantry Bay) inspecting the self-closing cod-end suspended from a crane truck.



DMF Staff Photo

The lower cod-end after separation from the upper cod-end. The lower cod-end is held on by the cinch lines. The parachute is deployed and open.

We used a square mesh cod-end in our testing; diamond mesh expands more than square mesh and should work even better. The parachute also deployed as expected. However, it was not large enough to create the necessary drag to alert the vessel that the cod-end sections separated. We believe this problem could be easily resolved by using a larger parachute.

Next Steps

The self-closing cod-end concept has captured many people's imagination and the design has evolved quickly. Following our early success, we intend to cooperate with others in the industry and expect a further evolution of the cod-end to an even simpler, improved design, perhaps with a larger parachute. Flume tank testing might also be conducted to verify the cod-end's performance reliability and to further refine its design. You are encouraged to contact David Chosid (***david.chosid@state.ma.us***) or Mike Pol (***mike.pol@state.ma.us***) with questions or ideas.

By David Chosid, Aquatic Biologist, and Mike Pol, Conservation Engineering Project Leader

The Massachusetts Saltwater Recreational Fishing Permit

Fishermen will recall the Commonwealth's recreational saltwater fishing permit requirement was implemented in 2011 to comply with a state law (Saltwater Act) prompted by a federal mandate. The reason for permitting is to improve estimates of saltwater fishing effort and catch data. The fee for the permit was set at $10, although free for those recreational fishermen 60 years and older. Based on stakeholder feedback, a dedicated saltwater recreational fishing fund was established, ensuring a "user-pays, user-benefits" program; meaning that all fees collected from the sale of the recreational saltwater fishing permits can only be used on approved marine recreational fishing programs. As required by the Saltwater Act, the Marine Recreational Fisheries Development Panel was created to assist *MarineFisheries* in crafting annual spending plans. The Saltwater Act further expands on the use of funds, requiring that 1/3 of all annual appropriations are dedicated to recreational saltwater fishing infrastructure projects in Massachusetts, ensuring better access to coastal fishing.

Residents of the Commonwealth 16 years and older must possess a Massachusetts Recreational Saltwater Fishing Permit to fish from shore or a private vessel in MA coastal waters. The permit also covers fishing in federal waters and Maine, and in those states that we have entered into reciprocity agreements with, including New Hampshire, Rhode Island, and Connecticut. Non-residents can obtain a non-resident permit for the same price or may be authorized under their state's permit to fish in MA. An individual is not required to have the permit when fishing under the authority of a properly permitted for-hire vessel (charter or head boat).

Last year, Massachusetts saltwater recreational fishermen were introduced to our new permit application called *MassFishHunt*. The system was developed with contractor ActiveOutdoors, and was originally only available to customers over the internet or through one of our permitting offices. During the year we made permitting available at many of the area sportsmen's shows and also added a phone option. Starting in 2012, the Massachusetts Recreational Saltwater Permit will be even easier to obtain as we bring on permitting agents throughout the state. So far, over 100 agents have begun to issue this permit and the list of authorized agents continues to grow. To see if your local bait & tackle shop, town hall, or large retail outlet has signed up to be one of our vendors, check the *Permit/License Vendor* map on the recreational fishing page of our website at ***www.mass.gov/marinefisheries***. If you have any questions about obtaining the permit, please call our main permitting office at 617-626-1520.

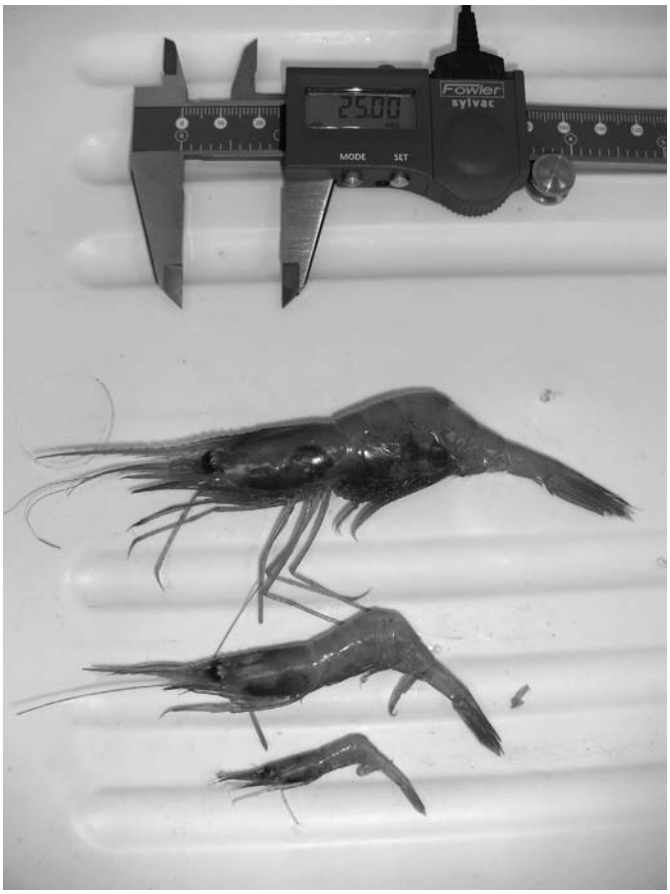
Overall, most anglers found the process for obtaining a permit straightforward. Although compliance with the new permit has not yet been fully realized, *MarineFisheries* believes the first year of the new program was very successful with the issuance of 125,777 private angler permits and 911 for-hire permits. 87% of angler permits were issued to residents of the Commonwealth, and 25% were issued free of charge to seniors. The total revenue added to the Marine Recreational Fisheries Development Fund was $1,051,301, which includes almost $40,000 in donations from 3,600 individuals. The Recreational Development Panel has endorsed a spending plan for the funds in 2012, which includes but is not limited to: construction of a sport fishing pier in the Bass River, Yarmouth; expanded and enhanced sampling of the recreational fishery; additional public informational and educational materials; and stocking and monitoring of diadromous fish populations. With each year of permit issuance, *MarineFisheries* will be able to do more to improve your recreational fishing experience in Massachusetts!

By Kevin Creighton, Chief Financial Officer

Outlook: Northern Shrimp

In October 2011, the Atlantic States Marine Fisheries Commission (ASMFC) approved Amendment 2 to the Interstate Fishery Management Plan (FMP) for Northern Shrimp. The Amendment modifies fishing mortality reference points to include a threshold level, incorporates a more timely and comprehensive reporting system, and allows for the initiation of a limited entry program to be pursued through the adaptive management addendum process. Importantly, the Amendment provides greater flexibility in managing the fishery, as the Northern Shrimp Section may now specify options such as trip limits, trap limits, and days out of the fishery by gear type. The Section may implement these strategies when designating the season, upon harvest triggers, or at anytime during the fishing season to slow catch rates in order to prolong the harvest of the target total allowable catch (TAC).

The newly added management tools were timely in preparation of the 2011/2012 fishing season, as the 2011 northern shrimp stock assessment showed that the stock is currently overfished and overfishing is occurring. Fishing mortality (F) is estimated at 0.68, above the F target, threshold, and limit. Biomass is estimated at 6,500 mt, below the biomass threshold of 9,000 mt and close to the biomass limit of 6,000 mt. The FMP specifies that if the fishing mortality exceeds the limit level and biomass is less than the threshold level, the Section must act immediately to reduce fishing mortality.



DMF Staff Photos

Northern shrimp (*Pandalus borealis*) are protandric hermaphrodites, maturing first as males and then as females. Stages shown include male, female I (immature), and ovigerous female II (mature with eggs).

Improved market conditions in recent years have led to substantial increases in effort and participation, contributing to significant overharvests and early season closures in both the 2009/2010 (28% above harvest limit) and 2010/2011 (48% above harvest limit) fishing seasons. Although landings were relatively high for the past two seasons, prospects for the 2011/2012 fishery are poor. The 2011 shrimp resource survey showed a much lower than normal abundance of large females and juveniles, with the remaining males and females being small for their age. Shrimp catches in 2012 are expected to be composed primarily of unusually small 4-year old female shrimp.

For the 2011/2012 fishing season, the Section implemented a reduced harvest limit of 2,000 mt with three landing days each week. The fishery opened on January 2, 2012 with landing days on Mondays, Wednesdays, and Fridays and with days out on Tuesdays, Thursdays, Saturdays, and Sundays. Vessels are allowed to land once per day on an authorized landing day and are prohibited from catching or retaining northern shrimp on a day-out. The Section reconvened on January 19, 2012 to assess landings and determined to increase the target TAC to 2,211 mt to help maintain market stability.

The 2011/2012 fishery will remain open until 95% of the allowable catch is taken (2100 mt). The trap season will start February 1, 2012 with a 1,000 lb landing limit per vessel per day (and no days out). In Maine, the Department of Marine Resources implemented additional effort control measures, whereby the trawl fishery is limited to fishing (deploying gear) during certain day-light hours on open days.

Preliminary reports from the season's first week indicate favorable market prospects, with dealers paying about $1 per pound in Massachusetts, New Hampshire, and Maine.

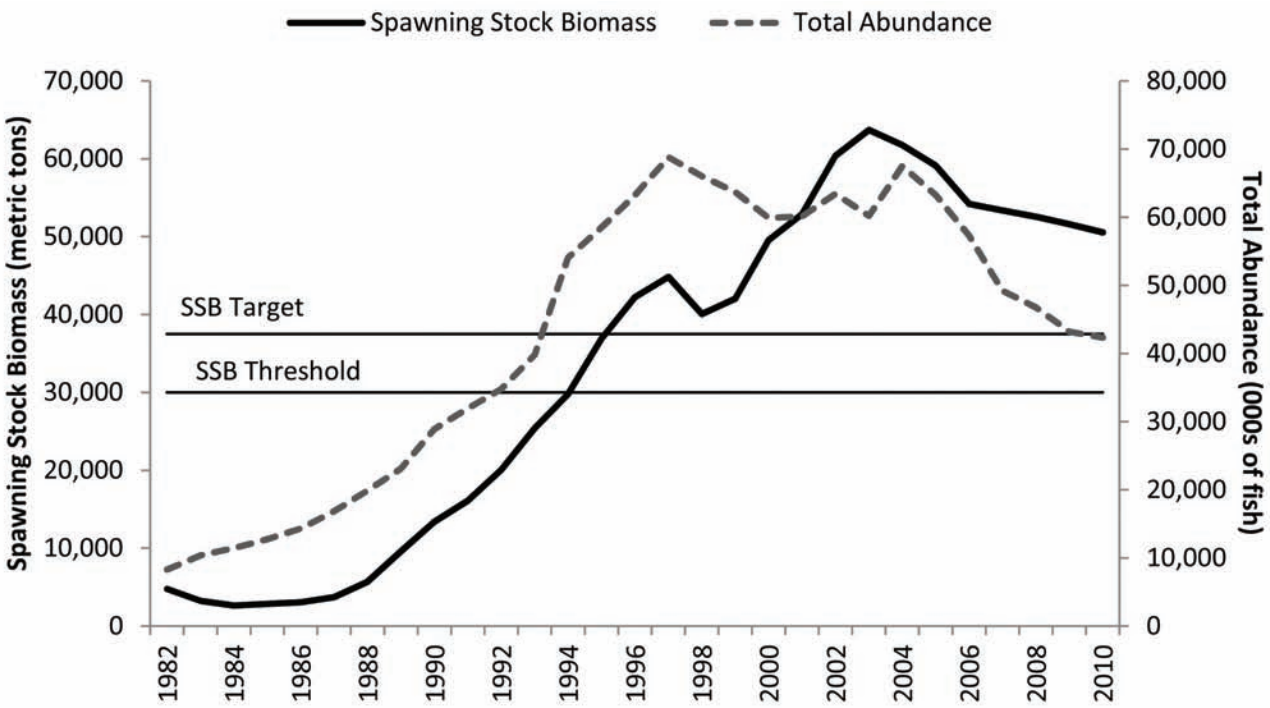
The northern shrimp fishery is jointly regulated by Massachusetts, New Hampshire, and Maine through the ASMFC's Northern Shrimp Section. A peer review benchmark stock assessment is scheduled to occur in 2013 where estimates of natural mortality and other biological reference points will be evaluated.

By Kelly Whitmore, Biologist

Outlook: Striped Bass

This past November, updated stock status information on Atlantic striped bass was released by the Atlantic States Marine Fisheries Commission, which oversees interstate management of the resource from Maine through North Carolina. The updated information revealed that the population continues to be not overfished or experiencing overfishing based on the biomass of reproductively mature females in the population and the rate of fishery removals. Additionally, Commission members from Maryland and Virginia reported that their states' research surveys had found above average production of young-of-year striped bass in 2011 from the Chesapeake Bay, the species major spawning ground.

This is very good news, but it is unlikely to dispel concerns about the ongoing decline in total abundance of striped bass. Since 2004, abundance estimates have waned from over 67 million fish to less than 43 million fish in 2010, a 37% reduction. This is troubling to Massachusetts' recreational anglers who have experience a 64% decline in catch during the same period. The decline in abundance is a product of below average juvenile survival in multiple years



DMF Staff Graphic

The Atlantic States Marine Fisheries Commission's 2011 stock assessment of striped bass indicates that the coastwide population is not overfished (based on spawning stock biomass), yet total abundance has declined steadily since 2004.

prior to 2011, meaning that, while the reproductive population is sufficiently large, not enough spawned eggs or larvae are surviving to replace those fish being harvested or dying from other causes. If this trend continues, spawning biomass is projected to dip below the target and threshold levels before the end of the decade, triggering mandatory management measures.

So, are more stringent management measures needed? *MarineFisheries* Director Paul Diodati thinks so, but a majority of the Commission's members voted against taking options to reduce fishing mortality out to public comment, and voted instead to await results of the next stock assessment in 2013. The 2011 stock assessment's favorable results and news about 2011 juvenile production, plus the Striped Bass Technical Committee's input that the poor juvenile survival is not related to fishery rules, appears to have been enough to convince them to delay action. Diodati however argued that taking action now to reduce fishing mortality by a small amount would act as a counterbalance to the poor young-of-year success and prevent having to take more significant cuts a few years down the road.

The bottom line is that the management plan remains unchanged, and Massachusetts is unlikely to take action unilateral of the Commission. Past experience has taught that doing so can sometimes lead to a state not getting credit for voluntarily implementing more conservative rules than required under the interstate plans. Coastwide management changes in response to stock status will not be considered again intil 2013 unless the Commission reverses its earlier decision to delay any action until the next stock assessment.

In the mean time, we can all hope that the 2011 year class is as big as thought, and wait the three or more years that it will take for those fish to start seasonally migrating to coastal Massachusetts waters. Massachusetts recreational anglers, which land over five times more striped bass than the quota-controlled commercial fishermen, can do their part to reduce mortality by limiting their harvest to only what they need to eat (within the two fish daily limit) and by using fishing gear and techniques that minimize mortality of released fish. These include using circle or barbless hooks; being attentive to your line(s) and setting the hook quickly; gently removing the hook with the fish still in the water or with wet hands; and minimizing fight time. Additional responsible angler practices are available through the Division's website: ***www.mass.gov/marinefisheries***.

By Nichola Meserve, Policy Analyst

DMF Staff Image

Non-off set circle hooks (right) reduce the incidence of deep-hooking compared to J-hooks (left), and thus increase the likelihood that a released fish will survive.

Outlook: Fluke, Scup, and Black Sea Bass

As usual, fluke, scup, and black sea bass are three species which *MarineFisheries* will have late-breaking regulatory changes for in 2012, particularly the recreational fishery. This is a factor of the complicated design of the joint federal and interstate plans established for the three species. Here is where we currently stand on measures for 2012.

Fluke

In December 2011, NOAA Fisheries formally declared that the rebuilding program in place for summer flounder (fluke) since 2000 has been successful. Fluke are not overfished; moreover, the spawning stock biomass (SSB) target of 132.4 million pounds was reached in 2010. However, the updated assessment that this information was based on also revealed we were overfishing in 2011, thereby jeopardizing the rebuilt status.

As a consequence, the Mid-Atlantic Fishery Management Council (MAFMC) and Atlantic States Marine Fisheries Commission (ASMFC) revised the total allowable catch for 2012 that they had originally selected in August prior to having the new assessment information. Instead of the 7% increase from 2011 that was expected, the amended 2012 commercial quota of 13.14 million pounds and recreational harvest limit of 8.76 million pounds represent 24% decreases from the 2011 levels.

The commercial quota decrease will negatively affect Massachusetts' commercial fluke fishery, which receives 6.8% of the coastwide commercial quota. With a Massachusetts commercial quota of ~1.16 million pounds in 2011, our fishery did not face a premature closure, and landed just under the quota. The 2012 quota of 868,226 pounds will likely prompt an early closure to the summer inshore fishery, similar to 2010 when the commercial quota was 846,667 lbs.

This decreased recreational limit will not have a negative influence on the recreational fishery in 2012 because estimated 2011 coastwide landings (through wave 5) were 5.61 million pounds, less than half the harvest limit. In Massachusetts, where we had in 2011 a 17.5-inch minimum size, 5-fish possession limit, and open season of May 22 through September 30, our state landings of ~43,000 fish were also far below the target of 187,000 fish. Options to liberalize our recreational fishery will be offered up for public comment later this winter.

Scup

The numbers for scup adopted by the MAFMC and ASMFC in August were also amended in December based on a recent scup assessment update. While scup is not experiencing overfishing and is not overfished (in fact, the stock is more than twice the biomass target), several factors including a 24% reduction in the overfishing level, indications of lower recruitment in recent years, and new uncertainty created by the switch of federal survey vessels, prompted the MAFMC and ASMFC to select a commercial quota of 27.91 million pounds and a recreational harvest limit 8.31 million pounds. Instead of the 86% and 66% increases to the commercial quota and recreational limit selected in August, the 2012 targets are only 37% and 45% higher than in 2011, respectively.

In addition to this increase in allowable landings in 2012, both the commercial and recreational fisheries were below their allowable landings in 2011. This means that both our fisheries will have an opportunity to increase harvest in 2012. On the recreational side, *MarineFisheries* is developing options to capitalize on a substantial liberalization for the northern region (Massachusetts through New York). Our recreational measures in 2011 varied according to private angler and charter/party boat fishing with the seasons spanning from May 15 through September 26, size limits of 10.5 or 11 inches, and 10 or 40 fish bag limits.

Black Sea Bass

The MAFMC and ASMFC did not revise, in December, the commercial quota and recreational limit they had adopted in August. Managers selected a 2012 commercial quota of 1.76 million pounds, the same as implemented in 2011 (the quota is actually 1.71 million pounds after subtraction of research set-aside). For the recreational fishery, the MAFMC and ASMFC selected a limit of 1.36 million pounds (1.32 million pounds after RSA is subtracted). The 1.32 million pound recreational limit is 28% below the 2011 limit (1.84 million pounds) to account for management uncertainty.

Massachusetts 2012 black sea bass commercial quota, therefore, will be the same low amount as in 2011 (222,440 pounds). *MarineFisheries* continues to disagree with this low quota because the stock is not overfished and overfishing is not occurring. In fact, as with scup and fluke, we are rebuilt to the target biomass (111% of target), and unlike in many states, black sea bass are more abundant in our waters during spring/summer/fall due to a northward shift in its distribution. Nonetheless, at this time, *MarineFisheries* does not intend to recommend any changes to our black sea bass commercial measures that vary by gear type (fish pots, weirs, trawls, and hooks) and "season."

Recreational fishery measures for 2012 have not been decided. The ASMFC interstate plan only provides for coastwide measures, an undesirable situation for most states, thus one-year state-specific and regional options are being vetted in Draft Addendum XXII to Amendment 13 (similar to as done for 2011). The draft addendum is available for public comment through February 5, with the ASMFC Management Board scheduled to approve a final document on February 8. Massachusetts does not intend to hold a public hearing. All the options would present Massachusetts with the ability to maintain its 2011 regulations or to liberalize slightly. Massachusetts' 2011 regulations included a 14-inch minimum size, 10-fish possession limit, and an open season from May 22 – October 11.

By David Pierce, Deputy Director, and Nichola Meserve, Policy Analyst

DMF Staff Photo

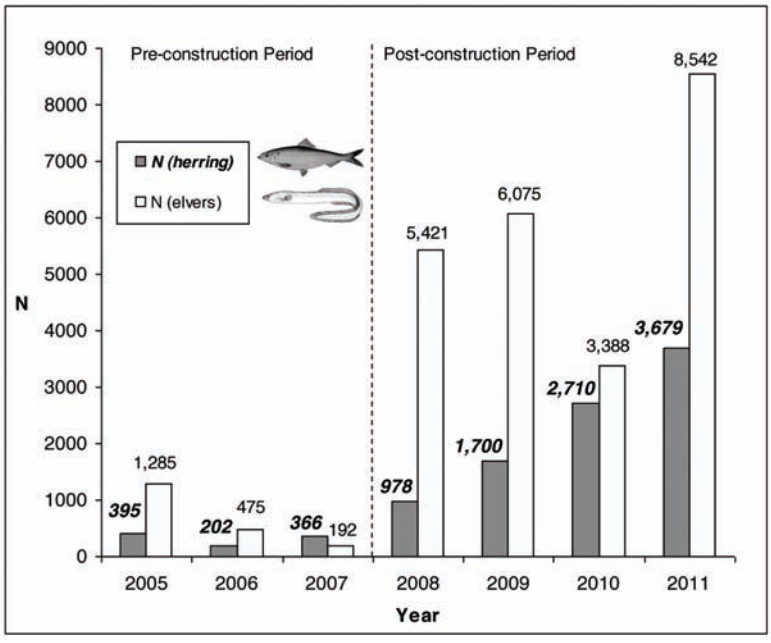
Recreational anglers are expected to benefit from more liberal scup and fluke regulations in 2012.

DMF Staff Photo

The Acushnet Sawmill Dam prior to (2005; left) and after (2007; right) construction of the stone step pool fishway.

MarineFisheries Completes Monitoring Study on Diadromous Fish Restoration in the Acushnet River

The Acushnet River, located in Bristol County, Massachusetts, has been the focus of much diadromous fisheries restoration work. Until recently, diadromous fish populations, which migrate between fresh and salt waters, had been impacted by the presence of three barriers to passage along the river: Acushnet Sawmill Dam, Hamlin Street Dam, and New Bedford Reservoir Dam. There is great potential for increasing the size of the area's existing river herring population because of the 220 acres of spawning and nursery habitat in the headwater impoundment. Prior to 2007, very few river herring managed to negotiate the dams successfully to reach the reservoir to spawn.



DMF Staff Graphic

Population estimates of river herring and elvers prior to and after construction of the Acushnet Sawmill and Hamlin Street fishways.

A joint effort lead in part by *MarineFisheries* has focused on fish passage improvements to restore river herring (alewife and blueback herring) and American eel populations to the river. Restoration efforts began in 2002 with the construction of a state-of-the-art Denil fishway at the New Bedford Reservoir Dam. Efforts continued in 2007 with improvements to fish passage at the two downstream obstructions (Acushnet Sawmill Dam and Hamlin Street Dam), in which both sites were fitted with innovative nature-like fishways. These structures effectively eliminate the obstruction created by a dam without removing the dam itself. Only a few exist on the east coast and these were the first of their kind constructed in the Commonwealth. The projects, with a combined cost of approximately $1.5 million, were a cooperative effort of *MarineFisheries*, the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, and the New Bedford Harbor Trustees Council.

In anticipation of these projects, *MarineFisheries* initiated alewife stocking at the New Bedford Reservoir from 2000 through 2005 in order to accelerate the recovery of this population. A total of 22,000 spawning adult alewives were released into the headwaters during this period. To measure the success of the fish passage restoration activities, *MarineFisheries* was awarded a seven-year grant by the New Bedford Harbor Trustees Council to monitor and study river herring and juvenile American eel (elver) populations. Monitoring began in 2005, prior to construction of the Sawmill and Hamlin Street fishways, and continued post-construction until 2011.

MarineFisheries accomplished its monitoring goals with a combination of census counting for river herring and abundance estimation for elvers. Adult river herring returning to the reservoir from 2005 through 2007 (the pre-construction phase) were low (less than 400 herring per year) and elver counts declined significantly (from 1,285 in 2005 to 192 in 2007) during this period. Post-construction monitoring results indicated an increasing trend of spawning adult river herring (from 978 in 2008 to 3,679 in 2011) as well as increased numbers of elvers returning to the reservoir (from 5,421 in 2008 to 8,452 in 2011).

These results suggest that the fish passage improvements to the three dams on the river are successful and have significantly improved passage for both juvenile

DMF Staff Photo

MarineFisheries technicians Kelly Kleister (left) and Andrea Petrella conduct census monitoring of river herring prior to releasing them into the New Bedford Reservoir.

American eels and river herring. The nature-like fishways are also expected to have benefited the migratory needs of other fish species (such as white perch) while providing improved spawning habitat for rainbow smelt. With uninhibited access to the spawning habitat in the reservoir and headwaters, it is estimated that these diadromous populations will increase significantly. The monitoring results provide encouraging signs that progress is being made towards healthy populations of diadromous fish to the Acushnet River system.

Results from this long-term study have been presented at National Conferences including the 66th Annual Northeast Fish & Wildlife Conference in 2010 and the National Conference on Engineering & Ecohydrology for Fish Passage in June 2011. Although funding for this work has ended, the results from the monitoring study have been highly encouraging. Because of this, we hope to continue monitoring these populations in 2012 and beyond to further document the success of these restoration efforts.

By John Sheppard, Anadromous Fisheries Biologist

DMF Staff Photo

The Hamlin Street Damn was fitted with a nature-like fishway in 2007.

Massachusetts Agencies and Municipalities Launch River Herring Network

River herring have long held an important role in the culture, ecology, and economies of coastal towns in Massachusetts. A myriad of factors has contributed to the statewide (and coast-wide) declines in river herring populations in recent years, ultimately leading *MarineFisheries* to impose a state-wide moratorium on the sale and possession of river herring in 2006. Many citizens dedicate their time to protecting the rivers and ponds these fish spawn in. Along the Massachusetts coast, there are numerous herring run maintenance and restoration projects as well as local counting groups which enhance monitoring and recovery efforts. These projects are coordinated by the *MarineFisheries* Anadromous Fisheries Program with river herring wardens, herring committees, watershed organizations, volunteers, and private groups. The work done does not just benefit river herring populations; it also supports the protection of coastal habitats. Wardens and their assistants (through authority granted by MGL Chapter 130, Section 94) have worked closely with *MarineFisheries* over the years to create local regulations, identify and rectify obstructions to fish passage, and develop water quality monitoring programs.

As a means to further support herring wardens in their stewardship role, the River Herring Network was created to encourage communication among wardens and those that work with them, and document the natural and cultural history of the herring runs in Massachusetts. With guidance and contributions from *MarineFisheries*' Anadromous Fisheries Program, the Network manifests its mission through a website that serves as an online forum for herring wardens and river herring enthusiasts to communicate about their runs, learn from each other, locate and access *MarineFisheries* assistance and other government resources, develop collaborative projects, and stay up to date on news and regulations. The website was formally launched at the Network's first annual meeting in October 2011.

The network was originally conceived and championed by Jeff Hughes, the herring warden for the town of Wellfleet. It got its formal start in January 2011 with generous funding from the Massachusetts Bays National Estuary Program, the Cape Cod Commercial Hook Fishermen's Association (CCCHFA), and the Cape Cod Conservation District. The network consists of a project team which seeks review and input from a steering committee composed of town wardens, and personnel from town natural resource departments, the CCCHFA, Cape Cod Conservation District, Massachusetts Bays Program, *MarineFisheries*, and the NOAA Restoration Center.

The River Herring Network acts as a resource to further strengthen communication and cooperation between government agencies and municipalities, learn from mistakes and successes on other runs, increase our long term ability to address river herring resource management issues, and work together to achieve the recovery of the river herring runs in Massachusetts and New England. To learn more, visit the River Herring Network website at ***http://www.riverherringnetwork.com/***.

By John Sheppard, Aquatic Biologist; Jeff Hughes, Wellfleet Herring Warden; Abigail Franklin, Cape Cod Conservation District; and Melissa Sanderson, Cape Cod Commercial Hook Fishermen's Association

New Acoustic Tags and Receivers Reveal Migration Secrets

Do the large striped bass found on Stellwagen Bank come into state waters or do they stay offshore, protected from being caught? Do Atlantic cod return to the same site to spawn every year? And if so, when and how long do they stay there?

These questions and many more are currently being answered by *MarineFisheries* through the use of newly improved tagging technology.

Acoustic telemetry is the method used to track animal movements with the use of acoustic transmitters (tags) and listening devices (receivers). It is extremely effective at allowing scientists to study an animal's behavior, migration patterns, and responses to different environmental or man-made cues.

The technology for acoustic telemetry has been around for decades, but recent equipment advances have created new research opportunities. Historically, aquatic telemetry required researchers to manually track tagged fish with a hydrophone. This was labor intensive and not always possible. Now, battery-operated receivers, with internal memory, can be deployed in the field to store detection data until downloaded. Batteries in both the tags and receivers last much longer, and receivers currently have the ability to store over one million detections. Tag technology has also come a long way. Options of tag size and detection range have significantly increased, allowing scientists to study fish as small as a river herring or as big as a white shark. Tags now also have the ability to transmit sensor data such as depth, temperature, and swim speed directly to the receivers.

In 2008, *MarineFisheries* invested in an acoustic telemetry system manufactured by the Canadian company VEMCO. It was purchased to study striped bass and Atlantic cod; however, other species such as horseshoe crabs, sandtiger sharks, and white sharks are also being studied with the equipment. Due to the versatility of the telemetry system, it will afford *MarineFisheries* the ability to study many other species and expand on current studies well into the future.

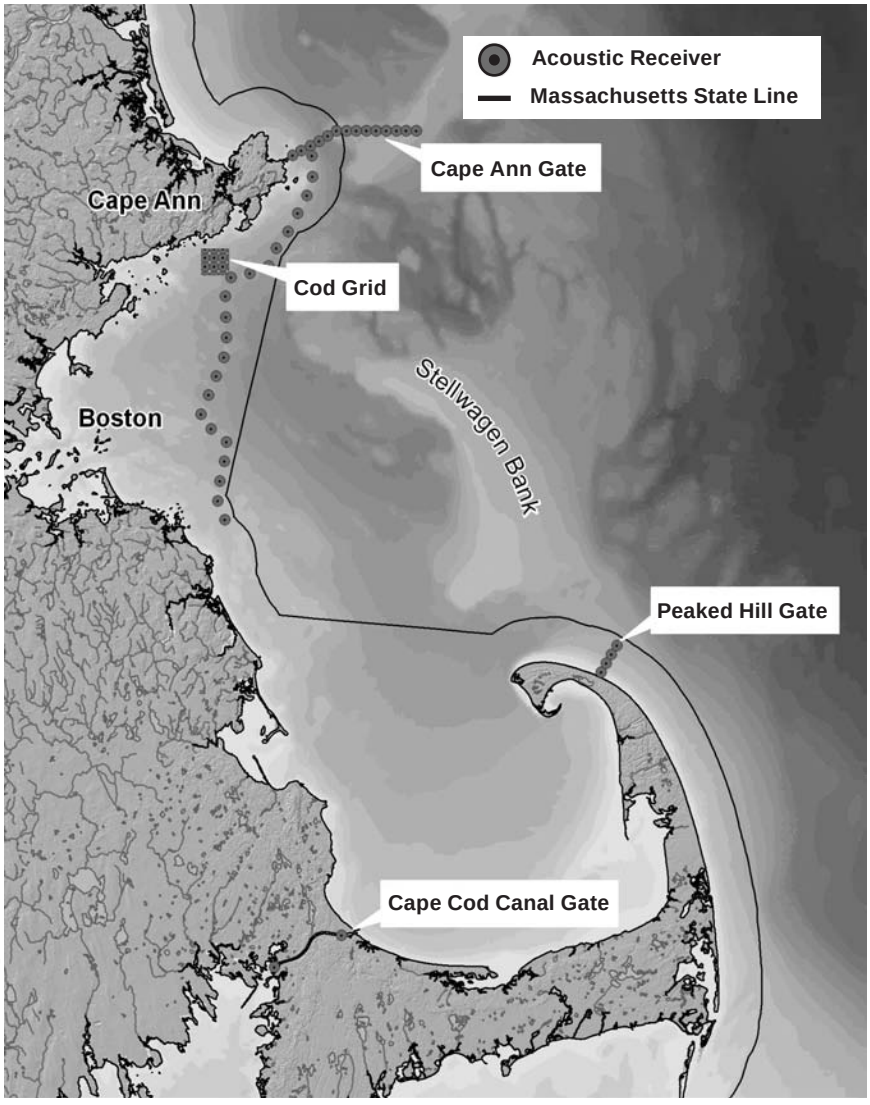
Striped Bass

Every summer large striped bass can be found gorging on schools of sand eels, mackerel, and herring in federal waters off of Massachusetts. Federal fisheries regulations prohibit the retention or targeting of striped bass by recreational and commercial fishermen outside of state waters, making all of federal waters a refuge for striped bass.

Tagging studies have documented the seasonal latitudinal (north-south) movements of striped bass along the eastern seaboard; however, the inshore-offshore (longitudinal) movements are not as well known. This information gap has an impact on regulations as managers must rely on public perception and anecdotal information to assess the effectiveness of regulations. In an effort to increase information about the longitudinal movements of striped bass off of Massachusetts, *MarineFisheries* initiated a study designed to monitor the movements of fish tagged on Stellwagen Bank and determine if and when the fish move into state waters.

Beginning in 2008, *MarineFisheries* deployed an array of 36 receivers that extended from the eastern tip of Cape Ann south to Scituate, plus 8 more receivers in southern locations off of the backside of Cape Cod and in the Cape Cod Canal (see map). During the spring of 2008 and 2009, we caught 128 striped bass in federal waters on Stellwagen Bank and surgically implanted acoustic tags. The batteries in each tag will last for over three years, so the study is still ongoing, but data are being received and processed. While formal analysis will continue over the next couple of years, researchers are already finding interesting trends in migration.

Anyone that has fished in the Cape Cod Canal, also known as "the ditch", knows that during the spring and fall migration, schools of large bass can be observed riding the tide through the canal, freely eating plugs and bait that land in their path. The acoustic receivers in the canal have confirmed that it is a major conduit for bass migration. During the spring months, 74% of the tagged fish which were detected moving north, use the canal for northward migration. Comparatively, only 35% of the detected fish use the canal when moving south in the fall. In addition, approximately 58% of the fish tagged on Stellwagen Bank



DMF Staff Graphic

Map of DMF's acoustic receivers.

DMF Staff Photos

An Atlantic cod photographed after an acoustic tag (inset photo) was implanted. Note the sutures and "spaghetti" tag protruding from the fish.

were detected entering state waters, indicating that these fish, at some point of their migration, are available to recreational anglers.

Atlantic Cod

Over the past several years, *MarineFisheries* has been monitoring an actively spawning subset of Atlantic cod aggregating every spring in Massachusetts state waters. This formerly lesser-known aggregation was becoming general knowledge to local recreational fishermen. As reported catch rates and the average size of cod harvested from the aggregation began to decrease, it became clear that the fishing pressure was excessive and *MarineFisheries* took action to protect these fish. The concern was that if action was not taken, more recreational anglers would become aware of the location and exploitation would continue or expand. This would have resulted in further disruption and depletion of this discrete spawning aggregation.

To protect the spawning aggregation *MarineFisheries* delineated the area and prohibited the harvest of cod by both recreational and commercial fishermen. This closure, named the Spring Cod Conservation Zone (SCCZ), begins on April 16th and extends through July 21st. A similar closure was initiated in 2003, called the Winter Cod Conservation Zone (WCCZ) which runs from November 15th through January 31st. The SCCZ closure is much smaller (approximately 17 square miles) and located further north in Massachusetts Bay than the WCCZ (approximately 115 square miles).

The SCCZ has offered a unique opportunity to study the biological characteristics of a group of spawning Atlantic cod and their habitat. We have found that the aggregation is predictable in space and time each year. This is in contrast to other area closures, including the WCCZ, where the spawning aggregations vary in location from year to year.

To learn more about the aggregation, a 28-receiver array was deployed that allows tracking of tagged fish in 3D. Because the receivers are placed in a grid, rather than a line around the area, fish movement can be identified through triangulation and every movement of each tagged cod can be recorded and analyzed.

Working in collaboration with Doug Zemeckis, a PhD candidate from University of Massachusetts, *MarineFisheries* staff caught and tagged 2000 fish between 2008 and 2011. Some of these fish are being studied using more traditional tagging technologies (t-bar anchor tags and electronic data storage tags), which need to be recovered and returned to retrieve the data, but the remainder (66 fish) were tagged with acoustic transmitters. The average size of fish caught was 12 pounds but ranged as big as 67 pounds!

In 2011, cod began showing up at the SCCZ spawning site in April and some remained as late as early August. The typical stay at the site was 37 days, but ranged as long as 100 days. When cod spawn the females and males pair up; the female broadcasts eggs high in the water column and the male fertilizes them. These buoyant fertile eggs are then swept away by currents, eventually hatching into larvae. In the SCCZ the spawning activity most often occurs over flat featureless mud bottom during the night. During the day, the fish leave the mud bottom and return to a gravel/cobble outcropping in the exact location every day where they remain before the next evening spawning event.

Why are these cod findings important? Knowing cod behavior and movement patterns of the aggregation allows for the timing and boundaries of the area closures to be refined. The more that is known about the aggregation, the better protection that can be provided to the fish while spawning. It also will allow *MarineFisheries* to adjust the restrictions when the fish are not spawning, resulting in more opportunity for anglers to catch fish during a less vulnerable time.

By tapping into cutting-edge technology in the acoustic telemetry field, *MarineFisheries* is breaking new ground in the field of striped bass and Atlantic cod science. This information gathered will be used toward improving the recreational angling experience in Massachusetts, and will simultaneously improve the management of the stocks as well. Whether you are slinging eels in the ditch or jigging the wrecks off Gloucester, anglers can only expect to find fish if the stocks are well regulated to ensure the sustainable existence of our favorite Massachusetts saltwater targets.

By Bill Hoffman, Biologist

Mapping Marine Sediment: *MarineFisheries* collaborates on multi-agency habitat study

Construction projects in ocean habitats can destroy or alter habitat vital for fish and shellfish production. *MarineFisheries* staff are often consulted to review projects to assess – or minimize – habitat impacts. It is critical to have a detailed understanding of the seafloor to forecast impacts. To improve our understanding of seafloor habitat, staff are working with government partners as well as other institutions to develop the most detailed views of the ocean floor ever compiled.

Increased interest in offshore development has spurred multiple initiatives to better map the marine environment on the eastern seaboard, including habitats, resources, and human uses. Habitat mapping efforts have used existing data and identified data gaps, particularly with seafloor substrate (sediment) data. Because substrate is an important variable affecting the spatial distribution of biological communities, it is a key baseline data layer for habitat mapping. Several major initiatives that incorporate seafloor maps include: the Nature Conservancy's conservation planning work, the New England Fisheries Management Council Habitat Committee's assessment of the impacts of fishing gears, the Bureau of Ocean Energy Management's wind farm planning, and the National Ocean Council and the Northeast Regional Ocean Council's multi-sectoral marine spatial planning. At the state level, Massachusetts promulgated an Ocean Plan in 2009 that identifies hard and complex seafloor as a special, sensitive, and unique marine habitat that has specific protections for construction projects including mining, pipelines, and windfarms.

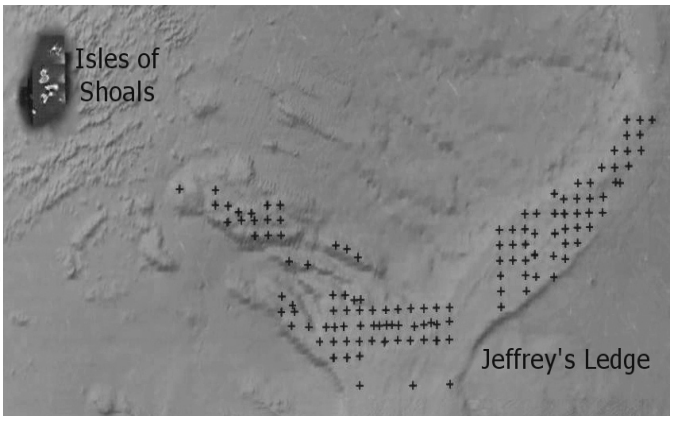
In order to improve existing substrate models and resulting habitat maps, *MarineFisheries*' Fisheries Habitat Program participated in two research cruises on the Environmental Protection Agency (EPA) ocean survey vessel, the *Bold*, in August and September 2011. The *Bold* is a 224-foot long, 43-foot wide converted Navy vessel with unique sound and maneuvering capabilities. The *Bold* is equipped with state-of-the-art sampling, mapping, and analysis equipment including sidescan sonar, underwater video, water sampling instruments, and sediment sampling devices, which scientists use in various monitoring activities.

The first cruise was conducted for five days in the Gulf of Maine in August. We spent three days mapping Jeffrey's Ledge, a large glacial deposit, using a video pyramid donated by UMass-Dartmouth's School for Marine Science and Technology (SMAST) with a side-looking video and a downward-looking still camera (see map). SMAST sampled the northern portion of the Ledge earlier in the summer and just weeks later we completed sampling of the remainder of the Ledge. This is the first time that this much of the Ledge has been sampled with comparable techniques. The cruise, delayed by three days as a result of Hurricane Irene, also included staff from EPA, NOAA Fisheries, New Hampshire Department of Fish and Game, the Army Corps of Engineers, University of New Hampshire, and a consulting company. This was the most diverse group of scientists that the *Bold* has hosted, and the cruise successfully completed 506 camera drops as a result of the efforts of the science crew coordinated by EPA Chief Scientist, Jeannie Brochi. Some highlights included seeing high densities of shrimp in the Gulf of Maine, photographing a beautiful blue lobster on the seafloor 200 feet deep, and views of whales from the surface.

In September, the second cruise was held entirely in Massachusetts waters. Coordinated by the Massachusetts Office of Coastal Zone Management, it included staff from the two state agencies, EPA, and the U. S. Geological Survey (USGS). On this cruise the *Bold* acted as a "mother ship" from which *MarineFisheries* staff would depart each day (weather permitting) on a 17-foot, rigid-hulled, inflatable vessel. With the small boat sampling in shallow waters, right up to the beach, the *Bold* continued round-the-clock sampling in waters deeper than 30 feet. On the main vessel,

Collaborating with other states on tagging

Utilizing VEMCO's telemetry system has the added benefit of being able to record other VEMCO acoustically tagged fish. Thousands of fish have been tagged by other researchers along the east coast and *MarineFisheries*' receivers are now detecting them and we are sending the data to its owner. Fish that have been recorded by our arrays include: striped bass, spiny dogfish, winter flounder, sandtiger sharks, and Atlantic cod. In addition, we have received hundreds of detections of our fish from other researchers ranging from Maine to North Carolina.

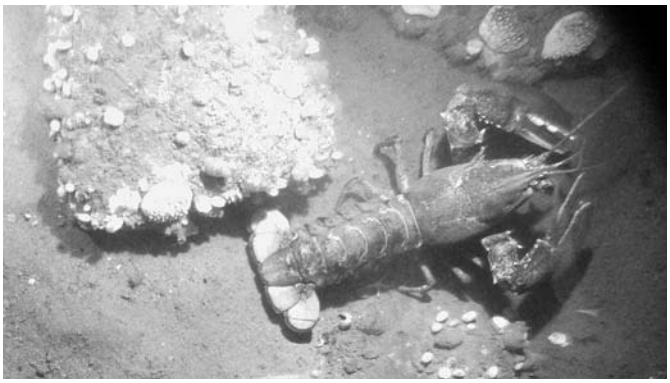


DMF Staff Graphic

***Map of the sampling stations on Jeffrey's Ledge surveyed during MarineFisheries' August research cruise aboard the* Bold.**

DMF Staff Photo

MarineFisheries' Dr. John Logan preparing to deploy a video pyramid off of Nantucket.



DMF Staff Photo

The downward-looking still camera deployed on Jeffrey's Ledge captured this seafloor picture including an American lobster.

a USGS sampling system, nicknamed the SEABOSS, was used to sample 322 stations. The SEABOSS has downward-looking video and high-resolution still cameras for seafloor imaging. It also contains a grab sampler for coincident grabs and photos. On the small vessel, a crew of three deployed a high definition downward-looking video system and high resolution still camera on a custom-built lightweight frame at 116 stations. Interesting findings included large mats of tube worms and an extensive brittlestar bed that has now been imaged three years in a row in the same place.

Results from both cruises will be incorporated into databases such as the Massachusetts Ocean Resource Information System (or MORIS) and made available to decision makers once fully analyzed. More information about the cruises, including daily posts from the vessel, is available at ***seafloormapping.blogspot.com***. Funding for the cruises was provided by EPA, the Massachusetts Ocean Waterways Trust Fund, and *MarineFisheries.*

By Dr. Kathryn H. Ford, Habitat Program Leader

Accolades

Paul Diodati, *MarineFisheries* Director, was elected Chair of the Atlantic States Marine Fisheries Commission (ASMFC) in November. As its Chairman, Paul will lead the ASMFC towards its vision of healthy, self-sustaining populations for all Atlantic coast fish species. "I am honored to be elected" he said, "and look forward to working with my colleagues from the 15 Atlantic coast states, federal marine fishery management agencies, the Potomac River Fisheries Commission, and the District of Columbia to build upon the Commission's past accomplishments." Paul brings to the table nearly 30 years of experience in the field of natural resource management. He has been involved in ASMFC activities since the 1980s, serving on various technical committees before becoming the Massachusetts Administrative Commissioner in 2000. Paul is also the former Chair of the Atlantic Coastal Cooperative Statistics Program Coordinating Council, represents Massachusetts on the New England Fishery Management Council, and is co-chair of the Massachusetts Marine Fisheries Institute.

Dr. Gary Nelson, of the Division's Annisquam River Station in Gloucester, was recently elected the Director of the New England District of the American Institute of Fishery Research Biologists, a professional organization promoting excellence in fishery science. Gary has worked for *MarineFisheries* since 2001 and is head of the Fish Biology Program. His main responsibilities include analysis and statistical modeling of striped bass and river herring population dynamics. Gary holds a BS in Marine Biology from UMass-Dartmouth and an MS and PhD in Fisheries Biology from UMass-Amherst. He remains active in the academic community as adjunct faculty to the Department of Environmental Conservation at UMass-Amherst. Through various workshops and conferences, he has also assisted in the professional development of many colleagues in the fields of statistical analysis, fisheries modeling, and computer programming.

Comings and Goings

MarineFisheries recently welcomed aboard two receiving tellers in the Division's licensing department. In August, Whitney Ryan joined the staff in Gloucester, and in December, Lynne Besse started in New Bedford. Whitney began her new position already familiar with DMF, having been a contract employee in the fisheries statistics department for nearly two years working on trip level reporting data as well as permitting. She has a degree in Criminal Justice from Salem State University. Lynne brings to her post a background steeped in marine experiences. She has worked at her family's retail fish market since childhood, helps out at her father's oyster aquaculture grant, is an avid SCUBA diver, co-owner of a dive shop, and has been a warm-weather travel professional for the past 26 years, specializing in SCUBA diving adventures.

In November, *MarineFisheries* said a fond farewell to long-time employee and aquatic biologist Bruce T. Estrella. Bruce started at the Division in 1971 as a summer employee for the Estuarine Research Project. In 1975, after completing his graduate degree at the University of Illinois, he returned to Massachusetts and the Division, first as a contract employee before being hired full-time in 1976 on the Flounder Project, which transformed into what is now know as the Resource Assessment Project. He was then hired as an assistant lobster biologist and by 1981 was the Chief Lobster Biologist and served in that capacity for 22 years. In 2003, Bruce assumed the oversight role of the Hubline Project – a $5 million, multi-year project to monitor, assess, and mitigate impacts to aquatic resources and habitat from the construction of this natural gas pipeline in Massachusetts Bay. In the past five years, he was the chief of the Division's New Bedford facilities, and editor of the DMF technical report series. Throughout his many years as a public servant, Bruce was a consummate professional, skilled biologist, and capable manager with many accomplishments to claim.

We wish him a happy retirement!

DMF *Rules UPDATE*

Public Hearings • Regulations • Legislation

During the period of May 2011 through December 2011, the following regulatory changes were enacted by MarineFisheries after public hearings and Marine Fishery Advisory Commission approval. Annual specifications and emergency regulations promulgated during this period have also been listed.

Groundfish

MarineFisheries adjusted aspects of its state-waters groundfish rules to compliment the federal groundfish management plan. For recreational codfish, the spring season when an angler may take 10 fish opens on April 15, rather than April 1. The recreational and commercial minimum size for Atlantic halibut was increased from 37" to 41". Recreational fishermen may land filets of groundfish provided the filets came from a legal sized fish, two inches of skin remains, and the number of filets is no more than two times the bag limit. Commercial fishermen may land parts and filets of fish, but these parts and filets will be multiplied by three to determine compliance with trip limits. Lastly, it is now prohibited for a commercial fishing vessel to retain or land wolfish and windowpane flounder, and for a recreational vessel to land wolfish.

Northern Shrimp

With the Atlantic States Marine Fisheries Commission setting the 2011/2012 total allowable catch for northern shrimp at 2,000 MT, the trawl fishery opened on January 2, 2012 with landing days on Monday, Wednesday and Friday and days-out on Tuesday, Thursday, Saturday and Sunday. Vessels may not land or possess northern shrimp on a day-out and may only land northern shrimp once per day on a landing day. (The ASMFC subsequently revised the allowable catch in 2012; see page 6 for more details.)

DMF Staff Photo

A fisherman hauls back a catch of northern shrimp in the Gulf of Maine.

Applications Sought for ASMFC Advisory Panels

MarineFisheries is seeking interested individuals for nomination to vacant seats on several Advisory Panels to the Atlantic States Marine Fisheries Commission (ASMFC). The 15 Atlantic coastal states formed the Commission in 1942 to assist in managing and conserving their shared coastal resources. The Advisory Panels provide input to the Commission's Management Boards during the development, implementation, and review of interstate fishery management plans.

The Advisory Panels are species-specific and composed of one or more representatives from each state in the species' management unit. Massachusetts' allocation of Panel member seats – both the number and type (i.e., user group) – is representative of the magnitude and make-up of the fisheries off the Commonwealth's coast. Advisors are responsible for representing their state and particular user group during Advisory Panel deliberations. Below are the existing vacancies:

Advisory Panel	**Vacancies**
American Eel	Recreational Seat
Atlantic Menhaden	Recreational Seat
Black Sea Bass	Commercial Seat
Coastal Sharks	Commercial Seat, Recreational Seat
Northern Shrimp	Processor Seat, Commercial Seat
Scup	Commercial Seat
Summer Flounder	Recreational Seat
Winter Flounder	Commercial Seat

Individuals interested in being an Advisor should submit a request to be considered for one (or more) of the vacancies, the reason for their interest, and documentation of their background and expertise within the fishery(ies) of application. It is advised that such individuals first read the ASMFC's Advisory Primer (available at: ***http://www.asmfc.org/publications/apPrimer.pdf***) and understand the responsibilities and time commitment required of Advisory Panel members. Applications will be reviewed by Massachusetts' delegation to the ASMFC; any resulting nominations must be approved by the relevant species management board.

Applications should be addressed to *MarineFisheries* Director Paul Diodati at 251 Causeway Street, Suite 400, Boston, MA 02114. For questions or to submit an application by email, please contact Nichola Meserve at (617) 626-1531 or ***nichola.meserve@state.ma.us***. Applications will be reviewed upon receipt and nominations made as suitable candidates are identified.

Division of Marine Fisheries
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INSIDE...

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This Newsletter & Other Information is available on our Web Site!

http://www.mass.gov/marinefisheries

DMF NEWS

EDITORS: **Dan McKiernan**
David Pierce
Nichola Meserve
GRAPHICS: **David Gabriel**

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
Timothy P. Murray, Lt. 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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