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A Commonwealth of Massachusetts Agency

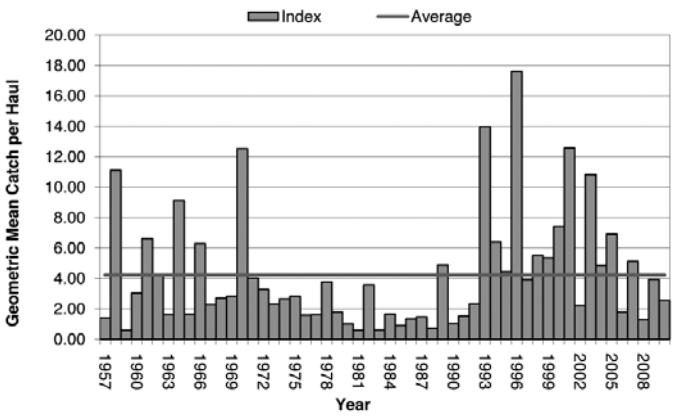
New Striped Bass Management Measures on the Horizon

A growing number of anglers and watermen have been voicing their concerns about the status of the Atlantic striped bass resource. Their worries were heeded this spring when the Atlantic States Marine Fisheries Commission (ASMFC) voted to consider changes to the management of striped bass that would reduce fishing mortality by up to 40% and further protect spawning fish when they are concentrated and vulnerable. An addendum to the management plan will be developed this year; if approved, it will be implemented throughout the species' range for the 2012 fishing year.

The Massachusetts delegation to the ASMFC not only supported, but also made, the approved motion in order to take a proactive and prudent step to respond to the resource and fishery conditions currently being witnessed. The action should be viewed as a precautionary move because none of the multiple triggers in the interstate management plan that can prompt management action in response to deteriorating stock status has been met. According to the last coastwide stock assessment completed in 2009, the striped bass stock is not overfished or experiencing overfishing. The biomass of reproductively mature females in the population was estimated to be 148% of the target in 2008 (and hence even further above the threshold level). Similarly, fishing mortality was estimated to be at least 30% below the target (and even further below the threshold).

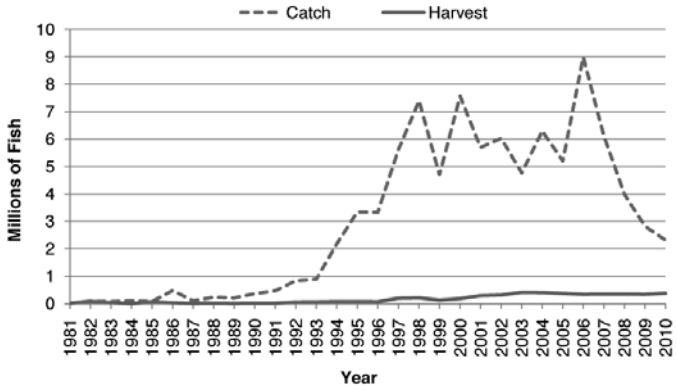
That said, it is clear that the stock has been declining for several years. By 2008, estimated stock abundance declined 25% from the peak in size in 2004. That peak can be attributed to the addition of exceptionally strong year-classes of striped bass to the population in 1993, 1996, 2001, and 2003 from the Chesapeake Bay (the major spawning area), interspersed with average years of juvenile recruitment. Several productive years in the 1990s and early 2000s in the Hudson River and Delaware Bay (the other spawning areas along the coast) also helped. Those years of great spawning success are a tribute to the management program protecting adequate numbers of mature fish and their essential habitat in addition to factors beyond managers' control such as spring rainfall levels that can heavily influence larval survival.

The recent decline in abundance is in large part due to reduced juvenile production in the Chesapeake Bay. For the last seven years, the Chesapeake hasn't produced a particularly strong year class; in fact, the majority of the young of the year (YOY) production during this period has been below average. This has created a void in the age distribution of 2 to 6 year olds. Striped bass take on average six years to grow to the 28" recreational minimum size, and eight years on average to reach the 34" commercial minimum size. It should also be noted that only one year class born recently in the Chesapeake was poor enough to qualify as a "recruitment failure". Under the management plan it takes three consecutive years of recruitment failure to trigger management action.



Striped Bass Young of the Year in Chesapeake Bay

Source: Maryland Department of Natural Resources, 2011



Massachusetts Recreational Striped Bass Catch and Harvest

Source: NMFS Fisheries Statistics Division, 2011

This trend of lower juvenile production indicates a change in one or more of the conditions that favor the addition of YOY striped bass to the population. Insufficient production of eggs does not appear to be the culprit, as the female spawning stock biomass of striped bass has remained high due to the continued aging and growth of the strong year classes born in the 1990s and early 2000s. Estimated fishing mortality rates on both juvenile and adult fish are also low, meaning that overfishing is not the reason behind the abundance decline. Rather, the stock is experiencing poor larval survival in the Chesapeake area, which is likely being caused by environmental factors, such as plankton availability, water quality and disease prevalence.

Most of the striped bass caught by Massachusetts fishermen are spring migrants from the Chesapeake area that feed here during summer and then return to the Bay area in fall. Our striped bass fisheries have thus felt the consequences of the Bay's poor larval survival in terms of reduced availability of smaller fish. Additionally, many of the larger fish that migrate may not be coming close to shore during our fishing season, contributing to reduced catch. We suspect that distance from shore more recently is related to reduced prey availability and increased water temperature.

Reduced striped bass availability in Massachusetts is evidenced by fishery statistics. For example, commercial striped bass catch and harvest rates per hour of fishing in Massachusetts peaked in 2004 and have since declined. On the recreational side, catch in Massachusetts is down 74% from 2006 to 2010, a major hit to the Commonwealth's popular catch and release fishery. Somewhat surprisingly, recreational harvest in Massachusetts increased 10% over the same time period. Anglers here are still able to catch and harvest keeper striped bass, but are having to fish longer and are not catching as many shorts that must be released during their trips. While Massachusetts commercial and recreational harvest have not declined yet, we can expect the void in age 2 to 6 fish to manifest into reduced recreational and commercial harvest opportunities in the near future. Coastwide, recreational harvest did decrease 27% from 2006 to 2010 (with coastwide catch dropping 71%).

These conditions have led some anglers to recall the stock's previous crash and draw parallels to today's fishery. However, there are a great number of differences concerning the stock and its management between then and now. Today's resource condition is much better than when striped bass stocks became depleted in the mid- to late-1970s. Then, catches of large (and small) fish went virtually uncontrolled at the same time that YOY production was plummeting. The combination of successive years of low YOY production, high fishing mortality, and a much reduced spawning stock biomass caused drastic reductions in catch and harvest levels. Now the stock is closely monitored and managed with much more restrictive regulations, resulting in a rebuilt resource.

However, the decline in stock abundance is real and has ramifications for future harvest levels. In response, *MarineFisheries* urged the ASMFC to take an interstate action to lower striped bass fishing mortality by 2012; it's not possible to take an interstate action for the 2011 season. The standard addendum process takes a minimum of six months, meaning the ASMFC (having initiated the addendum in March) will develop the addendum during summer, take it to public comment in late summer and fall, and approve any necessary management measures at its annual meeting in November. This timeline will allow for the inclusion of updated information on the stock's status to be factored into decision-making. ASMFC is currently working on completing an updated stock assessment that will provide a better understanding of long-term impacts from lower YOY production and how proposed management measures may affect the fisheries and the resource.

Massachusetts revising its 2011 regulations unilateral of ASMFC is also not a viable option. The Commonwealth's rule-making process also requires several months to complete, thus it makes sense to conduct our state process in lock-step with ASMFC. More importantly, because poor spawning success in the Chesapeake is causing our lack of stripers and not excessive fishing pressure, there is no resource emergency in Massachusetts to respond to, again making the interstate process the most practical approach.

In summary, Massachusetts has had and is following an action plan to respond to the decline in striped bass abundance and its impact on the fisheries. It began with: (1) our delegation's motion at ASMFC in March to lower striped bass fishing mortality by 2012 to counter persistent below-average annual levels of juvenile recruitment; and will continue with (2) our scientists leading efforts to develop an updated coastwide striped bass stock assessment this summer; (3) our policy staff assisting ASMFC's development of a draft addendum to the interstate FMP that will be brought to public hearings in late summer and fall; (4) the addendum being brought before the ASMFC Striped Bass Management Board in November for action; and (5) Massachusetts completing its (state-level) rule-making process in

Photo courtesy of Randy Sigler

Striped bass harvest in Massachusetts is about 80% recreational.

winter to implement actions for 2012. This plan of action is proactive, prudent, practical and most importantly, completely responsive to the resource and fishery conditions we currently witness.

By Paul Diodati, Director

Reminder to Recreational Anglers: Massachusetts Saltwater Permit Required in 2011

As of January 1, 2011, recreational saltwater anglers in Massachusetts are required to obtain a Massachusetts saltwater fishing permit. This permit replaces the federal registration required last year, and makes the federal permit invalid in Massachusetts regardless of the expiration date. Nearly all coastal states have implemented state permits in response to a federal mandate to improve the quality of data used to estimate recreational fishery statistics. The federal permit is needed only in the handful of jurisdictions that did not institute their own recreational permit. One major advantage to Massachusetts implementing a state program is that fees collected from the sale of the permit are used to enhance marine recreational fishing and further recreational fisheries research in the Commonwealth; in contrast, proceeds from the sale of the federal permit would have gone directly into the US Treasury.

As the season gets underway, we'd like to remind anglers about the requirement and give some practical information about obtaining a permit. The Massachusetts permit costs $10 for both residents and non-residents (as compared to the $15 federal permit). For those 60 years old and over, annual permits are required but free. Additionally, fishermen do not need a Massachusetts permit if they are: 1) less than 16 years old; 2) fishing on a permitted charterboat or headboat; 3) severely disabled and thus dependent on others to meet his/her daily living needs; or 4) possess a saltwater recreational fishing permit from NH, RI, or CT (and are not a MA resident).

The recreational saltwater fishing permit is available through several outlets. We anticipated that many individuals who obtain the recreational saltwater fishing permit are the same outdoor enthusiasts purchasing freshwater fishing permits from our sister agency, the Division of Fisheries and Wildlife (*MassWildlife*). Thus DMF and *MassWildlife* have developed and launched an online recreational permitting system called MassFishHunt, where users can obtain the new recreational saltwater fishing permit, along with our existing recreational lobster permit and the for-hire permits, plus hunting and freshwater licenses. Link to MassFishHunt through: http://www.mass.gov/*MarineFisheries*. The permit fee is payable by credit card with a small handling fee of $1.85 per permit. The site also provides an option for making a donation to the Recreational Fisheries Development Fund.

Saltwater permits are also available over the counter at our three office locations (New Bedford, Boston and Gloucester) payable by check or money order. Self-serve kiosks are available at our field offices and require a credit card to complete the transaction through MassFishHunt. Some bait and tackle shops are expected to provide self-service kiosks later this year. Anglers who don't want to use a computer or travel to a DMF office can purchase permits over the phone by dialing Active Outdoors at 1-866-703-1925 and pay a $3 convenience charge. Anglers may also download an application form from our website and mail it with payment to one of our offices.

Through these various avenues, DMF issued over 60,000 individual recreational permits through the end of May. About one-third have been free permits issued to individuals 60 years and older. With the onset of spring, our offices began processing about 4,000 permits per week, and the rate has since doubled. In addition to the permit sale proceeds,

Photo courtesy of Brian O'Connor

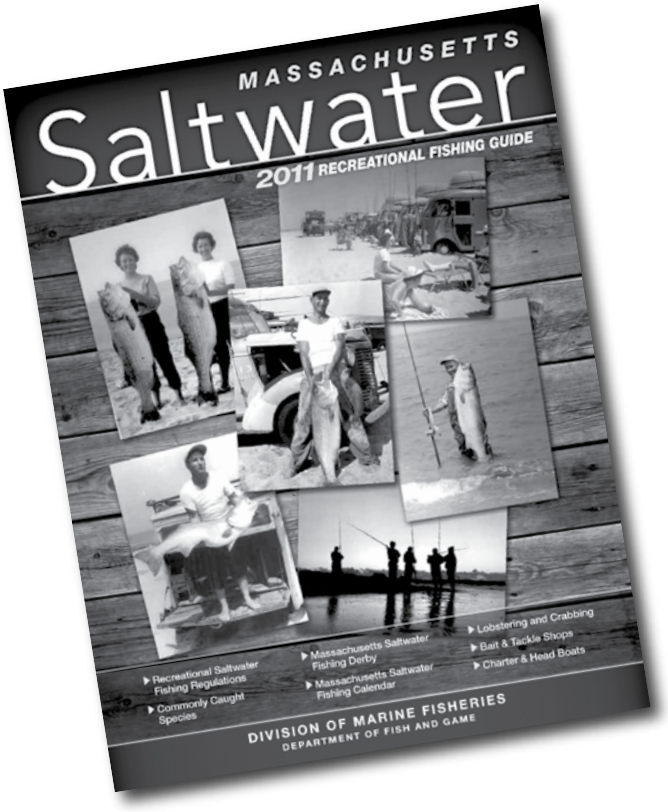
The Massachusetts saltwater permit also allows anglers to fish in New Hampshire, Rhode Island, and Connecticut.

over $15,000 has been added to the Recreational Fisheries Development Fund through the generosity of volunteer donors.

Thank you for your donations!

DMF has worked hard to make this a smooth transition from the federal registry to a state permit program. Don't hesitate to contact us with questions. We'll update information continuously on our website at www.mass.gov/MarineFisheries and DMF staff is available in Gloucester: 978-282-0308 ext. 150, New Bedford: 508-990-2860 ext. 150, and Boston: 617-626-1520 to talk with you.

By Mike Armstrong, Recreational Fisheries Program Manager



Pick up the 2011 Saltwater Guide before your next fishing trip!

MarineFisheries is proud to offer its 2011 recreational fishing guide. The Division revamped the format of this annual, free publication to be more comprehensive, including both finfish and lobstering/crabbing information for the first time. The guide is designed to provide basic information about the Commonwealth's recreational fishing opportunities. It's a useful tool for the novice or visiting angler to become acquainted with what Massachusetts has to offer, although many long-time resident anglers call for it regularly.

The guide is available at *MarineFisheries* offices in Boston, Gloucester, and New Bedford and is being distributed to over 140 locations throughout the state. If you would like to obtain a guide, please contact one of our offices and we'll be happy to mail one to you or provide you with the address of the closest distribution location.

DMF Debuts New Fluke, Scup, and Black Sea Bass Regulations for 2011

This past winter and into spring, *MarineFisheries* policy staff has been kept busy developing, vetting, and implementing regulations for three species that are largely summertime visitors to the Commonwealth: fluke, scup, and black sea bass. *MarineFisheries* announced the 2011 commercial and recreational regulations for these species towards the end of April due to some late breaking revisions to the interstate plan for black sea bass. This article will provide information to better explain the reasoning behind the regulations enacted for each species (see the Regulatory Review on page 14 for a quick summary of the regulations).

MarineFisheries and the Marine Fisheries Advisory Commission (MFC) assimilated constituent recommendations to the degree possible given pre-existing constraints such as interstate plan requirements, species life history traits, and timeliness of harvest monitoring data. *MarineFisheries* will ask for public opinion on the effect of this year's regulations in developing options for 2012.

Commercial Fluke

For 2011, the Atlantic States Marine Fisheries Commission (ASMFC) and Mid-Atlantic Fisheries Management Council (MAFMC) approved a 33% increase to the overall total allowable landings (TAL) for fluke. As a fixed percentage of the TAL, the Commonwealth's commercial fishery quota increased from 846,667 lbs to roughly 1.16 million lbs. Under state regulations, this annual quota is broken down between the winter offshore fishery receiving up to 30% and the summer inshore fishery.

In 2010, the commercial fishery reached its quota and was closed on August 25. However, the winter fishery landed only about half of its available allocation, leaving about 85% of the quota or 720,000 lbs for the summer fishery. Therefore, at the urging of offshore fluke fishermen, we implemented a pilot fishery program in 2011 to provide the winter fishery with greater access to its allocation. Rather than constraining the fishery to the 500-lb daily trip limit, participants could land 2,000 lbs per week provided fish were sold only to federal dealers reporting nightly. The winter fishery had taken nearly all of the winter quota.

The success of the winter fishery under the pilot program means the summer fishery will be left with about 810,000 lbs of quota. Thus, while the Commonwealth's annual commercial quota increased 37%, the summer fishery quota only increases 12% from 2010. Although an increase in trip limits was considered, the MFC determined that maintaining status quo regulations from 2010 would be in the best interest of the fishery, because it would likely mean a longer open season.

Commercial Scup

In 2010, the Massachusetts inshore commercial scup fishery landed only 720,527 lbs of its 897,550-lb quota, leaving roughly 20% uncaught. The 2011 commercial scup quota was also increased by 43% to 1,285,325 lbs, and an opportunity exists (based on federal action) for an in-season increase bringing the state quota to 1.7 million lbs. This is the largest scup quota the state has received in the 10-year time series, which allowed for liberalizations across the board.

The MFC thus supported Division proposals to double all trip limits, open the summer directed fishery a month

earlier and add Sunday as an open day, and increase the quota set-aside for the weir fishery by 22%. Additionally, the MFC supported an industry request to replace Thursday with Wednesday as an open day for the May fishery due to market practices in New York City, the major destination for scup harvested at that time of year.

DMF Staff Photo

Commercial scup fishermen will benefit from more liberal scup regulations in 2011 thanks to an increase in the state's quota.

Commercial Black Sea Bass

Despite black sea bass being rebuilt and not experiencing overfishing, uncertainty regarding the species' life history is keeping the quota constrained. The ASMFC maintained a 1,758,610-lb coast-wide commercial quota for 2011, of which Massachusetts receives 13% (222,440 lbs). As a result, Massachusetts faces the second lowest annual sea bass quota since the 2003 adoption of state allocations through the interstate plan.

Since then, the quota has been divided equally between two distinct directed fishery seasons: the spring pre-spawn season and the late summer/fall post-spawn season. However, for the past two years, elevated sea bass abundance in May has resulted in more than 90% of the quota being consumed during the spring fishery, leaving little to no quota for the summer/fall fishery. This resulted in: 1) a *de facto* regional and seasonal allocation of the resource to those who can fish early spring aggregations; 2) a paltry supply of black sea bass to local fish markets during the summer tourist season; and 3) the bulk of the fishery's effort being focused on pre-spawning fish which may limit reproductive activity in June.

The Division recommended and the MFC supported regulations intended to keep more of the quota for the summertime months; all trip limits were reduced 60% for both seasons. Anything lower was considered unviable for the fishery based on industry input. Revisions were also made to the spring fishery's season length and fishing days to correspond with those approved for the commercial scup fishery, as black sea bass is a common bycatch in the scup fishery and vice-versa. These revisions should allow more fish to enter local markets, provide more equitable access between fishery participants, and reduce effort on pre-spawn fish.

Recreational Fluke

As stated above, the total allowable landing for fluke has been increased by 33% for 2011. This increases the Commonwealth's potential recreational harvest from 140,000 fish in 2010 to 187,000 fish in 2011. Additionally, Massachusetts only landed an estimated 45,506 fish in 2010, one-third of its available harvest. *MarineFisheries* was able to liberalize regulations to allow a 311% increase in harvest from the 2010 level.

MarineFisheries used this opportunity to incorporate requests from the angling public for a smaller size limit and longer season, specifically a one-inch size limit decrease and 24-day season extension (added to the back end of the prior year's season due to seasonal fish availability). Changes to the bag limit were not considered because the data to analyze the effect of such a change are insufficient. The adopted regulations take into consideration the large 2008 year class that will begin recruiting to the fishery in 2011, and is expected to be abundant in 2012.

Recreational Scup

The MAFMC and ASMFC increased the 2011 total allowable catch for scup from 17.09 million lbs to 24.1 million lbs, resulting in a 94% increase to the recreational scup harvest limit from 2.97 million lbs to 5.75 million lbs. However, the harvest estimate (among all states) for 2010 totaled 5.74 million pounds – well in excess of the intended harvest level. Therefore, the MAFMC and ASMFC adopted status quo recreational measures for 2011, and the Commonwealth could not revise its regulations.

Recreational Black Sea Bass

In 2010, the coastwide recreational target for black sea bass was exceeded by an estimated 1.15 million pounds. In response, the ASMFC is requiring a coastwide 40% reduction in recreational black sea bass harvest in 2011. When this was announced in December 2010, ASMFC required all states to implement coastwide measures: open season of July 1 – September 30 and November 1 – December 31, with a 25-fish bag limit and a 13" minimum size. The May – June closure was not palatable for many ASMFC member states, including Massachusetts, yet the existing plan did not allow for state-specific measures. So in April, ASMFC approved Addendum XXI which implemented state allocations of the

DMF Staff Photo

A late-breaking interstate action allowed MarineFisheries to maintain the May 22 opening of the recreational black sea bass fishery.

2011 harvest target, and state-specific harvest reductions. Massachusetts is required to reduce its 2011 harvest by 43% from its 2010 level.

Based on angler and for-hire industry input, the Division developed ASMFC-compliant regulations that would retain as many days open as in 2010 as possible without reducing the bag limit below 10 fish. For-hire industry members were concerned that a bag limit of less than 10 fish would deter prospective customers. This required an increase in the minimum size limit by 1.5 inches.

By Jared Silva, Program Coordinator for Regulations, and Nichola Meserve, Policy Analyst

DMF Women Showcase Field Biology Careers at Salem State WISE Conference

Complete the sentence. This is my favorite workshop because:

"…I got to see, feel and learn about salt marsh, sea, and pond animals."

"…it was fun to work with shrimp and under sea animals that are in the water that I live near!"

"…it was very interactive, and we got to see lots of animals. The people were also SUPER nice and answered all of our questions."

For the past twelve years, eliciting such wonderful responses for their efforts, women from the Division's various field projects and environmental review team have been presenting at Salem State University's Women in Science and Engineering (WISE) Conference. WISE is sponsored by the university's Collaborative Project for Math, Science, and Interdisciplinary Education and aims to inspire more young women to pursue careers in science and engineering. Since the conference's inception in 1990, thousands of young women have had the opportunity to interact with professional female scientists and engineers in small classroom settings. This year's event was attended by 350 students representing 27 schools from Greater Boston, Merrimack Valley and the North Shore, grades 6 to 8.

The main event of the conference is the career activities and presentations that the various professionals design for the young attendees. A yearly favorite, the DMF session has featured hands-on activities highlighting a variety of marine science topics. To start, each block of 20 to 30 young women receive a brief introduction to each biologist focusing on her education and experiences that led her to a career in marine biology. A short mixer then breaks the group up to rotate through the activities, which have explored topics such as environmental review, marine food webs, marine mammals and shellfish growing and management. After finishing with

MarineFisheries biologist Devon Winkler interacts with students at the sandy beach habitat display at WISE 2011.

DMF Staff Photos

WISE students perform dissections of locally-caught northern shrimp and learn about data collection methods.

the activities, the young women are given the opportunity to ask questions and end with a chance at testing out the variety of field gear decorating the room.

According to WISE committee member Daryl Mazzaglia, this year's activities involving Northern shrimp dissection and marine habitat touch tanks were a "knock out of the park." Fisheries technician Jillian Weber drew from her background in science education and her monitoring of the Northern shrimp industry this winter to develop the shrimp dissection activity. Melissa Campbell, Kate Ostrikis and Devon Winkler collaborated to create classroom habitats showcasing both live and preserved marine plants and animals. The best praise received was from the young women, who in their comment sheets noted the DMF workshop as a favorite because of the hands-on activities and the presenters. Here's looking forward to next year's WISE event!

By Devon Winkler, Shellfish Management and Depuration Biologist

Make Blue Crabbing Part of your Summer Tradition

While not an icon of New England seafood platters like the American lobster, locally-caught blue crab can make an appearance on your plate this summer, especially if you are willing to catch them yourself. The blue crab's seasonal abundance in Massachusetts is generally inadequate to support a commercial fishery so you will be hard-pressed to find local product at the market, but their in-shore presence makes them accessible to recreational harvest, whether by novices or old hands. Because Massachusetts represents the northern extreme of the species reproductive range, blue crab occurs here primarily in south coastal estuaries, salt ponds, and embayments on the mainland and south coastal islands, especially the ponds and embayments of Buzzards Bay, the Taunton River complex in upper Narragansett Bay, Cape Cod and the Islands where warmer water temperatures support its life cycle.

Blue crabs may be caught recreationally by hand, dip net, open wire trap or "star trap", and pot. The most popular recreational harvest technique is dip netting, often in conjunction with a baited line. To set 6-sided pots an individual must have a Recreational Lobster/Crabbing Permit, which allows up to ten pots to be fished. No permit is required to catch blue crabs (and other edible crabs like Jonah and rock) by hand, dip-net, or star trap, but any lobsters incidentally caught with these methods must be immediately released. A star trap is a collapsible trap fished in an open position and actively tended. Night-time fishing is allowed for anyone harvesting by hand, dip net, or star trap. Night-time hauling of pots is prohibited. Crabs cannot be sold without a commercial fishing permit.

The Massachusetts crabbing season – both commercial and recreational – opens May 1 and runs throughout the end of the year. Commercial and recreational fishermen may take up to 25 blue crabs per day. There is a minimum size of 5" shell width (measured from spine to spine); all blue crabs must be measured immediately with a gauge and released if undersized. Additionally, egg-bearing blue crabs may not be harvested. These spawning females are often referred to as sponge crabs, due to the appearance of the eggs attached to the underside of the female.

Sponge Crab (Ovigerous Female)
Photo courtesy of Thomas H. Shafer,
Univ. of North Carolina at Wilmington

These eggs represent the culmination of a reproductive cycle started months earlier with a male crab undertaking an elaborate courtship display for a female which is nearing maturity. The male will then protect the female for days as she molts, inseminate her while soft-shelled, and stay until her shell begins to harden. After foraging in the mating area, the female migrates to a higher salinity area beyond a river mouth, during which time ovaries develop. One to two months later, eggs will be ready for fertilization by the sperm she has been storing. She may produce multiple broods of young from the one mating event, resulting in high fecundity despite the likelihood that she will not mate again.

The taking of one sponge female means a potential loss of 8 million future crabs!

The eggs take about 2 weeks to fully develop and hatch. The larvae progress through multiple stages of growth, depending first on tidal and wind-driven currents before becoming functional swimmers in order to move inshore and settle in estuarine vegetation. Juvenile crabs can grow to mature, harvestable size within 12 to 18 months. Maximum carapace width may reach 9" in the mid-Atlantic area within three years. Sizes up to 8" have been observed in Massachusetts. A life expectancy of three years for blue crabs is generally found in the literature; however, this short span is largely the result of removal by harvesting. Tagging studies reveal that in rare cases a maximum age of approximately eight years is possible.

Blue crab abundance level in Massachusetts is modest and often irregular due to annual variability in recruitment. Year class strength is also significantly related to spawning stock size, thus the need for fishing regulations. Following the rules will help ensure many future meals of the blue crab's sweet, succulent meat!

By Bruce Estrella, Senior Biologist and Nichola Meserve, Policy Analyst

$1-Million Commercial Fisheries Revolving Loan Fund under Development

MarineFisheries with its federal partner, the National Marine Fisheries Service (NMFS), is preparing to launch a $1-million Commercial Fisheries Revolving Loan Fund later this summer. Seeking to support a diverse and profitable Massachusetts groundfish fleet, the Loan Fund's immediate goal is to stabilize smaller groundfish businesses that have been marginalized under the new catch share system.

The regional groundfish fishery underwent a monumental change this past fishing year (May 1, 2010 – April 30, 2011) which saw a majority of fishermen transition from operating under Days-at-Sea to harvesting individualized quota amounts through sectors. To summarize, but oversimplify, fishermen now receive an allocation of fish based on their historical participation in the fishery which they may harvest within a self-selecting group of fishermen known as a sector. Catch share systems like sectors are meant to capitalize on more secured access to the resource and market-based systems to achieve improved economic efficiency in the fishery as well as conservation goals. A wealth of information on catch shares, in general, and sectors, specifically, is available through the National Marine Fisheries Service (www.nero.noaa.gov/sfd/sfdmultisector.html) and New England Fishery Management Council (www.nefmc.org/nemulti/index.html).

Catch shares, however, may adversely affect fishing communities and small-scale fishing businesses by 1) consolidating fishing effort, 2) reducing community involvement in local fishing, 3) decreasing access by small-scale fishermen to local fishery resources, 4) increasing capital demand to participate and 5) increasing competition among fishermen for access. Both NMFS and *MarineFisheries* have an interest in promoting the effective implementation of catch-share programs in New England, while minimizing such potential adverse socio-economic impacts.

Initially the concept of federally-funded, state-operated permit banks was considered as a mitigation tool. A permit bank is a program whereby federal permits are purchased on the open market and the quotas are then redistributed to other permit holders. The NMFS reached out to state partners from Rhode Island to Maine providing million dollar grants to develop individual state permit banks. As *MarineFisheries* ventured down this path it became increasingly clear that a more flexible alternative capable of leveraging the funds would have more meaningful impact on the Massachusetts groundfish community. At best a Massachusetts permit bank could have expected to fund the purchase of a handful of permits, likely with limited quota attached to them.

Revolving loan funds are a widely accepted method for leveraging assistance funds and have been adopted by many organizations in the fisheries realm to support local fishermen and communities from the State of Alaska Commercial Fishing Revolving Loan Fund to the Environmental Defense Fund's California Fisheries Fund. Members of the Gloucester community will be familiar with the long-running Cape Ann Fisherman's Revolving Loan Fund. Loans can be used to preserve fishing opportunities for small businesses and communities that may otherwise be disproportionately negatively affected by the consolidation of fishing effort that often follows implementation of catch share programs, by:

- Providing options to fishermen with little access to private capital;
- Helping fishermen to improve operating efficiencies;
- Maintaining a diverse fishing fleet that includes profitable small enterprises; and
- Stabilizing fishing communities through long-term access to local fishery resources.

The National Marine Fisheries Service has agreed to *MarineFisheries*' initial request to change from a permit bank to a revolving loan fund. *MarineFisheries* recently met with representatives of the local groundfish and lending industries to perfect a revised grant proposal for adoption of a Massachusetts Commercial Fisheries Revolving Loan Fund. Final details of the grant proposal are still being developed for approval by NMFS but the Workgroup helped achieve consensus on some basic goals and strategies for the Loan Fund.

Utilizing the expertise of local lending partners, the Loan Fund would provide short-term loans to at-risk sector fishermen with little access to the capital necessary to assure long-term participation in the fishery. Loans would supply the necessary liquidity to stabilize marginalized businesses through quota leasing and seek long-term profitability by providing business planning. At its very core, the Loan Fund is about job growth and economic development consistent with and supportive of the regional Northeast Multispecies Fishery Management Plan.

This first year of sector management has been a steep learning curve for all, no more so than vessel owners. *MarineFisheries* is pledged to continue to work diligently but quickly with its federal and local partners to implement this new program. Updates on the Loan Fund's status will be available through the *MarineFisheries* website at www.mass.gov/marinefisheries.

By Melanie Griffin, Fisheries Management Specialist

DMF Staff Photo

A new state-operated revolving loan fund will aim to reduce fleet consolidation and maintain small scale fishermen's access to local fishery resources.

Investigating the Impact and Occurrence of Derelict Lobster Gear

MarineFisheries was awarded a research grant from the National Fish and Wildlife Foundation and NOAA Marine Debris Program to investigate the cause, fate and impact of lost or "ghost" lobster traps. The research is intended to document whether traps continue to catch fish when lost, and if so, for how long and what species are caught. The study consists of two main parts: observation of abandoned traps on the sea floor by SCUBA divers, and a mail survey to all active Massachusetts lobstermen on their experience with trap loss and thoughts on ghost fishing.

In May 2010, *MarineFisheries* deployed two sets of six, commercially-available lobster traps at two different sites; one near Manomet Point, Cape Cod Bay and one near Penikese Island, Buzzards Bay. A third set was placed at each location in November 2010, and a fourth set in Cape Cod Bay in May 2011 and in Buzzards Bay in June 2011. These sites occur in two of the Lobster Management Areas (LMAs) found in Massachusetts waters (LMA 1 - Gulf of Maine and LMA 2 - Southern New England). The two areas have distinct differences in population demographics, fishery characteristics, habitat conditions, and bycatch species compositions.

Divers examine the contents of the traps on a bi-weekly basis, documenting biological data on lobsters caught, counts of finfish, crabs, and other bycatch species, and condition of the traps and biodegradable escape panels. Any lobsters found in the traps are tagged and placed back in the traps, and all other species are also returned to the traps.

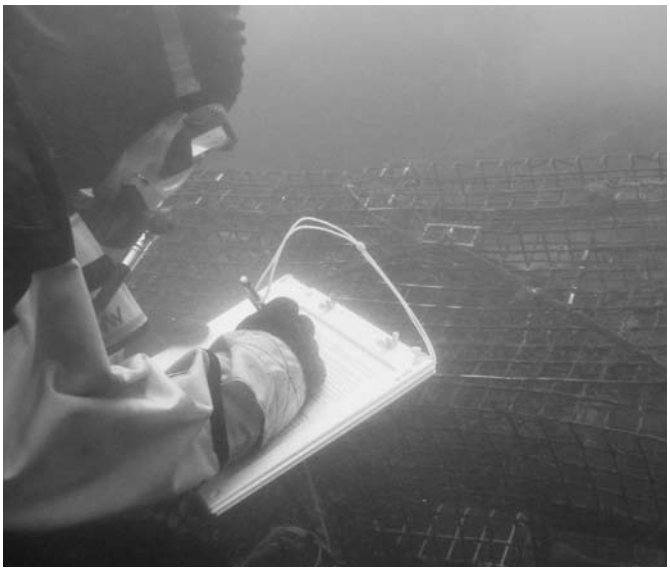
Over 300 days after the traps were originally set in Cape Cod Bay and Buzzards Bay, they have been found to continue to catch and kill lobsters, crabs and finfish due to a strong "re-baiting" effect. While some traps were damaged and disabled due to winter storms, many are still intact. In fact, some of the traps and escape vents exhibit heavy fouling with algae and encrusting animals, which may prevent ghost panels from disabling as designed. Regulations require all traps to be rigged with a biodegradable panel to facilitate release.

In January 2011, a three-page questionnaire was mailed to all 883 active commercial lobster trap permit holders in Massachusetts. Fishermen were surveyed on a variety of topics including frequency of derelict gear encounters, quantity of their own gear lost, seasonality of loss, degree of importance of the problem, support for clean-up efforts, and their commercial fishing demographics.

Survey response has been high. We are still receiving responses and have achieved an overall response rate of 59%. Response rates from the four LMAs in Massachusetts are consistent.

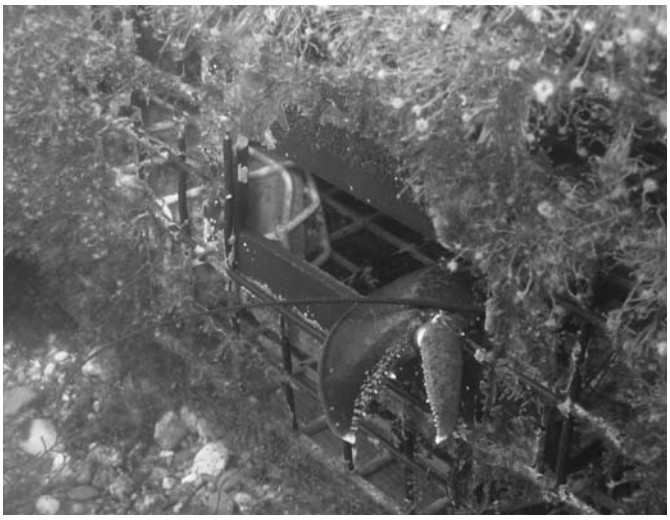
We expect to develop a better understanding of the biological impacts and economic costs of lost gear and ghost fishing to the lobster fishery when this work is complete. This year's activities include continued examination of the traps and analyses of mail survey responses. For more information and to check for project updates, please visit the DMF ghost gear survey website at www.mass.gov/dfwele/dmf/programsandprojects/lobsurvey.htm.

By Jillian Weber, Fisheries Technician



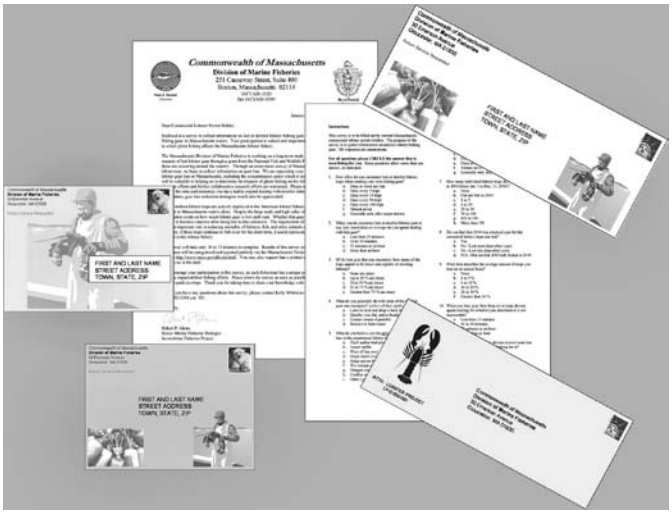
DMF Staff Photo

Invertebrate Fisheries Project SCUBA diver documenting trap condition and catch.



DMF Staff Photo

American lobster inside a heavily fouled simulated ghost gear trap.



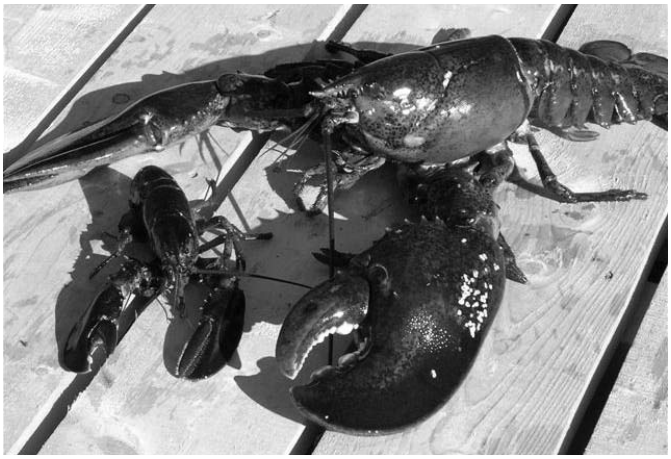
DMF Staff Image

Mail survey materials sent to active commercial lobster permit holders, including cover letter, questionnaire and follow-up postcards.

News from ASMFC's March 2011 Meeting

American Lobster – Action Delayed on Southern New England Stock Management Revisions

In its last newsletter, *MarineFisheries* reported on the action taken by the Atlantic States Marine Fisheries Commission (ASMFC) in November 2010 to initiate development of a plan addendum to respond to the population decline in Southern New England (SNE). That population decline is most likely a product of poor juvenile lobster survival, which the Technical Committee opines is a consequence of warmer ocean temperature. Data support a shift in adult lobster distribution in SNE to cooler, more offshore locations, followed by reduced juvenile survival because lobster larvae born in these areas have a lesser chance of making it to their inshore prime nursery habitat. The Technical Committee suggested a harvest moratorium because the stock had not responded to other management measures; an independent panel agreed that the stock decline is dire and that either a moratorium or drastic (50 – 75%) cut in removals was warranted. The initial timeline for the addendum's development included approval of the document for public comment in March. However, the ASMFC did not take this action in order to allow for the inclusion of additional management options into the draft document, notably for 25 and 50% trap reduction options (which would reduce exploitation by less than originally intended by the Management Board). It is now expected that the options will be open to public comment in late summer to early fall. Public hearings will be held in Massachusetts at that time.



DMF Staff Photos

Proposed management revisions to address the American lobster population decline in Southern New England are under development.

Menhaden – Addendum Initiated to Reduce Fishing Mortality and Increase Stock Size

The ASMFC initiated an addendum that, if approved, will implement a new biological reference point and revise regulations to achieve the reference point. The reference point would be based on maximum spawning potential (MSP), setting a rate of 15%, while the current estimated MSP is 9%. The proposed reference point is considered interim due to the goal of developing ecosystem reference points using a multispecies modeling approach. Under the existing reference point based on fishing mortality rate (F), the stock is considered to be experiencing overfishing in 2008 with an F of 1.26 compared to the threshold level of 1.25. ASMFC anticipates the public comment period, including hearings, taking place in late summer through early fall.

Tautog – States Required to Reduce Exploitation by 53%

The ASMFC approved Addendum VI to the interstate tautog plan to end overfishing and rebuild the stock. The addendum lowers the target fishing mortality rate (F) from 0.20 to 0.15, under which the stock is projected to rebuild by 2025. The current F of 0.38 is inhibiting stock recovery. Management measures will need to be implemented by January 1, 2012 to achieve the F target, requiring a 53% reduction in harvest. States that can demonstrate to the satisfaction of the Technical Committee and Management Board that their fishing mortality rate is lower than the existing F will only be required to make reductions in harvest that will bring them to the target. *MarineFisheries* will hold public hearings later this year on various options that would bring the Commonwealth into compliance with the interstate plan, if necessary.

Atlantic Striped Bass – Addendum Initiated to Reduce Fishing Mortality

In response to recent poor spawning success in the Chesapeake Bay, a 25% decline in population size from 2004 to 2008, and a 66% decline in coastwide recreational catch from 2006 to 2009, the ASMFC voted to begin considering regulatory options to reduce fishing mortality by up to 40% and further protect spawning fish. See Page 1 for more details.

Black Sea Bass – State-by-State Recreational Management Approved for 2011

In order to mitigate potential disproportionate impacts to individual states that previously-approved coastwide measures could have, the ASMFC approved state-by-state shares for the 2011 recreational season. Under the state-specific allocations, Massachusetts receives 26% of the 2011 harvest target and must implement regulations to reduce harvest by 43% compared to 2010. See Page 5 for more details.

Northern Shrimp – New Management Plan Expected by Start of Next Season

Although no action was taken at the March meeting, the development of an amendment to the interstate plan for northern shrimp continues. In February, the ASMFC approved the Public Information Document (PID) for Northern Shrimp Amendment 2 for public comment and review. As the first step in the development of an amendment, the PID presents a broad overview of the issues facing this species, and provides an opportunity for public comment early in the process. The PID and subsequent amendment are being developed to

Increased effort in the northern shrimp fishery has prompted the development of a new interstate management plan.

update the management plan to provide greater flexibility in managing the fishery and maximizing its overall benefits. Since the approval of Amendment 1 in 2004, management measures have been limited to season length and gear restrictions. Potential management options (representing the concerns of managers and stakeholders) outlined in the PID include, but are not limited to, (1) trip limits, (2) clarification of fishing mortality target, (3) limited entry, (4) timely and comprehensive reporting system, (5) gear modifications to protect small shrimp and reduce bycatch, and (6) implementation of a harvest quota. The ASMFC will next evaluate the information gathered through the PID hearings, including one on May 2 in Gloucester, and begin drafting the amendment. It is expected that hearings on the draft amendment will be held in late summer, allowing for approval of new management measures prior to the start of the next fishing season on December 1.

By Nichola Meserve, Policy Analyst

The Large Pelagics Research Center Announces Its Arrival to Gloucester

In May 2010, Dr. Molly Lutcavage and the Large Pelagics Research Center (LPRC) moved to the University of Massachusetts Amherst, undertaking a new affiliation with the Graduate School of Marine Science and the Massachusetts Marine Fisheries Institute (MFI). After being based for seven years at the University of New Hampshire, LPRC is now located in Gloucester, MA, America's oldest fishing seaport, where it joins MFI in revitalizing the UMass Marine Station at Hodgkins Cove. With *MarineFisheries* providing financial support, UMass and *MarineFisheries* have worked hard throughout the spring to bring the unoccupied, dilapidated lab building back on line, and its interior is nearly rehabilitated. The LPRC is hoping to call Hodgkins Cove home by early this summer.

LPRC scientists and grad students, directed by Dr. Lutcavage, conduct fisheries and ecosystems research on tunas, sharks, billfish, and sea turtles. Current projects focus on Atlantic bluefin tuna (ABFT), bigeye tuna, and leatherback sea turtles. The population status of Atlantic bluefin remains hotly debated, and with the 2010 Gulf Horizon oil spill occurring in its known western spawning location, there is a great need to reduce uncertainty regarding the true status and abundance of ABFT. LPRC researchers have been working to address unknowns and close important gaps in bluefin science, by unlocking the secrets of bluefin migration patterns, trophic relationships, maturity schedules, spawning locations, and population numbers. Partnering with fishermen and international collaborators, LPRC researchers are using pop-up satellite tags (PSATs) and conventional ID tags to identify bluefin and bigeye life histories and behavior. In addition, LPRC graduate students Gilad Heinsch and Jesse Knapp are investigating bluefin sexual maturity and reproduction in order to resolve whether the current estimates of maturity of western Atlantic bluefin are correct.

Kara Dodge leads LPRC's leatherback turtle research as part of her Ph.D. work (Research conducted under NMFS Permit 1557-03) Photo courtesy of LPRC

Another new research initiative seeks to develop fishery-independent population estimates for ABFT using aerial and sonar survey technology. With Northeast Consortium project development funds and collaborators at UNH's Center for Coastal and Ocean Mapping and the Northeast Fisheries Science Center, LPRC is developing and optimizing new methods to accurately detect the number and sizes of individuals in bluefin schools. Upon development, these techniques will be transferable to other marine species.

In addition to tuna research, PhD candidate Kara Dodge is field director for a leatherback sea turtle tagging and acoustic monitoring project. A team of *MarineFisheries*, New England Aquarium's Rescue Rehab, and the Center for Coastal Studies collaborators utilizes direct capture and satellite telemetry to monitor the movements and habitat use of leatherbacks, and interactions with set gear.

Photo courtesy of LPRC

LPRC researchers study Atlantic bluefin tuna with the goal of improving our understanding of the resource's status.

Program Manager Emily Chandler coordinated the LPRC's first public outreach event, co-hosted with Gloucester Maritime Heritage Center. A six-week long "Fish and Fisheries" Public Seminar Series, was well attended, reaching capacity crowds on several nights. Speakers presented highly informative, scientifically rich lectures, covering a range of charismatic marine fishes and sea turtles, from great white sharks to barracuda. The series was a great way to introduce the Center and cutting edge fisheries science to Gloucester. The LPRC was thrilled with the wonderful feedback and diverse engagement by the community and looks forward to the next one!

Finally, LPRC is developing a new website. Please visit www.umass.edu/largepelagics for more information about research programs, and stay tuned for details about an upcoming grand opening celebration for the Hodgkins Cove Marine Station.

By Emily Chandler, LPRC Program Manager

Comings and Goings

After 31 years with *MarineFisheries*, Phillips D. Brady retired in December 2010. During his tenure with the agency, Phil worked on numerous studies investigating fish populations along the Massachusetts coast and anadromous species inhabiting our coastal rivers. For the past seven years, he served as the project leader of the Anadromous Fish Management Program. Phil led river herring restoration efforts through stocking, fish passage improvements, and increased understanding of the biology of anadromous species. His encyclopedic knowledge of anadromous fishes, fish passage, and the coastal spawning runs will be greatly missed.

DMF Staff Photo

Phil Brady sampling for anadromous species.

Wes Dukes joined the staff of DMF's Habitat Project in February. Wes works out of the Gloucester Office on Hubline eelgrass restoration as well as several other eelgrass projects. He has a Bachelor's Degree in Marine Biology from the College of Charleston in South Carolina. Wes previously worked on fisheries data quality management at the National Marine Fisheries Service office in Gloucester. He starts his new position already familiar with DMF, having been a summer seasonal employee involved in the last Boston Harbor eelgrass restoration project.

Also in February, DMF said goodbye to Vivian Lasnier, Bacteriologist at the Shellfish Purification Plant in Newburyport. Since 2006, Vivian has worked part time for the division, predominately providing weekend coverage for the Shellfish Plant laboratory. She previously worked for DMF in 1998 as a Seasonal Laborer and Phytoplankton Monitor with the Shellfish Project. Vivian recently obtained her second bachelor's degree and is now working in the field of clinical laboratory science.

In April, Andrea Petrella and Kelly Kleister came aboard the Anadromous Fisheries Program as Seasonal Fisheries Technicians. Both will be busy with the Acushnet River Restoration Project. Andrea has a Bachelor's Degree in Coastal and Marine Policy from the University of Rhode Island, and is returning to DMF for a second year having worked with both the Anadromous and Sportfish Programs last year. Kelly has a Bachelor's Degree in Marine Safety and Environmental Protection with a concentration in Marine Biology from Mass Maritime. She was employed the last three years with the Whale and Dolphin Conservation Society doing humpback whale population surveys and worked on their identification program.

Notice of Public Workshop Registration Open and Fisheries Stakeholders Encouraged to Attend

"Reconciling Spatial Scales and Stock Structures for Fisheries Science and Management"

Monday and Tuesday June 27-28, 2011
Sheraton Harborside Hotel
Portsmouth, New Hampshire, USA

For more information and to register: www.tinyurl.com/spatial-scales-workshop

Fishermen and scientists are continually learning that stock boundaries of marine species aren't always what we once thought. Fishery managers often face dilemmas when ecological and management boundaries don't coincide. This public workshop will explore how fisheries management can better use data on stock structure and ecological processes in achieving sustainable fishery resources. Costs and benefits of using increasingly detailed data in management will be discussed. There will be invited speakers, open discussion forums, a poster session, and break-out sessions for talks and panel discussions. All fisheries stakeholders are encouraged to attend.

Cost*

$25	Poster session/local seafood dinner cruise aboard M/V Thomas Leighton (evening of June 27)
$50	2-day Registration (includes breakfast, lunch, parking, summary report) if registered before June 15.
$75	2-day Registration if registered after June 15.

***Commercial fishermen may request a waiver of the registration fee.**

DMF *Rules UPDATE*

Public Hearings • Regulations • Legislation

Regulatory Year in Review

During the period of September 2010 through April 2011, the following regulatory changes were enacted by DMF after public hearings and Marine Fishery Advisory Commission approval. Annual specifications and emergency regulations promulgated during this period have also been listed.

Aquaculture Reared Shellfish

DMF liberalized the minimum size restrictions for aquaculture reared oysters and quahogs. Aquaculturists are now authorized to harvest oysters that are 2.5 inches in longest diameter and quahogs that are 7/8 of an inch in diameter, provided all product not conforming to wild harvest minimum size standards be sold only to wholesale dealers who are authorized primary buyers for re-sale outside of the Commonwealth of Massachusetts.

Black Sea Bass

The 2011 spring commercial black sea bass fishery was open May 1 – May 31 with open fishing days on Sunday, Tuesday and Wednesday, a 12 inch minimum size, a 200-lb trip limit for fish pots and weirs, and an 80-lb trip limit for other gear types. The quota dependent summer fishery opens on August 1 with open fishing days Sunday – Thursday, a 12 inch minimum size, and a 200-lb trip limit for fish pots and an 80-lb trip limit for all other gear types. The recreational black sea bass season was constrained to meet ASMFC's requisite 43% reduction in harvest for Massachusetts. The 2011 season is open May 22 – October 11 with a minimum size of 14 inches and a bag limit of 10 fish.

Cod Conservation Zones

DMF renewed in perpetuity and adjusted the spatial and temporal limits of the winter and spring cod conservations zones (see map on next page). The winter and spring cod conservation zones are closed to certain fishing activity from November 15 through January 31 and April 16 through July 21, respectively. More information regarding the geographical boundaries of the zones and prohibited fishing activity can be found at 322 CMR 8.15.

Recreational Saltwater Fishing Permit

DMF implemented the first ever Massachusetts recreational saltwater fishing permit for calendar year 2011. All people over 16 years of age recreationally fishing in the waters of the Commonwealth or landing fish in Massachusetts must hold a state issued permit in 2011, unless they are fishing under the authority of a permit from a state that the Director has signed a reciprocity agreement with or are otherwise exempt. This permit will also cover fishing in federal waters adjacent to the Commonwealth, but will not cover the take, possession, and landing of highly migratory species. This permit was designed to meet Magnuson-Stevens Act specifications for a national angler registry.

Scup

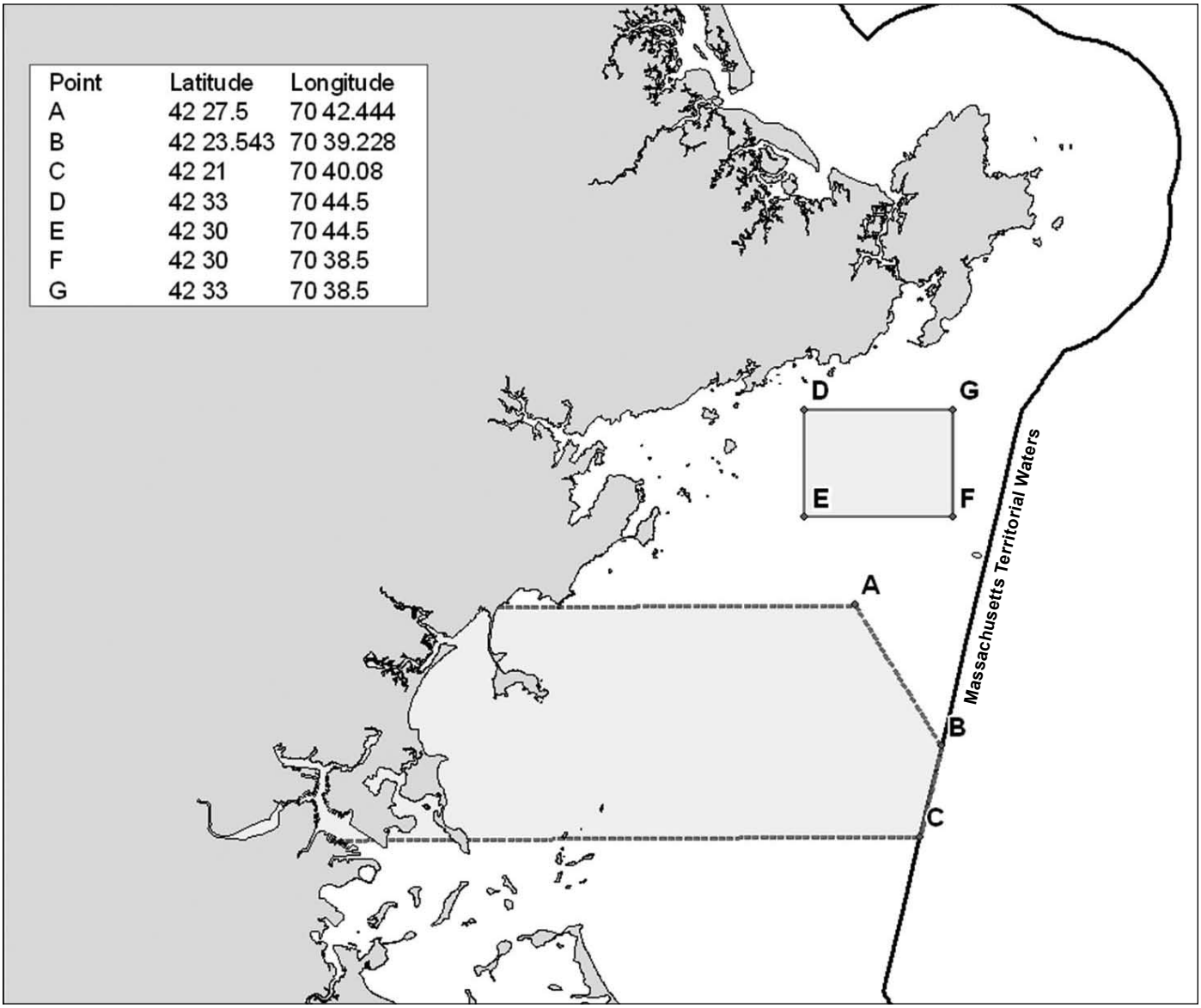
DMF liberalized the 2011 commercial scup fishery. Trawlers participating in the squid and summer flounder fisheries may take, possess, and land 800 lbs of scup. The weir set-aside was increased to 275,000 lbs. The spring directed fishery is open May 1 – May 31 with open fishing days on Sunday, Tuesday and Wednesday, a 9 inch minimum size, and a 400-lb trip limit for all authorized gear types. The quota dependent summer directed fishery is open on July 1 with open fishing days Sunday – Thursday, a 9 inch minimum size, and 800-lb trip limit for all authorized gear types.

Spiny Dogfish

DMF, by means of specification, set a 3,000-lb trip limit for the 2011/2012 commercial spiny dogfish fishery.

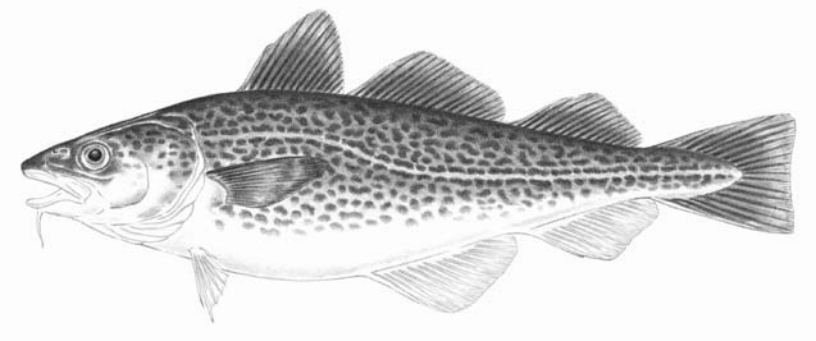
Summer Flounder

Rules for the 2011 recreational summer flounder fishery include an open season of May 22 – September 30, a 5-fish bag limit, and a 17.5 inch minimum size limit.



DMF Staff Graphic

Map and coordinates for the Spring (upper) and Winter (lower) Cod Conservation Zones (CCZs). The Spring CCZ was enlarged to the east and west based on observations of the movement of spawning aggregations in 2010. The size of the Winter CCZ was reduced 48% to all greater fishing access while still protecting spawning aggregations. Refer to 322 CMR 8.15 for prohibited fishing activities and seasons.



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INSIDE...

Surfers • Surfers • Surfers

This Newsletter and Other Information is available at our Web Site!

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.

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Timothy P. Murray, Lt. Governor
Richard K. Sullivan, Jr., Secretary, EEA
Mary B. Griffin, Commissioner, DFG
Paul J. Diodati, Director, *MarineFisheries*

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