

HABITAT HOTLINE *Atlantic*

2013 Annual Issue, Volume 1



HEALTHY FISHERIES NEED HEALTHY HABITAT

Atlantic Coast Fish Habitat Policy and Regulation

As the Chair of the Atlantic States Marine Fisheries Commission's Habitat Committee, it is my pleasure to present the 2013 issue of **Habitat Hotline Atlantic: Volume 1**. There is so much good work happening along the Atlantic coast that this year's *Habitat Hotline* had to be divided into two volumes. The first of the two volumes provides information on the fish habitat related work that partners, such as the Atlantic States Marine Fisheries Commission, US Fish and Wildlife Service, NOAA Fisheries, regional fishery management councils, and ocean planning organizations have been working on this year. The second volume focuses on the Atlantic coastal states and Pennsylvania's largely on-the-ground work towards improving habitats for marine and diadromous fish species, highlighting the importance of collaborative habitat conservation across state boundaries and in riverine systems.



Both volumes of the 2013 *Habitat Hotline Atlantic* will provide the reader with examples of the commitment of the Habitat Committee and all affiliated partners in improving fisheries habitat conservation through partnerships, policy development, and education. It additionally exemplifies the creative approaches to the challenges of effectively integrating habitat protection, restoration, and enhancement into fisheries management programs and plans. Please take a moment of your busy schedules to enjoy reading about the various fish habitat related projects happening along our coast.

Habitat Committee Chair

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Nantucket Shellfish Management Plan

Jake Kritzer, Senior Scientist, Environmental Defense Fund

Fisheries for the bay scallop, *Argopecten irradians*, could once be found along the Atlantic coast from North Carolina to Massachusetts. However, combined effects of overharvest, declining water quality, habitat loss, invasive species and other stressors have drastically reduced the extent of wild bay scallop fisheries in the U.S. to a small fraction of what they once were. Today, especially favorable environmental conditions can produce commercially viable yields from time to time in places like Bogue Sound, Peconic Bay, and Cape Cod. But the only remaining locations with consistent annual harvests are the islands of Martha's Vineyard and Nantucket, situated south of Cape Cod. Nantucket's harvest of bay scallops is generally the largest, and the island's scallops are widely popular throughout the Northeast for their especially sweet and fresh flavor.

The Nantucket bay scallop fishery operates during the winter, with commercial scalloping commencing November 1 of each year and running through the end of March. The economy of Nantucket is driven by the summer season, when off-island owners of vacation homes take up residence and tourists flock to the island by the thousands. As the weather cools and the island becomes quieter, economic opportunities for year-round residents become fewer. Therefore, a winter fishery that provides income for harvesters, shucking shanties, wholesalers, and other shoreside businesses is an important part of the off-season economy. Furthermore, one month before the commercial fishery gets underway each year, the recreational scallop season begins on October 1. Year-round and late-season summer residents take to the water in droves, joined by others who make special trips to the island for this unique opportunity, extending the tourism season. Scalloping on Nantucket holds tremendous economic, historical and cultural value to the island, to say the least.

Despite its importance, harvests over the past decade or two have been substantially less than the boom years of the late 1970s and early 1980s, when harvest regularly topped 40,000 bushels and exceeded 100,000 bushels at the peak. Recent harvests generally range from 10,000 to 20,000 bushels, with strong years topping 30,000 and poor years dipping below 5,000. Despite the decline, these harvest levels seem steady. However, many people recognize that the fishery cannot dip much lower without risking its long-term viability, and growing threats exacerbate those

concerns. Eelgrass, an essential nursery habitat for bay scallops, has declined due to a combination of nutrient loading, scour by mooring chains, and other impacts. Invasive predators and fouling organisms have become more prominent in Nantucket Harbor. Recent years have seen repeated "red tides" and "rust tides," blooms of harmful dinoflagellates that result in increased mortality and reduced growth of scallops. Also, ongoing global climate change further threatens viability of scallop populations, especially via effects of ocean acidification on the growth and structural integrity of scallop shells.

In order to better face these threats and preserve its bay scallop resource and fishery, the Town of Nantucket recently completed its first comprehensive Shellfish Management Plan (SMP).

Creation of a SMP was a high priority recommendation of the Town's Nantucket and Madaket Harbors Action Plan, which was completed in 2009. Coastal shellfish fishing in Massachusetts takes place under a state law that cedes certain aspects of decision-making to local municipalities. Moreover, many non-fishing impacts on habitat and water quality are most effectively addressed at the local level. Therefore, a Town-based plan is the most effective vehicle for sustainable management. Thanks to financial contributions from the Nantucket Shellfish Association (the local industry organization), the Nantucket Land Council, a local environmental non-governmental organization (NGO), the

Town of Nantucket, the Nancy Sayles Day Foundation, and the Environmental Defense Fund, development of the SMP began in 2010.

A steering committee comprised of harvesters, researchers, Town officials, and members of environmental organizations began working with watershed planning experts from the Urban Harbors Institute at the University of Massachusetts-Boston to assemble the plan. The plan covers not only bay scallops, but also quahogs, blue mussels, oysters, conch, and other shellfish harvested on the island, although bay scallops are the major focus and highest priority. The SMP sets forth three guiding principles, namely that management should be *community-based, ecosystem-based and adaptive*.

Through an exhaustive review of past reports and planning documents, scientific literature, newspaper articles, and other sources, the team assembled a history of the fishery, characterization of the ecosystem, and working list of focal issues. These



Town residents and visitors take to the water each October donning waders and wielding long rakes to participate in Nantucket's unique recreational bay scallop fishery, which precedes the commercial fishery in November. The bay scallop fishery is an important off-season economic driver on the island, and the community's first Shellfish Management plan aims to preserve the fishery for generations to come. Source: Jake Kritzer



were refined through interviews with harvesters; continued input from the industry was a key component of the process through participation in steering committee meetings, opportunities to provide written comment and a series of public listening sessions.

The SMP collates the various regulations related to harvest, reporting, shucking, handling, and other aspects of the industry that were otherwise scattered in various state and local statutes and ordinances, and identifies regulatory issues that will need to be addressed in the future. However, because bay scallop productivity is driven by such a wide range of environmental factors and anthropogenic impacts, many questions about exactly which conditions must be achieved and which actions are necessary remain unanswered. Accordingly, the SMP outlines a thorough and ambitious research plan, with recommendations for building on existing collaborations among Town, State, academic, industry and NGO stakeholders to most efficiently and effectively meet the top priorities through cooperative research. An important component of the plan is active restoration efforts, including the Town's longstanding scallop enhancement program and more recent eelgrass restoration projects, as well as active management experiments and opportunities for further learning.

The Town's Board of Selectmen formally approved the SMP in the spring of 2013, and future fishing seasons are anticipated to implement the SMP's recommendations. The 2013 scalloping season has gotten off to a slow start, which might turn around as the season progresses or improve next year. Either way, the SMP cannot prevent low harvest years like the one we seem to be experiencing, and does not aim to do so. But it does aim to prevent them from becoming too frequent, or even the new norm. An important aspect of the SMP that will keep it timely and responsive is a built-in mechanism for review and revisions as management objectives, scientific knowledge, economic factors, or a changing ecosystem warrant.

A prominent shellfish biologist once described the Nantucket bay scallop fishery as a "national treasure," given that it is the last commercially viable vestige of a once widespread resource and a unique recreational opportunity for Town residents and visitors alike. The SMP aims to preserve this treasure through coordinated, comprehensive, participatory and science-based management, and in doing so serve as a model for other small-scale coastal shellfish fisheries.

Fishery Closed Areas in New England

Jake Kritzer, Senior Scientist, Environmental Defense Fund

From 1994 to 2002, the New England Fishery Management Council (NEFMC) created a network of areas closed to directed commercial groundfish fishing in the Gulf of Maine (GOM) and on Georges Bank. These areas were designed to protect vulnerable habitats, and also to control fishing mortality and rebuild target stocks at a time when several were at all-time low levels of abundance.

Today, the NEFMC is in the midst of reevaluating and ultimately reconfiguring its closed area network. This process was launched in response to evolving management needs, changing ocean conditions, and new scientific knowledge, any or all of which might call for a new design of the spatial management system. Alternatives being considered include retaining each of the existing closed areas in its current form, retaining a portion of each while opening other parts, or doing away with them altogether. The decision need not be the same for each area, and some might remain intact, others might be modified, and others might be fully opened.

In addition to decisions specific to each of the existing closed areas, the NEFMC is also considering proposals for closures in completely new areas that heretofore have not been afforded protection. These alternatives are intriguing for their potential to protect key habitats, help rebuild depleted stocks, and build ecosystem resilience in the face of climate change.

One area being considered is the Great South Channel (Channel), an underwater gully situated between Nantucket Shoals and the western edge of Georges Bank. The seafloor of the Channel is comprised of a diverse array of substrates, including sand, gravel, and boulders. Boulders provide high-relief structure that is important shelter for many species. Mounds of gravel and ripples of sand also provide structured benthic habitat. In addition to these abiotic habitats, live mussel beds and tracts of shell hash add further habitat complexity. Not surprisingly, the Channel is a critical nursery area for juvenile cod due to its habitat complexity. Above the seafloor, the Channel is a feeding hotspot for whales and other species as oceanographic and atmospheric processes combine to cause a seasonal convergence of energy-rich plankton.

Originally, the NEFMC was considering a patchwork of small closures in the Channel, each centered on a particular habitat feature determined to be especially important and/or vulnerable. However, an industry organization, the Cape Cod Commercial Fishermen's Alliance, proposed that these areas be combined into a single closed area, recognizing that the whole would be greater than the sum of its parts. Combining the target habitat feature of each small area with the surrounding habitats into a more diverse and complex habitat mosaic will support a wider variety of life stages and ecological processes. Moreover, beyond the direct protection of habitat, a larger area with a lower perimeter:area ratio has the potential to protect viable subpopulations of key species, allowing uninterrupted spawning, feeding and migratory behavior, and rebuilding an intact age structure. These objectives are not met well by quotas alone, yet are critical determinants of stock recovery, productivity, and stability.

The Channel might also be playing a key role as the ocean ecosystem adjusts to effects of climate change. The location of the Channel at the junction of the GOM and Mid-Atlantic Bight

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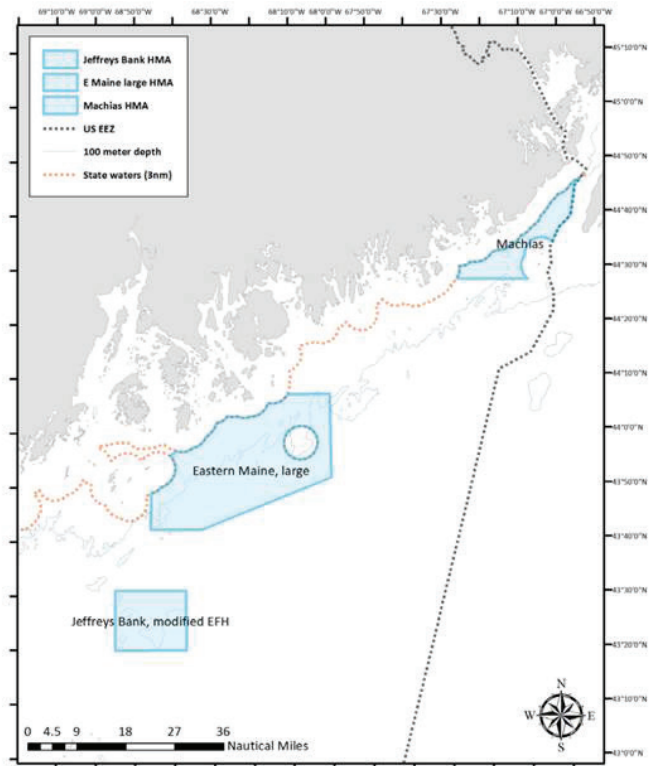
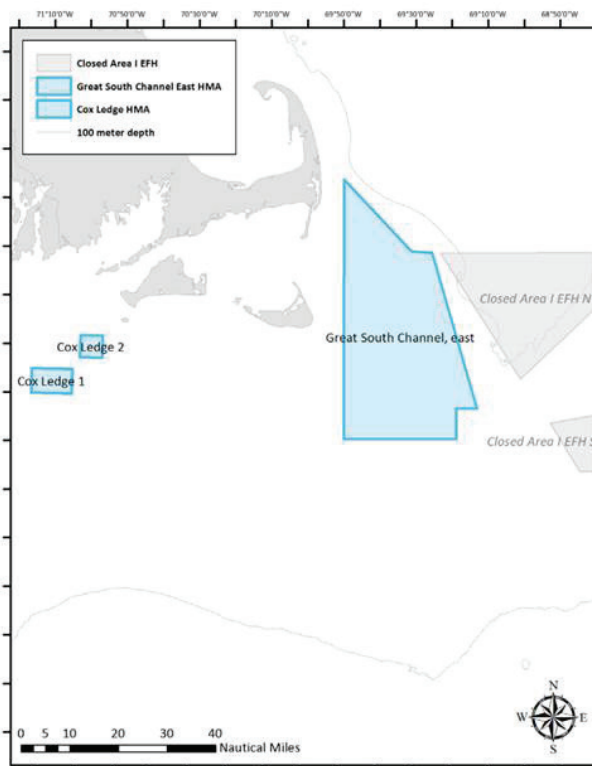
serves as an underwater highway of sorts linking these two major biogeographic regions. There is genetic evidence that Atlantic cod populations in the Western GOM and Northern Mid-Atlantic Bight have long been connected, and the Channel is likely an important migratory pathway maintaining that linkage. Moreover, there is increasing evidence that a variety of Mid-Atlantic species are shifting their distribution northward and becoming more common in the GOM. Black sea bass are more common in the nets of Maine harvesters, and squid have been available to those same harvesters in commercially viable quantities over the past year or two. Atlantic mackerel, mahi mahi, Atlantic croaker, and other species that were formerly absent or rare in northern waters are becoming more prominent. The Channel is likely playing an important role as a highway facilitating this reorganization of ocean ecosystems, and a closed area might allow that function to be undisturbed.

As Mid-Atlantic species shift into the GOM, the distribution of resident species in the GOM also seems to be changing. In particular, waters off the central and eastern coast of Maine that have long been devoid of groundfish might be in the early stages of reestablishing local spawning populations. Atlantic cod in particular have long been concentrated in a pocket in the western

GOM, from the existing Western GOM Closed Area eastward, with a smaller outpost in the Cashes Ledge Closed Area in the central GOM. However, the extreme water temperatures of the summer of 2012 caused cod to move north and east, reducing density in the western GOM but increased the numbers in areas that have been in desperate need of replenishment.

Two new closed areas have been proposed along the coast of eastern Maine, outside of Penobscot Bay, and a smaller Machias area at the Canadian border. By protecting key habitats identified by the NEFMC's Closed Area Technical Team and creating a refuge with lower fishing mortality (recreational fishing and lobstering would likely continue in these areas, thereby not being full refuges) these closed areas can allow migrant fish a better chance to take root and seed new spawning populations. Furthermore, a larval dispersal modeling study that the Environmental Defense Fund is conducting with the Woods Hole Oceanographic Institution suggests that if spawning populations can reestablish in these closed area they can supplement the primary fishing ground down-current in the western GOM through a recruitment subsidy.

The proposal for new closures in this region was first brought to the NEFMC by the Penobscot East Resource Center (PERC), an



New fishery closed areas being considered by the New England Fishery Management Council (NEFMC) in the Great South Channel (A) and Eastern Maine (B) have the potential to protect important habitats, help recover depleted groundfish stocks, and build ecosystem resilience in the face of climate change. The alternatives illustrated are among several configurations being considered by the NEFMC. The Cox Ledge areas near the Great South Channel are also new alternatives, but are likely too small to have significant benefits for stock rebuilding or ecosystem resilience. The Jeffrey's Bank alternative near the Eastern Maine areas is a proposed modification of an existing closure. Source: NEFMC Closed Area Technical Team

organization working to rebuild a more diverse ecosystem and fishing industry in eastern Maine. One important rationale for the closures highlighted by PERC is that spawning runs of river herring will be increasing in the Penobscot and St. Croix Rivers as a result of restoration efforts underway. An ambitious plan for the Penobscot is removing some dams and installing fishways on others. In the St. Croix, a longstanding dispute that led to the closure of fishways on the river's dams has recently been resolved by the Maine Legislature, and fish passage facilities are opened again. These two river systems have the potential to one day support the largest river herring runs in the state, and the proposed Eastern Maine and Machias Closed Areas sit right outside the Penobscot and St. Croix Rivers, respectively. Spawning river herring migrating upstream in the spring and juveniles emigrating in the fall will provide a bountiful food source for groundfish that will be further benefitting from the habitat protection and alleviation of the commercial groundfish fishing pressure offered in the closed areas.

The NEFMC faces difficult decisions ahead as it reconfigures its closed area network with an important review of the draft environmental impact statement scheduled for its December 2013 meeting. Opinions on the merits of each alternative being presented differ widely among stakeholders. Notably, some harvesters have been staunch proponents for a robust network that builds upon accumulated benefits of the existing closures, challenging the notion that the industry is short-sighted and lacks a conservation ethic. In any case, the process of revisiting and redesigning a spatial management regime offers an exciting opportunity to consider new science and address evolving management needs and ecosystem conditions. The proposals for the Great South Channel and Eastern Maine Closed Areas present intriguing concepts for improving habitat protection, stock rebuilding, and overall ecosystem resilience.

North Carolina Highway 12

An Engineering, Environmental, Cultural, and Socio-Political Challenge

Pace Wilber, Atlantic Branch Supervisor, Habitat Conservation Division, NOAA Fisheries;
Dr. Wilson Laney, Coordinator, South Atlantic Fish and Wildlife Conservation Office, U.S. Fish and Wildlife Service;
Jimmy Johnson, Coastal Habitats Coordinator, North Carolina Department of Environment and Natural Resources

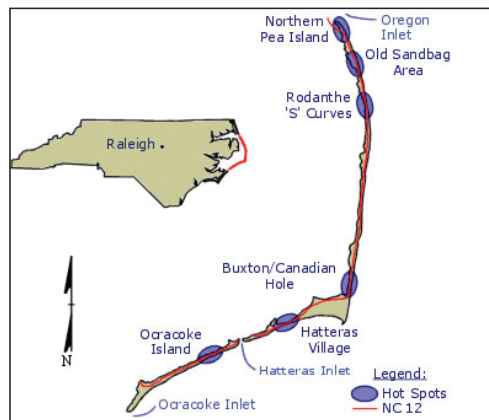
North Carolina (NC) Highway 12 is the only north-south highway along NC's Outer Banks, part of a chain of barrier islands along the state's coast. This two-lane road connects residents and visitors from the northernmost point along the coast in Corolla, south to Cedar Island on the mainland. The Herbert C. Bonner Bridge carries NC Highway 12 over the Oregon Inlet, but NC's Ferry System, which has played a significant role in the highway's history, still provides the only link to Ocracoke Island. The unique culture and landscape of the communities along this route have also earned it recognition as a scenic byway at state and national levels. Maintaining NC Highway 12 is an engineering, environmental, cultural, and socio-political challenge due to its location within a sensitive and dynamic coastal environment.

The harsh salt air has taken a toll on the steel and concrete of Bonner Bridge, and the turbulent waters of the Oregon Inlet constantly shift sands undermining the support piers. The NC Department of Transportation (NCDOT) began the process to replace the bridge in 1989. Several roadblocks have delayed construction. Most recently, lawsuits filed in July 2011 and August 2013 on behalf of the Defenders of Wildlife

and the National Wildlife Refuge Association seek to delay or stop the bridge replacement on environmental grounds. Diligent monitoring and repairs by NCDOT are keeping the bridge open but at substantial cost. The inlet constitutes a critical pathway not only for commercial and recreational fishing vessels, but also for sea turtles, anadromous fishes migrating to spawning areas, and juveniles of many ASMFC-managed species moving into estuarine nursery areas. More information on the construction progress of Bonner Bridge can be found at the NCDOT website: www.ncdot.gov/nc12/

During storms, the ocean washes over NC Highway 12 and deposits large amounts of sand over the roadway in some areas, while erosive waves breach the roadway in others. These events now occur when minor winds from the northeast and spring tides occur simultaneously. Six sections of NC Highway 12 between Oregon Inlet and Ocracoke Inlet frequently need extensive maintenance due to storm and erosion damage. NCDOT is working to provide long-term solutions for the two breaches caused by Hurricane Irene in August 2011 on the Pea

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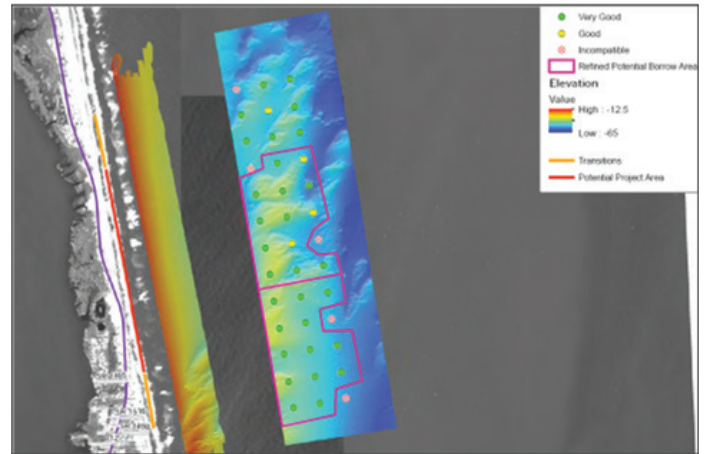
North Carolina Highway 12 is routed along the Outer Banks.
Source: NCDOT

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Storm damage at 'S' Curves portion of NC12. Source: NCDOT



Northern Wimble Shoals borrow area. Data show beach compatibility of sand sampled with vibrocores. Source: U.S. Army Corps of Engineers

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Island National Wildlife Refuge and in Rodanthe. While the other “hot spots” are the focus of environmental and engineering studies aimed at long-term solutions, emergency conditions occur frequently as they are directly associated with coastal storm frequency.

A particularly vulnerable portion of the highway near Rodanthe, known as the ‘S’ Curves, was damaged by a series of storms, including Hurricane Sandy last fall. In March 2013, Governor Pat McCrory declared a state of emergency for NC Highway 12 in Dare County to help NCDOT secure the resources and permits needed to protect this critical portion of the highway, including \$20.8 million in Hurricane Sandy emergency response funding from the Federal Highway Administration. NCDOT is now working with the U.S. Army Corps Engineers (ACOE) Wilmington District on short-term measures to protect the roadway. This winter, NCDOT and the Corps will protect the ‘S’ Curves with 1.6 million cubic yards of beach-compatible sand dredged from 418 acres of Wimble Shoals and placed along 2.13 miles of beach. NCDOT expects this sand to protect NC Highway 12 at the ‘S’ Curves for three years.

Wimble Shoals are important habitat for fishery species. Spawning aggregations of summer flounder occur during the winter months on Wimble, Platt, and Kinnakeet shoals off the Outer Banks. Diverse assemblages of demersal and pelagic fishes associate with sand shoals for feeding, spawning, and growing to maturity, often during migrations across the shelf in the fall and spring. For these reasons, the South Atlantic Fishery Management Council has designated sandy shoals, such as Wimble Shoals, as essential fish habitat (EFH) in the fishery management plan for mackerels



Atlantic sturgeon likely feed on the infauna that inhabit Wimble Shoals sands. Source: NOAA Fisheries

and cobia. The Mid-Atlantic Fishery Management Council identifies shoals as EFH in the fishery management plan for summer flounder, and the ASMFC identifies shoals as a habitat of concern for red drum. Additionally, the federally endangered Atlantic sturgeon was captured by bottom trawling during winter from 1988 to 2006 in the shoals off Rodanthe, just to the south of Wimble Shoals.

NCDOT and the ACOE worked with NOAA Fisheries and the NC Division of Marine Fisheries on a dredging plan that should reduce impacts to shoal habitat. This plan includes leaving undisturbed areas between dredge furrows to hasten recruitment of infaunal and epifaunal organisms to the dredge cuts. Relict salt marsh deposits that emerge from the sand as large, irregular shaped blocks of cohesive muds creating hardbottom-like relief of a few feet are omitted from the dredge plan and will be buffered by 500 feet. The communities associated with these mud blocks have not been studied but are suspected to include prey items such as mud shrimp and polychaete worms. Lastly, all work will occur during winter when use of the shoals by some fish species is relatively low.

At this time, NCDOT is considering two long-term solutions for the ‘S’ Curves. A bridge within the existing roadway easement in Pea Island National Wildlife Refuge and a 2.5-mile bridge that extends into Pamlico Sound, similar to what was considered but not selected for the Bonner Bridge replacement. A bridge constructed within the existing NC 12 right-of-way will either be rapidly battered by ocean waves due to beach erosion or will require beach filling on a regular basis. Wimble Shoals will likely continue to be the sand mining source for beach filling at this location.

Summary of Siting Analysis for Potential Near-Term Offshore Wind Farm Development in North Carolina, South Carolina, and Georgia

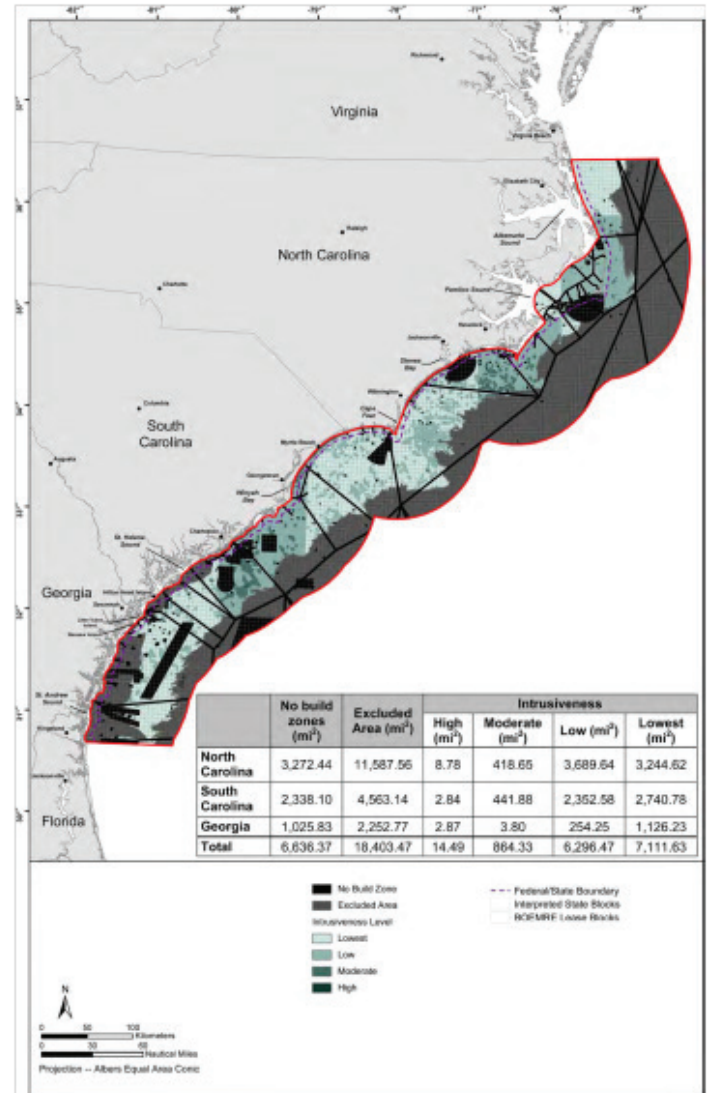
January Murray, Constituent Services Unit Leader, GA Department of Natural Resources

This multi-phased offshore wind project analysis aims to understand the infrastructure required to develop a gigawatt-scale ocean-based renewable energy source off the coasts of North Carolina (NC), South Carolina (SC), and Georgia (GA). The Phase 2A siting analysis identified areas offshore most likely to be built in the near term (10 years) where ecological and non-ecological factors (Table 1 a-g) were assessed. The Study Area is located almost wholly in the South Atlantic Bight and includes the offshore environment off of NC, SC, and GA up to 50 nautical miles (nm) from shore. All areas of unsuitable water depth (>30 meters) or unsuitable estimated wind speed (<7.5 meters per second) were excluded from Study Blocks because they were not commercially viable or economically feasible. A total area of 411 square miles (mi²) was identified as Study Blocks, areas deemed most suitable for development of a 300-megawatt size or larger wind farm. Nine Study Blocks \geq 27 mi² were identified: two study blocks are located off the NC coast, one off the coasts of NC and SC, three off the SC coast, one off the coasts of SC and GA, and two off the GA coast.

An index of relative sensitivity was used as a preliminary planning tool to geographically represent and spatially evaluate the relative degree of intrusiveness between given areas for potential wind farm development. Areas that are lower on the intrusiveness scale on the index (i.e., have fewer total factors that may affect development) are likely more favorable for development. However, those areas that show high or moderate overlap of factors should not be dismissed as areas of potential development; rather they may require additional research. The index was created using eight different GIS layers (Table 1d) where ecological and non-ecological factors were assessed in relation to wind farm development. All areas have at least four layers associated with them (occurrence of marine mammals, sea turtles, and birds, and Essential Fish Habitats (EFH)), hence the lowest intrusiveness value (IV). Areas with five associated layers are of low IV; areas with six associated layers are of moderate IV; areas with seven associated layers are of high IV; and areas with eight associated layers were either excluded or in no build areas. The driving factors for the index include hard bottom, Habitat Areas of Particular Concern (HAPC), fisheries, sand borrow areas, and any excluded or no build areas. Marine mammals, sea turtles, birds, and EFH were deemed to have equal intrusiveness throughout the Study Area and therefore did not give the index discernible detail. Also, the North Atlantic Right Whale critical habitat is located within an area that is either in an Excluded or No Build Area. EFH designations were grouped into a single layer since the geographical delineations of these Fisheries Management Units do not preclude human use such as offshore wind development (Table 1f).

Seasonal variations in occurrence of marine mammal, sea turtle, and bird species were not accounted for in any of the siting analysis layers because species with primary occurrence (PO) in the Study Area may occur there during any time of the year. A PO Area represents an ecologically valuable zone that may be intrusive to wind farm development as species, including threatened or endangered (T or E), are expected to be found regardless of how abundant they may be. Seasonal variations could factor into regulatory requirements that distinguish between offshore wind farm construction and post-construction

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Index of relative intrusiveness for the siting and development of offshore wind resources within the Study Area. Source: Siting Analysis for Potential Near-Term Offshore Wind Farm Development in NC, SC, and GA. Final Report, March 2011

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operations. Species abundance estimates were not available in the Study Area but are needed for the next planning phase due to regulatory requirements for quantitative estimates of the number of potentially impacted individuals.

This analysis provides a good synthesis of available baseline data for initial planning purposes. The next phases will use the Study Blocks identified to estimate offshore wind energy generation potential and electric transmission requirements. Further research and consultation with numerous agencies will be conducted before any areas may be developed.

a. Ecological Index Resources	b. Non-Ecological Index Resources (Inhibitive to Development)	c. Non-Ecological Index Resources (Not Inhibitive to Development)	d. GIS Index Layers
<ul style="list-style-type: none"> Artificial Reefs Marine Protected Areas Habitat Areas of Particular Concern (HAPC) Essential Fish Habitat (EFH) Submerged Aquatic Vegetation Corals & Hard Bottom Primary Occurrence Areas (for marine mammals, sea turtles, and birds) 	<ul style="list-style-type: none"> Maritime Traffic/Shipping Lanes Unexploded Ordnances Restricted Areas Mining or Dumping Ground Areas Areas Overlaying Subsea Pipelines Gray's Reef National Marine Sanctuary Artificial Reefs Known Shipwrecks/Obstructions 	<ul style="list-style-type: none"> SCUBA Sites Sailing Regattas Buoys and Weather Stations Military Practice Areas Sand Borrow Areas Commercial & Recreational Fishing Effort 	<ul style="list-style-type: none"> Sand Borrow Area Marine Mammal Occurrence Areas Sea Turtle Occurrence Areas Bird Occurrence Areas Fisheries Use Hard Bottom & HAPC EFH North Atlantic Right Whale Critical Habitat No Build Zones
e. No Build Areas	f. Fisheries Management Units	g. EFH Types	
<ul style="list-style-type: none"> Artificial Reefs (SMZ) Hard Bottom Areas Marine Protected Areas Obstructions Restricted Areas Ferry Routes Mining or Dumping Ground Areas Military Practice Areas Danger Areas/Unexploded Ordnances Shipping Lanes/Traffic Separation Zones Shipwrecks Areas Directly Overlaying Subsea Pipelines Wind Speeds 	<ul style="list-style-type: none"> Dolphin-Wahoo (EFH-HAPC) Inshore/Offshore Shrimp (EFH) Coastal Migratory Pelagic (EFH-HAPC) Spiny Lobster (EFH) Snapper-Grouper Complex (EFH-HAPC) Coral, Coral Reefs, Live Hard Bottom Fishery (EFH-HAPC) Temperate & Highly Migratory Species (EFH-HAPC) 	<ul style="list-style-type: none"> Benthic Substrates (not including live hard bottom) Live Hard Bottom Structured (artificial reef/biogenic) Pelagic Sargassum Marine Water Column Gulf Stream Current Nearshore (estuarine/marine emergent wetlands, SAV) 	

Table 1 (a-g). Index of considerations for the development of wind farms.

Next in the ASMFC Habitat Management Series

The ASMFC Habitat Committee is developing the next installment of the Habitat Management Series (HMS) with an objective view of estuarine and near-shore aquaculture practices and effects on fish habitats. The document will explore how fish habitats respond to aquaculture activity located in the same vicinity. There are a variety of genera being cultured using a number of different techniques which tend to vary among regions and distance from shore. Consequently, estuarine and nearshore aquaculture will be reviewed in a coastwide context. Knowledge of the effects on fish habitat from aquaculture is critical as aquaculture production for food, industry, and restoration increase and spatial planning becomes critical. The HMS document will not explore policy issues, human health, industry development, or other such topics.

The ASMFC Habitat Management Series provides an overview of important habitat topics for Commission-managed fish species, guides the reader to consider various aspects of an issue, and provides additional sources of information. The ASMFC Habitat webpage highlights some of the long-standing and emerging "hot" topics currently being addressed by the Commission's Habitat Committee: <http://www.asafc.org/habitat/hot-topics>.

Sandy's Silver Lining

Dawn McReynolds, Section Head, Marine Habitat, Bureau of Marine Resources, New York State Department of Environmental Conservation

Superstorm Sandy impacted the New York area on Monday, October 29, 2012, bringing high winds, heavy rain and record storm surges. The results were devastating with damages to life and property. This storm event not only affected our coastal communities but our coastal environment in significant ways. Many areas saw large mats of marine debris smothering wetlands, home heating oil and sewer spills due to flooding and power outages, eroding of critical shorebird habitat, and destruction of forest canopies due to downed trees. However, with this devastating destruction, came some benefits to fish and wildlife habitats.

Coastal ecosystems evolve and change constantly over time in response to the natural forces of wind, waves, tides, and sea level. Storms can have beneficial effects on natural ecosystems such as barrier islands and man-made manipulated habitats such as berms. During Superstorm Sandy, many areas of Long Island, New York, experienced storm induced beach erosion and dune overwash. This resulted in sand being transported to the interior of the island filling in various types of habitat in the back-bay areas. While overwash and sand distribution can make an undeveloped barrier island stronger by adding to its elevation, in some extreme instances the barrier island erosion creates a breach in the island where the bay meets the ocean. This process is how barrier islands are built and how they evolve over time.

Superstorm Sandy created three breaches on Long Island's south shore barrier islands. When breaches occur on Long Island, from Fire Island Inlet east to Montauk Point, the Breach Contingency Plan (BCP) is executed by a multi-agency group which includes the National Park Service, U.S. Army Corps of Engineers (USACE), and New York State Department of Environmental Conservation (NYSDEC). The BCP calls for rapidly closing breached areas that do not occur in the federally designated wilderness areas of the south

shore barrier islands. Therefore, two breaches at Smith Point County Park and Fire Island National Seashore (FINS) were filled in November 2012, restoring the barrier between the back-bay and the ocean.

One breach that remained, due to its location in the FINS wilderness area, is within the Otis Pike High Dune Wilderness at "Old Inlet" (Figure 1). The BCP allows monitoring of breaches in this location to determine if the breach will close naturally. Given its relatively stable condition, monitoring has continued.

However, between January and mid-March 2013, a series of winter storms impacted the island and caused the new inlet to migrate west and deepen the channel. BCP partners began preliminary steps to prepare for the implementation of a closure should that action need to be taken.

Given such intense interest by all stakeholders in how breaches change both physical and biological resources of the surrounding area, researchers with NPS, U.S. Geological Service and Stony Brook University's School of Marine and Atmospheric Science are monitoring the breach. Of considerable interest are changes in water elevation that might effect, or flood communities located near the breach, changes in the dimensions of the breach, water velocity and stability, as well as changes in water quality and biological resources such as the plankton, benthic and fish communities.

Breaches can change ecosystem habitats. Prior modeling has shown both benefits and possible detriments to ecosystems and the surrounding communities. As shown in Figure 2, sand overwash has created tidal flats. These flats can support many wildlife species such as fish, birds, invertebrates, as well as submerged aquatic vegetation. Breaches can also lead to increases in water circulation and salinities at least on a local level. Additionally, increasing salinities can change benthic and fish communities. For example, a prolonged or permanent breach can provide access for more benthic predators on hard clams but also conversely improve food quality for the clam. Improved

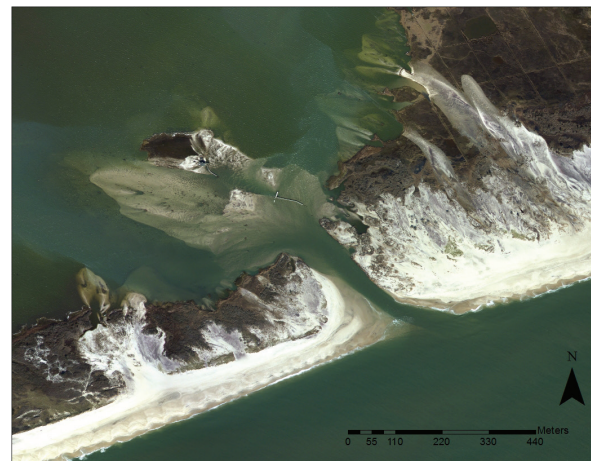
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Before the Storm



Figure 1. Old Inlet Breach, FINS Otis Pike Wilderness Area, 2010, and post-Superstorm Sandy, 2012. Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community and November 4, 2012 NOAA aeriels <http://storms.ngs.noaa.gov/storms/sandy>

After the Storm: Nov. 4, 2012



ATLANTIC COAST FISH HABITAT POLICY AND REGULATION

REGIONAL APPROACHES

(continued from page 9)

water circulation can alter planktonic communities which may lessen the impacts of harmful algal populations while at the same time might benefit the bivalve grazer populations. Additionally, improved ocean water exchange with the bays could open seasonally restricted shellfish beds for harvest in the nearby area. Fish species composition is not thought to be altered significantly as many of the fish species in these estuaries are adapted to changing salinities.

For the Old Inlet breach area, there have been anecdotal reports of better fishing, increased mussel sets, and more alewives moving up rivers to spawn than in previous years. However, there is concern that the breach could grow and deepen thereby increasing the tidal elevations. This could have implications on mainland flooding. Much information is needed to document what consequences this barrier island breach will have on the bay ecosystem over time.

Not only did Long Island's breached barrier island provide benefits to some aquatic species and habitats, but the destruction of man-made structures during the storm also provided restoration potential by opening areas that historically experienced tidal flow but have been cut off with the construction of berms (Figure 3). New York State Parks and its partners had just completed feasibility studies and designs to remove a man-made berm and roadway across Sunken Meadow Creek, in Kings Park, Long Island. Superstorm Sandy hit and completed most of the job for them.

The storm surge completely removed the berm, two undersized culverts, and a roadway. This reconnected full tidal flow to the

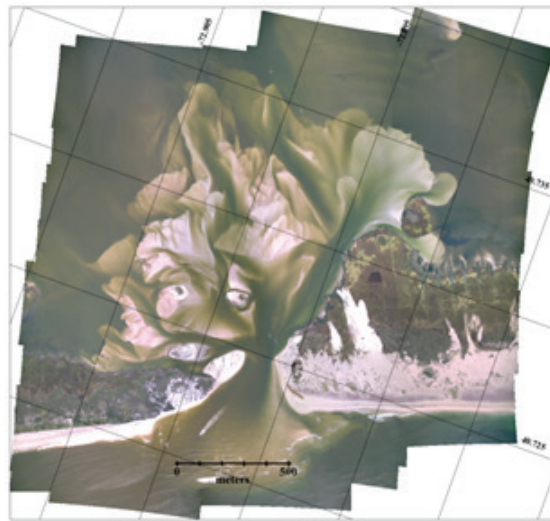


Figure 2. Old Inlet Breach, FINS Otis Pike Wilderness Area, September 13, 2013 Source: Charles Flagg, Ph.D SOMAS

tributary and wetland allowing fish passage to over 100 acres of historic estuarine and freshwater habitat. Over time, the predominant wetland vegetation, invasive Phragmites, will be replaced both naturally (with increasing salinity) and with planned restoration efforts using more beneficial saltmarsh grasses. Not only will the restored tributary support access to habitat for marine and diadromous fish species, such as alewife, striped bass, juvenile bluefish, winter flounder, weakfish, silverside, killifish and American eel, but also shellfish, waterfowl, shorebirds and wading birds. Transformations such as Phragmites populations dying, and increased shorebird use are already

being documented. Planning is now underway to control bank erosion and restore access to the other side of the creek for park visitors. Similar to the barrier breach, potential flooding impacts to the surrounding community were assessed during feasibility studies and now monitoring is being undertaken to understand and document changes in the hydrology and habitat over time. Additional restoration efforts are still being considered such as water quality improvement, stabilization of the banks and mudflats by planting indigenous plants like *Spartina* grasses, and assessing the value of fish passage improvements.

The different sites discussed above are just a few examples of how the destruction from storms can also benefit our environment in a positive way. To this day, recovery efforts are still underway to restore affected areas, understand the magnitude of environmental or coastal process impacts and plan for more resilient coastlines. Even with the magnitude of personal destruction, including the coastal environments, some habitat restoration seems to have been achieved.



Figure 3. Sunken Meadow Creek Berm before and after Superstorm Sandy. Source: Victoria O'Neill, NEIWPC - Environmental Analyst, Long Island Sound Study Habitat Restoration Coordinator, c/o NYSDEC, Bureau of Marine Resources

ATLANTIC COAST FISH HABITAT POLICY AND REGULATION

SPECIES PROTECTION

Endangered Species Act Listing Update for River Herring and Atlantic and Shortnose Sturgeon

Kim Damon-Randall, NOAA Fisheries, Protected Resources Division

River Herring

In August, NOAA Fisheries announced its decision on whether alewife (*Alosa pseudoharengus*) and blueback herring



(*A. aestivalis*), collectively known as river herring, warrant listing under the Endangered Species Act (ESA). After receiving a petition from the Natural Resources Defense Council to list alewife and blueback herring under the ESA, NOAA Fisheries initiated a review of the status of both species. On August 9, 2013, a notice was published in the Federal Register indicating that listing is not warranted for either species at this time; however, given the uncertainties and data deficiencies for both species, NOAA Fisheries committed to revisiting the species' status within the next five years.

In the next five years, NOAA Fisheries plans to work with its partners to collect further data and information to fill in key data gaps for these two species. While both species are at low abundance compared to historic levels, NOAA Fisheries does not believe that there is any imminent risk to either species' recovery or long term survival over this timeframe.

During this time, NOAA Fisheries plans to:

- Coordinate with the ASMFC to develop a long-term and dynamic conservation plan (e.g., priority activities and areas) for river herring throughout both species' range;
- Attempt to quantify the impact of ongoing restoration and conservation efforts and new fisheries management measures that are being initiated/considered (e.g., catch caps in two federal fisheries) which should benefit the species;
- Review any new information produced from ongoing scientific studies (e.g., genetic analyses, ocean migration patterns, climate change impacts) that are completed during this timeframe; and
- Assess available data to determine whether recent reports of high river herring counts in many areas along the coast in the last two years represent sustained trends.

NOAA Fisheries believes the development of a conservation plan for river herring will be a significant step forward to help address the data deficiencies and uncertainties associated with these species. A technical expert working group will be convened to help develop this plan which will consider the full range of the species from Canada through Florida. The plan will include consideration of previously identified threats, research and conservation efforts (e.g., as detailed in the ASMFC benchmark stock assessment, NOAA Fisheries reports and

listing determination and other available documents), and describe a coordinated and prioritized coastwide approach to continue to address data gaps and conserve river herring and their habitat. This will allow for the development of a strategy that reflects the most efficient and effective approach to river herring conservation and restoration based on consideration of available information and ongoing efforts throughout the species' full range. NOAA Fisheries is excited to work with ASMFC and other state, federal, tribal, and academic partners on this initiative to ensure the continued recovery of these two species that are critical to fully functioning marine, estuarine, and freshwater ecosystems.



Atlantic Sturgeon

In February 2012, NOAA Fisheries listed five distinct population segments of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) under the ESA. The Gulf of Maine population was listed as threatened and the New York Bight, Chesapeake Bay, Carolina and South Atlantic populations were listed as endangered. Listing determinations under the ESA must be made based on the best scientific and commercial data available. The Atlantic sturgeon listing determination was based primarily on an analysis of the ongoing and future threats to the species as there were no overall population estimates available for any of the Atlantic sturgeon populations. Some of the threats identified for Atlantic sturgeon include impacts to the species from degraded water quality, reduced water quantity (particularly in the Southeast), and degradation of habitat that has resulted from dredging. At this time, NOAA Fisheries is compiling and analyzing information necessary to designate critical habitat. Critical habitat is defined as the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical and biological features that are essential to the conservation of the species and which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species.

Since the listing, NOAA Fisheries has been working on deriving more comprehensive population estimates for use in recovery planning, in Section 7 consultations and Section 10 permitting. The Northeast Fisheries Science Center (NEFSC) developed a model to help estimate the overall population of Atlantic sturgeon in the Atlantic Ocean. The model uses estimates of annual discards from otter trawl and gillnet fisheries in the Northeast from 2006 to 2010 and analyses of a large-scale tagging database maintained by the US Fish and Wildlife

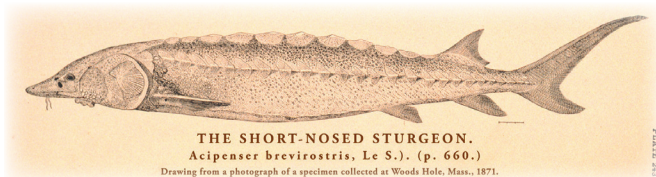
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SPECIES PROTECTION

(continued from page 11)

Service (USFWS). Based on the results of the Atlantic sturgeon population index model that the NEFSC developed, ocean population estimates range from 165,381 to 744,597. This model does not include young fish that have not left their natal rivers or fish that remain out of the area sampled (e.g., in Canadian waters or south of Cape Hatteras). Northeast Area Monitoring and Assessment Program (NEAMAP) trawl survey data were also analyzed to derive minimum sturgeon biomass estimates for comparison with the population model. Assuming that the NEAMAP survey is 50% efficient at catching Atlantic sturgeon, the overall minimum swept area biomass estimate is approximately 67,776 fish (in the ocean).

The NEFSC's model and results, as well as the NEAMAP results, will be considered in the upcoming ASMFC's stock assessment of Atlantic sturgeon. The assessment will integrate all sources of abundance estimates into a comprehensive stock assessment which will then provide a strong basis for future decision-making. The stock assessment is expected to be completed in 2014. If upon completion of the stock assessment, it is determined that a new status review is warranted, NOAA Fisheries will draw from the work of the ASMFC's Stock Assessment Committee and focus on just those areas necessary to address information gaps to help inform a new ESA listing determination.



THE SHORT-NOSED STURGEON.
Acipenser brevirostris, Le S.). (p. 660.)
Drawing from a photograph of a specimen collected at Woods Hole, Mass., 1871.

Shortnose Sturgeon

In early 2013, a biological assessment of shortnose sturgeon (*Acipenser brevirostrum*) was completed and made available on NOAA Fisheries Northeast Regional Office's website, which reflects the best available scientific information through 2010. This document represents a comprehensive scientific review of the life history, population structure, threats, and riverine assessments, for shortnose sturgeon throughout the species' entire range. NOAA Fisheries convened a team of experts on shortnose sturgeon biology, genetics, and life history to compile information for this Assessment. NOAA Fisheries has identified particular research priorities for this species and will be initiating a five-year review in 2014. In order to ensure proper conservation and management of shortnose sturgeon, it is critical to understand the habitat use of each life stage. Of particular importance are studies on foraging ecology, growth of various life stages, defining benthic habitats that support preferred prey items, and characterization of nursery habitat. Additionally, information on spawning habitat and overwintering sites is still missing for some riverine populations.

USFWS Seeks Data and Other Information on American Eel to Ensure Comprehensive Status Review

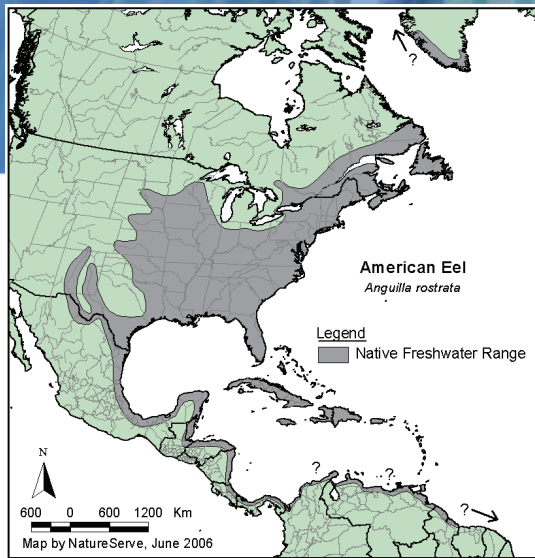
Krishna Gifford, Candidate & Listing Coordinator, American Eel Status Review, U.S. Fish and Wildlife Service, Northeast Region, Hadley, MA
Dr. Wilson Laney, American Eel SE Region Point of Contact, U.S. Fish and Wildlife Service, Raleigh, NC

The USFWS is responsible for identifying species in need of protection under the ESA of 1973, as amended. In 2010, the American eel (*Anguilla rostrata*) was petitioned for ESA listing and in 2011, after an initial review of the petition, the USFWS announced the start of a detailed status review for the species. The USFWS is seeking new information for consideration in its listing petition finding, which will be completed by September 2015. The finding will either be that listing the American eel is warranted, listing is not warranted, or that listing is warranted but precluded by other higher priority listing actions.

The semelparous (breeding once in a lifetime) life history of the American eel begins in the Sargasso Sea, located in the middle of the North Atlantic Ocean, where eggs hatch into a larval stage known as "leptocephali." These leptocephali are transported by ocean currents from the Sargasso Sea to the Atlantic coasts of North America, northern portions of South America, and the Caribbean. The American eel undergoes several stages of metamorphosis, from leptocephali to juveniles arriving in coastal waters as unpigmented "glass eels." When juvenile eels arrive in coastal waters, they can arrive in great density and with considerable yearly variation. Glass eels metamorphose to pigmented "elvers" and then develop into "yellow eels," occupying marine, estuarine, and freshwater habitats. American eels begin sexual differentiation at a length of about 20 to 25 centimeters and, depending on eel density, become male or female "silver eels." Upon nearing sexual maturity, silver eels begin migration from freshwater or estuaries to the Sargasso Sea, completing sexual maturation en route. Spawning occurs in the Sargasso Sea after which the adult eels die.

The extensive range of the American eel includes all accessible river systems and coastal areas having access to the western North Atlantic Ocean and to which oceanic currents would provide transport. As a result of oceanic currents, the majority of American eels occur along the Atlantic seaboard of the United States and Canada. The historic and current distribution of the American eel within its extensive continental range is well documented along the U.S. and Canadian Atlantic coast, and the Saint Lawrence River/Lake Ontario (see map). The distribution is less well documented and likely rarer, again due to currents, in the Gulf of Mexico, Mississippi watershed, and Caribbean Islands, and least understood in Central and South America.

With the publication of the 2011 90-day petition finding notice, USFWS initiated a review of the status of the American eel and opened a 30-day information request period where information



American eel has an extensive range throughout the east coast of Canada, U.S., and the Caribbean Islands, while its distribution is not well understood in Central and South America. Source: NatureServe

could be submitted electronically through the eRulemaking Portal (www.regulations.gov). However, the 90-day Finding also indicated that the Service would accept information after the initial 30-day information request period.

The USFWS is seeking any new information about the species' biology, range, population abundance and trends, genetics and taxonomy, and threats (loss or modification of habitat, over-utilization, disease or predation, existing regulatory mechanisms, and other natural or manmade factors), which will be analyzed for the review. As explained in the 2011 90-day petition finding, the USFWS is using the previous 2007 status review (which found listing the American eel was not warranted) as the baseline for the current status review. Therefore, the USFWS is particularly seeking information about the following categories because they represent information that may challenge the USFWS' previous assumptions about the American eel and have the most potential to change the outcome of the status review:

- Panmixia (having one, well-mixed breeding population) and population structure, such that a threat could have differentiating effects on portions of the population and not the whole species;
- Statistically significant long-term glass eel recruitment declines;
- Correlations between climate change and glass eel recruitment; and
- Climate predictions over the next 25 to 100 years as they relate to ocean circulation, changes in the Sargasso Sea circulation, sea surface temperature, and larval and glass eel food availability.

New information will be accepted throughout the status review process, but information received as soon as possible will be of the most help to the review. Information should be submitted to Steve Shepard, the lead field biologist for the American eel status review, at the Maine Ecological Services Field Office, 17 Godfrey Drive, Suite 2, Orono, Maine 04473-3702. All data and information submitted to the USFWS, including names and addresses, will become part of the administrative record.

Deep Sea Coral Habitat

Jay Odell, Mid-Atlantic Marine Program Director,
The Nature Conservancy

When people think about coral, it may be that *Finding Nemo* or snorkeling vacations in tropical locales is top of mind. Some may be surprised to learn that deep sea corals are found from Canada to Texas and throughout the world's oceans, especially in submarine canyons and other steep and rocky areas. These very slow growing species provide habitat for many commercially and recreationally important species and are quite vulnerable to any sort of physical disturbance.

The Atlantic coast's temperate water corals are diverse and include species typically found relatively close to shore such as the northern star coral (*Astrangia poculata*) and colorful sea whip (*Leptogorgia virgulata*) that are commonly found growing on and creating structure and habitat for black seabass, tautog, and summer flounder.

Farther offshore within submarine canyons and all along the edge of the continental shelf many other species are found, including the bubblegum (*Paragorgia arborea*) and red tree (*Primnoa residaeformis*) corals that can grow to over nine feet tall and live for hundreds, perhaps thousands of years. Stony corals such as *Lophelia pertusa* (throughout the southeastern US and Gulf of Mexico) and *Oculina varicosa* (only off east-central Florida) have formed high-relief bioherms. These are thickets of live coral, capping mounds of sediment and coral rubble, often built upon a base of an underlying lithified structure or rock. These extensive thickets can be 1-2 meters (m) tall, but over thousands of years have formed mounds and ridges extending as much as 1000 m laterally and some are as high as 150 m above the surrounding seafloor. (continued on page 14)



Octopus garden at Norfolk Canyon with *Desmophyllum cup* corals, a brisingid sea star and bivalves. Source: Deepwater Canyons 2013 - Pathways to the Abyss, NOAA-OER/BOEM/USGS

ATLANTIC COAST FISH HABITAT POLICY AND REGULATION

SPECIES PROTECTION

(continued from page 13)

NOAA Fisheries and various fishery councils have been working to understand, manage, and protect deep sea corals and their habitats. NOAA's Deep Sea Coral Research and Technology Program was initiated in 2009 and has helped to stimulate and sponsor a long overdue coral research blitz along the Atlantic coast, with multiple expeditions using acoustic mapping and remotely operated vehicles (ROV) to explore the submarine canyons and document the occurrence and distribution of corals. Several of NOAA's research vessels including *Nancy Foster*, *Ronald H. Brown*, *Henry B. Bigelow*, *Ferdinand R. Hassler* and *Okeanos Explorer* were engaged, with support and participation from other federal agencies including substantial support from the Bureau of Ocean Energy Management. These expeditions continued through the summer of 2013, culminating with *Okeanos Explorer* beaming spectacular live video of coral habitats and marine life to shore from a new state-of-the-art ROV. The live streaming events had as many as 60,000 visits per day by shore based scientists and armchair explorers witnessing submarine canyons being seen for the first time by human eyes. For more information and video highlights, please see: <http://oceanexplorer.noaa.gov/okeanos/welcome.html>.

In 2010, the South Atlantic Fishery Management Council (SAFMC) extended over twenty years of shallow and deep water coral management efforts to designate five areas as "Deepwater Coral Habitat Areas of Particular Concern," providing complete protection from certain types of fishing gear and enhancing protection from other human impacts such as energy exploration and development.

In August 2012, the Mid-Atlantic Fishery Management Council (MAFMC) initiated Amendment 16 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan, to protect deep



*Summer flounder on live bottom patch habitat with hard and soft corals (*Astrangia* and *Leptogorgia*) offshore Ocean City, Maryland. Source: Michael Eversmier*



*Bubblegum (*Paragorgia*) and *Primnoa* corals, an anemone and a sea star share a boulder at ~440 meters in Norfolk Canyon. Source: Deepwater Canyons 2013 - Pathways to the Abyss, NOAA-OER/BOEM/USGS. (<http://oceanexplorer.noaa.gov/explorations/13midatlantic/logs/may11/media/bubblegum-bires.jpg>)*



Okeanos Explorer telepresence connects shore based scientists and citizens to deep sea discovery in real time. Image courtesy of Okeanos Explorer program.

sea corals from fishing impacts. This amendment is building on the prior efforts of the NEFMC to collect and organize coral data to inform potential new management measures.

The South Atlantic, Mid-Atlantic, and New England Fishery Management Councils developed a Memorandum of Understanding that identified areas of consensus and established a commitment to develop strategies for deep sea coral conservation along the entire Atlantic seaboard during the summer of 2013. The Gulf of Mexico Fishery Management Council has also been involved and is considering additional management measures for deep coral habitats.

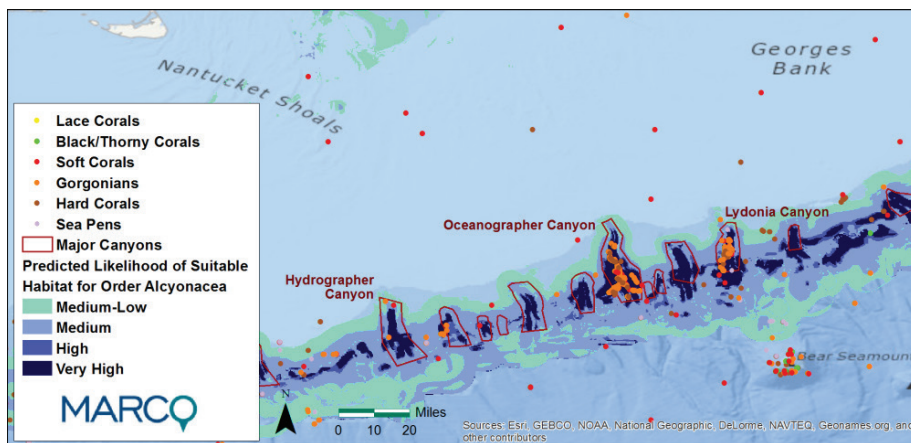
The Mid-Atlantic Regional Council on the Ocean (MARCO) works to advance a shared vision for the long-term health and productivity of ocean resources and its priorities include helping to coordinate conservation of important marine habitats, including deep sea corals. In the spring of 2013, the MAFMC held a participatory mapping workshop in Baltimore to develop options for Amendment 16 and invited MARCO's Ocean Data Portal Team to help plan and support the workshop. The workshop was open to any interested party and many members of MAFMC's Advisory Panels for Ecosystems and Ocean Planning and the Mackerel, Squid and Butterfish Fishery Management Plan attended. Each of these advisory panels includes commercial and recreational harvesters and environmental advocates.

During the workshop, coral research scientists and squid harvesters took turns sharing their detailed knowledge using MARCO's participatory mapping system to enhance and update map data; documenting areas that are particularly important for corals and for fishing. Recently collected unpublished data from the new coral expeditions was displayed and discussed, and harvesters shared information about fishing locations and practices. All present learned that harvesters are highly motivated to avoid

rocky coral habitats that can damage or destroy very expensive fishing gear. Through this collaborative effort progress was made in defining areas where corals could be protected from fishing without unnecessarily impacting fishing opportunity.

The MAFMC has been holding additional meetings with harvesters and Advisory Panel members to build on the information developed at the workshop. After a range of fishery management alternatives has been finalized, MARCO's Ocean Data Portal Team will create an interactive online mapping application to present the options along with other relevant map layers. This approach will provide stakeholders with a better opportunity (than a static document) to fully review and compare management alternatives and submit well informed comments before the Council votes to select its preferred option. For more information on the Amendment 16 process, please see the MAFMC website (<http://www.mafmc.org/actions/msb/am16>).

The mountain of new coral data collected over the last few years has yet to be fully unpacked and explored – numerous new discoveries were made, including probable new species and species-habitat associations. For example, these expeditions delivered the first records of *Lophelia* coral from the mid-Atlantic region. The expeditions also provided an opportunity to validate a new predictive model for deep sea coral developed by NOAA's



MARCO's Mid-Atlantic Ocean Data Portal hosts NOAA NCCOS coral predictive model and coral observation data. Source: MARCO

National Center for Coastal Ocean Science. This model shows promise for informing management of offshore activities affecting the seafloor, guiding additional exploration, and aiding understanding of the ecosystem functions of these unique coral habitats.

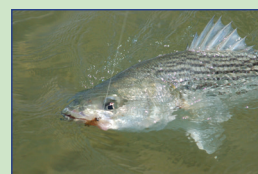
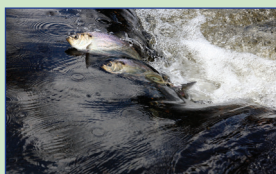
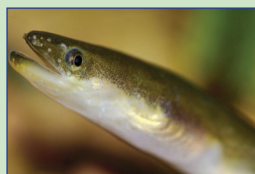
While the submarine canyons 40-60 miles offshore remain largely unexplored and a research priority, much progress has been made. The current and former distribution and abundance of patchy star coral and sea whip habitats closer to shore remains poorly understood. However, NOAA Fisheries' Northeast Fisheries Science Center has recently initiated surveys offshore of Maryland to begin to close this gap.

Atlantic Diadromous Fish Habitat Source Document Available

Looking for the most comprehensive compilation of habitat information to date on Commission-managed diadromous species (American eel, American and hickory shad, alewife herring, blueback herring, Atlantic sturgeon, and Atlantic striped bass)?

Then the Atlantic States Marine Fisheries Commission publication, *Atlantic Coast Diadromous Fish Habitat: A Review of Utilization, Threats, Recommendations for Conservation, and Research Needs*, is the resource for you! The report's primary focus is on inshore and nearshore habitats along the Atlantic coast for all life stages of Atlantic coast diadromous species and was developed to serve as a resource for fisheries managers to use when amending existing fishery management plans. Furthermore, maps that were developed using a GIS interface provide an all-inclusive source of spawning habitat information for Commission-managed diadromous species. The 460 page report is accompanied by a DVD Supplement including the GIS maps and tables on spawning rivers, spawning habitat locations, peak locations, and temperatures.

Limited copies are available, so please contact the Commission at info@asmfc.org if you would like to receive the report. Act quickly because these reports will only be available only through early 2014.



ATLANTIC COAST OCEAN PLANNING

Northeast Regional Ocean Council Update

Dani Carter, Northeast Regional Ocean Council Coordinator

It was a busy and productive year for the Northeast Regional Ocean Council (NROC). As a state and federal partnership, it is NROC's mission to provide a voluntary forum for New England states, federal partners, and other interested organizations and groups to coordinate and collaborate on regional approaches to support balanced uses and conservation of the Northeast region's ocean and coastal resources. Throughout 2013, NROC continued to focus its efforts on its three priority issue areas: coastal hazards resilience, ocean and coastal ecosystem health, and ocean planning.

In the area of coastal hazards resilience, NROC continued its support of coastal community resilience by providing grants through the New England Municipal Coastal Resilience Initiative. A series of grants aimed at enabling communities to focus on preparing for impacts of climate change, including coastal flooding and sea level rise, wrapped up during 2013, with results and case studies of the six pilot projects now available at Northeast Climate Change Adaptation website (<http://necca.stormsmart.org/municipal-grants/>). A new round of grants focused on improving coastal resilience by supporting activities in line with FEMA's Community Rating System were also announced and awarded, and will be carried out over the next two years.

In the area of ocean and coastal ecosystem health, initial efforts got underway on two important projects. The Sentinel Monitoring for Climate Change project aims to develop a science and implementation plan for an adaptive sentinel monitoring program in the Northeast coastal region that integrates existing regional monitoring efforts, assets, and resources in order to assess the status and trends of key indicators at select sites and geographic subregions. The Marsh Migration project will support the assessment of marsh vulnerability to sea level rise through model analysis, workshops, and the development of guidance materials. During 2013, preliminary workshops were held and steering committees formed to carry these projects forward.

In addition, as part of a NOAA Project of Special Merit, the New England states were awarded funding to assemble a comprehensive working group to inventory, analyze, and make recommendations on a unified strategy for habitat classification. This effort culminated in a suite of recommendations ranging from the adoption of the Coastal and Marine Ecological Classification Standard as a unifying framework for future habitat classification efforts in the region to the continuation of a forum for classification and mapping discourse and collaboration at a regional level. A final report will be issued in late November.

There was much effort and progress made towards regional ocean planning in New England. NROC provided valuable support in the areas of information development, stakeholder engagement, and communications. NROC believes that

NROC's new website offers a wealth of resources for ocean planning in the New England coastal region. Source: NROC.

enhanced data and science are foundational elements for smarter decision-making. As such, NROC and partners have developed maps of human activities such as commercial fishing, aquaculture, shipping, energy, and boating. NROC also enhanced understanding of the information and data available to characterize marine life distribution and abundance and developed options for integrating information on marine mammals, fish, and birds for regional planning purposes. For these projects, NROC worked with people directly involved with these activities: scientists, fishermen, the shipping industry, ports, the energy industry, boaters, and environmental groups. Reports summarizing the engagement of these various sectors in reviewing data and identifying regional ocean planning issues can be found at www.northeastoceanouncil.org. NROC also continues to update the Northeast Ocean Data Portal (www.northeastoceandata.org), an on-line repository providing access to these maps and other NROC products.

NROC shares membership with the Northeast Regional Planning Body, and thus NROC serves as an important resource and contributor to the development of a New England ocean plan. The Northeast Regional Planning Body was established and held its first meeting in late 2012 and continued to make great headway throughout 2013 – developing a charter, goals and objectives, a draft work plan, and establishing topical working groups. NROC supported a series of 10 public meetings around New England where the Regional Planning Body solicited feedback on its draft goals and actions, and NROC's ongoing map products.

Additional information on NROC and its initiatives in ocean planning, coastal hazards resilience, and coastal and ocean health, including work plans for 2013-2014, can be found on the web at northeastoceanouncil.org. The site also offers the latest NROC news, a calendar of events, and information about the Northeast Regional Planning Body.



Mid-Atlantic Regional Council on the Ocean Supports Ocean Planning Efforts

Michelle Lennox, Program Manager, Mid-Atlantic Regional Council on the Ocean; and Tony MacDonald, Director, Monmouth University Urban Coast Institute

Formed in 2009, by the Governors of New York, New Jersey, Delaware, Maryland and Virginia, the Mid-Atlantic Regional Council on the Ocean (MARCO) continues to focus on collaborating with state and federal agencies, key partners, and stakeholder groups to address shared regional priorities. MARCO's approach includes coordination of state efforts, identification of the best available information to inform decisions, outreach and engagement of ocean stakeholders, and the development of spatial data and tools that can inform regional ocean planning. For more information, please visit: www.midatlanticocean.org. In April 2013, MARCO hosted the Mid-Atlantic Regional Ocean Planning Workshop in collaboration with federal partners to help launch regional ocean planning. Over 150 stakeholders participated, representing a diverse range of ocean uses, including commercial and recreational fishing, shipping and ports, military and security, offshore energy development, maritime industries, ocean recreation, environmental conservation groups, educational and research institutions, and coastal communities.

A Mid-Atlantic Regional Planning Body (MidA RPB) was established in April 2013, bringing the five mid-Atlantic States, regional tribes, nine federal agencies, and Mid-Atlantic Fishery Management Council representatives to the table to work together to leverage existing state and regional ocean planning efforts. To assure broad outreach, the MidA RPB also convened a webinar on August 1, and a public meeting at Monmouth University in West Long Branch, New Jersey, on September 24-25, 2013. Actions coming out of the meeting, to focus on the next 12 months included; finalization of a draft Charter, development of a plan to use a full suite of stakeholder engagement mechanisms, and development of a five year timeline. All meeting information and written public comments received to date are available on the MidA RPB website: www.boem.gov/Mid-Atlantic-Regional-Planning-Body.

The state-of-the-art, Mid-Atlantic Ocean Data Portal (Portal), launched in December 2010, has recently undergone enhancements, supported by NOAA's Regional Ocean Partnership grants. The Portal consolidates available data and enables the states, federal and local users to visualize and analyze ocean resource and use information, including fishing activity, habitats and natural resources, offshore wind energy sites, shipping and maritime commerce, and recreational use, among others. MARCO and the Ocean Data Portal Team have identified data needs and priorities and, as further described, are actively working with federal agencies and other data providers and stakeholders to continue to improve the information and the functionality of the Portal. Access the Portal at <http://portal.midatlanticocean.org>.

One of the data gaps that have been identified is information on the recreation use in the region. To help fill that gap, MARCO is collaborating on three recreational use data collection efforts. Working with the NOAA Coastal Services Center and the Ocean Data Portal Team, the MARCO States have hosted a series of participatory Geographic Information System (pGIS) workshops to learn about, characterize, and map various recreational ocean uses. Information shared by harvesters, divers, Coast Guard representatives, kayakers, boaters, and interested members of the public will be translated into new recreational use data layers and made available on the Portal. The MARCO Data Portal Team also launched a Recreational Boater Survey in May and will continue collecting economic and spatial information about boating activities in the region through November 2013. (See: www.monmouth.edu/uciboatersurvey/default.asp.) This effort has adopted the Recreational Boater Survey approach that was also conducted in New England, which will result in a consistent cross-regional data set. The Surfrider Foundation is also conducting an online survey of "non-consumptive" recreational uses, not including boating and fishing. (See: www.surfrider.org/mid-atlantic-recreation.) The Portal Team will work to reconcile the data resulting from these efforts to add additional recreation use data to the Portal.

The MARCO Ocean Data Portal Team also recently completed a series of four meetings with ports and maritime community representatives in Norfolk, Baltimore, New York and Wilmington. The objectives of the meetings were to discuss the status and development of the Portal and data relevant to the maritime commerce sector; secure input on the data and Portal development, and to identify key issues facing the maritime sector and how the Portal and regional ocean planning can help address these issues. Additional Portal-related stakeholder outreach to the commercial fishing community, offshore alternative energy and other ocean users is being planned for 2014. These Portal efforts will be coordinated with MARCO and the MidA RPB to avoid duplication and support for regional ocean planning initiatives.

Governor's South Atlantic Alliance

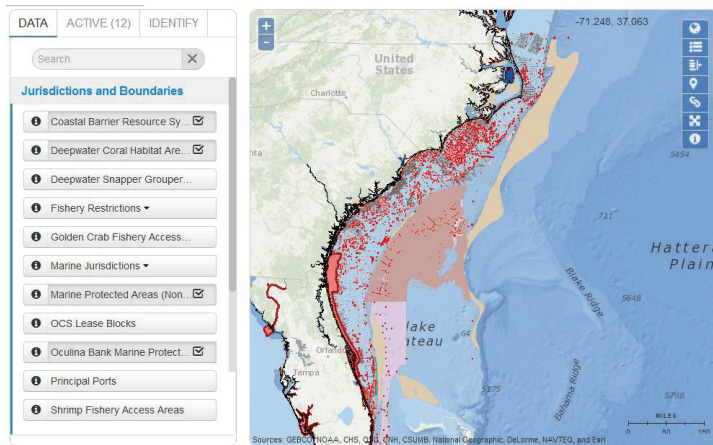
Kristine Cherry, Regional Alliance Coordinator, Governors' South Atlantic Alliance; Jennifer Dorton, RIMS Project Coordinator, Southeast Coastal Ocean Observing Regional Association

Established in 2009, the Governors' South Atlantic Alliance (GSAA) is a partnership between the four southeastern states (North Carolina, South Carolina, Georgia, and Florida) designed to increase collaboration around regional coastal and marine issues. Actions are focused around four prioritized issue areas: Healthy Ecosystems, Clean Coastal and Ocean Waters, Disaster-Resilient Communities, and Working Waterfronts. Common across all issue areas is the need for development and distribution of coordinated regional data. To help support these

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ATLANTIC COAST OCEAN PLANNING & COUNCIL UPDATES

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The Governor's South Atlantic Alliance launched its Coast and Ocean Portal that consolidates state, regional, and federal data sets. Source: GSAA

goals, the GSAA has secured grants from the National Oceanic and Atmospheric Administration (NOAA) to initiate the GSAA Coast and Ocean Portal (www.gsaaportal.org) which beta-launched in May 2013.

Developed by a team of state and federal agencies, universities, and non-governmental partners, the Portal is an online toolkit and resource center that consolidates access to state, regional, and federal datasets in one location. The initial focus has been on building information, data, and tools from the beach seaward that can help support regional marine management issues such as beach renourishment, port maintenance and expansion, and habitat conservation.

The site currently includes 108 spatial data layers, the majority being pulled from existing sources, such as the Multipurpose Marine Cadastre and South Atlantic Fisheries Management Council. In addition, the Portal team, led by the Southeast Coastal Ocean Observing Regional Association (SECOORA), worked with the GSAA's Healthy Ecosystems Team and South Carolina Department of Natural Resources to distill known biological, habitat, and use data for the four states into spatial layers for the first time (e.g., fishery independent survey data, regional in-water sea turtle surveys, sediment analysis, sea turtle nesting locations). The Portal team will continue to work with the GSAA's issue area teams to develop and distribute additional spatial data, including estuarine habitats, working waterfronts, coastal vulnerability, and military uses.

The Portal team is currently holding a series of training sessions across the region to provide users with an overview of the site and an opportunity to share feedback. In coordination with state coastal programs, sessions have been held in all four GSAA states. Users can also provide direct feedback through the Portal site. For more information, contact Jennifer Dorton (jdorton@secoora.org).

In addition to the Portal, interested parties are invited to learn more about GSAA activities by visiting www.southatlanticalliance.org. Available information includes the 3rd Annual Meeting summary, which provides details on current activities and plans for 2014. For more information, please contact the GSAA Coordinator Kristine Cherry (kristine.cherry@gsaalliance.org).

UPDATES FROM THE REGIONAL FISHERY MANAGEMENT COUNCILS

New England Fishery Management Council

Patricia Fiorelli, NEFMC Public Affairs Officer and Michelle Bachman, NEFMC Habitat Plan Coordinator

The New England Fishery Management Council (NEFMC) is completing development of Omnibus Habitat Amendment 2, which will update Essential Fish Habitat (EFH) designations for the 28 NEFMC-managed species of finfish and shellfish.


The amendment also reevaluates and integrates habitat management measures across the fisheries managed by the Council using new scientific information about habitat distributions and fishing impacts. Prior efforts to minimize the adverse effects of Council-managed fisheries on EFH were developed and implemented fisheries management plan by plan.

Two types of management areas are being developed to date: seasonal groundfish spawning closures and year-round habitat closures. As proposed, spawning areas would have seasonal restrictions on gears capable of catching groundfish; habitat areas

would have year-round restrictions on mobile bottom tending gears or trawl gear modifications, with possible exemptions for hydraulic clam dredges. Three Dedicated Habitat Research Areas also are included among the alternatives. The spawning areas are intended to protect the reproductive activities of various groundfish stocks, while the habitat areas are focused on protection of seabed habitat types vulnerable to fishing gears, with a particular emphasis on habitats used by juvenile groundfish. The overall goal is to improve productivity of managed resources.

In many cases, alternative proposals represent modifications to current management areas, and in some cases alternative packages of management areas that would remove existing year-round groundfish closures, or make them seasonal. The Council determined that spatial overlaps between habitat and groundfish management areas made the EFH amendment an appropriate venue for the review of the year-round groundfish closures.

After months of work by both its members and Habitat and Closed Area Technical Teams, the NEFMC is scheduled to



review a Draft Environmental Impact Statement associated with the Habitat Amendment this November. The current schedule calls for public hearings in late winter to early spring 2014.

Related news involves the three east coast fishery management councils and the protection of deep sea corals off the east coast of the United States from Maine to Florida. In July 2013, the Chairs of the South Atlantic, Mid-Atlantic, and New England Fishery Management Councils signed a Memorandum of Understanding that will enhance coordination and improve the protection of the highly diverse deep sea coral communities in the federal waters on the continental shelf and slope. The NEFMC is working on an amendment to all of its fishery management plans that will identify coral conservation zones, mainly in deep water canyon and slope areas, and implement measures to protect the corals in those areas from damage due to fishing activities.

Mid-Atlantic Fishery Management Council

*Mary Clark, Communications Program Coordinator,
Mid-Atlantic Fishery Management Council*

Strategic Planning

In August 2013, the Mid Atlantic Fishery Management Council (MAFMC) approved its first-ever strategic plan. The plan maps out a series of goals and strategies that will guide the Council's management activities from 2014 through 2018. Implementation of the strategic plan will involve developing tools to support a range of habitat activities. One such project will involve NOAA Fisheries Service and other partners to develop an Essential Fish Habitat (EFH) geo-database to support the review and updating of essential fish habitat definitions across MAFMC fishery management plans (FMPs).

Ecosystem Approach to Fisheries Management

The MAFMC's Scientific and Statistical Committee is developing an Ecosystem Approach to Fisheries Management (EAFM) guidance document for MAFMC consideration. This document will include specific habitat objectives and actions for the MAFMC's FMP. The document is intended to enhance the MAFMC's species-specific management programs with more ecosystem science, broader ecosystem considerations, and management policies that coordinate the MAFMC's management across its FMPs and relevant ecosystems. In addition, the EAFM guidance document will provide a framework for considering policy choices and trade-offs as they affect FMP species and the broader ecosystems. The final product will serve as a non-regulatory umbrella document to guide policy decisions as the MAFMC transitions from single-species management toward an ecosystem-based approach (i.e., the MAFMC envisions a practical roadmap to ecosystem approaches to fishery management).

Habitat management and conservation has been a key consideration in the development of an ecosystem approach to fisheries management. While the MAFMC will continue to pursue

traditional approaches to addressing habitat issues, the EAFM guidance document will provide a framework to integrate habitat assessments more holistically into the overall management process. In addition, the MAFMC is pursuing the incorporation of regional habitat assessments into contemporary stock assessments, both at the single-species and ecosystem levels. As part of the EAFM development process, the MAFMC is holding a series of workshops to discuss key issues and best practices related to specific ecosystem topics. The first workshop was held in April 2013 and focused on forage fish management issues, and the second workshop is planned for February 2014 and will address climate change.

Ocean Planning

The MAFMC has significantly increased its participation with groups engaged in ocean planning, habitat conservation, and marine ecosystem issues by strengthening its partnerships with organizations like the National Marine Protected Areas Partners, The Chesapeake Bay Goal Team, MARCO, Mid-Atlantic Regional Coastal Ocean Observation System (MARCOOS), and the Bureau of Ocean Energy Management (BOEM). Offshore wind development has been an area of particular focus for the MAFMC over the last year, and the MAFMC has been working to strengthen its relationship with the Bureau of Ocean Energy Management (BOEM) to ensure that fisheries habitat considerations are addressed during all phases of the offshore wind development process. In January 2014, the MAFMC will host a workshop in collaboration with BOEM to get industry input on best management practices for offshore wind development.

South Atlantic Fishery Management Council

*Roger Pugliese, Senior Fishery Biologist,
South Atlantic Fishery Management Council*

The South Atlantic Fishery Management Council's (SAFMC) Habitat and Environmental Protection Advisory Panel met November 5-6, 2013 at the Florida Fish and Wildlife Research Institute (FWRI) in St. Petersburg, Florida. The Panel reviewed and continued development of redrafted Essential Fish Habitat (EFH) policy statements for marine aquaculture, in-stream flow, submerged aquatic vegetation, and estuarine invasive species. The panel also identified priorities in 2014 for both the completion of the redrafting of outstanding SAFMC policy statements on energy, transportation, exploration and development, and beach dredge and fill, and large scale coastal engineering, as well as the development of new SAFMC policy statements for artificial reefs and habitat restoration. A link to the existing statements under review and revision can be found at: <http://safmc.net/ecosystem-management/habitat-protection-policies>.

Refinement of policy statements are a first step in the initiation of the Panel's involvement in updating and refining information in the SAFMC's Fishery Ecosystem Plan (FEP) and supporting the development of FEP II for the South Atlantic Region in

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2014/2015. The Council intends to again work with habitat and ecosystem partners in the development of FEP II and build on regional collaborations in development of proposed new sections of FEP II which will focus on fisheries oceanography, climate and fisheries, regional mapping strategy, and regional in-stream flow.

Habitat Advisory Panel members were also trained in the use of the SAFMC Habitat and Ecosystem Atlas, the South Atlantic Digital Dashboard, and an Ecospecies online Species Profile System. These online tools were developed in cooperation with the Fish and Wildlife Research Institute (FWRI) to support the SAFMC and partners in long term habitat conservation and the move to ecosystem-based management in the region. The following are links to these systems: The regional SAFMC Habitat and Ecosystem Atlas can be accessed through http://ocean.floridamarine.org/safmc_atlas/. The SAFMC Digital Dashboard is accessible through http://ocean.floridamarine.org/safmc_dashboard/. The Atlas integrates multiple services for: Species distribution and spatial presentation of regional fishery independent data (http://ocean.floridamarine.org/SA_Fisheries/); Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern (http://ocean.floridamarine.org/sa_efh/); and Spatial presentation of managed areas in the region (http://ocean.floridamarine.org/safmc_managedareas/).

An online life history and habitat information system supporting the SAFMC managed, State managed, and other regional species was developed in cooperation with FWRI. The Ecospecies system is considered dynamic and presents, as developed, detailed individual species life history reports and provides an interactive online query capability for all species included in the system: <http://atoll.floridamarine.org/EcoSpecies>.

HABITAT PROGRAM MISSION

To work through the Commission, in cooperation with appropriate agencies and organizations, to enhance and cooperatively manage vital fish habitat for conservation, restoration, and protection, and to support the cooperative management of Commission managed species.

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Ocean Data Portal: www.portal.midatlanticocean.org
Recreational Boater Survey:
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Atlantic States Marine Fisheries Commission

Vision: *Sustainably Managing Atlantic Coastal Fisheries*

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