The NOAA FISHERIES NAVIGATOR

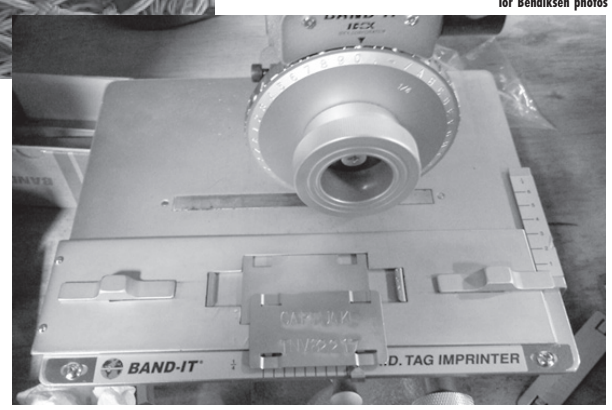
Wanted: Volunteers for the New Codend Compliance Assistance Pilot Program

As fishermen know, mesh can shrink, or "harden", after typical commercial fishing use. "It's just the nature of the material we use to build twine," said Terry Alexander, a commercial fisherman, New England Fishery Management Council (Council) member, and Chair of its Enforcement Committee. For fishermen fishing under regulated mesh sizes, shrinking can lead to enforcement issues. So the Council's Enforcement Committee developed the Codend Compliance Assistance Program (CAP) with input from fishing industry members, NOAA Fisheries, U.S. Coast Guard and other partners. This pilot program will document the mesh sizes of codends at the time of purchase and compare them with mesh sizes after the nets are used

Tor Bendiksen photos

Terry Alexander photo

Measuring mesh.



An imprinter stamps two stainless steel bands per codend – one with the purchase date and certified mesh size at the time of sale; and the other with the invoice number.

How the Program Works

The pilot phase includes only 5-1/2", 6", and 6-1/2" mesh codends. Initially, we are looking for groundfish captain volunteers. The program may expand to other fisheries in the future.

Participating fishermen must purchase codend mesh from a participating dealer who has a tag imprinter.

The dealer affixes two stainless steel, tamper-proof tags onto the codend. The first tag is stamped with the date of purchase and the mesh size at time of sale. The second tag shows the invoice number on the bill of sale.

Participating fisherman carry an invoice from the dealer onboard his/her vessel with the same information to present to boarding officers.

When boarding officers encounter nets that are part of the Codend CAP, they will record the information on the steel tags along with other standard measurements. This information will be added to a larger data set to determine whether shrinkage has occurred and at what rate. NOAA Fisheries OLE, U.S. Coast Guard, and the Council's Enforcement Committee will work together to analyze results.

Participation in this program does not give fishermen permission to fish with undersized mesh.

If enforcement officers find undersized mesh during an inspection, participation in the program will be noted, the collection of the standard measurements and tag information will be recorded, and the codend will need to be brought into compliance. Although participation in the program does show a good faith effort to fish in compliance with the law, it is still possible to receive a fine while participating in the program if your codend measures short. Enforcement officers will handle each boarding on a case-by-case basis and use their discretion to handle mesh size violations while taking into consideration all the circumstances of the boarding and inspection. "This is not a free ticket to tow illegal mesh," Terry Alexander emphasized. "But if you're participating in the program and you get boarded, it sends a signal that you're a responsible harvester and are trying to fish legally."

Participating Dealers

Reidar's Manufacturing Inc. in New Bedford, MA and Levin Marine Supply Co. in Fairhaven, MA are the first manufacturers to join the Codend CAP. Both gear shops have a BAND-IT© tag imprinter at their facility and are actively tagging codends. More dealers will be available as they sign on to the program.

"Now that we've launched the pilot program, we're hoping other net manufacturers will come onboard and participate as well," said Alexander.

Next Steps

The Council's Enforcement Committee will monitor the CAP's progress to determine how long the pilot program should run. One potential result could be a program that certifies codends for a defined period of time, such as six or twelve months from the date of purchase.

Volunteer

To participate in the codend CAP, contact Lou Goodreau, New England Fishery Management Council, at (978) 465-0492 ext. 115 or email him at lgoodreau@nefmc.org.

Groundfish Operational Assessments Completed

In mid-September, the Northeast Fisheries Science Center wrapped up the 2017 operational stock assessments for groundfish stocks managed under the Northeast Multispecies Management Plan.

A peer review panel met with stock assessment scientists from the Northeast Fisheries Science Center from September 11 through 15 to review and evaluate both the process and results of the assessments. This was the final step before the assessments are presented to NOAA Fisheries for a final status determination and before they become available for use in making management decisions, including quota setting.

Operational assessments use the existing accepted assessment model and add data collected since the last assessment. There is opportunity to make limited changes in a model or approach if agreed to ahead of time by an oversight panel.

The oversight panel met in July to approve the assessment plans for each stock. The panel agreed that a new catchability estimate could be used for flatfish stocks that rely on federal bottom trawl survey indices. That estimate resulted from work conducted on the F/V *Karen Elizabeth* through the Northeast Trawl Advisory Panel in 2015 and 2016.

New data added during the 2017 operational assessments included those from the federal and state bottom trawl surveys, commercial and recreational fishery landings and discards, and Canadian catch at age data for 2015 and 2016.

For more on the 2017 NEFSC groundfish operational assessments, visit us here:

https://www.nefsc.noaa.gov/groundfish/operational-assessments-2017/ or contact Ariele Baker, NEFSC, at 508-495-4741 or email her at Ariele.Baker@noaa.gov

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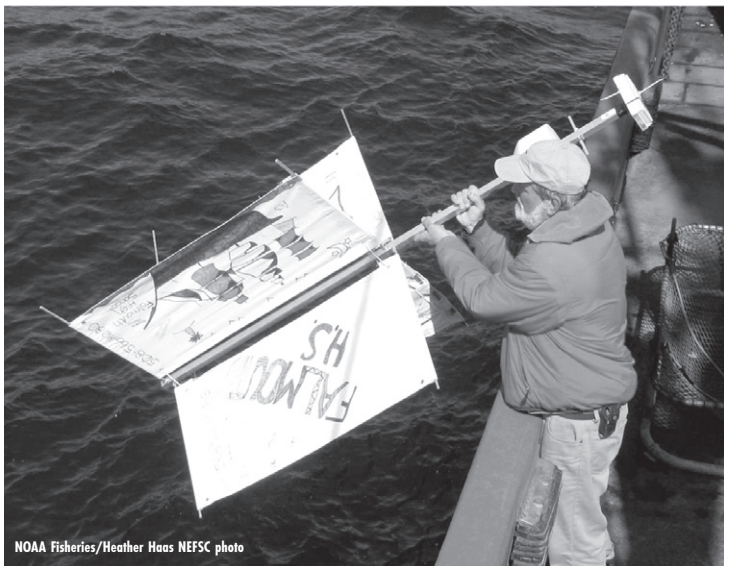
The NOAA FISHERIES NAVIGATOR

Drifters Used to Understand Harmful Algal Blooms in the Gulf of Maine

Every few weeks from late May through July, two ocean drifters, one on the surface and one deeper, were released from a ferry north of Canada's Grand Manan Island, the largest island in the Bay of Fundy and close to the Maine border. These drifters are being tracked to monitor the flow of water in and out of the bay to provide insight into harmful algal blooms in the Gulf of Maine.

Harmful algal blooms, or HABs, are caused by marine plankton that carry toxins harmful to people and other animals. Several types of plankton that can cause HABs have been documented in the Gulf of Maine. The most common is the dinoflagellate species *Alexandrium fundyense* that produces a toxin that can cause outbreaks of paralytic shellfish poisoning (PSP). Shellfish feeding on the plankton can concentrate the toxin in their flesh, and if people or animals eat affected shellfish, they can get sick or even die if concentrations of the poison are sufficient. Social and economic impacts occur each year from the blooms. Shellfish beds are closed to protect human health, resulting in millions of dollars in losses.

The goal of the drifter project is to better understand the role of the Bay of Fundy gyre, a large system of circular currents formed by variations in tide, temperature, and salinity, in regulating *Alexandrium fundyense* blooms in the region. Cysts, the resting stages of this organism, are abundant in the sediments underlying the gyre. When conditions are right, the cysts germinate and swim upward into well-lit surface waters, where the gyre retains them and they grow and mature. However, the gyre has "leaks" that send water out into the Gulf of Maine coastal currents, potentially transporting the *Alexandrium fundyense* cells to the south and west along the coast of Maine. A key goal of the research is to quantify the "leakiness" of the gyre and its impact on year-to-year variability of PSP along the coast of eastern Maine.


NOAA Fisheries/Heather Haas NEFSC photo

Researchers at the Woods Hole Laboratory of NOAA's Northeast Fisheries Science Center (NEFSC) deployed the drifters for a two-year joint project with the Woods Hole Oceanographic Institution (WHOI) as part of its NOAA-funded *Ecology and Oceanography of Harmful Algal Blooms* research program. Models developed to forecast the annual severity of these blooms and to provide weekly forecasts of bloom location and magnitude are becoming operational and will be refined using data collected from a variety of instruments, including our drifters.

Information from the drifters, often built by students using environmentally friendly materials and at low cost, helps oceanographers ground-truth ocean circulation models and helps scientists answer specific research questions, as in this case on HABs.

Colleagues at the Gulf of Maine Lobster Foundation in Kennebunk, Maine and the University of New Brunswick in Canada have helped to prepare and deploy the drifters. The deeper drifter, called a holey sock drogue, is a circular hollow tube with holes along the sides and weighted to sink ten meters (roughly 33 feet) deep. The surface drifter, sailcloth panels in a cross pattern attached to an aluminum frame, has a satellite transmitter on top of the mast. With just a small part of the mast above the water, it drifts with the surface currents, relaying its position back to a lab at the NEFSC.

Vincent Sheperd, the captain of the ferry boat *Grand Manan Adventurer*, has been very helpful with deployments, recoveries, and redeployments. On September 17, he recovered a drifter in his harbor that he first helped deploy back in May. This drifter traveled more than 5,000 kilometers (just over 3,000 miles) around the Gulf of Maine, to the Northeast Channel, and back to within a few kilometers of where it was first deployed. Similarly, Joe Finnegan and friends on Campobello Island have helped recover and return four different drifters that washed ashore there. Another drifter recovered by a Swan's Island, Maine lobsterman ended up on display on the first day of school at the local elementary school and is being returned for reuse next year. It is citizen science collaborations like these that help the project thrive.

The information collected will help determine if there is indeed a "leak" in the gyre that is sending water into the Gulf of Maine, and along the Maine coast. That data will help refine the circulation models for the Gulf of Maine and the models for forecasting HAB blooms, which in turn helps shellfish harvesters and seafood dealers plan and prepare for blooms. Coastal shellfish resources are monitored regularly by state agencies to avoid harvesting of contaminated shellfish.

You can see the tracks and an animation of the tracks. For further information, contact Jim Manning at the Northeast Fisheries Science Center at 508-495-4727 or email him at james.manning@noaa.gov.

What Fishermen Need to Know about Critical Habitat for Atlantic Sturgeon

On August 17, NOAA Fisheries designated critical habitat for the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments (DPSs) of Atlantic Sturgeon. All of the critical habitat areas occur in tidally-affected riverine waters of a coastal estuary. No marine waters are designated as critical habitat for the Atlantic sturgeon DPSs.

Each critical habitat area extends from the mouth of the named river and upstream to a dam that sturgeon cannot pass, or to the historical upstream limit of Atlantic sturgeon in that river. For the Gulf of Maine DPS of Atlantic sturgeon, critical habitat occurs in the Penobscot, Kennebec, Androscoggin, Piscataqua, Cocheco, Salmon Falls, and Merrimack rivers. For the New York Bight DPS, the critical habitat occurs in the Connecticut, Housatonic, Hudson, and Delaware rivers. Critical habitat for the Chesapeake Bay DPS occurs in the Potomac, Rappahannock, York, Pamunkey, Mattaponi, James, and Nanticoke rivers, and Marshyhope Creek. Maps are available in the final rule for these critical habitat areas and for the critical habitat areas in rivers from North Carolina to Florida, and on Greater Atlantic Regional Fisheries Office's website (see below).

What does designating critical habitat for Atlantic sturgeon do?

It ensures that federal agencies, in carrying out their duties, will not destroy or adversely modify the habitat that is essential for Atlantic sturgeon reproduction. Increasing the abundance of Atlantic sturgeon is necessary for their recovery, and for removing each DPS from the Endangered Species Act's lists of endangered and threatened species.

Misconceptions and Questions About Critical Habitat

There are some common misconceptions about critical habitat. Critical habitat designations do not create refuges or preserves where activities cannot occur. Most activities will continue to occur as they did before we designated Atlantic sturgeon critical habitat. Critical habitat designations only result in restrictions on human activities in situations where a federal agency is funding, permitting, or carrying out an activity that would destroy or adversely modify the critical habitat. In those cases, NOAA Fisheries provides guidance through the Endangered Species Act section 7 consultation process as to how the action can be carried out, authorized, or

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Considering Measures to Increase Flexibility in Individual Bluefin Quota Accounting Requirements

We are considering changes that would increase flexibility and modify accounting requirements for pelagic longline vessels fishing with Individual Bluefin Quotas (IBQs). The measures under review would allow vessels to fish with a low IBQ balance or with quota debt during a calendar quarter. These measures could replace current regulations that require vessels to have a minimum quota balance before beginning each fishing trip.

NOAA photo

In 2015, Amendment 7 to the 2006 Consolidated Highly Migratory Species Fishery Management Plan implemented IBQs for pelagic longline vessels. This measure intended to reduce incidental landings and dead discards of bluefin tuna by the pelagic longline vessel fleet. Pelagic longline vessels incidentally catch bluefin tuna while targeting other species, primarily swordfish and yellowfin tuna. The IBQ Program is a catch share program that provides an annual allocation of bluefin tuna bycatch to each active pelagic longline vessel. IBQ participants can lease additional quota allocation to cover landings or discards of bluefin tuna.

After several years of operating the IBQ Program, we are considering adjustments to increase flexibility and further optimize fishing opportunities for pelagic longline vessels targeting swordfish, yellowfin tuna, and other species. The IBQ Program and other measures in Amendment 7 have successfully reduced dead discards of bluefin tuna for the fleet from an average of 159.6 metric tons (mt) (2006 through 2014) to 17.1 mt and 22.6 mt for 2015 and 2016, respectively. However, since implementation, pelagic longline fishery participants have consistently requested additional flexibility due to the constraints and costs associated with the accounting and leasing requirements of the IBQ Program, which affects profitability and causes uncertainty in a vessel owner's short-term and long-term plans.

Vessel owners say that their ability to account for bluefin tuna mortality using allocated IBQ, or IBQ leased at an affordable price, is key to the success of the IBQ Program. Currently, a vessel must have a minimum amount of IBQ before it can leave on a fishing trip. A vessel that has below the minimum may have limited time to locate available allocation and negotiate an acceptable price. Recently, longline fishery participants requested more flexibility regarding timing requirements for vessel owners to lease the IBQ needed to cover bluefin catch.

During the May 2017 Highly Migratory Species Advisory Panel Meeting, pelagic longline vessel owners acknowledged the effectiveness of our actions in support of the IBQ Program objectives, but reiterated the need for additional flexibility and suggested high priority regulatory changes to achieve such flexibility. One such request is the basis of the action under consideration -- to allow more time for vessel owners to resolve quota debt and achieve a minimum balance of IBQ, rather than requiring vessels to have a minimum balance of IBQ as a prerequisite of every longline trip. In light of past fishery dynamics under the IBQ Program and public input regarding the need for additional flexibility, we are considering modifying the accountability provisions of the IBQ Program as a means to provide additional flexibility for vessel owners, while achieving a balance among the IBQ Program objectives.

The pelagic longline fishery is a diverse fishing fleet, with a variety of vessel sizes and types of operations distributed from the waters off Nova Scotia to the Gulf of Mexico, Caribbean, and South America. Timing of fishing trips is typically based on the availability of target species, weather, moon phase, markets, crew and bait availability, among other factors. By allowing a vessel owner to determine the timing of lease transactions or level of quota debt they are comfortable maintaining over a longer time period, quarterly accountability (i.e., resolving IBQ quota debt every 3 months) may achieve a better balance between minimizing constraints on fishing for target species and ensuring accountability for incidental bluefin catch.

Alleviation of the timing constraint associated with trip-level accountability would provide additional flexibility for a vessel owner to pay costs associated with fishing (e.g., fuel, bait, ice, labor, repairs, IBQ leasing, etc.) according to their own operational and financial timeline. The opportunity to fish with a low IBQ balance or with quota debt may enable a vessel owner to continue to obtain fishing revenue while looking for quota to lease, which could better accommodate different types of fishing operations and financial obligations.

For more information, contact Tom Warren, Highly Migratory Species, at 978-281-9260, or email him at Thomas.Warren@noaa.gov.

NOAA photo

Atlantic Sturgeon

Continued from previous page

NOAA photo

funded in a manner that avoids or minimizes impacts to the critical habitat.

What does the critical habitat designation mean for fishermen?

You will continue to fish the same as before the Atlantic sturgeon critical habitat designations. If you fish in a river where critical habitat is designated, and you receive a federal permit or federal funds for that fishing activity then the federal agency that authorizes or funds that fishing activity will work with us through the section 7 consultation process. Since we issue fishing permits and provide funding, such as research grants, we also consult within our agency. This is the same process that we have used to consider the effects of federally-permitted fishing to Atlantic sturgeon since the DPSs were listed under the Endangered Species Act in 2012.

If you fish in a river that has been designated as Atlantic sturgeon critical habitat, but you do not receive a federal permit or federal funding, then there is no requirement to work with us through the section 7 consultation process. You can continue to fish as before the Atlantic sturgeon critical habitat designations.

Designating critical habitat will not prevent maintenance dredging of navigation channels and the waterways where critical habitat is designated. Federal actions that are necessary to maintain safe navigation and support commerce will continue to occur. In situations where critical habitat would be destroyed or adversely modified as a result of dredging, we will work with the other federal agency to identify how the activity can be modified to avoid or minimize impacts to the critical habitat.

Where can I find out more about Atlantic sturgeon critical habitat?

The final rule, maps, and other supporting materials are posted on our web page at https://www.greateratlantic.fisheries.noaa.gov/protected/atlsturgeon

Exploring Ways to Make Fishing Communities More Resilient: How Can We Help?

How are fishing communities in our region affected by climate change? What do communities need to become more resilient to changes in the distribution of historic fish stocks, devastating storms, and losses in waterfront infrastructure? What can we as an agency do to help the communities we serve become more resilient and adaptable to these and other challenges? These are questions we are working on with help from our Northeast Fisheries Science Center (NEFSC).

We are exploring ways to help communities cope with the regulatory, environmental, and economic changes that challenge their sustainability. The collective goal is to improve fishing community resilience by focusing our delivery of information and resources to help communities reduce their vulnerabilities, and improve their adaptability to climate change and other impacts. To that end, we have been talking with a variety of community members throughout our region to learn about local challenges and approaches to strengthening their resilience.

Regional Community Resilience Workshop

For two days in June, we hosted more than 50 people, including mayors and other community leaders, fishermen, fishing industry representatives, scientists, and state and federal staff, at a workshop to help us better understand community resilience challenges and needs. A major goal of the workshop was to figure out how we can best provide resources to support local efforts that encourage innovation and economic diversification in coastal communities.

In his opening remarks John Bullard, Regional Administrator for the Greater Atlantic Region, noted that "Community resilience may be a new term, but it's not a new idea. With the inevitable impacts of climate change, we are even more diligent in our efforts to help communities identify their vulnerabilities and provide the information and assistance to help them adapt."

Dr. Jon Hare, the Science and Research Director of the NEFSC, added "Climate change is real and we are already seeing its impacts here in the Northeast which has one of the fastest changing climates on the planet. One challenge is determining how to use the existing science, such as NEFSC's fishery, community, and habitat vulnerability assessments, to help communities adapt to a changing environment."

Insights and Innovations

Regional community leaders and members talked about what is already happening in their own communities to bolster local resiliency, as well as issues they face:

Maine

Patrick Keliher, Director of the Maine Department of Marine Resources, discussed climate challenges in the management of the state's iconic lobster fishery. Rapidly warming waters in the Gulf of Maine likely contribute to the decline of young lobsters, which could disrupt this fishery, even though it has experienced record high abundance and revenues during the past two decades.

Jen Levin, Gulf of Maine Research Institute, presented her work with local fishermen on demonstrating a Japanese method of killing fish to create sushi-grade and higher value products. This and other techniques are taught to local fishermen to enable them to participate in this part of the seafood market.

Carla Guenther, Maine Center for Coastal Fisheries (MCCF), noted that the downeast Maine community of Stonington is heavily dependent on the lobster fishery so fluctuations in the lobster stock create a vulnerability in the well-being of this community. In addition, the MCCF established the Eastern Maine Skippers Program to train local children in developing successful fishing businesses that may be better able to handle potential stock fluctuations.

Maryland

Michael Luisi, Director of the Maryland Department of Marine Resources, noted that climate change and warming waters are changing the coastal distribution of stocks of species such as summer flounder. The current allocation process and regulatory programs are misaligned with the changing stock distribution, complicating the management of the fishery.

> **"One challenge is determining how to use the existing science, such as NEFSC's fishery, community, and habitat vulnerability assessments, to help communities adapt to a changing environment."**
> **—Dr. John Hare**

Massachusetts

Mayor Sefatia Romeo Theken of Gloucester believes that promoting aquaculture and targeting underutilized species, such as redfish, are important ways to improve Gloucester's fishery-based revenues. And new technologies, such as creating fertilizer from fish waste, is an example of how coastal communities like Gloucester are developing new products to diversify the coastal economy without giving up critical working waterfront.

Mayor Donna Holaday of Newburyport stated that loss of primary dunes, storm surge, and coastal flooding are the main challenges for her river- and oceanfront community. Partnerships and community-based initiatives have helped to address the City's climate vulnerabilities.

For Ed Anthes-Washburn, Port Director of the City of New Bedford, diversity and versatility are key to a city's resilience. New Bedford's investment in a working waterfront that accommodates commercial fishing as well as other water-dependent industries has helped improve versatility.

Tom Gillett, Gloucester Economic Development and Industrialization Corporation, is creating a cluster of marine industries to provide an economic network that will support expanded maritime industries and seafood markets.

New Hampshire

Captain Tim Rider of New England Fishmongers catches and delivers high quality, hook-caught groundfish to local gourmet restaurants to improve the demand for locally caught seafood.

Michael Chambers, University of New Hampshire Sea Grant Program, is working to open new seafood markets with local cultured seafood and to streamline the permitting process for setting up new aquaculture ventures.

Rhode Island

Aquaculture innovator Bob Rheault, East Coast Shellfish Growers Association, undertakes policy and research work to support shellfish growers throughout the region, including promotion of offshore mussel production.

NOAA Fisheries

Dr. Lisa Colburn of the NEFSC presented the community vulnerability analysis that was developed to assess the challenges that coastal communities face due to climate-related factors.

Staff from the Greater Atlantic Regional Fisheries Office highlighted some of our programs such as the Saltonstall-Kennedy Grants Program, the Fishery Finance Program, and on-line technological tools to help fishermen adapt to change.

Results

Workshop participants identified the following actions to help improve resilience in our communities:

Improve trust and address the disconnect between science and what fishermen are seeing on the water

Improve information flow and develop a Community Resilience website

Enhance the flexibility of management, permitting and regulations. One way to do this is to use the forecasting of stock shifts to enable the adjustment of management measures as needed.

What are the next steps? We are taking what we learned at this workshop and crafting a way forward that will encourage communication and coordination among the various parties supporting community resiliency planning in our region. We plan to hold a similar workshop in the Mid-Atlantic region in 2018 to learn more about the issues specific to that area.

For more information, contact Peter Burns, Sustainable Fisheries Division, at 978-281-9144 or at Peter.Burns@noaa.gov.