



The NOAA FISHERIES NAVIGATOR

Looking at the GoM Bottom Longline Survey through a New Lens *Harnessing Electronic Monitoring Technologies*

The COVID-19 pandemic forced the cancellation of the Northeast Fisheries Science Center's Gulf of Maine Bottom Longline Survey (BLLS), operated by the Cooperative Research Branch (CRB), in the spring of 2020, and the threat of cancellation loomed over the following fall survey. In the summer of 2020, the survey staff devised a backup plan to shift unspent survey funds towards the installation of camera systems, identical to those used for electronic monitoring programs, on board the BLLS partner vessels. The purpose was to collect survey data in the absence of survey staff.

Ultimately, staff successfully developed COVID-19 mitigation protocols, and the fall 2020 survey continued as planned. However, the innovative approach developed by CRB staff enabled the leveraging of newly acquired electronic tools and staffing to investigate the survey's gear performance. Specifically, the team is now collecting the proportion of baited hooks upon gear retrieval, which is critical in the development of new models to estimate species abundance.



Screenshot of the longline gear being hauled over the roller with a fish hooked on the gangion.

Cameras are placed and angled in order to capture footage of the survey's longlines while retrieved from the water and over the hauler. After each trip, the hard drive containing the video file is sent to the contracted partner, Teem Fish Monitoring, which stores and uploads the files into an online portal.

A CRB video reviewer then watches every haul within the online portal and records the hook data. When a hook enters the frame, the video reviewer evaluates the hook disposition (state upon retrieval). The proportions of baited, empty, or fish occupied hooks will be used to examine hook availability and catch rates. Non-fish catch, such as invertebrates or shells, may provide clues to the habitat and community structures that contextualize patterns in the species composition.

The video reviewer also records when reduced video clarity impedes the evaluation of hook disposition. Problems include glare, camera blocking, poor lighting, unkempt camera lenses, or gear related problems, such as groundline tangles.

Notation of these issues has already proven to be part of a valuable feedback loop. Excessive glare from the water was curtailed through the installation of one additional camera and existing camera angle adjustments prior to the fall 2021 survey.

A Work In Progress

Early on, CRB staff recognized that evaluating an entire haul (up to 1,000 hooks) would be time intensive. Instead, staff conducted a sample size analysis and determined that evaluating 500 hooks (half of each haul) would be sufficiently representative.

To date, the review of fall 2020 and spring 2021 survey videos are complete, totaling 89 stations and 225 hours of review time. Data collection for the fall 2021 survey is underway. Video and hook disposition



The placement of one camera (black box, top left) and light (white box, top center) over the hauler. This is the primary view used for recording hook disposition.

data will also be collected from the spring 2022 survey, totaling two years of data.

Once complete, the hook disposition data will be summarized and examined for proportional patterns based on station characteristics such as time of day, season, bottom type, or area stratum. The data will also be used to model species abundance.

Collaboration is Key to Success

This research requires collaboration among commercial fishing partners, scientists, data managers, and electronic monitoring providers to be successful. Each member of the team plays a unique role in supporting the operational, technical, and analytical components of the work. Clear and continuous communication has been essential.

Ultimately, this research will improve the accuracy of the indices of abundance produced by the BLLS, which will support stock and ecosystem assessments in the future.

For more information, contact Giovanni Gianesin, Northeast Fisheries Science Center, Cooperative Research Branch, at giovanni.gianesin@noaa.gov.

First Year of Operational ROV Program a Success

NOAA's Office of Law Enforcement (OLE), Northeast Division, launched a remotely operated vehicle (ROV) program this past year to help inspect offshore and inshore lobster gear. This launch followed a successful pilot of the program in 2020, when OLE deployed ROVs from a contracted platform vessel. These contracted operations continued into 2021. OLE also acquired its own ROV in 2021 for future inshore, fixed gear inspection.

Following the purchase of OLE's first ROV, Enforcement Officers and Special Agents started training in order to deploy the ROV for inshore operations. OLE will use its patrol vessels and partner vessels to carry out these operations. For offshore operations, OLE will continue to contract a larger vessel equipped with an ROV capable of reaching the bottom at greater depths.

In 2021, OLE conducted two offshore

ROV patrols during July and October in the exclusive economic zone (EEZ) of the Northeast, United States. They plan to continue operations throughout 2022 and in following years.

The ROVs make it possible for OLE to inspect gear without having to physically retrieve the gear. They are equipped with a video camera, lighting, sonar, and a manipulator arm—making the inspection of submerged lobster gear easier and more efficient. These patrols focused on checking compliance with the Atlantic Large Whale Take Reduction Plan (ALWTRP), Magnuson-Stevens Act, and the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). When officers and agents identified non-compliant gear with the ROV, the gear was hauled in and further inspected.

Active lobster vessels observed OLE's offshore

See ROV PROGRAM, next page

In December 2021, NOAA Fisheries launched a new online system for Atlantic Highly Migratory Species (HMS) permitted commercial longline and gillnet fishermen and shark dealers to renew required workshop recertifications. These online workshops provide flexibility for these fishermen and dealers who need to renew their workshop certificates, provided they have previously attended an in-person workshop. The Safe Handling, Release, and Identification and Atlantic Shark Identification workshops are both available through the online course. For more information please visit the Atlantic HMS Management Division website: <https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-highly-migratory-species-training-workshops>.

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Andrea Gomez, Ph.D. • Managing Editor • (978) 282-8481 • andrea.gomez@noaa.gov



Harbor Porpoise Take Reduction Annual Management Area Reminder

ROV program

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operations. As a result, they made an effort to inform lobstermen of OLE's ROV gear inspections. These patrols also allowed OLE to identify fishing vessel activity trends in Lobster Management Area 3—information that will be valuable in future operations.

July: OLE conducted a week-long offshore patrol on the edge of the Northeast EEZ to inspect lobster gear in Lobster Management Area 3. During the patrol, OLE observed one gear violation and provided compliance assistance to the vessel's owner/operator, who promptly corrected the violation. In addition, an entangled adult leatherback sea turtle drifted towards the ROV vessel while on patrol. Officers and the vessel captain acted quickly, disentangling and freeing the turtle while also collecting the fishing gear for further investigation.

October: OLE conducted a second week-long offshore patrol on the edge of the Northeast EEZ to inspect lobster gear in Lobster Management Area 3. On this patrol, an OLE officer and agent documented multiple gear marking, configuration, and trap-tagging violations. OLE provided compliance assistance to one vessel and additional investigations are ongoing. The violations documented were under ALWTRP and ACFCMA, and multiple summary settlements were issued along with a written warning during this patrol.



2022 and Beyond: OLE plans to continue to build on its successes from 2021 and 2020. In 2022, OLE will enhance the versatility and reach of the ROV program through deployment of the OLE-owned ROV. This addition to the program will allow OLE to conduct a combination of inshore and offshore operations. Our staff will continue to train and master operation of the OLE-owned ROV. Possibly in 2022 and certainly in future years, the ROV program will expand to inspect fixed gear outside of the lobster fishery, including other regulated fisheries and closure areas. In addition, OLE will investigate the compatibility of using ROV inspections to ensure compliance with ropeless lobster fishing gear with the hope of helping to better inform management decisions related to implementing that gear type in Northeast fisheries.

To learn more about OLE's ROV program, call the Northeast OLE mainline at (978) 281-9212 and select the compliance assistance option (extension 2).

NOAA Fisheries implemented the Harbor Porpoise Take Reduction Plan (HPTRP) to reduce bycatch of harbor porpoise in gillnet fisheries from Maine to the North Carolina/South Carolina border. Management under the HPTRP includes pinger requirements, seasonal closure areas, and consequence closure areas. The following table lists upcoming dates for Northeast and Mid-Atlantic HPTRP management area restrictions that gillnet fishermen need to know.

Details on gear modifications, pinger specifications, and management area maps are available on the HPTRP website: www.fisheries.noaa.gov/new-england-mid-atlantic/marine-mammal-protection/harbor-porpoise-take-reduction-plan

If you have questions about gear requirements, please contact the fishery liaison for your area: John Higgins, Northeast Fisheries Liaison, 207-677-2316 or John.Higgins@noaa.gov.

HARBOR PORPOISE TAKE REDUCTION PLAN		
Northeast Gillnet Fisheries (All)		
Management Area	Dates	Closure or Gear Modifications
Northeast Closure Area	August 15-September 13	CLOSED to ALL gillnet fishing
Mid-Coast Management Area	September 15-May 31	Pingers Required
Massachusetts Bay Management Area	November 1-February 28/29	Pingers Required
	March 1-31	CLOSED to ALL gillnet fishing
	April 1-May 31	Pingers Required
Stellwagen Bank Management Area	November 1-May 31	Pingers Required
Southern New England Management Area	December 1-May 31	Pingers Required
Cape Cod South Closure Area	March 1-31	CLOSED to ALL gillnet fishing
Offshore Management Area	November 1-May 31	Pingers Required
Cashes Ledge Closure Area	February 1-28/29	CLOSED to ALL gillnet fishing
Mid-Atlantic Gillnet Fisheries (Large and Small Mesh Requirements)		
Area	Dates Gear Modifications Required	Dates of Gillnet Closure
Large Mesh Gillnet (Mesh Size 7-18 inches)		
Mudhole North Management Area	January 1-31 March 16-31 April 21-30	February 15-March 15 April 1-20
Mudhole South Management Area	January 1-31 March 16-31 April 21-30	February 1-March 15 April 1-20
Southern Mid-Atlantic Management Area	February 1-14 March 16-April 30	February 15-March 15
Waters off New Jersey Management Area	January 1-March 31 April 21-30	April 1-20
Small Mesh Gillnet (Mesh Size >5 inches to <7 inches)		
Waters off New Jersey Management Area	January 1-April 30	-
Mudhole North Management Area	January 1-February 14 March 16-31 April 21-30	February 15-March 15
Mudhole South Management Area	January 1-31 March 16-April 30	February 1-March 15
Southern Mid-Atlantic Management Area	February 1-April 30	-

Summer Flounder, Longfin Squid, Atlantic Croaker and Weakfish Trawl Fishermen - Input Requested!

Fisheries bycatch is the primary threat to endangered and threatened sea turtles in the Greater Atlantic Region. From 2000-2019, 73% of bottom otter trawl sea turtle bycatch occurred on trips where Atlantic croaker, longfin squid, or summer flounder were the top landed species by haul weight. Since about 2000, we have been investigating gear modifications to reduce mortality of incidentally bycaught sea turtles, and our focus has been on the trawl fisheries with the highest bycatch of sea turtles in our region. While final operational feasibility research is completed, NOAA Fisheries is gathering early input and information from the public, fishing industry, and other stakeholder groups to inform any future measures.

Given the results of previous research, we are considering:

Requiring Turtle Excluder Devices (TEDs) with a large escape opening in trawls that target Atlantic croaker, weakfish, and longfin squid to reduce injury and mortality resulting from accidental capture in these fisheries.

Moving the current northern boundary of the

seasonal TED requirements in the summer flounder fishery (i.e., the Summer Flounder Fishery-Sea Turtle Protection Area) to a point farther north to more comprehensively address capture in this fishery.

Amending the TED requirements for the summer flounder fishery to require a larger escape opening to allow the release of larger hard-shelled and leatherback sea turtles. Adding an option requiring limited tow durations, if feasible and enforceable, in lieu of TEDs in these fisheries to provide flexibility to the fisheries.

We are seeking input on the potential measures and welcome all feedback. We are not proposing any rulemaking at this time, but are looking for early feedback to consider when developing future measures and/or conducting gear research.

For more information on sea turtle bycatch, descriptions of TED designs, research reports, measures under consideration, information needed, and how to comment and participate in webinars, visit <https://www.fisheries.noaa.gov/sea-turtle-bycatch-reduction-trawl-fisheries>, or contact Carrie Upite, Regional Office, at <Carrie.Upite@noaa.gov> or 978-282-8475.



There are several ways you can provide input:

- Email nmfs.gar.turtletrawl@noaa.gov
- Attend one of our virtual stakeholder webinars (see website for registration details)
 - > 6:30-8:30 pm
 - > February 16 (croaker focus)
 - > March 1 (longfin squid focus)
 - > March 14 (summer flounder focus)
- Call NMFS on the call-in days at 978-281-9276
 - > March 4 (8am-3pm)
 - > March 22 (12-6pm)

Atlantic Large Whale Take Reduction Plan Closure Reminder

NOAA Fisheries implemented the Atlantic Large Whale Take Reduction Plan (ALWTRP) to reduce serious injuries and deaths of right, humpback, and fin whales due to entanglement in commercial trap/pot and gillnet gear from Maine to Florida. We published a final rule modifying the Plan on September 17, 2021 (<https://www.fisheries.noaa.gov/action/final-rule-amend-atlantic-large-whale-take-reduction-plan-reduce-risk-serious-injury-and>).

The following table lists the upcoming trap/pot and gillnet closure areas established by federal regulations only. **Additional state regulations may apply.** Please check with your state agency for the most current regulations. For more information on the ALWTRP, contact Marisa Trego, Greater Atlantic Region, Take Reduction Coordinator at Marisa.Trego@noaa.gov or 978-282-8484.

ATLANTIC LARGE WHALE TAKE REDUCTION PLAN		
Trap/Pot Closures		
Management Area	Dates	Closure or Gear Modifications
Massachusetts Restricted Area	February 1-April 30	CLOSED to ALL trap/pot fishing
Massachusetts North	February 1-April 30	CLOSED to lobster and Jonah crab trap/pot fishing
South Island Restricted Area	February 1-April 30	CLOSED to lobster and Jonah crab trap/pot fishing
Great South Channel Restricted Trap/Pot Area	April 1-June 30	CLOSED to ALL trap/pot fishing
LMA 1 Restricted Area	October 1-January 31	CLOSED to lobster and Jonah crab trap/pot fishing
Gillnet Closures		
Management Area	Dates	Closure or Gear Modifications
Cape Cod Bay Gillnet Restricted Area	January 1-May 15	CLOSED to ALL gillnet fishing
Great South Channel Gillnet Restricted Area	April 1-June 30	CLOSED to ALL gillnet fishing

Teaming up to Recover Atlantic Sturgeon

Although Atlantic sturgeon once supported important fisheries, centuries of exploitation and habitat degradation have resulted in dramatic declines, presumed eradication in some rivers, and ultimately listing under the U.S. Endangered Species Act (ESA) in 2012. Despite state and federal protections, Atlantic sturgeon still face significant threats to their recovery, including fisheries bycatch mortality, marine construction, dredging, dams, and vessel strikes.

Threats to Recovery

Atlantic sturgeon are a slow growing, late maturing species that do not spawn every year. Therefore, Atlantic sturgeon must avoid deadly threats (e.g., fisheries bycatch, vessel strikes) for a long period

of time before having the opportunity to spawn. However, an adult female can produce a large volume of eggs, with older females being able to produce more eggs than younger females. Reducing the threats that kill adults and the sturgeon that are close to adulthood can help considerably to help recover the Atlantic sturgeon population.

At the time of listing under the ESA, bycatch was considered the greatest threat to Atlantic sturgeon recovery. Atlantic sturgeon are caught in fishing gear, including gillnet gear and trawl gear used in some federally-managed fisheries. On May 27, 2021, NOAA Fisheries completed the most recent biological opinion that considers the effects of these gillnet and trawl fisheries on Atlantic sturgeon. It anticipates that hundreds of Atlantic sturgeon will be captured

each year in these fisheries and some of the fish will die, particularly in the fisheries that use large-mesh (>= 7 inches stretched mesh). The biological opinion is available at <https://www.fisheries.noaa.gov/resource/document/biological-opinion-10-fishery-management-plans>.

Biological Opinion Recommendations

There is particular concern of Atlantic sturgeon bycatch mortality in fisheries that use large-mesh gillnet gear. Unintentional interactions with Atlantic sturgeon can and do happen as a result of the federally-managed fisheries. The capture of these Atlantic sturgeon are not prohibited by the ESA as long as certain requirements, described in the biological opinion, are met. The requirements include that NOAA Fisheries “convene a working group

See **STURGEON**, next page



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Restoration Project on Parkers River has Many Benefits

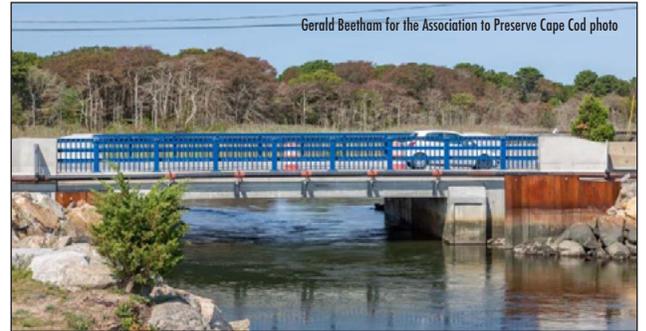
The Parkers River Tidal Restoration project in Yarmouth, Massachusetts, which began construction in September 2019, is now largely completed. For over 120 years, tidal circulation in the Parkers River estuary has been restricted by an undersized 18 inch wide bridge along Route 28, severely restricting the natural tidal flushing, reducing salinity and sediment transport, and limiting fish passage. This restoration project, led by the Town of Yarmouth, replaced a degraded and undersized (18-foot wide) state bridge on Route 28 with a new 30 foot wide bridge. The Parkers River supports a large coastal wetland complex (153 acres of estuary, salt pond, and salt marsh) and a diadromous fish run for river herring (*Alosa pseudoharengus*, *Alosa aestivalis*) and American eel (*Anguilla rostrata*).

The project is expected to have many benefits. The

original bridge reduced tidal flow to upstream areas, resulting in degraded habitats and impaired water quality, and formed a velocity barrier to fish passage.

The new bridge will enhance fish access to the nearly 60 acres of spawning ponds, restore natural tidal hydrology by nearly doubling the mean upstream tide range leading to 153 acres of better-functioning tidal habitats, improve water quality, and enhance protection from coastal storms and storm surges by reducing the amount of time those storm waters are held upstream of the bridge.

The project's location on a busy state road and the COVID-19 pandemic complicated project construction. Massachusetts Department of Transportation required that construction activities



The new 30 foot long bridge crossing the Parkers River at Route 28 in Yarmouth, MA.

halt during the busy summer travel season, and the COVID-19 pandemic resulted in a temporary halt to the project as the project's construction came into compliance with new state regulations.

The Town of Yarmouth led this project, and a local, state, and federal partnership supported it; including Massachusetts Division of Ecological Restoration, NOAA Restoration Center, Natural Resources Conservation Service, and the U.S. Fish and Wildlife Service. NOAA supported the project by providing technical assistance and a \$663,000 construction grant. For more information, please contact Steve Block, NOAA Restoration Center, at Steve.Block@noaa.gov.

Sturgeon

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to review all the available information on Atlantic sturgeon bycatch in the federal large gillnet (>=7 inches stretched) mesh fisheries. Within one year of publication of this Opinion, the working group will develop an action plan to reduce Atlantic sturgeon bycatch in these fisheries by 2024."

Teamwork to Find a Solution:

NOAA Fisheries has formed the working group to develop its action plan by May 2022. The working group is made up of staff from the Greater Atlantic Regional Fisheries Office and the Northeast Fisheries Science Center. We will be seeking public input throughout development of the action plan.

Next Steps:

NOAA Fisheries will determine how best to implement the biological opinion's recommendations. The working group will consider developing recommendations that will reduce bycatch of Atlantic sturgeon in large-mesh gillnet fisheries, while still allowing the successful operation of these and other fisheries important to the culture and economy of Atlantic fishing communities. More information, including the draft plan when available, will be presented at meetings of the New England and Mid-Atlantic Fishery Management Councils. The need to get additional input from the large-mesh gillnet fisheries is essential. We will announce future meetings and opportunities.

For more information or to provide input, contact Spencer Talmage, Sustainable Fisheries Division, at Spencer.Talmage@noaa.gov or Lynn Lankshear, Protected Resources Division, at Lynn.Lankshear@noaa.gov.

Update on GARFO's Electronic Reporting and Permitting

On November 10, 2021, GARFO implemented the Joint Omnibus Electronic Vessel Trip Reporting (eVTR) Framework. This extended the requirement for captains to make their trip reports electronically to all commercial vessels with permits that require trip reporting and to those vessels with only a for-hire permit for species regulated by the New England Fishery Management Council. Previously, we required for-hire vessels permitted to fish for Mid-Atlantic Council regulated species and tilefish private boat anglers to report electronically. This does not apply to vessels that hold only a GARFO permit for American lobster. More details on the reporting framework is on our [Vessel Trip Reporting](https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/vessel-trip-reporting-greater-atlantic-region) web page (<https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/vessel-trip-reporting-greater-atlantic-region>).

There are a number of eVTR applications available for virtually any smart device including iPhones, iPads, Android and Windows 10 phones and tablets. Some are also available for personal computers. Phone and tablet applications do not require an internet connection to enter a trip, only to download the app or submit a trip's data. More information on the applications can be found on our [Electronic Vessel Trip Reporting Software Options](https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/electronic-vessel-trip-reporting-software-options) web page (<https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/electronic-vessel-trip-reporting-software-options>).

Since implementing the rule, we are no longer accepting paper VTRs. If any are received, they will be returned to the vessel owner for resubmission using an eVTR application. All eVTRs for commercial and charter/party for-hire trips must be submitted through an application within 48 hours of the end of a trip. Those for private tilefish recreational trips must be submitted within 24 hours.

Because of delays in developing an eVTR application that accommodates the additional data required in the individual transferable quota (ITQ) clam fisheries, we have temporarily exempted those trips from the eVTR requirement. Any other trips, and bycatch from ITQ clam trips must be reported through an eVTR.



Electronic vessel trip reporting is part of our effort to modernize our systems. Two other systems that are part of this effort are interactive voice response (IVR) reporting, required for some fisheries, and vessel and operator permits.

Earlier this year, we moved all required IVR reports to our Fish Online (FOL) system. These reports can be made through one of our FOL eVTR applications or on our [FOL](https://www.greateratlantic.fisheries.noaa.gov/apps/login/login) website (<https://www.greateratlantic.fisheries.noaa.gov/apps/login/login>).

Beginning this year, 2022, all vessel and operator permits must be renewed or initially applied for through our FOL system. In order to obtain a FOL account, a valid email address is required.

All applications for renewing vessel permits should be submitted at least 30 days prior to the start of the fishing year to allow us to review the applications and process the permits. Operator permit renewals should be submitted at least 30 days prior to their expiration date.

All issued vessel and operator permits can be printed from the FOL website. We are no longer distributing vessel operator permit cards. Online renewals are not yet available for seafood dealer permits. You may submit those applications by mail, fax, or emailing a copy of a completed application.

Vessel and seafood dealer permits will only be renewed if all required reports have been submitted for the previous year. Complete permit renewal information can be found on our [Vessel and Dealer Permitting](https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/vessel-and-dealer-permitting-greater-atlantic-region) web page (<https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/vessel-and-dealer-permitting-greater-atlantic-region>).

Contacts for help:

Vessel compliance
(978) 281-9369 or james.stcyr@noaa.gov
eVTR reporting
(978) 281-9188 or nmfs.gar.reporting@noaa.gov
On-line permitting
(978) 282-8438 or nmfs.gar.permitting@noaa.gov
Other questions contact your local Port Agent.

