



The NOAA FISHERIES NAVIGATOR

At Sea With EarthRanger

On-demand fishing removes the threat of entanglement posed by vertical buoy lines. This solution could help save North Atlantic right whales from extinction while supporting coastal fishing communities. A major obstacle to moving this effort forward is the need to develop an affordable system to track gear deployments in the ocean. We also need to make their locations known to the fishermen, enforcement agencies, and nearby vessels.

NOAA Fisheries has been collaborating with the Allen Institute for Artificial Intelligence. We are harnessing their EarthRanger platform to integrate gear deployments from multiple manufacturers into a centralized cloud database and display.

Northeast Fisheries Science Center Biologist, Christin Khan, sees great promise in this platform for making on-demand gear affordable and effective for the benefit of whales and fishermen.

Testing EarthRanger's Capabilities

A large community of stakeholders went out in Cape Cod Bay to test the visibility of gear deployments with the visiting EarthRanger team on July 26, 2022. The teams were divided between two commercial fishing vessels. They deployed gear within a few miles of each other to test the functionality of sharing positions of gear made by different manufacturers.

On-demand fishing gear was deployed from an EdgeTech system, and from the SMELTS lift bag



NOAA Fisheries/Christin Khan photo

The F/V Resolve returns to the dock after a successful day out on the water testing on-demand fishing gear deployments in the EarthRanger platform.

system with Teledyne acoustics and Blue Ocean Gear buoys. They monitored the speed with which positions were resolved in the EdgeTech Trap Tracker app and the EarthRanger platform.

Seeing gear deployments from different manufacturers appear within minutes on the same interface was a huge step forward in the development of on-demand fishing gear. It was very encouraging for our ability to resolve the challenges associated with geolocation in the absence of a surface buoy. We were impressed with the speed at which gear positions were marked and resolved from the display.

Getting all of these diverse stakeholders out on the water together provided important opportunities to learn from each other. It helped us better understand where we can make improvements to the existing functionality, as well as lots of opportunities to brainstorm about diverse topics.

Overall we learned a lot and have demonstrated that gear location marking for ropeless and on-demand fishing is possible and no longer represents a barrier to progress.

Roadmap to Wider Use of On-Demand Gear

NOAA Fisheries has issued a draft strategy, *Ropeless Roadmap: A Strategy to Develop On-Demand Fishing*, to guide how we approach the development of on-demand gear in the coming months and years. The draft strategy identifies the research and technology needs related to on-demand fishing and how these needs will be met. It also considers economic, safety, operational, and enforcement aspects of on-demand technology.

We recognize that many partners are key to this process and strategy, particularly state fishery managers.

We invite the public and our stakeholders to provide input on this document and our ongoing on-demand fishing research program.

For questions about the EarthRanger platform, contact Christin Khan at <christin.khan@noaa.gov>.

2023 Northeast Cooperative Research Summits

The Northeast Fisheries Science Center's Cooperative Research Branch is hosting two cooperative research summits in early 2023. They are being held in response to stakeholder priorities developed during a series of eight stakeholder engagement sessions from Maine to Virginia held in the fall of 2019. During the workshops, better communication and coordination of cooperative research across the Greater Atlantic Region were identified as top priorities. One summit will be held in the Mid-Atlantic in Newport News, VA on January 31, 2023, and the New England summit will take place in Providence, RI on February 15, 2023.

These summits will bring together scientists, managers, fishermen, and industry representatives to:

- Share the approaches and results of cooperative research projects.
- Discuss opportunities for enhanced industry participation.
- Review funding opportunities.
- Develop best practices for applying cooperative



NOAA Fisheries photo

A fisherman in conversation with a Science Center staff member during a research cruise.

research results to assessments and management.

- Facilitate regional coordination of cooperative research.
- Develop new partnerships.
- Develop priorities for near-term science and management challenges that can be addressed by cooperative research.

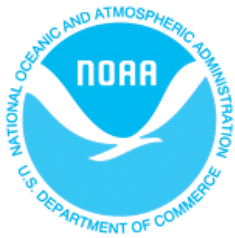
The summits will also include poster sessions and ample time for informal conversation.

If your research involves a collaboration between scientists and fishermen, please consider submitting an abstract for either a poster or an oral presentation. If you are interested in participating in cooperative research, we encourage you to attend a summit. To encourage industry participation, a travel and participation stipend of \$750 will be provided to the first 20 fishermen who register for each summit (New England and Mid-Atlantic).

For more information about the summits and to register, go to our <<https://www.fisheries.noaa.gov/new-england-mid-atlantic/outreach-and-education/cooperative-research-fosters-regional-partnerships>>.

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Ocean Models Help Link Environmental Conditions to a Fishery Stock Assessment

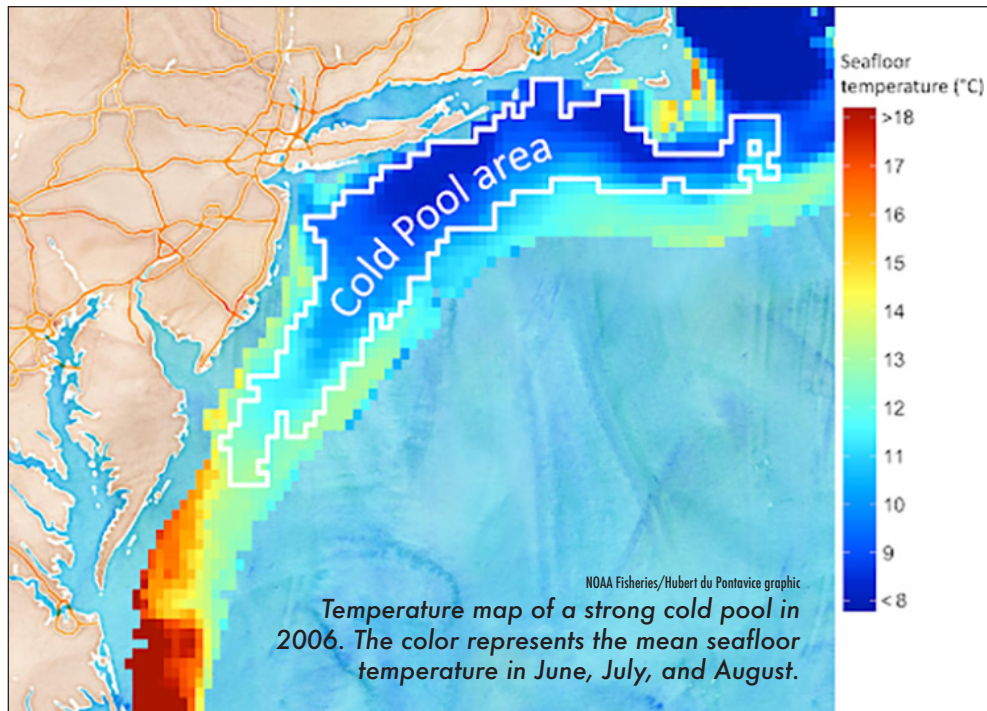
NOAA scientists used ocean models to develop more detailed information about a seasonal, offshore cold-water mass called the “cold pool.” They helped unlock a mystery: why have yellowtail flounder off southern New England and the Mid-Atlantic not rebounded despite nearly 30 years of recovery efforts?

They have linked fluctuations in this oceanographic phenomenon, the “cold pool,” to fluctuations in numbers of new, young fish entering this hard-pressed stock. Further, they show that incorporating this new information into the stock assessment improves the results. It reduces the uncertainty around estimates of spawning

stock and incoming numbers of young fish (called “recruitment”). These are important indicators for fishery managers developing measures to promote recovery.

“Although there is still a long way to go, our study constitutes a new step toward climate-ready fisheries management,” said lead author Hubert du Pontavice. Du Pontavice is a post-doctoral research associate at the Program in Atmospheric and Oceanic Sciences at Princeton University and is affiliated with NOAA’s Northeast Fisheries Science Center. The study was published recently in the *ICES Journal of Marine Science*.

Co-author Vincent Saba explains that the results



showed “a cooler and more persistent cold pool is associated with higher recruitment into this yellowtail population.” Saba is a Northeast Fisheries Science Center fishery biologist, who works at the Geophysical Fluid Dynamics Laboratory at Princeton University.

The most recent stock assessment update for this stock identified recruitment failure as a grave concern. It said that “Should this pattern of poor recruitment continue into the future, the ability of the stock to recover could be compromised.” Researchers recommended further investigation of some of the underlying ecological mechanisms of poor recruitment, including the cold pool and Gulf Stream, to better understand future prospects for the stock.

To make the connection between cold pool dynamics and recruitment, the researchers first used ocean models to better characterize the cold pool from 1972 to 2019. Then, they linked the resulting information to variations in the number of 1-year-old fish coming into the population in each of those years. Finally, they added this information into a number of stock assessment models for this stock to test what happened when environmental conditions were included in the analysis.

Describing the Cold Pool

During summer and fall, a layer of cold water is trapped on the ocean bottom over parts of the continental shelf from Cape Cod, Massachusetts, to Cape Hatteras, North Carolina. Just how cold, how large, and for how long the cold pool persists varies throughout the season and among years.

Researchers already knew that the cold pool likely affected the survival of newly spawned yellowtail. Yellowtail eggs float on the ocean’s surface for about 2 months after they are spawned in the spring, then settle into

the cold pool if it is present, to feed and grow. To directly compare cold pool characteristics and recruitment over time, researchers needed a full series of data on cold pool variation over time.

To get this time series, the scientists developed three new indices to measure the cold pool: size, duration, and magnitude (temperature). Accounting for the fluctuations of the cold pool is challenging in part because researchers generally do so using ocean bottom temperatures measured directly, usually during at-sea ecosystem surveys. These surveys do not occur year-round, and they can be interrupted for various reasons, leaving data gaps.

To supplement the data obtained during surveys, these researchers used two estimates of monthly bottom temperature for 1972 to 2019. This is the same time frame covered

by the most recent assessment for this stock. The estimates were generated using ocean models that can assimilate observed temperature data and fill in missing data.

“Ocean models can help fill in the gaps when observations are limited. They can produce daily cold pool indices, which is not possible using only observations,” explains Saba.

Linking to Stock Assessments

The researchers then tested what happened when the cold pool effects on recruitment were incorporated into estimates of spawning stock size and recruitment.

Colleagues Tim Miller and Brian Stock helped incorporate the cold pool effects into a new stock assessment model they developed that can account for environmental factors. When cold pool effects on yellowtail flounder recruitment were included, estimates for the most recent years and for projections of future recruitment and spawning stock biomass became more certain. The assessment models performed better when only the observation-based index was used. “This work is an important step in improving our understanding of climate drivers on the productivity of fish stocks,” said Miller.

While this study focused on cold pool effects on yellowtail flounder, it paves the way for factoring other environmental data into stock assessments. NOAA scientists are using the same assessment tools to investigate effects of environmental factors on other fish species at various life stages, and availability of the fish to our surveys. Researchers plan to use these tools to study other types of temperature effects on stocks such as American plaice, winter flounder, and Atlantic cod.

For questions regarding this study, contact Hubert du Pontavice at <hubert.dupontavice@princeton.edu>.

Atlantic Highly Migratory Species Fishery Compliance Guides

The Atlantic Highly Migratory Species (HMS) Management Division recently published new versions of the Commercial and Recreational compliance guides. These versions of the guides have been updated with the most recent regulation changes for Atlantic HMS fisheries. Electronic versions of the compliance guides at <<https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-highly-migratory-species-fishery-compliance-guides>> or hard copies can be requested from the Atlantic HMS Management Division by calling (301) 427-8503 or emailing <peter.cooper@noaa.gov>.

Atlantic Large Whale Take Reduction Plan Reminder: Lobster Management Area 1 Seasonal Restricted Area in Effect October 1 - January 31.

Lobster and Jonah crab trap/pot fishermen in Maine LMA 1 Zones C, D, and E and a small sliver of LMA 3 are reminded of the new Seasonal Restricted Area (SRA) that is in place annually from October 1 to January 31. No trap/pot gear with persistent buoy lines is allowed while the SRA is in place.

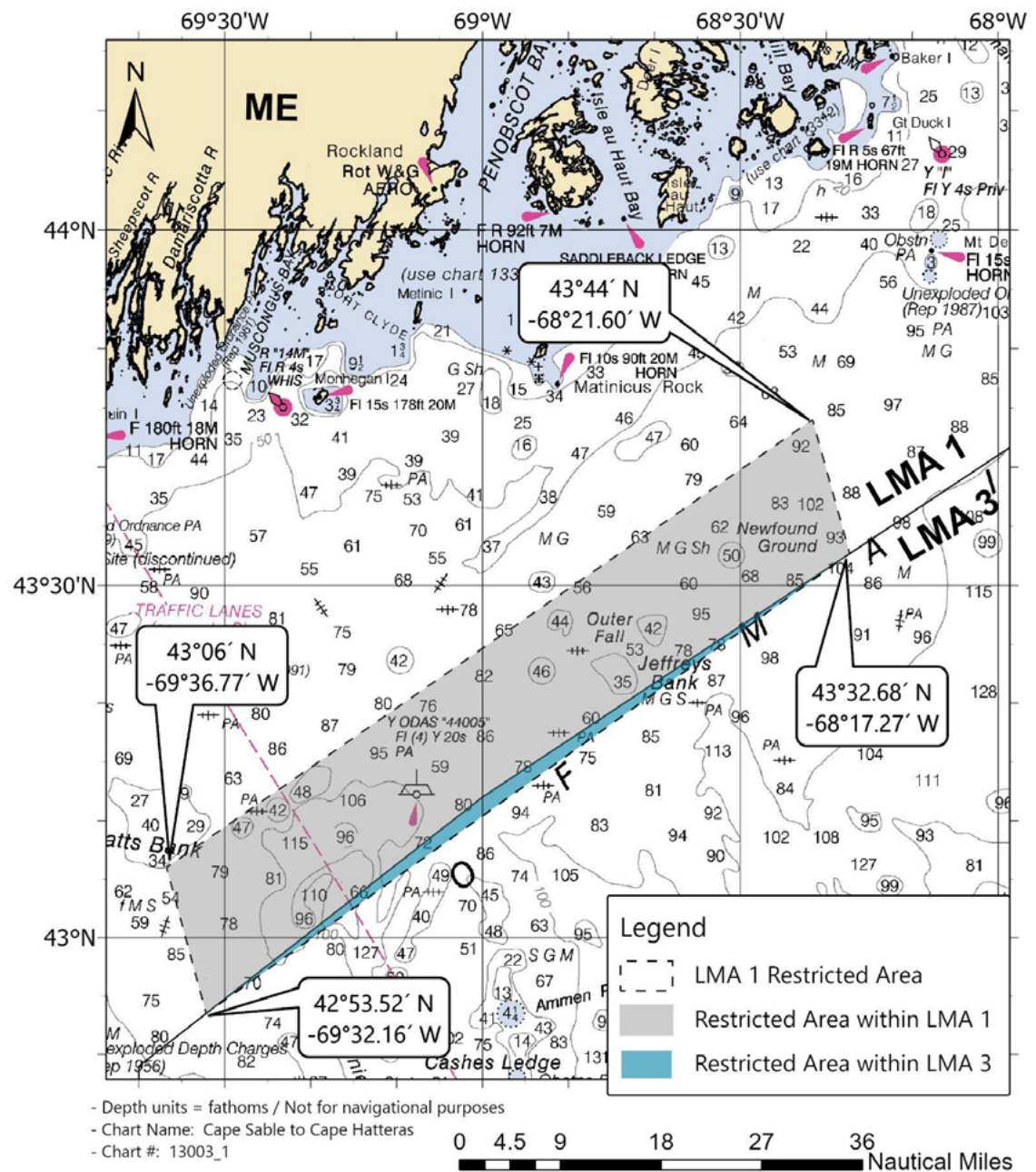
- | Longitude | Latitude |
|---------------|--------------|
| -69° 36.77' W | 43° 06.00' N |
| -68° 21.60' W | 43° 44.00' N |
| -68° 17.27' W | 43° 32.68' N |
| -69° 32.16' W | 42° 53.52' N |
| -69° 36.77' W | 43° 06.00' N |

See map at right.

Harbor Porpoise Take Reduction Plan Reminders: Closed Areas and Gear Requirements

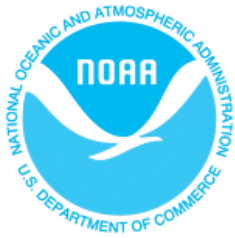
The Harbor Porpoise Take Reduction Plan (HPTRT) regulations are intended to reduce the serious injury and mortality of harbor porpoises in Northeast sink gillnet and Mid-Atlantic gillnet fisheries from Maine through North Carolina. Conservation measures include pinger requirements, gear modifications, and time/area closures.

See below for a summary reminder of seasonal restrictions. For more information, contact the HPTRT Coordinator, Jennifer Goebel, at (978) 281-9175 or visit the HPTRT web page. If you have questions about gear requirements, please contact John Higgins at (207) 610-3282 or <john.higgins@noaa.gov>.



Northeast Gillnet Fisheries (All)		
Area	Dates	Restrictions
Northeast Closure Area	August 15-September 13	Closure
Mid-Coast Management Area	September 15-May 31	Pingers Required
Massachusetts Bay Management Area	November 1-February 28/29	Pingers Required
	March 1-31 April 1-May 31	Closure 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	Closure
Offshore Management Area	November 1-May 31	Pingers Required
Cashes Ledge Closure Area	February 1-28/29	Closure

Mid-Atlantic Gillnet Fisheries (Large & Small Mesh)		
Area	Gear Modifications Required	Gillnet Closure
Large Mesh Gillnet (Mesh Size 7-18 inches)		
Waters off New Jersey Management Area	January 1-March 31; April 21-30	April 1-20
Mudhole North Management Area	January 1-April 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
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-April 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	-



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Greater Atlantic Regional Dealer Permits Are Going Paperless This Fall

Beginning October 17, 2022, the Greater Atlantic Region will no longer send or accept paper applications for dealer permit renewals and will not mail issued permits.



Seafood dealers will need to apply for and print their permits, once issued, from their secure Fish Online user account. This includes all permit holders, without exception.

A valid paper dealer permit is still required to be present and maintained at the dealer's premises at all times.

For those dealers who have not used Fish Online yet, the Permit Office will be sending out instructions on how to create an account, and then apply for and print a permit online.

Fish Online is our secure online system that allows dealers a way to login using their own username and password, which is associated with their email address. Additionally, this system allows owners to give access, or "entitlements," to their office managers and other trusted people so they can submit and manage a dealer's information through their own account.

When 2023 dealer renewal applications open in October, we will no longer mail or accept paper applications. However, we are providing remote or in-person assistance to any dealer or fisherman that needs help. For assistance on creating an account or linking your permit to your account, please contact us at: (978) 282-8438 or (978) 281-9188 or visit our <https://apps-garfo.fisheries.noaa.gov/fishtank/login/login>.

Dealer Reporting

As a reminder, it is a dealer's responsibility to report completely, accurately and on time. Please check with vessel owners as needed to ensure the correct (and full 14 digit eVTR number) and permit numbers are entered. Dealers who do not submit complete and accurate electronic reports may be considered out of compliance and could have their application held up until those requirements are met. Port Agents and staff are available to work with dealers to resolve technical and reporting issues.



(Florida Fish and Wildlife Commission. All photos taken under NOAA permit 18786)

North Atlantic right whale #3230 "Infinity" and her calf were struck off the coast of Florida in February 2021. Her calf pictured above died from the strike. "Infinity" was spotted several days later with injuries suggestive of a vessel strike.

Rule to Amend the North Atlantic Right Whale Vessel Speed Regulations Open for Comment

NOAA Fisheries is proposing changes to the North Atlantic right whale vessel speed rule to further reduce the likelihood of lethal vessel collisions. The changes would broaden the spatial boundaries and timing of seasonal speed restriction areas along the U.S. East Coast. They would also expand mandatory speed restrictions of 10 knots or less to include most vessels 35–65 feet in length.

Proposed changes to the current speed rule address two key problems impacting right whale recovery:

- Misalignment between areas and times of high vessel strike risk and current Seasonal Management Areas spatial and temporal bounds
- Lack of mandatory speed restriction on vessels between 35 and 65 feet in length that present a lethal threat to right whales

During the past two and a half years alone NOAA Fisheries has documented four lethal (death and serious injury) right whale vessel strike events in U.S. waters. These events are impeding the species' recovery and contributing to the population's decline.

Additional changes to the speed rule include:

- Creation of a mandatory

Dynamic Speed Zone program establishing temporary 10-knot transit zones when right whales are detected outside designated Seasonal Speed Zones

- Updates to the rule's safety provisions, allowing vessels to exceed the 10-knot restriction in limited circumstances

North Atlantic right whales are approaching extinction with fewer than 350 individuals and fewer than 100 reproductively active females remaining. This decline is associated with an ongoing Unusual Mortality Event that has documented 54 right whale serious injuries and deaths in U.S. and Canadian waters since 2017. Climate-related impacts and prey availability have contributed to the population's reduced fitness. However, vessel strikes and entanglements continue to drive the population's decline and are the primary cause of serious injuries and mortalities. North Atlantic right whales are especially vulnerable to vessel strikes due to their coastal distribution and frequent occurrence at near-surface depths. This is particularly true for females with calves.

NOAA Fisheries and our partners are dedicated to conserving the North Atlantic right whale population.

Comment on the Proposed Rule

The comment period for the proposed rule is open through October 31, 2022. You may submit comments electronically. NOAA Fisheries may not consider comments sent by any other method (such as e-mail or mail), to any other address or individual, or received after the end of the comment period.

For more information on how to submit a comment, visit <https://www.fisheries.noaa.gov/feature-story/rule-amend-north-atlantic-right-whale-vessel-speed-regulations-open-comment>.