The NOAA FISHERIES NAVIGATOR

NOAA Fisheries Celebrates 150 Years of Science in 2021

On February 9, 1871, President Ulysses S. Grant signed a law that created the U.S. Commission of Fish and Fisheries, known as the Fish Commission. It was the nation's first federal conservation and environmental research agency. At the time, Massachusetts, Rhode Island, and Connecticut were trying to address a serious decline in marine fish catches.

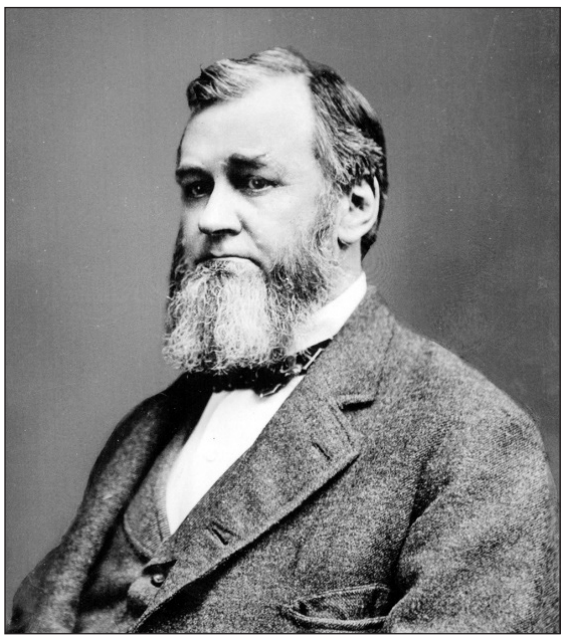
With no consistent approach or common understanding of the decline, Congress created the Fish Commission and charged it with conducting an official inquiry into the apparent decline in fishery catches off Southern New England. For the most part this centered on commercial harvest operations using fish pounds and weirs, and subsistence fishermen and anglers using handlines. If there was a decline, the commission was to study its causes and recommend ways to reverse it.

President Grant appointed prominent scientist Spencer Fullerton Baird to lead the Commission. Baird, an eminent zoologist and the first assistant secretary of the Smithsonian Institution, was an obvious choice. Baird laid much of the groundwork for this inquiry himself, using his many contacts in Congress, and willingly took on the task.

He hit the ground running in his second, and unpaid, government job as Fish Commissioner. Within a few months, he established the first U.S. marine research station—just a shed borrowed from the Lighthouse Board in the early years—in Woods Hole, Massachusetts. Scientists were invited to come work at the Fish Commission lab and collaborate on projects. It was the birth of an international center of marine, environmental and biomedical sciences. Today Woods Hole is home to six scientific institutions, many smaller research and educational organizations, and a growing marine technology industry.

But back in 1871, marine science in general and fisheries science in particular was in its infancy. There was little systematic data collection about marine fisheries and fish, or their habitats. Baird needed to gather information not only on fish numbers, but recognized the need to integrate physical, biological, and chemical aspects of the environment in studying fisheries.

Baird devised a wide-ranging research plan and worked with fishermen in the region to understand the issues. He initiated the field of marine ecology, founded the fields of fisheries biology or fisheries science, and laid the foundation for oceanography.

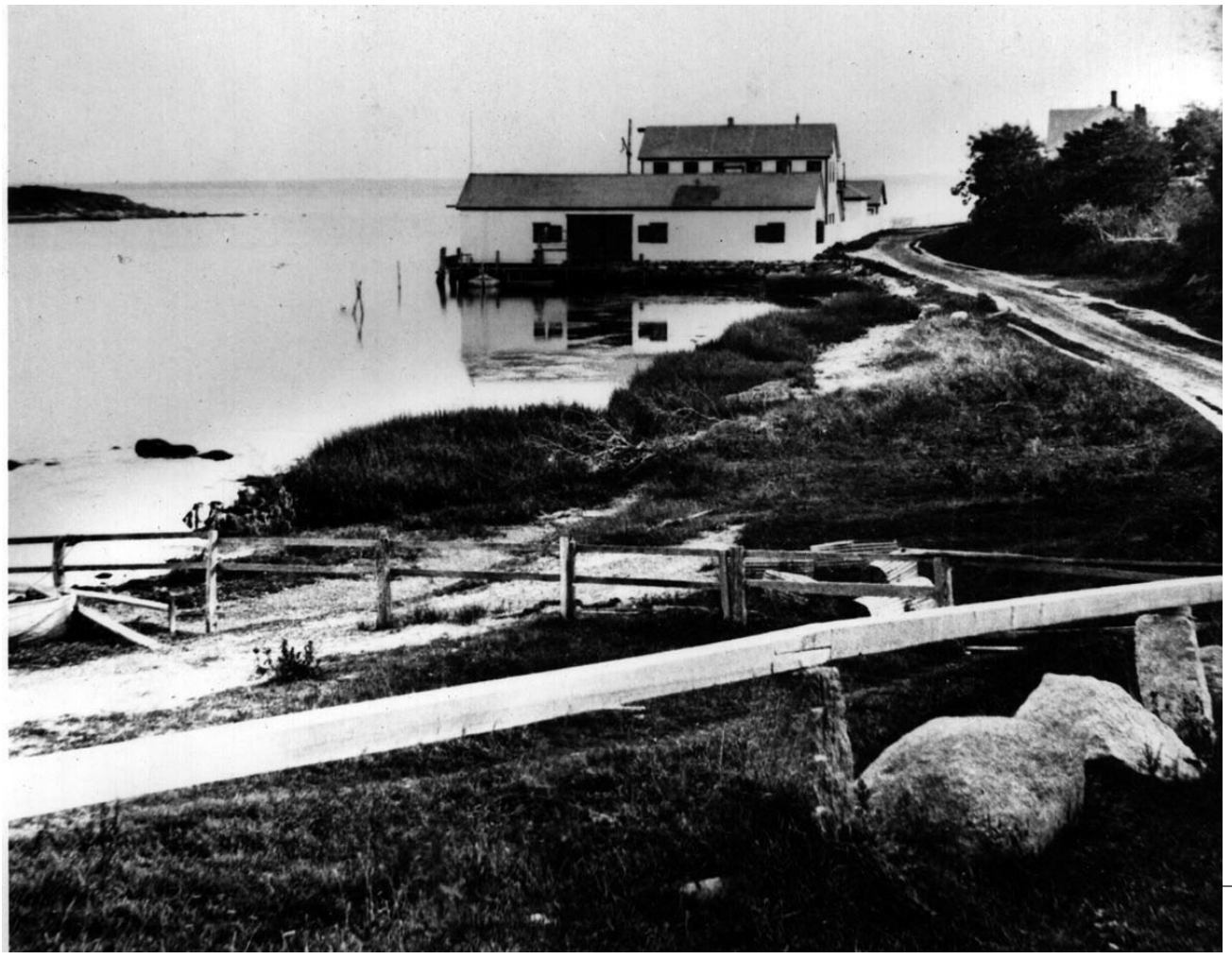


NOAA photo

Spencer Fullerton Baird.

He was also a pioneer in biogeography, the study of biological and geographic factors that influence the distribution of life on Earth. He established a publishing program that advanced knowledge about fisheries science, and as an authority on natural history, authored nearly 1,200 publications himself.

He invited government officials, scientists and others to visit the Woods Hole Lab to see what researchers were studying by displaying aquaria full of local species. He believed research and education should go hand in hand, and was convinced that in a democratic society, people are entitled to know about the activities of the institutions maintained with public funds. This year NOAA Fisheries is celebrating Baird's legacy and 150 years of fisheries science. At the Northeast Fisheries Science Center, the birthplace of NOAA Fisheries, we are featuring history makers, foundations of our science and evolving technologies as well as the unsung heroes, key places, special events and unusual happenings that have helped shape our legacy. Many aspects of our history as well as current and future directions are featured each month and can be found on our website at https://www.fisheries.noaa.gov/feature-story/woods-hole-massachusetts-birthplace-noaa-fisheries. They can also be found via social media at @NOAAFish_NEFSC on Twitter and at NOAA Fisheries New England/Mid-Atlantic, or @NOAAFisheriesNEMA, on Facebook.



NOAA photo

First U.S. marine research station.

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The NOAA FISHERIES NAVIGATOR

Data, Monitoring Focus of New NEFSC Division Chief

Leading the Northeast Fisheries Science Center's Population and Ecosystems Monitoring and Analysis Division is Kathryn Ford, who began her new duties in May. She is replacing Wendy Gabriel, who retired in 2021 after 38 years with NOAA Fisheries.

The team Ford will lead is responsible for executing data acquisition, management, and analysis efforts. That includes scientific ecosystem surveys on vessels operated by NOAA, universities, other national oceanographic laboratories, and fishing vessels. The team also analyzes biological trends in important fishery species, and conducts biological studies to understand how a range of ecosystem factors influence the growth and health of important fishery species.Ford has great respect for the work she will manage. "I believe in the science that this particular team brings to the table," said Ford. "This division's data collection and analysis are central to what the center does. They are the basis for all the other analyses."

Ford comes to NOAA Fisheries after a career filled with multidisciplinary work in coastal and ocean science at the Massachusetts Division of Marine Fisheries. Initially hired in 2005 to pilot a remotely operated towed vehicle in a conservation engineering study, she eventually rose to lead the division's fisheries habitat program.

Trained as an oceanographer, Ford has applied those skills to coastal and ocean planning, artificial reefs and eelgrass restoration, aquaculture, and offshore wind energy development. She served on:

The first state joint task force to work with the Bureau of Ocean Energy Management on wind energy areas off Massachusetts and Rhode Island.

The Northeast Regional Ocean Council.

The New England Fishery Management Council's Habitat Plan Development Team.

NOAA photo

Kathryn Ford, Northeast Fisheries Science Center's Population and Ecosystems Monitoring and Analysis Division Chief.

A sixth-grade trip to the New England Aquarium hooked Ford, who grew up in Winchester, Massachusetts, on a career in marine science. She chose the University of Rochester for her undergraduate degree since it required her to travel to a series of marine labs. After graduation, she lived in a shack on a beach for 3 years while working at a field station on Andros Island in the Bahamas.

She spent a lot of time on reef monitoring projects, serving as a research assistant for a range of visiting ocean researchers and teaching coral reef ecology. This proximity to marine science gave her a deeper understanding of the value of data in making decisions to manage marine resources. At the University of Rhode Island's Graduate School of Oceanography, she studied geological oceanography and coastal ecosystems science, earning a Ph.D. She had a hand in studies that included a wide variety of sampling methods, from clamming, lobstering, and fyke netting to side-scan sonar and sediment coring.

Ford is still interested in hands-on research and her focus over time has been on technologies that can help unlock the ocean's secrets. Despite that interest, Ford's professional focus in recent years has been on leading teams. "Over time I realized that if I could manage the scientific work effectively we could go further. I could see that I was transitioning away from fieldwork and into leadership."

When the opportunity to apply for a leadership position with the center arose, she was ready. "I am excited to work in a leadership team that puts people first and wants this organization to be the best place to work in NOAA Fisheries."

Looking ahead, Ford hopes to continue to provide the best marine resource monitoring programs in existence. Some of the challenges include advancing surveys as offshore wind farms are developed, improving maintenance and accessibility of data, and ensuring the long-standing tradition of high quality data acquisition.

She also hopes to expand and improve communications across her division and with partners and stakeholders in the region. "I really believe in what the team is doing, and that these data are foundational to what the center does and what fishery managers need. I want others to understand and value it as much as I do."

For more information, contact Kathryn Ford at the Northeast Fisheries Science Center at kathryn.ford@noaa.gov.

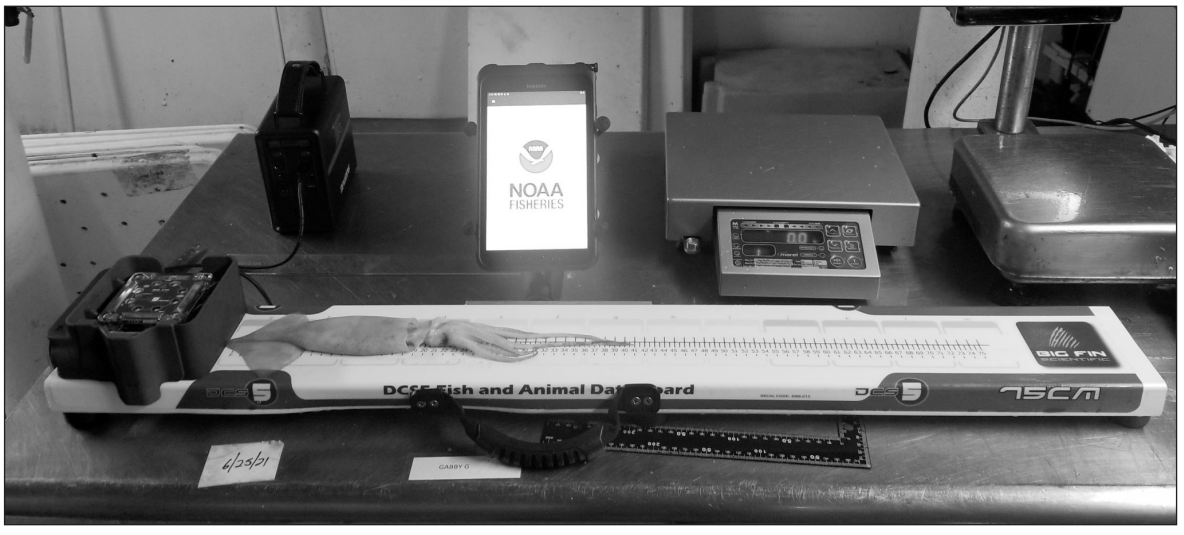
New Shoreside Shortfin Squid Data Collection Project

Starting this summer, researchers from the Northeast Fisheries Science Center (NEFSC) will begin installing a new electronic data collection system at shortfin squid processing facilities across the region.

The Squid Electronic Size Monitoring Pilot Project (ILXSM), is a new project from a team of collaborative NEFSC researchers working in the Cooperative Research Branch, Population Dynamics Branch, and the Information Technology Division.

Working alongside industry, this group developed the system with the goal of standardizing the data stream of reported shortfin squid size and weight. The northern shortfin squid (*Illex illecebrosus*) is a fast growing species thathas a sub-annual lifespan. This results in multiple cohorts (groups of similar-age squid) that exhibit a wide range of body sizes and weights.

To gain a better understanding of the complex cohort and population structure of shortfin squid, high frequency, region-wide size and weight sampling is required. The improved data supports a commercial fishery that was valued at over $27 million in 2019.



Due primarily to current data limitations, some species dynamics are poorly understood. Traditional fish surveys in the spring and fall do not coincide with shortfin squid migrations, as the squid typically inhabit the outer continental shelf throughout the summer months.

Likewise, fishery dependent data (Vessel Trip

See SHORTFIN SQUID, next page

New Interactive Map Tracks Whale Detections

Scientists at the Northeast Fisheries Science Center have created a new data mapping tool to help people understand when and where large whales occur off the East Coast.

The underlying data include detections made by underwater listening devices — called hydrophones — operated from stationary platforms, such as bottom-mounted moorings and surface buoys. Detections were also made by mobile platforms like Slocum gliders and towed hydrophone arrays. The map includes sounds made by sei, fin, blue, humpback and North Atlantic right whales from 2004 to the present.

"Our goal was to provide all the archived data we have, plus data from collaborators, in one place and make it easy for managers, stakeholders and scientists to access it themselves and explore the data in a format that would be helpful," said Sofie Van Parijs, one of the creators and lead of the center's passive acoustics research group. "We hope to add in data collected by the wind industry, and invite other researchers and sources of this type of data to share what they have with us to make this dataset as comprehensive as possible."

Those interested in contributing to the data can contact the developers at nmfs.pacmdata@noaa.gov.

Recent additions to the dataset include all beaked whales, sperm whales, and dwarf and pygmy sperm whales (Kogia species) detected from 2013 to the present. Current recording locations range from the waters of the western North Atlantic, off Greenland, to the Caribbean Sea.

Data about each detection is incorporated into the mapping tool, including:

- Location
- Season
- Number of deployments of that recording gear
- Number of recorded days and detections

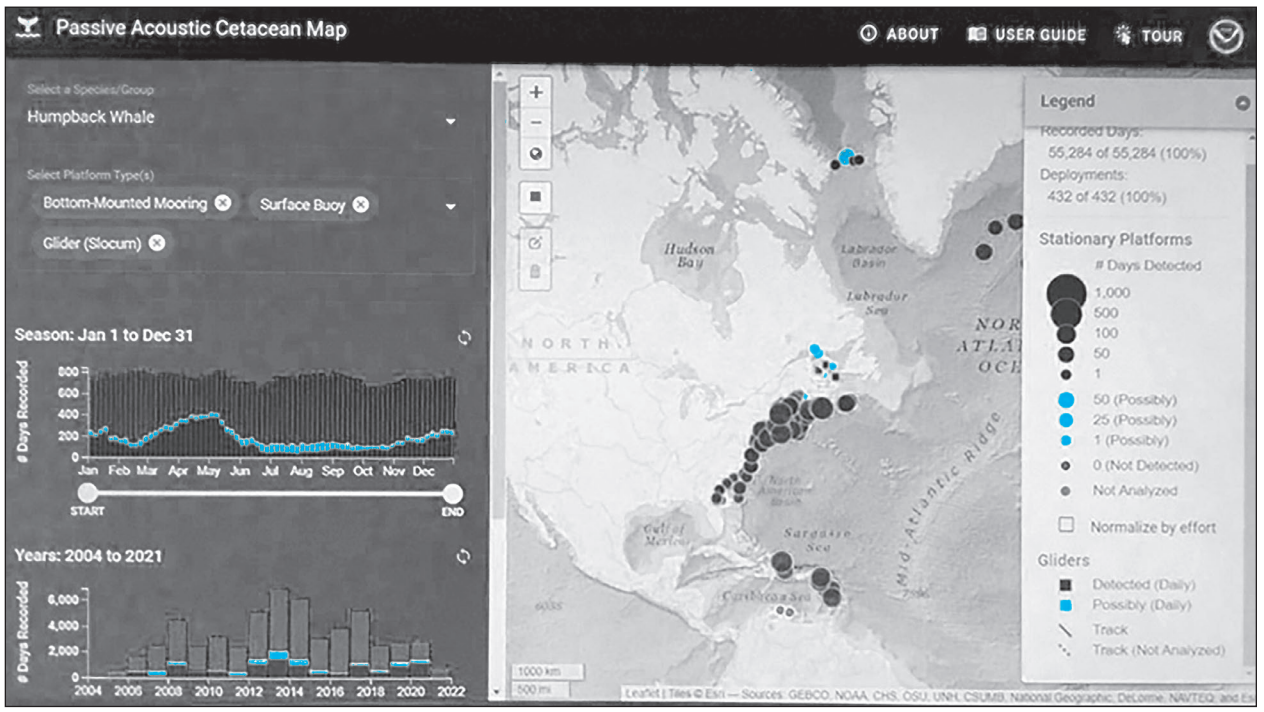
Type of detection: definite, possible, no detection, or data collected but not yet analyzed.

To pull up information about a detection, users hover over a point on the map with their mouse or tap the point on a smart device screen. Details appear about that specific deployment, such as the type of recorder, water depth, duration it was deployed, and the project involved. The web-based tool is mobile-friendly, and can be accessed with smart devices such as phones and tablets.

The large baleen whale detections contain contributions from 33 collaborators to date in the United States and Canada. Soon, the map will expand to include minke whales and dolphin species. Creators Van Parijs, Genevieve Davis, and Annamaria DeAngelis of our science center worked with data visualization expert Jeff Walker of Walker Environmental Research Ltd on the project.

This data map for passive acoustic detections is the second such tool for tracking whales off the U.S. East Coast and Atlantic Canada. WhaleMap, maintained by Dalhousie University, displays data from a variety of resources and partners. It includes both acoustic detections and visual sightings. It can also overlay management areas and wind energy development areas onto the charts it generates.

For more information, contact the Northeast Fisheries Science Center's passive acoustic research group at nmfs.pacmdata@noaa.gov.



NOAA joins the Plymouth 400th Maritime Salute

NOAA Fisheries and the Stellwagen Bank National Marine Sanctuary will be participating in the Plymouth 400th Maritime Salute scheduled for September 4 (rain date: September 5). The Official Maritime Salute pays tribute to the Pilgrims' journey on board the Mayflower from Plymouth, England, to the site of Plymouth Colony in the new world. A regatta of wooden ships, yachts, workboats, official vessels, and pleasure craft, maritime fanfare and marine programming will be part of the day's festivities.

NOAA Fisheries and the Sanctuary will participate with the research vessel Auk as well as other marine displays that highlight many years of working with Plymouth's active waterfront and natural resource protection and restoration. This large scale waterfront event should have something for anyone interested in history, whale watching, fishing, restoration of coastal habitats or just a nice seafood dinner. For more information visit: https://www.plymouth400inc.org/event/official-maritime-salute-to-the-400th-anniversary/

Shortfin squid

Continued from previous page

Reports and Port Sampling) lack the resolution and density required to characterize the dynamics of this short-lived species. As the shortfin squid fishery continues to grow, it is becoming more important to obtain a better understanding of the species in order to ensure long-term sustainability and maximize commercial value.

Collaboration between researchers and the shortfin squid fishing fleet and processing companies has been essential to designing and implementing this data collection effort. The cooperation with industry has given researchers important insights into fishery operations, as well as providing direct access to the data source (fresh squid).

Over the spring of 2021, NEFSC staff developed a software and hardware package consisting of an electronic fish measuring board, a digital scale with Bluetooth connectivity, and a ruggedized tablet running an application designed for efficient biological data collection. The ILXSM provides some shortfin squid processors with the tools that will collect the critically-important data on shortfin squid size and weights during routine processing operations.

When fishing vessels land at each processing facility, the ILXSM system will be used to record paired mantle length and whole weight of individual shortfin squid. These data will allow scientists to better understand the size composition of shortfin squid cohorts and population while the fishery is open, which is important in advancing the assessment and management of this dynamic species.

The partnership between science and industry has been essential to the deployment of this project. Shortfin squid harvesters and processors helped researchers with scoping, designing, and testing the system, and will get their chance to collect data in the coming months.

Research projects such as the ILXSM play an important role in documenting rapidly changing dynamics of marine populations and promoting the long-term conservation of living marine resources.

For more information contact: Giovanni Gianesin at Giovanni.Gianesin@noaa.gov.

The NOAA FISHERIES NAVIGATOR

GARFO's One Stop Reporting Project

Our One Stop Reporting (OSR) project is the development of electronic vessel trip reporting (eVTR) requirements that will enable vessel owners or operators who have multiple NOAA Fisheries reporting requirements to report their fishing catch/effort information on a single eVTR submission. This is an Atlantic coast-wide project that encompasses all federal fisheries reporting requirements, including:

- Commercial
- For-hire
- Recreational

It does not include non-federally required recreational fisheries such as those covered by our Marine Recreational Information Program (MRIP).

This project is a partnership between agencies managing federal fisheries along the Atlantic coast: Greater Atlantic Regional Fisheries Office, Northeast Fisheries Science Center, Highly Migratory Species Division, Southeast Regional Fisheries Office and Southeast Fisheries Science Center, and the Atlantic States Marine Fisheries Commission.

OSR is not a single reporting application, but a set of standards that application developers are using to develop systems that meet OSR requirements.

OSR seeks to:

- Identify all federal reporting requirements from Maine to Florida.
- Enable approved eVTR applications to share catch/effort information with appropriate fish managers resulting in a single eVTR submission satisfying all reporting requirements.
- Provide data to all affected fisheries management groups.
- Develop multiple reporting applications that will allow vessel operators to:
- Choose the application that best meets their needs.
- Meet all reporting requirements their vessel may have in all federally permitted fisheries.
- Phase in systems by fisheries with the highest number of participants first.
- Work closely with partners to develop new or updated applications that meet many requirements.

Currently no reporting applications meets all requirements. However, ACCSP's eTrips applications satisfies many of the high volume fisheries along the East Coast (see table below). Many of these applications meet or exceed GARFO's current eVTR requirements, as well as the new electronic requirements being implemented for all commercial and Northeast multispecies for-hire fisheries in November 2021.

Permit Office is Going Paperless Beginning January 1, 2022

For the past several years, the Greater Atlantic Region Fisheries Office has been migrating our paper-based permitting and reporting systems to electronic and web-based. This includes our Fish Online system, which houses our electronic vessel trip reporting and permit applications and renewals. For the 2020 fishing year, we started migrating our Permit Office functions to Fish Online (https://www.greateratlantic.fisheries.noaa.gov/apps/login/login). We are now in our final steps for this transition.

Beginning January 1, 2022, we will no longer accept paper applications for vessel renewals, initial vessel permits and operator permits. Instead, vessel owners and operators will need to apply for and print their permits online from their secure Fish Online user account. This includes all vessels and operator permit holders, without any exceptions.

The Permit Office will no longer mail issued permits to vessels after this date. You are still required to carry on board the vessel a valid paper vessel permit at all times. In order to get a copy of a vessel permit after January 1, 2022, vessel owners will have to print their permit from their Fish Online account. For those that have not used Fish Online yet, we will be sending out further instructions on how to apply for and print a permit online.

In addition, we will no longer issue plastic operator cards beginning January 1, 2022. All operator cards will be replaced with paper operator permits, which will be available to print through your Fish Online account. The Permit Office will no longer mail issued permits to vessel operators after this date. Any plastic card that was issued before January 1, 2022, will still be valid. A valid operator permit, whether a plastic card or a paper permit, will still be required to be carried on board the vessel at all times by the captain or operator of the vessel.

In order to use any of our online eVTR services and online permit applications, vessel owners and operators need to have a Fish Online account. Fish Online is our online account system that provides access to a specific vessel or operator permit. Users need to create their own username and a password, which is associated with their email address.

After an account is created, users can then attach or link a vessel or operator permit to their account using a unique Credential Security Code (CSC). If fishermen don't know what their CSC is or would like assistance linking their vessel or operator permit to their Fish Online User Account, they can call us at (978) 282-8438 or (978) 281-9188, or visit our webpage at https://go.usa.gov/x6AtJ

One Stop Reporting applications and status

DEVELOPER	SYSTEMS	GARFO CATEGORIES				HMS ATLANTIC HMS - CHARTER/ HEADBOAT AND ANGLING CATEGORIES	SERO FOR-HIRE
		COMMERCIAL	FOR-HIRE	PRIVATE BOAT RECREATIONAL TILEFISH	ITQ CLAMS		
GARFO	Fish Online	X	X	X			
NEFSC	FLDRS	X*			X		
ACCSP/Harbor Light Software	eTrips	X	X	X		X***	X
	eFIN			X			
Teem Fish Monitoring	Elog	X**					
Real Time Data	Deckhand Pro	X	X	X			

Notes:
*At this time FLDRS is not accepting new commercial participants except for vessel in ITQ clam fisheries.
**Elog is for commercial electronic monitoring trips only.
***These landings can currently be reported through an HMS Catch Reporting System (both online and through an app) as well as eTrips. Does not support commercial trip reporting.

For more and up-to-date information see our Electronic Vessel Trip Reporting Software Options webpage (Search online for eVTR GARFO). Contact information for assistance for the above applications can be found there.