The NOAA FISHERIES NAVIGATOR

Long-Running Plankton Survey to Resume in the Gulf of Maine

One of the longest running biological monitoring surveys in the Northwest Atlantic will resume plankton sampling this winter.

Plankton are food for endangered North Atlantic right whales and many other marine species. The survey has collected plankton samples for decades, providing a unique source of information about the changing health of the ocean.

A new agreement between NOAA's Northeast Fisheries Science Center, the Marine Biological Association in Plymouth, England and the Woods Hole Oceanographic Institution will resume a plankton survey across the Gulf of Maine that had been conducted from 1961 through 2017.

"Continuing a long-term time series like the Continuous Plankton Recorder Survey is essential to understanding the impact of climate change to marine ecosystems," said Chris Melrose, a research oceanographer at the Northeast Fisheries Science Center's laboratory in Narragansett, Rhode Island and NOAA representative on the agreement.

"Many marine species are shifting their distributions as ocean waters warm," explained Melrose. "Because plankton are an important food source for many species, including the endangered North Atlantic right whale, knowing about changes in the plankton helps us to understand other changes we see in the ecosystem."

NOAA Fisheries is funding the survey for four years through the NOAA Cooperative Institute for the North Atlantic Region, hosted by the Woods Hole Oceanographic Institution. The Marine Biological Association manages merchant vessel-based plankton surveys around the world. The association will run and maintain the survey through 2024.

Survey Will Use Same Sampling and Analysis Methods

The survey uses a continuous plankton recorder (CPR), a sampling device that is about 1 meter (roughly 3 feet) long. In this survey, it is towed from "ships of opportunity," such as merchant vessels. These vessels ply the same routes between ports from year to year. Scientists refer to the routes as survey transects. The recorder stays at a depth of about 10 meters (roughly 33 feet). It filters and collects plankton from the water over long distances. The plankton samples are stored on silk mesh in a cartridge inside the instrument and are analyzed later in a laboratory.

Methods of sampling and plankton analysis have not changed since 1958, resulting in an important baseline of data to measure change against. Every sample collected is also stored in a large physical archive, so as new ways to analyze the samples develop, these analyses can be applied to historic samples. Data from the survey are freely available to all.

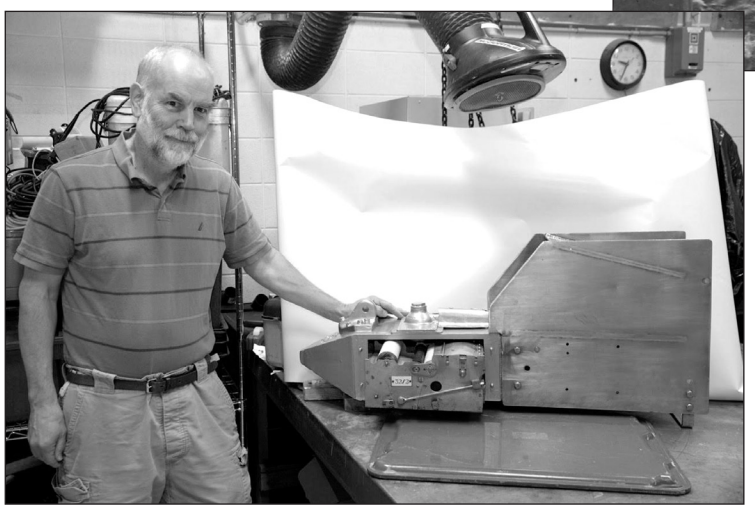
Fisheries biologist Sir Alister Hardy designed the CPR in the mid-1920s to sample krill in the Antarctic. He modified his original design for use in the North Sea and began collecting plankton samples there in 1931.

The CPR Survey is the most geographically extensive marine monitoring program in the world, achieving over 7 million nautical miles of tows this year. While CPR transects have been conducted in other parts of the world, the core monthly plankton sampling program is focused on the northwest European shelf and in the Northeast and Northwest Atlantic.

"The value of sampling in an area accumulates each subsequent year, building a dataset of evidence and insight that we can use to understand recent changes in the marine ecosystem of the Gulf of Maine," said David Johns, head of the CPR Survey at the Marine Biological Association. "We can compare our new dataset with the historical time series, and start to put these changes into context in a warming world."

Photo: NOAA Fisheries

A commercial vessel crew member recovers a continuous plankton recorder at the end of the transect between New York and Bermuda in 2007.



Dan Smith tended to the NOAA CPR operations at the science center's Narragansett Laboratory from the 1970s until he retired in 2013.

Photo: NOAA Fisheries

60 Years of Continuous Monitoring in the North Atlantic

In 1961, cooperating commercial vessels began towing CPRs for this survey in the Gulf of Maine during their routine transits between ports. NOAA's Northeast Fisheries Science Center assisted with those efforts. In 1974, the Science Center inherited the route between Boston, Massachusetts and Halifax, Nova Scotia. The Science Center began a second transect, or route, in 1971 across the Mid-Atlantic Bight between New York/New Jersey and Bermuda. These two CPR transects were part of a NOAA Ship of Opportunity Program.

Between 1961 and 2013, there were 446 successful CPR tows on commercial vessels along the Gulf of Maine transect. At the time, the survey in the Northwest Atlantic was the second longest running CPR program, after the original in England. It was also the longest running plankton time-series in the Northwest Atlantic.

The Science Center discontinued the two transects in 2013, but the CPR Survey in England picked up the routes and continued sampling in the Northwest Atlantic until 2017. Plankton data from the 2014 to 2017 CPR tows were recently made publicly available through funding from the LenFest Ocean Program.

In 2018, the CPR Survey merged with operations at the Marine Biological Association. That year also marked 60 years of continuous monitoring in the North Atlantic.

CPR Tows Reveal Impact of Climate Change

"The Gulf of Maine is changing quickly and the CPR is our best tool for seeing the impact on the base of the food web," said Andy Pershing, chief scientific officer at the Gulf of Maine Research Institute. "This view is essential for understanding how climate change will impact commercial species like cod, herring and haddock, and protected species like right whales."

Resuming the Gulf of Maine survey will add

See GOM SURVEY, page 3

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New State Quota Allocation System Approved for Summer Flounder

On October 19, 2020, NOAA Fisheries approved Amendment 21 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan, also known as the Summer Flounder Commercial Issues Amendment. This amendment revises the formula used to calculate the summer flounder commercial state allocations and updates the fishery management plan goals and objectives for summer flounder. These changes were recommended by the Mid-Atlantic Fishery Management Council.

The coastwide commercial summer flounder quota is allocated annually to each state in the management unit (Maine-North Carolina). The existing commercial state-by-state allocations were last modified in 1993. Amendment 21 changes the formula used to calculate the state-by-state commercial quotas. When the coastwide quota is 9.55 million lb or less, the entire quota will be distributed according to the current (baseline) allocations. In years when the coastwide quota is above 9.55 million lb, 9.55 million lb will be distributed according to the baseline allocation percentages, and then the remaining quota amount above 9.55 million lb will be distributed in equal shares to all states except Maine, Delaware, and New Hampshire, which will split one percent of the additional quota. The new allocation formula (Table 1) is intended to balance preservation of historical state access and infrastructure while providing more equity among states when the stock and quota are at high levels.

Table 1. New State-by-State Allocations

State	Allocation of baseline quota up to 9.55 mil lb (percent)	Allocation of additional quota above 9.55 mil lb (percent)
ME	0.04756	0.333
NH	0.00046	0.333
MA	6.82046	12.375
RI	15.68298	12.375
CT	2.25708	12.375
NY	7.64699	12.375
NJ	16.72499	12.375
DE	0.01779	0.333
MD	2.03910	12.375
VA	21.31676	12.375
NC	27.44584	12.375
Total	**100**	**100**

Table 2. Status quo state-by-state allocations (in percentages) and resulting quota (in lb) compared to the revised allocation (in percentages) and resulting quota (in lb) at the current, 2020 quota level (11.53 million lb).

State	Status quo state allocation percentages	Status Quo distribution of 11.53 million lb quota	Revised allocation percentages (11.53 million lb quota)	Revised allocation distribution of 11.53 million lb quota	Percent Change
ME	0.04756	5,484	0.09663	11,142	103.17
NH	0.00046	53	0.05762	6,644	12435.85
MA	6.82046	786,399	7.77432	896,379	13.99
RI	15.68298	1,808,248	15.11491	1,742,750	-3.62
CT	2.25708	260,241	3.99459	460,576	76.98
NY	7.64699	881,698	8.45891	975,313	10.62
NJ	16.72499	1,928,391	15.97798	1,842,262	-4.47
DE	0.01779	2,051	0.07198	8,299	304.63
MD	2.03910	235,108	3.81404	439,759	87.05
VA	21.31676	2,457,822	19.78123	2,280,776	-7.20
NC	27.44584	3,164,505	24.85779	2,866,103	-9.43
Total	**100**	**11,530,000**	**100**	**11,530,000**	**0.00**

To demonstrate how this will work, Table 2 applies the new quota allocation system to the current 2020 coastwide summer flounder quota of 11.53 million lb.

The Mid-Atlantic Fishery Management Council initiated this amendment in coordination with the Atlantic States Marine Fisheries Commission to address concerns raised by stakeholders that the current state quota allocation system is outdated given that it was last modified in 1993 and is based on landings data from 1980-1989. In addition, many stakeholders believe the initial allocations were not equitable or were developed based on flawed data, in part because data collection methods and requirements during 1980-1989 were not consistent among states.

This revision is intended to increase equity in the allocations among the states when annual coastwide quotas are about average or above average, while minimizing the economic loss to states with a higher proportion of the current summer flounder quota. This means that when the stock is in better condition, the benefits are shared more equally among states. In years with annual quotas at or below average, the allocations return to status quo, providing some economic protection to states with historically higher dependence on the summer flounder fishery.

We are in the process of implementing Amendment 21 through a final rule that will publish in the *Federal Register*. For more information, contact Emily Keiley at emily.keiley@noaa.gov or 978-281-9116.

Atlantic Large Whale Take Reduction Plan Closure Reminder

The Atlantic Large Whale Take Reduction Plan (ALWTRP) was implemented 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. The following table lists the current and upcoming trap/pot and gillnet closure areas.

Trap/pot and gillnet gear restrictions, modifications, and area-specific gear markings are also required in areas that are open to fishing. Please visit www.fisheries.noaa.gov/ALWTRP for more details on these requirements. If you have questions about gear requirements, please contact the fishery liaison for your area: John Higgins, 207-677-2316.

Proposed Changes to the ALWTRP in 2021

NOAA Fisheries is expecting to propose changes to the ALWTRP to further reduce serious injury and deaths of large whales, particularly North Atlantic right whales, in fixed gear fisheries. Please visit our website for updates. www.fisheries.noaa.gov/ALWTRP

To get email updates on our Take Reduction Plan changes, sign up for "Endangered Species and Marine Mammals (Greater Atlantic)" updates on our website: https://public.govdelivery.com/accounts/USNOAAFISHERIES/subscriber/new. You may also sign up for other email updates or text alerts on this page.

Atlantic Large Whale Take Reduction Plan

Trap/Pot Closures

Management Area	Dates	Closure or Gear Modifications
Massachusetts Restricted Area	Feb. 1-April 30	**CLOSED** to ALL trap/pot fishing
Great South Channel Restricted Trap/Pot Area	April 1-June 30	**CLOSED** to ALL trap/pot fishing

Gillnet Closures

Management Area	Dates	Closure or Gear Modifications
Cape Cod Bay Restricted Area	Jan. 1-May 15	**CLOSED** to ALL gillnet fishing
Great South Channel Restricted Gillnet Area	April 1-June 30	**CLOSED** to ALL gillnet fishing

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NEFSC Fall Gulf of Maine Bottom Longline Survey Wraps Up

Two Massachusetts commercial fishing partners and staff from the Northeast Fisheries Science Center's Cooperative Research Branch have completed the seventh year of the Cooperative Gulf of Maine Bottom Longline Survey.

The COVID-19 pandemic and typical fall weather conditions were challenges, but the survey team and industry partners wrapped up a successful fall season in early November.

"Every single person on the bottom longline survey team worked incredibly hard to get the survey completed this fall," said Anna Mercer, chief of the Cooperative Research Branch (CRB). "From building new software to installing new camera systems, from repeated testing to careful quarantining, from new work flows to new hardware, it was a true team effort."

The survey targets groundfish at 45 stations across the Gulf of Maine using tub-trawl bottom longline gear. The survey plan focuses on rocky bottom habitat, where fish are difficult to sample with trawl gear.

In typical years, the bottom longline survey complements data collected by the federal bottom-trawl survey, which is conducted twice yearly by the Northeast Fisheries Science Center. Owing to COVID-19 concerns, NOAA cancelled most of the 2020 spring bottom-trawl survey, and all of the survey planned for the fall. The Cooperative Gulf of Maine Bottom Longline Survey is therefore providing especially critical data to inform upcoming assessments and status evaluations for a number of species.

CRB staff member Jack Wilson measuring an Atlantic cod using a digital fishboard and new tablet application during the fall 2020 bottom longline survey.

Photo credits: NOAA Fisheries/Calvin Alexander, NEFSC

A basket full of haddock being weighed. Newly implemented barcode tags are scanned to track the container of fish linked to the catch weight and individual fish lengths, all recorded via Bluetooth into the database on the tablet.

Photo credits: NOAA Fisheries/Calvin Alexander, NEFSC

New Data Collection System Used

In addition to the pre-trip and onboard protocols added to reduce the risks posed by COVID-19, this year's survey is also the first to use a new data collection system developed by the CRB. This next-generation of software and hardware significantly upgrades digital data collection and catch processing at sea.

A tablet-based application replaces paper logs for most data types, and improves operational efficiency, consistency, and data quality control for recording catch data and biological samples. Digital scales, electronic fish measuring boards, and barcode scanners wirelessly communicate with the tablets, keeping the system compact and agile for use on small commercial fishing vessels.

Both vessels were also newly equipped with electronic monitoring cameras. Adding cameras provides a way to get detailed information on the condition of bait or fish on hooks as the vessel retrieves the gear. This "hook status" information gives analysts a measure of hook availability, which will improve understanding of catch rates.

Sailing in the Time of Coronavirus

To prepare for sailing during the COVID-19 pandemic, participating staff first conducted a risk assessment. Then they developed a comprehensive COVID-19 mitigation plan aimed at preventing infection and limiting opportunities for the virus to get on board the vessels. Steps included sheltering in place ahead of and between legs; repeated testing for the virus for all participants before, between, and after survey legs; and daily temperature and symptom monitoring. All were critical components of ensuring the safety of both the scientists and collaborating industry members and employees.

What Happened on the Survey?

The two Massachusetts commercial fishing vessels chartered for the survey were the F/V *Tenacious II* out of Barnstable, and the F/V *Mary Elizabeth* out of Scituate. The survey began on October 14. At each station, the vessels deployed longlines to soak for two hours during a slack tide. Each longline was one nautical mile in length, with 1,000 hooks baited with squid. When the vessel retrieved the gear, CRB scientists identified, weighed, measured, and sampled all of the catch.

Haddock, spiny dogfish, cusk, white hake, Atlantic cod, red hake, and thorny skates dominated catches this fall. Some larger cod were caught off Platts Bank, and scattered catches of barndoor and thorny skates, pollock, and Acadian redfish were found at many of the nearby ridges and ledges.

Along with catch data, researchers collected videos of the substrate and environmental data, such as current velocity and temperature. Staff also collected sex and maturity data and structures for ageing for a number of important groundfish, skates, and other species. As in previous years, staff tagged thorny skates to support research conducted by collaborators at the New England Aquarium's Anderson Cabot Center for Ocean Life.

Incorporating Cooperative Survey Data into Science and Management

As the time series for the survey grows, data collected will continue to provide important information to improve assessments for a many species in the Gulf of Maine. Data from this survey support stock assessments and fisheries management for multiple federally managed species, including species not easily caught in other surveys, such as Atlantic wolffish. Reviewers recommended that assessment scientists explore using a bottom-longline survey index in the model in the next research track assessment for this species.

For more information, contact Giovanni Gianesin at the Northeast Fisheries Science Center via email at giovanni.gianesin@noaa.gov

GOM Survey

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to plankton samples collected on two other CPR Survey routes in the Northwest Atlantic. The first route runs across the Scotian Shelf off Nova Scotia to Cape May, New Jersey. The second route runs across the North Atlantic from Iceland to Newfoundland.

The CPR tows complement other regional oceanographic sampling efforts, which can be more intensive but less frequent. These include the science center's ecosystem monitoring program, based at the Narragansett Laboratory, in the Northwest Atlantic. That program collects oceanographic samples numerous times during the year along the Northeast U.S. Continental Shelf from Cape Hatteras, North Carolina to Nova Scotia.

The Gulf of Maine Research Institute, a partner in the NOAA Cooperative Institute for the North Atlantic Region, has analyzed data from the CPR tows surveys in the Gulf of Maine.

For more information, contact Chris Melrose at the Northeast Fisheries Science Center via email at chris.melrose@noaa.gov

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Marine Mammal Authorization Program Carrying Over 2020 Authorization in 2021

The Marine Mammal Authorization Program (MMAP) is a mandatory commercial fishermen registration program that provides exemptions from the Marine Mammal Protection Act's prohibition on the taking of non-endangered/threatened marine mammals during commercial fishing activities. It applies to all fishermen who have a valid state or federal commercial fishing license permitting the use of fishing gear with a high or moderate chance of interaction with marine mammals. The MMAP requires you to:

(1) Carry an authorization certificate during fishing activities

(2) Carry an observer when requested

(3) Comply with applicable Take Reduction Plans,

(4) Report any marine mammal serious injury/mortality caused by fishing operation within 48 hours of returning from the trip where the interaction occurred.

Reports can be submitted online or printed and mailed in (visit https://go.usa.gov/x7866 for more information).

Fishermen are normally mailed a new Authorization Certificate automatically each January. This year, NOAA Fisheries is continuing the authorization from 2020 into 2021. YOU WILL NOT RECEIVE A NEW CERTIFICATE. **PLEASE RETAIN YOUR 2020 CERTIFICATE TO MAINTAIN YOUR COMPLIANCE WITH THE MMAP.** Your registration will be automatically carried over into the new calendar year.

Additional copies of the 2020 (2021) Certificate can be downloaded and printed directly from: https://go.usa.gov/x787z.

Harbor Porpoise Take Reduction Plan Annual Management Reminder

The Harbor Porpoise Take Reduction Plan (HPTRP) was implemented 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.

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, 207-677-2316.

Are You Using a Large Mesh Belly Panel Trawl?

If you fish with a large mesh belly panel trawl, remember to use the gear code "OBP" in your Vessel Trip Report to report your catch. We added the code last year and it applies to all allowable fisheries and to vessels using the sector small mesh exemption. You must use the code if you fish with a large mesh belly panel trawl.

If you think you may have used the wrong code, contact our VTR department to make a correction. To learn more about vessel trip reporting and ensure that your reports are accurate, go to our Vessel Trip Reporting web page at www.fisheries.noaa.gov

Questions?

Changes to VTRs previously submitted: 978-282-8418. Regulations: Sustainable Fisheries Division: 978-281-9315.

Renew Your Fishing Year 2021 Federal Vessel Permits and Update Your Fish Online Account

Renew Your Permits

On January 4, we will open our online federal vessel permit renewal process for fishing year 2021. You can apply for your 2021 federal fishing permits by using our Fish Online web portal. Fish Online permit renewal is fast and efficient. You may apply for all your permits at once, and once your renewal package is approved, you can print your permits at home.

To renew your permits, you will need to have your **valid Coast Guard documentation or state registration** available. If you use Fish Online to renew your permits, you do not have to provide paper copies of these documents. You will also need to verify that all of your vessel trip reports (VTRs) for the 2020 fishing year have been submitted.

To renew your permit online, log in to your Fish Online account. The 2021 renewal application is on the front page of the Fish Online page. You may also apply for permits via mail and fax, but we recommend that you take advantage of the speed and ease of renewing your permits online.

To renew a vessel permit or to make changes to an existing permit, visit Fish Online at https://www.greateratlantic.fisheries.noaa.gov/apps/login/

New Fish Online Log-in

To increase security, we are changing the way you log in to your Fish Online account. Instead of entering your permit number and PIN, you will need to create a username and password for your Fish Online account and then link it to your vessel(s).

To make this change, you can use the Credential Security Code (CSC) that we will mail to you when the permit renewal period opens. Once you receive the CSC, if you happen to misplace it, have any questions, or need any help with this process, please do not hesitate to call your local GARFO Port Agent or our IT Help Desk for assistance.

If you need assistance with creating your new Fish Online username and password, you must call from the phone number listed on your vessel permit for security.

To create your username and password, go to www.greateratlantic.fisheries.noaa.gov/apps/login

First, create your account by clicking the "Create Account" button on the Fish Online home page. You will need to choose a user name and password.

Log in to Fish Online with your newly created username and password and navigate to the "Change vessel/suite" page from the options listed in the left side margin.

From the "Change vessel/suite" page, choose "Redeem a Credential" and enter your CSC.

After successfully completing this step, you will have full access to the vessel's information and the features contained within Fish Online, including the ability to renew your vessel permits in the "Application Forms" tab in the left-hand menu of your Fish Online account.

Questions?

To check your VTR compliance status: 978-281-9246.

For assistance with your permits, call our Permits Office: 978-282-8438 or email NMFS.GAR.Permits@noaa.gov

Your local Port Agent can also assist with these topics. For technical issues, call our IT Help Desk: 978-281-9188.

Do you use our IVR call-in system to declare a monkfish or groundfish trip or participate in a Research Set-Aside project?

We are changing the way that you will report your catch and other activity. Coming soon, you will no longer call into the IVR system. Instead, you must report electronically via Fish Online. We will be sending further instructions to the owners of vessels impacted by this pending change.

Questions?

Contact your local Port Agent.

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