



New Reporting Requirements for the Mid-Atlantic Charter and Party Fleet

On March 12, 2018, new electronic reporting requirements become effective for vessels holding a mid-Atlantic charter and party permit on trips with passengers for hire. We are implementing new reporting requirements because of the Mid-Atlantic Fishery Management Council's Omnibus Electronic Vessel Trip Reporting Framework.

If a vessel has a federal charter or party permit for the species listed below as of March 12, it must:

- Submit vessel trip reports electronically (eVTR) for all for-hire trips through a NOAA-approved software application (see below for more information)
- Submit eVTRs within 48 hours following the completion of a fishing trip

This regulation will apply to all vessels with federal charter or party permits for any of the following species managed under a Mid-Atlantic Council Fishery Management Plan for trips with passengers for hire:

- Atlantic mackerel
- Squid
- Butterfish
- Summer Flounder
- Scup
- Black sea bass
- Bluefish
- Tilefish (golden and blueline)

eVTRs will make the collection of important data on fishing vessel activity more efficient, convenient, and timely for fishery managers and other data users. At present, vessel operators are required to submit paper-based reports on a monthly basis, which creates a delay between the time when fishing activity occurs and when the data are available to fisheries managers. Additionally, eVTRs may ease the reporting associated with fishing in multiple areas or creating duplicate reports, and can provide a convenient solution to the operator requirement to maintain VTRs for three years. It will also reduce human introduced errors that can result from submitting paper reports.

Frequently Asked Questions

Q. When will this regulation take effect?

A. This action will take effect on March 12, 2018. All vessels issued one of the Mid-Atlantic Council's for-hire permits must submit eVTRs in compliance with these regulations for any for-hire trips taken on or after this date. We delayed implementation to give vessel owners and operators more time to obtain the software application and necessary training to comply with this regulation.

Q. Do eVTRs need to be completed prior to entering port?

A. Yes. The requirement to complete VTRs before returning to port will not change with this action.

Q. How can I submit my eVTRs? Where can I find out about NOAA-approved eVTR software applications?

A. These reports can be submitted through handheld electronic devices or via an online web portal on a personal computer. You can choose from several user-

friendly, free or pay systems:

Tablet

- Free: (1) eTrips
- Pay: (1) eLog, (2) Olrac/Dynamic Data Logger, (3)

FACTS

Personal Computer

- Free: (1) eTrips, (2) FLDRS
- Pay: (1) eLog*, (2) Olrac/Dynamic Data Logger, (3) FACTS

*eLog can also be used with a smartphone.

The GARFO website includes details and about these NOAA-approved eVTR software applications and contacts/support for eVTR problems. Search for "NOAA GARFO eVTR"

Q. What if I don't have an electronic device onboard my vessel that enables me to submit an eVTR at sea?

A: You must submit your VTR electronically, but if you do not have a suitable device onboard your vessel, you may continue to complete a paper VTR on the vessel and transcribe it into an eVTR once you are in port. You must submit the eVTR no more than 48 hours after entering port at the conclusion of each trip.

Q. I don't know how to complete and submit eVTRs. How can I get training?

A. There are several ways to learn about eVTRs:

- The Mid-Atlantic Council is coordinating additional training sessions on eVTR use and requirements.
- Our eVTR webpage (search NOAA GARFO eVTR) lists contact information for eVTR companies that can provide information on training for the approved software packages.

• The Council's eVTR webpage (<http://www.mafmc.org/actions/evtr-framework>) maintains a schedule of meetings and trainings on eVTR, as well as background documents that you may find helpful.

- Companies with approved systems will also provide online and/or in-person training on the use of their own eVTR systems.
- Your local GARFO port agent can provide some assistance as well.

Q. How will these changes benefit fishermen?

A. Long-term benefits of eVTRS include pre-populated data fields, the ability to create multiple reports, easy storage, and the elimination of mailing costs.

Q. Are fishermen in other regions, such as New England, affected by this regulation?

A. Yes, but only if they possess a Mid-Atlantic charter or party permit and are taking passengers on for-hire trips. If so, this regulation will apply to them regardless of where and for which species they are fishing.

Q. If I have a Federal charter or party permit for a Mid-Atlantic species, but I am fishing on a trip without taking passengers for hire, do I still have to submit an eVTR?

• No. When not on a trip with passengers for hire, you may submit an eVTR or a paper form submitted by mail. This applies to commercial trips as well as recreational trips with no paying passengers. You may continue submit these trips through an eVTR system if you choose. For more information, contact Daniel Luers, Sustainable Fisheries Division, at 978-282-8457 or email at Daniel.Luers@noaa.gov

Fishermen Play Key Role in Fisheries Research

Scientific research is critical for improving fisheries science and management. Research is often a joint effort by a diverse set of stakeholders. In our region, fishermen play a vital role in developing and improving scientific research that informs fisheries management.

Cooperative research between fishery managers and fishermen is often focused on exploring alternative fishing strategies, gear modifications, and other approaches to improve fisheries operations. However, it also frequently focuses on expanding our understanding of more basic biological information. Scientists and their fishing industry partners seek to learn more about where fish are, how they are moving, and how their populations are changing. The answers to these questions can directly feed into the stock assessment process.

Exempted Fishing Permits and Scientific Letters of Acknowledgement exempt fishing vessels from certain federal regulations while the vessels are conducting research. Here are some examples of

successful collaborative research projects conducted to improve data supporting fisheries management:

Recent Successes

From 2009 to 2015, commercial fishermen fished for and provided monkfish for study in a research project conducted by Crista Bank at the University of Massachusetts Dartmouth, School of Marine Science and Technology (SMASST) and funded through the Monkfish Research Set Aside (RSA) Program. The results of the study (Bank 2016), which examined the methods that scientists use to determine the age of individual monkfish, challenged assumptions made in previous stock assessments. The 2016 monkfish operational assessment was adjusted to account for these new findings.

In 2013, collaborators from the University of New England, the New England Aquarium, and Massachusetts Division of Marine Fisheries, with the help of industry, conducted a study examining cod discard mortality in the Gulf of Maine recreational rod



Cooperative Fall Gulf of Maine Longline Survey Completed

Working with two Massachusetts commercial fishing vessels, researchers from our Northeast Fisheries Science Center's Cooperative Research Branch completed the fall leg of the Cooperative Gulf of Maine Bottom Longline Survey on November 2. During the four-week effort, the team collected hundreds of age and maturity samples from white and red hake, haddock, Atlantic cod, cusk, redfish, Atlantic halibut, Atlantic wolffish, and some skates.

The crews first spent several days staging the 50-foot F/V *Mary Elizabeth* from Scituate with Captain Phil Lynch and the 40-foot F/V *Tenacious II* with Captain Eric Hess. The *Tenacious II* took the first leg, departing from Sesuit Harbor in East Dennis on October 10. In all, five two-to-four day trips were completed.

"The longline survey provides critical biological information such as maturity at age that has the potential to significantly improve the stock assessments for species that are less effectively sampled by our bottom trawl surveys because of their preferred habitats," said Russell Brown, NEFSC's Population Dynamics Branch chief. "We recognize that to gain a better understanding of these marine ecosystems, we must employ a variety of sampling approaches, and we are optimistic that the information being collected through this collaborative effort will improve our stock assessments."

The survey occurs at about the same time as the

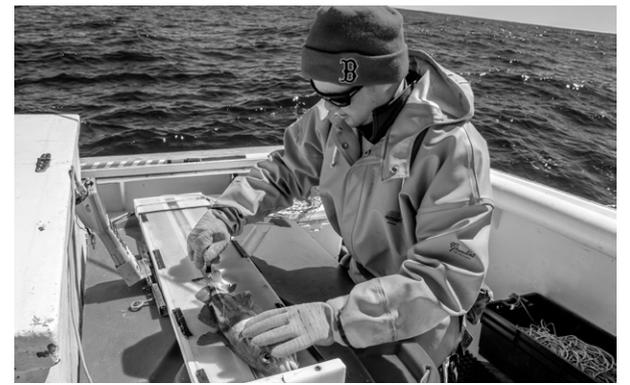
long-running NEFSC bottom trawl survey, and the 45 sampling stations are distributed over six of the same sampling areas used for the federal survey. This makes it easier for analysts to use the longline survey data along with that collected in the bottom trawl survey. The bottom longline gear deployed in this survey is one nautical mile long, about the distance covered by one pass of the federal trawl survey gear.

During the spring and fall for the past four years, researchers used tub-trawl bottom longline gear to target groundfish. This method provides more data on species that use rocky habitat than does using research trawl gear. During its first three and a half years, the Cooperative Gulf of Maine Longline Survey collected more than 6,200 life history samples and 1,300 samples for detailed reproductive and ageing studies. Data entry and auditing for the fall survey is still underway.

Some of the species caught are considered "data-poor" and others "data-rich".

"Data-poor" means information is so scarce that typical stock assessments are not possible. This usually happens because the species is not often caught in the fishery and/or research surveys.

Eight of the species considered "data poor" include Atlantic wolffish, Atlantic halibut, barndoor and thorny skates, and cusk. We are reviewing two species, cusk and thorny skate, to determine if they should be listed under



NOAA photo

the Endangered Species Act. Data from the first three years of the survey indicated that both cusk and thorny skate prefer structured habitat, hard to fish on with trawl gear whether it is from a research or a fishing vessel. That means the longline survey is providing important data to supplement scarce research survey and fishery catch data needed for evaluating the status of these two species.

Seventeen of the 36 species caught are considered "data-rich" species, four to six of which are being caught with sufficient frequency for the data to potentially provide a supplemental relative index for use in stock assessments. These include Atlantic cod, haddock, white hake, red hake, and spiny dogfish.

As the Cooperative Gulf of Maine Longline Survey has continued, the commercial vessel captains have made the operation more efficient and consistent. For example, captains found a way to account for variations

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Marine Mammal Authorization Program (MMAP)

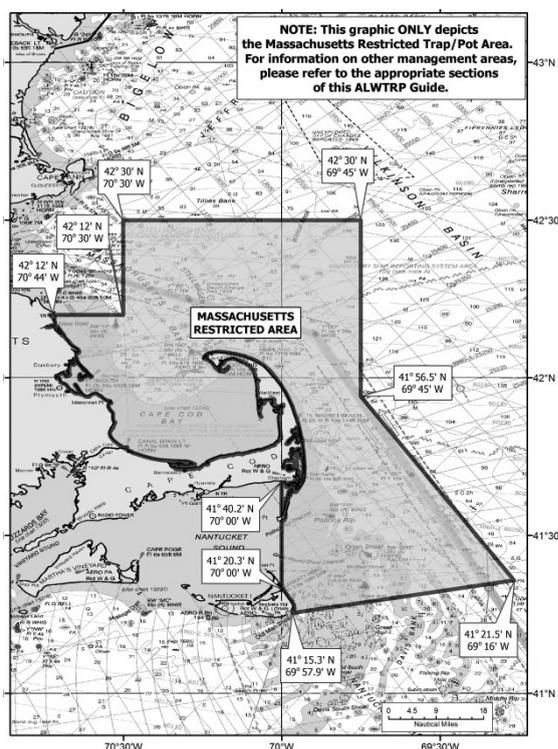
The MMAP is a mandatory registration program for commercial fishermen that provides exemptions from the Marine Mammal Protection Act's prohibition on the taking of non-endangered/threatened marine mammals accidentally during commercial fishing activities. In our region, fishermen are automatically registered for the year if they have a valid state/federal permit license as of January 1 each year. If you participate in the fisheries listed below, you should receive your Certificate by the end of January. You can also download the Certificate from our website. Find it by searching for GARFO MMAP."

This program applies to all fishermen who have federal and state permits that authorize the use of the following commercial gear types:

Gillnets; Pelagic long lines; Trap/pots; Mid water or bottom trawls (including pair trawl and flynets); Menhaden purse seines (mid-Atlantic and Gulf of Mexico); Long haul seines (NC); Roe mullet stop nets (NC); Pound nets (VA); or

Any high seas fisheries targeting Atlantic highly migratory species (only outside 200 nautical miles).

We want to remind you that the MMAP requires that you: Carry an authorization certificate during fishing activities (certificate is valid January 1- December 31 of each calendar year); Carry an observer if requested; Comply with applicable marine mammal protection measures and Take Reduction Plans; and Report any marine mammal injury or death caused by fishing operation within 48 hours of the interaction using the Marine Mammal Mortality/Injury Reporting form (available on the



MMAP website or by calling 978-281-9328). Reports must be filed even if an observer was onboard during the time of the incident.

If you participate in an applicable fishery and have not received your certificate in the mail, please visit the MMAP website: www.greateratlantic.fisheries.noaa.gov/mmap to download a certificate or contact (978) 281-9328 to have one mailed to you.

For questions about whether or not this program applies to you, please contact a NOAA Fisheries Greater Atlantic Gear Team Liaison:

Northeast Fisheries Liaison: John Higgins, (978) 771-3669, John.Higgins@noaa.gov

Mid/South Atlantic Fisheries Liaison: Glenn Salvador, (757) 414-0128, Glenn.Salvador@noaa.gov

Atlantic Large Whale Take Reduction Plan: Massachusetts Restricted Area Reminder

The Massachusetts Restricted Area will be closed to all trap/pot fishing from February 1- April 30. It is bound by the following point surrounding the shoreline of Cape Cod, Massachusetts: 42°12'/70°44', 42°12'/70°30', 42°30'/70°30', 42°30'/69°45', 41°56.5'/69°45', 41°21.5'/69°16', 41°15.3'/69°57.9', 41°20.3'/70°00', 41°40.2'/70°00'.

For more information on this and other take reduction plan requirements, please visit the Atlantic Large Whale Take Reduction Plan website at www.greateratlantic.fisheries.noaa.gov/whaletrp

You may also contact a NOAA Fisheries Greater Atlantic Gear Team Liaison:

Northeast Fisheries Liaison: John Higgins, (978) 771-3669, John.Higgins@noaa.gov

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and reel fishery. The study, funded by NOAA Fisheries' Bycatch Reduction Engineering Program, determined the overall average discard mortality rate to be 16.5 percent (Capizzano et al. 2016), half what was previously assumed. The 2015 operational stock assessment for cod re-evaluated recreational catch to account for this new information.

Ongoing Atlantic Halibut Project

One project currently being conducted involves fishermen from the Georges Bank Fixed Gear Sector, who have been reporting increased Atlantic halibut abundance off Cape Cod. Their goal is to improve our understanding of halibut life history and stock structure. They partnered with The Nature Conservancy and scientists from SMAST, the Massachusetts Division of Marine Fisheries (MADMF), the Cape Cod Commercial Fishermen's Alliance and our Northeast Fisheries Science Center (NEFSC) and are funded by the Saltonstall-Kennedy Grant Program. Halibut are economically valuable, and better science will enable managers to better respond as halibut continue to rebuild.

The project has two parts, each designed to gather information to inform future halibut stock assessments. More than twenty vessels are permitted to opportunistically harvest and collect biological samples for up to five halibut per trip, captured in the course of normal fishing. The research team trained participating fishermen on how to collect a variety of samples from the fish, including collecting genetic samples and removing otoliths (ear bones) and reproductive organs. Fishermen also document fish weight, length, and the date and location of capture. Since the participating vessels are fishing normally, they do not need to alter their gear, but fish with otter trawls, bottom longline, or gillnets in normal configurations.

Once the fish and biological samples are back on shore, teams of scientists get to work. Reproductive organs are weighed, dissected, and preserved by Nature Conservancy and Cape Cod Commercial Fishermen's Alliance scientists. These samples are then sent to the NEFSC biology lab to be examined in further detail. Conducting analysis on reproductive organs can give researchers a better sense of when, where, and how frequently halibut are able to spawn. Meanwhile, the ear bones are mailed to the Massachusetts Division of Marine Fisheries Age and Growth Laboratory to determine the age of captured fish, which improves our understanding of the age structure of the stock.

At the same time, project partners at SMAST are

working on the second part of the project, which focuses on stock structure. Chartered fishing vessels trawl in areas off of Cape Cod, the Great South Channel and Western Georges Bank. Halibut captured are tagged with a specialized pop-up satellite tag and released. The tags record depth, temperature and light levels while attached to the tagged animal. In early summer 2018, the tags will release, float to the surface, and transmit archived data to the researchers, who will use the information to explore halibut life history and behavior.

Key Roles

In these examples and many other projects, engaged fishermen play key roles and demonstrate the immeasurable value that they can contribute to fisheries science and management across the region. They advise scientists on the best methods, times, and areas in which to fish to achieve the most efficient sampling effort. In many cases, they perform research duties themselves, putting in the hard work necessary to catch fish, process samples, and record information.

Quite importantly, fishermen are often first to alert researchers to things they see on the water that need to be studied. Dr. Elizabeth Fairchild, a researcher for the University of New Hampshire who studies Atlantic wolffish, put it this way:

"I have to say that of all of my research projects, the most rewarding ones are those that are brainstormed together with industry partners... Fishermen have a keen insight into the workings of the marine ecosystem as a result of their historical knowledge and continuous observations at sea - something that most scientists do not have."

Successful cooperative research initiatives like these improve data, answer pressing questions, and improve our ability to effectively manage our fisheries. With this, fisheries managers, scientists, and the industry can be ready for changing conditions that present new challenges to overcome and new economic opportunities that the fishery can undertake.

For more information, contact Spencer Talmage, Sustainable Fisheries Division, at 978-281-9232 or email him at Spencer.Talmage@noaa.gov

New Management Measures for Blueline Tilefish

 On December 15, we implemented Amendment 6 to the Mid-Atlantic Fishery Management Council's Tilefish Fishery Management Plan, which sets commercial and recreational management measures for the blueline tilefish fishery in the Mid-Atlantic.

The South Atlantic Council managed blueline tilefish (also known as grey tilefish) for many years under its Snapper Grouper Fishery Management Plan, but these measures only applied south of the Virginia/North Carolina border. Until recently, many considered the fishery in the Mid-Atlantic to be very small, making the need for regulation unnecessary.

Recreational and commercial blueline tilefish catch has been increasing steadily in the Greater Atlantic Region (Virginia to Maine) since 2011. In 2014, commercial landings increased more than 20-fold from the previous several years' average. This rapid increase in unregulated harvest represented a risk to the long-term sustainability of the stock, and triggered the Mid-Atlantic Council to request emergency management measures in 2015. Interim management measures took effect in June 2016, while the Council developed Amendment 6.

Amendment 6 to the Tilefish Fishery Management Plan establishes management measures for the blueline tilefish fishery in federal waters north of the Virginia/North Carolina border. The new regulations:

- Require fishermen to hold a valid Greater Atlantic Region open access tilefish commercial or charter/party permit to ensure adequate reporting and monitoring of blueline tilefish fishing activity

- Establish a commercial possession limit of 300 pounds per trip

- Establish a May 1-October 31 recreational season

- Establish recreational possession limits:

- 7 fish per person on Coast Guard inspected for-hire vessels (party boats)

- 5 fish per person on uninspected for-hire vessels (charter boats), and

- 3 fish per person on private recreational vessels.

Amendment 6 also calls for new permitting and reporting requirements for private recreational vessels. However, these reporting requirements will not be in effect for the 2018 fishing season that starts on May 1, 2018, since these measures require additional development and outreach. We will implement these requirements through a separate rule once they are developed.

New Community Resilience Website

Are you interested in what we are doing to support our regional fishing communities? If so, check out our new web site (search for NOAA GARFO community resilience) and learn about our approach and involvement in building fishing community resilience throughout our region. See how we are supporting our communities as they face regulatory, environmental, and economic challenges from a changing climate, ocean acidification, and other impacts. This new website contains information on how we define community resilience, our near and long-term goals, recent workshop proceedings, and links to our partners, data portals, and other resources.

If you have questions or comments, email NMFS.GAR.Community.Resilience@noaa.gov.

Frequently Asked Questions

I already have a Tilefish Commercial, Charter/Party, or Dealer permit for golden tilefish. Do I need another permit?	No, you do not need a new permit. The existing tilefish permits (for Commercial vessels, Charter/Party vessels, or Dealers) will now cover both tilefish species (golden and blueline).
Can I land fish in the South Atlantic Area if I caught them in the Mid-Atlantic Area?	No. You cannot land blueline tilefish in the south Atlantic (e.g., in North Carolina) that were caught in the mid-Atlantic (e.g., off Virginia) Each region has its own permitting and reporting requirements with catch limits that are monitored and enforced separately.
Will tilefish charter/party vessels need to submit VTRs electronically? <i>*See the "New Reporting Requirements for the Mid-Atlantic Charter and Party Fleet" article in this edition of the NOAA Navigator</i>	Yes, the recent rule* to require all Mid-Atlantic Council for-hire permit holders to submit VTRs electronically also applies to the tilefish charter/party permit (82 FR 42610; September 11, 2017). That rule becomes effective in March 2018 and will apply when the blueline tilefish recreational season opens on May 1, 2018.
If a charter boat is U.S. Coast Guard inspected, which possession limit applies?	The 7-fish per person limit. Smaller for-hire boats, like 6-pack charters, are not typically required to undergo this safety inspection. However, if a vessel owner chooses to be inspected, the boat will qualify for the higher limit.
Why are the captain and crew not included when calculating the recreational possession limit?	This is to be consistent with the recreational possession limit regulations set by the Mid-Atlantic Council for summer flounder, scup, black sea bass, and bluefish.
Who can I speak with if I have questions?	For questions about this final rule, please contact our Sustainable Fisheries Division at 978-281-9315.



Updates from the Northeast Fisheries Science Center's Cooperative Research Branch

With a new fiscal year underway and project planning in full swing, it's a good time to take stock of the major activities of the Northeast Fisheries Science Center's Cooperative Research Branch (Cooperative Research). This year's activities include a number of on-going projects, as well as a few new collaborative avenues. This is the first of a two-part story.

Study Fleet

Through the Cooperative Research Study Fleet program, a group of commercial fishermen in the Northeast and mid-Atlantic collaborate with Center scientists to collect detailed fishery dependent data during commercial trips. Study Fleet participants collect information on fishing effort and catch on a haul-by-haul basis, which is more detailed data than required by paper or electronic Vessel Trip Reports. A core group of 43 Study Fleet vessels participate in fisheries including trawl and gillnet fisheries for groundfish and monkfish, small mesh fisheries for squid, herring, and mackerel, and scallop dredge fisheries.

The Fisheries Logbook Data Reporting System (FLDRS) used in this program was developed collaboratively with industry partners. An onboard computer with FLDRS can be integrated with a fishing vessel's Global Positioning System (GPS), vessel monitoring system (VMS), depth sounder, and temperature/depth sensors attached to fishing gear. These data are recorded along with the effort and catch data, and can be transmitted to the Center through either wireless transmission docks, or satellite transmissions while at sea.

These data advance fisheries science, monitoring, and management by allowing for fine scale analyses of species overlap to reduce bycatch, and temperature-based habitat modeling. The Study Fleet also provides practical advice to help shape enhancements to the FLDRS data capture system and feedback mechanisms to fishermen to interpret their own data.

Comparing Study Fleet data to Observer data to inform discard estimate accuracy

Cooperative Research is comparing discard estimates for selected species using both the Study Fleet and Observer data to see if they can complement one another in calculating discard estimates used in stock assessments. These studies serve as a critical evaluation of the use of fishermen's self-reported data, and may improve the understanding of the potential success of electronic monitoring (video cameras recording at-sea fishing operations).

A June 2017 publication in the North American Journal of Fisheries Management included comparisons between at-sea observers and study fleet self-reported data on retained and discarded fish for six species from 2007 to 2014. Though statistical differences were discernible due to the large differences in number of samples between the observer and study fleet efforts, results suggest that within gear types and for the species studied, the industry has the capacity to accurately self-report discard information. Under the right circumstances of quality control, training, and oversight, confidence in self-reported data may be achieved for assessment and management purposes.

Enhanced Biosampling

The Center's Enhanced Biological Sampling program is an ongoing effort to provide more and higher quality information on age, growth and reproduction to stock assessment scientists.

Fishermen engaged in Cooperative Research can help fill gaps in standard survey and biological sampling conducted by the Center. Getting reproductive samples at specific stages of development in more areas and seasons gives researchers more information about the reproductive activities of various fish species. By taking advantage of year-round fishing activities, Cooperative Research has supplied more than 10,000 samples for fundamental biological studies. Biological samples provided in 2017 include: 214 yellowtail flounder; 220 winter flounder; 131 haddock; 31 cusk; 22 wolffish; and 6 halibut.

These studies have led to insights into the maturation size and reproductive potential of yellowtail, winter, and summer flounder, halibut, cusk, haddock, and wolffish. Ongoing work aims to better understand the environmental and energetic factors that influence the potential of these flatfishes to reproduce.

Herring samples are also being collected to help determine what proportion of fish may skip spawning in a given year, and the timing and success of spring spawning. Georges Bank haddock, which have shown extreme fluctuation in how many young fish grow big enough to become legal targets for the fishery, are also being collected for this enhanced sampling, and to compare changes in spawning sizes through time, space and varying levels of harvest.

Fishing industry perspectives on socio-ecological factors driving Atlantic mackerel catchability and landings

This project among industry, the Northeast Fisheries Science Center, and academics addresses Mid-Atlantic Fishery Management Council research priorities to investigate the social and ecological influences of a complex pelagic fishery. This work leverages the expertise and advice of the Atlantic Mackerel Working Group to focus on the collaborative development of social and ecosystem information, and was incorporated into the 2017 stock assessment for Atlantic Mackerel under the umbrella of the collaborative Center's Climate, Ecosystem, Habitat Assessment Steering Group.

One portion of the project is developing a dynamic habitat model to account for changes in the availability of the stock to the Center's spring survey as well as the winter fishery. This habitat modeling was developed with the industry during real-time during fishing activities, including the production of two-day forecasts.

The model was also applied in a hindcast to estimate the availability of the population to the fishery independent surveys used for the 2017 Atlantic mackerel stock assessment. The project used simulations of the model to design an efficient, cost effective strategy for an industry-based survey of locations and times of potential mackerel aggregations outside the footprint of current surveys and the fishery. In addition to specific modeling products, this project is giving industry collaborators an understanding of and stake in the assessment that should be improved as a result of their input and participation in the field program.

For more information on these projects, contact Carolyn Woodhead, Northeast Fisheries Science Center, at Carolyn.Woodhead@noaa.gov

Longline *Continued from page 2*

in tidal speeds at sample sites. The longline gear is deployed approximately one hour prior to slack tide for a two-hour soak time to standardize the set relative to the tide. During the 2016 survey, captains used site-specific tidal modeling provided by Center oceanographers to further standardize gear setting. The captains have also advised us on gear design, vessel operations, bait, and station-siting protocols.

To assess how the gear fishes, a temperature-depth probe is mounted on the anchors at each end of the bottom longline gear, and a newly-developed Seahorse tilt current meter is clipped on the line near each anchor. This instrument measures current velocity near the bottom to measure water flow over the longline gear. It also provides data that scientists could use to model the bait plume size, which could help estimate the maximum area in which fish are attracted to the longline gear. The tilt current meter also provides a variable that analysts can include in a model to control for variations among fishing locations.

Documenting bottom type for each set is fundamental to the survey design. While the gear is soaking, a Go-Pro camera on a frame with lights is lowered to the bottom for 5 to 10 minutes so the crew can observe and verify the bottom type at each station. The images provide more detail to refine the

bottom classification for local variability. They also give additional detail on the habitat composition, such as substrate size and use by other animals.

At each station, the total catch weight and individual fish length measurements are recorded. For select species and sizes, additional biological data and samples are collected including sex, maturity stage, individual weight, gonad and liver weight, gonad histology, and age. Any tagged fish or sharks caught are also noted. During the first few years, Center staff tagged several sharks and hundreds of dogfish and skates, and collected other samples and data to support the needs of researchers in the region.

According to Dave McElroy, project lead from our Cooperative Research Branch, this year's fall survey concluded another successful season. "We caught thousands of pounds of spiny dogfish and had strong catches of large white hake, good catches of haddock and cusk, as well as thorny and barndoor skates, some cod, red hake, pollock, other skates, and some species for which we lack data." The survey will run again in the spring of 2018, with plans to continue funding through at least 2019.

For more information, contact Dave McElroy, Northeast Fisheries Science Center, at 508-495-2275 or email him at dave.mcelroy@noaa.gov