



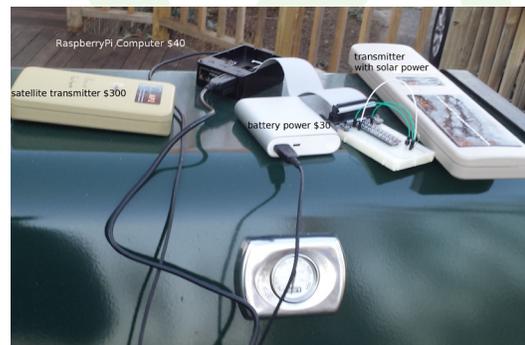
The innovative fisheries weather station in action (left to right); weather station set up on the deck of Jim Manning's home; visiting graduate student Bingwei Ling holding weather station in Point Judith, Rhode Island; Captain Mark Phillips climbing the mast of *FV Illusion* to identify the best position for the weather station on board.

## Fisheries-Weather Partnership Develops in North Atlantic

An exciting new project has taken shape in the North Atlantic that partners a longstanding Northeast Fisheries Science Center (NEFSC) program with local weather forecast offices, the National Weather Service (NWS) Ocean Prediction Center and the NWS Observations Portfolio.

At NOAA Fisheries, scientists are constantly working to build better relationships with fishermen. The NEFSC Northeast Cooperative Research Program (NCRP) is a great example. NCRP has been working with industry for years to expand fine scale and electronic fisheries data collection.

A 37-vessel cooperative study fleet, located from North Carolina to New Hampshire, provides haul-by-haul data on kept and discarded species, as well as temperature and depth data. Temperature/depth loggers are deployed on fishing gear and the over 3 million resulting records are shared with regional oceanographers. But it was the real-time telemetry project that caught the attention of North Atlantic Regional Team (NART) lead Jason Tuell, and Regional Coordinator Nicole Bartlett.



Additional weather station instruments.

Fishermen need accurate marine forecasts. Given the lack of data over coastal waters, NWS offices often don't know how good their forecasts are. They are always looking for ways to better connect with the fishing community to fill this gap.

Bartlett works across the hall from NEFSC oceanographer Jim Manning, and they began to discuss a project that might benefit from NART funding. NCRP initiated a satellite telemetry project in 2013 designed at increasing oceanographic monitoring of bottom temperatures. NEFSC was interested in testing new real time data transmission systems and more rapid processing and analysis of patterns in species distributions as a result of seasonal dynamics and climate change.

## Fisheries-Weather Partnership Develops in North Atlantic (continued)

Bartlett saw that there was an opportunity to leverage the telemetry project to improve marine forecasts by obtaining on-the-water meteorological observations (e.g. wind speed, air temperature) from fishing boats. Tuell confirmed that such data could help NWS validate marine forecasts and warnings, eventually leading to forecast improvements, and better connect NWS and NMFS.

“Jason has spent a lot of time learning about Fisheries’ priorities and activities in the region, and he was immediately supportive of applying some of our NART funds to see if we could make something happen,” said Bartlett.

In FY14, the NART provided funding matched by NMFS/NEFSC to purchase a set of experimental sensors and transmitters. Project partners made tremendous progress the next year, including the first successful fully-automated transmissions of bottom temperature from fishing gear in May 2015. Since then, over 700 mean trawl temperatures have been telemetered successfully. In FY16, thanks to an FY15 investment by the NWS Observations Portfolio Lead Joseph Pica, and a lot of research by Manning and other collaborators, NCRP purchased three meteorological instrumentation packages. Each stand-alone weather station includes a quality barometer, anemometer, and air temperature gauge, and also has its own computer to factor out the ship’s motion in order to derive the true wind. The packages arrived just in time for Christmas. Like a kid with a new toy, Manning unwrapped and assembled the instruments on his back deck, and successfully telemetered data to a graduate student back at his NEFSC office. It was time to solicit interest from the study fleet.

*“Many of our successful regional team projects have started out this way – with somebody asking a question, and pretty soon we’ve got a coalition of the willing, people who want to collaborate to find solutions,” said Tuell.*

When NCRP study fleet technicians began discussing the idea in nearby New Bedford, Massachusetts, one captain responded immediately. Captain Mark Phillips (F/V Illusion), who has been fishing northeast waters for over 50 years, has since met with Manning. Once they agreed on where best to locate the weather station on the vessel, Phillips offered to weld it in place himself in order to expedite the process. Several other vessels have expressed an interest in carrying the remaining two instrument packages. “We have seen again and again that new collaborations, multi-year demonstration projects like this one, require a little bit of funding and the door swings open. Many of our successful regional team projects have started out this way – with somebody asking a question, and pretty soon we’ve got a coalition of the willing, people who want to collaborate to find solutions,” said Tuell.

Sharing funds and purchasing equipment like this also requires savvy administrative staff. This project would be nowhere without the efforts of Kelly Taranto, the NEFSC grants and acquisition coordinator who assembled the necessary information and processed all of the paperwork to help NCRP and the NART capitalize on this opportunity.

The NART continues to facilitate dialogue among the partners as the project begins its next phase – data collection from the weather stations aboard three fishing vessels in the North Atlantic. In the meantime, Tuell visited the NMFS Narragansett, RI Laboratory in January to learn about the NCRP and NEFSC oceanography branch’s work. Manning also recently learned of the NWS Cooperative Observer Program, and the several thousand cooperative observers that have been feeding NWS data for years.

“Various instrument package software utilities output the data in a standardized format so that it can be automatically uploaded, quality checked, and used by weather models. I found myself wondering if we can tie into this system in the future,” said Manning.

For NOAA scientists, there are always more questions – which is why regional collaboration is so much fun. Contact: [Nicole.Bartlett@noaa.gov](mailto:Nicole.Bartlett@noaa.gov)

## Did You Know?

In January, scientists from NOAA's Northeast Fisheries Science Center (NEFSC) and Duke University flew two different Unmanned Aircraft Systems (UAS) on Muskeget Island, Massachusetts to survey the gray seal breeding colony. Muskeget Island, located 6 miles west of Nantucket, is home to the largest concentration of breeding gray seals in the United States. Scientists targeted the week of January 15 because this has generally been the peak period for pupping during the season, which runs from late December to early February.



Image taken of gray seals and their pups, from the APH-22 at 200ft altitude. (Photo credit: Jennifer Johnson, NEFSC).

NEFSC scientists Beth Josephson and Michael Jech piloted an APH-22 hexacopter, while Julian Dale and Everett Newton from Duke University's UAS group piloted a fixed wing Ebee. On the same day, a NOAA Twin Otter, the traditional platform for surveying seals, surveyed the seals on Muskeget, as well as other breeding colonies in Massachusetts.

The objective of the mission, among others, was to compare the various platforms for surveying seals. "The fixed wing Ebee system is ideal for surveying a large area to estimate seal density, while the APH-22 is ideal for hovering over an area for spot sampling," said Julian Dale, lead engineer from the Duke University group. The Twin Otter, by contrast, can cover lots more territory in a shorter period of time. By comparing these three survey platforms, scientists at the Northeast Fisheries Science Center can compare tools for surveying the seal populations from an operational, scientific, and economic perspective. Contact [Kimberly.Murray@noaa.gov](mailto:Kimberly.Murray@noaa.gov) for more information.

## NOAA Place in the North Atlantic Profile

### NOAA Living Marine Resources Cooperative Science Center (LMRCSC) at the University of Maryland Eastern Shore

NOAA's Educational Partnership Program currently supports four Cooperative Science Centers at Minority Serving Institutions to advance collaborative research in the NOAA-mission sciences. The University of Maryland Eastern Shore is the lead institution in the LMRCSC, which also includes Delaware State University, Hampton University, Savannah State University, Oregon State University, University of Maryland Center for Environmental Science Institute of Marine and Environmental Technology and University of Miami Rosenstiel School of Marine and Atmospheric Sciences.



The Sarbanes Center is a laboratory facility located near Assateague Island in Berlin, Maryland.

The mission of the LMRCSC is to conduct research on marine and estuarine systems congruent with the interests of NOAA Fisheries, and to prepare students for careers in research, management, and public policy that support the sustainable harvest and conservation of our nation's living marine resources. LMRCSC conducts research in quantitative fisheries; fish production through aquaculture biotechnology and enhanced disease diagnostics and control; and, trophic interactions among harvested and non-targeted species. Additionally, LMRCSC activities include identifying, mapping and restoring degraded essential habitats of fishes as well as assessing socioeconomic impacts of fisheries management.

## NOAA People in the North Atlantic Region

**Kimberly Hyde**

**Ecosystem Assessment Program  
Northeast Fisheries Science Center**

### What are your duties and areas of responsibility?

I am a biological oceanographer specializing in ocean color remote sensing. I am responsible for analyzing and providing satellite derived information on phytoplankton ecology and primary production to the NEFSC.

### What do you consider your most significant achievements as a NOAA employee?

I helped develop a method to model size fractionated phytoplankton production in the Northeast US Continental Shelf using satellite data. These data are then used as a primary input to fisheries production potential models.

Because phytoplankton come in many shapes and sizes and have different functions within the ecosystem, it is important to know what type of phytoplankton are in the ecosystem. For example, larger phytoplankton are grazed by larger zooplankton, forming the base of the grazing food chain. By knowing how efficiently phytoplankton production is transferred through the food web, we can better estimate productivity at higher trophic levels.

### How does what you do impact the public and why is it important?

Phytoplankton are the base of the marine food web and produce nearly half of the oxygen we breathe, so it is vital that we monitor the phytoplankton community and how it is changing. Furthermore, by knowing the composition of the phytoplankton community, we can better understand the productivity of the ecosystem and the relationship with fisheries.



Kimberly Hyde in Iceland where she attended an International Council for the Exploration of the Sea (ICES) meeting on behalf of NEFSC.

### Do you have any achievements outside of NOAA that you would like to mention?

I have a beautiful 1 1/2 year old daughter that amazes me every day and always keeps me on my toes.

### What is your favorite part of your job that makes you feel most fulfilled?

I am proud that the data I produce improves our understanding of phytoplankton on the Northeast Shelf and are being used to support the NEFSC's Ecosystem Based Management.

### What would you recommend to those who want to begin a career at NOAA?

I would recommend looking for internship and other opportunities to work with NOAA employees while in graduate school. I was fortunate to have a mentor from NOAA, who then hired me as a post-doc contractor. There weren't many federal positions available when I graduated, but I continued to apply for any that I was qualified for and eventually found the perfect match in the Ecosystem Assessment Program.

### About NART

The NART is one of eight regional teams created by NOAA's Regional Collaboration effort. It is composed of 19 members from five line offices and is currently led by Jason Tuell. Nicole Bartlett is the NART Regional Coordinator. For more information on team members and activities visit: [http://www.regions.noaa.gov/north\\_atlantic](http://www.regions.noaa.gov/north_atlantic)