



NOAA Office of Law Enforcement Strives to Prevent Pirate Fishing

Illegal, unreported, and unregulated (IUU) fishing, or pirate fishing, involves fishing activities that violate national or international laws or rules, are not reported as required, and conflict with relevant international laws or rules. IUU fishing creates unfair competition for US fishermen, undermines the sustainable practices of fishermen who play by the rules, and results in an estimated loss of \$10-to-\$23 billion in revenue globally each year.

The majority of IUU cases involve fish that are caught in international waters and typically focus on species of high economic value. NOAA Office of Law Enforcement (OLE) works to prevent IUU fishing on two fronts. It prevents fish caught through IUU practices from entering into US commerce, and it works with other countries to stop IUU fishing abroad.

In 2009, the US became a signatory to the United Nation's Food and Agriculture Organization's Port State Measures Agreement, a treaty that requires stronger controls on vessels landing fish throughout the world's ports. To push for ratification and implementation of the treaty and show support of the fight against IUU fishing, the US and the European Union signed a landmark statement in December 2011, committing to work together in an effort to end pirate fishing.

To support this agreement and improve the economic sustainability of US fishermen and our coastal communities, a group of US senators recently introduced the bipartisan Pirate Fishing Elimination Act. This bill would prevent ships that participate in IUU fishing from entering US ports and landing their catch.

US law already prohibits foreign-flagged fishing vessels – even those operating legally – from landing their catch at most US ports. However, this legislation extends to any vessel involved in IUU fishing, including any US vessel that receives IUU catch from another vessel while at sea.

OLE considers the prosecution and prevention of IUU fishing activities to be very important, according to Northeast Division Special Agent in Charge Logan Gregory.

“Our special agents continue to work with several other countries to help them combat IUU fishing,” he said. “Our criminal investigative expertise in this area has helped and continues to help other countries bring violators to justice.”

Two cases

Here are two examples of IUU cases investigated by OLE.



The Antillas Reefer, an illegal fishing vessel, was confiscated in Mozambique and converted into the “Fiscalizacao Da Pesca”, or Fisheries Patrol Vessel (left).

In 2011, in violation of the Antarctic Marine Living Resources Convention Act, a Florida-based seafood company was found guilty of attempting to illegally import approximately 96,984 kilograms of frozen toothfish, also known as Chilean sea bass, into the US from Argentina.

Toothfish is widely considered to be one of the most overfished and illegally harvested fish species in the world. The Commission for the Conservation of Antarctic Marine Living Resources, to which the US is a party, implemented a catch reporting procedure that

ensures imported toothfish are harvested in line with conservation measures.

The seafood company violated these measures, resulting in a \$10,000 criminal fine and forfeiture of the product, which was sold in the US for \$1.7 million.

In 2008, a vessel involved in illegal shark fishing was confiscated in Mozambique. NOAA forensics experts collaborated with foreign agencies on this case. Upon searching the vessel, inspectors found 43 tons of shark meat, 4 tons of shark fins, 1.8 tons of shark tail, 11.3 tons of shark liver, 20 tons of shark oil, and 65 tons of bait and illegal fishing gear.

All evidence indicated the vessel was fishing on kitefin shark, a practice that is illegal in Mozambique. The master and ships' owners were fined \$4 million and the vessel was confiscated. In 2011, after three years without payment, authorities

converted the vessel into a patrol boat to prevent further IUU fishing in Mozambique.

These are only a couple of examples of the illegal, unreported, and unregulated fishing cases OLE investigates. To help combat IUU fishing and protect our domestic fishing industry, report any activities you suspect may be tied to IUU fishing – or any suspected violation – by calling the NOAA Fisheries Enforcement Hotline at 1-800-853-1964.

More information on IUU fishing is available online at www.nmfs.noaa.gov/stories/iuu.

MMAP Protects Marine Mammals and Fishermen

The Marine Mammal Authorization Program (MMAP) is a mandatory registration program for commercial fishermen that exempts registered fishermen from the Marine Mammal Protection Act's prohibition on the unintentional take of non-endangered marine mammals during commercial fishing activities.

We automatically register fishermen each year if they have a valid state/federal permit/license as of Jan. 1. In the Northeast Region, the program applies to fishermen who fish with: gillnets; longlines; trap/pots; mid-water or bottom trawls, including pair trawl and flynets; menhaden purse seines in the Mid-Atlantic and Gulf of Mexico; long-haul seines and roe mullet stop nets in North Carolina; pound nets

in Virginia; and high-seas fisheries targeting Atlantic highly migratory species outside of 200 nautical miles.

If you hold any of these licenses or permits, you are required to:

- Carry your authorization certificate, which is valid Jan. 1-Dec. 31 each year, when fishing;
- Carry an observer when requested;
- Comply with applicable take reduction plan rules; and
- Report any serious injury or mortality to a marine mammal caused by a fishing operation within 48 hours of the interaction using the Marine Mammal Mortality/Injury Reporting Form. The form is available on the MMAP website at www.nero.noaa.gov/mmap or by calling (978) 281-9328.

If you participate in any of the above fisheries and have not received your 2012 certificate in the mail yet, please visit the MMAP website to download a certificate or call (978) 282-8462 to have one mailed to you.

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Northeast Region Grant Programs Support RI Research Projects

The mission of NOAA Fisheries Service is to provide stewardship of living marine resources through science-based conservation and management and to promote healthy ecosystems.

The Northeast Regional Office's Operations and Budget Division manages a number of grant programs to fund projects that support our mission. These projects are conducted by state agencies and other groups, including universities, fishery management commissions, and collaborations between researchers and fishermen. As of early 2012, six projects based in Rhode Island were underway with funding from grant programs administered by the Northeast Region.

The Rhode Island Department of Environmental Management (RI DEM) is using funding from the Interjurisdictional Fisheries Act grant program to collect biological and population information about the inshore and offshore lobster fisheries. RI DEM analyzes this information and uses it in collaboration with various industry representatives, the Atlantic States Marine Fisheries Commission, and NOAA Fisheries to enhance lobster management efforts.

RI DEM also has received funding to implement a permit bank program. Under this award, RI DEM

plans to solicit, select, and obtain Federal limited-access Northeast multispecies permits with annual catch entitlements appropriate for vessels fishing for groundfish in designated Rhode Island sectors. These permits will be held by RI DEM, and the fishing privileges attached to them will be distributed to Rhode Island fishing vessels meeting certain requirements.

Funding from the Atlantic Coastal Fisheries Cooperative Management Act (ACA) supports several other projects in Rhode Island. RI DEM receives annual funding through the ACA to participate in the management of coastal fisheries, including development and implementation of fisheries management plans and coordination of the involvement of fisheries users, conservationists, and the general public on interstate fisheries management proposals.

ACA additionally funds two projects awarded in coordination with the Atlantic Coastal Cooperative Statistics Program. In one, RI DEM is improving the collection and use of fisheries-dependent data by providing support for electronic reporting systems and quota monitoring.

In the other, RI DEM is collecting measurements from commercial shellfish catch as part of a multi-state

effort to validate, verify, update, and document the conversion factors used to determine whole weight of commercial shellfish landings from reported units such as meat weights and bushels.

The University of Rhode Island has received funding through the competitive Saltonstall-Kennedy Grant Program to analyze potential impacts of no-fishing zones in the Stellwagen Bank National Marine Sanctuary on the small-scale commercial groundfish fleet and local coastal communities. In order to understand potential impacts of area closures, investigators are studying the history of fishing in this area, factors that influence fishermen's decisions about fishing location and effort, and the link between the groundfish fishery and the local economy.

Other divisions within NOAA Fisheries also manage grants that fund projects in Rhode Island. Activities funded under these awards include: removing marine debris from coastal waters; reopening rivers for migratory fish species; surveying scup in Southern New England waters; monitoring fisheries and environmental parameters; developing a method to profile the Rhode Island commercial fishing industry; and collaborative research aimed at restoring and maintaining the sustainability of fisheries commercially important to Southern New England.

More information on grants funding for projects based in Rhode Island and in other Northeast states may be found online at <www.nero.noaa.gov/StateFedOff/grantfactsheets>.

Recovered Summer Flounder Stock Still Needs Protection

In October 2011, an updated assessment of the summer flounder resource confirmed that the population had increased above the target level needed to declare it "rebuilt."

Using catch data from commercial and recreational fisheries and research survey data from the 2010 fishing year, the updated assessment estimated the adult population for summer flounder to be 132,802,000 pounds, which is just 1% above the level needed to declare it rebuilt.

Normally with a rebuilt stock increased fishing opportunities are expected. However, even if fishing levels remained the same, projections of future population size showed a downward trend.

In addition, the assessment showed that fishing mortality may be increasing to a level where overfishing will need to be addressed. To avoid overfishing, an overall summer flounder catch limit of 31,588,000 pounds has been proposed for the 2012 fishing year. The proposed limit is 25% lower than the one in effect for 2011.

Summer flounder has been the focus of considerable scientific and management efforts during the last decade, which have helped pave the way for it to recover from an overfished condition.

The fishery has been under a formal stock rebuilding program since 2000 that ended in October 2011, ahead of the Jan. 1, 2013, deadline.

Given the importance of the stock to commercial and recreational fisheries, the stock has undergone multiple benchmark stock assessments and updates during the rebuilding period. Rebuilding was slow in the early portion of the rebuilding period, but favorable biological conditions combined with management measures that controlled overfishing have led to improved stock growth in recent years.

The goal of rebuilding the summer flounder stock and avoiding overfishing has been achieved, but in order to preserve the healthy summer flounder stock, fishing levels still need to be controlled.

NOAA Fisheries will be working closely with the Mid-Atlantic Fishery Management Council to continue to improve summer flounder fisheries management to maintain a healthy stock and the fisheries that depend on it.

For more information, call Moira Kelly of NOAA Fisheries' Sustainable Resource Division at (978) 281-99218 or e-mail her at <Moira.Kelly@noaa.gov>.

Stellwagen Bank Marine Sanctuary turns 20

This year marks the 20th anniversary of the Gerry E. Studds Stellwagen Bank National Marine Sanctuary, New England's only federal marine protected area.

Congress designated the Stellwagen Bank sanctuary as part of its reauthorization of the National Marine Sanctuaries Act, which was signed into law by President George H.W. Bush on Nov. 4, 1992. In 1996, Congress amended the sanctuary's name to honor retiring Congressman Gerry Studds of Massachusetts, who played a major role in creating the sanctuary.

During the last two decades, the sanctuary has made efforts to conserve the biological and cultural diversity found on Stellwagen Bank. Examples include moving the Boston shipping lanes to protect endangered North Atlantic right whales and linking with Caribbean island nations through sister sanctuary agreements to protect a shared population of humpback whales.

Sanctuary staffers also have informed the general public about the rich resources of the sanctuary through museum exhibits, publications, and electronic media.

For more information about the Stellwagen Bank National Marine Sanctuary and a variety of events that will be held in 2012 to highlight sanctuary programs and goals, visit the sanctuary website at <<http://stellwagen.noaa.gov>>.

Cooperative Research Partnerships Make Waves in Habitat Research

The Northeast Fisheries Science Center's Northeast Cooperative Research Program (NCRP) brings together comprehensive, multi-discipline research teams to work on projects to improve and increase information about commercial fishing operations and the animals harvested by them. Team members come from academic and non-profit institutions, government agencies, and the commercial fishing industry.

One of these collaborative groups is developing methods to bring advanced oceanographic and habitat information into an analytical model that may help predict the abundance and distribution of butterfish in the Mid-Atlantic Bight.

These predictions could help minimize butterfish bycatch in the *Loligo* squid fishery, which is potentially important since catching too many butterfish could result in a shutdown of the profitable squid fishery.

Made up of individuals from the Garden State Seafood Association, National Fisheries Institute, Rutgers University, Cornell Cooperative Extension of Suffolk County, University of Delaware, and Northeast Fisheries Science Center (NEFSC), this team has strengthened ties with the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) to advance the study.

MARACOOS is best known for collecting vast amounts of oceanographic data for marine forecasts, Coast Guard rescue missions, and coastal storm tracking. For this study, it is supplying data on ocean currents and fronts, as well as additional expertise and technology. This input has made possible a one-of-a-kind experiment to test and refine the complex model for predicting preferred butterfish habitat using real-time information gathered by a fishing vessel at sea.

The MARACOOS program also has sophisticated robotic ocean gliders that collect detailed oceanographic information, and on this project, one of these gliders was used to solve a potentially show-stopping logistical problem. High-tech met with old-fashioned ingenuity to conquer the challenge of sending large data packages associated with the habitat model to the vessel offshore when the glider, equipped with a powerful satellite phone, was simply strapped to the top of the vessel's wheelhouse.

The Project: Predicting Ocean Habitat Conditions

For eight days in December, Matthew Oliver from the University of Delaware and Josh Kohut and Laura Palamara from Rutgers transmitted daily model runs to the robot glider atop the F/V Karen Elizabeth at sea.

Aboard the vessel, a scientific crew – Dr. John Manderson and Michael Ball of the NEFSC – then used this information to sample predicted “good” and “bad” butterfish habitat on the mid- and outer continental shelf to test the accuracy of the model.

Initial modeling data predicted butterfish “hotspots” south of Martha's Vineyard, as well as east of Delaware and Chesapeake Bays. Because the sun's elevation (i.e. time of day) also seems to make a difference in butterfish catches, the “good” and “bad” habitats in the three areas were sampled during both day and night.

While the original plan included sampling two stations chosen by the vessel's captain, Chris Roebuck, butterfish signs on the vessel's hydro acoustic equipment and Chris's knowledge of the fishery continually lead the research team nearer the edge of the continental shelf and out of reach of the modeled habitat.

Reflecting the collaborative nature of its effort to understand the range of environmental conditions in which butterfish live, the research team adapted its plan. While continuing to sample the model's predicted good and bad butterfish habitat off the Chesapeake and Delaware estuaries, the team also asked Captain Roebuck to pick a station in each area based on his practical ecological knowledge and fishing practices.

In order to really get at habitat-level information, the vessel's gear was rigged with multiple temperature-depth probes to measure ocean bottom temperatures throughout the experiment.

Bottom temperatures are not widely available and standard sea surface temperature data derived from satellites isn't necessarily the best indicator of conditions below the surface.

Therefore, temperature probes were placed on a net door and on the headrope at the top of the net. These readings, along with measurements of the headrope height, were used to inform the study about the thickness of bottom temperature layers while fishing. With this data, the research team was able to begin analyzing the temperature and depth preferences of the animals they were seeking.

What did we learn?

So far, this sounds like some interesting use of technological tools. But what did we learn from this unique study?

We learned that the habitat model is pointing us in the right direction, giving a broad-scale view of the environment from surface ocean features measured by radars on land and satellites in space.

We also learned that, within these broad scale features, there are finer-scale gradients that fish and fishermen use as cues, and that these gradients are too fine for us to characterize from space.

Habitat is dynamic, defined by a host of particular environmental features and processes such as deep-water thermal fronts that affect the lives of fish and the fisherman who depend on them. With more precise, real-time information, we can learn to fish even more selectively, and adapt fishing strategies to respond to

these fine-scale, dynamic features.

To improve the development of habitat models for continental shelf species, we also need to couple them with physical oceanographic models. This will allow us to evaluate and explore dynamic habitat models in real time when there are clouds between the ocean and satellites.

More importantly, integrating oceanographic models will allow us to consider the properties and processes occurring below the surface of the ocean where the fish actually live. This kind of approach has been used successfully in the Pacific Ocean to model the habitat of tropical tunas.

Just as we need to evaluate our habitat model, the accuracy and precision of the oceanographic models also need to be evaluated. To further this effort, our study's bottom temperature records were sent to MARACOOS member Dr. Avijit Gangopadhyay, an ocean modeler at the University of Massachusetts Dartmouth. Using this data, he can begin to compare our field measurements to the subsurface temperatures modeled in his simulated ocean.

As the F/V Karen Elizabeth steamed back into port at the end of the experiment, MARACOOS robotic glider RU07 – just like the one strapped to the wheelhouse – passed the fishing vessel to the west as it headed out to the shelf break, following its programmed route to sample the ocean from seafloor to surface.

Unlike the satellite and high-frequency radar data used so far in ocean model development, these gliders give us data on how the ocean varies throughout the water column, potentially valuable information to fishermen making daily decisions about where and when to fish.

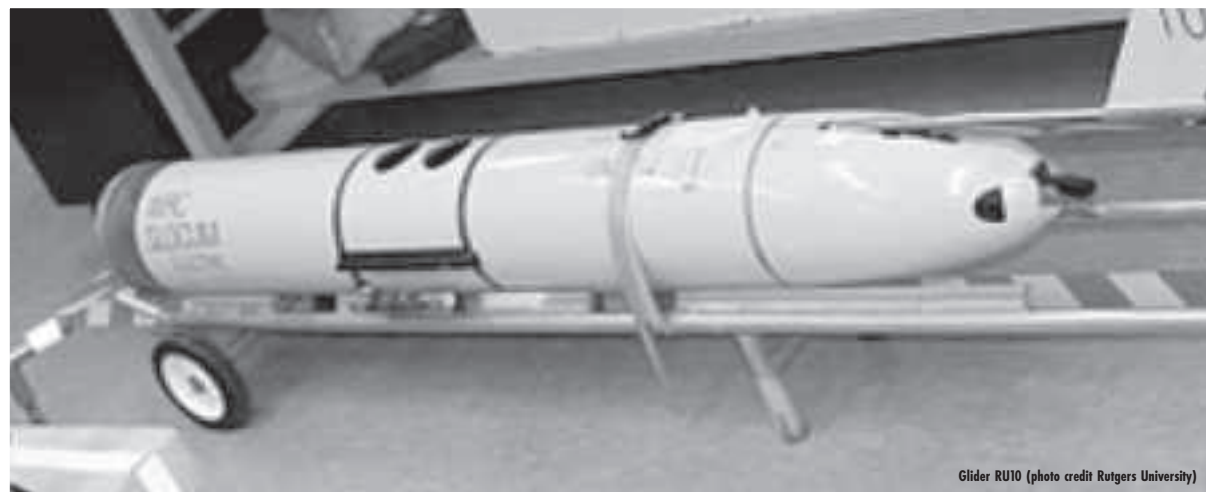
MARACOOS and cooperative research partners look forward to continuing to learn how best to bring this data into products that fishermen can use in their increasingly important quest for sustainable fisheries.

This study is just one example of the threads being woven together by partnering a wide range of academic institutions, government entities, and the fishing industry. Each group brought their own experience and expertise to the table, and the resulting experiment was continuously adapted and improved by that partnership.

Because of the generosity, support, and advice of many people from many organizations, this was a truly collaborative, open-source, research project.

For more information on this and other collaborative NCRP projects, call Carolyn Woodhead, NEFSC Cooperative Research Program, at (978) 281-9197 or e-mail her at <Carolyn.woodhead@noaa.gov>.

The Northeast Cooperative Research Program is also pleased to introduce its newly re-designed website. Please check it out at <www.nefsc.noaa.gov/coopresearch>.



Glider RU10 (photo credit Rutgers University)

What To Do if You Encounter an Entangled Whale

Along the eastern US coastline, fishermen may encounter any of six species of large whales: the north Atlantic right whale, humpback whale, fin whale, sei whale, minke whale, and, less frequently, the blue whale.

All whale species in US waters are protected under the Marine Mammal Protection Act (MMPA) and, of the six species listed above, all except for the minke also are protected under the Endangered Species Act (ESA).

Whale populations have been reduced from historical numbers for many reasons, including whaling, vessel strikes, and entanglement in fishing gear. In order to protect and help ESA-listed species recover, it is important to minimize serious injury and death caused by human actions.

Whales often are found where fishermen fish, and whales have been entangled in a wide range of fishing gears, including weirs, trawls, gillnets, pot/traps, longlines, and hook-and-line gear. Some of these entanglements have resulted in individual whales being seriously injured or killed.

However, prompt and safe disentanglement responses by trained and authorized responders can reduce risk to the animal, which may help to maximize its survival and provide more insight and information about how and why entanglements occur.

Whales are large, powerful animals that may be in distress when entangled and often react violently to disentanglement attempts. Due to the dangerous and challenging nature of entanglements, only extensively trained and authorized responders are allowed to attempt disentanglement.

Report, stand by

This is why it is necessary for anyone who sees an entangled whale to report it immediately to our Northeast Region Marine Animal Hotline — 1-866-755-NOAA (6622) — or to the US Coast Guard.

Once an entanglement is reported, we will work with the fisherman who called and with local responders to determine the next step. Trained responders often will travel to the site to disentangle the animal. In the meantime, it is important that the reporting fisherman work with NOAA personnel on the hotline and, if possible, stand by the animal to ensure a successful response.

In some cases, factors such as distance from shore or weather prohibit responders from reaching the entangled whale quickly. To prepare for these situations, we need reporting fishermen to gather information to document the entanglement.

This information includes: any identifying characteristics on the whale such as scars, injuries, dorsal fin shape and size, unique markings; and any identifying entangling gear characteristics such as buoy colors and markings, line length, color, and diameter.

Recording and reporting this type of information limits the possibility that an entanglement case will be attributed to the wrong fishery or will be counted twice if the animal is resighted at a later date.

**If you encounter an entangled marine mammal (or sea turtle), please contact NMFS Marine Animal Hotline immediately.
1-866-755-NOAA (6622)**



Since 1996, we have been working with a team of representatives of the fishing industry, academia, conservation organizations, and state and federal fisheries management agencies to focus on the issue of accidental entanglement of whales in commercial fishing gear.

This team, which is called the Atlantic Large Whale Take Reduction Team or ALWTRT, has developed a comprehensive plan to address right, humpback, and fin

whale entanglements in gillnet and trap/pot gear.

We have implemented the ALWTRT recommendation to establish and maintain trained, authorized, and equipped entanglement response teams up and down the US Atlantic coast where these fisheries and whales overlap.

For more information, please call Jamison Smith at (978) 281-9336 or e-mail him at <Jamison.Smith@noaa.gov>.

New HMS VMS Regs Now Going Into Effect

On Dec. 2, 2011, NOAA Fisheries Service published a final rule that changes the vessel monitoring system (VMS) requirements for vessel owners and operators participating in highly migratory species (HMS) fisheries.

Modifications were made to: improve communication with HMS vessels at sea; provide vessel operators with an additional means of sending and receiving information at sea; ensure that HMS VMS units are consistent with current VMS technology and NOAA's type-approval requirements; and provide additional information regarding gear on board and target species.

The new regulations do not change who is required to use a VMS. Rather, permit holders already required to use a VMS must now update their existing units with enhanced mobile transmitting units (E-MTU) that are capable of sending and receiving messages. These E-MTU VMS units are already being used in many managed fisheries.

HMS permit holders currently required to use VMS are those fishing with pelagic longline gear (year-round), shark directed permit holders fishing with bottom longline gear in the vicinity of the Mid-Atlantic closed area (Jan. 1–July 31), and shark directed permit holders fishing with gillnet gear in all areas (Nov. 15–April 15).

These units will be used to inform NOAA Fisheries of the types of fishing gear on board and target species at least two hours prior to leaving port (hail out) and provide the location where vessels intend to land at least three hours prior to returning to port (hail in).

Since publication of the rule, NOAA Fisheries has received questions and comments from fishermen about complying with these requirements, especially on day-trips. Again, vessels must hail out at least two hours before departing and hail in at least three hours before returning to port.

Effective Jan. 1, 2012, vessel owners shifting over to the updated VMS units are required to have the units installed by a qualified marine electrician. Effective March 1, 2012, all vessel owners must have E-MTU VMS units installed, fully operational, and capable of providing hourly position reports during fishing activity and abide by the new declaration requirements.

NOAA Fisheries is providing reimbursement funds, as available, that can be used for purchasing E-MTU VMS units – up to \$3,100 per vessel. Reimbursements are distributed after vessel owners have purchased the units. There currently are four E-MTU VMS units that meet type-approval requirements published by NOAA Fisheries Office of Law Enforcement.

The Atlantic HMS website at <www.nmfs.noaa.gov/sfa/hms/newslst/2011/12-02-11_VMS_Final_Rule.pdf> has more information and a compliance guide that provides more details about the new requirements.

If you have questions related to VMS regulations, please call Mike Clark of the HMS Management Division at (301) 427-8503. For more information about reimbursement for VMS units or type-approved units, please contact the NOAA Fisheries VMS Helpdesk at 1-888-219-9228.



The NOAA FISHERIES NAVIGATOR