April 2006

Collaborations

A report on collaborative research projects in the northwest Atlantic Ocean.

NEFSC Photo

Monkfish: The Other White Meat

I don't think I'll get many angry letters if I describe the monkfish as the one of the homeliest creatures in the northwest Atlantic, if not the homeliest.

Also known as goosefish, the monkfish is a member of the anglerfish family Lophiidae, and is distinguished by a fleshy appendage, known as an illicium, that protrudes from its head to attract prey within grasp of its large, freakish jaws.

Distributed widely from the Gulf of St. Lawrence to Cape Hatteras, the monkfish is a staple in the Asian food market, historically keeping prices New England fishermen high and stable.

"Back in 1999 and 2000, we saw prices at an all time high. As Europeans sought other suppliers for cheaper products those prices leveled off in 2001 and 2002. Recently, we have seen (monkfish) consistently get between $1.30 and $1.40 a pound – a decent price by most standards," said Hank Soule, who manages the Portland Fish Exchange. "As the middle class in Asia continues to grow in huge numbers, there is likely to be a substantial demand for monkfish over the long term," said Soule.

Project Specs:

Funded by: the Northeast Consortium, FY2005

Budget: $24,666
Project Scientists: Pingguo He, UNH

Industry partners: Dennis Robillard, F/V Julie Ann II; Eliot, Maine.

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Collaborative Voices

NOAA image

I'm pleased to address New England's collaborative fisheries research community in the first of a series of guest columns by managers, scientists, and fishermen for *Collaborations*, a publication that has consistently provided the fishery with valuable information about collaborative research projects conducted in the Gulf of Maine and Georges Bank.

Collaborative research has grown in importance in recent years, providing fishermen with critical ancillary income as decreased landings and increased regulations have threatened the vitality of many fishing operations in the region. But, it is also increasingly evident, that the benefits of the studies go well beyond the economic opportunity they provide.

Fishermen have an unparalleled knowledge of fishing gear technology, as well as about the abundance, distribution, and behavior of commercial species. By integrating these talents into a scientific framework we have greatly accelerated our understanding of the marine system.

From conservation gear research to trawl surveys to food web analysis, the collaborative research community—fishermen, scientists, educators, and managers—have provided a substantial data stream to inform effective policy decisions, and we continue to look for new ways to incorporate that data into the management process.

Furthermore, as the country's fisheries continue to move toward ecosystem-based approaches to management, we will need to rely on the products of collaborative research as never before. Ecosystem-Based Management demands an increased level of understanding about the holistic nature of the marine environment and many scientists and fishermen have addressed the new kinds of questions we need to be asking about the ocean head on through collaborative research.

Finally, and perhaps most importantly, collaborative research has gone a long way in breaking down barriers that once divided the fishery. By working together, scientists, fishermen, and managers increasingly recognize that we all have a stake in the ocean and that our shared goals are ultimately greater than what divides us.

I know that your community makes sacrifices as we continue to rebuild the resources upon which we all rely. As we work toward that goal NOAA Fisheries will continue to support collaborative research as an important tool that helps find solutions that protect the ocean for future generations.

-Bill Hogarth,
Assistant Administrator for Fisheries
NOAA Fisheries Service

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The New England and Mid-Atlantic Fishery Management Councils developed a joint management plan in 1999 that treats monkfish as two stocks: northern, from Maine to Cape Cod, and southern, from Cape Cod to North Carolina.

However, scientists and mangers admittedly know little about the biology and abundance of this peculiar-looking creature and anecdotal evidence suggests that the stock could by closing in on a natural peak. This all underscores the need for expanded collaborative research in the areas of stock assessment and conservation gear research.

In March, Framework 42 to the Northeast groundfish management plan limited days-at-sea to target monkfish to 40, only 12 of which can be used in the species' southern management zone. An advisory panel was also formed to update the management needs of the fishery.

During the1990s, concerns were first raised about high landings of juvenile monkfish. In response, the New England and Mid-Atlantic Fishery Management Councils developed a joint management plan, in 1999, that treats monkfish as two stocks: northern, from Maine to Cape Cod, and southern, from Cape Cod to North Carolina.

In 2001 and 2004, the New England Fishery Science Center conducted stock assessment surveys and, in the same years, cooperative assessments were conducted using the fishing vessel Mary K. out of Woods Hole, Mass.

Subsequent analysis found that the neither the northern nor southern monkfish stocks were overfished, but added that the data was not sufficiently reliable to be certain of the health of the fishery. It was also noted that there appeared to be a decline in the average size and age of monkfish captured.

A number of management tools are used in the fishery: limited access, closures during spawning periods, maximum trip limits, and gear restrictions.

But the relatively high value, coupled with a deficiency in data about monkfish, highlights the importance of information gathered collaboratively in the past five years, including tagging studies, genetic analysis, and selective gear designs.

Last year, Dr. Pingguo He, a scientist at the University of New Hampshire, and Dennis Robillard, a commercial fisherman from Eliot, Maine were awarded a $25,000 development grant from the Northeast Consortium to design and test gear capable of retaining legal-size monkfish while releasing juveniles back into the sea.

The innovation is similar to the Nordmore Grate - a hard plastic grid attached to the top of a net that reduces bycatch by sorting fish by size. The grate has has cut the accidental capture of groundfish in the Northeast's shrimp fishery by 97 percent.

"The goal is to reduce undersized monkfish catch in groundfish and monkfish trawls so as to reduce discard mortality and help rebuild the stock," said Dr. He.

Trials begin next year.

"Monkfish have always been something fishermen could count on as far as price. With so much uncertainty out there, if we could find a way to target this species more effectively, it might help some get by during these difficult times," said Robillard.

Figure 2 - NFMA biomass index (2004 three-year running average) relative to annual rebuilding targets.

Figure 3 - SFMA biomass index (2004 three-year running average) relative to annual rebuilding targets.

Framework 2 of the monkfish plan, adopted in 2003, established a method for evaluating on an annual basis the rebuilding progress of the fishery. The method compares the three-year running average of the biomass index to annual biomass targets which are ten equal increments between the 1999 observed value and the 2009 target. The ratio of the observed to the annual target value is applied to the previous year's landings to set target TACs for the upcoming year.

- From the Monkfish Fishery Management Plan (2005)

For more information visit www.northeastconsortium.org and www.nefsc.noaa.gov

High-Resolution Industry-Based Trawl Survey

Industry-Based Survey Offers a Fine-Scale Look at Commercial Fisheries in Southeastern New England

Approximately 59,000 pounds of fish were caught per trip (each trip averaged seven days). Catches averaged 1,693 pound per tow or around 760 pounds per hour.

By Chris Weiner

Almost six years after being established, the High-Resolution Industry-Based Trawl Survey has produced a voluminous data stream about groundfish and other species in and around Georges Bank.

The survey was a collaboration between 20 trawlers out of New Bedford and the University of Massachusetts at Dartmouth's School for Marine Science and Technology (SMAST). Headed up by Rodney Rountree (now with Marine Ecology and Technology Applications, Inc.) the survey was designed to "involve fishermen in research and to develop an effective collaborative program," Rountree said.

Another incentive for doing the survey was to acknowledge the desire of fishermen to be more involved in the decision-making process that affects their livelihoods.

Other project goals included:

-To obtain data with higher spatial and temporal resolution than that available through industry independent surveys.

-To involve industry in the collection of fisheries data and management of resources.

- To develop methods for training commercial fishermen to record scientifically acceptable data during normal fishing operations.

-To demonstrate the feasibility of a cooperative project between the fishing fleet and scientists.

-To characterize the effects of environmental conditions and fishing operations on spatial and temporal patterns in catch statistics.

This facilitates the training of fishermen in the collection data while they are fishing.With only 15 percent of trips observed by SMAST scientists, this survey relied on fishermen to do the bulk of the data collection.

The methods used by the fishermen were developed by SMAST and were designed to ensure that the data was reliable. What fish were captured, where they were caught, and catch rate were all recorded after each tow.

Collectively, the survey demonstrated the efficacy of fishermen-scientists partnerships in generating solid data.

With an annual operating budget of around $300,000 - funding was provided by Mass. Division of Marine Fisheries, NOAA and NASA - the survey was carried out over a four-year period, between November 2000 and July 2004.

> The fishermen were very enthusiastic. We definitely had success in ours goals of involving fishermen and collaborating to get information.
>
> -Dr. Rodney Rountree

The research was conducted aboard vessels ranging in size from 62 to 86 feet, with an average crew of four, allowing them to fish in rough weather and far from shore.

David Martins of SMAST, explained that what makes this survey unique is the comprehensive, high-resolution data it gathers.

"Instead of having data from a single vessel, or from a specific time of year, this survey was conducted year-round on many different vessels. This allows us to look for repetition in the data and have more confidence in making suggestions," he said.

A total of 221 trips and 8,421 individual tows were made. This translated into over 1,500 days-at-sea (just over 23,000 hours of trawling.)

"The fishermen were very enthusiastic," said Rountree. "We definitely had success in ours goals of involving fishermen and collaborating to get information."

Project Specs:

Administered by SMAST, funded by Mass. Div. of Marine Fisheries, NOAA, and NASA

Budget: $300,000 in FY 2005

Primary investigator: Rodney Rountree, (formerly of UMass- Dartmouth)

Industry partners: F/Vs *Mischief, Resolute, Sao Marcos II, Sao Paolo, Seel, T Luis, Tropica, United States, Victory, Voyager I, Blue Seas II, Buzzards Bay, Curlew II, Fisherman, Glenna & Jacob, Humpback, Inheritance, Isabel's, Lady of Grace, Maria Angela*

Report available: www.smast.umassd.edu

Monkfish

Despite its hideous appearance, many regard monkfish as one of the most palatable fish species. Tender in texture and sweet in taste, it has often been compared to lobster. Why not give it a try? Here are some recipes pulled together from friends family, and recipe books:

Poached Monkfish

ingredients

7 oz monk fish
2 oz olive oil
1 tsp minced garlic
12 oz fresh tomato, pureed
8 oz white wine
4 oz white vinegar
1 tbsp chopped parsley

method

1. Fill large skillet with water. Add wine, vinegar, fish and parsley. Bring to boil. Cover and boil for 10 minutes.
2. Prepare sauce (see below) while fish cooks.

to make the sauce

1. Heat olive oil until very hot.
2. Add garlic and saute until brown.
3. Add fresh tomato and stir to mix. Add salt and pepper to taste.
4. Simmer for about 10 minutes.
5. Remove fish from broth and slice. Add to sauce. Cover skillet and simmer 3 minutes.

Braised Monk Fish Provencal

ingredients

6-8 ounces monk fish per person
1 medium onion
8 roma tomatoes
1 clove garlic
1 stick of celery chopped
1 green pepper chopped
1 sprig of oregano stripped
1 sprig of thyme stripped
1 teaspoon of sugar
salt and coarse pepper to taste

method

1. Sauté all ingredients in 2 ounces of olive oil, except for the tomatoes, until translucent, about 5 minutes, in a large enough pot depending on how many servings you are creating.
2. Add the tomatoes and simmer for another 5 minutes.
3. Add monkfish and cover pot. cook until fish flakes to the touch of a fork. Do not over cook, this fish can get tough.
4. Serve with rice pilaf or buttered pasta

Above: Julia Child holding up a monkfish on her TV show, "Julia Child and Company." (1979) photo credit: Steve Hansen/TimePix

Below: poached monkfish in a citrus sauce (www.tasting-menu.com)

High-Res Survey, continued from page 4

One problem, according to Rountree, was the challenge to balance the needs of science and the needs of running a fishing business.

When trying to catch fish to make a buck, it can sometimes be difficult to meet the rigorous standards of science, he said.

To mitigate these factors, fishermen were trained before the study. Methods were used to allow for the data-collecting to not get in the way of fishing effort, something that is crucial for collaborative work to be viable, Rountree said.

Estimating weights and other information was one way that this was done.

Approximately 59,000 pounds of fish were caught per trip (each trip averaged seven days). Of this, 40,000 pounds were kept and the rest were discarded. Catches averaged 1,693 pounds lbs per tow, or around 760 pounds per hour.

A total of 51 species were caught during the survey period, but a handful of species dominated: Skates (35 percent), monkfish (19 percent), cod (11 percent), haddock (11 percent) and winter flounder (5 percent). Skates were often discarded, and monkfish, cod and haddock made up the bulk of fish that were kept.

Rountree said the data gathered by the survey is impressive and has the potential able to help managers and fishermen as they try to rebuild stocks without causing undo economic harm to coastal communities.

According to the report, this survey resulted in a "wealth of data" on fishing practices and catches of groundfish on or near Georges Bank.

It goes onto explain that the survey "will provide significant information in at least the following areas:

1. Quantification of fishing methods and activities of the Georges Bank ground fish fleet (e.g. gear used, tow speed, duration, etc.),

2. Quantification of the effect of gear variation on fishing activity and methods and on the resulting catch composition and catch per unit effort, and

3. Quantification of the influence of the fishermen's ability to target species on the resulting catch composition and CPUE."

Targeting practices, according to the report, is particularly important and may be most useful in terms of management. Targeting certain species in specific areas reduces discards and general impacts on non-targeted species.

Rountree added that collaborative research by its nature improves the management process. "By working together we not only share information, but improve the working relationship between members of this community that can sometimes be at odds."

SMAST is taking what it learned in the initial study to improve the quality of futures surveys.

Martins explained that a major focus of the work will be to see what affect teperature has on what is caught and where.

"By attaching temperature sensors to the trawl doors or the headrope we will be able to see if catches are related to bottom temperature."

A finding from the survey was that a large portion of discards were comprised of skates, which may indicate that the 6.5 inch mesh allows cod, haddock, flounder, and other species to escape, while the cumbersome skate, with its wide wings, gets trapped.

Rountree said that while the survey was very useful, the lessons learned will enable fishermen and scientist to improve their methods in the future.

The full report can be found at the SMAST website, or at the following address:

www.smast.umassd.edu/Fisheries/Trawler/DataReport_Apr05/

Chris Weiner, a tuna fisherman from Ogunquit recently graduated from Bowdoin College and is interning at NAMA until the fishing season begins in June.

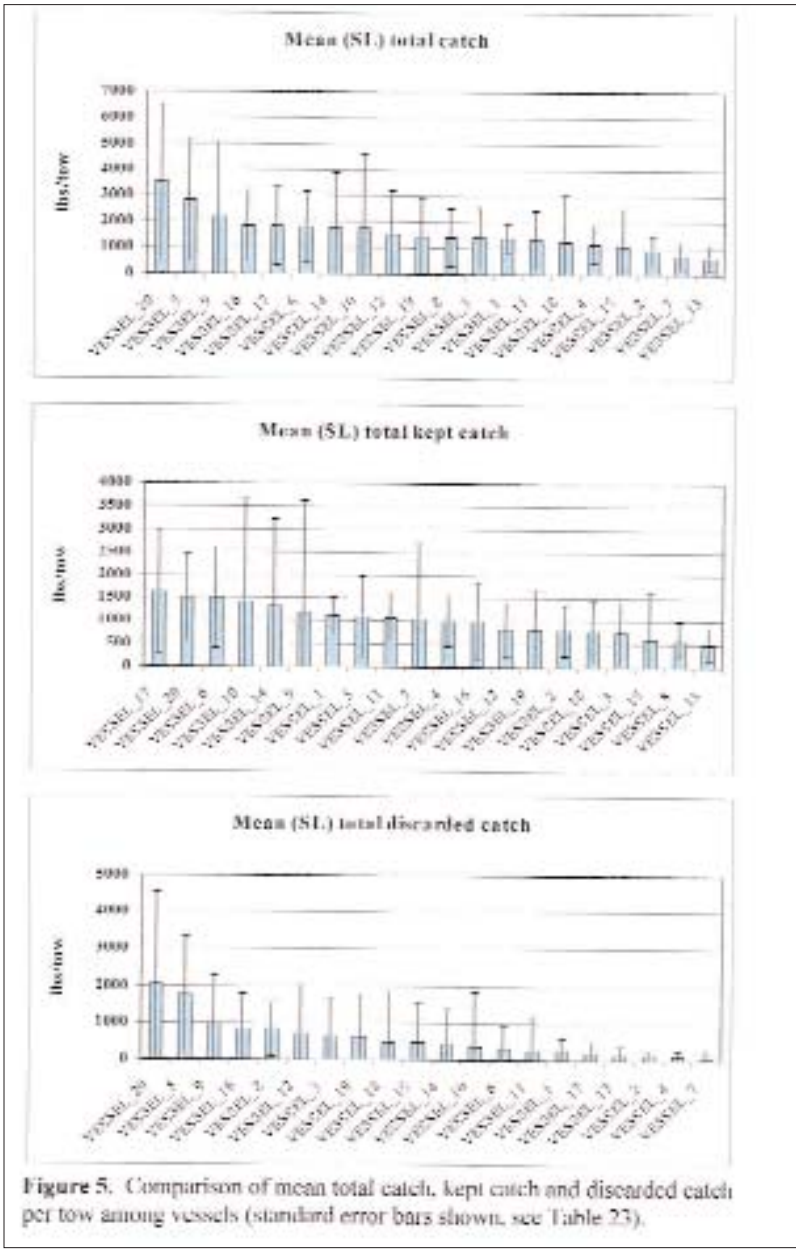

Figure 5. Comparison of mean total catch, kept catch and discarded catch per tow among vessels (standard error bars shown, see Table 23).

NOAA Fisheries Releases
are available at:
www.nero.noaa.gov

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
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April 20, 2006

SMALL ENTITY COMPLIANCE GUIDE

2006 Monkfish Management Measures

Dear Monkfish Permit Holder:

This letter announces the final rule implementing new target total allowable catch (TAC) levels for the 2006 monkfish fishery, and adjustments to days-at-sea (DAS) and trip limits for limited access monkfish vessels (Categories A, B, C, D, G, H, and F) fishing in the Southern Fishery Management Area (SFMA), or portions of the SFMA, for the 2006 fishing year (FY). These target TACs, trip limits, and DAS restrictions are based upon methods established in Framework Adjustment 2 to the Monkfish Fishery Management Plan (FMP), which became effective on May 1, 2003.

EFFECTIVE MAY 1, 2006, THROUGH APRIL 30, 2007

- The target monkfish TACs for FY 2006 are 7,737 mt for the Northern Fishery Management Area (NFMA), and 3,667 mt for the SFMA.
- The trip limits for Category A, C, and G vessels fishing in the SFMA are decreased to 550 lb tail weight (1,826 lb whole weight) per monkfish DAS, and 450 lb tail weight (1,494 lb whole weight) per monkfish DAS for Category B, D, and H vessels.
- All limited access monkfish vessels are allocated 39.3 monkfish DAS to use during FY 2006. These DAS are adjusted downward from 40 DAS to account for a DAS set-aside program established in Amendment 2 to the FMP, which became effective on May 1, 2005. However, vessels are restricted to using only 12 monkfish DAS in the SFMA during FY 2006. Carryover DAS from FY 2005 may be used in either management area and, thus, may be used in addition to 12 monkfish DAS authorized for the SFMA.
- For vessels that participate in the Offshore Fishery Program (Category F vessels), monkfish DAS will be prorated downward to account for the higher possession limit of 1,600 lb tail weight (5,312 lb whole weight) per monkfish DAS authorized under this program. Prorated DAS for this permit category are calculated by dividing the standard trip limit for vessels fishing in the SFMA (see applicable category above) by the 1,600 lb (tail weight) possession limit, and then multiplying the ratio by 12 DAS; the DAS available to vessels when fishing in the SFMA. Any carryover DAS available to the permit holder would be factored into the calculation of DAS available to a Category F vessel.

A summary of the FY 2006 Monkfish trip limits for the SFMA and NFMA, as well as the incidental catch provisions in designated fishing areas are available online at: http://www.nero.noaa.gov/nero/nr/index.html

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