

This month:

Hooked and cooked?

Just like their colleagues throughout the rest of New England, hook fishermen in the Cape Cod area are worried about the future of their fisheries and the viability of their livelihoods.

New regulations now being proposed by the New England Fishery Management Council, such as increasing the minimum size of cod (from 48 to 52 centimeters) and a plan that would cut the daily cod catch limit on Georges Bank from 2,000 pounds per day to just 500 pounds, could have severe effects on Cape Cod's in-shore and offshore fleets.



ARNE CARR
See story- p. 5

Despite those ominous clouds, two of the fishermen I met this month are hoping their collaborative research projects

will help preserve sustainable cod stocks while also ensuring a way of life that has become unique along the eastern shores of Cape Cod.

Capt. Ted Ligenza, of Chatham, Mass., and Capt. Mark Leach of Harwich both admit that they are nervous about what the future holds. For both men, however, there is much more to do than complain. Leach offered his assistance on a project designed to test artificial baits, and Ligenza came up with his own project in which he is collecting cod stomachs for scientific research.

"More than ever before, fishermen have to be involved in the process," Leach said. "Participating in cooperative research projects should be considered an investment in the future, not as just

(Please turn to page 4)



HARBOR WORK — Capt. Ted Ligenza and Brian Smith remove cod stomachs that will be examined as part of Ligenza's cooperative research project.

What are cod eating?

A cod stomach sampling project, focused on the coast of Cape Cod, receives continued funding

By **RANDY SEAVER**

As we steam out of Chatham's harbor, Capt. Ted Ligenza keeps a careful eye on the tide. "I don't think we're going to have very good luck today due to big tides and a full moon last night," he says while piloting his 31-foot boat (F/V Riena Marie) out toward the open water.

Regardless of how good the fishing will be, Ligenza has been diligent about going out to sea every 10 days in order to maintain the scientific protocols of a collaborative research project he designed nearly a year ago.

Ligenza's project, funded by the Northeast Consortium, is intended to get a better understanding of cod fish feeding habits by examining the contents of their stomachs.

"Once we know what the fish are eating, we'll hopefully have a better understanding of their other behavior patterns," he explains, leaning down on the boat's throttle. The rising sun is a brilliant red and Ligenza is smiling. "This project was my idea," he shouts over the drone of the engine so that I can hear him. "We're getting some real interesting data."

(Please turn to page 2)

Cod stomachs

(Continued from page 1)

Started in October 2001, Ligenza's one-year project has received additional funding of \$123,250 from the Northeast Consortium to continue sampling cod stomachs for another year. "It wouldn't be much good if we only had a year to collect our information," he explains. "because every year is different."

To date, Ligenza, teamed up with Brian Smith, a research associate at the National Marine Fisheries Science Center (NMFS) in Woods Hole, has sent in more than 700 cod stomach samples to be studied by Frank Almeida and Jason Link, biologists at the NMFS.

"Primarily, we've been catching a medium-sized cod, we're not really seeing too much variation of feeding within that size class," Smith says. "We're hoping that after we catch the larger ones, the real big ones. . . like over 100 centimeters. . . we should see a good variation of feeding."

Smith says the project has recorded some similar patterns but nothing "really major" when compared to the NMFS broad-scale study. "We'd probably need at least four years to get a good look at the patterns," he adds.

After steaming for nearly 45 minutes, Ligenza eases back on the throttle, and Smith grabs his clipboard. The boat

rocks on the waves near a spot that Ligenza says isn't marked on any navigational chart, southeast of Chatham. Because the wind is with the tide, Ligenza decides that we'll probably have better luck collecting samples if we use electric reels versus his favored method of hand jigging.

As Ligenza sets up the reels, Smith begins checking the water temperature: 18.4 Celsius. We are ready to start catching fish.

"When I first started fishing, the bottom was in better shape," Ligenza says, watching the movement of the rod that is secured next to the wheelhouse. "These fish used to feed on the bottom more, but now that the bottom has been damaged by storms and fishing, I think the fish are more dependent on bait fish, like herring in the early winter and spring and sand eels in the summer."

Ligenza said he started his project because he was tired of his own observations being dismissed as "anecdotal data" by fishery regulators.

"For me, it's very important to protect the bait fish," he says. "I think if the cod have good food, they're going to spawn better. If we go down there and destroy the food chain, then the cod fish won't be doing so well and then they [regulators] are going to tell us we have poor recruitment and therefore need more regulations. You're



COLLECTING SAMPLES — Smith and Ligenza go out every 10 days in order to collect their samples.

not going to know the importance of the cod fish food unless you catch the fish through the season to show the significance of different food items."

During the next few hours, we have good luck at catching medium-sized cod. Smith is hoping that we can pull

in some larger samples on this trip so that scientists can examine larger female livers. We conduct 10 drifts throughout the day in various spots near the location where we began sampling.

The most successful drift yielded one fish in the 20-40 cm class, 12 fish between 40 and 60 cm, and two fish between 60 and 80 centimeters. We have collected 30 cod that will later be dissected before their stomachs will be examined.

Almeida described Ligenza's project as a "gold mine."

"Compared to our own trawl surveys,

"I think the fish are more dependent on bait fish, like herring in the early winter and spring and sand eels in the summer."
— Ted Ligenza



WATCHING THE LINE — Capt. Ted Ligenza aboard the F/V Riena Marie

(Please turn to page 4)

Fish or try bait

By RANDY SEAVER

Since he spends roughly \$30,000 each year on bait, it makes sense that Capt. Mark Leach would be willing to use his 36-foot commercial fishing boat for a collaborative research project designed to test and develop a so-called “artificial” bait.

But despite increasingly stringent fishing regulations and spiraling operating costs, Leach, a hook fisherman from Harwich, Mass., says there was much more at stake with the project than simply finding a way to save money on bait.

“In terms of its initial objective, I wouldn’t say [the project] was successful,” Leach said. “But we did get some good shots of the bottom. I pushed hard so that we could use cameras to do some profiling. I think that aspect is very important.”

During the past year, Leach has been helping test the effectiveness of “bait matrixes” that have been developed by Dr. Susan Goldhor of the Center for Applied Regional Studies in Boston. The research is similar to a project Goldhor conducted

with long-line fishermen in the Northwest United States, along the shores of Alaska, Washington and Oregon.

Leach, however, says he never expected Atlantic cod to behave like Pacific cod. “I don’t think anyone did, really,” he says.

During the sea trials of the project, Leach was partnered with Mark Szymanski, a fisheries supervisor at the Massachusetts Division of Marine Fisheries. The two men work well together, moving almost in-synch on the day of the last sea trial. As Leach pilots the F/V Sea Holly southeast of Chatham, Szymanski prepares the

marker buoys and begins writing information on a clipboard, including water temperature, depth and location.

Using two platforms, made of plywood and galvanized shafts, Szymanski rigs underwater video cameras so whatever grabs at the bait will be caught on tape that can later be analyzed. After steaming more than 90 minutes, the Sea Holly reaches her destination.

Szymanski baits one platform with pieces of squid; the other platform is baited with one of Goldhor’s “artificial bait” compounds. Each platform is dropped to the bottom, in close proximity to one another.

Once the platforms are dropped, Leach allows the boat to drift. It’s time for what has become a tradition during the waiting process. Leach



MARK LEACH aboard the F/V Sea Holly. (Susan Boa photo, courtesy CCHFA)

“I think this is a project that needs continued refinement. I think we have something to work with, but I also think we need more time.”

— Mark Szymanski, MaDMF

moves below deck and fires up a small, electric frying pan. It’s well before 9 a.m., but for Leach and

Szymanski — it’s time for hotdogs.

While we wait, Leach and Szymanski talk about the project and why cooperation between fishermen and researchers is so vital.

“We look to partner with people who can truly be committed to a project,” Szymanski says. “It’s discouraging to think that some people might look at these types of projects as just another way to earn money.”

Leach said the benefits of collaborative research include gaining a better understanding of his own fishing grounds. Although the 45-year-old fisherman has been fishing since he was

16, he says that he still learns something new each day. “The biggest thing I got out of this project was that it reinforced my own ideas about what the bottom looks like,” he said.

With the smell of spicy mustard and hotdogs still lingering in the wheelhouse, it’s now time to pull the platforms to see the results of the day’s trial. As we pull the first platform, a skate, with a preference for squid, is removed from one of the hooks. The platform with the artificial bait, however, is empty.

As Leach begins steaming back toward the harbor, Szymanski reviews the videotape. Each time a cod is spotted swimming by one of the platforms, Leach and Szymanski pause the tape and rewind in order to get a better look.

The cod seem interested in the “artificial bait,” but not enough to grab onto it. These results are typical when compared to the other sea trials

“I think this is a project that needs

(Please turn to page 7)

Cod stomachs

(Continued from page 2)

Ted's project is very focused and consistent in its sampling," Almeida explained. "One of the complaints, and a legitimate complaint we often hear from fishermen is that our trawl survey only takes 'snapshot' samples during a particular time of the year. For Ted to be going out every 10 days really helps us understand what's happening, even if it is in a much more

surveys in terms of what GOM cod are eating. "That, in of itself, is good news," he said.

Later in the day, as we steam back toward the harbor, Ligenza notices something strange off the starboard side of his boat. It is a warm and humid day, and the surface of the water just outside the harbor almost looks as if there has been an oil spill. The color of the water is much darker in



DIRTY WORK — Ligenza removes a sample stomach from a cod caught near Chatham.

“For Ted to be going out every 10 days really helps us understand what’s happening, even if it is in a much more concentrated area.”

— Frank Almeida, NMFSC

concentrated area.”

According to Almeida, there have been no significant differences between Ligenza's study and the NMFS trawl

confirmed: it is only the result of a stark difference between water and air temperature. His curiosity piqued, Ligenza stops to take a temperature reading just

ter is much darker in

one particular area. As we get closer to that area, Ligenza's suspicions are

so he can know the actual temperature instead of taking a guess.

"Have you always been a naturally curious person?" I ask.

He turns back to the wheel, glancing at me over his shoulder. "I have to be," he smiles. "I'm a fisherman. If I'm not curious, I won't be around much longer."

Hooked or cooked? —

another way to make money with a boat."

Ligenza agrees.

"I was tired of having people say that we could only offer anecdotal information," he said. "I wanted to do this so that I would have something to back up my observations and opinions." Thus, Ligenza has committed himself to going out every 10 days in order to collect samples. And although the artificial bait project has not yielded immediate success, Leach says he's still glad that he participated. "We got some great shots of the bottom and I learned a lot. You can't expect a lot overnight."

Faces in the crowd

Beginning this month, each issue of Collaborations will feature a new section in which we profile someone in the field of collaborative research, including scientists, regulators and fishermen. Leading off this series of interviews is one of the most respected and admired men in gear-technology circles — Mr. Arnold Carr, recently retired from the Massachusetts Division of Marine Fisheries (see story page 5). Next month, we will feature an interview with Chris Glass of the Manomet Center for Conservation Sciences.

If you have an idea for a story you would like to see published in *Collaborations*, please do not hesitate to contact us: collaborations@namanet.org or by phone (888-320-4530. As always, thanks for reading!



FIRST CATCH— NAMA's own Randy Seaver shows off a cod he caught as part of Ligenza's sample collection.

Useful links:

www.fishresearch.org

www.northeastconsortium.org

www.namanet.org

www.ccchfa.org

Are you working on a project that you would like to see highlighted in "Collaborations"? Did you miss an issue? Would you like to subscribe?

Contact NAMA today, collaborations@namanet.org (207)284-5374; 888-320-4530



Faces in the crowd:

Arne Carr

After 38 years, he has retired from the MaDMF, — but he’s still very much connected to collaborative research circles

By **RANDY SEAVER**

T rue to his nature, Arnold Carr missed his so-called “retirement” party. Carr didn’t receive his proverbial gold watch because he was too busy helping the Chinese government find the flight data recorder of a China Air 747 that crashed into the Taiwan Straits after plummeting 38,000 feet from the air on May 25.

Although Carr, 61, officially retired from the Massachusetts Division of Marine Fisheries (MaDMF) in March of this year, he is anything but removed from the network of collaborative research partners he has developed during the last 38 years.

“I’ve had some unique opportunities,” he chuckles during a relaxed interview near his home in Monument

marine researchers for his affable nature and expertise in the realm of gear technology and development.

“It [gear technology] is an area I’ve really enjoyed,” Carr said. “I did a lot of diving while I was growing up. I think it was those initial underwater observations that influenced my path. Along the way, with the various things I did — working on scallop dredges and trawlers — have provided me with unique experiences. I’ve always enjoyed my association with fishermen.”

Establishing himself as someone who would listen to fishermen, Carr credits his successes to the complementary nature of collaborative research. “I’d say, in just about every place I’ve been, there’s always been a good balance . . . a good set of partnerships.”

In fact, Carr said he was startled a few years ago, when Frank Mirarchi, a commercial fisherman from Scituate, Mass., told him, “you’re the one who got me into this (collaborative research). . .” Asked to recall a favorite memory from his career, Carr talks about a trip he took in January, along with several commercial fishermen, for a week-long workshop using the flume tank at Memorial University in St. John’s, Newfoundland so that a modified trawl net



“ Things just took shape, I don’t know if I ever really gave it much thought. I just started going down the road I was on. ”

“ He is a great guy to work with. He has so much knowledge and passion, and the beautiful thing is that he’s so willing to share what he’s learned and experienced. ”

— **Mark Szymanski, MaDMF**

Beach. “Things just took shape, I don’t know if I ever really gave it much thought. I just started going down the road I was on.”

Carr grew up on Martha’s Vineyard. After studying zoology at UMASS-Amherst, he began working for the MaDMF as a summer student. “I told myself back then that I was not going to work for the state,” he laughed. Nearly four decades later, Carr is well known by New England fishermen and

could be tested.

“It was just wild,” Carr said. “To be there with guys like Luis [Ribas], all of us seeing the same things and pooling information based upon our observations of the net’s performance. I’ve always enjoyed that aspect of my job.”

When asked about the challenges facing collaborative research endeavors, Carr says he has often wondered about what the future holds for managing multiple species. “Say you have four different fisheries — whiting, flatfish, cod and haddock — and, are you going to need a different type of net and different techniques for each fishery? Is it going to come down to that?”

The solution, he said, is putting the fishermen, the scientists and gear technologists together in order to understand what various gear types can or cannot accomplish.

“The solution is putting that all together in a pot and then refining it to whatever point you can.”

As for gear technology and conservation engineering, Carr said the field is “an important tool in the toolbox of good resource management.”

(Please turn to page 7)

NAMA needs your support

NAMA was your voice when a federal judge was considering how to resolve a lawsuit that could have been devastating to the Gulf of Maine's fishing fleet.

NAMA was there when a group of fishermen and others found themselves without a voice in mid-coast Maine, and we offered the assistance and expertise to help form yet another new community-based alliance.

NAMA is continuing to reach out, providing community outreach, educational and support services and helping fishermen and others learn about collaborative research projects.

Since 1995, our organization has continued to grow, and we have been able to make great strides in our efforts "to generate a new voice and institutional presence," within the Gulf of Maine. We are open to all who are committed to our purpose and principles, that will work toward economic and ecological stability, personal responsibility and accountability, resource protection and distributed power and authority."

But as harsh as it may sound, even the most noble of efforts and organizations requires sustainable funding in order to continue in their mission. That's why we are asking you to consider becoming a NAMA affiliate member or to make a tax-deductible contribution so that we may continue our work.

Today, New Englanders are facing daunting challenges, but they are also taking initiatives — organizing themselves to use innovation, science, tech-

nology and local knowledge so that the tradition of coastal fishing communities may continue for generations to come.

NAMA has coordinated many of these initiatives, and we stand ready to do more in the weeks and months ahead. Our alliance is a highly respected and fast growing organization that needs some financial support to do what the federal government cannot: to restore and enhance the fisheries of the Gulf of Maine (the waters of Massachusetts, New Hampshire, and Maine) as well as Maritime Canada.

We can offer you recognition throughout the New England coast as being one who thought enough of the fishermen's traditions, their livelihoods, their communities, and of the marine resources to lend a generous and helpful hand. Please send the most generous check you can to the address below. All contributions are eligible as deductions to a non-profit organization on your income taxes.

Please call or e-mail us with any questions.
Sincerely,

Craig Pendleton,
Coordinating Director,
Northwest Atlantic Marine Alliance
200 Main Street, Suite A
Saco, ME 04072
888-320-4530,
fax 207-284-1355
e-mail: craig@namanet.org

NAMA speaks in favor of GOM Aquarium

The Gulf of Maine Aquarium cleared one of its last hurdles this month when the Portland City Council voted to approve a height limit increase so that an \$8 million marine research laboratory can be built on the city's waterfront.

"We believe that Portland . . . has a very real opportunity to emerge as a leader in marine research," said Donald Perkins, president of the Gulf of Maine Aquarium, according to the Portland Press Herald.

In addition to officials from the University of Maine, civic and community leaders, the aquarium received support from local fishermen and the Northwest Atlantic Marine Alliance.

During his testimony in support of the aquarium, Craig Pendleton, NAMA's coordinating director, said Maine fishermen have consistently led the way with conservation proposals, but those efforts are generally disregarded as anecdotal — lacking fact.

"This lab helps level the playing field," Pendleton said. "I was lucky enough to have been asked to participate in the conceptual development of this lab, and I feel it has been handled in an extremely professional, open and inclusive manner. The end design came from our conceptual needs, not *wants*."

Pendleton said he is anxious to see the aquarium's design turned into reality. "I currently enroll my vessel in several research programs, and I look forward to finding answers to our many marine research questions," he added.



"Collaborations" is a monthly update on the 'goings on' of collaborative fisheries research. The Northwest Atlantic Marine Alliance (NAMA), with support from the Northeast Consortium, publishes this update as a service to individuals and groups committed to the future of collaborative research. Please visit us at www.namanet.org and www.NortheastConsortium.org to learn more about our organizations.

Carr

(Continued from page 5)

“There are places where conservation engineering won’t work,” he admits. “But you’re going to need gear that is less restrictive. If you ask me what the future holds for gear modifications, I’ll tell you that it’s really going to depend on management. Is it going to be restricted by species, or are we going to be looking at the whole process?”

Carr has also had a profound and distinct impact upon his coworkers at the MaDMF. Mark Szymanski, a fisheries supervisor at the Pocasset office, credits Carr with giving him the break he needed after he graduated from college with essentially no practical experience.

“Arne is one of those guys who will let you find your own way,” Szymanski said. “He is a great guy to work with. He has so much knowledge and passion, and the beautiful thing is that he’s so willing to share what he’s learned and experienced.”

Today, Carr seems relaxed but he still has his hands on a number of ongoing projects, and is continuing to follow up on those projects as a quasi-consultant for MaDMF. He has not yet found the time to put his own 30-foot boat in the water, but he’s hoping he’ll get the chance before the end of August.

One of the other things keeping Carr on the move these days is the work he performs for a company of which he is a partner: American Underwater Search and Survey. During the last few months, Carr has found himself in Asia on two occasions, searching for crashed jetliners.

“If you look at my work with American Underwater and my work in the division, it’s sort of a parallel,” he said. “Some of the things I’ve learned in either capacity, I’ve been able to bring to the other.”

In fact, Carr’s firm was the only private company to work on the crash investigation of the TWA 800 flight that crashed off Long Island, New York. The company was contracted to look for small, yet critical engine parts that would help determine what had gone wrong. Carr has also had an opportu-

“If you ask me what the future holds for gear modifications, I’ll tell you that it’s really going to depend on management.

Is it going to be restricted by species, or are we going to be looking at the whole process? ”

nity only a handful of people have ever had: a chance to dive near the U.S.S. Arizona, the sunken battleship that remains as a memorial to those lost during the 1941 attack on Pearl Harbor.

“If you ask me what I enjoy, diving would be near the top of my list,” he said. “Like anything else, I’ve have some good memories of my time with the division. If anything, I have really appreciated the associations I’ve had — and I hope to continue nurturing the experiences of those associations.”

Next month:

In the September issue of *Collaborations*, we’re planning to take a closer look at the lobster larvae study being conducted on the waters near mid-Maine. We will also continue our “Faces in the Crowd” series by featuring an in-

depth interview with Dr. Chris Glass of the Manomet Center for Conservation Sciences. If you have an idea for a story you’d like to see in *Collaborations*, contact us at collaborations@namanet.org or call us toll free at 888-320-4530.



GLASS

Bait

(Continued from page 3)

continued refinement,” Szymanski said. “I think we have something to work with, but I also think we need more time. It does show promise, in my opinion, that we could come up with something in the future.”

The project was also intended to examine the feasibility of increasing selectivity, but Leach says using the bait matrixes is not an effective way to expand the fishery, especially in terms of catching flounder in commercial quantity.

In an earlier interview (*Collaborations*, April 2002), Leach offered some of his own theories about why cod fish were not taking the artificial bait.

“With the cameras, we could see the fish swimming around, but they

“With the cameras, we could see the fish swimming around, but they weren’t biting.”

— Mark Leach

weren’t biting,” he said. “I think cod are cold-water sensitive. I think their metabolism might slow down and that’s why they’re not going after the bait. It’s just a theory, but I’m not so sure that the fish are leaving the area. I think they’re just not feeding as much.”

“I think we learned some things,” he continued. “Even if the results weren’t exactly what we were expecting. I think collaborative research has a place in the industry. It’s an opportunity to try things that you might otherwise only think about and be afraid to try because of financial risk.”





200 Main Street; Suite A
Saco, Maine 04072

Get Organized!

*There's strength in numbers;
order your bumper sticker today!*



Visit our website for more information:

www.namanet.org