

Major Snow Storm Blankets Northeast

—By Dennis Feltgen

After the warmest January in U.S. history, the first east coast snow storm of 2006 reminded residents from Tennessee to Maine that winter was far from over.

On Feb. 11-12, a classic nor'easter struck the mid-Atlantic and Northeast with heavy snow, high winds, coastal flooding and beach erosion.

The storm was a challenge for NOAA meteorologists. For several days, computer models did not agree on the track and intensity of the storm. At issue was exactly where and when the polar jet stream from the north would merge with the subtropical jet stream from the south. That would determine where this nor'easter would form, what track it would take, how strong it would be and where the heaviest snow would fall.

"The biggest challenge with this storm was deciding how far inland the biggest snows would be," said meteorologist Chris Hedge, who was working the overnight shift on the winter weather desk at NOAA's Hydrometeorological Prediction Center in Camp Springs, Md., on Feb 11 and 12. "Some computer models had it along the coastline," he said.

The threat of heavy snow was strong enough to prompt NOAA National Weather Service forecast offices from Tennessee and Virginia into New England to issue winter storm watches up to 48 hours in *continued on page 7*

Post-Katrina Gulf of Mexico Seafood, Fishery Found Safe

—By Susan Buchanan

Sometimes we find good news in the most unlikely of circumstances.

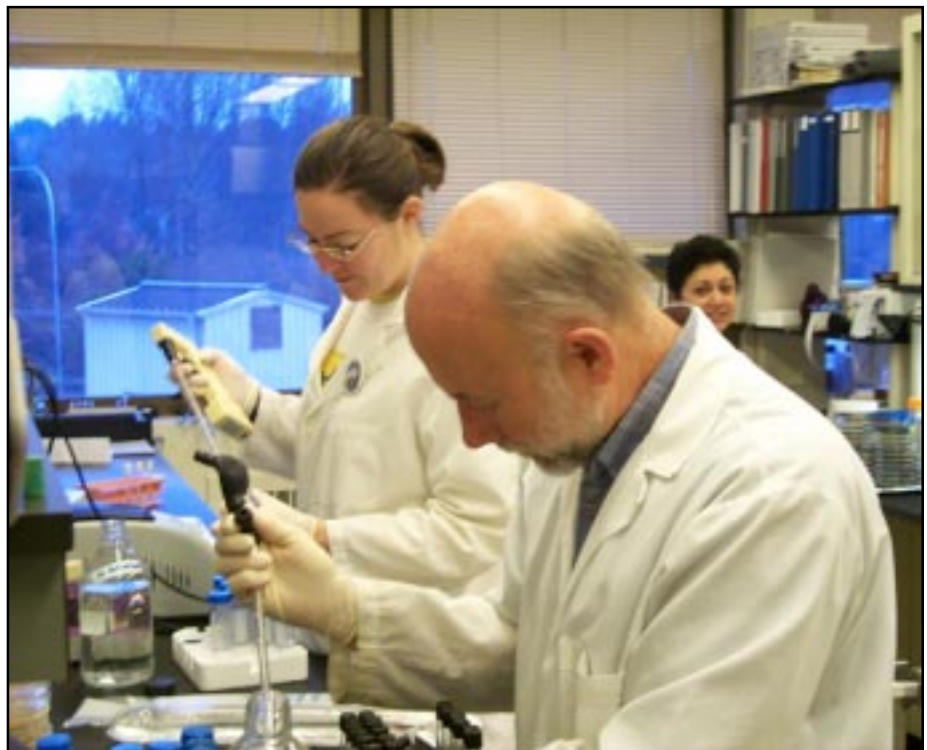
Tracy Collier, a scientist with NOAA for over 30 years, didn't know what to expect when he set sail in the Gulf of Mexico aboard the NOAA Ship *Nancy Foster* on Sept. 11, 2005—two weeks after Hurricane Katrina struck the Gulf Coast.

On land, coastal communities scrambled to meet the basic human needs of health, sustenance and

shelter. While the nation was focused on this response onshore, NOAA brought all its world-class science to bear to determine the impacts of the hurricane on the offshore marine environment.

The results of these surveys to date have been surprising and contrary to what many people expected.

Nobody knew exactly what environmental conditions existed offshore in the days following Katrina. The news media reported *continued on page 6*



Mark S. Strom/NOAA

NOAA Northwest Fisheries Science Center microbiologists Anne Mataia and Mark Peterson examine post-Katrina Gulf of Mexico water samples for possible microbial pathogens.

NOAA Employees Produce Storm DVD to Benefit Disaster Relief

—By Keli Tarp

Recently some of the world's most experienced storm chasers decided to produce a DVD of their best storm videos, sell it and donate 100 percent of the profits to organizations that support storm victims.

The "Storms of 2005" DVD allows viewers to see what it's like to be at the edge of a large tornado, experience the feeling of a car being hit by monster hail, compare what a storm looks like on radar and in person and be in the center of the biggest disaster to strike the United States—Hurricane Katrina.

The DVD was created by two meteorologists based in Norman, Okla., who combined their passion for observing nature's forces in action with a desire to help those harmed by these same forces.

"This is the storm chaser's way of giving back to those people affected by natural disasters," said James G. LaDue, a meteorologist at the NOAA National Weather Service Warning Decision Training Branch, who produced the DVD along with Greg Stumpf, a Cooperative Institute of Mesoscale Meteorological Studies research associate working at NOAA's National Severe Storms Laboratory.

The "Storms of 2005" DVD has already sold more than 700 copies and raised more than \$10,000 toward their \$20,000 goal. The primary beneficiary is the American Red Cross for disaster recovery efforts in the United States. Additional funds will be donated to the central Oklahoma chapter of the American Meteorological Society, which helped finance the project.

Editor Retires, Report Ends

—By Dane Konop

This is my last issue as editor of the *NOAA Report*, as I am retiring April 1 after 31 years of federal service, 29 of them with NOAA and the last seven as editor of the *NOAA Report*.

Jordan St. John, director of Public, Constituent and Intergovernmental Affairs, has decided to discontinue publication of the *NOAA Report* after the March issue.

With this final issue, my thanks go out to all the writers and photographers who have contributed to the *NOAA Report* and to all the NOAA employees who have taken time out to talk to us about their work. I also thank my wife, former NOAA employee Janet Springsteen, for proofreading all 84 reports I edited, and Jordan St. John for giving me his unwavering

Stumpf and LaDue collaborated with eight chapter producers to create the video collection. A total of 50 videographers and several musicians donated their talents to the production.

The DVD, which lasts 1 hour and 47 minutes, features stunning tornadic events in the Great Plains as well as Hurricane Katrina.

While the imagery and sounds recorded may entertain and captivate, this DVD has also been structured to serve as an educational tool. Each chapter shows a weather briefing featuring a diagnosis of weather information that led chasers to their targets. Then during the course of the chapters, viewers learn about how storms appear from multiple directions as they watch the video and the chaser's location on insets of radar data.

The Katrina segment demonstrates how destructive a storm surge can be.

support and virtually total editorial control over the content of the *NOAA Report*.

Finally, I thank the readers of the *NOAA Report*. Your frequently positive feedback has encouraged me to believe that I was on the right track with the report.

For my part, I am grateful to have had the opportunity over the course of my NOAA career to help explain, both to our fellow employees and to the general public, the scientific advances and other important societal contributions made by NOAA employees. In leaving NOAA, I know I will miss the daily interactions I have had with my NOAA colleagues, which have both inspired and enlightened me.

To all of you, I say good luck and keep up the good work. ☺

"Not one contributor asked for any compensation, donating many hours of their own efforts and equipment in collecting their footage, as well as their production and musical skills, all to benefit storm victims," Stumpf said.

"You will find an educational flair to the chase stories as you will see the maps the chasers used, and where the chasers are located on radar images of the storms," LaDue said.

One chapter shows viewers what it is like for their car to be pounded by wind-driven, softball-size hail. Other chapters show tiny tornadic storms, called mini-supercells, while others show how large these storms can get. The Katrina chapter reveals debris-laden skies, as well as the horrific storm surge destroying everything in its path.

The "Storms of 2005" DVD costs \$20 each, plus shipping and handling, and is available for sale at <http://www.stormsof2005.org>. ☺



Troy Baker.

Anne Baker

Troy Baker Is the Team Member of the Month

—By Glenda Powell

Hurricanes Katrina and Rita left a wide swath of environmental devastation in their wakes when they swept across the U.S. Gulf Coast last year. March Team Member of the Month Troy Baker, a contractor with IMSG, Inc., working for NOAA's Office of Response and Restoration, was one of the first on the scene in Louisiana, identifying oil spills, assessing the damage and planning for the restoration of the region's natural resources.

The number of incidents, the magnitude of the spills, the disruption of the region's infrastructure and the difficulty of bringing support staff into the region made for an unprecedented emergency.

"One of my roles with NOAA is to serve as the injury assessment coordinator for OR&R's Damage Assessment Center," Baker said. "In this capacity, I serve as the technical lead and natural resource trustee liaison for NOAA on

natural resource damage assessment activities. As part of the scientific support team following the hurricanes, I identified and assessed oil spills or other pollution sources in the environment to support NOAA's integrated response effort with the U.S. Coast Guard."

Baker helped NOAA's lead responder coordinate the collection and dissemination of field assessment information about the oil spills that occurred throughout the region. This was critical support for operational commanders, including the U.S. Coast Guard, EPA and state responders. The information enabled them to understand the scope and magnitude of the oil spills so that they could mount an effective and coordinated response.

While in the field, Baker collected information that will be used to assess the long-term environmental impacts from the hurricanes. He also mapped oil spills and sampled pollution, often working side-by-side with industry and agency partners.

"I also serve as a restoration specialist for NOAA," Baker said. "I coordinate with the NOAA Restoration Center, industry, state and federal trustees as part of NOAA's Damage Assessment, Remediation, and Restoration Program to restore coastal and marine resources injured by oil spills and damaging events."

Baker continues to lead NOAA's efforts to complete a new statewide regional restoration program in Louisiana, under development for several years, that will help state and other federal trustees carry out their responsibilities for oil discharges.

"The regional restoration program has been a multi-year effort, and my role was to build on what others had done to finalize the environmental impact statement and restoration plan and to coordi-

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Garry Guice.

Cdr. John Lowell/NOAA

Garry Guice Is the Employee of the Month

—By Jeanne G. Kouhestani

The NOAA Ship *Fairweather* had an outstanding field season last year, according to the ship's commanding officer, due in large part to the ship's chief boatswain and March Employee of the Month, Garry Guice.

The ship added a tsunami data buoy recovery and a joint NOAA Fisheries/NOAA Research project to its normal production of hydrographic surveys—which by itself exceeded all expectations.

As chief boatswain, Guice is the head of the Deck Department, responsible for all deck machinery operations, bow and stern line handling, small boat operations and deck maintenance.

Cdr. John Lowell, the ship's skipper, also cited Guice's "can-do attitude, leadership and ability to inspire others—both within and outside his department—to put forth their very best efforts."

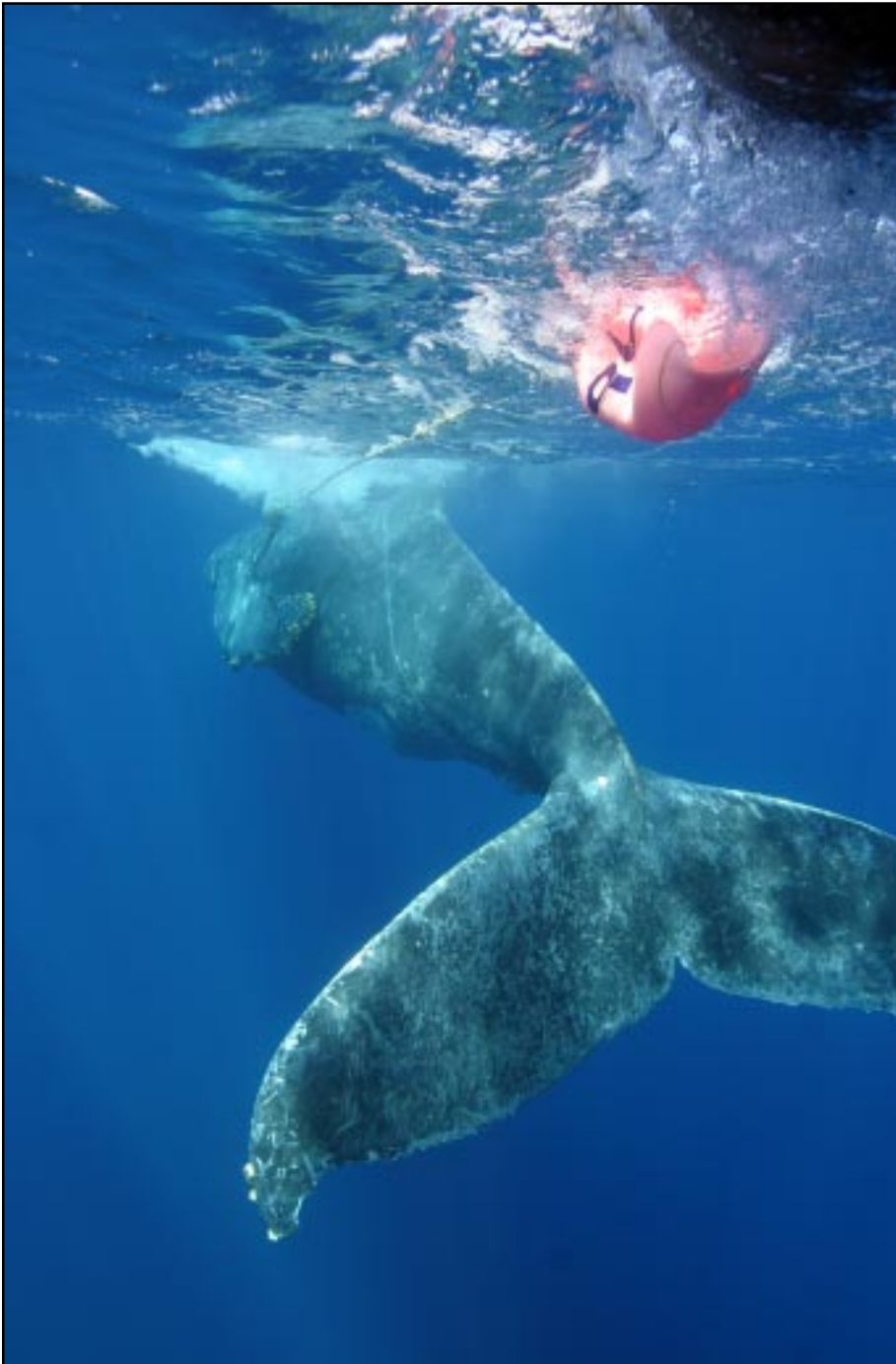
Garry came on board the newly

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Focus On...

Disentangling a Humpback

—By Wende Goo and Jim Milbury



Ed Lyman/NOAA

Seen through a remotely-operated camera, a humpback whale entangled in a mass of coiled rope drags a plastic buoy off the coast of the Big Island of Hawaii in February.

A fifty-foot-long humpback whale, entangled in rope and trailing flotation buoys off the Big Island of Hawaii, was rescued in February thanks to a network of scientists, tour boat operators and trained volunteers that closely resembles a Hawaiian ‘ohana, or extended family.

Success was by no means certain, as a disentanglement of any whale is a difficult and dangerous enterprise, even for trained scientists.

The whale was spotted Feb. 9 by members of the Hawaii Marine Mammal Consortium, entangled in a mass of bunched and coiled ropes extending from the left side of its mouth. The distressed whale trailed line nearly 30 feet along its side, with two large red polyballs, one still inflated, and a smaller bullet buoy attached.

The researchers remained with the animal at a safe distance and notified NOAA marine mammal disentanglement experts David Mattila, Ed Lyman and Dave Schofield of the situation.

“[The researchers] were out on the water documenting it and gave us the first assessment,” Lyman said. “We decided it was probably something that was life-threatening [to the whale].”

Lyman and Mattila, who were on the island of Maui and could not reach the whale until the following morning, were afraid they might lose the animal overnight.

Fortunately, Justin Viezbicke, part of the network from the State of Hawaii Department of Land and Natural Resources, hitched a ride on a local whale-watching boat out to the entangled animal and attached a VHS transmitter to one of the ropes.

The following morning, Lyman and Mattila picked up the signal from land and felt confident they would easily find the whale.

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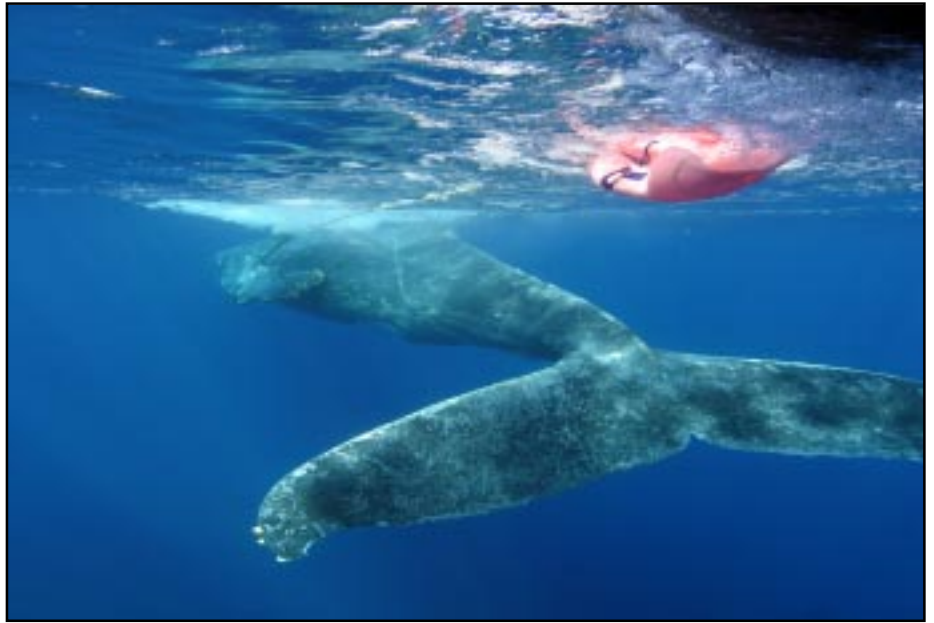
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“So we get in the boat, and the whale starts moving quite rapidly, we think about six or seven knots, tearing off north,” Lyman said.

The VHF tracking indicated the speeding whale had raced into the rough and treacherous waters between Maui and Hawaii where a rescue attempt was too dangerous for both the animal and rescuers. For the meantime the team had to stand down. Mattila and Lyman returned to Maui to wait for another attempt at a rescue.

The following day, a whale watching boat sighted the animal in waters between Maui and Lanai and immediately reported that the animal was in the leeward waters of Maui. Within an hour, the Hawaiian Islands Humpback Whale National Marine Sanctuary’s 21-foot response vessel was underway. It took over, standing by the animal until the rescue team and gear arrived.

In the meantime, the animal had moved into the Kaloho Channel between Lanai and Molokai, where sea conditions were ideal for a rescue.



Ed Lyman/NOAA

The humpback whale faced a slow and certain death if the entangled line and buoys were not removed.

Mattila and Lyman arrived on the scene, donned their safety gear and made a quick assessment of the animal’s condition.

“We weren’t sure about this whale because it had a buoy right along side its dorsal fin which meant that it had rope either around the flipper or in the mouth, and that’s always much more difficult than if the whale just had

some wraps around the tail,” said Mattila, a veteran of 60 whale entanglements. “Once we saw what we were dealing with we felt pretty good about it.”

Cutting the line off the whale can be extremely dangerous and people have died trying to do it.

Lyman and Mattila are trained, authorized and permitted to do this kind of work and do everything possible to minimize their risks.

“Our whole goal with cutting these animals free is that we’re predictable for the animals as much as can be,” Lyman said. “We come up slow [in the boat], come up the same way each time.”

And they never get in the water with the animal.

Using a special knife designed to cut the ropes and not injure the animal, the rescue team was able to cut the lines off in just a little over two hours. They then followed the whale for another two hours, before it was last seen joining a group of males chasing a female humpback.

“It is always a relief and exhilaration to get them out,” Mattila said. “There is no question, even after 50 or 60 of them, it is still a great feeling.” ☺



Andrea Beldin/Dolphin Institute

After rescuers from the NOAA Fisheries Marine Mammal Health and Stranding Response Program disentangled the whale, he was spotted joining other males in search of a mate.

Gulf of Mexico

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large debris fields floating throughout the Gulf made up of oil spills from fallen oil rigs, wood from smashed buildings and fishing boats, and floating animal remains. Speculation about the safety of seafood coming out of the Gulf of Mexico spread quickly.

As manager of the seafood safety sampling and analyses part of NOAA's Gulf assessment mission, Collier joined an elite group of 10 NOAA scientists—fisheries biologists, oceanographers and chemists—selected to sail throughout the Gulf of Mexico, from Pensacola to Texas, to survey offshore hurricane damage. Part of the mission was to survey the seascape for signs of environmental hazards. The other part was to collect samples of water, sediment and species tissue for toxicology analyses.

Designed and overseen by NOAA Fisheries Service Chief Scientist Steve Murawski, the project involved staff and resources from throughout NOAA.

"People saw the water—deemed toxic 'gumbo' by many—being pumped out of New Orleans and back into Lake Pontchartrain, and people knew that it eventually made its way into the ocean," Murawski said.

The goal of the NOAA work was to protect the public from potentially contaminated seafood and to protect the \$7-billion-per-year Gulf seafood industry from further economic devastation due to speculation and fear about the safety of seafood originating in the Gulf.

"Our purpose from the start has been multi-faceted," Murawski said. "We set out to survey offshore damage, but we also wanted to ensure public health and safety and increase consumer confidence in seafood products originating from

the Gulf of Mexico."

Murawski said the only way to meet these goals was through scientific research and testing.

"The de-watering of a city to this extent had never happened, and we were dealing with potential chemical and microbial contamination of our seafood supply, including eight million gallons of oil released into the environment," he said. "People speculated that there were PCBs and DDTs floating around the streets of New Orleans because all the chemicals people kept in their garages and under their sinks were swept away during the floods, in addition to submerged cars and boats filled with gasoline along with a host of other things. This knowledge sparked concern for all of us."

Scientists at NOAA's Galveston Laboratory stepped in to help facilitate the operations, since other NOAA facilities in the path of the storm were severely damaged by Katrina. NOAA employees in Galveston organized staff and supplies and kept the operation on schedule, even as Hurricane Rita headed toward Texas, forcing many of them to evacuate.

After the crew debarked from *Nancy Foster*, the samples were flown to Seattle, Wash., and analyzed by Collier's staff at NOAA's Northwest Fisheries Science Center, which maintains one of the nation's premier toxicology laboratories.

"The main contaminants we looked for were things that could have been introduced into the marine environment by the hurricane, such as hydrocarbons from exposure to oil and PCBs and DDTs and other chemical run-off," said center director Usha Varanasi. She said scientists also tested the samples for bacteria contamination, since the EPA warned of dangerous levels of *E. coli* in the streets of New Orleans.

Varanasi's group has been analyzing samples around the clock, checking for signs of waterborne pathogens in the shrimp, fish, water and sediments.

In the six months since Katrina made landfall, NOAA has not found signs of chemical or bacterial contamination in excess of seafood safety standards in the marine samples collected and tested. The samples show that levels of these compounds are well below FDA guidelines for safe seafood consumption. In all, the agency has made a dozen cruises on the NOAA Ships *Nancy Foster* and *Gordon Gunter* and on the chartered commercial vessel *Patricia Jean*.

After complementary testing by the FDA, the EPA and the states of Louisiana, Alabama and Mississippi, Gulf seafood was deemed safe for human consumption on Dec. 6.

Overall, hundreds of samples of fish and shellfish from the waters affected by Hurricanes Katrina and Rita, from the estuaries of New Orleans to Gulf Shores, Ala., were sampled and tested. Sampling has included Lake Pontchartrain, Lake Borgne, Mississippi Sound and Mobile Bay, as well as the offshore areas of the northern Gulf of Mexico.

But the job isn't yet finished.

"Chemical contamination tends to work its way up into the food chain over time," Collier said. "It starts with the plankton, which gets eaten by small fish, which get eaten by larger fish. If chemicals are present, we could experience bioaccumulation over time."

Because of this phenomenon, NOAA continues its sampling program in the Gulf of Mexico to detect potential trends or changes that might occur over time.

NOAA also has been interested in learning what, if any, impact the hurricane had on fish populations in the Gulf.

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Snow Storm

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advance of the developing storm. Blizzard watches were issued from New York City to Boston.

Winter weather desk forecasters at the center issued graphics of the expected snow amounts for each 24-hour period over the next three days. The center also produced a graphic of the expected track of the storm. These became the basis for collaboration between the center and local weather forecast offices. All of the graphics were updated twice each day for the event as new model guidance became available.

On Friday, Feb. 10, while the surface low was still forming along the northern Gulf of Mexico coastline, the winter storm watches were upgraded to winter storm warnings from North Carolina and Virginia into New England, providing a 24-hour lead time. A blizzard warning was issued from New York City into southern New England.

The storm began to take shape as it reached Georgia on Saturday afternoon, dropping six to 10 inches of snow in the mountains of Tennessee and North Carolina. By late that evening, the storm had reached the Atlantic waters near the Virginia-North Carolina state line and began its rapid strengthening into a classic nor'easter while it paralleled the coastline.

Snow quickly spread through the mid-Atlantic states into the Northeast overnight Saturday, with the heavier bands developing along the I-95 corridor. By midday Sunday, the storm was just east of New York City. Snowfall amounts of eight to 15 inches had fallen over a large area from northern Virginia into southern New England. Blizzard conditions were felt from New York City to Boston, with

wind gusts above 35 mph and less than one-quarter-mile visibility. Airlines and roadways were brought to a standstill in some of the nation's biggest cities.

The storm's rapid strengthening brought several bands of convection with lightning and thunder, called "thundersnow," producing snow at the rate of four inches per hour in some places. On Sunday morning, one of these bands extended from New York City to Hartford, Conn.

The February nor'easter was the first winter storm to be categorized as "major" using the new Northeast Snowfall Impact Scale.

It contributed to a record-shattering 26.9 inches of snow at New York's Central Park, the most ever for a single storm in the park's climate records. In Hartford, a total of 21.9 inches broke the record of 21 inches set in 1983.

The nor'easter moved out to sea later that night, giving residents the chance to dig out the next day.

The February nor'easter was the first winter storm to be categorized as "major" using the new Northeast Snowfall Impact Scale, which NOAA made operational this winter. The scale is used by meteorologists to characterize and rank high-impact storms that bring 10 inches or more of snow over a wide area of the Northeast. The scale, which categorizes storms as notable, significant, major, crippling or extreme, was jointly developed by Paul J. Kocin, a winter weather expert at The Weather Channel, and Louis W. Uccellini, director of NOAA's National Centers for Environmental Prediction in Camp Springs, Md.

The Northeast index differs from others in that it gives an indication of a storm's societal impacts.

"It's not just how much snow falls, but where it falls," said NCDC meteorologist Mike

Squires. "Population is a big factor."

NCDC meteorologists collect the snowfall totals from observational sites and cooperative weather observers. The snowfall amounts are then quality-controlled and placed into the equation that creates the snowfall impact score. The larger the area of snowfall, the higher the amount of snow and the larger the population the snow has fallen onto will all contribute to a higher snowfall impact score.

Reports of more than 12 inches of snow were widespread across the region during the February storm, with the highest snowfall amounts from New York City to Connecticut. Using the new scale, forecasters ranked the nor'easter as having the twentieth greatest impact out of a sample of 32 storms that have occurred in the Northeast between 1956 and 2006. ☺

Gulf of Mexico

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A recently completed annual survey of shrimp and bottom fish shows some species, such as the commercially valuable and overfished red snapper, actually had a higher population in 2005 than in 2004. The survey found that the Atlantic croaker population doubled in 2005. Overall abundance of shrimp and bottom fish increased by about 30 percent from 2004 levels, with increases in Atlantic croaker, white shrimp and red snapper contributing much of the change.

"We were pleased to find that the hurricanes did not cause population declines of marine fish and shellfish," Murawski said. "The fact that we discovered large population growth for some species was a tremendous bonus," he said. ☺

Garry Guice

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renovated and activated *Fairweather* in 2004 and helped take it from an empty ship to one fully outfitted with firefighting gear, survival suits, tools and other equipment necessary to its smooth and safe operation.

Guice considers this the biggest challenge he's faced so far on *Fairweather*, and his biggest accomplishment.

"I couldn't have gotten the Employee of the Month award without my department and the other departments. For things to go smoothly on a ship requires teamwork. Without cooks, we don't eat. Engineers keep us warm. ETs keep the electronics working. Everyone's role is important. I couldn't have done it by myself."

Lowell said that *Fairweather* operates as if the personnel have been on board for many years, and that Guice's department is a model of operational effectiveness and efficiency.

"CB Guice is an exemplary supervisor and leads his department by example, fostering a spirit of cooperation and comradery in his department and throughout the ship," Lowell said. "*Fairweather* has been besieged with a multitude of challenges and setbacks since her reactivation. In spite of these challenges, Garry always forges ahead, searching for a workable solution and making the best of the situation, finding a way to get the job done. He sets the example for all personnel aboard the vessel and ensures that *Fairweather* is operating safely by pro-actively ensuring all personnel are properly trained and equipped for the safe performance of their duties. On every project, the principal investigators noted the Deck Department for outstanding support of their program."

Guice, whose NOAA career began in 1982 as a messman in *Fairweather's* galley, has served in a variety of jobs over the years, giving him a broad education in the workings of a ship. He even met his wife, Carolyn, on the ship, and her understanding of life on board, he said, has helped them weather the hardships of constant separation throughout their marriage.

When *Fairweather* was deactivated in 1988, Guice transferred to its sister ship, *Rainier*, and worked his way up to boatswain group leader and fill-in chief.

He left NOAA briefly for a stint with the Washington State Ferry in 1999. "That was the most boring job I've ever had, even though I got home every night," he said.

Guice returned to NOAA in 2000, and in 2004 was transferred to *Fairweather*, coming full circle in his NOAA career.

According to Guice, onboard conditions have changed for the better. "The ship is multi-platform and does charting, net tows and current meter deployment.

"We've improved habitability by going from four-person to one- or two-person rooms," Guice said. "Having more personal space is important after working 10- to 12-hour days. We all eat together, instead of being segregated like on the old ships. Even the skipper helps out wherever needed."

NOAA ships have gone from about eight months to ten months at sea per year, which has increased their productivity but taken a toll on many of the crew members.

"It's hard to be away from family so much, but it's part of the job," Guice said. "I joke about being institutionalized. We live in a 10 by six room. We live with the same people, room with them, work with them and have fun with them in port. For so many people to be able to get along in a whole year is very good." ☺

Troy Baker

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nate with our partners to complete these key documents," Baker said. "The regional restoration program is designed to make the natural resource damage assessment process more efficient. The idea is to do most of the planning in advance to make the process more transparent and cost-effective.

"NOAA chose Louisiana to implement the regional restoration program first because it is an area where a lot of oil spills occur," Baker said. "Although we have to approach each oil spill on a case by case basis, ultimately we hope that this program will take years off the restoration process."

"Troy has been doing an outstanding job, first in helping respond to the oil spill incidents and now leading the damage assessment efforts," said Tony Penn, Gulf branch chief of the Office of Response and Restoration's Damage Assessment Center. "He's also been leading the effort to finalize the Louisiana Regional Restoration Planning Program, which will facilitate restoration for the Katrina and Rita oil spills as well as other future spills. It's a privilege to work with such a hard-working, dedicated employee." ☺

The NOAA Report is a monthly publication for NOAA employees about the NOAA mission from the NOAA Office of Public, Constituent and Intergovernmental Affairs, Washington, D.C.

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