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NOAA Responds to Delaware Oil Spill

—By Glenda Powell

On Nov. 26, the 750-foot oil tanker *M/V Athos I* collided with an underwater obstruction in the Delaware River, tearing a six-foot gash in the ship's hull and spilling nearly 500,000 gallons of heavy crude oil. Two nuclear power reactors at the Salem Nuclear Power Plant in southern New Jersey, which draws water from the river, were quickly shut down due to the uncertainty of the effects of the spill.

As the oil moved down river at an unknown speed, posing an immediate threat to the surrounding Delaware, Maryland and Pennsylvania environments, the U.S. Coast Guard federal on-scene coordinator called on NOAA's National Ocean Service for help.

The task of figuring out when the oil would pass so that the reactors could restart fell to National Ocean Service scientific support coordinator Ed Levine, one of eight coordinators stationed around the country to support the Coast Guard following chemical or oil spills, terrorism or radiation emergencies.

"This all started when I received a phone call early in the morning of the 27th around 12:50 a.m. from the Coast Guard informing me of the spill," Levine said. "I immediately started making some phone calls, working with them to identify the sensitive areas of the river, those places that needed
continued on page 2

Bering Sea Shipwreck Spill Threatens Alaskan Islands

—By Jim Milbury

On Dec. 6, the 738-foot, Malaysian-flagged freighter *M/V Selendang Ayu*, bound for China with a load of soybeans and nearly half a million gallons of fuel oil, lost power in the Bering Sea in the middle of a raging winter storm.

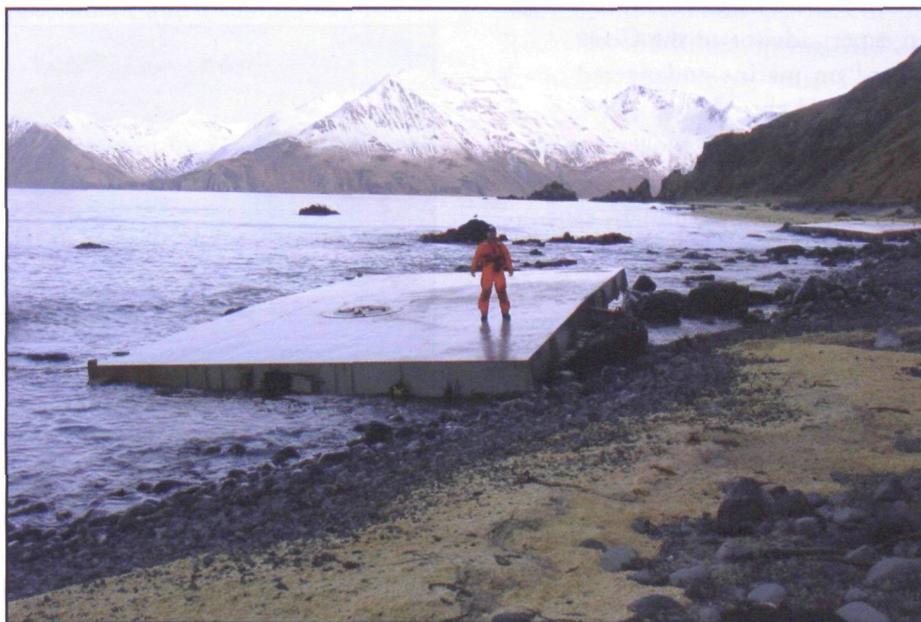
Gale-force winds began pushing the powerless ship toward islands within the Alaska Maritime National Wildlife Refuge, a haven for 250 species of birds, sea otters, northern fur seals and endangered Steller sea lions.

The next morning, the U.S. Coast Guard dispatched the cutter

Alex Haley to assist. Tug boats also were deployed to slow or stop the vessel's advance toward the environmentally sensitive islands.

John Whitney, a NOAA scientist from Anchorage, was on a break during a training seminar at the NOAA Office of Response and Restoration in Seattle when a colleague pulled him aside and informed him, "John, you've got a potential major oil spill in Alaska."

Whitney, the primary science advisor to the Coast Guard federal on-scene coordinators in Alaska for the past 20 years, went to the "war room" of the office's Hazardous
continued on page 2



John Engles/ADEC

NOAA physical scientist Marc Hodges stands on the hatch of the freighter *Selendang Ayu*, which wrecked off Unalaska Island in the Bering Sea. In addition to fuel oil, the ship spilled tons of soybeans, which can be seen littering the beach.

Bering Sea

continued from page 1

Materials Response Division to get an update from the U.S. Coast Guard marine safety office in Anchorage.

The information wasn't good. The ship was now about 35 to 40 miles offshore Unalaska Island, a land mass of approximately 80 square miles and home to Dutch Harbor, a port in the heart of the Aleutian Chain about 800 miles west of Anchorage.

"The vessel was drifting toward Unalaska Island, but the immediate concern was whether the wind would carry it into Bogoslof Island, a very sensitive area for marine mammals and birds," Whitney said.

Bogoslof Island, a 390-acre island between Unalaska and the drifting freighter, is one of the crown jewels of the refuge. The remote island is inhabited by fur seals, provides a rookery for endangered Steller sea lions and is a nesting habitat for nearly 100,000 marine birds.

Brad Smith, a biologist for NOAA Fisheries in Anchorage and an expert advisor to the Coast Guard on marine endangered species and their habitats, was closely tracking the movement of *Selendang Ayu* and the threat it posed to marine mammals, especially the Steller sea lions.

"We were really geared up to see what the trajectory of the ship was and if it was going to hit Bogoslof Island," Smith said. "It didn't; it missed, which gave us another 24-hour window before it might impact the northern side of Unalaska."

While Bogoslof Island was spared, Unalaska wasn't.

Despite attempts over the next several hours to stop the vessel from running aground on Unalaska, the *continued on page 6*

Delaware

continued from page 1

protection, like Little Tincum Island and several creeks in Pennsylvania and New Jersey."

Levine assured the Coast Guard that NOAA would be able to help the plant managers make the decision to restart the reactors. "It will probably take a couple of days to accomplish," Levine told the coordinator, "but we'll start working on this immediately."

The controlled shutdown of the two nuclear reactors was just one of the issues facing Levine and the team of NOAA employees responding to the *M/V Athos I* oil spill.

Upon arrival at the spill response command post in Philadelphia, Levine was asked to be the team lead of the environmental unit. "In this capacity I worked with the Environmental Protection Agency, the U.S. Fish and Wildlife Service, officials from Pennsylvania, New Jersey and Delaware, the responsible party and other NOAA agencies to plan how to address the cleanup of the

oil," Levine said. "The first step was to obtain the right information."

Levine flew over the spill in a helicopter to create maps of the location of the oil. "We provide information that is beneficial for creating a strategy to respond to the oil spill, such as a trajectory analysis that helps us anticipate where the oil will move and how long it will take to get there," he said.

NOAA's Office of Response and Restoration also provided a bio-assessment of the area taken before the spill that was used to gauge background and pre-spill conditions. NOAA also brought in personnel to assist with shoreline assessments and analyses of oil samples.

"The power plant detected oil in their intake screens," Levine said. "These screens have to stay clear because they act as a filter, keeping out garbage and fish. If these screens are blocked, it could cause severe problems to the reactor, eventually affecting the level of power to the community." *continued on page 6*



Robert Bauer/Pa.DER for NOAA

NOAA scientific support coordinator Ed Levine examines the shoreline of the Delaware River near Tincum Township, Pa., following the wreck of a tanker ship that spilled almost half a million gallons of crude oil.



Sarah Morison/NOAA

Michael Jarvis.

Michael Jarvis Is the Team Member of the Month

—By Glenda Powell

In his short time with NOAA's Office of Response and Restoration, January Team Member of the Month Michael Jarvis has succeeded in gaining the respect and admiration of his coworkers. "Mike is the quintessential behind-the-scenes team member," said office director David Kennedy. "He is willing to assist with whatever is needed and he does so willingly and cheerfully."

Jarvis earned a bachelor's degree in environmental studies and government from St. Lawrence University and a masters degree from the University of Delaware in environmental and energy policy. He then received a fellowship from the Oak Ridge Institute for Science and Education, which places recent graduates at federal agencies for up to three years.

Since coming to NOAA in 2003 as an ORISE postgraduate intern, Jarvis has been instrumental in improving overall coordination and in providing critical support to the Office of Response and Restora-

tion's programming, planning, budgeting and execution process. His work has helped to create an accurate program baseline assessment that helps define performance measures and assists in obtaining appropriate funding for department programs.

Jarvis' work on the programming, planning, budgeting and execution process is in addition to his regular duties as policy analyst. These include promoting overall staff coordination, sharing information critical to program operations and responding to urgent requests from NOAA headquarters. Jarvis is also responsible for increasing communication between the regional branches within the office's Damage Assessment Center, including the NOAA Habitat Program's Damage Assessment and Restoration Program.

"I really enjoy how my position allows me to work in one capacity or another with everyone in the office," Jarvis said. "It's a great way to learn about the program."

Jarvis' contributions were integral in the development of a common database for Damage Assessment and Restoration Program decision documents, addressing sensitive legal issues and ensuring usefulness of the information to a wide range of users. Thanks to his efforts, for the first time there is a complete and easily accessible inventory of decision documents.

"Everyone should have 'a Mike' on their team. He brings enthusiasm to every task, makes sense out of conflicting guidance and always comes through with a solid contribution," said Jarvis' supervisor, Pat Montanio.

Jarvis coordinated meetings and information for presentation to the program's board of directors, including case status, budget updates and other issues requiring

continued on page 8



Matthew Baldwin

Carol Baldwin.

Carol Baldwin Is the Employee of the Month

—By Jeanne G. Kouhestani

Through a mix of professionalism, creativity, self-motivation and interest, NOAA January Employee of the Month Carol Baldwin has reinvented herself.

Baldwin has been with NOAA for 25 years and with NOAA Marine and Aviation Operations in Rockville and Silver Spring, Md., for nearly 15 of those years. For most of that time she was a secretary. Now she is the office's graphics, desktop publishing and Web guru all rolled into one very busy employee.

Baldwin's professional evolution began in the late 1990s while working as secretary for Rear Adm. William Stubblefield, then the director of Marine and Aviation Operations. After taking an introductory class in desktop publishing, and in addition to her secretarial duties, she began producing the "Platform of the Month," which featured a NOAA ship or aircraft.

When Rear Adm. Evelyn Fields

continued on page 8

Focus On...

Disentangling a Dolphin

—By Dane Konop

NOAA research wildlife biologist Wayne McFee received a call Dec. 2 informing him that a young, female bottlenose dolphin had just been seen swimming in North Inlet, S.C., with a rope entangled around her neck and trailing behind her body.

This was a surprise. Entangled dolphins are usually found dead.

The 2 1/2-year-old calf, with her mother swimming protectively nearby, was spotted in North Inlet, just north of Georgetown, S.C., by Elizabeth Moses, a researcher and instructor at Coastal Carolina University and a member of the NOAA-supported marine mammal stranding network.

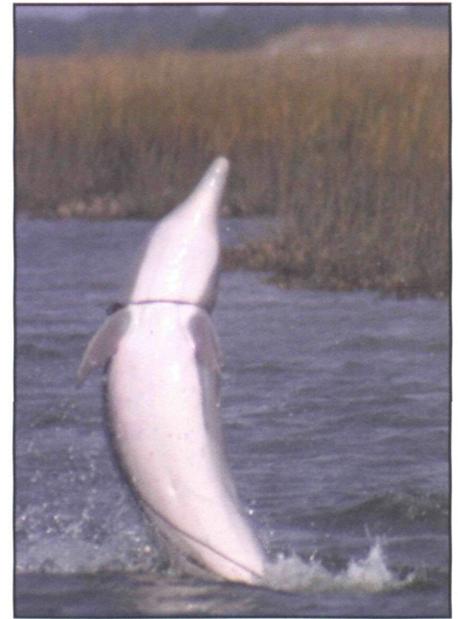
Moses was on a boat monitoring the inlet's resident dolphin pod when she first saw the plastic line, possibly a recreational crab pot mooring, noosed tightly around the calf like a lasso.

"There was no doubt the line wasn't going to come off by itself," Moses said.

But the threat to the young dolphin's life was not so clear in the first photos of the entangled dolphin that Moses sent to NOAA scientists. More evidence was needed before resources could be committed to saving the federally protected, but not endangered, animal.

Moses re-spotted the young dolphin, this time photographing the calf as she repeatedly breached the water in a vain effort to toss off the entangled line.

"Once I saw those pictures, I knew it was life-threatening because the calf was young," McFee said. "It's going to continue to grow and the noose was going to get tighter. Something needed to be done to get this off, and the only way we were going to do it was to capture not only the calf,



Elizabeth Moses/Coastal Carolina U.
A young bottlenose dolphin tries unsuccessfully to free itself from a line entangled around its neck and trailing behind.

but the mother because she's going to be next to the calf."

The mother and her calf are members of a small pod of dolphins that reside year-round in North Inlet. Moses had observed that the mother, named "Marge," had been keeping her entangled calf about 50 to 100 yards away from the pod to protect her and help her feed. This would also make it easier to capture only the calf and Marge.

On Dec. 10, McFee and others in the stranding network began converging at North Inlet. They were met by David Beresoff, a commercial fisherman from Bolivia, S.C., who was recruited to net the dolphins.

But the next morning, with four boats on the water ready to go, Mother Nature intervened.

"The weather was very poor. It was windy and very difficult to sight the animals and keep track of them," said Blair Mase-Guthrie, the NOAA Fisheries coordinator for the southeast marine mammal stranding network. The team continued its search until 3:30, when one of the boats broke down
continued on page 5



Elizabeth Moses/Coastal Carolina U.

After netting and disentangling the dolphin calf, members of the marine mammal stranding team examine it while its mother hovers protectively nearby.

continued from page 4

and operations were halted for the day.

They were back on the water again with three boats the next morning, and this time the weather cooperated with calm seas and water temperatures in the low 50s. Moses guided the group by radio from the deck of Beresoff's fishing boat.

One of the chase boats spotted the dolphins, then Beresoff saw that the mother and calf had moved away from the pod and were in shallow water on a sandbar in the inlet. "I saw a golden moment to wrap around the dolphins. The dolphin mother seemed to be pre-occupied paying attention to the other boats," Beresoff said.

While the two chase boats moved to block the open end of the net, "I just zipped in and ran around them," Beresoff said.

"The dolphins were at first panicky inside the net," Moses said. "The two chase boats were there, and pretty quickly the dolphins hit the side of the net. So about 10 people jumped into the water and lifted them up."



Todd Speakman/NOAA
Team members examine the young dolphin's wounds caused by the entangled line and knots.

"I grabbed a knife and cut the rope off the calf," McFee said. "Once we got the rope off, we got the net off both animals. When we did that, the mom threw everyone off and got back on the other side of the net."

Marge remained nearby while the stranding team got the calf out of the net and started checking her physical condition. Despite the

wound worn around her neck by the entangled line, the calf seemed to be healthy, with good respiration and with no apparent bleeding.

"We took blood to see if there was any kind of infection and to test for contaminants, such as heavy metals and pesticides, and tagged the calf so they could monitor it in the future," Mase-Guthrie said.

But when the calf's breathing began getting shallower, probably from stress, the team released it. "We got to the other side of the net with three people holding onto the calf and let it go," McFee said. "Mom and calf got right together and took off."

Nine days later, Moses spotted Marge and her calf in the inlet with the rest of the dolphin pod.

"They were closer now, about 20 yards to the group," Moses said. "The mother was close to the calf, but not glued to it. The most exciting thing was that the calf came over and rode on our boat wake for about 15 to 20 seconds. It must still hurt, but it certainly seemed to be swimming fine."

Then the dolphins disappeared into the inlet. ☺



Todd Speakman/NOAA
After taking a blood sample and placing a temporary tracking tag on its dorsal fin, the team releases the disentangled dolphin calf.

Delaware

continued from page 2

Oil spills react differently depending on the environment. In the ocean, oil generally flows in one direction with the currents. However in a tidal environment, such as the Delaware River, oil can flow upstream or downstream depending on the tide.

The NOAA team was not only faced with trying to track the oil, there was another problem.

"Generally, oil is lighter than water. But upon impact with the river bottom, a lot of the oil came out of the tanker and came in contact with the sediment on the bottom. The sediment mixed with the oil and made it heavy," Levine said.

The power plant managers faced the possibility that there was a giant mass of oily sediment on the river bottom. This caused them to shut down the plant's two operating reactors.

"It was much better to perform a controlled shutdown, where there was no rush, instead of waiting and being faced with an emergency situation," Levine said.

To determine the extent of the submerged oil, Levine and the NOAA team organized resources to scour the river, while other NOAA offices assisted. NOAA's National Weather Service provided local weather reports. NOAA Fisheries provided information on the river's endangered short-nosed sturgeons. The Ocean Service's Center for Operational Oceanographic Products and Services was on standby to provide real-time current and tidal information.

The Coast Guard also asked the Ocean Service's Navigational Response Team to assist the Army Corps of Engineers in searching for the object the ship struck. They were able to help locate the obstruction—a 15-foot, U-shaped

section of pipe—as well as an oil filled trench.

Additionally, the three-person crew of a 27-foot NOAA survey boat rescued five people from the frigid waters of the Delaware River after their small boat sank during a shoreline cleanup assessment.

"We tried using a number of high-tech methods to find the oil, including sonar," Levine said. "We ended up using a very low-tech method, but it worked. We attached an anchor to a rope and put a material on the rope that would absorb the oil. We dropped the anchor in the bay and waited a day or two. Once we pulled the anchor out of the water we were able to identify the location and depth of the oil."

There was a significant amount of oil found in the trench and on the shoreline. The team used a suction device to vacuum some of the oil from the trench, but much of the oil remained.

Levine also helped brief the news media that turned out to cover the oil spill, requesting information and interviews.

"I was interviewed by several news organizations, including ABC and Fox," Levine said. "They all had the same questions about the impacts to the wildlife, anticipated long term effects and questions about the submerged oil."

By the end of December, response to the spill was continuing, although slowed by winter weather. The reactors resumed operations, but were being monitored very closely for any continuing impact from the oil. NOAA response team members also continued to profile the river bottom, identifying additional pockets of oil. The capture and cleaning of impacted wildlife also continued.

A full response and restoration effort will start back up in the spring.

"The *M/V Athos I* spill was

unique because this is the first time that we ever had to shut down a nuclear power plant," Levine said. "This was something that none of us was expecting, but in this job you have to expect the unexpected." ☺

Bering Sea

continued from page 2

winds and waves proved too much for the tugs.

"One of the 3,000-horsepower tugs got a line on the vessel, but the ship is almost 740 feet long and has a tremendous sail area. It really couldn't stop it," Whitney said.

The towline slowed the vessel's drift, but eventually snapped under tension. The vessel's anchors also failed to hold it offshore.

During the evacuation of the ship's personnel, a Coast Guard helicopter crashed into the sea, resulting in the loss of six of the vessel's crew.

The ship went aground on the rocky outcroppings on Unalaska's northeast side at approximately 6 p.m. on Dec. 8.

Responders were hopeful that the fuel tanks would remain intact and could be emptied or lightered into another vessel before the hull was breached and an oil spill occurred. If the entire cargo of fuel oil was lost, it would be the largest oil spill in Alaska since the *Exxon Valdez* spill in 1989.

On Dec. 8, Whitney was on a plane from Seattle to Anchorage to receive a quick briefing. But before making the three-hour flight to Dutch Harbor, Alaska, to be part of the response effort, he received bad news.

"The very last thing before I left the Coast Guard office here in Anchorage was word that the vessel had split in half," he said. "We knew then that we had a spill and *continued on page 7*

Bering Sea

continued from page 6

it wasn't just a grounding that we were getting ready for."

Approximately 40,000 gallons of fuel oil were released when the ship broke in half.

Over the next several days, personnel from a multitude of federal and state agencies, along with maritime salvage experts from all over the world, gathered at Dutch Harbor in an effort to reduce and monitor the impact of the oil spill on the environment and to recover any additional oil that remained inside the ship's fuel tanks.

More NOAA personnel were brought in from across the country to help in the response and to address the safety concerns for people working in weather conditions that can be treacherous and extreme.

"The weather is just really a challenge," said Heather Parker-Hall, a NOAA scientific support coordinator from Alameda, Calif., who relieved Whitney before Christmas. "You have a very remote area in some of the toughest weather in the world."

Response personnel require exact weather information to conduct safe surveillance flights, access beaches, seek refuge when the weather is about to turn for the worse and to stay informed of potential tsunamis in the area.

For that expertise and responsibility, the responders looked in what may have seemed an unlikely location—the National Interagency Fire Center in Boise, Idaho.

The center is the duty station of Larry Van Bussum, a NOAA National Weather Service operations coordinator who heads up a team of 60 incident meteorologists who assist the U.S. Forest Service and other agencies during wildfires. Their expertise is also ideally suited

for assisting environmental responders.

Van Bussum was deployed to Dutch Harbor. "When the weather turns nasty out here, it's horrendous," he said. "It can just get ugly in a hurry."

Twice a day Van Bussum provided forecasts for winds, precipitation, cloud ceilings and wave heights to cover marine, public and aviation needs. He also took care of about a dozen "walk up" briefings each day for those people who were going to be flying or operating in various remote locations.

"It's dangerous for aircraft, and the winds are very dangerous for

"The weather is just really a challenge," said NOAA scientific support coordinator Heather Parker-Hall.

the ships out there," Van Bussum said. "I need to give them enough advanced notice of these events so that if they need to take cover they have time to get there; it can take them up to five hours to get to a position that's safe."

Van Bussum also monitored potential earthquake and tsunamis activity.

One of the groups that depend on Van Bussum's support is NOAA's Damage Assessment and Restoration Program. The program was created after the *Exxon Valdez* oil spill and is responsible for assessing and restoring natural resources injured by oil and hazardous substance releases.

John Cubit, a NOAA injury assessment coordinator from Long Beach, Calif., lead the damage assessment team of four people from Seattle, Silver Spring, Md., and Fairbanks, Alaska, in determining where the oil was, what resources had been exposed to oil and what resources were at risk.

"We send people ashore with cameras and notebooks as well as taking aerial photographs," Cubit said. "We worked in close coordination with the U.S. Fish and Wildlife Service and the State of Alaska's Department of Environmental Conservation."

Cubit's crew surveyed several hundred miles of shoreline using the Fish and Wildlife Service vessel *Tiglax* before going ashore to inspect the impacted areas on foot.

Cleanup of the oil also provided unique challenges.

"Normally you can just drive right up to the beaches where you need to go to," Parker-Hall said. "Here you can't do that, and even boat operations are very limited because the beaches are icy and the oil inside the sediment is a block of frozen sand, gravel, oil and seaweed. It's really tough to clean it up."

It's also difficult to see oil from the shoreline after it's covered by snow.

"And the waves are so intense here that a beach could be just ripped up by the waves, jumbled around and then re-deposited," Parker-Hall said.

Salvage operators attempted to locate and remove any oil that remained aboard the vessel by pumping the fuel to portable tanks on the stern of the ship and removing them by helicopter.

At year's end, the ship's bow section had sunk, and the ship's stern section, which was once listing, had leveled off, possibly because the hull was further damaged as it settled on the rocks.

It was still unclear how much oil had been spilled or how much remained on board the damaged ship. Responders were uncertain of the outcome.

"Basically, it's a volatile situation," Whitney said. "We really don't know how long the 'fuse' is." ☺

Baldwin

continued from page 3

became director in 1999, she brought her own secretary with her. Baldwin was, effectively, out of a job.

"I slid over into new areas, trying to fill in blanks as needed," Baldwin said. "No one here knew graphics or desktop publishing or the Web. So I just started learning it. I bought lots of books and did lots of reading on my own time.

"I was told to report to [then deputy director] Bob Taylor, and just started doing things that needed to be done. That's when I got into working on the Web. I started with a \$15 virtual university on-line course," she said.

Baldwin now manages the Marine and Aviation Operations headquarters Web site, plus additional sites for the Teacher at Sea Program, the Leadership Competencies Development Program and the NOAA Corps.

"Now I'm trying to learn programming so I can understand more about dynamic, interactive database-driven applications," she said. "I can even talk to my teenage son about computers, and we fight over who is going to get the neatest, latest and greatest stuff for our computers. I've become a real computer geek."

Baldwin's other big hat is desktop publishing, where her creativity really shines.

When tasked to design the Marine and Aviation Operations strategic plan by the then newly appointed Rear Adm. Fields, Baldwin pulled out instruction books and put in many hours at home to produce a polished and professional-looking 21-page product. In the process, Baldwin said, she learned a great deal about Photoshop and manipulating images.

"The part of my job that I love

the most is working with Photoshop and playing with pictures," Baldwin said. "Learning Photoshop for the job got me back into photography."

This love—and her willingness to sit in front of a computer screen for hours on end at home—led Baldwin into a new "calling" and a home business that she began in 2002. She creates cards and prints from macro-digital photographs taken primarily of flowers from her garden and of shells and beach debris taken during long walks along Puget Sound, where her mother and sister live. She magically transforms ordinary images into extraordinary art with the help of Photoshop, blurring the distinction between photography and watercolor painting.

"I love walking on the beach and collecting shells and other things and putting them all together to make collages. I want to do that when I retire. Doing graphics is bringing back some of the art courses I had in college."

The expertise she developed from this extracurricular study and practice has paid off for NOAA, as Baldwin now produces most of the office's visual materials, including fliers, posters, event programs, brochures, Power Point presentations and exhibits.

Baldwin sometimes has to drop everything else and work on critical short-term projects such as the new NOAA Corps directives, which were updated last spring and had to be quickly posted on the Web. She redesigned the Web site during evenings and weekends to accommodate the directives.

"The thing I like least about this job is that there just isn't enough time to learn and get everything done that I'd like to," Baldwin said. "After 30 years of working as a secretary, I'm finally doing something that utilizes my enjoyment of colors and working with images." ☺

Jarvis

continued from page 3

review by the board. He also helped develop a proposal to better align the Damage Assessment and Restoration Program with the new Habitat Program.

Jarvis coordinated the Damage Assessment and Restoration Program's input to the baseline assessment and annual operating plans and led the collection and input of material for the Habitat Program into the CasaNOSA system, which required extreme persistence and long hours.

"Mike is one of the fundamental building blocks of the Habitat Program," said program manager Rollie Schmitt. "He is absolutely dependable and always ready to help. I wish we could clone him."

"When I began working at NOAA, I had just received my graduate degree. Working at NOAA means a great deal to me because it has been a terrific way to gain experience in public administration and a great way to start my career in environmental policy," Jarvis said.

"This award is a wonderful surprise and a great way to start the New Year," he said. "I am extremely touched by this warm recognition." ☺

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