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June 2003

New, Converted Ships Modernize NOAA's Fleet

—By Jeanne Kouhestani

On May 20, NOAA took another major step in the modernization of the NOAA Fleet with the commissioning of the NOAA Ship *McArthur II* in Seattle, Wash.

McArthur II, a former Navy ship built in 1982, has incorporated the equipment and instrumentation of the 37-year-old NOAA Ship *McArthur*, which was decommissioned in a joint ceremony at NOAA's Pacific Marine Center.

The 224-foot *McArthur II*, which will continue the coastal work of its predecessor, also has the capability to conduct deep-water oceanography. Its acoustically quieted design makes it an ideal platform for marine mammal studies.

Over the past few years, NOAA has acquired five vessels from the U.S. Navy and converted them for research. These ships, which would otherwise have been taken out of service, are on average about one-third the age of the NOAA ships they've replaced.

For years the aging of the fleet has been of concern. Old ships are costly to operate and maintain, and other ship technology has not kept abreast of the expanding needs of NOAA programs. In the past few years, NOAA has begun to modernize the fleet with the help of the Navy and through new ship construction.

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Week of Tornadoes in May Sets Record

—By Keli Tarp

From May 4-11, the central United States experienced a record-breaking week of tornadoes, when approximately 386 twisters occurred in 19 states and caused 41 deaths, according to NOAA's National Weather Service. Four of these tornadoes have been rated as causing F4 damage, with winds from 207 to 260 mph.

Thanks to early watches and warnings from NOAA's Storm Prediction Center in Norman, Okla., and many Weather Service forecast offices and NOAA's emergency management and television meteorological partners, citizens

were ready when a relentless pattern of severe weather spawned multiple rounds of devastating tornadoes.

In the first 10 days in May, 412 tornado reports were received by the Storm Prediction Center. This preliminary count is the highest for the first 10 days in May since 1950, when record-keeping began, and wipes out the previous record of 177 tornadoes in 1999.

The monthly total also set a record with 562 tornado reports. This represents a record for number of tornadoes reported during any month in the contiguous United States.

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Steve Kruckenberg/NOAA

Richard Smith, warning coordination meteorologist in the Norman, Okla., weather forecast office, broadcasts a live severe weather briefing on NOAA Weather Radio May 8 to central and western Oklahoma and western north Texas. An F4 tornado later tracked across the Oklahoma City metro area, followed by a second tornadic supercell in north central Oklahoma.

NOAA's Channel Islands National Marine Sanctuary Christens R/V *Shearwater*

—By Sarah Marquis

On May 12, NOAA christened the R/V *Shearwater*, a new 62-foot, high-speed Technicraft aluminum-hull catamaran research vessel that will serve the California national marine sanctuaries.

"It's a big ship in a small package," said Daniel J. Basta, director of NOAA's National Marine Sanctuary Program. "It's a platform to help us do our science so we can understand our marine environment."

Over 100 people joined in the morning celebration in the Santa Barbara, Calif., harbor, the vessel's homeport and the headquarters for the Channel Islands sanctuary, including NOAA staff and partners, student Argonauts from the Jason Project, sanctuary volunteers and civic leaders.

The christening ceremonies marked the culmination of more than two years of detailed vessel design and supervised production for NOAA's Channel Islands National Marine Sanctuary.

"The R/V *Shearwater* will usher in a new level of research capability for both Channel Islands and the California sanctuaries," said Capt. Ted Lillestolen, associate deputy assistant administrator for NOAA's National Ocean Service. "It is the first research vessel built specifically for the sanctuary use. It took a dedicated team effort, including sanctuary researchers and marine specialists, to make it possible."

Calling R/V *Shearwater* "a critical investment in the agency's ongoing work to protect the Channel Islands National Marine Sanctuary," U.S. Rep. Lois Capps said, "This vessel shows NOAA's commitment to the Santa Barbara area."

"*Shearwater's* design provides enhanced capabilities for on-board science and data collection, plus increased stability and speed needed for management and research at the sanctuary," said sanctuary manager Chris Mobley.

Paul Gow, naval architect with PK/Marine, Moorpark, Calif., developed the specification requirements for the vessel contract. The detailed design was accomplished by Nic deWaal of Technicraft, Inc., Auckland, New Zealand. George Ringstad of Discovery Marine Services, Edmonds, Wash., did on-site construction inspection and engineering consultation for the project.

"The result is a vessel ideally suited for oceanographic research in the waters off of California," said sanctuary research coordinator Sarah Fangman, who coordinated the design and production of R/V

Shearwater with the builders. "We were delighted to work with the boat builder, All American Marine, and all those who contributed to the successful completion of this research vessel.

"The vessel's A-frame and winch configuration are used for a variety of projects including conductivity, temperature and depth casts, sediment sampling, and towing equipment, such as sides-scan sonar and remotely operated vehicles.

"The wet and dry laboratories allow onboard processing of samples and data," she said.

R/V *Shearwater* holds 24 passengers and has a top speed of 24 knots and a cruising speed of 20 knots. The vessel's power system is designed for sensitive scientific equipment and to ensure scientific data are not lost due to power surges or interruptions.

The vessel's bridge electronics include two radars, a differential global positioning system, an autopilot and an acoustic water column and bottom mapping system. ☺



Sarah Marquis/NOAA

U.S. Rep Lois Capps christens the R/V *Shearwater* as Dan Basta (right), director of NOAA's National Marine Sanctuary Program, and others look on.



Angela Dubois/NOAA

Sabrina Varnam.

Sabrina Varnam Is the June Employee of the Month

—By Ben Sherman

Sabrina Varnam, NOAA's June Employee of the Month, is never far from a boat. She comes from a fishing family and continues the boating tradition at the Center for Coastal Fisheries and Habitat Research of NOAA's National Ocean Service in Beaufort, N.C., where she is a lead field technician.

Varnam is responsible for coordinating aircraft over-flights and small boat support for a joint NOAA-NASA mission to survey phytoplankton biomass in North Carolina's Pamlico-Albemarle Sound. Pamlico-Albemarle Sound is the largest lagoonal estuary in the U.S. and supports more than 85 percent of the recreational and commercial species in the South Atlantic Bight during some stage of their development.

This project is designed to survey the entire estuary system and provides valuable information that aids in managing non-point source nutrient loading. The success of the field project depends

on having clear, calm weather. Selecting sampling times when the weather will cooperate can be daunting in North Carolina coastal regions, particularly during the spring when rain and high winds are common.

"Sabrina's knowledge of coastal weather patterns, combined with information from NOAA's National Weather Service, plus her many years of experience on and around the water help her select the often short time periods when the fieldwork can be successfully accomplished," said her supervisor, Pat Tester. Varnam often has less than 24 hours to identify a favorable sampling time and coordinate air and sea support. The time periods are selected to coincide with NASA's SeaWiFS satellite over pass if possible.

Once a sampling time slot has been selected, Varnam first negotiates with the duty officer at the U.S. Marine Corps' Cherry Point control tower to get permission to access the restricted air space that includes much of the sampling region. Once airspace clearance is received, Varnam contacts NOAA's Aircraft Operations staff. They are responsible for flying the mission with the Twin Otter observation aircraft.

NOAA's twin engine plane is equipped with sophisticated instruments provided by the NASA facility at Wallops Island, Va. The goal is for both the plane and an ocean color observation satellite to be overhead at the same time. Varnam is leading a crew to collect water samples for validation of the instrument signals. Each of the survey missions, of which there are four planned in the current project, lasts from eight to 12 hours as the vessel crew tries to cover as much of Pamlico Sound as possible.

"They can be really long days," Varnam said. "Our main target is *continued on page 8*



Zina Finkelshteyn

Larisa Brandler.

Larisa Brandler Is the Team Member of the Month

—By Dane Konop

Larisa Brandler, a software developer in the Administrative Systems Division of NOAA's Finance and Administration in Germantown, Md., and the June Team Member of the Month, epitomizes the American immigrant success story.

In 1991, Brandler and her family were forced to immigrate to the United States from the former Soviet Union. Today, she's the person behind the new, easy to use Web-based NOAA National Locator, NOAA's E-Learning System and other administrative programming achievements.

Her success in the U.S. has not come easily. When Soviet authority began to unravel in the late 1980s, Brandler and her family, along with other Jewish families, were under constant threat of attack by thugs in Moscow because of their ethnic background.

"When democracy came," Brandler said, "all that hatred that *continued on page 8*

Focus On...

NOAA's Monterey Bay Sanctuary "Snapshot Day" Goes Statewide

—By Rachel Saunders

It is difficult to comprehend the scope of a coast-wide water quality monitoring event. But by all accounts, Snapshot Day 2003 was a huge success.

The event, held on Saturday, May 17, brought out 679 volunteers to test the quality of an estimated 565 water bodies—rivers, creeks, streams and sloughs—that flow into the ocean along the California coast.

Launched in NOAA's Monterey Bay National Marine Sanctuary in 2000, Snapshot Day for the first time extended beyond the boundaries of the sanctuary to include water bodies throughout

California's coastal watersheds, making it one of the largest one-day simultaneous water quality monitoring events in the history of California.

"It keeps growing in popularity," sanctuary superintendent William J. Douros said while helping at one of several kick-off events Saturday morning. "Each time, there is an outreach benefit and it helps to build an environment of respect and stewardship of coastal streams and respect for the ocean."

Key elected officials from the region also made time to attend Snapshot Day. California state Sen. Bruce McPherson, California

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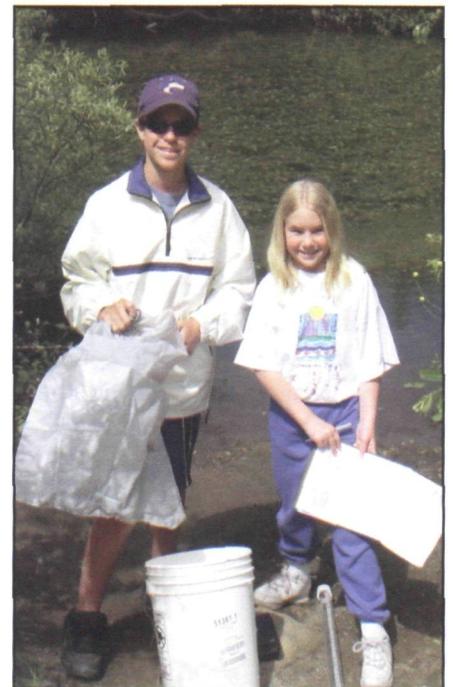
Brad Damitz/NOAA

Volunteers recruited by the Coastal Watershed Council sample Wilder Creek in Wilder Ranch State Park in Santa Cruz County.



Dawn Hayes/NOAA

Snapshot Day volunteers Kelly and Daniel Palacios take water samples at Hudson's Landing in the Elkhorn Slough.



Don Hoover

Volunteers Brian and Tera Hoover take samples of the Big Sur River.

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Assemblyman John Laird, Santa Cruz Supervisor Ellen Pirie and Santa Cruz Mayor Emily Reilly all expressed their gratitude to the event organizers and especially the volunteers for giving their time to learn about and monitor their local watersheds.

This year's expanded statewide event was directed by the Monterey Bay Sanctuary Foundation and supported through funding from the U.S. Environmental Protection Agency, California State Water Resources and the Monterey Bay National Marine Sanctuary.

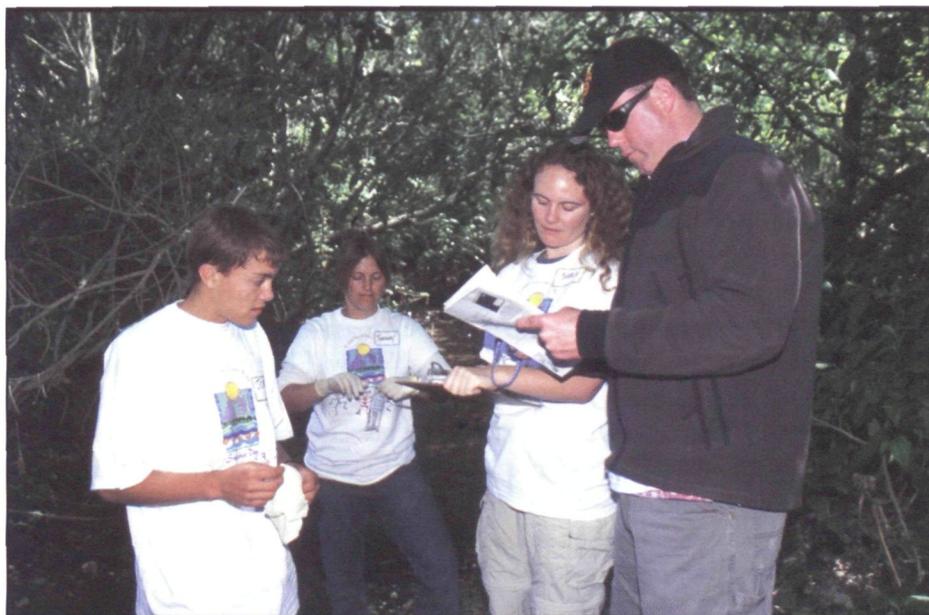
Key collaborators in the event included the Santa Cruz-based Coastal Watershed Council and the Ocean Conservancy, both co-sponsors of the first Snapshot Day, and the California Coastal Commission.

Within the eleven major watersheds that drain into the Monterey Bay National Marine Sanctuary, 164 sites were monitored by 156 people. Water bodies as diverse as urban drainages, brackish sloughs and major river systems were monitored. Teams measured dissolved oxygen, pH, conductivity, temperature and transparency/turbidity. These are all measures of the health of a water body and its ability to support fish and other aquatic organisms.

At first glance, most if not all of the sites monitored on Snapshot Day appear to fall in the "healthy" range.

Water samples were also collected for laboratory analysis of nitrate, orthophosphate and bacteria. While these constituents are naturally occurring in nature, excessive concentrations, usually introduced by humans, can be harmful to both human health and aquatic organisms. High levels of bacteria can cause illness in humans.

"Snapshot Day helps people gain



Brad Damitz/NOAA

Chris Coburn (right), Monterey Bay sanctuary water quality protection program director, and volunteers review data collection protocols at Wilder Ranch State Park.

a better understanding of the natural systems around them and empowers individuals to evaluate their impact on the Earth," said Bridget Hoover, coordinator for the Monterey Bay Sanctuary Citizen Watershed Monitoring Network.

"They gain a sense of ownership and responsibility to keep their waterways clean and they spread

that message to family, friends and co-workers," she said.

For some of the volunteers, Snapshot Day has been an annual event. For others, it will now become one.

When volunteers left Monterey, their parting words were "see you next year!" For Hoover, that was a real sense of accomplishment. ☺



Dawn Hayes/NOAA

Snapshot Day volunteers pose for a class photo before heading out to sample in Monterey County.

Modern Fleet

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The end of the Cold War netted NOAA a bonanza. The Navy no longer needed its nearly new T-AGOS submarine detection ships and has over the past decade transferred four of them to NOAA. A fifth was acquired through the U.S. Coast Guard. As government assets, all came at no cost.

These ships are more cost efficient as well as more habitable for the crew and scientists, who may spend months at a time at sea.

With the exception of the NOAA Ship *Ronald H. Brown*, acquired new in 1997, the Navy ship transfers have thus far had the largest impact on the fleet.

Ka'imimoana and *Gordon Gunter*, the first T-AGOS ships received, were commissioned in 1996 and 1998, respectively.

The fleet has gone through some major changes in the past year alone. Last month, NOAA decommissioned the 37-year-old hydrographic ship *Whiting* and replaced it with the 10-year-old Navy T-AGOS ship *Littlehales*, acquired in March. This was the first hydrographic ship transferred to NOAA.

Littlehales will be renamed *Thomas Jefferson* when it is commissioned later this year. The ship began operations in mid-May.

The Navy T-AGOS vessel *Indomitable*, acquired last December, became *McArthur II*. Marine and Aviation Operations put *Littlehales* and *McArthur II* into service almost immediately by installing equipment and transferring the crew off the older ships to the newer ones.

In January, the Navy T-AGOS vessel *Adventurous* was commissioned *Oscar Elton Sette*, replacing the 39-year-old fisheries ship *Townsend Cromwell*, decommissioned in October.

The 34-year-old NOAA Ship

Ferrel, decommissioned last November, was replaced by the Navy vessel *Agate Pass*, renamed *Nancy Foster*. *Foster*, currently supporting NOAA projects, will be commissioned this summer.

NOAA has also obtained the Navy T-AGOS vessel *Vindicator*, which was originally transferred to the Coast Guard.

"We will begin conversion of *Vindicator* later this year and have the vessel ready for operations in fiscal year 2005," said Bob Taylor, deputy director of Marine and Aviation Operations, which operates and manages the fleet. "*Vindicator* will be an addition to the fleet, not a replacement vessel, and will primarily conduct coral reef research in the Hawaiian Islands region. The ship will be renamed *Hi'ialakai*, which means 'embracing the sea.'"

Though obtaining the Navy vessels has been an important factor in modernizing the fleet, these ships haven't all been a perfect fit for NOAA program requirements. T-AGOS ships convert well to conduct oceanographic research, but cannot meet all the requirements for fisheries work.

New fisheries survey vessels that meet stringent international standards will form the backbone of the future fisheries fleet. Four such ships are planned. The first, *Oscar Dyson*, is under construction at VT Halter Marine, Inc., of Moss Point, Miss., and will be launched this fall. *Dyson*, an addition to the fleet, will operate from its home port in Kodiak, Alaska, beginning in 2005. Funding for the second ship has been obtained and the option with Halter to begin construction will be awarded soon. That fisheries survey vessel will replace *Albatross IV* in Woods Hole, Mass., in late 2006.

"These fisheries survey vessels are needed to meet very specific data collection requirements of NOAA

Fisheries and acoustic quieting in accordance with tough international sampling standards," Taylor said. "They also have the combined capabilities of doing heavy trawling and environmental data collection, something the T-AGOS ships can't do, and that is unavailable in the private sector."

Another ship that will shortly be under contract is a SWATH (small waterplane area twin hull) hydrographic vessel that will replace the 37-year-old NOAA Ship *Rude*. The SWATH will be home ported in Portsmouth, N.H., where the joint NOAA-University of New Hampshire Hydrographic Center is located. The vessel, designed as a stable platform for charting work, will conduct surveys and be used for training and equipment development programs. A request for proposals for its design and construction will be announced soon, with the vessel expected to be operational by 2006.

"Because these ships were still operational when they were transferred to NOAA, we could put them into use almost immediately using the operating funds allocated for the ships they replaced," said Rear Adm. Evelyn J. Fields, director of NOAA Marine and Aviation Operations and the NOAA Corps.

"We missed the fiscal year 2005 budget cycle as far as getting funding for conversion, but the ships still can operate with the same capabilities as the older ships," she said. "We will target the fiscal year 2006 budget process to get funding for some minor structural conversions for more lab space, more berthing for scientists and other changes that will optimize the ships to best meet NOAA's specific needs. Meanwhile, we've got platforms that are more modern and reliable, less expensive to operate and maintain, and far more comfortable and spacious for those who live on board." ☺

Record Tornadoes

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States. It eclipses the old official monthly record of 399 tornadoes set in June 1992. The previous May record was 391 tornadoes during May 1995.

The previous most active week on record was May 12-18, 1995, when there were 171 tornadoes.

Forecasts and warnings have improved significantly in the 29 years since the "Super Outbreak" of April 3-4, 1974, when 147 tornadoes were reported in 13 states over 16 hours. The Super Outbreak killed 307 people, compared with 42 this month.

In remarks to members of Congress recently, Weather Service deputy director John Jones reported that Weather Service employees on the front lines in forecast offices were "working non-stop through the week's dangerous weather events." He also pointed out that "the infusion of new science and technology along with a cadre of experienced forecasters in the field" helped the Weather Service issue warnings that undoubtedly saved many lives over the record week.

Jones added that NOAA partnerships with the research community, federal, state and local governments, and with the broadcast media made it possible for the Weather Service to issue warnings that gave people time to take shelter.

The preliminary average warning lead time provided for the early May tornadoes was about 19 minutes, well above the current average of 11 minutes.

From May 4 through May 8, 3,447 warnings were issued, including 826 tornado warnings, which is the most in any five-day consecutive period going back to 1986, when the Weather Service verification database began.

The record May tornado outbreak, which ultimately killed 41 people in Kansas, Missouri and Tennessee, began on a Sunday afternoon and night, when tornadoes did significant damage in several states.

Pierce City, Mo., was demolished.

An F4 tornado in western Tennessee killed seven people in mobile homes before it hit Jackson, in Madison County, where it caused extensive damage and claimed two more victims.

Memphis forecast office staff issued a tornado warning for Madison County and Jackson at 11:13 p.m. CDT, 13 minutes before the tornado touched down and 22 minutes before it entered Jackson.

The Kansas City forecast office staff issued 25 tornado warnings with an average lead time of 34 minutes.

The Springfield, Mo., forecast office issued 39 tornado warnings through the course of Sunday's outbreak, with an average lead time of 31 minutes.

On May 6, the same day federal

disaster declarations were made for seven counties in Kansas and 39 in Missouri, another outbreak of tornadoes struck 13 states in the central and southern U.S.

The Storm Prediction Center recorded 50 reports of tornadoes, 151 other wind damage reports and 249 large hail reports; yet no deaths resulted from the storms.

The most extensive damage occurred in De Soto (Jefferson County), Mo., and in portions of southern Illinois and western Kentucky.

The 921 warnings (218 tornado warnings) issued by Weather Service forecasters on May 6 was the largest one-day total since record keeping began.

On May 8, an F4 tornado that swept through the Oklahoma City, Okla., metropolitan area injured more than 100 and destroyed 300 homes in Moore (Cleveland County), Okla. One man died from injuries he received while seeking shelter.

The tornado lead time was 21 minutes for Moore residents and 30 minutes for those in south Oklahoma City. ☹



Rubble is all that's left of a home destroyed by an F4 tornado that struck the Oklahoma City, Okla., metro area May 8.

Michael Magsig/NOAA

Varnam

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measuring levels of the chlorophyll and optical properties of the water. There are, however, a range of ancillary measurements taken at the same time such as turbidity, colored dissolved organic material, total suspended solids, pH, dissolved oxygen, salinity and temperature."

Back at the Center for Coastal Fisheries and Habitat Research in Beaufort, Varnam, a biological technician, is also responsible for analyzing data after each mission. Once the observation data are organized and analysis is completed, Varnam forwards the results to Tester and others throughout NOAA, to state water officials in North Carolina and eventually to the public through seminars, regional forums and scientific journals.

With so much detail and coordination necessary to ensure a successful outcome of each mission, the pressure on Varnam is high. Still, she approaches her work with a combination of humor, patience and dedication.

Asked what she enjoys about her work, she doesn't hesitate to say, "Everything. But the best part is being able to go out into the field, being right there collecting the data instead of crunching it on the computer. You're right there!"

As for her Employee of the Month award, Varnam said she was surprised but delighted to have her efforts recognized. She learned of it while in Belize on a joint NOAA-Smithsonian Institution project.

"She is the real key to our field operations as the leader of our field team," Tester said, "and her enthusiasm for her work propels everyone to a higher level of performance. It is wonderful to have someone you don't need to urge to go into the field. She's a real professional." ☺

Brandler

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was suppressed by the totalitarian regime just came out on the street. It was scary and dangerous."

Brandler, a teacher and vice principal, said the family was financially secure but that she constantly feared for their safety. The police, she said, were no help as they could easily be paid off to look the other way. The family lived barricaded in their own home.

"Wooden doors would not stop automatic weapons fire, so we had to install a steel door," Brandler said matter of factly.

Although she had a master's degree in linguistics and spoke German and several other languages fluently, she did not speak English very well. Her first job in America was as a temporary employee stuffing envelopes for a State Department contractor.

Although she minimizes her plight and feels "blessed" compared to other immigrants, she admitted, "It was difficult for us. The kids were little back then. We had three elderly people who were unemployed because of their age. I was getting \$7 an hour and my husband was getting \$7 an hour, and we had to support eight people."

She worked hard at her job and at improving her English. In less than a year she had mastered English well enough to be promoted to team leader, a full-time position with benefits that doubled her salary.

Brandler jumped from one job to another, including working as a translator. A law firm where she worked as a paralegal was developing computerized legal applications. The firm trained her as a computer programmer and gave her her first job in data management.

About four years ago, she began working for Keane, Inc., an infor-

mation technologies company that has a computer support contract with NOAA.

"I basically redesigned a lot of NOAA Web applications, which were developed ten, 12, 15 years ago," she said.

Larry S. Sparks, chief of the Administrative Systems Division, said Brandler works on front-end applications, "possesses outstanding technical and software development project skills" and is very user-oriented.

"She's real good at designing and presenting screens that present information to the system user in a very coherent manner," Sparks said.

There's no certainty that Keane's contract will be renewed next fiscal year, he said.

But as to Brandler, Sparks said, "I'd like her to stay on forever. I wish I had a lot more [employees] like her. She makes me look good to my boss."

Brandler feels her life has come full circle in her new homeland. She said she and her family are financially secure and, perhaps most importantly, have rediscovered their faith.

"I like everything about this country," she said. "We have a house. Everyone has a car. Everyone has a job. We are living the American dream." ☺

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