USGS

Sound Waves

Coastal Science and Research News from Across the USGS

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Fieldwork

California Sea Otter Numbers Slide for Second Straight Year

By Gloria Maender

Equipped with binoculars and spotting scopes, scientists and skilled volunteers paired up onshore for this year's spring survey of California sea otters. Other crews were airborne. Together, they scanned 375 mi along the California coast, from Half Moon Bay southward to Santa Barbara, during the month of May.

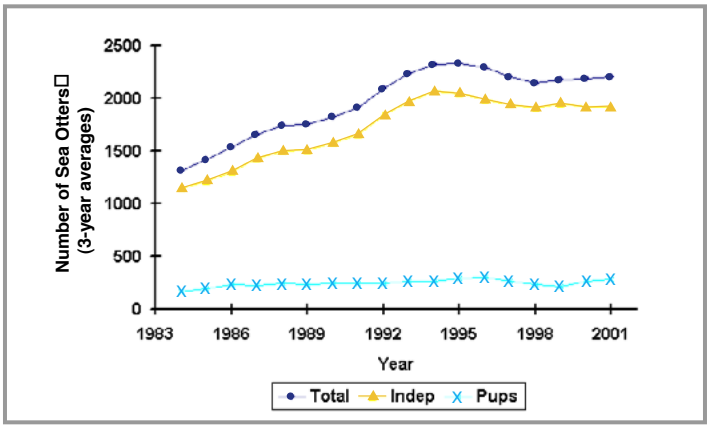
This year's sea otter tally showed a decline for a second consecutive year, according to U.S. Geological Survey (USGS) researchers who led the survey, which was conducted cooperatively with the California Department of Fish and Game, the Monterey Bay Aquarium, the U.S. Fish and Wildlife Service, and other agencies and organizations. The number of otters counted in the recently completed spring survey was 1 percent below last year's count, from 2,161 otters in 2001 to 2,139 in 2002. The 2001 survey also indicated an overall decrease from the previous year, but by 6.7 percent.

Researchers and managers are concerned about the overall slow rate of growth for the threatened California sea otter. Cooperative research efforts are ongoing to try to understand why the otter's recovery has stalled since reaching 2,377 individuals in the 1995 survey. USGS scientists developed the standardized methods for counting California sea otters that have been in use since 1982. Spring surveys of the otters indicate a growth rate of about 5 percent until 1995. Since then, the rate has declined by an average of about 1 to 2 percent per year.

To further examine the data, the researchers used graph points computed by averaging three consecutive years of survey data (see graph). "Three-year running averages of our spring survey data plot a decline from about 1995 to 1998, then a

(Sea Otters continued on page 2)

Raft of male sea otters in Elkhorn Slough, CA. The California sea otter population has decreased for a second consecutive year, according to last May's annual sea otter survey. Photograph by ***Warren Worthington****.*



Number of sea otters counted during spring surveys, plotted as 3-year running averages. (Example: value for 2001 is the average of the 2000, 2001, and 2002 counts.) Indep, independent.

Sound Waves

Editor
Helen Gibbons
Menlo Park, California
Telephone: (650) 329-5042
E-mail: hgibbons@usgs.gov
Fax: (650) 329-5198

Print Layout Editors
Susan Mayfield, Sara Boore
Menlo Park, California
Telephone: (650) 329-5066
E-mail: smayfiel@usgs.gov; sboore@usgs.gov
Fax: (650) 329-5051

Web Layout Editor
Trent Faust
St. Petersburg, Florida
Telephone: (727) 803-8747 Ext. 3043
E-mail: tfaust@usgs.gov
Fax: (727) 803-2030

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Deadline: The deadline for news items and publication lists for the August issue of *Sound Waves* is Tuesday, July 16.
Publications: When new publications or products are released, please notify the editor with a full reference and a bulleted summary or description.
Images: Please submit all images at publication size (column, 2-column, or page width). Resolution of 200 to 300 dpi (dots per inch) is best. Adobe Illustrator© files or EPS files work well with vector files (such as graphs or diagrams). TIFF and JPEG files work well with raster files (photographs or rasterized vector files).

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leveling off of the population from then to the present," says survey organizer and compiler **Brian Hatfield**, a USGS biologist at the Western Ecological Research Center Field Station in San Simeon, CA.

The recent decline and lack of growth coincide with an increase in mortality, as indicated by the number of beach-cast sea otter carcasses. Since 1995, a relatively high number of dead otters have washed ashore; in 2001, there were 183 sea otter strandings, **Hatfield** notes. Through the end of May of this year, scientists had documented 92 strandings—a pace already exceeding the number that were stranded last year. Necropsies of these otters tell the researchers the fate of at least some of the animals.

"Of special significance is the loss of young and prime-age adults needed to replace mature otters. Young adults are dying at a high rate," says **Jim Estes**, a research ecologist at the USGS Western Ecological Research Center Field Station in Santa Cruz, CA.

Entanglement or entrapment in coastal fishing gear, starvation, disease, and contaminants may all have contributed to the recent sea otter decline, says **Estes**, who has studied sea otters and their role in kelp forests in California and Alaska for the past 30 years.

The survey information gathered by this cooperative effort is used by Federal and State wildlife agencies in making decisions about the management of this sea mammal. ❁

Coring to Study Sediment Dispersal in Lake Mead, Nevada

By Dave Twichell

Launching of the barge used during the USGS/UNLV coring program in Lake Mead.

USGS scientists and their colleagues completed 10 days of coring at Lake Mead, NV, in early June 2002. This coring program is part of a cooperative research effort between the USGS and the University of Nevada, Las Vegas (UNLV), to understand the processes of sediment dispersal in this large manmade reservoir, which lies behind Hoover Dam on the Colorado River. Sediment and sediment-hosted pollutant dispersal in the lake are of interest to several State and Federal agencies responsible for its management. Interest is peaking owing to a significant drop (more than 40 ft) in lake level over the past 2 years, causing shallow-water deltaic deposits to be remobilized and distributed deeper into the lake. Although some of the classic work on density flows and turbidities was already done in Lake Mead, systematic geophysical mapping and companion ground-truth sampling had not been conducted before this cooperative program.

Participants in the fieldwork included **Ken Parolski**, **VeeAnn Cross**, and **Dave Twichell** (USGS, Woods Hole, MA), **Keith Ludwig** (USGS, St. Petersburg, FL), **Mark Rudin**, **Brenda Buck**, and **Robyn Howley** (UNLV), and **Tom Hixon** (St. Thomas University, Minneapolis,

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MN). The field program was conducted during a reportedly cool spring, when daily high temperatures reached only 98–112^0 F. **Ken** oversaw the completion of a coring barge that UNLV and the National Park Service put together, and he provided technical support during the cruise. **VeeAnn** interfaced the seagoing GIS (geographic information system) with the navigation system and then spent much of her time with the GIS group at the Bureau of Reclamation, integrating our geophysical data with their multibeam bathymetric data. The collaborative effort to pool data and research results between these two agencies is leading to a central, publicly available GIS for research on Lake Mead. **Keith** oversaw the Rossfleder vibracoring system brought from St. Petersburg, FL, and trained the rest of us in its operation. **Dave** delivered a presentation to officials from the Bureau of Reclamation and the National Park Service before the cruise, and served as the program's chief scientist.

Cores were collected only in the western part of Lake Mead, with the primary focus on Las Vegas Bay. Runoff from the city of Las Vegas enters Las Vegas Bay, and geophysical data suggest that sediment associated with runoff is transported down the axial valley of this bay (as density flows) to the deep part of the lake. Some of the cores were split before the end of the field program. All of these cores penetrated the post-impoundment sediment (deposited after the lake was created) and as much as 1 m of the underlying pre-impoundment gravel. Post-impoundment sediment thickness in the cores closely matched the thickness inferred from seismic data. Graded silt and sand beds in the post-impoundment sediment indicate that density flows are actively transporting sandy sediment beyond the delta and significant distances into the lake. ❁

(From left to right) ***Dave Twichell*** *(USGS),* ***Mark Rudin*** *(UNLV),* ***Tom Hixon*** *(St. Thomas University), and* ***Brenda Buck*** *(UNLV) deploying the vibracorer during the coring program in Lake Mead.*

Sediment Study to Improve Salmon and Trout Habitat in Northern California Reservoir

By Jon Childs

From May 10 to 30, Coastal and Marine Geology Program (CMGP) staff participated in drilling the sediment of Englebright Lake, a reservoir behind Englebright Dam on the Yuba River in northern California. This research addresses the possibility of modifying the dam in order to improve salmon and trout habitat in the lake.

Harry L. Englebright Lake is in the foothills of the Sierra Nevada between Marysville and Grass Valley off California Highway 20. The 260-ft (80 m) Englebright Dam was completed in 1941 for the primary purpose of impounding anticipated hydraulic mining waste. However, gold mining in the Sierra Nevada was halted during World War II and never resumed. Today, the lake serves primarily as a recreational facility.

Englebright Lake is the central subject of the Upper Yuba River Studies Program (UYRSP), a research effort funded by the Calfed Bay-Delta Program, which supports not only drilling and other operating expenses, but also staff salaries. The objective of the UYRSP is to "develop a comprehensive plan to restore ecological processes, habitats, and species within the Yuba River drainage," directed at anadromous fish species, primarily spring-run chinook salmon, steelhead trout, and fall-run chinook salmon.

The principal investigator for CMGP's study of Englebright Lake sediment is **Noah Snyder** (Santa Cruz, CA), a new USGS postdoctoral researcher who earned his Ph.D. at MIT. **Noah** is working on this study as part of the Coastal Watershed Restoration Project. The principal objective of

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The DOSECC (Drilling, Observation and Sampling of the Earth's Continental Crust, Inc.) drill rig.

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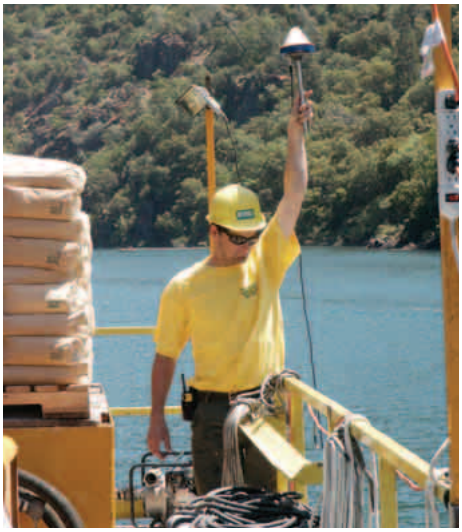
his work is to map the reservoir sediment in three dimensions. The three-dimensional sediment-distribution map will be used to calculate sediment transport out of the reservoir under several proposed dam-management scenarios. Principal collaborators on the project are **Charlie Alpers** and **Lorri Flint**, both with the USGS' Water Resources Discipline (WRD) in Sacramento, CA. Other collaborators include **Chuck Holmes** (CMGP, St. Petersburg, FL), **Jim Bennett** (WRD, Denver, CO), and **David Topping** (WRD, Flagstaff, AZ).



***Noah Snyder** holds a GPS (global positioning system) antenna to record the precise location of a core.*

Drilling of Englebright Lake sediment was conducted under contract to DOSECC (Drilling, Observation and Sampling of the Earth's Continental Crust, Inc.), a consortium of universities, national laboratories, and a State (Illinois) geological survey. The contractors used the GLAD500 (Global Lake Drilling 500) system, a diminutive version of the GLAD800 platform, also known as the research vessel *Kerry Kelts*.

*(Left to right) **Brad Carkin**, **Homa Lee**, and USGS volunteer **Don Woodrow** on their way to the drilling platform. **Brian Edwards** is behind the camera.*

Before the drilling program, bathymetric surveys, geophysical surveys, sediment sampling, and bottom photography were carried out by a CMGP team that included **Larry Kooker**, **Pat Hart**, **Gerry O'Brien**, **Tom Reiss**, **Mike Boyle**, **Hank Chezar**, and **Jon Childs** (Menlo Park, CA).

The drilling program recovered a total of about 300 m of core from 22 holes at 7 sites, in sediment that ranged in grain size from silt to sand to gravel. Total thickness of postdam sediment in the locations cored ranged from 6 to 31 m. The cores are to be analyzed for sediment composition, geochronology, and mercury and gold contents.

In mid-May, **Homa Lee**, **Brian Edwards**, **Dave Rubin**, **Brad Carkin**, and volunteer **Don Woodrow** visited the lake to observe the GLAD500 drilling system in action and to assess its applicability to other CMGP projects.❁

Students Tour M/V *Auriga* in Redwood City, CA

By Helen Gibbons

On June 13, about 40 students from Emerson School in Palo Alto, CA, toured the motor vessel (M/V) *Auriga* at the Coastal and Marine Geology Program (CMGP)'s Marine Facility (Marfac) in Redwood City, CA. The 146-ft contract vessel had arrived at Marfac on June 10 for installation of equipment and portable workshops, labs, and offices for USGS scientists preparing to run geophysical surveys off Southern California.

Dave Hogg, **Carol Reiss**, **Ray Sliter**, and **Terry Bruns** greeted the students and gave them tours of Marfac and the *Auriga*.

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***Ray Sliter** addresses students on the M/V* Auriga.►

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Ranging from fourth to eighth grade, the students were impressed by all that they saw, and several asked whether they could drive the 40-ton crane used to lift equipment onto the vessel. They accepted the inevitable answer ("no") with good grace.

The following day, June 14, the *Auriga* headed down the coast to run geophysical surveys in support of fault studies off Santa Barbara and Los Angeles.

***Dave Hogg** answers students' questions on the M/V* Auriga.

Richie Williams' Presentation at Thomas Jefferson National Accelerator Facility Now on Videotape

By Becky Deusser

Last winter, **Richie Williams** (Woods Hole Field Center) gave a presentation entitled "Iceland: Dynamic Land of Ice and Fire" at the Thomas Jefferson National Accelerator Facility (Jefferson Lab) in Newport News, VA, as part of the Jefferson Lab Science Series. The Jefferson Lab is managed and operated by the Southeastern Universities Research Association (SURA) for the U.S. Department of Energy. A videocassette recording of the presentation has recently been added to the Jefferson Lab's science-education library.

News About Upcoming Benthic-Habitat Symposium

By Peter Barnes

The preliminary program and field-trip and registration information for the Symposium on Fishing and Benthic Habitats, focused on mapping and understanding benthic-habitat change (geologic and biological), is available as of July 1 at URL **http://walrus.wr.usgs.gov/bh2002/**. Staff and others with benthic-habitat interests should check out the program and consider registering for the symposium.

The symposium, to be held for 3 days this November in Tampa, FL, has grown to 2 to 3 times the size we initially planned, with more than 150 abstracts. It also has become wonderfully national and international in scope, with Federal, State, stakeholder, and academic participation. Sponsors of the symposium are the USGS, the National Oceanic and Atmospheric Administration (NOAA), the Ecological Society of America, and the American Fisheries Society. Scientists at all three centers of the USGS' Coastal and Marine Geology Program (CMGP) have roles as organizers and contributors, as do scientists in the USGS' Biological Resources Discipline (BRD).

The list of invited and contributed oral and poster presentations shows USGS participation from the Director's Office, from several projects in CMGP, and from BRD studies in Alaska, the Gulf of Mexico, and the Great Lakes. Field trips are scheduled to visit the USGS' Center for Coastal and Regional Marine Studies in St. Petersburg, FL, and study sites of the Tampa Bay Project.

Peter Barnes (**pbarnes@usgs.gov**) would welcome questions, comments, or suggestions regarding the symposium.

African-Dust Study Highlighted at Conference on Climate Change and Health Effects in the Caribbean

By Chris Kellogg

The Pan American Health Organization/World Health Organization (PAHO/WHO), under the auspices of the Interagency Network on Climate and Human Health, hosted a 2-day conference and 3-day workshop on climate change and human health in Barbados, West Indies, from May 20 to 25. Supporting agencies included the U.S. Environmental Protection Agency, the National Aeronautics and Space Administration (NASA), the World Meteorological Organization, the U.N. Environment Programme, and Health Canada. The meeting brought together weather

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and climate professionals and members of the public-health community from a host of Caribbean countries. The main objectives of the conference were

- to inform health scientists, practitioners, and officials of the impacts of climate variation and long-term climate change in the Caribbean region
- to integrate health-relevant sectors (for example, water resources, agriculture, and fisheries)
- to introduce strategies in coastal-zone management that relate to sewage disposal and other health issues
- to foster joint interdisciplinary research projects among local participants, as well as scientific partnerships between developed and developing nations
- to promote the incorporation of global, regional, and national climate information into planning for public-health services at the national level

The first 2 days of the conference featured presentations on various subjects relating climate change to human health. These presentations gave the workshop participants background information on subjects ranging from El Niño to dengue fever and satellite data. **Christina Kellogg** from the USGS' St. Petersburg Center for Coastal and Regional Marine Studies (CCRMS) was invited to give a 15-minute

Caribbean scenery from the meeting site.

presentation entitled "Characterization of Microbial Communities Associated with African Desert Dust and Their Implications for Global Human and Ecosystem Health." In her talk, **Christina** discussed how African-dust influxes to the Caribbean region have increased over the past 2 decades as a result of a lengthy positive-phase North Atlantic Oscillation. Kin to the Pacific Ocean's El Niño, the North Atlantic Oscillation is an alternation of high- and low-pressure systems over the North Atlantic that is considered positive when high pressure near the Azores is abnormally strong and low pressure over Iceland is abnormally deep. Among the many effects of the positive phase is an increase in the strength of easterly trade winds that bring dust from Africa into the subtropical Atlantic. **Christina** described some of the viable microbes that have been cultured from African dust, which seasonally blankets the entire Caribbean and parts of the Southeastern United States. These microbes include plant, animal, and opportunistic human pathogens, with obvious implications for ecosystem health (coral reefs, island flora and fauna) as well as human health. **Christina** also served as a resource person during the workshop segment of the conference, as participants worked together to create a document summarizing current and future needs for the Caribbean region with regard to understanding and planning for climate-variation issues.

More information about the conference is available on the World Wide Web at URL **http://www.pahocpc.org/whatsnew/climate_health_conf/chcw.htm**. More information about the USGS African-dust project can be found at URL **http://coastal.er.usgs.gov/african_dust/**.

PAHO (Pan American Health Organization) logo.

Woods Hole Field Center Hosts Open Discussion on Regional Syntheses

By Becky Deusser

On May 24, the Woods Hole Field Center (WHFC) hosted an open discussion about regional syntheses in the Coastal and Marine Geology Program. The discussions were led off by two presentations: **Steve Eittreim** (Menlo Park, CA) on "Regional Synthesis in Central California and Beyond; Regional Synthesis Status and Plans," and **Debbie Hutchinson** (WHFC) on "The Knowledge Bank Status and Plans, and Links with Regional Synthesis." The open discussion addressed several questions, including how the Regional Synthesis project relates to the National Knowledge Bank and the National Assessment projects.

St. Petersburg Scientists Speak at Meetings in Reston, VA, and Washington, DC

Bob Halley of the USGS' Center for Coastal and Regional Marine Studies (CCRMS) in St. Petersburg, FL, was in Reston, VA, and Washington, DC, during the week of June 3 to attend a Coral Reef Workshop hosted by the House Oceans Caucus. Formed in 1998 to be a voice in Congress on diverse ocean issues, the House Oceans Caucus now has participation from more than 50 lawmakers from both major political parties.

Bob gave a preview of his talk "Coral Reefs and Global Change: Long-Term Responses in Florida and the Caribbean" to a standing-room-only crowd in St. Petersburg on May 30. While in Washington, **Bob** also met with **Jean Michel Cousteau**. You can read more about the workshop and see quotes from **Bob** at URL **http://voanews.com/** (click "Advanced

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Search" bar on left and search for "coral" on date "06/13/2002" to find article "US Congress Considers Bill to Preserve Coral Reefs," June 13, 2002).

Dale Griffin (CCRMS) presented his recent work on African dust at "Healthy Ecosystems and Healthy People: Linkages Between Biodiversity, Ecosystem Health, and Human Health," held in Washington, DC, June 6-11. You can learn more about this conference at URL **http://198.66.13.200/hehp/**.

Congratulations to Poster Awardees at Remote-Sensing Conference

By Lisa Robbins

USGS scientists and their collaborators won awards for their poster presentations at the 7th International Conference on Remote Sensing for Marine and Coastal Environments, held in Miami, FL, on May 20-22. **Georgia De Stoppelaire** and **John Brock** (USGS, St. Petersburg, FL), **Chris Lea** and **Mark Duffy** (National Park Service, Assateague Island National Seashore), and **Bill Krabill** (NASA Goddard Space Flight Center's Wallops Flight Facility, Wallops Island, VA) presented "Horse Grazing Effects on American Beachgrass and Geomorphological Change at Assateague Island National Seashore." **Damaris Torres-Pulliza** and **John Brock** (USGS, St. Petersburg, FL) and **Serge Andréfouët,** (Institute for Marine Remote Sensing, University of South Florida, St. Petersburg) presented "Assessment of Hyperspectral AISA Imagery for Benthic Habitat Mapping: Anniversary Reef, FL." The awards ceremony and closing ceremony on the last day were led by the Wednesday Master of Ceremony, **Lisa Robbins**, chief scientist at the USGS' Center for Coastal and Regional Marine Studies in St. Petersburg, FL. Note that **John Brock** and his team were in full force at the meeting, with 11 posters, and remained in Miami to make presentations at the 5th International Airborne Remote Sensing Conference, held May 22-24.

Sea-Survival Course in Woods Hole, MA: You Want Me to Do What?

By Erika Hammar-Klose

Woods Hole Field Center scientists and their Woods Hole Oceanographic Institution colleagues prepare to leave the dock.

On April 26, Woods Hole Field Center (WHFC) staff, including **Sarah Fuller**, **Erika Hammar-Klose**, **Dave Mason**, **Caroline Roberts**, **Kathy Scanlon**, **Rob Thieler**, **Dave Twichell**, and **Bill Waite**, willingly jumped from a Woods Hole, MA, dock into chilly New England water—wearing "Gumby suits" (cold-water survival suits), of course!

This exercise was the culmination of a daylong course called "Sea Survival for Oceanographic Scientists," offered by the Woods Hole Oceanographic Institution (WHOI)'s Safety Office. The course was taught by **Joe Murphy** and **Ken Irving** (Massachusetts Maritime Academy), **Steve Trimmer** (Maritime Training International), **Joe Mokry** (Ocean Rescue Systems), and **Chuck Carter** (U.S. Coast Guard Helicopter Rescue Swimmer).

The morning classroom session consisted of lectures on general boat safety, hypothermia safety, and fire safety. The hands-on afternoon session included practice with fire extinguishers, the ins and outs of a PFD (personal flotation device), how to enter the water safely while wearing a PFD, and, finally, the jump off the dock. The eight WHFC folks donned some pretty old "Gumby suits," many of which had a few leaks. Once in the water, the group learned how to maneuver in a suit, how to paddle around individually and in a train, and, finally, how to enter a life raft. It was a challenging and fun course that is now highly recommended for all seagoing staff.

***Bill Waite** helps **Sarah Fuller** into the life raft. Other students from the USGS' Woods Hole Field Center are bobbing nearby.*

Dave Russ Visits Woods Hole Field Center for New England Coastal Ecosystems Planning Session

By Becky Deusser

Dave Russ (USGS Eastern Regional Geologist) visited the Woods Hole Field Center (WHFC) from May 21 to 23, 2002. During his visit, **Dave** spoke at an all-hands meeting on several topics, including science planning, BASIS+, the New England coastal-ecosystem focus-area concept, and the New England coastal-ecosystems meeting. **Dave** toured the WHFC Marine Operations Facility with team members from the USGS' Water Resources Discipline. He also toured the National Marine Fisheries Service aquarium in Woods Hole, MA. **Dave** attended meetings with folks from the Woods Hole Oceanographic Institution and the U.S. Army Corps of Engineers. ❁

Woods Hole Field Center Welcomes New Employees

Seth Ackerman began an ECO (Environmental Careers Organization) internship on June 10 in Woods Hole, replacing **Jill Rozycki**, who has taken a job as an environmental analyst for Palm Beach County, Florida. **Seth** will be working with **Kathy Scanlon** on studies of shelf-edge habitats in the Gulf of Mexico. He has a B.S. in geology from Tulane University and just completed his M.S. in geological sciences at the University of South Carolina (thesis title: "Subsurface and Surface Evidence for a Fault-Control Origin of the Southern Blue Ridge Escarpment in Georgia and South Carolina").

Kate Visser has joined **Eric Sundquist**'s project as an Earth Science Intern to provide lab, field, and GIS (geographic information system) support, as well as data analysis and literature searching for research on carbon geochemistry. **Kate** will also help with various outreach activities related to carbon and climate research. She is a graduate of Boston University and holds an M.S. in geological sciences from the University of South Carolina. She says she's looking forward especially to relating her interests in paleoceanography to **Eric**'s work on the geologic history of the global carbon cycle.

Olya Boldina joined the Woods Hole gas-hydrates group in early June to analyze strength and permeability tests of gas-hydrate-bearing sediment in the GHASTLI (Gas Hydrate and Sediment Test Laboratory Instrument) facility and to help set up a data base. In addition to making casts of sediment containing natural and laboratory-formed gas hydrate for scanning-electron-microscope analyses, she will participate in sediment analysis aboard the French research vessel *Marion Dufresne* during a giant-piston-coring cruise in the Gulf of Mexico in July. **Olya** received a B.S. in geology and is working on an M.S. in environmental geology at the Moscow State University in Russia. ❁

New Student Interns in St. Petersburg, FL

The USGS' Center for Coastal and Regional Marine Studies in St. Petersburg, FL, recently welcomed two new student interns who are working there this summer.

Keyla Marin comes from the University of Puerto Rico at Mayagüez, where she is a student in a 5-year program in electrical engineering and a participant in the Partnership for Spatial and Computer Research, sponsored by the National Oceanic and Atmospheric Administration (NOAA). She will also graduate with a certificate in remote sensing and geographic information systems (GIS). **Keyla's** prior professional experience includes a summer working for the USGS as a hydrologic technician in Austin, TX. This summer, she is working with **John Brock** and **Tonya Clayton** in St. Petersburg, FL, preparing time-series animations of Chesapeake Bay satellite imagery and compiling ancillary data. **Keyla** enjoys travel and, as a serious museum buff, is delighted to be working less than a block from the world-famous Salvador Dali Museum!

Keyla Marin

Lance Mosher

Lance Mosher is a summer intern from Eckerd College in St. Petersburg, FL, where he has just completed his freshman year as a double major in physics and geophysics. His recreational interests include skiing, movie-watching, and playing: playing guitar, playing pool, and playing Frisbee among the fire ants. His previous professional experience includes work at Eckerd College's Wallace Boathouse plus a summer as (in his words) chief "copy monkey." This summer, **Lance** is working with **Tonya Clayton** and **John Brock**, processing lidar data collected in national seashores and pitching in as a jack-of-all-trades wherever needed. (Both **Keyla** and **Lance** promise not to ask for too much time in front of the copy machine!) ❁

Woods Hole Field Center Labs Pass Environmental Audit with Flying Colors

By Ellen Mecray

The USGS's Woods Hole Field Center (WHFC) underwent an environmental audit on June 5 and 6, 2002, performed under a USGS contract to the U.S. Army Corps of Engineers CERL (Construction Engineering Research Laboratory) group. This group has been auditing the Department of Defense since 1987 to ensure the safe handling of chemicals and waste by the Federal Government. The USGS is inspecting all facilities to be compliant under environmental laws.

WHFC was notified of the audit in summer 2001. The decision to conduct an audit was based on findings from an Environmental Management Review by the U.S. Environmental Protection Agency's Region I team in 1999. Since 1999, members of the USGS WHFC team have been working to improve workplace and environmental

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safety. A program was started to ensure that all waste paper, glass, plastic, rechargeable batteries, and metal are directed to the appropriate recycling facilities; team members volunteer to collect and transport the materials. Other steps have been undertaken under the guidance of **Ellen Mecray** (WHFC chemical hygiene officer) and **Larry Poppe** (WHFC environmental safety officer). **Larry** and **Ellen**, along with **Ray Davis**, serve as Collateral Duty Safety Officers who report to **Wayne Martin** (Regional Safety Officer, Reston, VA).

In recent months leading up to the audit, laboratory and warehouse personnel worked intensely to prepare the facility for inspection. Monthly laboratory meetings were called to communicate concerns, provide training, and ensure that paperwork was completed. Signs and labels were ordered for doors, safety-book locations, wash bottles, and cabinets. Shelves and storage areas were checked for chemical compatibility, flammable items, and general clutter. Several key employees, **Sarah Jablonski**, **Flavia Wood**, and **Jennifer Moore**, took charge of many of these tasks. The degree of preparation for the audit would not have been possible without the care and attention of these individuals.

Auditors visited each laboratory work area, selected offices, and the entire warehouse facility. Drawers were opened, cabinets were checked, storage and disposal of chemicals were examined, and employees were asked questions regarding their experimental methods and objectives. After what was called the shortest, most successful audit to date, all of the laboratory employees were brought together for the audit's outbriefing. The contractor and the Regional Safety Officer shared their findings and their impressions with the team. The WHFC successfully passed the audit with only five minor errors, which is "the least number of findings in any audit they have performed to date." ❁

Award-Winning Student is USGS Volunteer in St. Petersburg, FL

Stephan Meylan has joined the Center for Coastal and Regional Marine Studies in St. Petersburg, FL, as a summer volunteer. **Stephan** just completed 7th grade at Shorecrest Preparatory School in St. Petersburg. In February and May, **Jack Kindinger** and **Dale Griffin** participated as judges in the Regional and State Science Fairs and presented two USGS awards to outstanding students. One of the students was **Stephan** (see article in March 2002 *Sound Waves*). His science-fair project demonstrated use of a ground-water model to understand how plumes migrate from injection-well sites to surface waters and how confined layers control movement. As a USGS volunteer, **Stephan** has already helped put together three presentations for **Peter Swarzenski**, who attended the American Society for Limnology and Oceanography (ASLO) conference held June 10-14 in Victoria, British Columbia, Canada. ❁

Stephan Meylan

Contaminated Sediment Off Palos Verdes, CA, the Subject of a Special Issue of *Continental Shelf Research*

By Homa Lee and Helen Gibbons

The April/May 2002 issue of *Continental Shelf Research* reports the results of an interdisciplinary, USGS-led study of contaminated sediment off the Palos Verdes Peninsula, on the southeastern margin of the greater Los Angeles metropolitan area. During the 1950s and 1960s, the world's largest producer of DDT was connected to the Los Angeles County sewer system, which collects and treats wastewater that is then discharged through an ocean outfall just south of the Palos Verdes Peninsula. Significant quantities of DDT from the manufacturing plant entered the waste stream and were deposited on the Palos Verdes margin.

Release of DDT waste from the manufacturing plant to the sewer system was stopped in the 1970s, and subsequent discharges from the outfall have deposited sediment with low levels of contamination above the highly contaminated deposit. However, biological, chemical, and physical processes have modified and partly mixed the sediment, introducing contaminants from the deeper part of the deposit into surface layers. Both benthic and pelagic organisms in the area have displayed elevated levels of DDT in their tissue. Reproduction of the brown pelican off southern California was severely reduced owing to egg-shell thinning caused by excess levels of DDT in tissue. Warnings against consuming White Croaker fish are still posted along the shores of the Palos Verdes Peninsula because of their high DDT content, and bald eagles continue to experience difficulties in reproduction owing to egg-shell thinning.

Extensive studies of the contaminated sediment deposit were conducted by the Southern California Coastal Water Research project (SCCWRP), the Sanitation Districts of Los Angeles County (LACSD), and others through the 1970s and 1980s. In the early 1990s, a large, new research effort, led by the USGS, was undertaken off

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the Palos Verdes Peninsula in support of a lawsuit filed by the U.S. Department of Justice against the DDT manufacturer. Most of the papers in the special issue of *Continental Shelf Research* describe work conducted as part of this investigation.

Edited by **Homa J. Lee** (USGS, Menlo Park, CA) and **Patricia L. Wiberg** (University of Virginia, Charlottesville), the special issue is entitled "Sedimentation Processes, DDT, and the Palos Verdes Margin." Its many authors include nine USGS scientists honored last summer by the Department of Justice for describing the nature and extent of the contamination, as well as its potential fate and transport, in support of the lawsuit against the DDT manufacturer (see article in August 2001 *Sound Waves*). ❁

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