Spring 2004

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Upwelling

Newsletter of the Friends of Hatfield Marine Science Center **www.hmsc.oregonstate.edu/friends**

Senator Hatfield Opens Third Annual SeaFest

A day of discovery awaits visitors when HMSC opens its doors for the third annual SeaFest event on Saturday, June 19, 2004. The opening ceremony begins at 10am in front of the Visitor Center main entrance, with welcoming remarks from Oregon State University President Ed Ray and Senator Mark O. Hatfield.

A full schedule featuring scientific exhibits, lectures, demonstrations, guided tours and children's activities is planned for the day. In an effort to better orient visitors and enable them to see more of what is on display, plans for this year's SeaFest include more exhibitors located on the front lawn and in the Barry Fisher (NOAA) Building, which is being called the "Science Zone". Teams of researchers representing OSU and agency partners at HMSC will be on hand to interact with the public and answer questions about the 23 scientific exhibits inside showcasing a wide array of research and applications.

Although the R/V Wecoma is at sea and will not be back in Newport until June 25, visitors to the dock will be able to visit the R/V Elakha and see demonstrations of oceanographic instrumentation hosted by the College of Oceanic and Atmospheric Sciences.

While many exhibits aim to capture the attention of children and adults alike, several activities designed especially for younger visitors will take place in the education wing, renamed the "Kids' Zone" for SeaFest. Pre-kindergarten to 3rd graders will enjoy discovering who lives where and who eats who while exploring different ocean habitats and food chains in Sea to Shore Explorers. Story time, fish printing, paper making, and a coastal-themed crafts workshop are also on the schedule.

The idea of hosting an "open house", where the public could tour the labs, talk with scientists and learn more about research conducted at HMSC was initiated by Oregon Sea Grant in 2002. Modeled after a similar event that for years has been hosted by the University of Delaware at its coastal campus,

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HMSC Receives NSF Funding to Provide Research Experience for Undergraduates

The Hatfield Marine Science Center was awarded a 3-year grant from the National Science Foundation grant to provide undergraduates with a mentored research experience, beginning in June 2004. The Research Experience for Undergraduates (REU) program at HMSC aims to recruit particularly bright students from diverse backgrounds and orient them toward graduate school and ultimately careers in marine science.

The program focuses on two scientific themes representing a cross section of the diverse research activity at HMSC: Biology and Ecology of Marine Organisms; and Marine Geology and Biogeochemistry. OSU faculty researchers and scientists from partner agencies at HMSC will be serving as mentors for the students, helping them develop research projects, practice scientific methods, gain laboratory and field experience and learn new skills.

Over 55 applications were received from all over the country for the 8 research internship positions offered this summer. Interns are provided with housing on-site, a weekly stipend, and round-trip transportation costs from their home institution. Students selected for this summer's program will be coming from as far away as Providence, Rhode Island, and as nearby as Corvallis. For some, it will be their first time in the Pacific Northwest.

By the end of the 10-week program, all of the research interns are expected to produce a scientific paper and make a presentation explaining the results of their research.

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Director's Message

Dear Friends,

Welcome to the first issue of the Friends of HMSC newsletter. I had hoped that this would by now be established as a more regular form of communication with you, our community of friends and supporters. Alas, it is just the start. After this fledgling issue, we plan this newsletter to be sent three times each year. In the future we will be sharing more information on our interns and graduate student research, highlighting HMSC staff and volunteers, and alerting you about upcoming events, like special lectures and Visitor Center programs.

This first issue is temporarily called "Upwelling", and there is a hint of irony in this name. Upwelling is the scientific term for the upward transport of cold nutrient-rich water from the deep ocean to shallower levels, which produces optimal conditions for diverse sea life to flourish. I like the word's allusion to a diverse, highly productive environment, which I think aptly describes the Hatfield Marine Science Center community. But there is more than a little irregularity to the upwelling dynamic. It is influenced by the variability of winds and climatic conditions, which could also be said (metaphorically) for our first year efforts to get programming for the Friends group off the ground. We will decide on a final name by the next issue, and welcome your suggestions.

With two new hires in my office in the past seven months, I'd say we are looking at more favorable wind conditions in the months to come. Some of you have already met Ken Hall, who joined HMSC as Program Manager in the Fall, and who has been helping with the development of the HMSC strategic plan, preparations for SeaFest, our new summer research internship program, and editing this newsletter. Monita Cheever came on board in February as Administrative Assistant in the Director's office, and is already becoming a familiar face and voice to those of you who have called or stopped in recently. Monita coordinates room reservations, schedules, travel, and a host of other front office responsibilities.

Along with suggestions for a permanent name for the newsletter, we also ask for your suggestions for content. While we have no shortage of information to report, let us know what you find most interesting. Feel free to send an email (hmscdirector@oregonstate.edu) or call (541 867 0212) with any ideas. As we activate the Friends of the HMSC, we will be developing special events and opportunities, so watch subsequent issues of this newsletter and check the website (http://hmsc.oregonstate.edu/friends).

Best wishes, and hoping to see you at SeaFest,

George Boehlert
Director, Hatfield Marine Science Center

HMSC Scientists Return from 2004 Submarine Ring of Fire Expedition to Western Pacific

Submarine Ring of Fire 2004 expedition science team and crew. *(Photos courtesy of NOAA Explorations)*

More than half a mile below the ocean's surface, galatheid crabs and shrimp graze on bacterial filaments on a bed of hydrothermal mussels.

An international team of scientists including five researchers based at HMSC recently returned from a historic expedition to study undersea volcanoes along the Mariana Arc in the western Pacific Ocean. Bob Embley of the NOAA Vents Program / Pacific Marine Environmental Lab in Newport was chief scientist for the team of 24 that included researchers from Canada, New Zealand and Japan.

Also representing HMSC were NOAA Vents Program oceanographer Bill Lupton and three colleagues from OSU's Cooperative Institute for Marine Resources Studies: geologist Bill Chadwick, research assistant Leigh Evans, and senior research assistant Susan Merle. The group left Newport in the early spring headed for Guam, where they boarded the R/V Thomas G. Thompson for a 17-day research cruise.

This most recent expedition to the chain of volcanic islands and sea mounts was the culmination of a two-year, $6 million project funded by NOAA to map the seafloor and study the biology and chemistry of hydrothermal systems at Mariana Arc volcanoes. Using a remotely-operated undersea vehicle called ROPOS, the team was able to record amazing video and photographic images and sample life forms and chemical reactions and never seen before.

Although researchers are only starting to build upon the significance of data and samples collected during the cruise, some findings are already recognized as important contributions to our understanding of remote deep ocean environments, where life forms including mollusks and crustaceans thrive, supported by chemosynthetic processes rather than sunlight.

For more photos and information about the 2004 Submarine Ring of Fire Expedition and other PMEL research activities, visit the NOAA Vents program website: **http://www.pmel.noaa.gov/vents**

HMSC News & Notes

Clayton Creech was recognized by the National Weather Service for 25 years of service reporting temperature and precipitation data as a member of the Cooperative Weather Observer Newtork. Clay has monitored the National Weather Service rain gauge in Newport ever since it was moved from the Coast Guard Station to HMSC in the late 70s. He reads and sends daily recording data to the National Climatic Data Center in Asheville, NC.

Clay first came to HMSC in 1965 as a student, and worked in the early 1970s on a Sea Grant project to measure ocean waves, then later for ODFW. He officially retired after 31 years at HMSC, but still works part time for ODFW managing fisheries databases. He also continues to, and updating the HMSC's own local weather information webpage: **http://weather.hmsc.oregonstate.edu**

Congratulations, Clay!

Ted Dewitt, an estuarine ecologist at HMSC in EPA's Office of Research and Development, Western Ecology Division, was elected to serve as president of the Pacific Estuarine Research Society (PERS) from Spring 2004 to Spring 2006. PERS is a regional affiliate of the Estuarine Research Federation, which publishes the journal Estuaries.

Undergraduates *(continued from page 1)*

Mentors and interns participating in this year's REU program are:

George Boehlert [Professor, Fisheries Oceanography] will be serving as a mentor for **Kalin Lee**, a junior majoring in biology at Oregon State University. Kalin will be examining the relationship between patterns of growth in long-lived rockfishes and trees in the coast range to examine linkages between terrestrial and marine ecosystems.

Richard Brodeur [Associate Professor (NOAA), Fisheries Ecology and Oceanography] will be serving as a mentor to **Lynn Goodman**, a senior biology major from Shawnee State University. Lynn will be examining the distribution and feeding ecology of juvenile salmon in relation to the Juan de Fuca Eddy off northern Washington and may also look at the genetic structure and parasites of these fishes.

Anthony D'Andrea [Assistant Professor, Benthic Ecology and Biogeochemistry] and **Ted DeWitt** [Assistant Professor (EPA), Estuarine Ecology] will be serving as co-mentors to **Katri Laukkanen**, a senior majoring in environmental science at Pacific University. Katri will be working a project to measure the effect of burrowing shrimp population density on oxygen flux across the sediment-water interface. This project is a component of research to understand the importance of benthic invertebrate communities to carbon and nutrient cycling and to food web dynamics in Pacific northwest estuaries.

Robert Dziak [Associate Professor, Marine Geophysics, Ocean Engineering and Acoustics] will be serving as a mentor for **Walter Hannah**, a junior engineering major from Ithaca College. Walter will work on a project to develop the system control software for a deep-ocean hydrophone float that can provide real-time detection of seafloor geophyscial phenomena in the remote ocean basins.

Chris Langdon [Professor, Early Life History, Genetics, Aquaculture] will serve as a mentor for **Brian Yellen**, a junior majoring in geology and biology at Brown University. Brian will examine the optimal culture requirements for larval rearing of several species of tropical fish that are in high demand for the hobby industry. These species are currently harvested from the wild using ecologically unsound practices.

William Peterson [Professor, Oceanography, Plankton Ecology] will serve as a mentor for **Rachel Ruppell**, a junior majoring in environmental science at the State University of New York . Rachel is interested in applying her knowledge of GIS and spatial statistics to help define the pelagic habitat of juvenile salmonids in the coastal waters off Washington and Oregon, based on sampling of salmon and oceanographic variables in continental shelf waters over the past six years (1998-2003).

Clare Reimers [Professor, Biogeochemistry] will be serving as a mentor for **Leslie Soule**, a junior majoring in biochemistry at Willamette University. Leslie will be evaluating production and consumption rates of hydrogen sulfide in microbial fuel cells fueled by marine plankton. This work will be part of a larger project designed to evaluate alternative power sources for ocean instrumentation.

Clifford Ryer [Assistant Professor (NOAA), Behavioral Ecology] and **Thomas Hurst** (NOAA) will be serving as a mentors for **Jessica Ramsey**, a senior majoring in biology at Salem College in Winston-Salem, NC. Jessica 's project focuses on the growth and survival strategies of juvenile flatfishes. Specifically, she will be measuring the critical light thresholds for visual foraging in juvenile northern rock sole.

Summer 2004 Research Interns (left to right): Kalin Lee, Katri Laukkanen, Rachel Ruppel, Jessica Ramsey, Walter Hannah, Leslie Soule, Brian Yellen, Lynn Goodman, Betsy Glaesmann

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Markham Symposium Set for June 11

Scholarships and awards provided by individual donors help many students at OSU achieve their educational and research goals. Those administered by HMSC and the College of Oceanic and Atmospheric Sciences represent an important source of financial support for graduate student research in marine science. Every year, a symposium highlighting this research is hosted by HMSC.

The 2004 Markham Symposium (named for the Mamie L. Markham Endowment, which annually awards two years of financial support for up to eight students pursuing research at HMSC) is taking place on June 11 from 9am to 2pm in the Guin Library Seminar Room. Students who have made significant progress towards completion of their research will make brief presentations, and those receiving new awards this year will display posters explaining their proposed research.

Congratulations to all of the new and current scholarship / award recipients.

Mamie L. Markham First Year Student Award - provides financial assistance to an incoming, first year graduate student who plans to be resident at the HMSC after completing first academic year in Corvallis.

'04 Recipient Mattias Johansson. Fisheries & Wildlife

Lillian Brucefield Reynolds Scholarship Fund - for graduate students engaged in study of marine science at Hatfield Marine Science Center.

'03 Recipient: Paul Lang, Fisheries & Wildlife
'04 Recipient: Abigail McCarthy, Fisheries & Wildlife

Curtis and Isabella Holt Education Fund - intended to foster education in the marine sciences by providing financial support to undergraduate or graduate students pursuing marine science studies.

'03 Recipient: Carrie Newell, Biological Oceanography
'04 Recipient: Shawn Rowe, Math & Science Education

Walter G. Jones Fisheries Development Memorial - intended to encourage graduate work in subjects which contribute to fisheries development.

'03 Recipient: Ford Evans, Fisheries & Wildlife
'04 Recipient: Kathleen O'Malley. Fisheries & Wildlife

William Q. Wick Marine Fisheries Award - intended to encourage graduate student research in the area of marine fisheries ecology and ocean related research.

'03 Recipients: Todd Miller, Fisheries & Wildlife
Tana Tungawachara, Food Science & Technology
'04 Recipient: Branka Valcic, Agric. & Resource Economics

Fred and Joan Crebbin Memorial Fellowship – to support projects dealing with marine science education.

- Report by Bill Hanshumaker, Marine Education Instructor

Mamie L. Markham Endowment Award - intended to assist graduate or postdoctoral level researchers and research utilizing OSU's Hatfield Marine Science Center.

'03 Recipients:	
Ford Evans	Fisheries & Wildlife
Crystal Hackmann	Fisheries & Wildlife
David Hering	Fisheries & Wildlife
Paul Lang	Fisheries & Wildlife
Kathleen O'Malley	Fisheries & Wildlife
Roly Russell	Zoology
David Stick	Fisheries & Wildlife

'04 Recipients:	
Cara Fritz	Biological Oceanography
Maria Kavanaugh	Zoology
Chi-Chang Liu	Fisheries & Wildlife
Megan Petrie	Fisheries & Wildlife
Natalie Reed	Marine Resource Management
Doug Reese	Biological Oceanography

SeaFest *(continued from page 1)*

SeaFest has grown with the support and participation of local artists, musicians, seafood vendors, and community exhibitors that together help create a festival atmosphere. SeaFest attracted over 4,000 attendees last year, and is becoming widely known as a favorite annual family event on the Oregon coast.

For more information and a detailed schedule of events, visit the SeaFest information page online at **http://hmsc.oregonstate.edu/seafest**

Don't miss the opening ceremony – Early Birds enjoy free coffee between 9:30 and 10:00am!