



Newsletter of the Friends of Hatfield Marine Science Center

## “Living on the Oregon Coast in a Century of Climate Change” *Friends of HMSC to sponsor lecture by Paul Komar on Sunday, March 11th*

Paul Komar, professor emeritus in the College of Oceanic and Atmospheric Sciences at OSU, will be at the HMSC on March 11-12 to share some of his research on how global climate change may be impacting nearshore ocean conditions and accelerating coastal erosion in Oregon.

Offering a reprise of the John Byrne lecture he delivered in Corvallis in November, “Living on the Oregon Coast in a Century of Climate Change”, Komar is coming to Newport to give a presentation for the public on Sunday, March 11<sup>th</sup> at 2pm in the Visitor Center auditorium. The following day, he will deliver a seminar for the scientific community at HMSC on a related topic.



Komar’s research suggests that earth’s changing climate has had a very important role in the erosion of the Oregon coast during past decades, and can be expected to become increasingly important in the future. Analyzing 25 years of wave measurement data from buoys in Oregon’s coastal waters, Komar

says the data reveal progressively increasing storm intensities and wave heights. Although the cause of this increase is uncertain, it may be a result of global warming.

“Our most severe episodes of erosion have occurred during major El Niños like those in 1982-83 and 1997-98,” says Komar,  
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## Visiting Scientist Program to welcome Gordon Kruse



Gordon Kruse on Summit Island in northern Bristol Bay, Alaska, during the spring herring spawning season.

In July, the HMSC will welcome Gordon Kruse, a Professor in the School of Fisheries and Ocean Sciences at the University of Alaska Fairbanks, for a six-month stay as a visiting scientist. As the first selected recipient of support through the Lavern Weber Visiting Scientist Program, Kruse will conduct collaborative research, teach, and present seminars to share some of his own areas of expertise from 17 years of experience in the marine fisheries of Alaska.

Kruse will be working with researchers from NOAA Fisheries, ODFW, and others at HMSC to look at data on spawning and juvenile  
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## Back by popular demand

Planning has begun for SeaFest 2007, the HMSC’s biggest public education and outreach event of the year. The date is set for **Saturday, June 23rd**, and organizers are considering a possible Friday night lecture to kick off the weekend’s events.

With growing public interest in the topic of global warming and how the oceans may respond or be impacted by large scale climate changes, exhibits and lectures around this theme will be featured.

As always, SeaFest aims to engage visitors of all ages with fun and interactive ways of learning about marine and coastal ecosystems, and invites local businesses and organizations to participate as community exhibitors or event co-sponsors. And of course, SeaFest welcomes volunteers who can help with various needs in the weeks and days before the event.

The HMSC is pleased to welcome AmeriCorps member Sarah Diffenderfer, who will be leading outreach and coordination efforts for SeaFest 2007. She can be reached at (541) 867-0219 or by email at: [seafest@oregonstate.edu](mailto:seafest@oregonstate.edu)



*Upwelling* is produced and distributed 3 times a year to the Friends of HMSC membership. Your feedback is welcomed.

- Ken Hall, Editor (email: [ken.hall@oregonstate.edu](mailto:ken.hall@oregonstate.edu))

## Notes from the Director

In February I attended the meeting of the American Society of Limnology, where two of our 2006 summer undergraduate interns presented scientific findings from their summer work (see pictures, below right). One of the 2005 interns had continued research and was also presenting there. It is extremely gratifying to see the development of these young scientists, and to realize the role that the HMSC and its faculty mentors have played in helping them achieve their aspirations.

We are quite pleased to have learned that the National Science Foundation will be renewing our grant to support the research internships program for another 3 years, with more interns in both Newport and Corvallis. These interns, along with many others supported by donated funds, make the HMSC an active spot in summer. We're also pleased to have Itchung Cheung join our staff as the new academic programs coordinator. He will have oversight of our college programs and these internships.

We have more good news with the arrival of Gordon Kruse as the first Lavern Weber Visiting Scientist. Feel free to contact us about this important program – we're still working to grow the endowment to assure future visiting scientists in this program honoring Lavern Weber.

Over the past year, staff at HMSC have been quite busy developing the "HMSC Master Plan", which will help us plan our facilities needs required to meet our strategic research, education, and outreach goals over the next 15 years. The plan is now available on the HSMC website, and we are making several presentations around the community to seek feedback. Please take the opportunity to download the plan, or read it in our library.

Finally, as noted on the front page, please mark your calendars for two important events – Paul Komar's lecture on March 11 and the return of SeaFest on June 23. We look forward to seeing you at both.



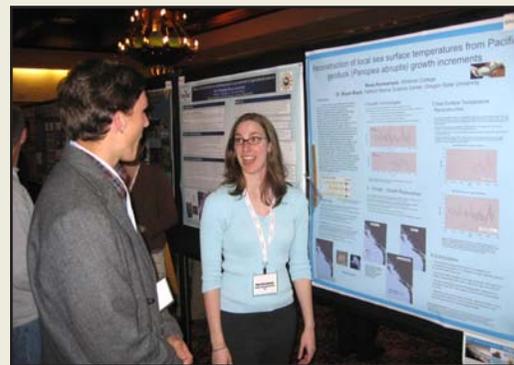
## Visiting Scientist program to welcome fisheries science professor from Alaska *continued from front page*

recruitment of English sole. A primary goal of his proposed study, says Kruse, is to reproduce a baseline of earlier research and update models that could help predict large or small fish year classes based on whether oceanic conditions are good or bad for recruitment.

Having earned his doctorate at OSU and spent time at the HMSC in the early 1980s, Kruse was happy to learn about the opportunity to spend his sabbatical at a place with some familiar faces. George Boehlert was on the faculty and Ric Brodeur and Waldo Wakefield were among the cohort of fellow graduate students at the HMSC when Kruse finished his Ph.D. in fisheries in 1983.

Kruse has also gotten to know other members of the research community at HMSC over the years in his role as chair of the Scientific and Statistical Committee of the North Pacific Fishery Management Council and chair of the Fishery Science Committee for the North Pacific Marine Science Organization (PICES), and says he is looking forward to collaborating with them when he gets to Newport.

The infusion of new research questions, areas of expertise, and perspectives that visiting scientists bring to an institution is recognized as particularly valuable at a place like the HMSC, where collaborative research and teaching are prized. The Lavern Weber Visiting Scientist endowment was established to create such opportunities, and is supported by private donations, which are matched by funds from the OSU Research Office.



### Research interns present at national ocean sciences meeting

Hatfield interns from the summer 2006 "Research Experiences for Undergraduates" program presented at the annual meeting of the American Society of Limnology and Oceanography in Santa Fe, New Mexico in February. Rose Kormanyos, top, of Whitman College, shows her poster, co-authored with OSU faculty mentor Bryan Black, to Christian Andresen. Christian, from the University of Texas El Paso, presented a talk on his research with mentor Michael Banks, and received an honorable mention for the best presentation award.



## HMSC in the community: *Partnerships in Education*

Around Newport and Lincoln County, the Hatfield Marine Science Center is known as much for its contributions to marine biology and fisheries management, as for the contributions that individuals at HMSC make to the community as volunteers and supporters of the arts, education, and local philanthropic efforts.

In an era of budget cuts and constrained resources for public education, helping out the local public schools has been a common call to duty. Many HMSC employees routinely volunteer for public schools in Lincoln County, assisting with fundraisers, providing one-on-one reading help or general assistance in the classroom.

Scientists at the center have welcomed students into their labs for internships and job shadow experiences, and have gone into the schools to share some of the more exciting aspects of their work. At Yaquina View Elementary School, the science fairs and geography week activities of recent years would not have taken place without the active involvement of parents who took time from their jobs at HMSC to ensure that students were afforded these learning experiences. Other examples abound.

But there is a growing interest at HMSC in making a more lasting contribution to local schools and the strength of their educational offerings. While the Visitor Center and Sea Grant's marine education programs have always been an excellent resource for teachers to bring their classes to the HMSC for field trips, the cost of providing transportation even over a short distance has become a limiting factor.

Shortly after being hired as Program Manager at the HMSC in 2003, Ken Hall



Ken Hall of HMSC (center) facilitates a workshop at Newport High School on developing community partnerships in support of academic excellence.

joined a group of local parents concerned about the level of preparation for college being offered to high school students in Lincoln County, and started investigating school improvement strategies. The group learned about the International Baccalaureate Organization based in Geneva, Switzerland, and the success that many American high schools were having with the adoption of the "IB" curriculum. They took the idea to the principal and teachers at Newport High School, and have been working for over four years to build community support and capacity at Newport High to offer the IB diploma program.

Often touted for its rigorous preparation of students seeking to gain entrance and succeed in the best universities, the IB program is more than just a demanding college-prep curriculum, say its proponents. It is a well-rounded curriculum that teaches students to be curious about the world.

"What attracted us to IB," says Hall, "is the program's emphasis on critical thinking skills, the integration across subjects, and the fact that success in the program does not depend on a

student's IQ, but rather their motivation and commitment to work hard."

The parents formalized their group under the name Partnerships in Education (PIE), filing for 501c3 non-profit status under the Lincoln County Foundation so they could begin raising funds to support IB curriculum development and training for Newport High School teachers and administrators.

PIE has since grown to include other faculty and researchers at HMSC, including Paul Reno and Gil Sylvia of the Coastal Oregon Marine Experiment Station, Cliff Ryer and Kym Jacobson of NOAA Fisheries, and Jody Stecher of the EPA.

Although the IB concept was initiated by PIE, the Newport High School Site Council has since assumed responsibility for overseeing the complex process of IB curriculum design, proposal writing, and coordinating with the Lincoln County School Board. Gil Sylvia, who serves on the site council's IB subcommittee, believes that "the IB initiative is a good example of how PIE operates in exploring new educational concepts and partnering with community and schools to develop, support, and implement promising ideas."

In May, Newport High School will submit its application to the International Baccalaureate Organization, and likely receive a visit from the IB review team in the Fall. If the school gains approval, it can begin offering IB courses during the 2008-09 school year, awarding its first IB diplomas to students in the class of 2010.

*This article is the first in a series that will highlight the many ways that people at HMSC are active in the local community.*



## HMSC welcomes new Academic Program Coordinator

**Itchung Cheung** arrived with his family from California this month to begin work as HMSC's new Academic Program Coordinator, filling the position vacated by Paul Sikkel. He is a recent graduate of the Ocean Sciences Department at the University of California, Santa Cruz, and will be overseeing the development of OSU course offerings, internships, and other college-level academic activities at the marine science center.

### Donor gift supports *Las OLAS* (Ocean Learning Activities in Spanish) program for families

Originally established in 2005 through a grant from the Oregon Community Foundation and Oregon Sea Grant, the Las OLAS Program offers Spanish-speaking students and their families the opportunity to participate once a month in an education program about marine-related topics.

Approximately 30 people attended the first event of 2007, held on January 19<sup>th</sup> at the HMSC. Las OLAS Coordinator Ana Maria Esparza-Smith helped students and family



members learn how tidepool animals adapt to their environment and led participants



through several craft activities. Many expressed surprised at how much they learned during the event, and are looking forward to future programs. A second Las Olas event was

held on February 16, and the next one is scheduled to be hosted by the Oregon Coast Aquarium on March 16<sup>th</sup>.

Esparza-Smith is grateful to Ms. Jeanette Hofer for her generous donation and to the Friends of HMSC for supporting the Las Olas family learning events. This donation will extend the life of the program, while additional potential sources of funding are investigated.

### Internship focuses on science learning

Thanks to the generous support of Friend of HMSC **John Sherman**, Oregon State University student **Alyssa Harris** was able to participate in an internship in the HMSC visitor center last year in which she completed a formative evaluation of educational outcomes from a surge-type aquarium exhibit.



By making changes to the text, props and diagrams, Harris was successful at improving participant understanding of PISCO's (Partnership for Interdisciplinary Studies of Coastal Ocean) research on intertidal recruitment. HMSC's Public Marine Education Specialist Bill Hanshumaker served as the internship advisor. Harris is majoring in Biology and International Studies and expects to graduate in 2007.

### Spring Whale Watch Week: March 24 - 31

Visitor Center open 10:00am to 5:00pm for this special programming event

Daily Activities:

- 1:30pm Public Marine Mammal Program
- 2:30pm "Whale Tales" Storytelling for children with Barb Kellay
- Marine mammal videos in the auditorium
- Sightings of migrating gray whales will be posted
- Special marine mammal displays and exhibits are featured throughout the Center

March 24<sup>th</sup>, 26<sup>th</sup>, 28<sup>th</sup> and 30<sup>th</sup> from 11am to 1pm :  
Gray whale calf skeleton preparation with Suzy Roberts



### Housing scholarships support students in residence at HMSC

Thanks to the support of longtime Friend of HMSC **Jean Roth**, four OSU Fisheries and Wildlife students received scholarships during the Fall 2006 academic term to cover the cost of their housing while taking classes at HMSC.



**Jamie Crafton** was a post baccalaureate student who returned to OSU to pursue coursework in fisheries management, and graduated in December '06.



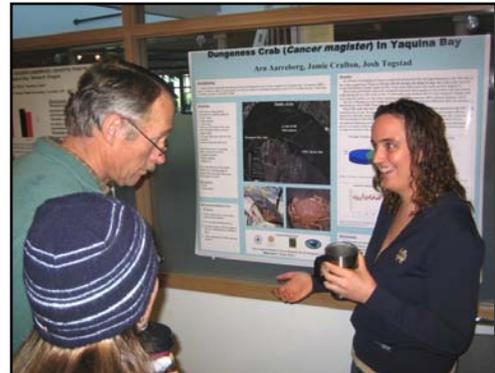
**Matthew Morris** is the current president of the Fisheries and Wildlife student club. He received a Sea Grant Marine Research Fellowship for 2007 and will be working on improving ocean management policies.



**Jacob Godfrey** was the Fisheries and Wildlife student club president last year. He wants to be a freshwater and marine conservation biologist and plans to graduate this spring.



**Patrick Luke** grew up in Pendleton, Oregon, on the Umatilla Indian Reservation. He is active in the Native American community and wants to become a fish and wildlife biologist for the tribes in the Pacific Northwest.



Fisheries and Wildlife post-bac student Jamie Crafton explains her research project for the Coastal Ecology & Resource Management class to instructor John Chapman during the end-of-term poster session.

### Former HMSC student and Markham awardee earns legislative fellowship position in Salem

As a graduate student in Fisheries and Wildlife with a minor in Marine Resource Management, **Ephraim Temple** took advantage of the many unique opportunities available to OSU students interested in the intersection of research and policy. He lived at the coast, took courses and conducted research at HMSC. He interacted with fishermen and resource managers to learn first hand about coastal issues.

Today, Temple is learning more about the policy process at the state legislative committee level, serving as Legislative Fellow with the Coastal Caucus for the 2007 Oregon legislative session. Representative Deborah Boone, chair of the caucus, is hosting this session's Fellow. The experience will in turn provide Temple with an increased knowledge of the legislative process as it relates to coastal and ocean issues, and the opportunity to develop the skills necessary to work with various levels of government and with private and state resource organizations.

Ephraim's interest in coastal issues comes naturally. Born and raised in Hawaii, and having lived in Tonga, Australia, and California, he was affected by the laws and policies surrounding the coastal-based cultures. His interest in coastal policy was further piqued when he took an extensive course on atolls, studying how human social and economic interactions are connected to environmental processes. He credits a look at

historical policies in Guam with introducing him to the effects that laws have on sustainable coastal development.

Ephraim earned a Bachelor of Science degree in Zoology in 2003 from the University of Hawaii-Manoa. The following year he was accepted into graduate school at OSU.

With a goal of working to increase the use of sustainable aquaculture practices, Ephraim's current career focus is centered around the dissemination of scientific information to interested parties through the personal interaction extension work offers. Having already gained the experience of working with aquaculturists and researchers in this area, along with the fundamental knowledge of coastal law and Oregon policies his OSU graduate work provided, Temple is eager to gain political knowledge and experience this year as a Legislative Fellow.

Ephraim enjoys outdoor activities, music, reading, and his family. He and his wife, Melinda, have recently moved to Salem. They have two children, Ella, 2 ½, and Issac, six months.



# Microbe-powered ocean batteries deployed for testing

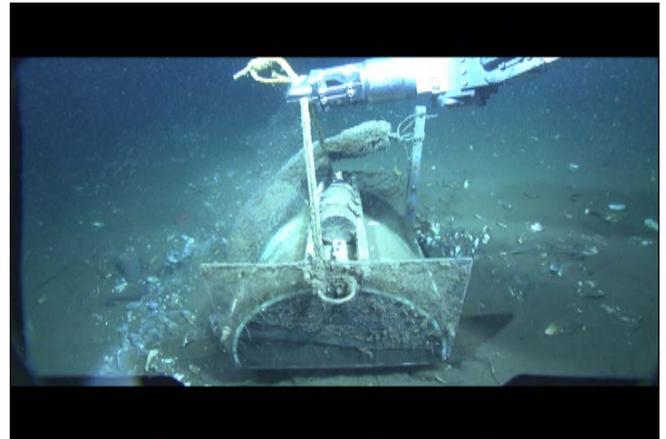
With precious cargo loaded in the van, OSU College of Oceanic and Atmospheric Sciences Professor Clare Reimers prepares to transport two experimental chambered microbial fuel cells to California for ocean deployments in Monterey Canyon.



“We targeted cold seep sites at approximately 950 meters water depth for the deployments with the purpose of assessing how much electrical energy could be harvested with this design of fuel cell,” said Reimers, whose research is partially funded by the Office of Naval Research.

Mark Nielsen, a graduate student in Reimers lab, constructed the fuel cells and participated in the ROV-assisted ocean deployments aboard the the R/V Point Lobos, the Monterey Bay Aquarium and Research Institute’s catamaran research vessel.

The first deployments lasted 68 days. Nielsen returned to Monterey Canyon to recover the fuel cells, which were analyzed to see how much energy they were able to generate. On average, each microbial fuel cell continuously produced approximately 15 milliwatts (mW) of electrical current, nearly enough to power a small oceanographic sensor.



Screengrab from the ROV (remotely operated vehicle) video feed showing recovery of one of the fuel cells, covered with a fine layer of sediment and what the researchers call “microbial mat”. Water samples collected to investigate the microbiology of the system are being analyzed by collaborators at Harvard University.

## *In Memoriam* Joel Hedgpeth 1911 - 2006

In a year-end review of luminaries who passed away in 2006, Alan Burdick in the New York Times Magazine noted that the field of marine biology had lost two of its greatest documentarians with the passing of Cadet Hand and Joel Hedgpeth.



“Hand, a longtime director of the Bodega Marine Laboratory in Bodega, Calif., was an expert on sea anemones and hydroids, which are among the most common marine creatures. Hedgpeth, the world expert on sea spiders, once ran the Marine Science Center at Oregon State University.”

Actually, the Marine Science Center in the early years had co-directors from the departments of Oceanography and Fisheries and Wildlife, both on the main campus in Corvallis. In Newport, Hedgpeth headed the Yaquina Bay Biological Lab with researchers from various OSU departments in the east wing, while Bill McNeil ran the Pacific Marine Fisheries Laboratory in the west wing. They were rocky years by most accounts, but Hedgpeth’s reputation as a prolific writer, taxonomist, and conservationist was already established through decades of research, field study, and passionate defense of the Pacific coastal marine environments he knew so well.

As editor of several editions of “Pacific Tides,” Hedgpeth became one of the best known names among west

coast marine biologists, along with Hand, who became a world authority on sea anemones.

“Between them they knew virtually all that is known about life in and along the Pacific shore,” wrote Alan Burdick in Times tribute. “When they died, Hand at 86 and Hedgpeth at 94, each was more than half as old as marine biology itself -- a science whose maturation was due, in no small part, to their influence.”

Hedgpeth lived in Hillsboro, Oregon during much of his retirement, and in 1988 contributed to the historical monograph written by Pam Rogers about the first two decades of the HMSC, including the section, “Origins of the Concept of Marine Stations”.

He died in Hillsboro on July 28th, 2006.

## HMSC happenings

### Friends enjoy a day on the estuary

We weren't sure who would respond to the offer advertised in the last issue of *Upwelling*, but were very glad when Friends of HMSC **Brook and Eileen Young** of Newport called to say they would love to be a part of a Saturday canoe outing on Yaquina Bay.



Accompanied by their neighbor Larry Johnson, the Youngs brought their super-stable catamaran canoe to the designated meeting point about six miles up the Yaquina Bay Road. They were joined by HMSC's George Boehlert, Ken Hall, and Peter Lawson for a hearty

paddle up Poole Slough, under sunny skies on a beautiful October day.

The paddlers were treated to the sights and sounds of various birds and other wildlife inhabiting this tranquil part of the estuary, not to mention a good upper body workout!

### China Ocean University delegation pays a visit

A delegation of faculty and administrators from China Ocean University met with researchers and educators at the HMSC during their visit to the Oregon coast in December.

The visitors were welcomed by HMSC Director George Boehlert, who traveled to China earlier in the year to explore potential collaborations with the educational institution, renowned for its marine and fisheries sciences programs. China Ocean University is located in the coastal city of Qingdao, in Shangdong province.

Oregon State University and China Ocean University signed an agreement in 2006 to foster cooperative exchanges between the two institutions. However, some connections already exist.



Oregon Sea Grant Marine Educator Fawn Custer (left) explains how instructors use the HMSC wet lab classes to spark young students' interest in marine biology and science.

Hongsheng Bi, a postdoctoral fellow in the Cooperative Institute for Marine Resources Studies at HMSC, did his undergraduate studies at the China Ocean University. He is currently doing research on west coast fisheries.

Another graduate from China Ocean University is Liu Xin, who came to Oregon State University in 1992 and worked in the aquaculture research facility at the HMSC for five years before becoming a manager at Oregon Oyster Farms, on Yaquina Bay.

Xin and Bi helped welcome the delegation during their visit, accompanying them on the tours of the HMSC and Aquarium, and during a dinner on Newport's bayfront.



The delegation from China Ocean University toured the Oregon Coast Aquarium during their visit to Newport, hosted by Oregon State University's International Programs office.

### Solar energy panel boosts power and public awareness

The HMSC's solar project demonstrates real-time, renewable energy to visitors, reflecting our commitment to sustainability and education.



The recently installed photovoltaic (PV) system, west of the Visitor Center's entrance, features one 1.1 kW array and six Sharp 170 watt PV Modules. With an hour of full sun, it can light 70 compact fluorescent light bulbs. Over a year, that's more than 1,000 kilowatt-hours of pollution-free electricity fed back into the regional power grid.

The Bonneville Power Administration provided funding for this project, with in-kind support from OSU and the Hatfield Marine Science Center.



## Hatfield Marine Science Center

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Newport, OR 97365

[www.hmsc.oregonstate.edu/friends](http://www.hmsc.oregonstate.edu/friends)

### Paul Komar presentation on coastal impacts of climate change set for March 11

*continued from p. 1*

“when the measured tides were increased by some 20 inches above predicted levels, flooding out the beaches and allowing the storm waves to impact properties backing the beaches.”

Komar explains why the higher than normal storm waves of an El Niño year, which reach the coast from the southwest, result in the longshore movement of sand on the beaches toward the north, causing localized “hot spot” erosion north of headlands and tidal inlets.

Examples of the resulting erosion are widespread along the coast, with particularly severe damage to personal properties on Alsea Spit and at Neskowin, and with extreme impacts at Cape Lookout State Park. These are documented in dramatic photographs which Komar will show during his presentation.

Komar predicts these climate controlled erosion processes can will continue through the 21st century, combining with the projected accelerated rate of rise in global sea level, resulting in greater erosion impacts than occurred during this past century.



*Friends of HMSC are invited to a coffee/tea and cookies reception following the speaker's presentation on Sunday, March 11, in the HMSC staff lounge.*

### Upcoming Seminars

*The HMSC seminar series features lectures by visiting scientists and researchers at HMSC. Seminars are on Thursdays from 3:30pm to 4:30pm in the Guin Library Seminar Room (unless otherwise noted) during the academic year.*

*Friends of HMSC are welcome to attend!*

March 8th - **Ric Brodeur** - NOAA/HMSC  
“Denizens of the Deep: Mesopelagic and Bathypelagic Fauna off Oregon”

March 15 - **Christine Weilhoefer**, U.S. Environmental Protection Agency  
“Linkages Between a Large River and Floodplain Wetlands within the Tualatin River Valley, OR”

March 22nd - **Peggy Krahn**, NOAA/NWFSC  
“Use of chemical tracers in assessing the diet and foraging regions of killer whales”

April 12th - **Melanie Frazier**, Dept. of Biology, University of Washington  
“Thermodynamics vs Biochemical Adaptation in Ectotherms: Is Hotter Better?”

April 19th - **Brian Tissot**, Assoc.Prof.of Environ. Science, Washington State University - Vancouver  
“Marine protected areas and community-based fishery management in Hawai’i”

*For complete, up-to-date schedule, visit the HMSC events web page:*

<http://hmsc.oregonstate.edu/events.html>