Partnership with Japanese university fosters student exchanges

Todd Miller always knew that his path to earning a Ph.D. in Fisheries and Wildlife at Oregon State University would include time at the Hatfield Marine Science Center. His advisor had laboratory space at HMSC to do isotopic analysis of fish and zooplankton samples collected from Oregon’s coastal waters to investigate how ocean upwelling affects the marine food web.

What Miller didn’t realize was that he would also spend four months on the other side of the Pacific Ocean, living and working at a distinguished university in Matsuyama, Japan. Even less could he have predicted that his work collecting and analyzing isotope samples from the Seto Inland Sea, the great body of water separating three of the main islands of Japan, would lead to an opportunity to do post-doctoral research there.

Miller is the first student to take advantage of a partnership agreement established last year between Oregon State University, the University of Hawaii, and Ehime University, to foster exchanges of students and faculty between marine labs at the three institutions.

HMSC Director George Boehlert attended the agreement signing ceremony at Ehime University in 2004, where he met several scientists from the Center for Marine Environmental Studies (CMES) whose research interests were similar to OSU graduate student Todd Miller and Dr. Michinobu Kuwae, a post-doc at Ehime University’s Center for Marine Environmental Studies, collect zooplankton samples aboard the R/V Tobiuwo near Japan’s Bungo Strait.

HMSC alumni profile: Gene Burreson

As the Hatfield Marine Science Center celebrates its 40th anniversary, a look back through the archives reveals the names of many individuals who spent formative years here, on their way to distinguishing themselves in various fields.

Whether their tenure at the marine science center was as a faculty member, resource manager, researcher, teacher, or student in pursuit of a degree, all could be considered “alumni”, and the HMSC is proud to extoll their contributions to science and society.

In this alumni profile, we meet Gene Burreson, a Professor of Marine Science at the Virginia Institute of Marine Science (VIMS). Burreson has taught and conducted research at VIMS for over 28 years, becoming an expert on mollusk diseases that have decimated oyster populations in the Chesapeake Bay, and threaten other shellfish populations around the globe. He is also the world’s foremost authority on the taxonomy and biology of marine leeches.

Burreson’s path to the VIMS campus at Gloucester Point, where the York River empties into the Chesapeake Bay, started at the other end of the continent. He was born in Seattle and grew up in Pendleton, Oregon. He attended Eastern Oregon State College in the mid 1960s and entered the Navy’s flight train-

inside this Issue:

- Director’s Message  p. 2
- Marine labs respond to Hurricane Katrina  p. 2
- PISCO sponsors course on marine conservation science and policy  p. 3
- Institute for journalists to visit HMSC  p. 3
- Visitor Center News -Volunteer Profile  p. 4
- Dive exhibit goes online  p. 5
- HMSC happenings  p. 5
- Fall seminar series schedule  p. 8
Dear Friends,

Fall finds the HMSC readying for the Fisheries and Wildlife academic quarter after the completion of a busy summer. The second year of our Research Experience for Undergraduates internship program, along with many other internships at HMSC, provided very valuable experiences for students. While enrollment in the summer session courses was less than hoped, the just completed course in Marine Conservation was fully subscribed and very successful. We are working to revitalize HMSC’s college-level educational programs, and the arrival of Paul Sikkel, our new Academic Programs Coordinator, is a crucial step in that direction. Paul is no stranger to OSU, having completed his Ph.D. in Zoology in 1992 – since that time he has been working in the Caribbean and at Murray State University in Kentucky. He brings welcome energy to our programs. If you’re visiting the HMSC, stop by and meet Paul.

Fresh in the minds of those of us in the coastal area are the past year’s tsunami events, an evacuation drill, and a real evacuation in early June after the earthquake off northern California. The impacts to coastal Louisiana and Mississippi from hurricane Katrina were severe, affecting several marine laboratories on the Gulf Coast. In response, the Western Association of Marine Laboratories sent funding to the Southern Association to help with the relief effort. Through our national association, HMSC has offered direct assistance to affected students, researchers, and faculty. The tangible impacts to those facilities make us reflect on how prepared our laboratory is for disaster and disaster recovery.

In this issue we’re pleased to initiate a few features that will be regular additions – articles on distinguished alumni from the HMSC and profiles of some of the many volunteers who provide such valuable service in the HMSC Visitor Center.

We hope that the summer was a productive one for you and that your fall prospects look as bright as those of HMSC’s new academic year.

Notes from the Director

Marine labs offer support to victims of Hurricane Katrina

As the news of Hurricane Katrina’s swath of destruction unfolded in the national news media, it became apparent that marine laboratories located along portions of the Gulf Coast near the storm’s path would not escape its devastating impact. Most directly affected were facilities operated by the University of Southern Mississippi’s College of Marine Sciences and the Louisiana Universities Marine Consortium (LUMCON).

Members of the National Association of Marine Laboratories, including HMSC, were among the many institutions to respond with offers of assistance to displaced faculty, staff and students from their sister labs in the affected areas. A clearinghouse set up by Dr. Fuiman at the University of Texas Marine Science Institute, lists over 40 academic and research institutions around the country, with contact information and details on the offers of assistance, including temporary housing, office/lab space. (http://www.utmsi.utexas.edu/outreach/katrina.asp)

In addition to the many private cash donations made to relief organizations, personnel at HMSC have responded to an appeal from the Mississippi Sea Grant Law Center to collect and distribute supplies for elementary, middle and high school students displaced by the hurricane.

The appeal went out in an email to the national network of Sea Grant institutions, asking recipients to send extra book bags, backpacks, message bags, pens, pencils, markers, etc. left over from past conferences, so they could be distributed to displaced children and school districts throughout Mississippi.

“There are displaced children in the schools here in Oxford and in every small town in the state that is above the area of the worst damage, and these small towns are naturally not getting the help and attention that is going to the areas of terrible destruction,” the Mississippi Sea Grant Law Center reported.

Organizers of the appeal stressed they were not asking for anything to be purchased anew, but rather for programs and staff to help redistribute supplies that they probably have sitting unused in storage closets and cabinets.

A table set up in the HMSC staff lounge by Sea Grant marine educator Fawn Custer has already attracted a couple of boxes of donated supplies. These will be shipped to Mississippi at the end of September.
Course examines marine conservation science and policy interface

Thirty students arrived in Newport on September 9th for an intensive 10-day course at HMSC examining the role of science in the formulation and execution of marine policy. The course is sponsored by the Partnership for Interdisciplinary Study of Coastal Oceans (PISCO), a collaborative research consortium of scientists from Oregon State University, Stanford University, the University of California Santa Barbara and UC Santa Cruz.

In addition to its research focus on near-shore ecosystems, one of PISCO’s major goals is to train students in the marine sciences and to communicate accurate scientific knowledge to policy makers and the public. The course is led by Dr. Jane Lubchenco of OSU, Dr. Steve Gaines of UCSB, Mr. David Festa of Environmental Defense, and Dr. Andrew Rosenberg of the University of New Hampshire. A primary goal of the course is to introduce students to the science-policy interface as it affects ocean policies at the national and state levels, emphasizing current topics in marine policy.

Through lectures, discussions, group projects, and role-playing exercises, students learn how policy is made, what the role of science is in that process and how scientific information can be used most effectively. Guest speakers invited to lecture or participate in panel discussions include policy-makers and representatives of non-governmental organizations that help shape policy. This year, the course offered a particular focus on ecosystem-based management and the implementation of recommendations of the Pew Oceans Commission and the U.S. Commission on Ocean Policy.

The intensive 10-day residential format of the PISCO course, with lectures, field trips, seminars and other activities extending into the evenings, is both exhilarating and exhausting, students say. The class attracts a number of students from California, who are able to take advantage of the course (and experience the Oregon coast at one of the nicest times of year), since the UC system campuses, like OSU, don’t start fall term classes until late September.

Institute for Journalism and Natural Resources to visit HMSC

On October 8th, a group of 14 journalists representing regional and national news organizations will visit HMSC as part of a nine-day intensive tour through “Salmon Country”, traveling to various locations in Oregon to learn about the natural resource issues they cover in print and broadcast media.

The group is being sponsored by the Institutes for Journalism and Natural Resources (IJNR), a nonprofit educational foundation with a stated mission of pursuing higher standards of news coverage of natural resources and the environment.

Billed as a professional development opportunity for editors, reporters and news producers, the “learning expedition” visit to the Hatfield center provides the journalists with an opportunity to interact directly with scientists whose research is often called upon to provide guidance for state and federal policy makers on resource management issues.

The journalists will hear from OSU faculty members and agency scientists about the latest research on Oregon’s coastal coho salmon and other fish species that have been the focus of state and federal recovery plans. They will tour HMSC’s state-of-the-art fisheries genetics lab and oyster aquaculture research facility. They will also hear the perspectives of a fisheries economist and a resource manager on issues of concern to local communities and economies.

“The journalists were selected competitively from a pool of applicants and represent a broad spectrum of ages, experience levels and news organizations,” says IJNR Director Frank Allen.


“Our purpose is to spread light rather than heat,” says Allen, in response to any hesitancy expressed about speaking before a group of reporters. “We encourage journalists to get off deadline and out into the field so that they can gain a deeper appreciation of the contexts for complicated stories.”

After spending the morning at HMSC, the group will board a Marine Discovery Tours vessel to explore the estuary and near shore ocean environments, followed by a visit to the Oregon Oyster Company’s operation on Yaquina Bay. Other coastal stops on the group’s itinerary include Florence, Tillamook, Astoria and the OSU Seafood Lab.

“Hikes, boat rides, lab tours, meals and unhurried conversations with knowledgeable speakers will foster a better understanding of the issues,” says Allen of the Institutes’ learning expeditions. “And better understanding can, in turn, lead to better journalism.”
Meet a VC Volunteer  
featuring  
Isabella Potter  
Volunteering at HMSC since 1985

Isabella Potter, who walks several miles every day, is an octogenarian and a dedicated HMSC volunteer. She has been greeting visitors and helping to spark their interest in marine science for 20 years. She has seen quite a few changes through her tenure at HMSC, but still loves to talk with visitors about the exhibits and especially enjoys helping them learn about the resident octopus.

Perhaps Isabella enjoys Newport and the Oregon coast because it reminds her of her homeland. Originally from Scotland, Isabella grew up near the seashore in Ayrshire, 22 miles Southwest of Glasgow. The climate there is a little colder and rainier than here, she says, but there are some similarities as well. Isabella has traveled all over the world — Holland and much of Europe, China, Hong Kong, Mexico to name a few.

The path from Scotland to Newport was not a direct one for Isabella. After World War II, she emigrated to Iowa, sponsored by her uncle, who had a farm there. In Iowa, she worked for the Lenox Furnace Company, which is where she met her husband, Robert. They were married in 1954. They took a trip to visit her husband’s brother in Longview, Washington. They liked the greenness of the Pacific Northwest so much that they decided to make it their home. Her husband landed a job with a timber company and later went to work for Georgia Pacific in Toledo. They raised their two sons, Michael and Kenneth, in Lincoln County.

Isabella’s husband, passed away in 1984. Without her lifelong partner she sought out new activities and opportunities to keep herself busy and to help others. The following year she became a volunteer at HMSC, and continues her volunteer efforts by assisting in the HMSC Visitor Center about three times each month.

HMSC is a good fit for Isabella, as she has always been interested in the ocean and enjoys meeting people from all over the world. She has even met visitors from her hometown in Scotland.

Isabella has two grandchildren, Ryan and Dylan and one great-granddaughter, Jennell. Jennell often visits HMSC with her great-grandmother. Isabella has passed on the love of the sea and the call to learn to future generations, including her young great-grand daughter.

National Estuary Day celebrated at HMSC

Imagine trying to visit Tillamook Bay, Yaquina Bay, and the South Slough National Estuarine Research Reserve all in a single afternoon! Well, visitors to the Hatfield Marine Science Center on September 23rd managed to do just that (and more), with the help of technology and the “Estuary Live” video feed broadcast from half a dozen national estuary sites around the country, direct to the Hennings Auditorium.

Naturalists and students led virtual tours of their local estuaries, highlighting the diversity of plant and animal species and habitats found at each of the sites. From Oregon to California, to New Jersey, and the Gulf Coast, each broadcast site provided a slightly different focus, with scientists on line to answer questions sent in via email.

It was all part of National Estuaries Day, sponsored by NOAA’s National Estuarine Research Reserve System and the U.S. EPA’s National Estuary Program, to increase the public’s understanding of estuaries and the need to protect them.

Tropical Storm/Hurricane Ophelia forced the cancellation of the scheduled broadcast from the Rachel Carson Reserve in North Carolina, and damage from Hurricane Katrina at the Mississippi Department of Marine Resources forced the Gulf Coast Estuary Live program to move its broadcast site to Alabama, and to shift its focus to how storms can affect coastal and estuarine ecosystems.

National Estuary Day is celebrated at HMSC every year with activities including demonstrations that explain the life of estuary plants and animals, a stream table that shows erosion patterns caused by flowing water, videos highlighting Oregon’s estuaries, and exhibits about current research on estuaries. And as on many other days, Visitor Center staff lead guided tours of the Yaquina Bay estuary, along a fully accessible nature trail.
The software from the “Dive and Explore” exhibit in the HMSC Visitor Center has been adapted for delivery over the internet and is now available on the New Millenium Observatory (NeMO) web site: http://www.pmel.noaa.gov/vents/nemo/dive.html

This site simulates making dives to the seafloor at Axial Seamount with a remotely operated vehicle using a combination of video and computer animation. The interactive experience can be accessed over the web or can be downloaded and then run offline. The original exhibit and the new web site were created by HMSC’s Bill Chadwick (OSU/NOAA), Bill Hanshumaker, and Vicki Osis, in collaboration with colleagues at Stanford University and funding from the National Science Foundation’s Geoscience Education Program.

**HMSC happenings**

**Lavern Weber honored by SSNERR**

Former HMSC Director Lavern Weber was recently honored by the South Slough National Estuarine Research Reserve for his years of volunteer service as Vice Chair of the management commission, where he has played a central role in setting the direction for the development of facilities at the Reserve since 1992. A framed photo of the South Slough estuary was presented to Dr. Weber at the commission’s September meeting, in appreciation of his leadership and dedication over the years — pictured here with current SSNERR commission member George Boehlert (l).

**In the news...**

Orthione griffenis -- a non-native isopod parasite found to be preying on mud shrimp in Yaquina Bay and other Northwest estuaries. Chapman, an invasive species expert at HMSC, believes the parasite could have been introduced through the ballast water discharges of ships coming from Japan, which is the only other place the organism is known to exist. Ecologists are concerned about parasite’s potential impact on the supply of mud shrimp, which are part of the diet of birds, fish, and other animals.

OSU Assistant Professor John Chapman (above) was featured in a Northwest News Channel 8 story about Orthione griffenis.

**Save the date!**

**HMSC Distinguished Lecture Series presents**

**Dr. Jeffrey Polovina**

Acting Director, NOAA Pacific Islands Fisheries Science Center & Principal Investigator, NOAA Ocean Watch, Honolulu, Hawaii

“Satellite tracking whale sharks, tunas, swordfish, moonfish, and turtles: A view of the subtropical ocean from the perspective of large pelagic animals.”

December 13, 2005

Hennings Auditorium, HMSC Visitor Center

**Bill Peterson on NPR’s All Things Considered**

Bill Peterson, an oceanographer with NOAA’s Northwest Fisheries Science Center at HMSC, was interviewed in July by NPR reporter Robert Siegel about the low levels of plankton in the waters off the coast of northern California, Oregon and Washington this summer. Peterson explained that the winds that normally bring cold, nutrient-rich waters to the shore had not materialized according to their usual summer pattern this year, but could not pinpoint the underlying reason for the delayed upwelling.

**HMSC Visitor Center Information**

The Hatfield Marine Science Visitor Center has aquariums and interactive exhibits that showcase marine research conducted by more than 300 scientists. The Visitor Center is open daily 10:00-5:00, through September. Fall/Winter hours are 10am-4pm, Wednesday to Friday, and 10am-5pm on weekends. Admission is by donation and all special program activities are offered free of charge. Call 541/867-0167 for a schedule of events or for more information.
those of people at HMSC.

Upon his return, Dr. Boehlert encouraged Miller and his advisor Ric Brodeur to seek out a grant through NSF and the Japan Society for the Promotion of Science (JSPS) to allow Miller to spend a summer working with Dr. Koji Omori at CMES. Dr. Omori’s research using stable isotopes to trace ecosystem connectivity of the Seto Inland Sea to external inputs from rivers and the Pacific Ocean is similar to Miller’s investigation of the link between near-shore coastal ocean productivity and less-productive systems offshore through upwelling.

“I am having a fantastic research and cultural experience here,” Miller said in a July email. “The people are nice and the area of Matsuyama is beautiful. Few people speak English (or are somewhat shy to talk) but this has helped my learning Japanese.”

One of the first people that Miller got to know when he arrived in Japan was Masayuki Yamamoto, a student at Ehime who had just earned his Bachelor’s degree in biology and who was getting ready for a trip east to spend the second half of the summer at HMSC.

“Masa”, as he likes to be called, arrived in Oregon on August 4th to work in the lab of OSU Microbiology professor Paul Reno, where he helped with a project to evaluate the antigenic composition of aquatic birnaviruses from a variety of marine and freshwater fishes from Japan.

“We hope to gain some insight into the sources of these viruses in Japanese fishes, given that it is likely that the original outbreak of virus disease in the 1960’s in Japan occurred in rainbow trout,” said Reno of the project. “Currently, it is found in a wide variety of cultured and wild marine fishes in Japan. We will try to determine whether the virus is indigenous to marine waters of Japan, or whether it was imported and dispersed with

Masa’s research on fish diseases is related to his wider interests in pollution and environmental changes such as climate, biodiversity decreases, and endocrine disruptors in the environment. His undergraduate thesis involved a study of bacterial biofouling at a desalination plant that is using reverse osmosis membranes to make seawater potable. Upon his return to Japan in September, Masa will begin studying this topic in greater depth as a graduate student in a M.S. program at Ehime University.

Also returning to Matsuyama will be Todd Miller, who after finishing his Ph.D. plans to go back for a one-year post-doctoral position at CMES, and possibly longer. In any case, Miller is likely to find the same warm welcome he received during his first visit.

“My advisor in Japan, Dr. Koji Omori, along with Dr. Takeoka, Dr. Tanabe and Dr. Suzuki and their respective labs, included me in social events, sports, and introduced me to Japanese culture and language,” says Miller. “Their generosity and friendship really made my experience in Japan.”

Adjusting to a new place...
(excerpt from Todd Miller’s travelogue):
“Riding a bike turned out to be my biggest adjustment in Japan. I wasn’t accustomed to the limited space available, coupled with so many bikes, people, cars and scooters riding all over the place (while text messaging!). I quickly learned to ride behind experienced bikers who swerved between people and other bikers (again, while text messaging!) until I was good enough to ride on my own.”
ing program after graduation, before realizing that becoming a Naval aviator wasn’t really where his passion was.

“I always had a love of the ocean and marine biology,” Burreson says of his decision to pursue graduate school, “maybe because I grew up in the dry wheat country of eastern Oregon.”

Burreson’s entered the graduate program in Zoology at OSU in 1970, with Ivan Pratt as his first advisor. He was later mentored by Bob Olson at HMSC, to whom he gives much credit for his successful career as a research scientist.

“I still think my graduate training at HMSC was the most valuable piece of my preparation,” says Burreson. “I learned how to be a scientist, and just as importantly, how to write. I can still vividly remember arguing with him (Olson) while writing my dissertation, and he was always right. He taught me how to write an unambiguous sentence, so that you say exactly what you mean to say.”

After completing his Ph.D. in 1975, Burreson left the Pacific Northwest for a job with an environmental consulting company in New Hampshire, running the field monitoring program for a proposed nuclear power plant.

“The field work was a marine biologist’s dream, with daily sampling and lots of SCUBA diving, fish trawling, plankton sampling, etc.,” says Burreson. “But being associated with the power plant resulted in some negative feelings toward me among some people, and I really wanted to get back into academia.”

Building on his experience in New Hampshire, Burreson landed a position at VIMS managing a large monitoring program concerned with potential oil drilling off the coast of Virginia. After finishing that program, he remained on the faculty at VIMS, with an initial research focus on blood parasites of fish and their leech vectors.

“It was fortuitous that one of the commercially and recreationally important fish species, summer flounder, was infected by a blood flagellate similar to those I worked on for my Ph.D. at HMSC,” recalls Burreson. “I solved the life cycle through the leech and did a lot of research on the ecology of the parasite/host/vector seasonality. It also turns out that the blood flagellate is very pathogenic to the flounder host under certain conditions and I did a lot of experimental work to sort that out. I still consider the papers that came out of this research to be some of my best.”

When the oyster pathologist at VIMS retired in the early 1980s, Burreson began working on two oyster diseases, which were devastating oyster populations in Chesapeake Bay. Research had been going on for 35-40 years investigating the source of these diseases, says Bob Olson, but it was Burreson’s research using genetic DNA probes that proved MSX was introduced from Japan.

In 1996, Burreson became the VIMS Director for Research and Advisory Services (DRAS), by no means a light assignment, given the institution’s legacy as the state’s formal Advisory Service (outreach) program mandated by the Code of Virginia. When it merged with the College of William and Mary in 1979 and became VIMS/School of Marine Science, it retained its mission as the mandated scientific advisory to all state agencies concerning estuarine and coastal issues. This included fisheries monitoring and stock assessment, water quality monitoring, wetlands monitoring, etc.

“When a state agency asks VIMS for advice, we don’t have the option of saying we are too busy, even though we all have teaching and grant-funded research obligations,” explains Burreson. “In addition, we often get large sums of money from the state legislature to investigate various problems or issues, and it was my job to coordinate and oversee the research effort for state-funded programs.”

When Burreson returned to full-time research and teaching in 2003, he was surprised by how much technology had changed teaching practices. “I was shocked to find that the blackboard was hardly used anymore, and all lectures were expected to be in PowerPoint.”

Burreson enjoys teaching and mentoring graduate students and passing on the knowledge he has accumulated over the years. He has been twice recognized with outstanding teaching awards at the College. He also still loves research, and considers himself today primarily an ecological parasitologist. Like most scientists, Burreson’s primary frustration is with the time it takes to write proposals to keep research programs going.

Asked if he had any advice to offer to a young person interested in studying marine science, Burreson replied: “You have to love what you are doing, because you’re never going to get rich. I think it is a great career choice, with lots of opportunity for travel. To really be successful you need a graduate degree. If contemplating graduate school, you should go to the best school you can get into, because you will be competing with those graduates for jobs some day.”

Noting the increasing awareness of the environmental challenges facing coastal ecosystems, Burreson says marine labs are in a unique position to respond to the need for research and education to address these issues because that is where the majority of the environmental problems are. “Everyone wants to live on or near the coast, and the impact of this is staggering in terms of wetlands destruction, pollution, nutrient runoff, etc.”

Burreson would be one to notice, as his life outside the lab includes exploring the beautiful but stressed tributaries and salt marshes of the Chesapeake watershed. He is an avid birdwatcher and likes to build woodstrip canoes andsekayaks in his spare time. As a grandfather to two pre-school aged children, he is also ever mindful of the world being handed to the next generation.
Fall Seminar Series Highlights Diversity of Research Interests

The HMSC seminar series features scientific lectures by visiting scientists and researchers based at HMSC. Seminars take place every Thursday from 3:30pm to 4:30pm (unless otherwise noted) in the Guin Library Seminar Room. Friends of HMSC are welcome to attend!

Sept. 21 - Dr. Danny Grunbaum - School of Oceanography, University of Washington “Resolving individual-level behaviors underlying distinct group types in fish.”

Sept. 29 – Dr. Greg Moyer – HMSC Marine Fisheries Genetics Lab, Newport “Hatchery vs. Wild Salmon, Round I”

October 6 - Dr. Thomas Ebert – University of California, San Diego “Evolution of sea urchin life history and oceanography”

October 13 - Dr. Jim Ruzica - Northwest Fisheries Science Center, NOAA-NMFS, Newport “Larval cod foraging and energetics.”

October 20 - Dr. Mike Canino - Alaska Fisheries Science Center, NOAA-NMFS, Seattle “Improvements in detecting genetic population structure in marine fish: a case study of Atka mackerel.”

October 27 - Dr. Tuba Ozkan-Haller - College of Oceanic and Atmospheric Sciences, Oregon State University “Nearshore processes and morphological evolution”

November 3 - Dr. Harvey Kelsey - Dept. of Geology, Humboldt State University “Tsunami history of an Oregon coastal lake reveals a 4,600 year record of great earthquakes on the Cascadia subduction zone”

November 10 - Brady Olson - School of Oceanography, University of Washington “Grazing dynamics and the mortality environment of the toxic diatom Pseudo-nitzschia.”

November 17 - Dr. Bill Peterson - Northwest Fisheries Science Center, NOAA-NMFS, Newport, OR “The impact of recent climate variability on hydrography, zooplankton and salmon in the northern California Current”

November 24 - Thanksgiving (NO SEMINAR)

December 1 - Dr. Chris Harvey - NOAA-NWFSC, Seattle “Easy, slightly less-easy, and decidedly non-easy models of the trophic ecology of northeast Pacific rockfish.”

December 8 - Jason Dunham – USGS Forest and Rangeland Ecosystem Science Center “Effects of wildfire on fish populations: contemporary changes and long-term consequences”

For complete, up-to-date schedule, visit the HMSC events web page: http://hmsc.oregonstate.edu/events.html