



Meet HMSC's New Director, Dr. Bob Cowen

Dr. Robert K. (Bob) Cowen, a marine biologist and administrator from Miami, Fla., began his tenure as Director of the OSU Hatfield Marine Science Center on July 27. He succeeds Dr. George Boehlert, director from 2002-2012, and Janet Webster, interim director from January through July of 2013.

Dr. Cowen comes to HMSC from the University of Miami's Rosenstiel School of Marine and Atmospheric Science, where he was the Robert C. Maytag Chair of Ichthyology and the associate dean for research. Prior to his arrival at the University of Miami in 1998 he was on the faculty of the State University of New York at Stony Brook and conducted research as a doctoral student at Scripps Institution of Oceanography in San Diego, Calif. His studies range broadly, encompassing such issues as coastal fish ecology, fishery oceanography, larval transport and connectivity of marine organism populations.

Dr. Cowen's arrival has generated excitement on the HMSC campus, where plans for a dramatic expansion of HMSC's academic program offerings are in the works and are expected to add cohesion to OSU's diverse marine programs. These developments, built on a foundation laid by Dr. Boehlert and advanced by Janet Webster during her interim tenure, are expected to accelerate under his direction. "I am very enthusiastic about joining the Hatfield Marine Science Center and OSU – not only for their great reputation, but also for the huge potential for bridging marine

science education and science activities across the university," Cowen said.

Another welcome addition to HMSC is Dr. Su Sponaugle, a Professor in OSU's Department of Zoology and Dr. Cowen's wife. Her position includes research and teaching, and her passion for education and expertise in marine ecology will help to advance HMSC's mission.



HMSC's Legacy of Parasitology Research



Professor Ivan Pratt

In 1965, an OSU Professor and parasitologist named Dr. Ivan Pratt set up shop in a brand new research lab at the Marine Science Center. With that event began a legacy of marine parasitology now spanning four academic generations.

A faculty member in the Department of Zoology, Professor Pratt taught and conducted research in invertebrate zoology and parasitology from 1946 until his death in 1973. He contributed to the planning and development of the Newport campus, and hired a research associate in 1968, Dr. Bob Olson, who pursued a career with OSU in parasitology research and is now an emeritus professor.

Professor Pratt's original lab is now a shellfish genetics lab, and the legacy of parasitology research in Newport has shifted to one of HMSC's federal partner labs, that of the National Oceanic and Atmospheric Administration (NOAA) under the direction of Dr. Kym Jacobson. Her

research focus is on parasites of coastal pelagic species and juvenile salmon – their life history and effect on early marine survival. She continues this legacy as a mentor, passing her knowledge to a fourth generation of scientists.

A recent visit of Professor Pratt's son Richard and his wife Linda brought this important piece of HMSC history to the forefront. A discussion of ways to honor our founders for HMSC's 50th anniversary in 2015 inspired the Pratts, already members of the Friends of HMSC, to start a 50th Anniversary Fund with a generous donation. They also are inspired to scour their own archives for more glimpses into Professor Pratt's career as one of HMSC's founding scientists.

For more information about HMSC history, or to contribute, see <http://hmsc.oregonstate.edu/> or contact us at maryann.bozza@oregonstate.edu.

Four academic generations of parasitologists at HMSC. Left to Right: Linda and Richard Pratt, representing Richard's father; intern Chris Hager; Kym Jacobson & Bob Olson.



Notes from the Interim Director



Janet Webster,
HMSC Interim Director

In June, we celebrated the end of the academic year with the annual Markham Symposium where OSU students told us about their trials and tribulations as they learned to be marine scientists and educators. This event, now in its 19th year, recognizes the grand contribution of Bill and Mamie Markham. Making their home in Arch Cape, Oregon, the Markhams raised two sons who became marine scientists – Jim as a botanist and John as a

biologist. In 1988, Mrs. Markham (Bill had died some years earlier) decided to start funding marine science at OSU. Her first gift of \$20,000 was used to fund several students and faculty working at the HMSC. Her giving continued and upon her death in 1995, Mrs. Markham left \$500,000 as an endowment titled the HMSC Directorship Fund. The Markham's generosity has produced over \$1,100,000 in scholarships for OSU graduate students working in the full ranges of marine science. Once again, our current students proved worthy of the generosity of the Markhams and other

donors. Nine students presented their work in a five minute, fast-paced format. Winner of the best presentation, Cheryl Horton, packed her talk with images and data that told the story of bald eagle predation on common murrelets on the Oregon coast. It represented what all of our students bring to their science – curiosity, hard work and collaboration. And their science is made possible in part by the generosity of our supporters. Thanks to all of you.

In mid summer, student interns seem to pop up everywhere. We are hosting 10 Research Experience for Undergraduate interns thanks to the 5 year renewal of our National Science Foundation grant (1 of 3 in the country). The Director's Office has 3 interns working on projects including creating a digital archive of some of our records, developing a healthy workplace and documenting our complex seawater system. Interns get solid mentoring from the variety of experts at HMSC and a wonderful adventure of being part of the HMSC enterprise.

That enterprise may be evolving as we explore expanding our educational component. To that end, we have been talking to a wide variety of people, surveying even more and compiling ideas, issues and challenges into a report on options for the future of education at HMSC. This is an exciting time and I will be handing this project and many more over to Bob Cowen, who, by the time you receive this, will have assumed the reins as director of HMSC.

HMSC Website Renovation

If you haven't been to HMSC's website in a while, now is a good time to have a look - hmsc.oregonstate.edu. It's in the same place it's always been but has a new look and some new features. You'll find lots of new (or easier to find) content highlighting our partners, academic programs and collaborative research partnerships.

Some tips to get you started:

- Explore the "Fun Stuff" tab, with links to this newsletter, ship- and octo- cams, podcasts, Science on Tap and more.
- Learn more about HMSC under the "About" tab.
- Sign up for our news blog, *Currents*. Find *Currents* under the Fun Stuff tab, then click on the RSS logo in the upper right hand corner of the *Currents* webpage.
- Donate online, anytime, on our "Supporters" webpage.
- Stay tuned for new features coming soon.



All this and more, at hmsc.oregonstate.edu!

Thank you for your support. To become a member of the Friends of HMSC, or for more information, please see <http://hmsc.oregonstate.edu/supporters/>

Volunteer Interpreters at Port Dock 1



Volunteers are again stationed as interpreters at Port Dock 1 (PD1) on Newport's Bayfront for the summer season as part of an innovative

program created by Oregon Sea Grant and the Port of Newport. There is never a dull moment at this dynamic site, which is very popular among tourists. Volunteers, braving Newport's unpredictable weather in bright red raingear, serve dual purposes by educating the public and ensuring safe visitor behavior. Most questions revolve around the charismatic male California sea lions that frequent the docks. However, all kinds of teachable moments arise as fishing vessels arrive and recreational crabbers pull up not only crabs but also the occasional sea star. Each shift offers new experiences for volunteers, and members of the public greatly appreciate their presence and knowledge.

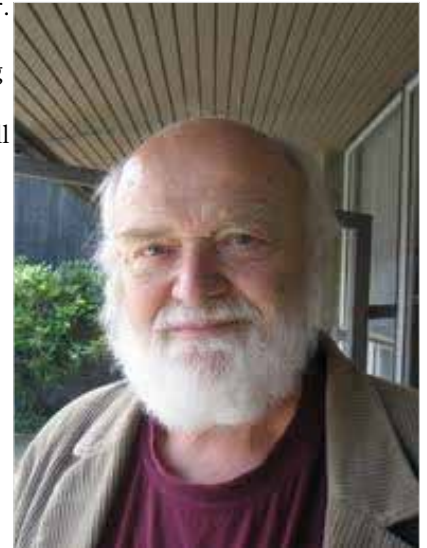
Twelve PD1 interpretive volunteers donated over 200 hours of their time at PD1 in 2012. Thanks to an expanding and enthusiastic volunteer corps, the project will continue through 2013. For more information or to volunteer, contact Becca at rebecca.harver@oregonstate.edu or 541-867-0226.

Photo: California sea lions at Port Dock 1 by PD1 volunteer Eileen Flory

Fred Talks

Retired professor, writer, and all around marine biology aficionado Fred Duerr is volunteering his time to create and deliver special presentations for the visiting public. His 20 min "Fred Talks" take place at 1:30 pm on Saturdays and Sundays in the Hennings Auditorium. Fred's current presentation is entitled "Potable Water" and covers how to ensure your water is potable with tips about what to do in the event of a disaster.

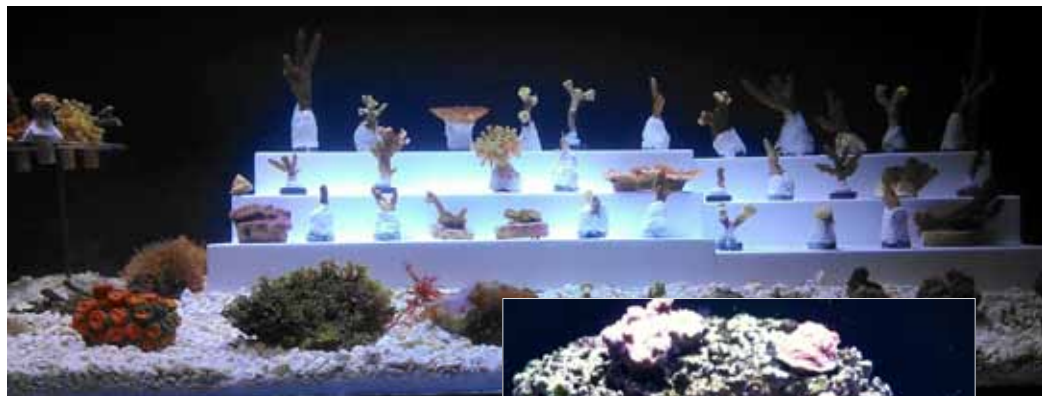
Fred's next talk coming down the pipeline will be about zonation in tide pools. These talks are free to attend and open to the public, come on down and check one out!



Aquarists Corner

Watch Us Grow! *by Colleen Newberg, HMSC Senior Aquarist*

This past spring we expanded our Tropical Marine Reef Exhibit from a 55-gallon tropical saltwater exhibit to four new larger exhibits totaling an estimated 450 gallons of tropical saltwater. Although we had many tropical fish and corals onsite we needed more to fill up the larger exhibits. In a conservation effort our first thought was to ask for donations. The Pacific Northwest Marine Aquarium Society, a Portland based group of aquarium hobbyists and enthusiasts, graciously responded to our needs. Aquarium hobbyists and enthusiasts from Portland, Eugene, Salem, and everywhere in between have donated coral frags, tropical fish, and live rock for our new exhibits. The coral frags, short for coral fragments, are pieces of coral that have been separated from a larger piece of coral directly from our donors' home aquariums. With lots of care from the husbandry team these animals will continue to thrive and help build up our coral reefs at the HMSC Visitor Center. We hope you enjoy these beautiful animals and come back often to watch us grow!





Over two thousand visitors attended our second annual **Marine Science Day** on April 13! Beyond the exciting new exhibits in the Visitor Center, there were over thirty special hands-on exhibits and activities to explore behind-the-scenes at HMSC. Scientists shared their diverse research in genetics, scientific diving, ocean observing, fisheries bycatch, ocean acidification, tsunami dock seaweed identification and so much more.

See: <http://hmsc.oregonstate.edu/marinescienceday>



Mark your calendar for Marine Science Day, April 12, 2014!

Volunteer Corner

This summer eight volunteers are leading **Estuary Walks** for the visiting public. Seasoned Estuary walkers Jerry Boyd, Ralph Brientein, and Eileen Flory trained fellow volunteers Andrew DelGreco, Nancy Edwards, Jim Martinez, Donna Scurlock, and Margaret Tackett to deliver this popular hour-long, outdoor tour. This is a great opportunity for the public to hear about the processes and biota of the Yaquina Bay while simultaneously learning more about the HMSC complex as a whole. It also provides the perfect excuse to sample some pickleweed and get up close and personal with a couple of ghost shrimp! We would not be able to offer this tour without the assistance of our committed volunteers. To join a tour, check out the current week's schedule posted on the Visitor Center's whiteboard or call the Visitor center at 541-867-0100.



Photo: Volunteer Jerry Boyd leads an Estuary Walk. This is Jerry's 16th year volunteering and leading the walks.

Adventures in Learning at HMSC

HMSC and NOAA hosted a visit in June by U.S. Representative **Suzanne Bonamici**, of the First Congressional District in Northwest Oregon. Although she and her staff came to learn more about the important ocean and coastal research, outreach, and education at OSU's Hatfield Marine Science Center and NOAA's Marine Operations Center - Pacific, the photo suggests that the impromptu octopus encounter was a welcome addition to the agenda!



HMSC also hosted an enthusiastic group from the **Portland Garden Club** in June for a day of tours and hands-on learning. Participants braved steady rain for a tour of Newport's working waterfront with Sea Grant Extension Agent Kaety Hildenbrand, followed



by a tour of the Visitor Center by VC Manager Mark Farley. The final adventure of the day was a hands-on class by Kathryn Hawes exploring sea star feeding behavior, natural history and unique adaptations.



Honor Roll



The Oregon Library Association (OLA) recently recognized **Janet Webster**, Hatfield Marine Science Center Head Librarian, with the 2013 OLA Distinguished Service Award. This award is given to an Oregon librarian or library

staff member for exceptional service over many years. Janet was honored for her decades of outstanding leadership in a wide array of community and library organizations, including serving as an effective advocate for federal, state and local policy and legislation that allows libraries to better serve their communities. Janet's community service extends beyond HMSC and Oregon's libraries to local government and community organizations on the coast and around the state.

Are you **TsunamiReady**? HMSC and Lincoln County are! HMSC, along with coastal school and fire districts and the coastal cities of Lincoln County were recognized in a June 25 ceremony for their supporting roles in the County's new TsunamiReady and StormReady designation. Conferred by NOAA, the designation is a major step for Lincoln County's overall emergency preparedness. For more information see: <http://hmsc.oregonstate.edu/getready>



HMSC's donors continue to recognize and support student research



The 19th Annual Markham Symposium, a celebration of graduate student research and scholarship, was held at the Hatfield Marine Science Center on June 19. The well-attended event featured fast-paced student presentations and a lively poster session. Over \$80,000 in scholarships were awarded this year to students in 5 departments in 3 different colleges.

These scholarships are made possible by HMSC's donors, who contribute to the education of tomorrow's marine scientists. For more information on academic opportunities at HMSC, or to learn more about supporting HMSC scholarships, see our scholarships webpage: <http://hmsc.oregonstate.edu/financial-aid>

Speed Networking: Broadening the summer student experience and increasing connections with graduate student research

At this year's annual summer student kickoff BBQ, Hatfield Student Organization students organized several new activities for their annual welcome of summer interns and summer session students. It was a gorgeous afternoon filled with fun activities including a watermelon eating contest (Laury Perry, first place), a Cheetos face competition (Shelby Herber, first place) and finally a round robin speed networking activity between graduate students and summer undergraduates at HMSC. The speed networking, similar to the speed dating concept, had graduate and undergraduate students share their research interests in 3-5 minutes per match. Undergraduates were given a handout listing all the graduate students, a synopsis of their research and their contact information. The hope was to engage undergraduates in array of research activities conducted at HMSC that they could participate in or at the very least be exposed to and have discussions about.



Learning communities around research ethics



Along with the hustle and bustle of research activity and a new summer session program, a thread interwoven through all of the summer academic programs is the theme of research ethics. While students are focused on fieldwork, exams and making new life long friends, the summer schedule also includes presentations, readings, discussions, talks, and a faculty panel discussion on research ethics. This thread was kicked off with a seminar entitled, "Saving your soul and serving the interests of society while working in the real world as a scientist" which resulted in many hallway discussions related to science and advocacy, conflict of interest, authorship, data manipulation, and cultural and gender biases. The goal is to provide a basic framework for recognizing and dealing with issues in research with ethical implications, and encourage students to understand the ethical issues engendered by research planning, process and results. Finally, students will incorporate the insights of research ethics into research plans with the one-on-one help of their summer intern mentors.

Building on Success

Internships are central to HMSC's educational programs, attracting students with a passion for marine science and a desire to "get their hands wet" to see what a career in marine science is really all about. We can observe the transformational experiences, and share in the excitement of new directions – but how do you really measure a program's success?

Misti and Laury are wonderful examples of successful interns – and of the efforts of many HMSC partners. Both attended community college and took the opportunity offered to gain valuable research experience through the Centers for Ocean Sciences Education Excellence Pacific Partnerships – Promoting Research Investigations in the Marine Environment (COSEE PP PRIME) internship.

AND THEY'RE BACK! Both returned this summer as successful applicants in the nationally competitive Research Experience for Undergraduates (REU) program at HMSC – climbing the academic ladder rung by rung, and having fun along the way. See interns' blogs at <http://coseeppprime.blogspot.com/>



Photo: 2013 COSEE interns and mentors

Misti Zerbin – REU intern (COSEE PP PRIME 2011 Alumni):

Stepping out of the door of my old Honda and getting that first whiff of salty, fishy air, I am reminded of why I have arrived at Hatfield Marine Science Center and the circuitous route toward my longstanding goal of being able to proudly wear the label of 'scientist'.

Last year, with the help of two absolutely fabulous faculty members at Lane Community College, as well as my mentor Brett Dumbauld and our program coordinator Itchung Cheung, I was able to participate in the COSEE internship program. Though not my first lab experience, it was certainly the most in-depth and confusing. Those 8 weeks, replete with raucous fellow interns, jubilant coastal expeditions and more than a few visits to Rogue brewery was not only a summer filled with more education and scientific communication than I could ever hope to experience in such a short span of time, but one in which my first few connections with the scientific community took root.

Now, as I stand in my lab, the smell of shrimp innards and ethanol saturating my skin, I thank both my mentor and the REU program for giving me an even greater chance to support my dreams. Both the rigidity of this program and the constant support from the interns, the coordinator and the grad students contribute to a level of intense scientific discourse and meaningful friendships that I will draw on many years from now. I believe my experience at HMSC will elevate me to a more thoughtful, conscientious and ethical researcher more than years in a classroom ever would.

Laury Perry – REU intern (COSEE PP PRIME 2010 Alumni):

Science wasn't always my first choice. It wasn't until I took an introductory marine science course at my community college that it became a real goal of mine. In 2010, I was accepted into the COSEE PP PRIME program and spent 8 weeks at HMSC. It was life changing! It was my first experience in a real lab and connecting with a unique, welcoming community like HMSC. The experience left me inspired and driven to pursue marine science to its fullest extent. I immediately found a student lab position at OHSU as I started my first year at Portland State University. And this summer I was fortunate enough to return as an REU intern working with mentor Dr. Jessica Miller. HMSC is the place that first introduced me to the world of working science. The center is like no other place, it is a community of driven, passionate scientists that are completely supportive of one another. The support a young intern like me received over just a few weeks is enough to really set me up to have a realized career in science. My connections and friends I acquired from HMSC has continued since the first time I was here three years ago and I am excited to see where it takes me next as I am graduating and applying for graduate programs.





Check out HMSC's new website - hmsc.oregonstate.edu! See page 2.

Explorations in Animal Magnetic Sense

*by Renee Bellinger, PhD Candidate,
OSU Hatfield Marine Science Center*



Animals migrate over vast distances on an annual basis, but the guidance mechanisms used to achieve this remarkable feat have long been a puzzle to humans. We now know that animals can sense the Earth's magnetic field, and there is some evidence that magnetic information is one of the cues used by animals for navigation. But how are magnetic fields sensed? One idea is that receptor cells contain tiny magnetic crystals that move into alignment with the Earth's magnetic field. The movement of the crystals is believed to open or close ion channels, transmitting neural signals to the brain.

Magnetic cells have been found in salmon, but these cells have not yet been directly linked to magnetic sense. The cells are very difficult to find and study, and by the time they are found they are usually dead.

Given these challenges, my PhD project, under the mentorship of Dr. Michael Banks, is using a novel approach that takes advantage of state-of-

the-art gene sequencing technologies. Genes are precursors to proteins, the building blocks of cells. I am comparing genetic profiles of magnetic and non-magnetic cells of Chinook salmon to identify genes involved in crystal formation and function. From these genes, I aim to develop gene-based fluorescent probes that can be used to rapidly find cells in tissue. This would permit locating cells while they are still alive and testing their response to magnetic treatment. So far I have identified several hundred genes. This work is supported by two generous awards from the Mamie Markham Research Foundation, and has benefitted from additional University and Department of Fisheries and Wildlife scholarships.

Why is this important? We need a better understanding of how animals sense and use magnetic fields to fully assess potential effects of electromagnetic fields emitted by wave energy buoys. The end-goal is to identify genetic underpinnings of magnetic sensory perception, and help solve some of the mystery of how birds, fish, and other migratory animals are able to find their way.