



Charleston Marine Life Center

The University of Oregon's new Museum and Aquarium

Oregon Institute of Marine Biology

Status Update: July, 2013



Summary. The Charleston Marine Life Center, a public museum and aquarium currently under construction at the edge of the small boat basin in Charleston, was conceived in 2007 during a community planning process convened by the Oregon International Port of Coos Bay. From the very beginning it was viewed as a mechanism to stimulate the struggling economy of Charleston by attracting visitors into the heart of the town while also providing a rich educational resource to local teachers and families. It promises to be the University of Oregon's most visible public interface on the Oregon Coast and in the southern part of the state. Although the project has received some funding from various offices of the University and draws heavily on the expertise and resources of University faculty and staff, most of the construction and exhibit funding comes from private foundations, businesses, tribes and citizens. The project is approaching a completion date slated for early 2014.

Background: U.O. Influence on the South Coast. The Oregon Institute of Marine Biology (OIMB), which was founded more than 80 years ago on an historic Coast Guard and CCC site in Charleston, is one of the premier marine laboratories in the world and has been an important driver of the local economy for at least the past 30 years. Because of its ideal location at the confluence of two major estuaries and in close proximity to some of the most pristine and spectacular coastlines anywhere, the institute attracts students and visiting scientists from all around the world, many of whom reside here for extended periods and all of whom spend money in the local economy. Usage of the marine lab, for teaching, research and community events currently averages approximately 23,000 user days per year (not including support staff). From an economic standpoint this means that an average of 60 individuals associated with the marine lab spend their money in Coos County each day. All members of the small resident faculty are highly successful at attracting government grant funding for research and education and currently hold approximately \$7 million in funding from agencies such as the National Science Foundation and NOAA. Many of these funds are expended locally for salaries and for the procurement of supplies and services from local vendors.

Over the past decade, OIMB has extended its teaching mission from traditional University students (below left) to include the k-12 students (middle and right) of coastal counties as well as community college students throughout the Pacific Northwest. Between 2005 and 2011, OIMB invested more



than 6 million dollars of NSF (National Science Foundation) funds in local elementary education with a program in which OIMB graduate students taught more than 3500 students from kindergarten through 6th grade each week in 6 coastal school districts, including all schools in Coos County and

some schools in Douglas and Curry Counties. The original curriculum, “Learning about where we live” was designed to motivate children to attend college, to appreciate the privilege of residing in coastal Oregon, and to consider careers in science, math and technology. After the program ended, the popular curriculum developed in Coos County was made available to teachers everywhere through the OIMB website. OIMB is now designated by the federal government as the lead institution for a COSEE (Center for Marine Science Education Excellence) in collaboration with other institutions in Oregon, California, Washington and Hawaii. All of these efforts bring international recognition and dollars to the sleepy little town of Charleston.

The Charleston Marine Life Center: History of the Project.

For more than 25 years, OIMB has provided a summer display of live animals for the public, housed in a rustic open-air pavilion near the small boat basin in Charleston. The pavilion (below), which was constructed as a service project by the Coos Bay and North Bend Rotary Club in 1986, provided inadequate protection for high quality displays and was uncomfortable for visitors because of the strong upwelling winds that prevail at the site during the summer months. When the Oregon International Port of Coos Bay convened a



community planning process in 2007, the director of OIMB proposed that the open pavilion be replaced with a small museum that might attract visitors into the heart of the town, where they would be more likely to patronize local businesses than if they drove quickly by to reach the state parks on Cape Arago Highway. A second idea proposed during the same series

of meetings was a sidewalk and landscaping upgrade for Boat Basin Road. The latter project has now been completed and the sidewalk leads directly to the building where the new public display facility is under construction. The building was to be constructed on property governed by a perpetual lease arrangement through the Port of Coos Bay. The Port Commission unanimously approved this use of the land in 2007 and Pacific Seafood donated the first funds in support of the project that same year. Because this project had to be funded largely by private donations, OIMB and the University of Oregon Foundation have been actively involved in fund raising for this project for the past 6 years and have raised nearly \$900,000 from private donors and foundations. The University of Oregon has contributed a portion of the cost through the offices of various deans and vice presidents and the project has the support of the University at the highest levels.

The new building was designed by local designer Butch Schroeder in consultation with OIMB faculty, and engineered by Stuart Woods of McSwain and Woods Architects. By supporting one wing of the building on large precast concrete beams over the old ODFW salmon ladder channel, the designers were able to create space for a 6,300 sq. foot, two-story museum/aquarium that enjoys some of the finest vistas on the bay. Coos County demonstrated support for the project by vacating a portion of a utility easement to make room for the grade beams without violating county setback requirements. The electrical plan has been completed by HGE engineering of Coos Bay.

OIMB is making a large financial investment by dedicating the time of full-time employees, including an in-house contractor, to the construction project. To date, the project has provided temporary employment for eight local carpenters, a local a steel worker, and various local subcontractors for plumbing, electric, HVAC, concrete cutting, welding, etc.

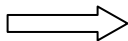
As of July 2013, the exterior of the building is virtually completed. It is covered in cedar shakes to match the rest of the buildings on the OIMB campus (see cover photo). The interior space is completely framed and nearly ready for plumbing and electrical work. The building has become an impressive anchor for the new sidewalk on Boat Basin Road as well as a focal point for views from other sides of the harbor (recent photos below).



Funding Partners. In addition to contributions from the University of Oregon (Offices of the Vice President for Research, Dean of Arts and Sciences, Associate Dean of Science, Associate Vice President for Campus Operations, Oregon Institute of Marine Biology), the project has been supported by a number of foundations, companies and agencies including:

- Pacific Seafood Corporation (Bandon Pacific)
- Royal Caribbean and Celebrity Cruise Lines Ocean Fund
- Coquille Tribal Community Fund
- Pacific Power Foundation
- Oregon Community Foundation
- Luvaas Fund of the Oregon Community Foundation
- The Ford Family Foundation
- Michael Keiser Fund of the Oregon Community Foundation
- Plum Creek Timber Foundation
- Lazar Foundation
- Oregon Sea Grant
- Oregon Department of Environmental Quality
- National Science Foundation
- Aquarium Science Program, Oregon Coast Community College
- Oregon International Port of Coos Bay
- Coos County Commissioners
- Oregon Dungeness Crab Commission
- Oregon Albacore Commission
- Oregon Salmon Commission

Donations ranging from \$50.00 to \$25,000 have been received from private individuals, including numerous OIMB alumni. Many local citizens, including fishermen, physicians, and private collectors have contributed in-kind donations of specimens and services. The Oregon International Port of Coos Bay is funding parking and other outside improvements as part of the cost share on the Boat Basin Road sidewalk project. For the past year, we have conducted a funding drive, “Adopt a Bone”, to raise funds for exhibits that include rearticulated skeletons of a killer whale and a juvenile California Gray Whale (below). Donors to this fund will have their names permanently displayed on a plaque in the Marine Mammal Gallery. The successful drive has engaged dozens of private individuals, most of them local, who are now proud funding partners and stakeholders in the marine life center.



What visitors will experience. Last summer, a large grant from the Department of Transportation was used by Coos County and the Port of Coos Bay to upgrade Boat Basin Road, Charleston’s main thoroughfare, with broad sidewalks, landscaping, street lighting and new paving. The new



pedestrian approach to the Charleston Marine Life Center runs along the east side of the OIMB campus (left) and provides good views of the University’s beautiful grounds and buildings. Eventually, (this bit has not yet been funded) we plan to punctuate this sidewalk with signage that recounts the rich and interesting history of this site, including periods when it was the camp site for trapper Jedediah Smith (1820), the first U.S. Coast Guard Station in the United States (1914), the narrow-gauge railroad, trestle, tunnel and staging site for construction of the South Jetty (1925), the Civilian Conservation Corp

encampment that built the local state parks (1930’s), the first marine station in Oregon (1930) and the eventual evolution of the station into a world-class destination for teaching and research.

As they approach the front entrance, visitors will view the 13-foot skull of a humpback whale. Inside the building, they will find five separate galleries on two floors, with all of the first floor galleries featuring large and small tanks with living marine animals. Life support for these tanks will depend on OIMB’s extensive flow-through seawater system that supplies the campus with up to 70,000 gallons of cold seawater each day and is currently being upgraded with a facilities grant from the National Science Foundation.

Energy Demonstration Project. Funds have already been committed by DEQ and Pacific Seafood to a residential-scale demonstration project that will generate electricity for display lighting and digital



displays. With sponsorship from the Associate Vice President for Campus Operations, the design of this project has been undertaken by Professor C.G. Brown’s “Energy Studies in Buildings Laboratory” in the School of Architecture and Allied Arts at the University of Oregon. Dr. Brown is a world authority on green construction practices and energy efficient buildings. Depending on the availability of tax credits and additional sources of funds currently being explored, the project may include a small wind turbine (possibly similar to the one at left), solar panels, a micro-hydroelectric system (in the salmon ladder or the stream that runs directly under the building), or all of the above. Visitors will have the opportunity to view an exhibit that explains how power is generated for the lighting and displays.

Marine Ecosystems Gallery. Upon first entering the building, visitors will find themselves in a public aquarium gallery that features the highly diverse marine ecosystems of the surrounding area. Large built-in wall tanks and huge free-standing ones will display animals and plants of estuarine seagrass meadows (e.g. giant moon snails, pipefish, clam-eating starfish, cockles and hydromedusa jellyfish) subtidal boulder fields (including a giant pacific octopus), offshore sand bottoms (flatfish, sand dollars, shrimp, etc.), dock pilings (colorful sea squirts, fan worms, and the world's largest barnacles), kelp forests (giant 21-armed sunflower stars, ling cod, wolf eels and rockfish) rocky tidepools (sea anemones, sea urchins, snails, etc.) and jellyfish. The intertidal display will include a shallow touch tank where kids may handle starfish, hermit crabs, etc. as well as a large tidepool tank full of sea anemones. A three-dimensional land-form model showing both coastal and underwater topography will direct visitors to places where they may interact with the various ecosystems and organisms in the bays, ocean shores and offshore waters of the South Coast.



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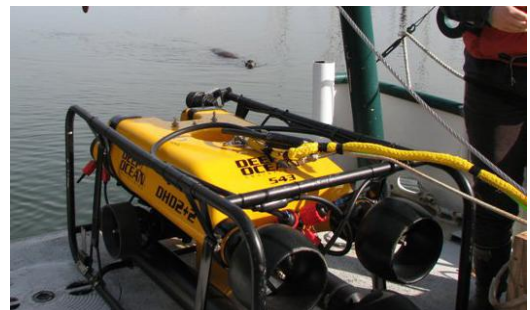
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Underwater Oregon Gallery. Very few residents or visitors in our area have any idea of the amazing ecosystems found in deeper water off Oregon. Living animals from the Cape Arago subtidal (basket stars, crinoids, gorgonians, ascidians, sponges and corals), worldwide specimens from deep-sea sites where OIMB scientists work, and virtual submersible dives depicting the sea floor will be featured in the Underwater Oregon Gallery.



A computerized touch screen tied to a large flat-screen display will allow visitors to select various "dive sites" and bring up actual video footage of the ocean floor at designated marine reserve sites in the Oregon Territorial Sea, as well as dive video from offshore sites such as Astoria Canyon, black smokers at hydrothermal

vents on Gorda Ridge, methane "ice" at hydrate ridge, rocky reefs at Coquille Reef and Heceta Bank, and underwater volcanos on the Juan de Fuca Ridge. Visitors will also have the opportunity to view one of the undersea tools that produces this seafloor video footage: OIMB's recently acquired remotely operated vehicle (NSF funded, right). Windows inside the museum will look directly into the ROV storage bay and workshop.



Oregon Fisheries Gallery.

The seafood industry is the heart and soul of Charleston, and many visitors come specifically to experience a working fishing village (and to catch fish, clams and crabs that they may eat!). The consensus of the community is that any future development will preserve the existing character of this fishing tradition. The Charleston Marine Life Center, located adjacent to Pacific Seafood and with expansive views of the bay and the harbor, is ideally situated for viewing the workings of the seafood industry. The fisheries gallery is a covered, open-air deck where visitors can see the comings and goings of fishing vessels as they unload and sort their catch. Interpretive panels will explain the various local fisheries and the kinds of gear used. The gallery will also contain large tanks where visitors can get



“eye to eye” with commercially important species while learning about the life histories, movements and biology of these animals.

Throughout the display, panels and artifacts developed in collaboration with the local Native American tribes will remind visitors of the traditional uses of marine resources by ancient cultures in the area. On one end of the fisheries gallery, visitors will look directly down into a working salmon ladder, adjacent to a big tank of salmon and exhibits on salmon biology and conservation. The message of the fisheries gallery will be positive and focused on the sustainable, responsible and hard-working fishermen of Oregon. Accordingly, we are inviting active members of the fishing community, including commercial and recreational fishermen, seafood processors, seafood commissions and tribal members to help craft the messages in the displays.



Marine Mammal Gallery.

Coos Bay and the nearby open coast are some of the best places in North America to view marine mammals “up close and personal,” and nearly every visitor to the area takes the opportunity to interact with them by whale watching from the cliffs, viewing seals and sea lions at local rookeries, or watching their antics near the docks. OIMB has taught an intensive course in Marine Birds and Mammals since the 1960’s that draws students from all around the world. Moreover, as the Marine Mammal Stranding Network site for southern



Oregon, OIMB scientists have acquired and prepared an impressive assortment of marine mammal materials for display and teaching. The large second-floor marine mammal gallery in the Charleston Marine Life Center



will incorporate many of these materials into educational exhibits that the public may enjoy. Centerpieces of the gallery will be the complete skeletons of a 35-foot-long juvenile California Gray Whale and a 23-foot Orca as well as a sperm whale skull and numerous skeletons and taxidermy preparations of smaller toothed whales, seals, sea otters and sea lions. Exhibits will include video displays featuring whales in their natural environments, a small room describing the evolutionary history of whales (with local fossils), and large windows from which harbor seals and sea lions are nearly always visible. Future plans for this gallery (currently under discussion with the Oregon Islands National Wildlife Refuge) include a real-time close-up video feed of the famous sea-lion rookery on Simpson's Reef.

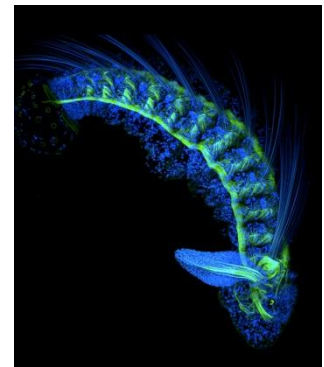
Life Histories and the History of Life. Another large second-floor gallery will focus on the diversity of life in the sea and on the complex life cycles of marine animals and plants. The OIMB faculty includes



experts on virtually all groups of marine animals, and Larval Biology, the study of baby animals, is a field for which OIMB is reknown worldwide. This gallery will draw on this expertise with displays on bizarre animals (nemerteans, pycnogonids, tardigrades... the list goes on and on) that are unfamiliar to nearly everybody. Unusual

representatives of better-known groups will also be included. For example, an exhibit on mollusks will feature snails from throughout the world (an exhibit developed in collaboration with the Oregon Society of Conchologists) as well as a

Humboldt squid and an Oregon giant squid (left). Microscopic specimens will be featured in an interactive exhibit with easily used dissecting microscopes, and the embryonic and larval forms of marine animals viewed through the advanced research microscopes at OIMB will dance across large video screens (e.g, the laser confocal image of a larval polychaete worm from a local mudflat, above right).



Project Budget. Because of University involvement and the use of in-house labor and expertise for much of the construction and exhibit design, the overall budget of this project is relatively low for a public building of this size: \$856,900 for construction, \$124,000 for displays (total budget: \$980,900). Unless there are unforeseen cost overruns in construction over the next few months, we have now raised the entire budget required for opening. However, we continue to seek additional funds to upgrade the displays, both before and after opening.

Our greatest need is for a full-time staff member who will organize volunteers, organize and run education and outreach programs for school classes and other groups, and seek ongoing funding for exhibit upgrades and outreach programs. An endowment that generates funds for a curator/aquarist through investment income would be a most welcome solution.

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