

5th Annual
Heceta Head Coastal Conference
“Oregon’s Ocean: The Land-Sea Connection”
Florence Events Center ~ October 23-24, 2009

SUMMARY OF CONFERENCE PROCEEDINGS

Friday, October 23

Discovery Trips

In an effort to make the Conference lectures more meaningful, free Discovery Trips were offered to those registered for Saturday. The field outings, scheduled for Friday afternoon, were related to *Panel I – “Coastal Management: Making the Land-Sea Connection.”*

Three such trips were organized in the following locations with the names of trip leaders: Charleston -- Michael Graybill; Florence -- Charlie Dewberry; Newport -- Jeff Felder. Rain canceled the Florence Trip. Trips at the other two locations went on as scheduled but with only a few participants.

Dinner with Bob Malouf

“Ocean Science & Management: An Assessment of the Past 30 Years”
Robert E. Malouf, PhD ~ Professor Emeritus OSU ~ Retired Director, Oregon Sea Grant

The technological advances that have taken place in ocean science over the past 30 or 40 years are nothing less than astounding. And, those advances have resulted in very real improvements in our understanding of the physical and biological structure and function of the ocean and its resources. While there have also been changes in the political and legal management structures around ocean resource management,

I would argue that advances in our ability to manage and conserve marine resource have not kept pace with technology. Let me give you two examples - by no means a complete list - of advances in ocean science and technology that we have seen in the last 30-40 years.

- GPS. Satellites to aid navigation (“Navistar”) were launched in the early ‘70s, but the last of the 24 global positioning satellites was not launched until 1993.
- Satellite remote sensing and digital image analysis. Together these allow us visualize and study everything from cloud cover to fish scales.

We have also seen important structural changes in ocean management in the past three or four decades. Those changes include:

- The 200 mile EEZ changed everything about resource management beginning about 1976.
- Individual Transferable Quotas (ITQs), marine reserves and ocean zoning have become part of the marine management conversation.

But, how have these new technologies, new science and new management structures changed the way we make decisions about managing using and conserving marine resources?

[Dr. Malouf then recounted his work in the clam fishery off Long Island, NY, which was robust in the 1970s and how and why the fishery declined by the 1990s.]

What does this have to do with Oregon? The enormous historic shellfishery on Long Island collapsed in part because of the inability of responsible parties to communicate effectively through complex overlapping jurisdictions and interests.

Speaking and communicating are not the same thing. Scientists live in a world where we are constantly judged by their peers, and we learn to speak defensively in a kind of code. We are taught to speak, but we are not taught to listen except as a way to prepare our own rebuttals. Of course this is by no means unique to scientists. I know that managers and members of the industry have their own codes too. The point is that none of our technological advances really matter if we don’t understand each other. Without understanding there can be no trust and without trust there can be no progress.

Conferences such as this one offer critical opportunities for real communication – let’s not waste it.

Saturday Program

Saturday, October 24

Master of Ceremonies: Craig McMicken, Chairman, Heceta Head Coastal Conference, Inc.

Panel I – “*Coastal Management: Making the Land-Sea Connection*”

“Estuaries”

Michael Graybill, Manager, South Slough National Estuarine Research Reserve

Estuaries are transition zones that form where the fresh water of a river meets and mixes with the salt water of the ocean. At the uppermost reaches of the estuary, river conditions dominate, yet the influence of the sea is still in evidence. At the lower reaches of the estuary, the conditions of the sea dominate yet the influence of the river is still in evidence.

Estuaries are among the most productive places on earth and provide a rich home for many living things. They serve as essential stopover places for mobile species like birds and fish and people. They also support numerous plant and animal communities that are found nowhere else on earth.

Estuaries are also important nursery areas for a huge variety of fish and shellfish. They have been of great importance to people throughout human history. A substantial percentage of all people on earth live on the shoreline or in the vicinity of estuaries. Many of the largest cities of earth are situated on estuaries.

The conditions found in estuaries vary greatly depending on the size of the river, the nature of the ocean conditions and the physical geography of the coastal landscape. This presentation highlighted some of the conditions that help to define estuaries using examples that should be familiar to audience members. It also highlighted some of the important ecological services provided by estuaries to humans and other living things.

“Watershed Restoration”

Jack Sleeper, Fish Biologist, Siuslaw National Forest

The Siuslaw National Forest has been implementing a variety of restoration activities to restore ecological processes that create and maintain late successional forest conditions since 1994. Activities are intended to restore ecosystems that support numerous species including some Endangered Species Act listed species with strong land and sea connections such as the marbled murrelet and coho salmon.

Several state and federal agencies, watershed councils, landowners, and non-profit organizations have collaborated with the Siuslaw National Forest to accomplish these activities.

Historically, large diameter trees and landslides (debris flows) that delivered abundant large wood to streams and floodplains created high quality aquatic habitats. Human settlement, clearcut logging and road construction have removed large trees from riparian areas. The frequency of landslides has increased with many lacking large wood due to clearcut logging. Road construction and settlement activities have disconnected streams from their riparian areas and floodplains.

Restoration activities such as land acquisitions and easements, road stabilization (upgrades, waterbarring, and decommissioning), plantation thinning, riparian planting, release of understory conifer, adding large wood to streams, and channel reconstruction are being implemented to restore aquatic habitats. Large reference areas (areas with the least human impacts) are critical for understanding ecological processes that create and maintain aquatic habitats.

A collaborative, landscape perspective is needed to restore watersheds considering the fragmented land ownership patterns in most watersheds and the need to develop mutual understanding and trust among diverse interest groups.

“Research”

Gil Sylvia, *Marine Resource Economist, Coastal Oregon Marine Experiment Station, OSU*

Three salmon cases were used to illustrate the land-sea research "connection". The first case, involving ESA listed salmon species on the Columbia River, illustrated a "lost connection" between Columbia River industries and salmon fishermen due to lack of honest engagement and conflicting political agendas. The result was a lost opportunity to support cooperative research to reduce harvests of endangered salmon.

The second case illustrated a "direct connection" between farmers in Eastern Oregon and commercial fishermen on the Oregon coast in supporting new salmon research on freshwater ecology, marine ecology, and fishery genetics. This research is now revealing new knowledge to help sustain and rebuild salmon and marine fishery populations.

The third case illustrated a "multiparty connection" through the ongoing "CROOS" Project (Collaborative Research on Oregon Ocean Salmon) which includes the Oregon salmon industry, Oregon State University, federal and state agencies, and other private and public organizations. These partners are using cutting edge research to improve salmon science, management, and economic benefits to industry and coastal communities. Over 150 salmon fishermen have provided "near real time" biological, oceanographic, and fisheries data that reveals salmon stock migration patterns and distribution on fine spatial and temporal scales. The project is also developing new research protocols, an electronic fishery information system (www.Pacificfishtrax.org), and new marketing tools including barcoding, traceability, and electronic kiosks.

These tools are helping to integrate research, management, and marketing and create a virtual human community sharing information in support of sustainable fisheries. Together these three "land-sea connection" cases illustrate the importance of collaborative marine research and the benefits that can accrue to cooperators, industries, and communities.

Panel II – “Oregon’s Ocean and Territorial Sea Plan”

“Incorporating Fishermen’s Knowledge”

Charles Steinback, Director of Marine Planning, Ecotrust

The State of Oregon is developing a comprehensive plan to guide the potential siting of renewable ocean energy projects in Oregon’s Territorial Sea. Oregon’s Territorial Sea Plan (TSP), clearly outlines under Goal 19 that,

the state of Oregon must protect and encourage the beneficial uses of ocean resources, such as navigation, food production, recreation, aesthetic enjoyment, and uses of the seafloor, proved that such activities do not adversely affect the resources protection.

That said, in order to protect and encourage these activities (food production and recreation), the state needs to understand and identify where these activities occur. To this end, Ecotrust has begun collecting information on the spatial extent of human uses that provide economic and sociocultural benefits. This kind of spatially explicit information on commercial and recreational fisheries and their value to fishermen has the potential to ensure representation of socioeconomic values on the TSP process.

In the near term, the resulting data set forms the basis for informing siting decisions for energy projects that minimize impacts to the marine ecosystem and human uses. Longer term, these data are also useful for other marine spatial planning processes, notably the designation of marine protected areas off Oregon, and form a baseline for subsequent monitoring and evaluation research of management measures.

The goal of this project is to compile the first-ever comprehensive map (or series of maps) that illustrates the commercial and consumptive recreational fishing use patterns and values along the entire Oregon coast from Astoria to Brookings, capturing the expert knowledge of fishermen.

The objectives are to:

1. Comprehensively describe Oregon's commercial and consumptive recreational fishing community and incorporate fishermen's knowledge into the development of future amendments to the Oregon Territorial Sea Plan;
2. Develop accurate maps depicting the extent of the local fishing grounds and their stated and economic importance to the local fleets (just stated importance for the consumptive recreational fleet);
3. Analyze areas of high or valuable use in relation to existing or prospective alternative ocean uses;
4. Collect baseline data for future analyses of economic contribution of the commercial and consumptive recreational sector to the coastal economy; and
5. Integrate data into Oregon's Coastal Atlas.

"Ocean Planning in Oregon"

Onno Husing, Director, Oregon Coastal Zone Management Association

In late 2007 and early 2008, the State of Oregon initiated a process to amend Oregon's Territorial Sea Plan (TSP). The amendments to the TSP represent a sea change. The TSP will go from being a set of written policies to a spatially explicit zoning plan, complete with maps designating uses.

This new approach, called Marine Spatial Planning (MSP), is in response to the many new proposed uses of the ocean; especially renewable energy development. To place these developments into their historical context, Husing outlined the major events impacting Oregon's Ocean in the last 30 years. He also noted at this stage in the process that we are in the information gathering stage. By the second half of 2010, the actual planning efforts, based on this information, will begin in earnest. He explained Oregon's ocean planning effort will be coordinated with the federal leasing process beyond Oregon's Territorial Sea.

"Territorial Sea Plan and Renewable Energy"

Paul Klarin, Coordinator of Marine Affairs, Oregon Department of Land and Conservation Development

This presentation described the process and methodology that is being applied to the amendment of the Oregon Territorial Sea Plan to address ocean-based renewable energy development. On March 26, 2008, the Governor issued Executive Order No. 08-07 directing the Department of Land Conservation and Development to amend the Territorial Sea Plan to protect coastal communities in the siting of wave energy projects, based on the recommendations of the Ocean Policy Advisory Council.

The order was prompted by the concerns of coastal communities and commercial and recreational fishers, that the development of wave energy facilities in Oregon's Territorial Sea (0 to 3 nautical miles from the ocean shore), would significantly restrict the areas available to fishing and harm the economies of coastal communities.

The draft Part Five of the Territorial Sea Plan—The Use of the Territorial Sea for the Development of Renewable Energy Facilities or Other Related Structures, Equipment or Facilities--will establish policies, implementation standards, and project plan requirements for renewable energy facilities to be sited within the state territorial sea. The policy and implementation requirements are based on those contained in Goal 19 Ocean Resources and the existing policies and implementation requirements contained in Parts One and Two of the Territorial Sea Plan.

Keynote Address – ***"Oregon's Ocean Policy: Working in Partnership with NOAA"***

Dr. Jane Lubchenco, Administrator, National Oceanic & Atmospheric Administration

Dr. John V. Byrne, President Emeritus of Oregon State University and former Administrator of NOAA, introduced Dr. Jane Lubchenco, the ninth Administrator of NOAA. She delivered her address from Washington D. C. via video. As part of his introduction Dr. Byrne described the organization of NOAA and the history of its formation by the Executive Order of President Richard Nixon in 1970. He then summarized the education, achievements, and awards of Dr. Lubchenco.

(Address abridged)

My remarks will summarize some of the actions of the federal government as they relate to Oregon and highlight ways in which NOAA and the federal family can work in partnership with Oregon.

I applaud your continued efforts to address resource issues in a holistic and comprehensive fashion. This proactive approach is evident in your intrastate efforts such as the Ocean Policy Advisory Council, and inter-state efforts such as the West Coast Governors Alliance on Ocean Health. These efforts position you to participate actively in developing and implementing the emerging national ocean policy framework.

The federal government is beginning to catch up to efforts underway by many state and regional alliances. Under President Obama's leadership, the federal agencies are embarking on a collaborative effort to create a strengthened vision for our nation's oceans and coasts.

On June 12, President Obama issued a memorandum establishing the Interagency Ocean Policy Task Force, which is comprised of 24 senior policy-level members from executive departments and agencies across the Federal government. The President charged the Task Force with developing recommendations for:

1. A *national policy* for the ocean, our coasts and Great Lakes,
2. A *framework for policy coordination* of efforts to improve our stewardship of the oceans, coasts and Great Lakes ,
3. An *implementation strategy* that identifies and prioritizes a set of objectives the U.S. should pursue to further a national policy, and
4. A recommended *framework for effective coastal and ocean marine spatial planning*.

On September 17th the Task Force submitted its interim report to the President and released it for 30-days of public comment. This report focuses on the first three tasks and includes proposals for a National Policy for the oceans, coasts, and Great Lakes, a policy coordination framework for improved stewardship, and nine implementation strategies that identify and prioritize a set of objectives the US should pursue to achieve the National Policy.

The Task Force is now focused squarely on Task number 4 – Marine Spatial Planning. Your participation in this phase is equally important to ensure that regional and sectoral interests are heard and considered. I encourage everyone to send the Task Force comments via the *CEQ website* at www.whitehouse.gov/oceans.

The importance to our Nation of West Coast coastal and marine resources is reflected in the nearly \$60 million that NOAA has invested to support marine navigation and coastal restoration through the American Recovery and Reinvestment Act projects in California, Oregon and Washington.

These projects range from seafloor mapping for safe navigation and ecosystem stewardship, to restoring fish habitats, removing unneeded dams, and cleaning up marine debris. All of these projects represent a commitment to invest in green jobs for Americans, and to help enable our coastal economies and communities to benefit from a healthy environment.

The effects of climate change, coastal development, and the increasing number of ocean users brings both challenges and opportunities. We are already seeing a rise in ocean-use conflicts involving fishing, energy development, shipping and tourism. Many of those activities will place additional, significant stress on ocean ecosystems and our Nation's ability to protect its people and exercise its sovereign rights.

In every ocean basin around the world, the collective impact of multiple activities has led to widespread depletion and disruption, often despite good intentions. The Ocean Policy Task Force provides an opportunity for the federal government to work with states to chart a new course to healthy oceans and vibrant coastal communities.

Marine Spatial Planning is a tool to achieve healthy, productive and resilient oceans that are needed to support vibrant coastal communities. I believe the West Coast is uniquely positioned to lead on this type of integrated planning and management.

Oregon and your west coast partners are positioned well to collaborate strategically in this process. This is an historic time in which to contribute to the conversation for how the nation will organize itself and think anew about managing our coastal and ocean resources holistically.

Reflections on Dr. Lubchenco's Address

Onno Husing noted the State of Oregon is one of the leaders in the United States on ocean planning. Dr. Lubchenco spoke about the emerging federal efforts on marine spatial planning. She praised the work happening at the state and regional level on MSP and said federal efforts would seek to build upon these existing efforts.

In response to concerns the federal government might, in time, stifle the creativity of local/state/regional initiatives on MSP, Husing said the most effective thing Oregon can do is just keep moving forward, as swiftly as we can, to get a plan in place and to lead by example.

Panel III – ***“Fulfilling Marine Reserve Legislation”***

“The Story Behind the Legislation”

Arnie Roblan, State Representative

House Bill 3013, Oregon's Marine Reserve Legislation, was signed by the Governor last July, but there is more to the story of how this legislation was written and passed. The Oregon Ocean Policy Advisory Council (OPAC) issued their recommendations in November of 2008:

- Establish pilot marine reserve sites at Otter Rock and at Redfish Rocks;
- Have regional community groups further evaluate potential marine reserve sites at: Cape Falcon, Cascade Head, Cape Perpetua, and Cape Arago-Seven Devils

Legislation and funding were needed before OPAC's marine reserve recommendations could be implemented. Funding for the bill came from \$1 million remaining from the New Carissa settlement. Various interest groups had been talking at each other about marine reserves, but it was vital that people start talking to each other in order to achieve an effective piece of legislation. The bill needed to build consensus rather than increase the divisiveness.

The Coastal Caucus is a bicameral, bipartisan legislative group within the Oregon Legislature, and it was an ideal forum for crafting OPAC's recommendations into a bill that would achieve broad support. The Coastal Caucus, assisted by staff person Anna Pakenham, began working with all of the various groups who had an interest in the outcome of the bill. There were more groups than we could imagine.

The process of reaching a final bill was long and, at times, extremely challenging. In the end, however, all of the hours of work produced a bill that passed by overwhelming margins in both the Oregon House and Oregon Senate. The passage of House Bill 3013 was one of the proudest moments of my legislative career.

“The Challenges of Implementation”

Ed Bowles, Administrator, Fish Division, Oregon Department of Fish & Wildlife

Charged with the implementation of Marine Reserves, Ed Bowles reviewed the legislation and OPAC's recommendations. He described the agency's work plan and the need for community teams. HB 3013 requires the adoption of rules “to establish, study, monitor, evaluate, and enforce” pilot marine reserves and marine protected areas. This will be a joint process with ODFW, DSL and OPRD. One public meeting has already been held and rule making will begin in December and January.

Next steps will designate and implement two pilot sites by September, 2011, adopt rules for monitoring and management plans, baseline data, and implementation.

Further collaboration, development, and evaluation will be made for the four areas of study—Cape Falcon, Cascade Head, Cape Perpetua and Cape Arago—by September 2010. Community teams will be established, biological and socioeconomic assessments made, and work with community team to refine and recommend these sites. The potential designation and implementation for these sites is 2011.

“Understanding Economic Impacts”

Dr. Susan Hanna, Professor of Marine Economics, Oregon State University

The context of economic impacts of marine reserves has three important pieces: direction from the executive and legislative branches to assess economic impacts; the need to allocate resources; and coastal population growth which places increasing demands on resources.

The economic impact assessment has three main elements: documenting existing ocean uses – their location and economic contribution; predicting the behavioral response to spatial exclusion; and identifying the distribution of benefits and costs.

Several methods are appropriate for this type of assessment. An impact assessment has to also specify the spatial, temporal and sectoral scope of impacts being assessed. The process of valuation is also important. Ocean resources are publicly owned, and how Oregon values them in use and nonuse determines how they are best allocated.

The status of economic knowledge was addressed in October 2008 in a workshop sponsored by the Ocean Policy Advisory Council (OPAC) Scientific and Technical Advisory Committee (STAC). Workshop findings and recommendations are contained in a report at:

http://www.oregon.gov/LCD/OPAC/docs/workinggroups/STAC_EconWkshop-1Final.pdf.

The workshop found that economic data related to Oregon’s ocean resources are scattered and incomplete, with few spatial components. There is no comprehensive documentation of spatial uses of the Territorial Sea, the value produced, or the economic contribution to coastal communities. To improve the economic information base, the workshop recommended the development of a comprehensive economics data program that includes spatially explicit data. A number of separate mapping exercises are currently underway that will provide isolated baselines. Overall, Oregon needs to build an economic information base that is continuous, coordinated, comprehensive and systematic.

The process of building and maintaining the data base should be publicly controlled, funded and coordinated, and subject to scientific protocols of competition, transparency and review. Only in this way will the full range of economic impacts of Oregon’s marine reserves and other actions in the territorial sea be fully understood.

Lectures

“Hypoxia in Oregon Coastal Waters”

Jack A. Barth, College of Oceanic and Atmospheric Sciences, Oregon State University

Near-bottom waters over the inner shelf (< 50 m water depth) off central Oregon, have been increasingly hypoxic (dissolved oxygen < 1.4 ml/l) over the last 8 years, including the appearance of anoxia (zero oxygen) in summer 2006. The appearance of near-bottom, inner-shelf hypoxia is driven by upwelling of low-oxygen and nutrient-rich sourcewater onto the continental shelf, followed by the decay of organic matter raining down from surface phytoplankton blooms.

Oregon hypoxia is not driven by algal blooms fed by excess nutrient runoff from land-based activities; rather, the Oregon algal blooms are driven by the upwelling of nutrients from deep waters offshore. On the other hand, most of the over 400 hypoxia zones in the world's oceans are associated with excess nutrient runoff. When oxygen gets too low, marine organisms become stressed and can die if they are unable to leave the hypoxic region.

Where there are large numbers of marine organism die-offs, these regions are called “dead zones.” It is important to note that documented late-summer marine die-offs in Oregon coastal waters, observed using video cameras mounted on underwater vehicles, are restricted to near the sea floor – while the marine food web in the mid and upper water column is very much alive.

Through a combination of ship sampling, moorings and autonomous underwater vehicle gliders, we have been measuring dissolved oxygen with increasing temporal and spatial coverage. For longer term context, we use historical observations along the Newport Hydrographic Line sampled since the 1960s. Since April, 2006, we have occupied the Newport Hydrographic Line nearly continuously using autonomous underwater gliders.

In total, gliders have been at sea for 1,253 days (3.4 years), sampled over 400 cross-shelf sections, collected in excess of 110,000 vertical profiles and traveled over 28,000 km. Oxygen data are used to show

how the severity of inner-shelf hypoxia varies year-to-year due to changes in upwelling sourcewater properties and the characteristics of wind-driven upwelling.

In 2009, near-bottom oxygen levels decreased to just around "severe" hypoxia (0.5 ml/l) by early August, but a series of wind reversals in August and September helped flush low-oxygen waters away. We did not receive reports of any significant marine life die-offs as observed from shore.

In summary, during 2009 we saw low oxygen levels (hypoxia), consistent with recent years, and this year's hypoxic area was about average in size and duration.

“Nearshore Resource Teams”

Gregory K. Krutzikowsky, Nearshore Project Leader, Oregon Department of Fish and Wildlife

In the first decade of this century a number of community groups from specific coastal areas have formed to provide input on management of the nearshore ocean’s common-pool resources off Oregon. The specific organizational structure of these groups and their focus on specific issues varies, but a number of groups have extractive users of nearshore ocean resources, i.e. fishermen, prominently represented.

Management of common-pool resources has been strongly influenced by the “tragedy of the commons” concept articulated by Hardin and the two solutions, government control or private ownership, he proposed in a 1968 publication in the journal *Science*. The recent award of the Nobel Prize in economics to Elinor Ostrom has focused more attention on the fact that for many, but not all common-pool resources including fisheries, users make significant investments in designing and implementing governance systems to increase the likelihood of sustaining them. Ostrom notes that no single management solution works in all cases.

Factors leading to the formation of community groups of extractive users invested in management of common-pool resources in Oregon’s nearshore waters were examined with respect to recent work by Ostrom. Specifically, five user characteristic variables, three resource system variables, one resource unit variable, and one governance system variable in the social-ecological system were explored in terms of how they fit into the predictive model framework for user group formation she proposed in a 2009 article published in the journal *Science*.

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Videotaping The 5th Annual Conference, including both Friday and Saturday, is available on DVD from Campbell Productions (541-999-1292). \$20.00 plus \$5.00 shipping and handling.

Acknowledgments Meeting the expenses of the Conference would not be possible without the support of people and organizations who believe in our mission. They include:

- Grant:** Lane County Tourism - \$3,000
- Supporters:** City of Florence; Port of Siuslaw; Florence Area Chamber of Commerce; City of Depoe Bay/NSAT; Lane County Commissioner William Fleenor; Our Ocean; City Club of Florence; Dick David and Lea Patten; John Minter Assoc., Inc. on behalf of students at Oregon Institute of Marine Biology and Oregon School of Law; Oregon State University on behalf of students at College of Oceanic & Atmospheric Sciences
- Treasury Services:** Hart Financial Services
- Registration Services:** Florence Events Center
- Web Master:** Susan Canavarro

Heceta Head Coastal Conference, Inc. ...

...is a nonprofit corporation whose mission is to inform and educate the public of the need for a healthy, productive, and resilient marine ecosystem in the Pacific Ocean off the Oregon coast..

The Conference brings together a diverse group of leaders, providing a balance of viewpoints, from the worlds of science, fishing, conservation, government, education, business, and philanthropy.