

## Meeting Summary

### “The Ocean and You”

Wednesday, October 21, 2009

2 pm - 5 pm

Lewis and Clark Interpretive Center

Cape Disappointment State Park

Ilwaco, WA

*This public meeting was sponsored by the State Ocean Caucus and the Pacific County Marine Resources Committee. The State Ocean Caucus is an interagency team with representatives from state agencies involved in ocean and coastal resource management. The following provides a brief summary of presentations and discussion from the meeting.*

**State Ocean Caucus** Jennifer Hennessey, Washington Department of Ecology

Ms. Hennessey provided an overview of the State Ocean Caucus, a team of state agencies working to improve coastal and ocean management. This team is tasked with implementing the recommendations in Washington’s Ocean Action Plan and coordinating with coastal communities. Washington’s Ocean Action plan published in 2006 provided an analysis of gaps in ocean resource management and recommendations for addressing those issues.

Among recent accomplishments include Washington Sea Grant establishing the Hershman fellowship that placed graduate students with agencies to assist on key policy issues relating to managing coastal resources. The fellowship is just completing the first two students’ terms and gearing up for two new students. In addition, the group worked with the Governor’s office to get the Navy to allow NOAA to share high-resolution ocean seafloor mapping data. There are a wide variety of projects and the work plan contains more details about ongoing and future projects. Ms. Hennessey also noted that the agenda for this meeting had several speakers who would provide more specific activities and updates that are particularly relevant to Pacific County and the Ilwaco area.

**Education** Boyd Keyser, Superintendent of Schools in Ocean Beach  
Dr. Margaret Tudor, co-executive director of the Pacific Education Institute

Mr. Keyser and Dr. Tudor presented on the hope to move education beyond teaching to the test to start educating the whole child. Mr. Keyser envisions taking the attachment the community has to the Long Beach Peninsula to help engage kids in stewardship of place: of both culture, and natural resources. The district has 890 students in Ocean Beach and serves a number of regions. Ocean Beach between the Pacific, the Columbia and Willapa Bay natural resources tied with economy—shellfish, cranberries,

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tourism, fishing, logging, etc. Dr. Tudor, talked about an 8 year project she and Boyd led that focused on stewardship of place in Cle Elum WA. PEI is leading work throughout the state to teach science, technology, engineering and math (STEM) through GreenSTEM and providing ecological and natural resources career applications.

Mr. Keyser talked about the change to seeing schools as experiences not buildings, learning through doing, outdoor laboratory (and the unique area they have available), and community expertise. Their priorities are to: team with others, use existing resources, built up to k-12, and to go back to teaching more to science and social studies. Teachers need technology, professional development, and resources. With hard economic times, it's important to start slow to build a sustainable program. The district will start with the highly capable program and then expand to other students. They plan to work with cadre of natural resource specialists, work with PEI to lead professional development and curriculum development, and archive their work so others can learn from their work. Mr. Keyser asked group for resources to help the kids from professional mentors/ natural resource expertise, educational resources, supplies for the school, and financial contributions. One participant indicated the oyster lab in Nahcotta, could be considered a local resource for schools.

### **The Impact of Methane Flux on the Washington Margin Ecosystem**      Dr. Paul Johnson, University of Washington

Dr. Johnson summarized the findings of recent scientific research cruises he has led off Washington's coast (off of Grays Harbor) noting that there are interesting phenomenon going on that are really important to the ecosystem. Dr. Johnson conducted three cruises sponsored by Washington Sea Grant that looked at the geology of the Washington margin about 40 miles west of Grays Harbor at the edge of the continental shelf. Closer to the coast, the seafloor bottom is sand, while along the mid-shelf it is made up of thick mud deposits (25 meters thick). Previous studies on glass sponge reefs in the Strait of Georgia found they were a major nursery area for rockfish and other commercial species. The Washington research cruises found 80,000 year-old glass sponge reefs off the coast as well as 100 meter "pock marks" from methane vents. The methane vents are formed from folding of sediments by the subduction of Juan de Fuca tectonic plate.

The glass sponges have a silica skeleton and are actually a single-celled animal. They grow on dead sponges' skeletons so they build like a coral reef. They are the oldest known continuous living ecosystem in the ocean and individual sponges off of Washington are likely 100-200 years old sponges living off WA coast. Glass sponges can remove 50 percent of the particulate matter from ocean water and pump so much water that they can change the chemistry of the seafloor.

Dr. Johnson briefly described the research process they used to locate the sponges: first, they used sonar mapping to identify potential large sponge reef areas, then they used a grab sample to verify the existence of sponges, and finally, they used a remotely operated vehicle to conduct more sampling and to take videos of the sponges. The sonar mapping revealed glass sponges, glacial erratics and drag marks, but the drag marks are way too big to be from a trawl net. Johnson's theory is that they are

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gouges made by icebergs during the last ice age. He noted that these gouging features have been found on the east coast as well.

During their research they also identified “pock marks” that are venting methane (east of continental shelf). They found at least 20 sites spewing methane bubbles and found huge swarms of krill in and near the methane bubble plumes. The krill, *Thysanoessa spinifera*, is an important food source for larger fish, mammals (e.g. whales, tuna). Methane “carries” cold water upward as it climbs to the surface. Cold bottom level water is highly oxygenated and nutrient rich and leads to high productivity in marine environments.

The methane developed as organic material breaks down to methane (light) and oil (heavy). Sponges eat methane-feeding bacteria. Sponges found to have methane traces. Dr. Johnson noted that the krill near methane plumes exhibited abnormal behavior. Krill normally migrate to the surface waters at night to feed and back down to deeper water in the day. The krill found near methane plumes off of Washington’s coast are not all doing that migration. The theory is that the krill may get their nutrients in the mid-column level without having to go to the surface – likely from methanotrophic bacteria (bacteria that consume the methane). However, the researchers also observed blasts of methane can push some krill to the surface during the day (when they don’t want to be there).

Dr. Johnson summarized the implications of this research for the Washington margin ecosystem:

1. There are large reefs of glass sponges that are nurseries for commercial species of fish. These reefs are very old (+80,000 years).
2. There are many (>20?) sites of methane venting, just in the Grays Canyon area.
3. This methane venting has a dramatic impact on the marine biology of the WA shelf; including: attracting large swarms of krill; providing a non-seasonal food source for fish; sustaining the sponge reef nurseries; and providing carbon for a partially chemosynthetic environment.

In response to an audience question, Dr. Johnson indicated that the researchers don’t know how much methane is released to the environment through these various mechanisms.

## **Benson Beach and Sand Management**

Brian Lynn, Washington Department of Ecology

Mr. Lynn provided an overview on sand management and erosion issues at the Mouth of the Columbia River and Benson Beach. Historically, sand from the Columbia River formed the coastal beaches. In the past century, we get about 1/3 less sand coming down the river and feeding the beaches. Sand continues to clog up the Columbia River and the entrance must be dredged to maintain safe navigation. The U.S. Army Corps of Engineers dredges the mouth of the river and historically disposed most of the sand in deep water – too deep to benefit the beaches. The state and partners are now looking at not “wasting” the dredged sand, but using it beneficially to feed the beaches. There are permit questions and other issues to look at to determine the best way to use sand. In 2007 through Lower Columbia Solutions Group, the state convened scientists and other stakeholders to determine how to use sand to

reduce erosion around the jetty, and mitigate impacts to navigation and impacts to species. Recommendations from the workshop were: 1) put sand directly on the beach and 2) investigate other nearshore places to put sand that will still help restore the beaches, while minimizing other concerns. Typically, about 5 million cubic yards is dredged annually at the mouth of the Columbia River. Too much sand deposited in some disposal sites can increase wave height, and can impact crab and other species. But, it's more expensive to put sand directly on the beach. Congress allocated \$1.8 million and from the state, the legislature allocated \$1.7 million to put a larger amount of sand directly on Benson Beach. This year, Ecology co-sponsored workshops to address concerns for nearshore disposal: one workshop on biological impacts, species of concern and a second workshop on waves and safe navigation. The next step is resolving issues for advancing nearshore sand disposal in both Washington and Oregon. In addition, Department of Ecology has been involved with building sand fences to trap sand on Benson Beach and over time they create sand dunes. The sand fences are already working well – he showed pictures of the build-up of sand on Benson Beach. Mr. Lynn suggested interested people go see them in person. Agencies are even considering planting vegetation to further stabilize the newly formed dunes.

One meeting member reported eight deaths that he attributed to the Army Corps' sand disposal practices and suggested an out-of-the-box idea of depositing sand in large amounts on the beach (100 feet high). Another participant suggested factoring the overall factors contributing to project costs.

### ***Spartina* management**

Brad White, Washington Department of Agriculture

Mr. White provided an update on the management of *Spartina* by the Department of Agriculture. *Spartina* is a cord grass that invades mudflats and turns them into a mono-type cord grass environment. Department of Agriculture is the main *Spartina* agency in Washington. *Spartina* expanded rapidly in the 1980s and, in particular, establishing large infestation in Willapa Bay. In 2002 the state started making progress in eradicating *Spartina*. *Spartina* is a beautiful cord grass—looks good—but brown is better because there is higher ecological diversity in the native habitats. Department of Agriculture spent time building coalitions and working with the communities and land owners. The state used to use helicopters for spraying herbicides, but, now, they are down to treating small pockets with backpack applications. Next season the state estimates it will be down to 30 acres of *Spartina* statewide and very close to getting rid of *Spartina* entirely. Pacific County will take over the role of eradicating and monitoring as Department of Agriculture steps back from managing the effort. Mr. White also mentioned work by the Department of Agriculture to share lessons-learned and encourage the others in the region (including British Columbia) to treat known *Spartina* infestations in their areas, because these other areas could produce seeds that get carried on the currents and that could reinfest Willapa Bay.

One participant asked why it the state estimated it taking so long to eliminate the final acres of *Spartina*. Mr. White responded that now that the large patches have been eradicated, it is harder to find the remaining patches – it occurs in smaller clumps and those clumps still produce seeds. As a result, the whole area must still be monitored for any new patches and those remote patches treated.

**Pacific County Marine Resources Committee**

Mike Nordin, Pacific County - Marine Resources Committee

Mr. Nordin reported on the newly forming Marine Resources Committee (MRC) in Pacific County. They are currently identifying members of their local board and they want to connect with Olympia. They have a wide variety of member seats: tribe, aquaculture, fishing, environmental and other members. County commissioners are forming it under the Willapa Bay Water Resources Coordinating Council. The Council's focus is estuarine and watershed issues, as well as salmon. The MRC will complement the Council's focus by broadening its reach to cover marine issues as a sub-committee under the Willapa Bay Water Resources Coordinating Council. Initial ideas for MRC projects include supporting an education project through Naselle on water quality testing, conducting and supporting existing beach clean-ups (grassroots garbage gang). The next MRC meeting is November 3<sup>rd</sup> at the Seaview Transit Center at 6 pm.

**Marine Spatial Planning: workshop summary**

Jena Carter, The Nature Conservancy

Ms. Carter provided an overview on marine spatial planning and the forum held on the topic the previous day at Grays Harbor College. She indicated that energy, particularly renewable energy projects in the ocean, has often been a catalyst for marine spatial planning in other states. The White House has also called for marine spatial planning and is currently developing a framework for it at the federal level. Under the West Coast Governors' Agreement Action Plan, the states of Washington, Oregon, and California will conduct habitat assessments, coastal siting for alternative energy, and this should feed into the type of marine spatial data available for Washington.

She gave an overview of The Nature Conservancy's tool for compiling spatial data and analyzing marine ecosystems through an ecoregional assessment. This tool allows for spatial data on habitats, species, and ocean uses to be considered simultaneously. Ms. Carter defined the generic term and described the process for marine spatial planning. According to UNESCO, Marine Spatial Planning is "a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually set through a political process."

Ms. Carter presented brief example of Rhode Island's marine spatial planning process (called a Special Area Management Plan). Rhode Island is conducting an effort to planning for renewable energy in state and federal waters, and has an MOU with federal agencies to ensure they will use the plan to inform their decisions in federal waters. The state has pulled together a lot of spatial data such as: identified offshore wind resources, mapping of glacial moraines (because more expensive to build wind turbines), and mapping other important information like shipping traffic, fisheries uses, and whale movements. Rhode Island is using the planning process to overlaying this data on top of each other to determine initial areas that may be good for alternative energy sites and then gather more intensive information on those potential sites.

Ms. Carter relayed some of the concerns and opportunities that people have expressed about marine spatial planning. Many are concerned about jurisdiction, lack of data, and adding another layer of bureaucracy. The opportunities are to create a blueprint for planning of new ocean uses, to bring together different ocean users and diverse needs, to plan proactively and comprehensively, and to have a comprehensive picture of the ocean. Some lessons from the Marine Spatial Planning forum in Grays Harbor included: get players onboard as soon as possible; ground-truth data and maps; give priority to current ocean users; identify what you are planning for; integrate existing plans and processes; and bring a friend to the discussion.

Boyd Keyser mentioned that GIS is such a ubiquitous skill for resource management that we need to bring it down to students and develop students' skills with GIS. One participant noted the PUD speaker from the forum had indicated an interest in tidal energy, but not in pursuing wave energy and therefore planning for wave energy would not be worth pursuing. They also indicated concern about potential tidal energy development in Willapa Bay taking away energy from the system, taking up space, and diminishing the productivity of the bay and particularly, for the shellfish beds and industry. Grays Harbor MRC is looking at potential federal funding for spatial planning. One participant suggested having any planning for Grays Harbor tied to Pacific County, because they function as a region. Ms. Hennessey commented that the state has a policy to encourage a regional approach to planning for the coast.

## **Discussion**

Ms. Hennessey introduced Bob Nichols, the new lead for the Governor's office on ocean policy. She opened up the remainder of the meeting for feedback on the meeting and discussion of local priorities. Ms. Hennessey thanked everyone for their participation and also requested ongoing feedback on the work plan by email, phone, or comment cards. She noted that the presentations and meeting summary would be posted on the website after the meeting.

Participants shared several concerns for coastal communities in Pacific County, including:

- Sustainability of fishing industry (historic loss of 70% of those workers with declines in salmon). A need to boost access to the natural resources and have sustainability of coastal communities as higher priority in the work plan.
- Changing community dynamics and demographics, including increased retirement community and fewer families and young people. Loss of talented, interested community members and
- High unemployment, lack of family-wage jobs, and issues retaining community-supporting jobs over the long-term (doctors, teachers, etc.).