

## **2006 SUMMARY OF PRESENTATIONS (Con't)**

“Oregon’s Ocean: Linking the Science to Policy”

### **Panel IV: “Filling the Gaps: Scientific Research Priorities for Oregon’s Ocean”**

**Dr. Jack Barth, Professor, College of Oceanic and Atmospheric Sciences, OSU**

*"Physical Processes and Characteristics"*

Jack Barth described his work in collecting and analyzing data of the physical processes upon the ocean’s ecology and biology. He pointed out that our coastline and ocean are spectacular—unique in the nation and world-wide—and there are seasonal cycles of upwelling and downwelling, with seasonal variability year-to-year, and decade-to-decade.

Barth’s research shows how winds drive ocean currents, transporting organisms into constantly changing environments. For example, chlorophyll patterns show how organisms adjust to seasonal change, and how temperature—warmer in the winter, and colder in the summer—causes upwelling with accompanying nutrient movement.

He cited two extreme years: whereas in 2005 there was a delayed upwelling, just the opposite occurred in 2006 in which twice as much upwelling, due to high winds, occurred early in the year.

Barth works with the development of ever more sophisticated methods of ocean observation. Largely performed by boat in the past, today’s technology provides improved data gained by using sophisticated unmanned devices. One recent example is an automatic underwater vehicle glider equipped with a GPS system capable of communicating to shore by cell phone!

In conclusion, Barth said this information gathering device will track how wind drives the currents, how the currents move the nutrients, how the nutrients change the ecosystems, and how it all changes from year to year. Such information is made available for use by all parties working on ocean policy.

**Dr. Selena S. Heppell, Assistant Professor, Department of Fisheries & Wildlife, OSU**

*"Marine Ecosystems"*

Dr. Heppell’s presentation provided the parameters for a healthy ocean policy based on the research needs from a biological standpoint. Overall, there is much information available, she said, but it needs to be organized and brought together.

The overarching goal of all interested parties is for a healthy coastal resource: clean water, productive fisheries, recreational opportunities, and thriving coastal communities. To get there, Heppell outlined the problem with several questions and answers.

What do we need to know? --Identify and synthesize existing knowledge—we already know much, but it is from different perspectives.

What habitat is out there? --COAS has maps of the sea floor, and there are efforts underway for a more intensive mapping of the territorial sea floor; and utilization of the knowledge of fishermen.

What fish are where and when? --Variability occurs in response to changing conditions; how fish respond to structure, e.g., wave energy installations; acoustic tagging of fish is being used.

What are the most critical use areas and biological areas? --A need for research on fishing activity on the environment; on what makes fish and crab stocks resilient; and the importance of “old growth” fish.

Dr. Heppell concluded with a call for all parties to work together, identify common goals, share knowledge, and develop ways for collaborative research.

**Dr. Susan Hanna, Professor of Marine Economics, Department of Fisheries & Wildlife, OSU**  
*"The Human Dimension"*

Dr. Hanna opened her remarks by observing that people depend on a wide range of Oregon’s ocean resources to produce commercial, recreational, and aesthetic value. People also affect the health of ocean resources through the management of their activities on the ocean and in the coastal zone.

These interactions, Hanna said, are the subject of social science. Throughout Oregon’s history people have depended on the ocean for food, transportation, and recreation. Now the context of Oregon’s coastal ocean is changing. Development pressure is rising in the coastal zone, commercial fisheries are contracting and recreational fisheries expanding, waterfronts are subject to new demands for space. Many interests compete for the use of ocean resources.

Hanna went on to say this conference discusses new ocean uses: wave energy, sanctuaries and reserves, and regional governance. All of these uses have in common the element of space, and these spatial elements identify important gaps in social science research. Social science research in the ocean has been mostly “backward looking,” focusing on impacts of actions taken. A key knowledge gap is in the spatial dimensions of human use.

Hanna concluded by saying there is a need for linking this gap to research needs in the nearshore and onshore, waterfronts, allocations, and management tools; that investment in these research areas will provide valuable information to decision makers in their strategic planning for Oregon’s ocean.