Climate Change Research Needs Identified by Western Coastal Managers

NOAA's Office of Ocean and Coastal Resources Management (OCRM) held the annual Western Coastal Managers Meeting in San Francisco, California from January 26-28, 2009. State Coastal Management staff from Alaska, Washington, Oregon, California, and Hawaii attended the meeting, as well as representatives from Sea Grant and NOAA's Coastal Services Center, National Marine Sanctuaries, and National Estuarine Research Reserve System.

The Western Coastal Managers Meeting serves as a forum to share ideas, best practices, and resources between state coastal programs and various federal entities. As part of the meeting, OCRM facilitated a session on climate change research needs for coastal management applications. The objective of the session was to agree upon research priorities for managing coastal impacts of climate change in the western coastal states. The meeting attendees generated a list of research and data needs to address climate change across four categories: biological, physical processes, social/regulatory, and cross-cutting. Facilitators conducted a ranking activity to identify the highest priority needs. The ranking results can be found in the table below.

This information represents an initial look at the highest priority research needs and gaps for managing the impacts of climate change on the west coast. The information is not representative of a formal scientific or public process, but still provides a snapshot of needs according to the attendees of the 2009 Western Coastal Managers Meeting. OCRM and meeting participants hope that these results can be used to initiate further conversations, inform and drive research funding and projects, bridge data gaps, and help inform management decisions.

Management-Focused Research and Data Needs for Climate Change along the U.S. West Coast			
Biological	Physical Processes	Social/Regulatory	Cross-Cutting
What are the predicted impacts to species, such as vulnerability to invasive species, changes to species' ranges, and habitat shifts as a result of changes in air and water temperature?	Need to understand what lidar and bathymetric data exists and where it is seamless, and pursue filling data gaps, including collecting data further up into mouths of estuaries and watersheds.	How will jurisdictional and public trust rights be impacted by a shifting shoreline and sea level rise? (e.g. Can land currently under private ownership end up in the public trust? Who decides?)	For all anticipated changes, how can thresholds and tipping points be defined?
Need to understand changes to and effects of ocean acidification and how to use this information for understanding and managing fisheries impacts.	Need to inventory and understand how various shoreline types (natural and built) will respond to and/or be affected by sea level rise and climate change.	How should managers factor climate change into habitat restoration and mitigation projects and permits?	Need to bring research, models, results, and recommendations to the local level and make information useable at the local level.
For management, need to link the physical and ecological models in estuaries and coasts, and understand the interplay between the two.	Need new models for the hydrologic cycle showing predicted changes in precipitation, runoff, and flood frequency specific to regional topography.	What are the best mechanisms to communicate climate change, impacts, and adaptation strategies to the public?	Need to understand cumulative impacts of all stressors (how each may build on one another, or affect one another, potentially increasing or altering predicted impacts).
Need to integrate models of sea level rise scenarios and impact predictions with existing vulnerability studies.	Need to downscale models to local levels - includes monitoring ocean, coastal, and watershed conditions.	How should managers prioritize what infrastructure is set back, preserved, etc.? What are the legal implications, considerations, and options?	Need to decide politically, what are we willing to accept? Do we need to define an acceptable amount of change, loss, etc.?

If you have questions, comments, or want additional information, please contact kris.wall@noaa.gov