

Coasts Breakout Session

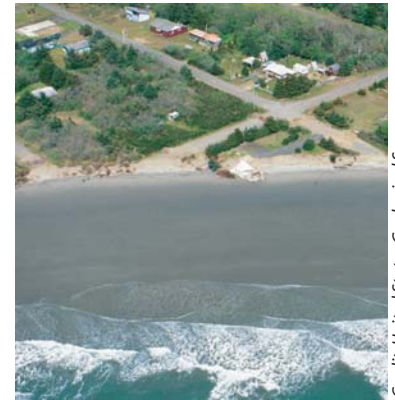
Projections for the next century suggest climate change will have important impacts on Washington State's economy and natural resources. In order to both control the costs and maximize the benefits of a changing climate, we must begin preparing now. To stimulate discussion in this session, we **summarize projected climate impacts from the conference white paper**, **enumerate previously suggested adaptation strategies**, and **provide case studies to illustrate planning techniques, vulnerabilities, and/or opportunities**.



Prepared by Jennifer Kay, Joe Casola, Amy Snover, and the Climate Impacts Group (CIG) at the University of Washington for King County's October 27, 2005 Climate Change Conference.

Summary of projected climate change impacts on coasts

- **Projected sea level rise would increase coastal flooding and erosion, especially at flat beaches and in areas of tectonic subsidence.**
- **Increased winter precipitation could increase the risk of landslides and coastal flooding.**
- **Changes in ocean circulation, which are important for coastal ecosystems, are uncertain.**



Credit: United States Geological Survey

Endangered homes at Cape Shoalwater, Pacific Co., WA

Adaptation discussion starters

Guiding principles for planning:

1. Recognize that the past may no longer be a reliable guide to the future.
2. Integrate climate change projections into all planning processes.
3. Monitor regional climate and resources for ongoing change.
4. Expect surprises. Design policies and management practices to be flexible to changing conditions.

Could these strategies help Washington prepare for change?

Discourage development in coastal hazard areas. For example: privatize the risk of insuring and financing coastal development; adjust zoning and modify design and engineering requirements for coastal structures based on projected climate change impacts on sea level and flood frequencies.

Move or abandon shoreline infrastructure. Move existing houses and development in response to shoreline changes.

Preserve ecological buffers to allow for inland beach migration.

Restore wetlands for run-off storage and flood control.

Enhance shoreline protection recognizing the negative consequences for shoreline habitat. For example: use dikes, levies, armoring, filling and/or beach replenishment in vulnerable areas.

Make a disaster relief plan for flooding and erosion events.

Monitor and control invasive species.

Sources: 1) Snover, A., Miles, E. and B. Henry, OSTP/USGCRP Regional Workshop of the Impacts of Global Climate Change on the Pacific Northwest Annex D, NOAA Climate and Global Change Program, Special Report Number 11, 1997. 2) H. John Heinz III Center, Evaluation of Erosion Hazards: Summary. Prepared for the Federal Management Agency, Washington D.C., 2000.

Planning Case Study – Alaska Way Viaduct Seawall and Seattle Department of Transportation (SDOT):

The Office of the City Auditor has initiated a series of reviews on how changes in PNW climate could impact various City Departments. The first review focused on the SDOT's operations, services and infrastructure. In the report, the City recognized the sea level rise figure used in design standards for the Alaskan Way Seawall replacement may be too small. The seawall was designed to accommodate a sea level rise of 0.9 feet in the next 75 years. According to the CIG, sea level could rise up to 2.8 feet over this period.

More information at: <http://seattle.gov/audit>

Vulnerability Case Study – Sea level rise in Olympia, WA:

Sea level at Olympia is currently rising at ~1 foot per century due to land subsidence in Southern Puget Sound. The Intergovernmental Panel on Climate Change (IPCC)¹ estimates global sea level will rise from 0.3 to 2.9 feet by 2100. Olympia's downtown lies only a few feet above the high water mark. A study funded by the City of Olympia² found sea level rise due to subsidence and climate change may lead to a rising water table, reduced surface drainage, port district inundation, and central business district flooding.

¹ see Policy FAQ #1 for description of the IPCC TAR.

² Craig, D., Preliminary assessment of sea level rise in Olympia, WA: Technical and policy implications, Policy and Program Development Division, Olympia Public Works Department, Olympia, June 1993