WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

EARTH SCIENCES PROGRAM FOR STATE TRUST LANDS
Recent and Current Projects

Kalaloch Groundwater Monitoring Project

The Trust Lands Habitat Conservation Plan (HCP) developed by DNR, restricts timber harvest on State Trust Lands that are prone to various types of landslides. The state Forest Practices Rules require that on unstable landforms, timber harvest are to be carried out in ways that mitigate the potential for sediment delivery to streams. This mitigation is to be through scientifically defensible analysis and design. Providing effective mitigation requires an understanding of the surface and subsurface hydrologic processes of slide-prone slopes.

The Earth Science team used the Kalalock area, centrally located on the Pacific Coast of Washington State for research on groundwater in forest stands. The Kalaloch Groundwater Monitoring Project is monitoring pre- and post-harvest groundwater conditions of generally planar slopes in deeply weathered marine sandstones in the area near Kalaloch. These sediments are typical of those underlying many parts of Western Washington.

Data was collected from 10 piezometer wells, one barometer, and three rain gauges between February 2005 and June 2008. The data shows notable variability in response times and characteristics to precipitation events between wells. This data is being used to characterize the pre-harvest hydrology of three instrumented hill slopes.

Timber harvest on two of the instrumented slopes, located on DNR-managed state trust land, began in the summer of 2008 and was completed in the fall of 2009. A third slope, located in Olympic National Park, was unaltered—unharvested. Monitoring equipment was reinstalled at the research site in the winter of 2010, and data collection is planned for a minimum of 3 years post-harvest. The new data will be compared to pre-harvest data to determine if there is a measurable difference between pre- and post-harvest groundwater response to precipitation events.

Downloading groundwater data at one of the Kalaloch sites.

For more information, contact: Casey Hanell at casey.hanell@dnr.wa.gov or 360-457-2570 x221