

Elwha Nearshore Update

A NEWSLETTER OF THE ELWHA NEARSHORE CONSORTIUM

May 2005

Welcome to the second quarterly *Elwha Nearshore Update* newsletter which summarizes current activities focusing on the Elwha nearshore. It is sponsored by the Elwha nearshore workgroup, an informal consortium dedicated to understanding and promoting the nearshore restoration associated with the Elwha dam removals. The newsletter provides updates on various activities since our Spring 2004 workshop, which focused on nearshore restoration associated with the upcoming dam removals. Proceedings from the nearshore workshop may be found on the Clallam Marine Resources Committee website, <http://www.clallammrc.org>.

The Washington Department of Fish and Wildlife provides newsletter coordination, and partners with the Lower Elwha Klallam Tribe, Clallam Marine Resources Committee Olympic National Park, Puget Sound Action Team, and others in promoting the work and communication of the Elwha nearshore workgroup. For information on the Clallam MRC contact Joe Schmitt, committee chair, joes@armstrongmarine.com, and Cathy Lear, Clallam County, CLear@co.clallam.wa.us / 417. 2423. For information on the Elwha nearshore workgroup, or questions or comments about the newsletter, contact Anne Shaffer, Washington Department of Fish and Wildlife at shaffjas@dfw.wa.gov / 360.457.2634. Information on the Elwha dam removals can be found at the Elwha webpage <http://www.nps.gov/olym/elwha/home.html>.

The first newsletter, published in Winter 2004 and available on the Clallam MRC website <http://www.clallammrc.org>, provided details on a large number of proposed and funded efforts in the Elwha nearshore. This newsletter provides project updates for these efforts as well as summaries and contact information for new projects. All information in this newsletter is provided by project leads and includes individual contact information.

A number of larger coordination efforts focusing on the Elwha continue, including:

NOAA has developed a pilot website dedicated to promoting coordination and collaboration of scientific data and projects from Elwha research. Richard Kang, SDM Program Manager, is currently following through with his office to extend the usage of the collaboration tool to a wider audience of interested researchers and collaborators. In the meantime, we are providing temporary access until September 30, 2005 for Elwha collaborative research purposes until the project can be reviewed and usage pattern determined. WDFW and NOAA are in the process of developing a project site specific to nearshore. The site can be accessed via <http://webapps.nwfsc.noaa.gov> after registering your name and minimal information at the bottom of the page for new users and existing user who have forgotten their passwords. Contact: Richard Kang SDM Program Manager, OMI, Richard.Kang@noaa.gov/206-860-6786 or Chantrelle Nielsen nwfsc.sdm@noaa.gov who will assist you. The SDM Helpdesk number is 206-860-3433.

The Elwha Research Consortium. Jerry Freilich, Olympic National Park, (360-565-3082/Fax 360-565-3070/ Jerry_Freilich@nps.gov) is the primary contact.

The USGS and ONP sponsored a two day special session on the Elwha at the 2005 Puget Sound Research Conference. The sessions included both freshwater and nearshore presentations.

Christopher P. Konrad USGS, and Jerry Freilech, ONP (253.428.3600 x2634 /fax 253.428.3614 /cpkonrad@usgs.gov) were session chairs. Proceedings and papers are available on the PSWQA webpage: psgb@engr.washington.edu.

The University of Washington recently published the proceedings of a two day workshop synthesizing Elwha research, education, and data management information and priority needs, including the nearshore. Proceedings are available thru the University of Washington. Contact: Scott Stolnack, University of Washington (sastol@u.washington.edu) / (206) 221-5406) or Stephanie Harrington, University of Washington (stephah@u.washington.edu).

A number of educational entities have received funding for proposals, including those summarized in the previous newsletter. They include:

Western Carolina University, Olympic Park Institute, and Olympic National Park have received a \$100,000 National Science Foundation grant entitled '*The Elwha Education Project (EEP): Increasing the Relevancy of the Geosciences for Native American Youth Through Participation in Environmental Restoration Projects on Tribal Lands*' the intent of which is to develop a summer science education programs centered on the Elwha restoration and focusing on tribal kids. Contact: Rob Young, Associate Professor, Western Carolina University, Department of Geosciences, Cullowhee NC 27823, Tel: (828) 227-3822, Fax: (828) 227-7647 Tel in PA: (360) 457-0997 (ryoung@wcu.edu)

Peninsula College and Western Washington University have received a \$500,000 National Science Foundation STEP grant that would establish an Environmental Restoration laboratory at Peninsula College. Much of the initial focus of the program would be the Elwha Restoration Program-a portion of which will be focused on providing internships for nearshore work. Contact: Bill Eaton, Senior Vice President, Peninsula College, 1502 East Lauridsen Blvd, Port Angeles, WA 98362. Tel: (360) 417-6246 (Bille@pcadmin.etc.edu).

Olympic Park Institute (OPI) is working on a research education program, working with middle and high school students throughout the region. Since February, OPI has taught a total of 200 participants, including 157 students between 7 th and 12 th grades. Students use the scientific method to study the habitat needs of salmon, and use monitoring techniques to track baseline conditions and make predictions for future changes. In addition, a two-day teacher workshop was held, which included participants from Port Angeles and Seattle. OPI is creating protocols and structure for a study on sediment and woody debris distribution, which could be extended along the Strait and Ediz Hook. Contact: Darek Staab Field Research Project Manager, Olympic Park Institute, 360-928-3720 ext. 23

There are a number of outstanding issues that are currently not being addressed. They include:

The Elwha nearshore habitat management/restoration coordination continues to need leadership. Top priority items include coordination between a new armoring along an unarmored portion of the Elwha feeder bluffs critical to the Elwha drift cell, Nippon paper five-year maintenance program for applying additional rock to the existing armoring along 9000 feet of shoreline along the Elwha bluffs, and CoE ecosystem assistance for drift cell maintenance and restoration. Current contacts are Matt Beirne, Elwha Tribe (457.4012 x 12/ beirne@elwha.nsn.us); Anne Shaffer WDFW/ 360.457.2634/shaffjas@dfw.wa.gov /, Martha Hurd DNR 360.417.1405

x221/martha.hurd@wadnr.gov/ and John Cambalik, PSAT, 360-582-9132/fax: 360-582-9132 (please call first)/ jcambalik@psat.wa.gov.

New and on going activities-with updates if provided- within Elwha nearshore that were detailed in the last newsletter include, by major category of the spring 2004 workshop (project titles underlined and in italic):

Physical Processes MRC session representative: John Cambalik, Puget Sound Action Team, JCambalik@psat.wa.gov

Beach Profile Monitoring of the Elwha River Delta Coast

Contact: Matt Beirne and Larry Ward, Lower Elwha Klallam Tribe, 51 Hatchery Road, Port Angeles, Washington. 360.457.4012 ext 12 and 17 (beirne@elwha.nsn.us; lward@elwha.nsn.us) and Jim Johannessen, Coastal Geologic Services, Inc., Email: coastalgeo@comcast.net, Phone: 360-647-1845

Effects of Elwha Dam Removal on Nearshore Habitats

This is a U.S. Geological Survey (USGS) research project that seeks to: 1) Map the current status and future changes of the Elwha nearshore substrate; 2) Monitor and model the physical processes (waves, currents and sediment transport) of the river mouth region, and; 3) Develop a conceptual model for nearshore sediment transport of Elwha River sediment.

During the past quarter a number of field and research activities were completed: 1) Nearshore and beach profile surveys were completed at approximately 100 stations during March 2005. This was the second of planned semi-annual surveys. The greatest change between the September 2004 and March 2005 surveys occurred at the river mouth bar, where up to 40m of progradation was measured. The next semi-annual survey is scheduled for September 2005. 2) In March 2005, two seabed stations were deployed offshore of the river mouth to measure waves and currents. The stations include salinity and temperature sensors, directional wave gauges, and Acoustic Doppler Current Profilers (ADCPs), which measure current velocities and directions throughout the water column. Planned recovery date of the stations is May 19, 2005. Data from the stations will be important toward building an understanding of the physical processes active in the river mouth region. 3) Two weeks of swath sonar mapping were conducted in late March 2005. This mapping technique produces both high-resolution bathymetry and a side-scan sonar or "backscatter" image that is very useful for mapping substrate type. Preliminary results of the mapping have identified areas of boulder fields, sand and gravel, and large waves of sand on the seabed offshore of the river mouth. Further, large submarine landslides were identified along Ediz Hook. Final mapping products will be produced in Fall 2005.

Contact: Jonathan A. Warrick, Coastal and Marine Geology Program, USGS, ADDRESS: USGS Pacific Science Center, 400 Natural Bridges Drive, Santa Cruz, CA 95060 USA, PHONE: 831-427-4793, FAX: 831-427-4787, EMAIL: jwarrick@usgs.gov, WEBPAGE: <http://walrus.wr.usgs.gov/staff/jwarrick>.

Landslide Hazard Zonation (LHZ) of the Lower Elwha Watershed

The goal of this project is to identify and characterize landsliding on non-Federal lands within the lower Elwha watershed contributing sediment to the Freshwater Bay-Elwha-Ediz Hook drift cell. The spatial extent of this project includes the Elwha watershed below Lake Mills and the Little River and Indian Creek drainages. Also included are the Coville Creek and Dry Creek watersheds and coastal bluffs between Observatory Point and the base of Ediz Hook. A detailed landslide

inventory constructed from aerial photograph analysis and field mapping will be used to estimate volumes and characteristics of mass wasting related sediment delivered to the lower Elwha fluvial stream network and marine nearshore over the period 1939 to present. I am seeking cooperators to expand the landslide inventory into the upper Elwha watershed (Federal Lands). Methodology used in the Elwha LHZ project is available at www.dnr.wa.gov/forestpractices/lhzproject/lhz-protocol.doc.

Timeline: This project is under way and the non-Federal component is expected to be finalized by September, 2005.

Contact: Dave Parks, Washington Department of Natural Resources, ADDRESS: 311 McCarver, Port Angeles, WA 98362. TELEPHONE: 360-417-1405 ext. 225. FAX: 360-452-4922, EMAIL: dave.parks@wadnr.gov

Spring 2005 Beach Profiling at Elwha River Delta

Spring beach profiling of the Elwha River Delta shore was carried out on April 27, 2005. Profiles were surveyed by Jim Johannessen of Coastal Geologic Services, Inc. (CGS) along with Matt Bierne and Larry Ward from the Elwha Tribe. Profile monitoring was carried out for the tribe using methods consistent of those in place since the fall of 1996.

Beachface accretion was surveyed west of the Elwha River mouth where a recovery of the beachface (accretion) was observed, back to the 1999 beachface position. A river mouth bar persisted since the 2004 surveying southwest of the center of the river channel at the shore. The river mouth bar appears to be prograding northeastward and the area (aerial photo taken mid-March 2005 available).

Minor beachface erosion occurred east of the river mouth with the beachface within the range of past positions. Slightly further east, the beachface remains stable and in a relatively more waterward position in one location, while further east (a short distance west of Angeles Point) the beachface was in a much more landward position. At this erosional location, the beachface has receded a total of 80 ft horizontally since 1996. The low-tide terrace also dropped noticeably in this area (1-1.5 ft). Minor erosion was documented at Angeles Point with the beachface also in its most landward position since 1996.

Substantial erosion was surveyed east of Angeles Point, with erosion of 40 ft horizontally over the winter of 2004-05. The large berm fronting Beach Lake in this area experienced significant gravel overwash along with net volume loss. Numerous additional trees are now dead or dying along the berm as their roots have been exposed or removed, and that area inundated with saltwater. The storm berm crest has lowered generally 1-2 feet during the past winter. This is a continuation of progressive barrier beach rollover and accompanying loss of coastal wetland area that has been occurring since approximately the 1930's, as documented in earlier work by Schwartz and Johannessen.

The eastern portion of the Elwha River Delta also eroded over the winter of 2004-05 on the order of 25 ft horizontally. This is a reverse in the recent trend of accretion on this down-drift side of the delta. The beachface eroded on the order of 25 ft horizontally here. The low-tide terrace dropped further in this area, as it also did throughout the eastern half of the river delta over the past winter.

Contact: Jim Johannessen, Licensed Engineering Geologist, MS, Coastal Geologic Services, Inc., Email: coastalgeo@comcast.net, Phone: 360-647-1845, Fax: 360-671-6654

Photographic Monitoring of the Central Straits Shoreline

The Surfrider Foundation continues to work towards the full implementation of its photographic monitoring project. The goal of this project is to involve citizens in the systematic collection of high resolution photographs that can be used to document shoreline variability in the area likely to be restored by the removal of dams on the Elwha River. Photo collection is taking place at a variety of locations from Freshwater Bay to the tip of Ediz Hook with emphasis being placed on the shoreline directly adjacent to the river mouth. Permission has been obtained from landowners on the bluff directly above the river mouth to access their properties for frequent (once a week) photos of the estuary and adjacent shoreline. Two overflights have been conducted to date, with a full oblique photo series collected on each flight. The project website (www.surfrider.org/elwha), with a full project description and our entire photo archive, is nearing completion. Working in partnership with North Olympic Salmon Coalition we are also nearing completion of our Elwha Nearshore Restoration educational display. This will end up as an 8' by 6' educational display describing the history of the watershed, the dam removal and the restoration opportunities presented along the shoreline. This project is funded by the Puget Sound Action Team's SEED Grant Program and has been developed with the support and assistance of Dr. Rob Young of Western Carolina University, the Lower Elwha Klallam Tribe, WDFW, and the Clallam County MRC.

Contact: Ian Miller, Washington State Field Coordinator, Surfrider Foundation
533 W. 10th St. Port Angeles, WA 98362, 360 808 1103/fax 808-1103/imiller@surfrider.org

Elwha Sediment Management and Monitoring Plan

Contact: Tim Randle, Sedimentation and River Hydraulics Group (D-8540) U.S. Bureau of Reclamation Technical Service Center P.O. Box 25007 Denver, Colorado 80225-0007 Phone: 303-445-2557, Email: TRANDLE@do.usbr.gov.

Habitat MRC session representative: Anne Shaffer, Washington Department of Fish and Wildlife, shaffjas@dfw.wa.gov

An Integrated Approach to Restoration of Anadromous Salmonids and Their Habitat in the Elwha River Following Dam Removal. (The LEKT-UI-CSC Project)

Project Partners: University of Idaho, Fish Ecology Research Lab; NOAA Coastal Services Center; Lower Elwha Klallam Tribe and science advisors; the Elwha Nearshore Consortium; the Elwha Research Consortium (Olympic National Park); Washington Department of Fish & Wildlife; Peninsula College; NOAA Northwest Fisheries Science Center; Olympic National Park; US Geological Survey. **Project Audience:** Lower Elwha Klallam Tribe (LEKT); the General Public; Other agency cooperators

Update: This project was launched on April 12-13, 2005 with the on-site meeting of the NOAA CSC staff, the University of Idaho staff, the Lower Elwha Klallam Tribe's science advisors, and members of the Elwha Tribe. It will run through March 2007, with a time continuance, as necessary. This broad project combines estuary and nearshore field science and GIS with a social, economic, and cultural profile in a comprehensive characterization of the land, water and the Native American people who live at the mouth of the river.

Some of the project deliverables include: Field training in estuary and Lower Elwha riparian data collection using Doppler, sediment sampling, and surveying; A web-based clearinghouse of baseline GIS assessment data pre-dam removal, and; A social, economic, and cultural characterization of the Lower Elwha Klallam Tribe and their natural resources

The University of Idaho, Fish Ecology Research Lab, with funding from NOAA Coastal Services Center, will establish a research office in Port Angeles for the duration of this project.

Contact: Nancy Wright. PO Box 2816. Port Angeles. WA. Cell phone (208) 596-2914, nwright@uidaho.edu.

Historical Changes to Estuaries and other Nearshore Habitats in Hood Canal and the Strait of Juan de Fuca

This project is funded through the Bureau of Indian Affairs (Strait) and the Salmon Recovery Funding Board (Hood Canal). We are using historical sources (mainly US Coast Survey maps, General Land Office notes/maps, and early air photos) and methods developed primarily by Brian Collins and colleagues at the University of Washington to characterize the major geomorphic (e.g. estuarine channels, spits, etc.) and vegetation features (e.g. salt marsh, wooded marsh, grassland, etc.) in estuaries and other nearshore habitat complexes in Hood Canal and the Strait as they were in the 1850 to early 1900s period. A historical delineation, based on the US Coast and Geodetic Survey topographic sheet (1907-08) of the Elwha River estuary and vicinity is available for download in GIS format from the Point No Point Treaty Council (PNPTC) website, www.pnptc.org. We have developed a contemporary (~ 2000-2004) delineation of estuarine and nearshore habitats in the Strait and Hood Canal for comparison with the historical delineations. The historical and contemporary datasets are now being compared, along with interim period photos and maps, to give us an understanding of the nature and extent of habitat changes, and insights into alterations to physical processes (e.g. direct “footprint” effects, sediment, hydrology, etc.) responsible for the changes we see over time. The PNPTC has been collaborating with the UW Puget Sound River History Project, on aspects of this project.

Timeline: We are expected to complete a draft of this project by July 2005.

Contact: Steve Todd, Point No Point Treaty Council, 7999 NE Salish Lane, Kingston, WA 98346 360-297-6526 stodd@pnptc.org

Salmon and Steelhead Habitat Inventory and Assessment Project (SSHIAP)

Representatives with the Point No Point Treaty Council (PNPTC) are responsible for developing and maintaining various salmon habitat GIS datasets for the Salmon and Steelhead Habitat Inventory and Assessment Project (SSHIAP) for the Hood Canal and Strait regions, including the Elwha River. In addition to providing a characterization of stream geomorphic segments, fish barrier and distribution data in the freshwater systems, SSHIAP is in the early stages of linking this freshwater GIS data with the estuaries and along the nearshore. This will result in a process-based delineation that relies heavily on surficial geology, a digital elevation model (DEM), and drift cells to characterize landforms along the marine shoreline.

Timeline: Freshwater GIS datasets currently available; nearshore datasets are in development.

Contact: Steve Todd, Point No Point Treaty Council, 7999 NE Salish Lane, Kingston, WA 98346 360-297-6526 stodd@pnptc.org

Elwha and Glines Canon Dam Removals: Restoration and Salmon Recovery of the Nearshore Central Strait of Juan de Fuca

WDFW, Elwha Tribe, Olympic National Park, Clallam County, and NOAA have developed a framework for defining nearshore restoration response of the Elwha nearshore. The framework is available at psgb@engr.washington.edu.

Contact: Anne Shaffer, WDFW, 332 E. 5th Street, Port Angeles, Wa. 98362 360.457.2634/417.3302fax shaffjas@dfw.wa.gov.

Biological Communities MRC session representative: Ed Bowlby, Olympic Coast National Marine Sanctuary, Ed.Bowlby@noaa.gov

Comprehensive Assessment of the Wetland Complex at the Mouth of the Elwha River.

The Lower Elwha Klallam Tribe has applied for a Wetland Protection Grant with the EPA to complete a comprehensive assessment of the wetland complex at the mouth of the Elwha River. Geological, chemical, and biological assessment work will provide data regarding current wetland conditions, as well as historical conditions (using sediment cores) prior to the construction of the Elwha River dams. The primary goal of the project is to develop a management plan for the wetland complex to effectively manage and monitor this system to maximize restoration benefits from the removal of the Elwha dams. A comprehensive evaluation of the biological (flora and fauna), physical (sediment/ topography), and chemical (nutrients) characteristics of the wetland complex at the Elwha River mouth will include sediment characterization, water quality analysis, vegetation surveys, nutrients, invertebrates, vertebrates, and GIS mapping.

The Tribe will receive technical assistance from the National Park Service, Washington State Department of Fish and Wildlife (Anne Shaffer), and Western Carolina University (Rob Young). Rob Young, an Associate Professor of Geosciences at Western Carolina University and currently on Sabbatical, will provide technical assistance and coordinate sediment sampling efforts.

Contact: Matt Beirne, Environmental Coordinator, Lower Elwha Klallam Tribe, 360-457-4012, ext 12.

Land Cover / Land Use Classification Using Very High Resolution (4m multispectral) Satellite Imagery of the Lower Elwha Watershed

Contact: Karen Steinmaus, project manager (karen.steinmaus@pnl.gov); Lee Miller, technical support (681.3636/lee.miller@pnl.gov) Battelle Marine Sciences Remote Sensing

Fisheries MRC session representatives: Lyn Miller, Jamestown Tribe, Joe Schmitt, Clallam MRC, Pat Crain Olympic National Park, patrick_crain@nps.gov,

Eulachon of the Elwha Nearshore (working title)

The Elwha Tribe, WDFW, and Peninsula College are conducting a pilot study to define morphometrics and spawning parameters of eulachon (*Thaleichthys pacificus*) discovered in the Elwha River in March 2005.

Contact: Anne Shaffer, WDFW, 332 E. 5th Street, Port Angeles, Wa. 98362
360.457.2634/417.3302fax shaffjas@dfw.wa.gov.

Shellfish Harvest Activities Associated with Elwha Dam Removals (ongoing management topics)

Contact: Michael Ulrich, WDFW, at 360-902-2737; Doug Morrill, Lower Elwha Klallam Tribe, at 360-457-4012 ext. 18; or Kelly Toy, Jamestown S'Klallam Tribe, at 360-681-4641

Workgroup Directory Workgroup participants actively working in nearshore. *Italic* are nearshore workgroup coordinators/key contacts

Name	Affiliation	Email
<i>Anne Shaffer</i>	<i>Washington Department Fish Wildlife</i>	shaffjas@dfw.wa.gov
<i>Joe Schmitt</i>	<i>Clallam Marine Resources Committee</i>	joes@armstrongmarine.com
<i>Cathy Lear</i>	<i>Clallam County</i>	CLear@co.clallam.wa.us
<i>Matt Beirne</i>	<i>Elwha Tribe</i>	beirne@elwha.nsn.us
<i>Brian Winter</i>	<i>Olympic National Park</i>	brian_winter@nps.gov
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