

# Elwha Nearshore Update

A NEWSLETTER OF THE ELWHA NEARSHORE CONSORTIUM  
December 2004

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Welcome to ***Elwha Nearshore Update***, a quarterly newsletter that 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 subsequent to 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>.

Information in this newsletter is provided by project leads and includes individual contact information. For information on the Clallam MRC contact Joe Schmitt, committee chair, [joes@armstrongmarine.com](mailto:joes@armstrongmarine.com), and Cathy Lear, Clallam County, [CLear@co.clallam.wa.us](mailto:CLear@co.clallam.wa.us)/ 360.417. 2423. For information on the Elwha nearshore workgroup contact Anne Shaffer, Washington Department of Fish and Wildlife, [shaffjas@dfw.wa.gov](mailto:shaffjas@dfw.wa.gov)/ 360.457.2634. Information on the Elwha dam removals can be found at the Elwha webpage, <http://www.nps.gov/olymp/elwha/home.html>.

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

NOAA, the USGS, the Lower Elwha Klallam Tribe, Olympic National Park, and others including the WDFW are constructing a formal consortium to frame and promote research and education associated with the Elwha Dam removals. Jerry Freilich, Olympic National Park, (360-565-3082/Fax 360-565-3070/ [Jerry\\_Freilich@nps.gov](mailto:Jerry_Freilich@nps.gov)) is the primary contact.

The USGS, Lower Elwha Klallam Tribe, and WDFW sponsored a work session focusing on the status and next steps for the physical processes of the Elwha nearshore. John Warrick, USGS, (831-427-4793/[jwarrick@usgs.gov](mailto:jwarrick@usgs.gov)) is the primary contact for an overview of the work session.

The WDFW coordinated a meeting of the Elwha nearshore habitat managers to brainstorm on the primary habitat management and restoration needs of the Elwha nearshore and how to best optimize the upcoming restoration event to meet these collective needs. Representatives of DNR, CoE, PSAT, WDFW, and contractors for the City of Port Angeles attended. Discussions focused on the addition of new armoring along the waterline and adjacent feeder bluffs, within the Elwha drift cell. The city of Port Angeles is developing an armoring project along an unarmored portion of the feeder bluffs that contains the city land fill, slated to be closed in 2007. The City may have the opportunity to request an extension of the closure date so that it is in alignment with the dam removals. The CoE may be able to offer the city ecosystem scale soft alternative assistance. Both of these will take a request by the city of Port Angeles. The group also

agreed that a concise model defining future sediment trajectory, volumes, and fate are needed to define steps that meet the collective need. The Elwha Tribe and WDFW have submitted a proposal to NOAA to fund such a model. No other coordination has occurred.

In addition, Nippon paper is reapplying for a five-year maintenance program for applying additional rock to the existing armoring along 9000 feet of shoreline along the Elwha bluffs. The CoE may be able to offer ecosystem assistance here as well. No coordination with other projects is currently underway on this project.

The habitat managers group will need future coordination. DNR or PSAT could be key players in this coordination role. Current contacts are Anne Shaffer WDFW / 360.457.2634/shaffjas@dfw.wa.gov /, Martha Hurd DNR 360.417.1405 [x221/martha.hurd@wadnr.gov](mailto:x221/martha.hurd@wadnr.gov) and John Cambalik, PSAT, 360-582-9132/fax: 360-582-9132 (please call first)/ [jcambalik@psat.wa.gov](mailto:jcambalik@psat.wa.gov)

The USGS is sponsoring a special session on the Elwha at the upcoming Puget Sound Research Conference scheduled for spring 2005. The proposed session will include both freshwater and nearshore presentations. Christopher P. Konrad USGS, (253.428.3600 x2634 /fax 253.428.3614 /cpkonrad@usgs.gov) is the proposed session chair. Check the PSWQA webpage for updated details: <http://www.engr.washington.edu/epp/psgb/index.html>.

**A** number of entities have funding proposals under consideration that address various elements of the Elwha nearshore. Support for these projects is critical.

Proposals include:

The Elwha Tribe and WDFW have submitted a NOAA proposal entitled '*Nearshore restoration of the Elwha dam removals: sediment fate and beach restoration*' that, if funded, will provide modeling support for linking physical and biological functions of the Elwha nearshore to provide a base for predicting and prioritizing future restoration activities within the Elwha nearshore. Anne Shaffer 332 E. 5<sup>th</sup> Street Port Angeles, Washington 98362. 360.457.2634, [shaffjas@dfw.wa.gov](mailto:shaffjas@dfw.wa.gov), and Matt Beirne, Lower Elwha Klallam Tribe, 51 Hatchery Road, Port Angeles, Washington. 360.457.4012 ext 12 ([beirne@elwha.nsn.us](mailto:beirne@elwha.nsn.us)) are contacts.

Western Carolina University, Olympic Park Institute, and Olympic National Park have submitted a National Science Foundation proposal 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](mailto:ryoung@wcu.edu))

Peninsula College and Western Carolina University are preparing to submit a National Science Foundation STEP proposal that would establish an Environmental Restoration

laboratory at Peninsula College. Much of the initial focus of the program would be the Elwha Restoration Program. Peninsula College has a number of other proposals in for Elwha restoration, including the nearshore. Contact: Bill Eaton, Senior Vice President, Peninsula College, 1502 East Lauridsen Blvd, Port Angeles, WA 98362. Tel: (360) 417-6246 (Bille@pcadmin.ctc.edu).

Recent activities focused on Elwha nearshore, by major category of the spring 2004 workshop, include the following:

## **Physical processes**

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

### **Title of Project: Beach Profile Monitoring of the Elwha River Delta Coast**

Since 1996, the Tribe has contracted with Coastal Geologic Services Inc, to conduct surveying of each profile to document the progradation and aggradation of sediment along the nearshore on Tribal lands. Surveys occur during the spring and fall of each year. They have performed precision surveying of beach profiles and beach surface sediment photographs at multiple locations along 7 established stations each spring and fall. A professional surveyor established the 7 permanent monuments across the delta shore. There are 7 beach profiling locations.

#### **Summary of the Spring to Fall 2003 Monitoring:**

The beach at profile 1, located just west of the Elwha River mouth, experienced progradation (up to 25 ft) reversing the long-term trend of erosion since 1996.

Overall, the large amount of sediment deposited a short distance east of the river mouth in 2002 was distributed further alongshore to the east, perhaps as far as profiles 5,6 and 7.

The 10 ft of beachface progradation at profile 5 was likely from littoral transport of sediment from the area east of the Elwha River and the profile 4 area (15 ft of erosion occurred at profile 4).

The 10 and 8 ft of lower beach face progradation at profiles 6&7, respectively, was most likely due to continued eastward transport of littoral sediment from the west.

#### **Comparison to Pre Fall 2003 Monitoring Data Summary:**

Despite the general trend of erosion since monitoring began in 1996, 2003 saw the largest amount of beach face progradation at profile 1 (up to 25 ft)

The significant amount of sediment prograded by 2002 east of the Elwha River at profile 2 has been steadily moving eastward to the eastern half of the delta (profiles 5-7) as the profiles return to a more stable and more gentler sloping beachface.

There was 10 ft of beachface erosion at profile 4 since spring 2003, marking its most landward position since 1996.

The beachface at profiles 2,3,5 and 6 are now approximately halfway between the extreme beachface positions surveyed to date

The beachface at profile 7 prograded 3 to 8 ft becoming the most waterward position surveyed to date.

**Timeline:** This activity is carried out under an annual funding agreement (AFA) between the NPS and Lower Elwha Klallam Tribe. This activity is dependent on available funding. The Tribe has been contracting out to do semi-annual reports during the spring and fall since 1996. The Tribe plans on expanding the monitoring program further east and west of the shoreline and increase the density of monitoring profile locations. Again this activity is dependent upon available funding through the AFA for FY05. In 2005, The Tribe plans to take on the field element of this monitoring program with Coastal Geologic Services performing some training, data analysis, and reporting. Also, there has recently been coordination with the USGS (Guy Gelfenbaum and Jon Warrick) on this project.

**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](mailto:beirne@elwha.nsn.us); [lward@elwha.nsn.us](mailto:lward@elwha.nsn.us)) and Jim Johannessen, Coastal Geologic Services, Inc., Email: [coastalgeo@comcast.net](mailto:coastalgeo@comcast.net), Phone: 360-647-1845

### **Title of Project:Elwha Sediment Management and Monitoring Plan**

A draft report on plans for sediment management and monitoring for the Elwha project contains some discussion of beach profile surveys, river cross section monitoring (some of which are near the mouth), and the use of satellite photography for monitoring the turbidity plume.

**Timeline:** The funding, and perhaps, timeline for most of the suggested activities is uncertain.

**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](mailto:TRANDLE@do.usbr.gov)

**Title of project: *Effects of Elwha Dam Removal on Nearshore Habitats***

All of the following activities are being conducted within the "Effects of Elwha Dam Removal on Nearshore Habitats" Task within the "Coastal Habitats in Puget Sound" Project, which is an internally-funded project at the US Geological Survey's Coastal and Marine Geology Program. Within the Elwha task, we have a series of research/monitoring projects:

1. Nearshore and Beach Mapping - repeat topographic/bathymetric surveys at over 100 beach cross-sections to document changes with time in the littoral system. Surveys are being conducted with DGPS technologies from both watercraft and personnel on land. Our first survey was conducted in Sept. 2004 and covered Freshwater Bay to Ediz Hook. Plans are to re-survey the region twice a year (March/Sept) through the dam removal process.
2. Shelf Substrate and Habitat Mapping - In March 2004 we conducted swath sonar, video and sediment grain-size sampling offshore of the river mouth region to map substrate type and bathymetry. We will be conducting further swath sonar mapping this spring (2005) with the goal of completing a map of the submarine delta portion of the Elwha nearshore.
3. Physical Processes Monitoring - We plan to deploy acoustic sensors this winter (2005) to measure water circulation and waves offshore of the river delta. Two sites with ADCP's (with waves) are planned to be deployed. The data from these instruments will begin our understanding of the hydrodynamics of the region, which are important since they will drive nearshore sediment transport.
4. Numerical Modeling - We are currently (Nov. 2004) developing a hydrodynamic model of the Strait and river mouth region to simulate currents and waves under a number of conditions. The goal of this modeling is to extend the monitoring results of circulation to a much broader region and to eventually assess sediment transport patterns and morphologic change.

**Timeline:** This task was funded during FY04 and FY05, and although nothing is definite for the future, appears to have good support through the dam removal process.

**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](mailto:jwarrick@usgs.gov), WEBPAGE: <http://walrus.wr.usgs.gov/staff/jwarrick/>

**Title of Project: *Mud Dispersal from River Mouth Following Dam Removal***

Researchers at UW are purportedly developing a research proposal to study mud dispersal from the river following dam removal.

**Timeline:** Unknown

**Contact:** Adrea Ogston and Chuck Nittrouer at UW for more information. Contact information not available at printing.

## **Biological Communities**

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

**Title of Project: *Land cover / land use classification using very high resolution (4m multispectral) satellite imagery of the lower Elwha watershed***

Lee Miller, Battelle, was involved with an land cover / land use classification using very high resolution (4m multispectral) satellite imagery of the lower Elwha watershed this summer. It was funded by Heritage University in Toppenish, WA with a primary application as a teaching tool for academic enhancement back at their university.. They also provided two interns who spent the summer working on this project with a final product being a GIS dataset and map for the Elwha tribe. We also assessed the application of using this technology for woody debris measurements and the detection of several invasive species (scotch broom was done successfully; japanese knotweed was not) in the area. As a follow on to this project and with the expected arrival of more interns next summer - another satellite acquisition during the summer of 2004 (this year's project used summer 2003 satellite data) was purchased with a change analysis and further exploration into mapping capabilities explored. I've copied Karen Steinmaus on this - she was the project manager and was responsible for developing the Elwha watershed as the primary study-site so she is definitely to thank. I served primarily as technical support and advisor to the interns during their stay here. She would definitely be the one to talk to about her ideas of future projects related to this next year. Hope this helps,

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

**Title of Project: *Photographic monitoring of the central straits shoreline***

The Surfrider Foundation working with Rob Young (Western Carolina University) has received a SEED Grant from the Puget Sound Action Team. This grant will provide funding for implementing a program of qualitative, systematic, digital, photographic

monitoring (aerial and ground level) of the Elwha area shoreline before and after dam removal. This project will involve volunteers in a photographic monitoring project designed to visually track changes to the Central Straits Shoreline (from Freshwater Bay to the end of Ediz Hook). Photo series will be collected approximately 2x or once/month at a variety different sample sites along the shore. In addition, ariel photo series' will be collected as resources permit. We anticipate continuing this activity into the foreseeable future. Photos will be made available via a website.

**Timeline:** We are currently developing protocols and preparing for our first overflight. Full implementation will hopefully take place by January.

**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](mailto:imiller@surfrider.org)

## **Habitat**

MRC session representative: Anne Shaffer, Washington Department of Fish and Wildlife, [shaffjas@dfw.wa.gov](mailto:shaffjas@dfw.wa.gov)

**Title of Project:** ***An integrated approach to restoration of anadromous salmonids and their habitat in the Elwha River following dam removal***

Tasks: 1) Train the Tribe's staff (through field application) in methods to acquire, compile, and evaluate physical, ecological, and socioeconomic datasets primarily through remote sensing and telemetry technology that is appropriately priced and scaled for the lower Elwha River, estuary and shallow nearshore area; 2) Develop of a GIS tools that will organize the Tribe's current and expanding spatial data (GIS) collection into appropriate themes, scales, and applications for multiple management purposes; 3) Develop and apply a characterization of the lower Elwha River, estuary, nearshore physical, biological, and socioeconomic parameters for long-term resource management by the Tribe.

**Timeline:** Project runs from March 2005 through March 2007. It hasn't started yet; only the groundwork.

**Contact:** Nancy Wright, Fish Ecology Research Lab, IDCFWRU University of Idaho, Moscow ID 83843 Ph: 208.885.7017 Fax: 208.885.9080, [nwright@uidaho.edu](mailto:nwright@uidaho.edu)  
Collaborators: Lower Elwha Klallam Tribe, NOAA, WDFW.

**Title of Project:** ***Historical Changes in the Strait Estuaries and Nearshore, Neah Bay to Discovery Bay' (working title)***

This project funded by the Bureau of Indian Affairs. We are utilizing historical sources (primarily US Coast Survey maps, General Land Office notes, early air photos) and methods developed primarily by Collins and Sheikh (UW) to "re-construct" the physical

landscape and major habitat types of the Strait estuaries and nearshore wetlands as they were in the 1850 to early 1900s. The historical delineation according to the US Coast Survey T sheet (circa 1907-08) of the Elwha estuary and vicinity is available for download in GIS shapefile format from the PNPTC website, [www.pnptc.org](http://www.pnptc.org). Some revisions may be made to this in the coming months. We are now developing a contemporary (~2000-2004) delineation of estuarine and nearshore habitats in the Strait for comparison with the historical delineations that we have already produced. We at PNPTC are working in close contact with the UW for much of this project (though we are funded through different agencies) and at this point we are doing some portions of the Strait and Collins et al. (UW) is doing other portions. I believe the UW is now in the process of delineating contemporary habitats in the Elwha estuary and we are hitting other parts of the Strait (e.g. Pysht, Clallam, Morse, Port Angeles, Crescent Bay, etc.).

**Timeline:** We are expected to complete this project by July 2005.

**Contact:** Steve Todd, Point No Point Treaty Council, 7999 Salish Lane Kingston, WA 98346 360-297-6526, [stodd@pnptc.org](mailto:stodd@pnptc.org)

**Title of project: PNPTC SHIAP (working title)**

Nick Fitzpatrick (PNPTC GIS Analyst) and myself are also working on the Salmon and Steelhead Habitat Inventory and Assessment Project (SSHIAP) as regional representatives for Hood Canal and the Strait. In that capacity we are supporting the development and maintenance of various GIS datasets in those regions, including of course the Elwha River. In addition to housing stream geomorphic, fish barrier and fish distribution data in the freshwater systems, SSHIAP is in the early stages of linking this freshwater GIS data with the estuaries and nearshore through a spatial framework developed primarily by and in coordination with the Skagit River System Cooperative. This will result in the process-based (i.e. based largely in relatively coarse-scale geologic processes) delineation of the estuaries and nearshore. It relies heavily on drift or littoral cell delineations, geology, and a digital elevation model (DEM) to characterize landforms along the nearshore and in the estuaries. I don't have a solid deadline for completing this in the Strait, though we are receiving considerable pressure to make major progress probably in the next 6 months. Steve Todd is lead for the Strait.

**Contact:** Steve Todd , Point No Point Treaty Council, 7999 Salish Lane Kingston, WA 98346 360-297-6526, [stodd@pnptc.org](mailto:stodd@pnptc.org)

**Project title: Nearshore Central Strait of Juan de Fuca:an ecosystem assessment of salmonid use and priority restoration actions**

This project will define fish use of habitats within the central Strait of Juan de Fuca nearshore, including species, populations, and life history strategies of juvenile salmon and forage fish are present in the nearshore, and when they are there; and the distribution of juvenile salmon within areas by general habitat type. This assessment of juvenile salmonid and forage fish use of the nearshore will contribute to concurrent fish use

projects proposed for the greater Puget Sound area and form the basis for a quantitative models currently under collaborative development with staff of NOAA Fisheries & USGS to predict future restoration of nearshore habitats and resources associated with the dam removals. Collaborators include the Lower Elwha Klallam Tribe, NOAA, Skagit System Cooperative unit, USGS, and University of Idaho.

**Timeline:** Anticipated to begin spring 2005, continue for up to three years.

**Contact:** Anne Shaffer, WDFW, 332 E. 5<sup>th</sup> Street, Port Angeles, Wa. 98362  
360.457.2634/417.3302fax [shaffjas@dfw.wa.gov](mailto:shaffjas@dfw.wa.gov).

## **Fisheries**

MRC session representatives: Pat Crain Olympic National Park, [patrick\\_crain@nps.gov](mailto:patrick_crain@nps.gov), Ian Miller, Surfrider Foundation, [imiller@surfrider.org](mailto:imiller@surfrider.org)

### **Harvest Activities**

Geoduck - Tribal geoduck harvest began on the Freshwater Bay tract (#00100) in 1999 and about 33,252 pounds were landed through 2003. The state began geoduck harvest on this tract on June 22, 2004 and landed about 279,947 pounds through July 30, 2004.

Urchin - Red and green urchin fisheries have been occurring in the eastern Strait every year since 1995, and were on a 3-year rotation prior to that. WDFW and Treaty Tribes have conducted red sea urchin surveys in District 3 (Dungeness Spit to Low Point) & District 4 (Sekiu area) since 1998. The most recent District 3 survey was completed in the summer of 2004. Due to significant declines in red urchin abundance in District 3 (reduced 84% from virgin biomass level), co-managers have agreed to close District 3 and conduct studies to monitor recovery. At this point, a survey of District 4 red urchins will occur next year and the State and Tribes will establish two study sites in District 3. It is likely that we will try to alternate District 3 studies and District 4 surveys to minimize effort in any given season.

**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