

Elwha Nearshore Update

A NEWSLETTER OF THE ELWHA NEARSHORE CONSORTIUM

October 2007

Welcome to the fall 2007 *Elwha Nearshore Update* newsletter which summarizes current activities focusing on the Elwha nearshore. It is sponsored by the Elwha nearshore workgroup, an informal consortium formed in spring 2004 that is dedicated to understanding and promoting the nearshore restoration associated with the upcoming Elwha dam removals. The newsletter provides updates on various activities since the last edition (October 2006) and catalogs ongoing projects. Previous editions of the newsletter and proceedings from our original spring 2004 nearshore workshop can be found on the Clallam Marine Resources Committee website, <http://www.clallammrc.org>.

The Washington Department of Fish and Wildlife provides workgroup and newsletter coordination, and partners with the Lower Elwha Klallam Tribe, Clallam Marine Resources Committee (MRC), Olympic National Park, Peninsula College, Puget Sound Partnership, and others in promoting the work and communication of the Elwha nearshore consortium. For information on the Clallam MRC contact Doug Morrill, committee chair, dmorril@elwha.nsn.us, and Cathy Lear, Clallam County, CLear@co.clallam.wa.us / 417. 2423. For information on the Elwha Tribe, contact Matt Beirne, 360.457.4012 x12; beirne@elwha.nsn.us. For information on Elwha nearshore consortium, 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>.

Table of Contents

Workgroup Announcements	2
Additional Coordination	2
Ongoing Management Issues	2
New and Ongoing Restoration Activities by Subject Category.....	3
Physical Processes.....	4
Habitat	5
Biological Communities.....	9
Fisheries	10
Workgroup Directory.....	10
Educational Entities	11
Additional Resources, Completed Studies, and Publications	11

Workgroup Announcements

OK, IT'S DECIDED. WE WILL BE HAVING OUR TRADITIONAL NEARSHORE WORKSHOP THE 4TH WEEK OF JANUARY 2008 IN PORT ANGELES AT THE PENINSULA COLLEGE. WE WILL HAVE OUR STANDARD DAY AND A HALF LONG MEETING, WITH TECHNICAL PRESENTATIONS THE FIRST DAY AND WORKGROUP COORDINATION THE NEXT HALF DAY. WE WILL HAVE AN EVENING 'ELWHA CONVERSATIONS' PUBLIC MEETING THE FIRST EVENING. CONTACT ANNE SHAFFER, SHAFFJAS@DFW.WA.GOV, FOR DETAILS.

Additional Coordination

The Elwha Research Consortium (ERC). Dwight Barry, Professor, Peninsula College, is coordinating the ERC, founded in 2005 when Western Washington University's Huxley College of the Environment and its partner institution Peninsula College continue to provide invaluable research support and education opportunities through the awarded \$500,000 by the National Science Foundation's Research Coordination Networks grant program. This initiative establishes the Elwha Research and Education Consortium to serve a vital function to encourage and facilitate the development of more research and educational opportunities associated with the Elwha River Restoration project. **Contact:** Dwight Barry 360.417.6586/
dwrightb@padmin.ctc.edu.

Ongoing Nearshore Management/Restoration Issues

The key elements of the nearshore restoration strategy, including historic habitat, current sediment processes, and current habitat form and function, are coming together. Our next step is to combine these elements to predict future habitat conditions and, our ultimate goal, define additional 'value added' restoration priorities in the Elwha nearshore. This modeling effort has not yet been funded. Potential partners on this work, which is a top priority, include the Corps of Engineers, Battelle, and USGS. WDFW, Clallam County, UI, and the Elwha Tribe. The priority work is time sensitive and depends on full and open collaboration by federal, state, academic, and tribal partners. Contact Anne Shaffer (shaffjas@dfw.wa.gov) if you are interested in a copy of the strategy and how you can help realize this very important component of our nearshore restoration work.

The Clallam County continues to promote dialog with citizens and Place Road landowners on the west levee and has co-authored a SRFB proposal to provide fish passage thru the west levee in conjunction with the dike alteration that will be taking place with the upcoming dam removals. Funding decision is due no later than January 2008. Current contact for this dialog is Cathy Lear, Clallam County, [360.417.2361](tel:360.417.2361)/CLear@co.clallam.wa.us

The coordination between Elwha nearshore habitat management and restoration continues to need leadership. Top priority items include coordination between the city of Port Angeles (installing a new revetment along the Elwha bluffs); Nippon paper (who has a five-year

maintenance program for applying additional armoring to the existing armoring along 9000 feet of shoreline along the Elwha bluffs), and CoE (that has a half dozen or so authorities for ecosystem assistance for drift cell maintenance and restoration). Current Elwha nearshore workgroup contacts for this are Matt Beirne, Elwha Tribe (457.4012 x 12/ beirne@elwha.nsn.us); Jeffree Stewart, DoE, 360.407.6521/ jste461@ECY.WA.GOV; and John Cambalik, PSP, 360-582-9132/fax: 360-582-9132 jcambalik@psp.wa.gov.

The Port Angeles landfill closure continues. The City of Port Angeles was required to seal off the waterward, northern edge of the circa 1930 landfill, located along the formerly unarmored portion of the feeder bluff of the Elwha drift cell. An early proposal for placement of 10K tons of rock armoring on the beach was not allowed, and a compromise design was approved that required excavation 30 feet landward, removal of debris, insertion of sheet pile walls with rock toe protection, and placement of sand and cobble as beach enhancement over the toe protection.

A road down Dry Creek ravine was used for hauling materials, that must be scaled back where it intruded near the mouth of the creek. Required monitoring of the beach enhancement will begin as of this winter. Maintenance activities for beach enhancement may be required, as determined by results of monitoring. Contact for this project is Jeffree Stewart, DoE, 360.407.6521/ jste461@ECY.WA.GOV.



Port Angeles land fill closure project July 2007.

New and Ongoing Restoration Activities by Subject Category

within Elwha nearshore, as provided by project primary investigators. For ongoing projects with no update the project title and contact information are provided (see earlier newsletters for project details).

Physical Processes

Habitat modification due to marine sediment dispersal – an opportunity to study transport and deposition in a controlled dam-removal experiment

Baseline studies of sediment dispersal on the subaqueous portion of the Elwha delta were initiated this past summer by the University of Washington with support from Washington State Sea Grant and the National Science Foundation. The objectives for the baseline study are to: 1) characterize the seabed and water column in the present river condition; 2) estimate the impacts of high discharge events on the delta after dam removal, and; 3) determine a sampling plan for the dam removal period to ensure the highest rate of return.

In June, seabed mapping using a Seabeam multibeam system expanded seaward the nearshore bathymetric and sidescan sonar data set previously obtained by the USGS. The outer delta top and steeper-sloping delta front were mapped utilizing a specialized mapping vessel operated by Dr. Mead Allison, University of Texas. In all, data from an area of 53 km² are being processed and will provide high-resolution bathymetric and surficial materials maps of the delta from the shoreline to water depths of ~120 m that are critical for evaluation of future change, and planning of subsequent field efforts.

Circulation and sediment-transport capacity near the Elwha River mouth were evaluated during both the rising and falling tide. Currents and suspended-sediment concentrations were measured over the broad submerged delta top, while nested studies of the USGS focused on plume dynamics within and near the river mouth. The seasonal condition of spring snowmelt and relatively calm conditions in the Strait of Juan de Fuca resulted in a thin fresh water plume over the delta that contained suspended-sediment concentrations of up to ~10 mg/l. Much of the UW water-column sampling was made possible by partnering support of the WDFW.

In the coming winter, we will continue baseline studies to further evaluate seasonal dynamics during periods of energetic waves and storm-induced high river discharge. We will be coordinating these studies with plans of the other investigators involved in pre-dam removal monitoring.

Contact: Andrea Ogston and Chuck Nittrouer, School of Oceanography, University of Washington, Box 357940, Seattle, WA 98115. Ph. 206-543-0768. Email: ogston@ocean.washington.edu.

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

Landslide Hazard Zonation (LHZ) of the Lower Elwha Watershed

Contact: Dave Parks, Washington Department of Natural Resources, 311 McCarver, Port Angeles, WA 98362.: 360-4457.2570 ext. 225/fax: 360-452-4922/ dave.parks@wadnr.gov

Effects of Elwha Dam Removal on Nearshore Habitats This is a U.S. Geological Survey (USGS) research project with four primary tasks: (1) document the effects of dam removal on the nearshore sediment budget, (2) characterize the changes experienced in offshore substrate and

habitats due to increased sedimentation after dam removal, (3) understand the physical processes (waves, currents and sediment transport) of the river mouth region, and (4) develop a process-based numerical model for nearshore sediment transport of Elwha River sediment.

Contact: Guy Gelfenbaum, USGS, 345 Middlefield Rd., MS999, Menlo Park, CA 94025, ggelfenbaum@usgs.gov; or Jon Warrick, USGS, 400 Natural Bridges Drive, Santa Cruz, CA 95060, jwarrick@usgs.gov.

Monitoring sediment and channel topography in the lower Elwha River: Field surveys and remote sensing are used to monitor sediment grain-size characteristics and channel geometry on the lower Elwha River, in order to establish baseline data for a representative period of time before dam removal begins. We plan to survey transects in selected areas of the river repeatedly at biannual intervals to establish the range of topographic and grain-size variability caused by the seasonal hydrograph fluctuations in the dammed system, so that these can eventually be compared with changes to be evaluated at the same locations after dam removal once the system begins to respond to reservoir-sediment influx.

Contact Amy Draut, Coastal and Marine Geology Program, USGS, Pacific Science Center, 400 Natural Bridges Drive, Santa Cruz, CA 95060 USA. 831-427-4733/ adraut@usgs.gov; webpage: http://walrus.wr.usgs.gov/infobank/programs/html/staff2html/staff/Amy_Draut.html

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, CO 80225-0007; 303-445-2557/TRANDLE@do.usbr.gov.

Habitat

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

Contact: Chris Peery, University of Idaho Cooperative Fisheries Research Unit, Moscow, ID. 208.885.7223. cpeery@uidaho.edu

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

In this project the Washington Department of Fish and Wildlife Habitat Science program and Lower Elwha Klallam Tribe (with strong and much appreciated partnering support of Clallam County Marine Resources Committee, Peninsula College Fisheries and REU programs, Western Washington University Biology and Huxley programs, as well as collaboration with USGS, and NOAA) are defining fish use within the central Strait nearshore, and in particular the Elwha nearshore. Our focus includes defining: a) Species populations, timing, and life history strategies of juvenile salmonids (including Puget Sound Chinook, Hood Canal Summer Chum, searun cutthroat, steelhead, and bull trout) within the central and western Strait, with an emphasis on Elwha nearshore, and; b) Nearshore habitat function for fish, including spawning forage fish. The study, funded in 2007, is based on the nearshore restoration strategy developed in 2004 (see Shaffer et al. 2004). In this work the nearshore from Pysht east to the tip of Dungeness Spit has been partitioned by geomorphic habitat type. Fish use is then documented at selected representative sites by beach seining, forage fish spawn surveys, and kelp snorkeling surveys. Since March 2007 we have conducted almost

400 seines over 22 sites of central and western Strait lower rivers, shorelines, bluffs, and spits; repeatedly sampled five shoreline, bluff, and spit sites for surf smelt spawn, and; conducted snorkel surveys of six shoreline, spit, and bluff kelp beds a minimum of three times. Highlights of findings to date include:

1. **Salmonid use of nearshore.** Fish use of the nearshore central and western Strait appears to vary with nearshore habitat type. Salmonid use varies by habitat type and geographic area. In particular:
 - A. Seining the estuary and diked area of the west Elwha estuary from March-June:2007: we documented 12 species totaling more than 2100 fish in the west estuary of the Elwha, with Chinook comprising 55% of the total catch. In high contrast, we documented a total of only four species (three fish, one salamander) totaling 2600 fish in the impounded area. Stickleback were the dominant species in the impounded area. These findings resulted in the private land owner of the dike proposing fish passage in the west levee. This recommendation is the basis for Clallam County's current SRFB proposal.
 - B. In partnership with USGS, preliminary otolith analysis of Chinook salmon collected from Pysht and Crescent Bay shorelines revealed that outmigrating Elwha Chinook smolts do use the western Strait, including Crescent Bay and Pysht nearshore. Follow up sampling and genetic analysis to confirm these findings are our next priorities.
2. **Forage fish spawning habitat:** This year we have documented over one mile of surf smelt spawning beach along central and western Freshwater Bay and approximately two and a half miles of surf smelt spawning beach along the Dungeness Bluffs (from Morse Creek to the base of Dungeness Spit). To date no surf smelt spawning has been observed along either the Elwha bluffs or Ediz Hook. We are working with USGS to quantify the relationship between sediment size and surf smelt and sand lance spawning along the Elwha and adjacent Dungeness drift cells, and differences in beach function due to disruption of sediment processes within the Elwha drift cell.

Work for the next year will focus on continuing to define fish use of nearshore habitats including migration and forage fish spawning; modeling of results to define future nearshore restoration priorities, and confirm genetic identity of Chinook salmon in the nearshore of the western Strait.

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

Eelgrass Mapping Along the Elwha Nearshore The goal of this project was to gather pre-dam removal nearshore habitat data along the Elwha drift cell (west end of Freshwater Bay to the tip of Ediz Hook) and an adjacent drift cell (mouth of Morse Creek to the tip of Dungeness Spit) by mapping the location of eelgrass (*Zostera marina*) beds and estimating parameters describing each bed (areal extent, patchiness index, eelgrass fraction, mean minimum and maximum eelgrass depths). Our survey methods were identical to those used by the Washington State Department of Natural Resources Submerged Vegetation Monitoring Project. We observed three eelgrass beds within the Elwha drift cell (one along the north shore of Ediz Hook and two in Freshwater Bay) and two beds in the adjacent drift cell (one near Green Point and another along the north edge of Dungeness Spit). The distance between the Elwha River mouth and the nearest eelgrass bed was 0.96 nm. In three of four comparable geomorphic habitat types eelgrass parameters within the Elwha drift cell were very similar to those from regions outside the cell. In the fourth habitat type we observed no eelgrass along the Elwha Bluffs but a large bed along the Dungeness Bluffs. WDNR has documented that the Elwha Bluffs area has experienced significant increase in overstory kelp coverage over the last 100 years. This habitat shift is attributed to larger substrate

size resulting from sediment starvation. The dominant feature of the Elwha drift cell was understory kelp and large schools of juvenile Pacific sand lance (*Ammodytes hexapterus*). Some results summarized in Table and Figures below (reprinted from Norris et al 2007 full citation provided at end of newsletter). The project, funded by the Clallam County Marine Resources Committee (MRC), is part of a multi-disciplinary effort to understand and optimize the nearshore restoration associated with the upcoming dam removals.

Table 1. Summary statistics for five eelgrass beds surveyed by this project and the east and west portions of the Crescent Bay bed surveyed during the 2005 DNR SVMP. (reprinted from proceedings, Puget Sound Georgia Basin Research Conference)

Bed	Basal Area Coverage (ha)	Patchiness Index	Eelgrass Fraction	Mean Maximum Depth (ft)	Mean Minimum Depth (ft)
* West Freshwater Bay	21.6	8.6	52%	-19.9	-3.8
West Crescent Bay	12.8	4.4	61%	-25.4	-4.0
* East Freshwater Bay	1.6	8.3	26%	-21.5	-13.0
East Crescent Bay	2.3	5.3	14%	-26.6	-16.1
* Elwha Bluffs	No eelgrass observed				
Dungeness Bluffs	29.8	7.9	19%	-22.3	-12.2
* Ediz Hook	7.9	8.1	23%	-24.5	-14.8
Dungeness Spit	11.3	7.3	22%	-23.5	-17.4

* Regions within the primary Elwha drift cell.

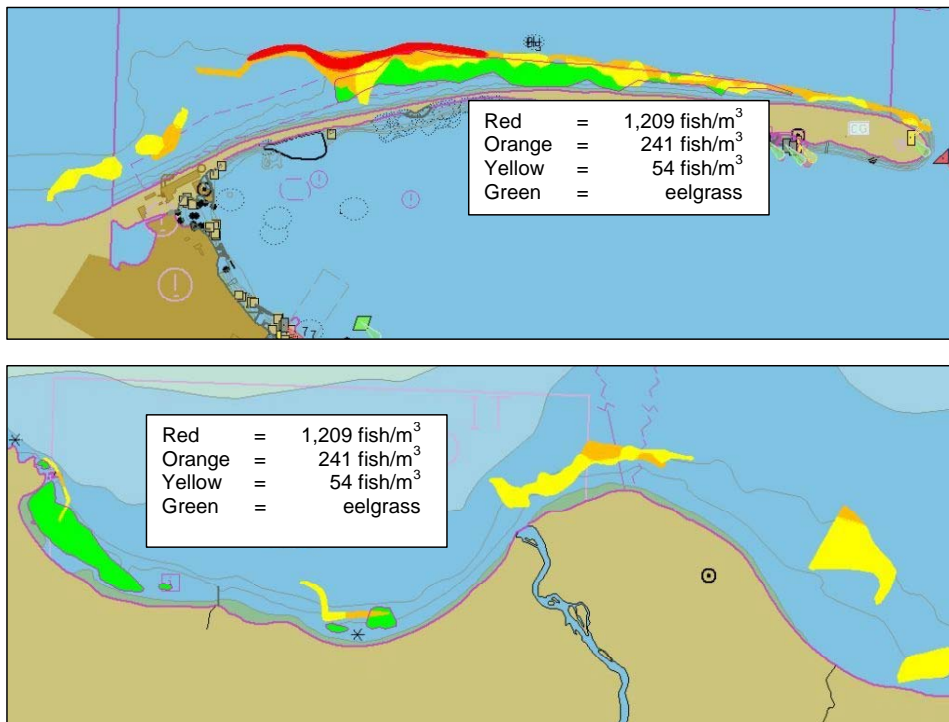


Figure 8. Estimated fish densities in the Elwha drift cell (reprinted from proceedings, Puget Sound Georgia Basin 2007 conference))

Contact: Jim Norris, Marine Resources Consultants, PO Box 816, Port Townsend, WA 98368; jnorris@olympus.net

Nearshore Fish Communities in the Eastern and Central Strait of Juan de Fuca

Beginning in 2005, staff from the Lower Elwha Klallam Tribe, NOAA's Northwest Fisheries Science Center, and the Jamestown S'Klallam Tribe have been collecting data on the nearshore fish communities of the eastern and central Strait of Juan de Fuca. Our goal is to use these communities and their associated habitats as indicators of change influenced by sediment introduction after the dams have been removed. More than 200 beach seine hauls have been made at 37 sites over the three-year period from Discovery Bay to Crescent Bay. Overall 48 species of fish have been identified including four species of Pacific salmon as well as Steelhead and Cutthroat trout. Forage fish, including surf smelt, Pacific herring, and sand lance, appear to dominate the nearshore community of the region and represent nearly 60% of the total catch. In addition to the high abundance of forage fish, numerous life stages of each species are commonly encountered at multiple sites throughout the season. Pink and chum salmon represent the majority of the salmonid catches early in the year (March-April) while Chinook catches generally peak in June/July. In 2008 we plan to begin sampling the invertebrate communities at specific sites for comparison with previously collected Chinook stomach samples.

Contact: Kurt Fresh, NOAA Fisheries, Northwest Fisheries Science Center, 2725 Montlake Blvd. East, Seattle, WA 98112-2097. 206.860.6793. kurt.fresh@noaa.gov and Larry Ward, Lower Elwha Klallam Tribe, 51 Hatchery Road, Port Angeles, WA 98363. 360.457.4012 ext.17. lward@elwha.nsn.us

Elwha Nearshore Habitat Monitoring. In 2005 the WDFW Shellfish Dive Team and the Jamestown S'Klallam Dive Team established two permanent study sites (one treatment and one control) as baseline data sets for pre and post dam removal comparisons. These two study sites focused on rocky habitat and used important shellfish species (red and green sea urchins, sea cucumbers, abalone and rock scallops) as targets for evaluating impacts of dam removal. Additional presence/absence data on other key vertebrate, invertebrate and algal species was obtained. Habitat mapping at each site was completed using diver observations and video documentation. The video data will also be used to create baseline photo mosaic images of the habitat for pre and post dam removal comparisons.

In late September of 2006 the WDFW Dive Team and Jamestown S'Klallam divers established an additional permanent study site on rocky habitat within Freshwater Bay and resurveyed the previously established study sites. The group resurveyed the rocky habitat study sites again in September of 2007.

WDFW and Jamestown S'Klallam divers established a permanent study site on soft bottom habitat directly off the mouth of the Elwha in 2006. This study site focuses on geoducks and horse clam densities to evaluate impacts of dam removal on these important shellfish species. In 2008 WDFW hopes to augment the permanent soft bottom site by venturing dredging random one-meter samples from near this location. This data will be used to determine infaunal species composition before and after dam removal.

Because of the scope and scale of this study, collaboration and support from other interested parties will be needed in order to expand this project beyond its current level.

Contact: WDFW: Don Rothaus, at 425-379-2315; Tribes: Doug Morrill, Lower Elwha Klallam Tribe, at 360-457-4012 ext. 18; or Kelly Toy, Jamestown S'Klallam Tribe, at 360-681-4641

Consequences of the Elwha River dam removal on nearshore habitats and ecosystems- USGS Coastal Habitats in Puget Sound (CHIPS) Program.

Contact: Jeff Duda, Western Fisheries Research Center, 6505 NE 65th St., Seattle, WA, 98115. 206-526-6282 x 233, Jeff_Duda@usgs.gov.

Biological Communities

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

The Tribe is nearing completion of its second season of a two year Estuary Assessment project funded by the EPA. Estuarine sampling and collection activities during the 2007 field season included vegetation sampling, water quality monitoring, sediment coring, sediment benthic grabs, insect fallout traps, beach seining, and stomach lavage of juvenile salmonids.

Fisheries assessment activities were developed with guidance from Jeff Cordell, University of Washington, and included bi-monthly seining within the estuary on the east side of the Elwha River mouth. Seining was conducted in five locations within the estuary. Due to the significant storms the previous winter, the estuarine complex on the east side of the river was severely constricted by a sediment berm. This appears to have resulted in a lesser abundance and diversity of fish caught during this season's seining activities relative to the 2006 season. Juvenile salmonids greater than approximately 60 mm were lavaged to extract stomach contents for diet analysis. Diet preference for juvenile salmonids will be compared to the macroinvertebrate community identified through sediment grabs and insect fallout traps. Periodically juvenile Chinook salmon were collected for the USGS otolith study led by Jeff Duda. WDFW and Peninsula College and the Clallam Marine Resources Committee partnered with the project by conducting seining on the west side of the river mouth. They documented very large numbers of juvenile salmonids in the western estuary (see synopsis above.)

Vegetation sampling was completed in August with the assistance of USGS staff (Pat Shafroth, Tracy Fuentes, and Vanessa Beauchamp) and Rebecca Paradis (REU student). Sampling was based on a modified-Whittaker method using nested plots.

Rob Young, University of North Carolina, and his field crew completed sediment coring in June. A subsample of cores will be radiocarbon dated and analyzed for carbon/ nitrogen/ sulfur. Benthic macroinvertebrates were collected by tribal staff in May, July, and September throughout the estuary complex (including the private isolated pond on the west side) using petite Ponar sediment grabs. Water quality data was collected throughout the estuary using a Hydrolab Datasonde 4a for temperature, dissolved oxygen, salinity, conductivity, pH, turbidity, and depth.

Contact: Matt Beirne, Lower Elwha Klallam Tribe, 51 Hatchery Road, Port Angeles, Washington. 360.457.4012 ext 12; beirne@elwha.nsn.us.

Fisheries

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

Contact: WDFW: Michael Ulrich, WDFW, at 360-902-2737; Tribes: 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>Doug Morrill</i>	<i>Clallam Marine Resources Committee</i>	dmorrill@elwha.nsn.us
<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
Helen Berry	Washington Department Natural Resources	helen.berry@wadnr.gov
John Cambalik	Puget Sound Partnership	Jcambalik@psat.wa.gov
Amy Draut	USGS	adraut@usgs.gov
Jeff Duda	USGS	Jeff_Duda@usgs.gov
Bill Eaton	Peninsula College	Bille@pcadmin.ctc.edu
Rob Elofson	Elwha Tribe	relofson@elwha.nsn.us
Kurt Fresh	NOAA	Kurt.Fresh@noaa.gov
David Freed	WSU Beachwatchers	Dfreed@co.clallam.wa.us
Guy Gelfenbaum	USGS	ggelfenbaum@usgs.gov ;
Brad Hanson	NOAA	Brad.Hanson@noaa.gov
Anthony Ingersoll	USDA Natural Resources Conservation Service	anthony.ingersoll@wa.usda.gov
Raymond Moses	Elwha Tribe	rmoses@elwha.nsn.us
Chuck Nittrouer	University of Washington	nittroue@ocean.washington.edu
Jim Norris	Menzies Project	jnorris@olympus.net
Andrea Ogston	University of Washington	ogston@ocean.washington.edu
Dave Parks	Washington Department Natural Resources	dave.parks@wadnr.gov
Chris Peery	University of Idaho	cpeery@uidaho.edu
Derek Poon	EPA	Poon.Derek@epamail.epa.gov
Tim Randle	BoR	TRANDLE@do.usbr.gov .
Don Rothaus	WDFW	ROTHADPR@dfw.wa.gov
Bob Sizemore	WDFW	SIZEMRES@dfw.wa.gov
Karen Steinmaus	Battelle	karen.steinmaus@pnl.gov
Jeffrey Stewart	Washington Department of Ecology	jste461@ecy.wa.gov
Steve Todd	PtNoPt Treaty Council	stodd@pnptc.org
Larry Ward	Elwha Klallam Tribe	lward@elwa.nsn.us
John Warrick	USGS	jwarrick@usgs.gov
Rob Young	University North Carolina	ryoung@wcuvox1.wcu.edu

Educational Entities

A number of educational entities have received funding for Elwha proposals (not specific to nearshore). They include:

Peninsula College (PC) continues to implement the National Science Foundation's Research Experiences for Undergraduates funded program to establish an undergraduate student research program at PC, linking students with faculty and agency scientists. This grant funds PC and Western Washington University Huxley College of the Environment students to conduct research projects associated with the Elwha River Basin ecosystems before and after removal of the dams. This includes the possibilities for terrestrial, freshwater, and nearshore projects. For more information and full list of participants **Contact** Dr. Bill Eaton (PI), Peninsula College, 1502 East Lauridsen Blvd., Port Angeles, WA 98362, 360-417-6246, bille@pcadmin.ctc.edu.

Washington State University (WSU) Beachwatchers program continues in Clallam County. The second training session for citizen monitoring, which has included elements of the Elwha nearshore, will be completed in November 2007. Beachwatchers is an excellent resource for assistance in field monitoring. **Contact:** David Freed, WSU Beach Watchers, Clallam County 360-565-2619 DFreed@co.clallam.wa.us

Additional Resources, Completed Studies, and Publications

Peninsula College is sponsoring a newsletter of the Elwha Research Consortium entitled 'Upstream'. The newsletter, initiated in September 2006, can be found at [http://www.pc.ctc.edu/coe/new%20pdfs/UPSTREAM1\(1\)Sept06.pdf](http://www.pc.ctc.edu/coe/new%20pdfs/UPSTREAM1(1)Sept06.pdf). **Contact:** Dwight Barry 360.417.6586/[dwightb@pcadmin.ctc.edu](mailto:dwrightb@pcadmin.ctc.edu).

Historical Changes to Estuaries, Spits, and Associated Tidal Wetland Habitats in the Hood Canal and Strait of Juan de Fuca Regions of Washington State. The Final Report of this study is available for download at http://pnptc.org/Historical_Nearshore.html.

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

Use of Estuarine and Nearshore Habitats by Anadromous Salmonids.

Contact: Chris Peery, University of Idaho Cooperative Fisheries Research Unit, Moscow, ID. 208.885.7223. cpeery@uidaho.edu Raymond Moses, Lower Elwha Klallam Tribe. 51 Hatchery Road, Port Angeles, WA 98363. 360.457.4012 ext. 26. rmoses@elwha.nsn.us

Eelgrass Mapping Along The Elwha Nearshore. 2007. Norris, J. I, Fraser, A. Shaffer, and C. Lear. In Proceedings, Puget Sound Georgia Basin. Puget Sound Action Team, Olympia, Washington. Reprints available on request.

Observations of Eulachon, Thaleichthys pacificus, in the Elwha River. Olympic Peninsula Washington. 2007. Shaffer, J.A, D. Penttila, M. McHenry and D. Vilella.2007. Northwest Science.81(1):76-81