Marine Sedimentary Processes:
Elwha River Dam Removal Impacts

Research Apprenticeship at Friday Harbor Laboratories (FHL)
Spring Quarter, March 31 - June 7, 2008 - 10 weeks
Oceanography 499 (15 credits)

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This research apprenticeship focuses on designing and performing baseline studies prior to dam removal on the Elwha River. Students will evaluate the impacts of the existing dams on the marine sedimentary system, as well as the impacts of dam removal.

Dam removal projects are becoming an increasingly popular way to restore the habitats of depleted fisheries and river ecosystems, and to add to the recreational opportunities on the nation's rivers. As the dams age, the negative impacts of the dam on the river and riverside communities may outweigh the benefits of the dam. But we do not understand the full range of effects our “restoration” will have. For example, what will happen when the impounded sediment is free to flow downstream into the ocean? Will the sediment behave as a benefit by nourishing local beaches or a hindrance through the burial of critical habitats? Dam removal policies are often made with little understanding of how marine processes operate near the mouths of rivers, or how the absence of river sediments has impacted the marine systems.

Apprentices will:

- participate in a research cruise to the marine environment near the Elwha River mouth and collect data for their research project.
- have the opportunity to design and conduct laboratory experiments in the FHL racetrack flume.
- take weekly field trips to a variety of sedimentary environments (e.g., Olympic Mountains, local tidal flats and the Skagit River delta).

Students will gain an understanding of the range of sedimentary processes that occur near river mouths throughout Puget Sound. This knowledge allows scientists to predict hazardous material transport, shoreline erosion and deposition, and changes in seabed habitats due to dam installation and removal. The apprentices will gain knowledge and skills that will prepare them for graduate programs or to become the scientists and managers in charge of decision-making in future projects.