

# PSNERP-Nearshore Science Team (NST)

## Monthly Meeting Synthesis

12-13 September 2007

**Venue:** Dean's Conference Room, Ocean Sciences Building, University of Washington, Seattle, Washington (except for Science Morning [in afternoon] seminar at Fisheries Sciences)

**Attendance:** Si Simenstad (Chair; UW), Justin Boevers (UW), Megan Dethier (UW), Guy Gelfenbaum (USGS), Fred Goetz (USACE), Bernie Hargraves (USACE), Tom Leschine (UW), Miles Logsdon (UW), Tom Mumford (DOE), Hugh Shipman (DOE), Randy Shuman (METROKOC)

**Guests:** Jen Burke (UW), Jason Toft (UW)

### **Primary Meeting Topics:**

1. *Science Morning:* Jason Toft on ecological monitoring of Elliott Bay and Puget Sound shorelines
2. Integrated USACE and NST peer review
3. GIS-Supported Collaborative Spatial Decision Making
4. FWOP and FWOP Lite update
5. Misc: involvement with new Seahurst Park restoration planning (SAW)

**Science Morning:** Jason Toft (Wetland Ecosystem Team, SAFS/UW), "*Lessons Learned from Nearshore Monitoring: What Science Can Tell Is About Fish and Invertebrate Use along the Urbanized Edge of Puget Sound*"

- Jason presented emerging results from monitoring and research on ecological functions of nearshore restoration and enhancement sites in Elliott Bay/Central Puget Sound, including Olympic Sculpture Park, Seahurst Park and several sites in the Duwamish River estuary. His lessons learned encompassed issues of science, restoration, and public interaction.
- Impetus for new scientific framework revolved around limitations of comparing different shoreline ecosystems and restored/enhanced vs. reference sites with netting techniques such as beach seines, which led to the development and deployment of enclosure nets and standardized snorkel surveys. Snorkel surveys are particularly powerful because they can be combined with enclosure nets, fish are not harmed, allows quantification of relative density, and because behavior (schooling, feeding, swimming away, fleeing) and water column position can also be related to habitat function.
- They hypothesize that pelagic fish (such as salmon) that are usually spread out over a large, shallow intertidal area are forced to inhabit deep water close to steeply developed shorelines, resulting in higher density of fish along edge. This resulted in a significant difference between fish densities (lower) along rip-rap compared to deep rip-rap (higher).
- During snorkel surveys around overwater structures (OWS), they coded their fish observations by position to OWS within 2 m interval (38% along edge, 60% away from edge). Very few fish were observed under structure. But, juvenile salmon school size was greater when associated with the edge of OWS compared to other habitat types.
- Main results of research on juvenile salmon diets indicated that fish in modified environments don't eat as many terrestrial insects and these terrestrial insects are their greatest source of energy. Juvenile Chinook also indicated fewer terrestrial/riparian input (insects) at sites with retaining structures at intertidal or supratidal. This implies that shoreline structures remove link from terrestrial to marine food web because fish along developed shorelines do not appear to feed off terrestrial riparian insects but instead feed on marine benthic and epibenthic organisms.
- Considerable discussion ensued about collecting accurate data in urban environment and the value of restoration/rehabilitation in rural vs. urban settings, where it is much harder to restore urban areas, but where evidence of improvement are more publicly visible.

- Future related projects include looking at modifying the Seattle seawall with some added complexity to possibly improve habitat conditions for living resources. Also looking at fiber-optic lighting technology under ferry terminals to lessen the shadow edge.
- Reference: Toft, J., J. Cordell, L. Stamatiou and C. A. Simenstad. 2007. Fish distribution, abundance, and behavior along city shoreline types in Puget Sound. *N. Am. J. Fish. Mgmt.* 27: 465–480.

***FWOP and FWOP Lite update: (Fred and Jen Burke)***

- Fred provided an update on the development of the six scenarios and associated storylines by Prof. Marina Alberti's team (Phase 2); FWOP website has information on this phase at: <http://online.caup.washington.edu/projects/futurewithout/index.html>
- Jen Burke summarized the final FWOP Lite (UW class project) report.
- Reminder that this report is not a PSNERP product, it is for Doug. Big concern about the GIS data and students results, they are not accurate. Suggestion that a separate report could be prepared for the NST.

***Integrated USACE and NST Peer Review: (Bernie)***

- Bernie explained how recent history (abuse) of peer review at USACE has caused new requirements for review. For all projects for FY'08 the peer review plans must be submitted and approved by Oct '07, Bernie scrambled to work with Fred and Miriam to get something submitted in time, sending proposal to USACE with an appendix that included the NST peer review draft. Bernie edited the NST draft to further explain difference between external and internal review.
- Typical peer review for USACE is at the end of the plan and it is a Yes or No response. This GI is trying to integrate peer review in preparing the GI which the USACE is poorly equipped to do.
- Noelle at USACE received proposal and has a checklist that she checks off for peer review plans, Bernie hasn't ever seen this checklist. Noelle indicated she liked items such as multi-tier peer reviews and other items the USACE hasn't considered.
- Use of models at USACE is under more scrutiny; any model must be approved by Center of Expertise.
- Does USACE peer review affect NST peer review? Bernie believes Center of Expertise selects reviewers, but it is unclear if NST can recommend names. Possibly, the USACE review could be at programmatic level and NST PR can be done at lower tiers; but, unclear if programmatic review is only at end, if so it is not useful. The major issue is getting the USACE to fund a peer review that meets the needs of the NST. The SC wants a white paper on peer review.

***GIS-Supported Collaborative Spatial Decision Making: A systematic approach to spatially-explicit restoration decision making by diverse stakeholders (Tim Nyerges):***

- Prof. Tim Nyerges and graduate student Eugene Martin (UW Geography Department) presented a computer automated "participatory" approach to systematically involve stakeholders in restoration decision making; Si has used this process in his UW Wetland Science and Management-Landscape Ecology class. Tim & Gene are very interested in PSNERP project and perceive that their tool might be very helpful to our SNAR-restoration planning process.
- The first portion of demonstration involved access to and manipulation of a GIS file of Potential Habitat sites for Duwamish River restoration actions. In this case, a number of assessment criteria (e.g., Addresses Injury, Ecological Suitability, Distance to Habitat, Existing Land Use, Cost, etc. were ranked by different stakeholder groups represented by the NST and other participants. Each groups values and weights of the different criteria could then be compared in a separate computer module
- The software included several handy tools to let the groups explore the trade-offs in their rankings, e.g., perform sensitivity analyses.
- Tim then presented an illustration of how the WRIA9 Pilot SNAR data could be incorporated into a similar process, based on the MEA ecosystem goods and services ranking for every possible shoreform transition.