

Meeting was held June 16-17, 2005. First day was at NRB building and second day was at the Skokomish Indian Tribe office with a field trip for the Skokomish River Delta Restoration case study.

Major Meeting Topics. We had two science presentations – our monthly Science Presentation was entitled “Using Tidal Channel Hydraulic Geometry in Restoration Design” by Dr. Philip Williams, Philip Williams and Associates; we also had a lunchtime presentation on the “Hood Canal Dissolved Oxygen Program” by Dr. Jan Newton, University of Washington. As preparation for our field trip, we had a presentation on the Skokomish River Delta Estuary Restoration Program by Keith Dublanica, Natural Resources Director, of the Skokomish Indian Tribe. Guests included the leads for the Corps Skokomish Restoration Project (PSAW authority) – Pam Yorozu, Project Manager, and Mike Scuderi, Environmental Coordinator, who accompanied the NST on the field trip. Status and Action items discussed at the meeting follow the summaries of the presentations.

Science Synthesis. Philip Williams’ presentation was entitled “Using Tidal Channel Hydraulic Geometry in Restoration Design”; he shared his powerpoint presentation with the NST. Phil is founder and principal partner in Philip Williams & Associates, Ltd., a renowned consulting group that promotes integrated hydrology, hydraulics and sediment transport, geomorphology and engineering studies. Their work on tidal wetland restoration San Francisco Bay and the Sacramento River Delta is particularly based on scientific principles rather than linear, single-issue engineering.

Hydraulic geometry is a set of empirical geomorphic relationships linking tidal channel geometry to easily measured field parameters representing the dominant tidal discharge; these relationships are regionally specific (reflecting variation in tidal regimes, these relationships need to be monitored and evaluated as place-specific, i.e. Puget Sound would have its own specific relationships) and important to predicting and evaluating role of tidal channel structure in tidal restoration. PWA has assembled these relationships from 24 reference and restoring marshes that they have documented/studied around San Francisco Bay. Most of their monitoring has been based on their own work, on a shoestring and outside the planned technical studies of their sponsors, without this work there would likely have been little progress in the science and successes of tidal restoration design in the Bay-Delta.

Based on their 20+ years of work, several approximations/assumptions are valid: The tidal prism can be substituted for dominant discharge; The tidal prism of mature marshes is proportional to watershed area; Mean higher high water (MHHW) – the typical marsh plain elevation – can be used as reference datum; Diurnal tidal prisms can be used as surrogate for spring tidal prism; Statistically reliable relationships exist between: Diurnal tidal prism vs. marsh area; Channel depth vs. marsh area; Channel width vs. marsh area; Channel cross-sectional area vs. marsh area. Applications for restoration planning, design and evaluation (monitoring and adaptive management) include: Breach and outboard tidal channel sizing; Tidal channel excavation, where needed; Tidal channel system development; Rates of tidal channel system evolution; Off-site impacts; Flood management and drainage. Some key comments: Borrow and drainage ditches can capture tidal prism in restoring marshes, and modify natural redevelopment of complex tidal channel networks, SF Bay focus on preventing wave erosion may not be as relevant in Puget Sound.

Hood Canal Program. Jan Newton presentation on "Hood Canal Dissolved Oxygen Program (HCDOP)" (at Skokomish Tribal Center after field trip). The program is updating oxygen inventory values: comparing 1950-60s and 1990-2000s. Some key points included - greater fresh water flow induces mixing but also produces cap on surface; there are many hypotheses on possible causes of low DO: there is a scientific and policy need to understand which are most important/driving the system. As far as current research the data is limited - they are trying to optimize monitoring and use computer modeling. The science plan they are implementing includes a number of points - marine water quality water monitoring; fresh water flow & nutrient loading; marine life studies; rapid response & diver program; modeling & analysis. For more information see www.hoodcanal.washington.edu - everything about the program, the issue, the study, and access to observations (real-time data).

Some specifics - they utilize marine buoys (ORCA, 3-year deployment) and citizen monitoring which now involves tribe and will add inventory stations (useful for cross-channel info); ORCA moorings take profiles of water column several times/day and relays information real-time. They define the "nearshore" as 10m (citizen data). The plummeting surface DO does not always correspond w/ fish kill: they are not sure why? Freshwater Flow and Nutrients - They are sampling penstocks from Cushman Dam; sites along canal are sampled weekly and data sent to UW; currently no sample site in the Skokomish region (visited today), but may be in the future now that Tribe is involved. With 3 yrs study there is a good opportunity for PSNERP to learn and partner - PSNERP provided nutrient sensors, one for an ORCA buoy at south HC and a hand-held meter for citizen monitoring; UW is also using PSNERP purchased equipment - a current profiler and water quality sensor at Lofall. USGS has selected three sites in southern Hood Canal to sample ground water w/ their own money. Skokomish River summer flows are now 600% higher than in 1950-80's, as sampled at Potlatch station (supposedly for fish) - may be high in nitrogen; PRISM linking nutrient loading to land use; Stream Riparian Forest Composition Change - Ted Labbe from Port Gamble NRD: see more alder in riparian zones - water could be carrying greater nitrogen flows there too. Marine Life Studies - this is an area where program is under scoped - there wasn't much money for this element; 1st yr dollars are going to long time series research on benthic biota, infauna, and DO, effects in both directions. Modeling & Analysis - Jeff Richey is lead for UW PRISM project; have developed several modeled layers for Canal that are available thru website.

Status and Action Items

Research Questions. The questions are still a work in progress: current list has been revised and edited, but social science and management measures questions remain to be added. The list needs to be passed on to the IT, with the understanding that the NST will continue to refine the questions. This is Appendix A of the Research Plan, we will only have questions developed for selected management measures, not for all types.

VEC Approach to Documentation. The PMT and NST discussed the need to develop and outline a template for VEC white papers. The NST recommended following a format such as the USFWS Habitat Suitability reports or the PNCERS indicator species. The PMT is drafting a list of candidates (subject matter experts) to be contracted to draft white papers, and an overall scientific editor. This list will be reviewed and commented on by NST and SC. Each VEC will have its own white paper with a subject matter expert; the overall scientific editor would bring all the papers together into a single report that ties the VECs together. The NST also discussed comments by the Executive Committee that humans should somehow be included in the VEC list. Our take was that they were somewhat confused on the issue of where "humans" belong, explicitly on VEC list or implicitly because they are the entire basis for the V (valued).

Management Measures. Combination of work from IT and NST. Elaine Kleckner is developing the master list (using PRISM database). The NST will comment on the list via e-mail. NST advocates either consolidating or annotating list of management measures to differentiate those that focus on restoring nearshore ecosystem processes as opposed to those that (only) modify ecosystem structure. List needs to be revised and then sent to Steering Committee, while NST will continue to expand "focus" on process-based management measures through Science Morning presentations, field trips and, potentially, future demonstration projects

Research Plan and External Peer Review. The draft report is in the final editing stage before it goes to external peer review (by G. Gelfenbaum and T. Mumford). USGS has also completed their technical editing of the report. The NST provided recommendations for reviewers, including both nationally focused reviewers and Puget Sound-oriented reviewers. USACE provided funds to USGS for editing and publication of the document.

WRIA 9 Historic and Change Analysis. CommEnSpace is incorporating missing data into the WRIA 9 dataset including southern boundary and (remaining portion of) Duwamish River estuary. The Shipman Typology includes thirteen different shoreforms, CommEnSpace was tasked with developing rules on how to classify (identify) each of the types, and however seven different shoreforms were not encountered in WRIA 9. The NST and PMT discussed how to develop rules for these, e.g., analyze one large region or selected locations all around the Sound. The next step should be to evaluate how rules to distinguish shore forms can be refined with addition of contemporary datasets, especially if that could potentially enable more automation. *The next Change Analysis workgroup meeting needs to provide wording for the change analysis RFP.*

Linking Nearshore Ecosystem Processes to Structure. Hugh Shipman has put Si Simenstad's list and classification of nearshore ecosystem processes into a table corresponding to shoreforms, where at larger scale "processes drivers" "process controls" are used. It remains a work in progress; Shipman and Simenstad will continue to develop list using today's suggestions