

# Native Shellfish in Nearshore Ecosystems of Puget Sound



*This fact sheet briefly summarizes the Nearshore Partnership technical report Native Shellfish in Nearshore Ecosystems of Puget Sound (Technical Report 2006-04) by Megan N. Dethier. The full document is available online in a downloadable (pdf) format at [pugetsoundnearshore.org/publications.htm#reports](http://pugetsoundnearshore.org/publications.htm#reports).*

- **Culturally**, they have been a critical part of the subsistence and culture of native peoples for centuries.
- **Recreationally**, personal harvest of shellfish is a very popular activity despite problems with water quality in many regions.

Native shellfish in Puget Sound are diverse, both in terms of species and in the ways that they use nearshore ecosystems. Species include crabs, numerous clams, the Olympia oyster, mussels, shrimp and abalone. In Puget Sound, all major shellfish species, with the exception of shrimp, use nearshore ecosystems for part or all of their life histories.

**N**ative shellfish in Washington are of high ecological, economic, cultural and recreational value.

- **Ecologically**, many native shellfish filter nearshore waters, contributing to water quality. They also serve as predictable sources of food for carnivores in nearshore habitats. Others are predators that are part of the ecological balance of nearshore ecosystems. Most have larvae or juveniles that spend time in the water column, where they provide food for a variety of valued fishes.
- **Economically**, nearshore shellfish in Puget Sound have a commercial value of almost \$100 million a year; roughly \$60 million of this is from sales of the non-native Pacific oyster, but more than \$40 million is from native crabs, clams and mussels.

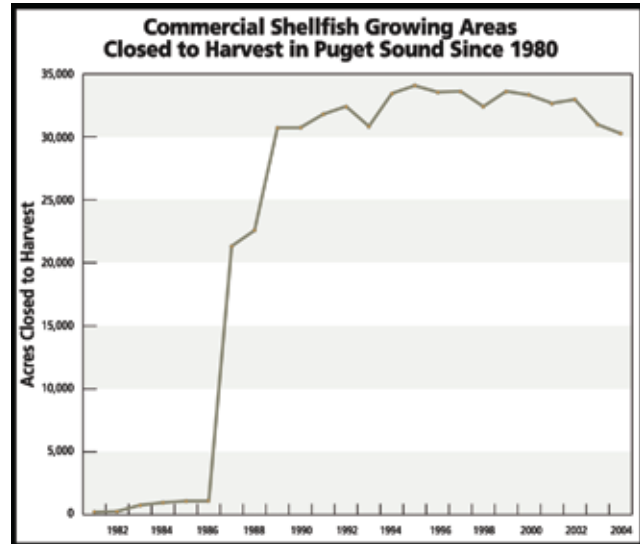


Six organisms are the focus of this report: geoduck clam (*Panope generosa*), Dungeness crab (*Cancer magister*), Olympia oysters (*Ostrea conchaphila*) and three types of hardshell clam — the littleneck clam (*Protothaca staminea*), butter clam (*Saxidomus giganteus*) and horse clam (*Tresus capax* and *nuttallii*).

- **Geoduck clams** are especially abundant in the south sound, buried deeply in mud or sand in the low intertidal and subtidal zones.
- **Dungeness crab** are present throughout the state's waters but in Puget Sound are most abundant in the northern portions. Adults are found primarily in the subtidal zone in soft sediments, but the juveniles rely heavily on intertidal habitats with structural complexity, such as eelgrass beds. Their larvae spend months in the water column before returning to the nearshore zone to settle.
- **Native Olympia oysters** grow best in shallow subtidal muddy habitats but prefer to settle as larvae onto pieces of harder substrate such as shell or pebbles. Populations of native oysters have virtually disappeared because of overharvesting and pollution, but there are increasing efforts to reestablish them.
- **Hardshell clams** are abundant throughout Puget Sound, primarily in the intertidal and shallow subtidal zones. All prefer sediment mixed with gravel or cobble, and their populations are sometimes enhanced by adding gravel to sandy or muddy beaches.

Few data exist on the status of natural populations of these shellfish or on their trends through time. The Washington Department of Fish and Wildlife has been tracking both recreational and commercial exploitation of many species since the 1970s. Landings of most species have stayed roughly the same or have increased during this time period. In most cases, however, data on catch per unit effort (as for commercial fisheries) are lacking, so harvest increases may simply be the result of greater effort.

- Recreational harvest rates of clams per trip (a catch-per-effort statistic) have been fairly stable since 1990, although the harvest of several native clams appears to have declined relative to introduced Manila clams, which are easier to dig.
- The only shellfish that has clearly undergone a major decline in natural populations is the Olympia oyster, which is no longer commercially viable. There are also concerns about long-term declines in geoduck populations.
- Even for apparently stable populations, however, there are problems in Puget Sound; water quality issues often affect people's ability to use shellfish.



Acres of classified commercial shellfish growing areas in Puget Sound, closed because of pollution (source: Puget Sound Action Team)

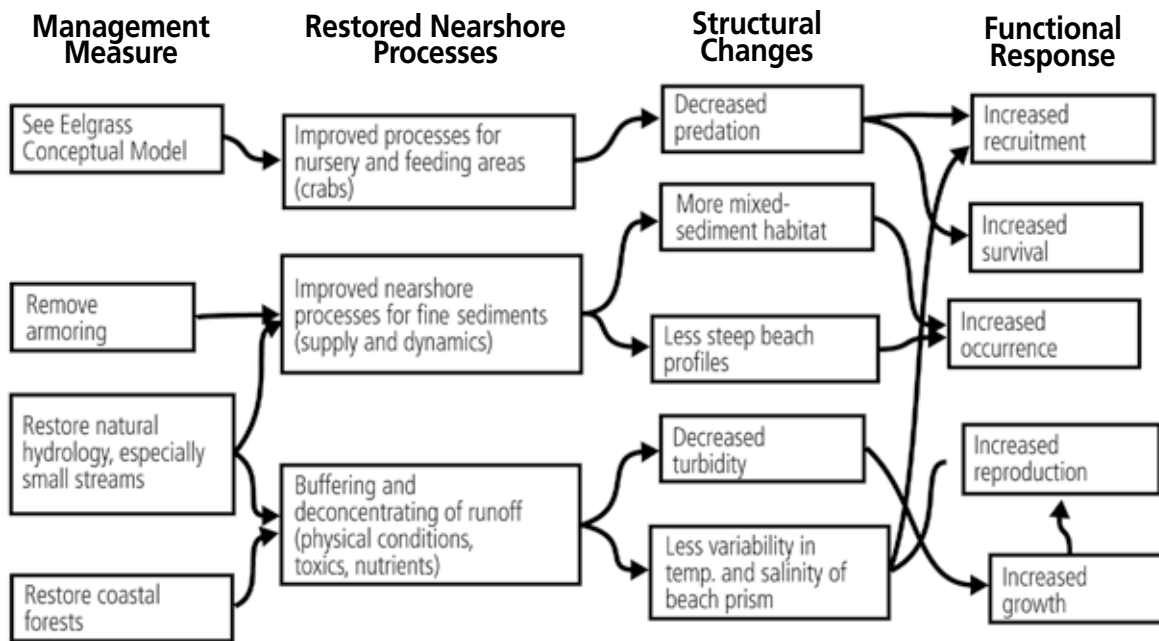
## Threats to Puget Sound Shellfish

Threats to shellfish in Puget Sound come from a variety of directions. As illustrated by Olympia oysters, commercial and recreational overharvesting can be an issue. The trend toward aquaculture reduces the pressure on native populations, but most cultured species are non-native. However, virtually all shellfish are affected by human alterations of key ecosystem processes, such as sediment supply. All the shellfish described in this report have distinct types of sediment in which they recruit and/or grow the best; thus, any process that alters sediment amount, grain sizes, organic content, etc. may negatively impact local shellfish populations.

These alterations can come from changes in runoff from land, in sediment loads carried by rivers and streams, and in sediment supply from bluffs that have been hardened. Many of these processes could be restored, with likely positive impacts on shellfish.

Shellfish in both adult and larval stages are also strongly affected by water column characteristics. Key parameters include temperature and salinity, turbidity, oxygen, pollutants and food types and concentrations. All of these can be affected by land use, shoreline modifications, stormwater and sewage discharges, industrial discharges and other human activities; many of them could be restored, either locally or throughout the sound.

Factors that humans can alter, to the detriment of shellfish, include habitat characteristics like the abundance of eelgrass and the types and abundances of predators, competitors and parasites (e.g., aiding in the establishment of aquatic invasive species).



A conceptual model of the linkages between potential restoration actions, leading to restored nearshore processes and resulting in structural changes that positively affect populations of native shellfish

## Ecosystem Processes Supporting Habitat Attributes

A variety of natural processes in Puget Sound help maintain the conditions required by native shellfish species. These include processes that support deposition of sand, mud, and gravel; maintain appropriate temperature, salinity, and turbidity; and produce phytoplankton and edible detritus. The PSNERP Conceptual Model of Puget Sound maps out connections between potential restoration actions, the restored processes, ecosystem structural elements that will change with altered processes, and ultimately restored functions, such as shellfish production, of the ecosystem.

Management measures, or restoration actions, can be implemented to restore key processes that affect shellfish populations. The impacts of such measures are described in the conceptual model on the facing page. Restoring some habitat attributes for shellfish, such as the eelgrass beds used by juvenile crabs, requires restoring a different set of processes; many of these explored in the conceptual model in the Nearshore Partnership publications on eelgrass and kelp.

## Critical Uncertainties

Habitat data exist for all of the species discussed in this report. However, it cannot be said with certainty that these are the only (or even the best) habitats for these species. It is possible, for example, that “intertidal” clams live there simply because predators prevent their populations from thriving in the subtidal zone. Thus, we have correlations of species abundances with particular habitat types, but definitive cause-and-effect linkages are lacking.

In addition:

- More data on larval abundances and movements would be very useful in terms of learning about critical bottlenecks in this important life history phase, but such data are extremely difficult to obtain.
- Because we do not know to what extent most shellfish populations have changed over time in Puget Sound, it is difficult to quantify the extent of the problem experienced by shellfish in the Sound today, and it will be difficult to quantify improvements that might accompany restoration projects. Clearly, any projects designed to benefit this valued ecosystem component must be accompanied by monitoring of populations in restored and control areas to ascertain their effectiveness.

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*The Puget Sound Nearshore Partnership is a large-scale initiative that affords unique opportunities to address some of the foremost habitat restoration needs in Washington state's Puget Sound basin. Partners include the U.S. Army Corps of Engineers, Washington Department of Fish and Wildlife, other federal and state government organizations, tribes, industries and environmental groups. Nearshore Partnership goals are to identify significant ecosystem problems, evaluate potential solutions and restore and preserve critical nearshore habitats, including bluffs, beaches, shorelines, mudflats, salt marshes, gravel spits and estuaries.*

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# PUGET SOUND NEARSHORE PARTNERSHIP



**RESTORING OUR  
ECOSYSTEM HEALTH**

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# PSNERP-Nearshore Science Team (NST)

## Monthly Meeting Synthesis

8-9 January 2008

**Venue:** Dean's Conference Room, Ocean Sciences Building, University of Washington, Seattle, Washington

**Attendance:** Si Simenstad (Chair; UW), Justin Boevers (UW), Megan Dethier (UW), Fred Goetz (USACE), Guy Gelfenbaum (USGS), Bernie Hargraves (USACE), Tom Leschine (UW), Miles Logsdon (UW), Tom Mumford (DOE), Jan Newton (UW), Hugh Shipman (DOE), Curtis Tanner (USFWS)

**Guests:** Jen Burke (UW), Bryan Fiedor (Jones & Stokes), Charles Kiblinger (Anchor), Wendy Gerstel (Qwg Applied – Anchor), Erin Iverson (Anchor), Peggy Myre (EXA Data), Jessmine Fung (Lee Saa Inc.), Paul Schlenger (Anchor), Scott Campbell (USACE), Jeff Dillon (USACE), Lawrence Lin (USACE), Allison Bailey (Sound GIS –Anchor)

### **Primary Meeting Topics:**

1. *Science Morning:* Jan Newton update on Hood Canal hypoxia
2. Implementing Change Analysis: Jen Burke and Anchor participants on Change Analysis
3. Planning PSNERP abstract package and “coffee house” sessions at Restore America's Estuaries 2008 meeting
4. Initiating a stakeholder process

### **Science Morning:** Jan Newton, UW: *Hood Canal Hypoxia: Update*

- Because Hood Canal is a fjord (long, narrow, deep basin slow to flush; created by glacial action) and retains phytoplankton it has been historically prone to hypoxia
- Historic data from UW in '50's and PSAMP '91-2006 shows avg. Dissolved Oxygen (DO) over bottom. half of water column (= 23m-50m +/- 3m); change involves recent years with significant decline from Historic records, for instance, Bottom Oxygen concentration– Duration of low oxygen levels in Lynch Cove has been much longer in recent years (historically 1-2 months, recently 6-9 months) and fish kills are becoming more significant: 2002, 2003, 2006.
- Demonstrating that dissolved oxygen in Hood Canal affected by: change nutrient availability (septics, forest, runoff); change light availability (more sun); change ocean input, oxygen density; change organic biomass/production (better growing conditions, carcasses); and change river input (flushing, stratification)
- HCDOP (Integrated Assessment and Modeling Study [[www.hoodcanal.washington.edu](http://www.hoodcanal.washington.edu)]) study utilizes automated technology, observing networks, and numerical modeling.
- Is oxygen any lower now than ever? Comparison of (1) 30s-60s vs. 90s-now and (2) 90s vs mid 90s to now shows a general trend, but nothing conclusive.
- Recipe for increasing hypoxia → lowest oxygen, most sunlight, lowest incoming oxygen, most density stratification, as in 2006; recipe for a fish kill → S winds; Low DO; shallow/weak pycnocline
- Don't know why oxygen is lower, but now organizing data into models that show effect on oxygen, but there's evidence for nutrient limitation, so it's the when and where of nitrogen that counts!
- Caveats on study: No measures for intertidal; shallowest measure is 10m, with a complete profile There is oxygen in top 1-2m surface level of water
- Relative sources of nitrogen input:
  - a. Role of Watershed: deciduous, mixed forest exports much more nitrogen = biggest load
  - b. Role of Humans: 2<sup>nd</sup> biggest load; there is an anthropogenic nitrogen signature; but, can't say that septic tanks are primary driver of nitrogen input
- Work-in-Progress: Role of Climate, Could anthropogenic N make a difference to DO?
- Big questions: What is the upward flux to photic zone? Is role of human nitrogen input make a difference? Is political system ready to handle new information that complicates picture?

- Bottom line: Human development has increased vulnerability to “perfect storm” events, reducing vulnerability with a system that is more resilient

### **Implementing Change Analysis (Jen and Anchor IDIQ Team):**

- Charles Kiblinger, Jessemine Fung and Jen Burke explained Nearshore Change Analysis structure, with examples from Hood Canal (e.g., Skokomish delta), Elwha River delta, Puyallip River estuary, Smith Cove, Samish River delta
- Purpose: Consistency in rules that guide GIS delineation of accounting, processing, etc. units
- Critical questions: (1) What does NST want for the waterward boundary? (2) What to do about areas with channels where opposing shoreline is within same boundary? (3) How to deal with (drift cell) divergent zones (drift cell DZ) adjacent to estuarine process units (EPU)?
- Decisions: (1) Include intertidal line, and 30-m (5 fathom) line and delay final decision; (2) typology rules in case of Open Coastal Inlets, thus need to capture historic and current wetlands, as attributes reported in Tier 2; (3) use HUCs, catchment area, rank order them; methodology must be understood by outside peer review; (4) alignment of SPU and EPUs will be decided in a smaller workgroup
- Peggy Myre (Anchor team) explained geodatabase structure and described how it is designed to address data queries. Miles cautions to make sure vertical datum is not ignored
- Definition of deltas will include drainage from Cascades & Olympics; excludes Puget lowlands, which generally feed into Shoreline Process Units. Still need to finalize explicit rules for how did you do this, with the possibility of using HUCs.
- Overwater structures and bridges pose a few unique problems; need to distinguish them as separate attributes and probably cut them at the outer (waterward) limit of the nearshore.

### **Research Plan to Determine Whether Dike Removal Restoration Changes Flux in Nitrogen and Contributes to Hood Canal Hypoxia? (Tom M.)**

- Tom is conducting literature assessment of question, with focus on Skokomish River Delta, finding that there are several pieces to the puzzle and needs more understanding outside Tom’s expertise
- Si will arrange for national expert, such as Irv Mendelsohn at LSU, to come out within next few months for NST Science Morning and site visit of Skokomish River delta to inform us of state of science on nutrient cycling in salt marshes

### **Planning PSNERP abstract package and “coffee house” sessions at Restore America’s Estuaries 2008 meeting:**

- PSNERP-NST is preparing abstracts for posters and “coffee house” sessions at RAE meeting in October 2008; deadline for 250 word abstracts 1/31/07
- Posters: idea is to use a PPT template for posters and have authors focus on graphics and text, while Cathy Schwartz and Marcus Duke could focus on layout and editing.
- Poster list: (1) PSNERP Context; (2) Shoreform Classification; (3) Problem Statement; (4) Nearshore Change Analysis; (5) Strategic Needs Assessment and Restoration Planning; (6) Alternative futures; (7) Human Dimension; (8) Early action projects; plus extra “Kiosk Poster” on PSNERP Communication Tools
- Coffee Shops are a more informal panel without the table; PSNERP would moderate coffee shop, invite others to attend.
- Each region talks for ~20 minutes to a particular theme (theme du jour); themes = 1) coastal restoration under climate change; (2) human dimensions; and, (3) comprehensive ecosystem restoration and management

### **Initiating a Stakeholder Process (Tom L.)**

- Impetus: Program needs to start a stakeholder engagement process
- Some feel that steering committee is a form of stakeholder engagement
- Requirements for USACE for public participation is fairly minimal
- Tom L. will pursue stakeholder and human dimensions plans

**Local Project Manager's Report to  
Puget Sound Nearshore Partnership Steering Committee  
20 February 2008**

- ✓ Change Analysis
  - NWIFC proceeding on schedule to produce current conditions data layer for PSNERP change analysis.
- ✓ Status of Cost-share agreement
  - At end of FY 2007, Corps contributions (\$4.1M) exceeded local contributions (\$3.8M) by \$355,176.
  - Local Project Manager currently working to bring cost-share back into balance
    - 1<sup>st</sup> step: capturing undocumented in-kind contributions
    - 2<sup>nd</sup> step: quantifying need for additional funds and identifying sources
- ✓ Coastal Habitats in Puget Sound Science Workshop
  - WDFW co-sponsor meeting between USGS scientists, Nearshore Partnership representatives, and other partners
    - Total of 53 participants in the 2 day workshop
    - Emerging results of USGS research discussed
    - Improved focus on “relevance” of research to management issues, including PSNERP GI needs, highlighted
- ✓ Puget Sound Partnership Action Agenda – WDFW Response
  - Tim Smith and Margen Carlson convening agency-wide input to PSP “matrix” assignment
    - Nearshore Partnership activities included in list of relevant activities
    - Action Area workshops and Issue Forums participation being coordinated across agency programs and regions
- ✓ Section 22 Planning Assistance to States Agreement finalized
  - Corps and WDFW will cost-share project to develop pilot shoreline armoring restoration/alternatives manual
    - In consultation w/ PSNERP Shoreline Armoring Workgroup, national experts workshop to be convened c.a. Fall 2008
      - Emerging science
      - Key uncertainties
- ✓ Implementation Team
  - PMT working to revitalize IT
    - Replacement for Doug Myers as co-lead priority issue
    - Expanded membership
      - Ginger Phalen, USFWS Puget Sound Coastal Program Coordinator agreed to join
- ✓ Coordination w/ Puget Sound Partnership
  - Meeting w/ Cullen Stephenson and staff
    - EPA FY07 National Estuary Program funds \$100K to support PSNERP Future Without Project analysis
    - David Dicks participation on Exec. Committee confirmed
    - Joe Ryan, Salmon Recovery Program Manager, identified as Steering Committee candidate

## Federal PM Report to the Steering Committee for Jan –Feb '08 Activities:

### Executive Committee meeting:

The Executive Meeting went well yet, as usual, with a few “take aways” for the team. My bullet points:

- Keep executives aware of our constraints to maintain progress. Staff capacity, knowledge gaps, and funding imbalance are our top constraints right now.
- Puget Sound and Adjacent Waters Restoration Program must be reformulated to be acceptable to the Administration. The State of Washington is prepared to make this happen.
- Do the extraordinary to help make the Puget Sound Partnership successful.
- The Valued Ecosystem Component White Papers alone are not enough, 4-pagers are better, but, get the messages down to one page.
- Keep the momentum on peer-review.
- Do the project's full scope and do it well.
- Target a future Water Resource Development Act for authorization and hit it.
- Provide a creditable workplan (soon) with time schedule to finish.

Typology Data Sets: SSHIAP expects to complete their dataset by April 08. Anchor Environmental is scheduled to provide the first of seven subbasin typology in the first of February and complete the last by March 08.

Gaps in Datasets: Anchor provided a report documenting gaps in the existing datasets. Five sets are incomplete: parcels, armor, jetties-breakwaters-marinas, levees-dikes, intertidal fill-impoundments. They provide a coarse order-of-magnitude estimate to furnish the data for less than \$200K. A scope of work will be sent to Anchor to negotiate a new task to complete the datasets.

Change Analysis: A modification to the early data derivative task order is underway to refine methods for classifying the data, particularly at estuary and open shoreline interfaces. We expect to have Anchor underway with the new work by March 3rd. The Change Analysis task order will be delayed while the Data Gaps task order is awarded, however, we expect for it to be awarded by April 15<sup>th</sup>.

Future Without Project: The Puget Sound Future Scenarios report has (finally) been released for the working group's review. While the authors are reluctant to allow it to be distributed, in my opinion the long delay is worth the wait. The seventy-page report is accompanied by seven appendices. Together, the full report documents in a readable style a detailed process of interviews with over 150 experts and synthesize the findings. Yet, the real product is 6 provocative, dispersive, plausible storylines that describe what could occur within Puget Sound.

Bathymetric Mapping: The Joint Airborne LIDAR Bathymetry Technical Center of Expertise (JALBTCX) is scheduled to fly portions of the outer coast of Washington in summer 2009. We are meeting with their advanced team on 26 Feb to identify specific areas to acquire the blue-green LIDAR data. While they remind us their mission is in support of Regional Sediment Management, they are receptive to hearing about our needs. Where the mission and our needs overlap, we could consider priorities for their work.

Bernie  
14 Feb 08

## Nearshore Steering Committee –Notes

January 16, 2008

11 a.m. to 5 p.m.

Mercury Room at the Army COE Seattle Office

Attendees: Bernie Hargrave, Curtis Tanner, Margen Carlson, Toni Lick, Dick Ecker, Debby Hyde, Mike Ramsey, Dan Hayes, Simon Geerlofs, Doug Myers and Lisa Bellefond for Jacques

### Membership

Do we want to think about membership generally as we move toward planning and implementation?

### **Executive Committee**

- If membership becomes an executive committee item, start with a reminder of the purpose of each committee
- Bill Ruckelshaus: no longer SRFB Chair
- Frank Shipley: acting position?
- Ecology: How to get full representation/participation?
- Rod Quinn: new position?
- Ron Sims participation?
- David Dicks, PSP: new participant?
- Possible new membership...
  - TNC (Lisa to raise issue internally)
  - TPL
  - Industry: port, railroad, quarries, real estate

### **Steering Committee**

- Simon G.: NW Straits Commission rep? Confirm...
- James Schroeder: took job w/ TNC, so we need a NWF rep
- Doug Myers: rep for People for Puget Sound
- Jen Steger: reminder?
- Bill Dewey: reminder? May prefer to participate at Exec. Committee?
- Eric Johnson, Ports: wants to continue to be on committee but unlikely to come to meetings
- Doug Osterman: no longer chair of LEAG ~ Jeannette Dorner current chair
- Scott Redman: PSP rep?
- Brian Smith @ WSDOT might be a good addition for implementation

### **Nearshore Science Team**

- Fred Goetz: no longer co-chair, what level of participation will he be able to sustain?
- No Doug M ~ need an Implementation Team liaison
- Possible new membership...
  - Rom Thom (monitoring & adaptive management) ~ Dick E. to check
  - Tim Quinn (terrestrial, riparian, modeling)

### **Implementation Team**

- *Need to consider horsepower of IT in light of amount of work (GI, ESRP, etc...)*
- Doug no longer co-lead? (CT and Kathy F. to discuss)
- Miriam no longer co-lead ~ Jeff Dillon instead

- Robin Clark? Maybe...
- Betsy Lyons on maternity leave
- Theresa Mitchell: took new position, old position being replaced
- Terry Wright?
- Curtis?
- Add Mike Ramsey

## **ESRP**

- Curtis and Mike to work on improving the table in the PSAR memo (larger font? Condense?)
- Remember to bring Erik Neatherlin back to the Steering Committee re: the HWS

### **ESRP/Legislature Coordination**

- Doug, Debby, Ramsey, Jacques/Bill Robinson to have a conversation with Tim Smith before 02/06 Exec. Committee
  - Need to understand nature and extent of political pressure
  - What exactly is the issue we're solving? What are alternatives?
  - Are we having a difficult time garnering advocates for the program?
- Discussion of ESRP approach and a WWRP-esque approach:
  - More up-front work, less later
  - We've always requested the funding of a program, not a list
    - Protects scientific integrity/transparency of selection process
    - Insulates from political pressures
    - Flexibility to adapt \$\$ to current project needs
    - Lag time between proposals and \$\$ makes for a stale list
  - WWRP is run by the gov. and gov. holds ownership of real properties at the end (local thru state): as a result, is an understandable interest in this investment
    - In ESRP, however, funds go to NGOs, etc.: not necessarily same government interest
  - WWRP-esque program may require an increased staff investment ~ *also needed currently*
  - ESRP as a portfolio – not a list:
    - Offers opportunity to learn from programmatic enhancements
    - Is a model for strategic investment in restoration – will help us perfect concepts for GI
    - Simply issuing an RFP and assembling a list is inconsistent with a long-term GI and strategy
  - A WWRP-esque approach may be necessary to scale-up funding for projects
  - Nearshore Partnership still retains control of list development in either scenario

## **Workplan**

- Steps to COE approval and Congressional spending authority – Steering Committee needs to understand these basics
  - Likely to include several iterations of review and revision
  - We've attempted to learn from other efforts and anticipate hurdles
- The \$12million ceiling and 2008 deadline are *not accurate*
- What are the connections among sound-wide change analysis, strategic needs assessment, and future scenarios?

- More detail about technical aspects of the workplan in a day-long, internal Nearshore Partnership symposium ~ plan for early March
- Revisit Steering Committee approval of workplan at regular March meeting
- Change analysis by June 2008
- Looking for reassurance that we're properly vetting approach and direction with COE (in-progress reviews & peer review plan)
  - Fall/winter '09 feasibility scoping meeting
- Partners need information quickly to inform budget requests to Congress
- **Changes to cost share can happen between signatories: Congressional approval not needed**
  - Same scope, more \$\$                      OR                      Smaller scope, same \$\$
- Locals need to increase contribution to cost share. How does ESRP figure in?

### **Restore America's Estuaries (RAE) Conference**

- Takes place on 10/11 – 10/15 in Providence, RI
- Title: Puget Sound Nearshore Partnership or PSNERP? (several votes for Partnership)
- General goal: to elevate importance of Puget Sound restoration on the national stage – commensurate with other major restoration efforts of national significance (e.g., Chesapeake Bay, Everglades). Some ideas for furthering this goal...
  - Schedule walk-throughs of all the Nearshore posters at specific times ~ guided tours
  - “Coffee House” conversations organized around themes and including panel participants from around the nation
    - try to avoid lengthy intro remarks
    - TNC grant to analyze PS ecosystem services may have a role (Jon Hoekstra is TNC contact)
    - **Wrap in other PS and/or Northwest attendees with a special caucus/meeting and/or insignia/branding** ~ a unified PS front is valuable
  - Newsletter/newspaper with articles on various PS issues and programs
    - NW Straits interested in contributing
    - TNC to contribute to newsletter & perhaps lend Mud Monster costume
  - Human dimensions coffee house idea is very interesting (esp. w/ PS urban-rural dynamic)
    - Lack of urgency on PS restoration
    - How does PS culture place limits on people's ability to feel that sense of urgency?
  - Need Steering Committee volunteers for document preparation, booth planning, and other participation at the conference
  - Will our target audience be there?
    - Past attendees have included senior federal staff

### **Executive Committee Agenda**

- To be considered later: Are action area boundaries appropriate for our goal-setting exercise
- Make sure to prepare a list of new members for executive approval
- Be sure to include a map of the facility in the exec materials and put up good signs directing attendees to the room

### **Status of Nearshore Partnership (CT and Bernie)**

- Highlight role/message of ESRP
- Compare current program w/ blue book description
- Point out prospects/status of WRDA
- Looking for support of scope, management of resources, and cost share amendment
- Be sure to highlight entire PS context

### **Federal Congressional Update (Tim)**

#### **Coordination with the PSP**

- Jacques: Coordination to date (use presentation from November's Leadership Council mtg)
- Tim: Contribution of the Nearshore Partnership to the PS Action Agenda

### **Project Management Team Reports**

#### **Science Team**

- **Revisit in the Feb/Mar Steering Committee agenda:** How can the Steering Committee support the completion of FWOP? Jacques, Mike Rylko, Doug, and Fred Goetz need to participate
  - Waiting for Marina Alberti's deliver of a FWOP methodology (how to connect scenarios to models to predict detail about the future)
  - Method may not be adequately tied to our other methods. How do we correct this?
    - Dr. Clark's presentation showed other approaches to modeling FWOP
  - What products are expected at the end of Phase II? What are the accompanying impacts on timing and costs?
  - COE needs a compelling story of what to expect in the future if the project isn't implemented
  - Can the TNC/Stanford ecosystem services modeling be used here and/or in the economic model?

#### **Local Project Manager (Toni Lick's accounting report)**

- Cost share agreement
  - Needs to be revised before 2009 (Bernie to check federal #s)
  - Revisit how accurately we are capturing local match?
  - COE may need local cash to carry out their review
- Think about how to market contributions that aren't eligible for match (perhaps can be called "leverage")