

Puget Sound Monitoring Consortium: Basic Proposal for Structuring a Coordinated Monitoring and Assessment Program

Introduction

Puget Sound Needs A Coordinated Monitoring And Assessment Program: A consortium of local, state and federal agencies, environmental groups, business organizations, and others began meeting in 2006 to envision how a coordinated monitoring program might work in Puget Sound. The group was originally convened to address NPDES monitoring requirements, but the scope has expanded, most recently to address the needs of the Puget Sound Partnership to meet its mandates for monitoring and adaptive management.

In a framework report (<http://www.ecy.wa.gov/programs/wq/psmonitoring/index.html>) that was presented to the Washington Forum on Monitoring in March 2007, the Consortium identified significant gaps in our understanding of Puget Sound's ecosystem and recognized the need to facilitate protection, preservation, restoration, and recovery efforts. The many ongoing monitoring and assessment programs throughout Puget Sound are neither well coordinated nor integrated. These existing programs can list many successes, but as individually managed programs they are typically designed to meet specific agency mandates. Thus, they do not address the monitoring needs of the ecosystem, create and communicate a comprehensive and accurate picture of ecosystem health, or inform and guide efforts to recover Puget Sound. Current levels of funding may not meet the Puget Sound ecosystem's monitoring and assessment needs. By not addressing the ecosystem, monitoring and assessment—and the policy and management decisions they are based on—will continue to lack sufficient credibility, accountability, and funding to engender broad public understanding of and support for the recovery of Puget Sound.

The consortium recognizes the need to build on the existing monitoring direction and coordination efforts of and the lessons learned by the Washington Monitoring Forum, the Salmon Recovery Funding Board, the Puget Sound Assessment and Monitoring Program (PSAMP), and others. The Puget Sound Partnership is committed to strengthening the link between science and management decisions and has endorsed the consortium as a useful process for building capacity to provide the data needed to prioritize management decisions, and to understand and report on the effectiveness of new policies and management efforts.

A new approach to environmental monitoring and assessment is urgently needed to inform management and policy decisions in Puget Sound. Building on the recommendations in the March 2007 report, the Puget Sound Monitoring Consortium has been working to define functions and identify viable options for creating a coordinated monitoring and assessment program for Puget Sound. We have continued to seek input from interested parties as to their concerns and hopes for a coordinated monitoring and assessment program in Puget Sound. Our goal is to develop viable recommendations that would meet interested parties' definitions of a successful coordinated monitoring and assessment program.

As part of our initial work, the Consortium identified several “key principles” that the participants recommend as important foundational elements when considering governance options. The Consortium also considered the necessary “scope of work” for any governance structure. These are described as follows:

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Key Principles and Interests: The Consortium members and all interested parties canvassed to date have agreed on numerous basic guiding principles to describe in a broad sense what a coordinated monitoring and assessment program is expected to achieve, and the characteristics it must exhibit. These principles are discussed in detail in the March 2007 report and include:

- Build on existing efforts
- Include all interested parties
- Monitor key ecosystem indicators
- Integrate watershed, fresh and marine waters at multiple scales
- Provide a strategic, efficient, credible approach to monitoring and assessment
- Collect and assemble science information and fill gaps
- Evaluate and recommend regulatory monitoring requirements
- Direct link between scientific findings and management decisions
- Management information needs frame and prioritize the monitoring questions
- Stable funding mechanism
- Transparent decision-making
- Stable, independent governance and accountability mechanisms

The program also must address some very specific issues such as NPDES Stormwater permit monitoring requirements, Endangered Species requirements under the authorities of various government agencies, and the environmental indicators and other needs identified in the Puget Sound Action Agenda.

Scope of Work: The Puget Sound Partnership has requested that the coordinated monitoring and assessment program have the capacity to address all topics needed to answer basic questions about human health and quality of life; habitat and land use; species, food webs and biodiversity; and water quantity and quality for the Puget Sound ecosystem.

The Partnership has identified several types of monitoring that are needed to inform policy decisions and identify management actions that will facilitate protection and recovery efforts for Puget Sound. These include:

- Status and trends monitoring to track the condition of the ecosystem;
- Validation monitoring to improve our understanding of the ecosystem;
- Compliance and implementation monitoring to determine whether actions are occurring and commitments are met; and
- Effectiveness monitoring to evaluate whether actions are achieving desired results.

The role of this new coordinated monitoring and assessment program will likely not include implementation and compliance monitoring. This type of monitoring is most appropriately conducted and housed by the regulators or other entities that require the actions (PSP, Ecology, NOAA, etc.). However, the coordinated monitoring program can fill a role in coordinating and tracking the implementation and compliance data that is collected and might make recommendations as to how to make such data more environmentally meaningful.

The new coordinated monitoring and assessment program will undertake to coordinate, integrate and synthesize the other types of monitoring: status and trends, validation, and effectiveness.

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Essential Components of a Coordinated Monitoring and Assessment Program

However it is structured, governed and operated, the program needs to include the following components: The Puget Sound Partnership, other clients, a Steering Committee or Board, a Technical Committee, Work Groups, Staffing, Funding, Work Plans, Data Management and Reporting Findings, a Public Advisory Process, Inclusion of Interested Parties, and Coordination and Links to other Programs and Agencies. Each of these essential components is described below:

Puget Sound Partnership: The Washington State Legislature gave the Partnership specific mandates for monitoring and adaptive management. The Partnership is responsible for developing a science-based action plan to protect and recover Puget Sound ecosystem health by 2020 and has recognized the consortium as a process that will help achieve this mandate. For the purposes of the consortium and its discussions about governance, the Partnership functions as the “Science-Policy Interface” to provide an ongoing feedback loop between policy and science and give direction to the coordinated monitoring and assessment program.

To address the specific needs of the Partnership, the program will need to address all types of monitoring necessary for assessing ecosystem recovery, including human health and quality of life, fresh and marine water quality, water quantity, species and biodiversity and habitat. Coordinating and tracking the many types of monitoring required – status and trends, effectiveness, compliance, and validation – will be a fundamental role of the entity that manages a comprehensive monitoring and assessment program for Puget Sound.

Other Clients: Federal, tribal, state and local government agencies have responsibilities and authorities to implement specific regulatory programs. The coordinated monitoring and assessment program must be accessible to these other clients and it must be adaptable and flexible to address their needs. For example, local governments have specific science needs related to Growth Management Act decisions and are faced with multiple and sometimes conflicting or duplicative monitoring mandates; Ecology has specific science needs related to Clean Water Act mandates; NOAA has specific science needs related to Endangered Species Act listing decisions; Stormwater permittees want to see how this process addresses/influences the permit requirements to make the required monitoring both meaningful and reasonable to implement; etc.

Any of these entities or groups needs the ability to fund specific programs that fill science and management needs not identified in the Puget Sound Action Agenda and Strategic Science Plan. Each of these other clients will also function as the “Science-Policy Interface” to provide an ongoing feedback loop between policy and science and give direction to the coordinated monitoring and assessment program related to their information needs.

Steering Committee or Board: Within the coordinated monitoring and assessment program structure, a Steering Committee or Board provides strategic direction for the program. This committee represents all interested parties and: oversees the Technical Committee’s work to integrate and coordinate science needs across the ecosystem; initiates “Science-Policy Interface” discussions based on scientific findings; and

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coordinates with others on statewide and regional data collection and management approaches, in particular with larger-geographic-scale coordination entities such as the Washington Forum on Monitoring and Pacific Northwest Aquatic Monitoring Program.

Technical Committee: Also within the coordinated monitoring and assessment program, a Technical Committee will integrate and coordinate science needs for the ecosystem and across the Work Groups. This committee will recommend who will monitor what, where. This committee will provide synthesis and inter-disciplinary approaches; analyze data and write reports; and propose monitoring plan changes to the Science Panel. The Technical Committee is comprised of chairs of the Work Groups. The structure and detailed functions of this committee are the heart of the program, and the Puget Sound Monitoring Consortium is, at this writing, just beginning to figure this out. The work of this committee is transparent and accessible (*e.g.* meeting notes are posted on the program webpage).

Work Groups: Work Groups collect the data that helps improve our understanding of the ecosystem. They determine science needs by geography or issue, with numerous sub-groups likely formed. These work groups are somewhat organic: some are ongoing while others are convened to meet a specific need. Many if not most of the work groups already exist in some form and will be built upon; some will be created to meet the needs of the Puget Sound Action Agenda. Each work group is chartered and the chair sits on the Technical Committee. The work of these groups is transparent and accessible (*e.g.* meeting notes are posted on the program webpage and provisional data are available).

Staffing: Agency and other staff continue to participate in the Work Groups (*e.g.* continue to collect and analyze data as they do now). Specific to the coordinated monitoring program, long-term, dedicated staff are needed to support and coordinate the Work Groups, Steering Committee or Board and Technical Committee. They also support the Science-Policy Interfaces. Day-to-day functions of staff include managing, compiling and analyzing data (topic analyses and cross-topic synthesis) and writing reports; doing GIS and other mapping analyses. Staff will start by focusing on priority areas identified in the Puget Sound Science Plan.

Depending on the model option being considered, new staff will report to the Partnership's Science Manager or to the Private Institute's Executive Director. The specific characteristics needed to support particular functions include (1) a director (ED or Strategic Science Manager) with recognized scientific credibility and (2) staff with expertise, experience and in-depth knowledge of specific topics to conduct analyses, support work groups and provide continuity.

Funding: Stable funding for operations is procured by the Puget Sound Partnership (directly or by influence). Additional funding might come from agencies or businesses that are allowed to provide funds in lieu of independently conducting permit-required monitoring. (Funding provisos are already shifting from other state agencies to the Partnership.) Funding for information collection would continue to be part of agency budgets to fund agency staff and assessment projects. Additional funding for assessment could be directed through the Puget Sound Partnership; acquired through grants and contracts; or contributed by local jurisdictions, businesses and others in lieu of doing monitoring and assessment work themselves.

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Work Plans: Once it is up and running, the program develops one-year and longer-term work plans to implement the Partnership's Strategic Science and Monitoring Plans. Program staff may conduct research, analyze data and create reports scientific studies, synthesize data and information, prepare maps and collaborate with other scientists to provide a holistic integration of information. This information may come from many disciplines that support management activities. It may also be used to demonstrate the potential implications of different management scenarios.

The majority of the monitoring and assessment is conducted by partnering agencies, similar to today's PSAMP and other ongoing programs. Program staff might conduct additional sampling and lab work unless these functions are contracted out. The program would incorporate information from other entities already established with Puget Sound level monitoring, such as Washington Department of Fish and Wildlife and treaty Tribes, the co-managers for fish and wildlife management. For example, the co-managers would continue to prioritize, implement and report on salmon modeling and monitoring and coordinate with other larger regional efforts. The program may provide the co-managers with additional information or coordination requests that arise from workgroups or Partnership committees for specific issues that relate to salmon monitoring.

Data Management and Reporting Findings: Analysis of data and report writing are conducted by program staff across assessment/topic types to address key ecosystem questions. GIS and modeling functions are also included in each structure.

A data management system will need to be approached cooperatively and collaboratively among the agencies collecting data. The data management system will need to meet the agencies' mandates, Partnership's responsibilities, and the coordinated monitoring and assessment program. Program staff might be responsible for overall data management (e.g. coordinating and housing a data management system that includes portals to other systems through the NW Data Exchange Network or a similar neutral system) or this function might primarily be conducted by the agencies collecting data or by contracted consultants. The Washington Forum on Monitoring plays a key role.

An annual report based on science and research and measuring progress against indicators and benchmarks is produced for decision-makers and the public. Updates to the monitoring plan are produced for approval by the Puget Sound Science Panel.

Public Advisory Process: The program must regularly seek citizen input, particularly in recommending updates to the monitoring plan. All meetings should be open to any interested person and notes from all meetings posted on the program webpage.

Inclusion of Interested Parties: Coordination – at both management level and technical level - of the program components in Puget Sound would include representatives of the local, state and federal agencies, tribes, businesses, ports, private entities and NGOs that conduct or have an interest in the work of the program. This broad representation will be institutionally formalized.

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Coordination and Links to Other Programs and Agencies: In addition to coordinating with Puget Sound Partnership, this new program will need to focus on early coordination with other cooperative science efforts such as the Puget Sound Nearshore Partnership (PSNERP), the Cooperative Monitoring, Evaluation and Research Committee (CMER), and others. The following two particular programs are at a larger scale than Puget Sound and the new coordinated monitoring program will need to be consistent with them:

- The Washington Forum on Monitoring (WFM) provides a multi-agency venue for coordinating technical and policy issues and actions related to monitoring salmon recovery and watershed health. The Forum has an important role in standardizing data collection and management protocols.
- The Pacific Northwest Aquatic Monitoring Partnership (PNAMP) provides a forum for coordinating state, federal, and tribal aquatic habitat and salmonid monitoring programs. PNAMP is developing a data dictionary and monitoring inventory.

Model Option: Restructured PSAMP at PSP

Structure: Monitoring, assessment, and research for the Puget Sound ecosystem are coordinated by a restructured version of the current Puget Sound Assessment and Monitoring Program (PSAMP). The PSAMP focus changes from the marine environment to the ecosystem. The new program is housed at the Partnership, with independent oversight provided by the Puget Sound Science Panel. The program is focused on implementing the Puget Sound Strategic Science Plan and Monitoring Plan and relies on data collection by other agencies and contractors.

To include all interested parties, the Steering Committee will be comprised of at least these entities and perhaps more: state agencies (Ecology WDNR WDFW WDOH WSDOT PSCAA); federal agencies (EPA NOAA USGS USFW USFS); local governments; environmental organizations (including groups concerned with: the Puget Sound marine environment, fresh water and the upper watershed); business (include industry, developers/builders, commercial, shellfish); Tribes; ports; universities. The representatives on the Steering Committee are scientists and people with practical experience in specific topic areas. The Steering Committee is large and may form subcommittees to: oversee the Technical Committee's work to integrate and coordinate science needs across the ecosystem; initiate "Science-Policy Interface" discussions based on scientific findings; and coordinate with other monitoring programs and coordinating entities.

Staffing, Management and Reporting: Staff reports to Puget Sound Partnership management. Existing management, policy and review structures of the Partnership are directly employed; no new decision-making bodies are created. Program staff members are hired as permanent State employees (e.g. do not serve "at will"). The work and results of the monitoring program is incorporated into the agendas of the Leadership Council, Ecosystem Coordination Board and Science Panel, who in turn provide policy and science guidance and direction to the monitoring program. The current PSAMP Management Committee and Technical Steering Committee are both expanded and restructured and to include additional interested parties including greater representation by local, state and federal government agencies, NGOs and

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business. For this model a subset of the new Steering Committee, perhaps with rotating membership, would serve as a management board for the new Technical committee.

Primary benefits of this model option: This option implements the legislation that created the Puget Sound Partnership. Under this model, the Partnership houses the science coordination, integration and synthesis functions and provides an institutionalized adaptive management link to informing and influencing management decisions. Interested and affected parties, many of whom worked with the legislature on the enacting legislation, are optimistic that the Partnership will succeed and are investing a great deal of time and energy into making the Action Agenda process work. This model can be implemented immediately without creating an additional structure and associated expenses.

Model Option: Independent Private Institute

Structure: Monitoring, assessment, and research for the Puget Sound ecosystem will be coordinated by a new private (non-governmental), non-profit institute, perhaps titled “Puget Sound Ecosystem Institute” or PSEI, similar to the San Francisco Estuary Institute. PSEI could be housed anywhere (including Partnership offices). The scientific work plan is guided by the Puget Sound Strategic Science Plan and Monitoring Plan, with guidance and review provided by the Puget Sound Science Panel. PSEI would also work on science to meet the needs of other government entities (*e.g.*, related to ESA/CWA/GMA/etc.). The program would rely on data collection by other agencies and contractors, with additional assessment conducted by PSEI staff and supplemented by contracting.

Staffing, Management and Reporting: Staff reports to the Institute’s Executive Director, who in turn reports to a new independent Board. Board members have strong scientific credentials and represent key stakeholders including government agencies, environmental organizations and businesses. The Board consists of ~12-15 voting members that serve 4-year terms and ~3-5 nonvoting government liaisons. The Board is directly linked to the Steering Committee and directs staff to support the functions of the Board, Steering Committee, Technical Committee and Work Groups. The Board manages the money and conducts fundraising for resources needed beyond those provided by normal monitoring budget and funding provided by the Partnership.

As an example, the board might include the following voting members with a mix of science, management and practical expertise and experience: a health scientist from WDOH; a habitat scientist from WDFW or WDNR; a water quality scientist from USGS; a University of Washington social scientist; one or two representatives from each of the environmental and business communities; a Port economist; a planning director and a public works director from a city and a county; and a representative of the Northwest Indian Fisheries Commission. The non-voting government liaisons might be representatives of the Partnership, Ecology, EPA, NOAA and AWC or WSAC.

Primary benefits of this model option: Accountability may be improved by creating an independent institute that can provide an independent review of management actions without needing to explain or defend management actions. An Institute could have independent, more stable sources of funding.

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Key Differences Between the PSP and Institute Options

The Subcommittee believes that either option could work and that under either scenario there are some concerns that need to be addressed. The key differences in the proposal are:

Structure: The Restructured PSAMP at PSP model uses the executive management structure of the Puget Sound Partnership to hire and oversee staff, write budgets and work plans, and be responsible for getting the work done. The Institute proposal creates a new Board (the Steering Committee under the PSP model) and Executive Director to conduct these required basic management activities. The PSP proposal has the Science Panel directing the monitoring and assessment work done on behalf of the new agency. In the Institute model, the Science Panel provides guidance and an independent peer review function and must approve the work directly related to Partnership activities.

Additional Data Collection: Under the PSP proposal, additional necessary data collection, beyond what the partnering agencies have capacity for, is conducted by outside contracts. Under the Institute model any necessary additional data collection/assessment capacity would either be contracted out or could be conducted in-house as part of the new program.

Analyzing and Reporting the Findings: Data analysis would be conducted collaboratively with staff at partnering agencies under both model options, but primarily by Partnership contractors and staff in the PSP model and by Institute staff and technicians in the Institute model. Under the PSP model, data and analysis that are conducted as part of the coordinated program are transmitted to Science Panel which, with Partnership staff support, is responsible for writing an annual report. An Institute might follow the PSP model for writing an annual report and/or it might produce an independent annual report that is then transmitted to the Science Panel for review. Additional science-based reports under the Institute model might be contracted out and in the Institute model might be contracted out or conducted in-house.

Under both model options, independent guidance and review are provided by the Puget Sound Science Panel. The direct feedback loop to the Partnership's Leadership Council and Ecosystem Coordination Board is through the Board in the Institute model and through the Science Panel in the PSP model. The Institute model also includes a feedback loop with other federal, state, tribal and local management entities who can request studies directly from the Institute through the Board.

Perceptions: Aside from these objective structural and reporting differences, the key differences in the two basic proposals that the parties considering this decision also should consider fall in the category of perceptions about credibility, transparency, trust, independence, buy-in, long-term stability of staffing, costs and funding as discussed in the "concerns" section below.

Potential Concerns Expressed by Interested Parties

Consortium members and staff have been actively seeking input from interested parties with the intent of better defining a vision of a successful coordinated monitoring and assessment program. The concerns listed below have been expressed about both of the options and will need to be addressed. Many of these are included in the Consortium's problem and purpose statement. Our task is to be certain that our final

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recommendations include defined ways to address each of these concerns as they apply to each model option.

Concerns that Might Apply to any new Coordinated Monitoring and Assessment Program:

- Everyone needs to buy in or the program will not work
- Avoid proliferation of groups where more staff time is required to do the same thing
- The program must produce information that is meaningful and relevant and that everyone believes
- The structure must both provide and allow for good communication
- Ensure that provisional data are available
- The program should not be run by all scientists, because they won't understand management needs and issues
- The program needs to expressly support and require that management more clearly articulate their questions.
- The expressed support of the Partnership is necessary to ensure a direct tie to implementation or some obligation for the Ecosystem Coordination Board and others to pay attention.
- Monitoring timeframe is longer than decision-making timeframe so we need to initiate a dialog on management needs early and try to anticipate future needs
- The program would take time to “ramp up” to meet all the functional needs of a Puget Sound monitoring program that addresses ecosystem health. It is likely that some functions anticipated to be conducted within either structure would be conducted by partners or contracted out in the initial years.

Restructured PSAMP at PSP: Potential concerns about this model option include:

Staffing:

- Will an adequate number of long-term, dedicated staff be ensured? Staff are currently hired to perform multiple functions in multiple areas of expertise, and/or could be diverted to/by other agency priorities. Staff need to be highly qualified topic experts and focused on data compilation, analysis and reporting, dedicated to this program, and stable over time.
- Agencies need to articulate dedicated staff with expertise and appropriate independence from management decisions – staff on loan to this effort and that's all they do. Or alternatively, this is a specified role (as is currently done with PSAMP) but with enough time ensured to be dedicated to cross-topic synthesis and other analytical work to be done as part of this new program.
- The new program must have a dedicated long-term staff person overseeing all work that is contracted out. The program needs a process to address contract representation issues (defining and articulating needs).
- Ensure that program staff are enabled to freely express their scientific findings.

Access:

- Entities other than the Partnership are concerned that they might not be recognized as clients of the new program if it is entirely within the PSP structure. How could or would they submit requests for work to address their science needs that are not part of the Action Agenda? Through the Science Panel? Through the Leadership Council? This access must be defined in the governance structure.

Trust and Transparency:

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- All interested parties want a voice in the process.
- Entities want to control how the funding they contribute is allocated and be certain that it is used to meet their needs.

Long-term stability:

- How stable over time will internal staff be if they are housed in a state agency that could be recreated under a new administration? Future legislature could change PSP and shift focus away from monitoring.
- What happens if state money disappears? There would be no structure to carry out functions: federal and other monies would remain but would not be buffered. On the other hand, loss of funding would shrink the program (not gut it) and individual work groups would continue.

Private Institute Model: Potential concerns about this model option include:

Institutional Structure:

- Effort and resources are required to create an entirely new management structure
- May cost more (ED is more expensive)
- Are overhead costs shared or borne entirely through the institute?
- What happens to PSAMP? The program is partly modeled on and ultimately replaces PSAMP but still incorporates the functions (and long-term data collection efforts); staff remain at agencies
- Must have an effective, representative board
- State agencies are not required to participate. Make sure that institute gets agreements for dedicated staff and resources to participate. Incorporate Action Agenda state agency provisos into the program structure and funding.

Trust and Transparency:

- Define the relationships to key parts of the Partnership structure and explicitly ensure the program's responsibility to implement the monitoring and other science components of the Puget Sound Action Agenda
- Incorporate FOIA and other transparency measures in founding documents
- Can't be a "rogue" science group

Long-term stability:

- To what extent will the program depend on the Partnership to achieve stable, long-term funding? The program could continue without Partnership money and rely on private, local and federal money. Work groups might continue to be supported by agencies.

Next Steps

The Consortium will continue to seek input as we further develop these recommendations. Our goal is a proposed organizational chart, budget and definitions of relationships between the new program and other entities. We welcome the participation of Panel members at our upcoming meetings May 9 and June 11 in Tacoma and respectfully request adequate time at the Panel's June 19 meeting to discuss our final recommendations. We anticipate that the Panel will make a recommendation to the Leadership Council and recognize that legislative language may be needed as to what specifically is embedded in the program functions, how it is funded, and how the monitoring and assessment are implemented.