

**THE REPORT
OF THE
PUGET SOUND
MONITORING CONSORTIUM
TO THE
WASHINGTON STATE LEGISLATURE
DECEMBER 10, 2008**

PUGET SOUND MONITORING CONSORTIUM

PUGET SOUND MONITORING CONSORTIUM

CONTENTS

EXECUTIVE SUMMARY 1

Our Directive from the Legislature 1

*Our Relationship to the Puget Sound Partnership and the Washington Forum
 on Monitoring Salmon Recovery and Watershed Health* 1

Our Members 1

Our Recommendations 1

Our Accomplishments..... 2

INTRODUCTION 4

History.....4

Goals5

THE CONSORTIUM’S RECOMMENDATIONS 7

 1. Before June 30, 2009, the Partnership should select the governance structure
 that will best meet the interests and needs of an integrated, coordinated
 monitoring and assessment program for the Puget Sound ecosystem.....7

Essential Functions, Basic Program Structure, and Two Governance Models.....8

A Comparison of the Two Proposed Governance Models 14

 2. Provide sustainable resources for regional coordination, integration, and
 synthesis; and for the “topical work groups” that form the basis of the
 monitoring and assessment program. 16

Topical Work Groups..... 19

THE CONSORTIUM’S ACCOMPLISHMENTS AND FUTURE PLANS 22

The Governance Committee’s Accomplishments and Future Plans22

The Stormwater Work Group’s Accomplishments and Future Plans23

The Technical Advisory Committee’s Accomplishments and Future Plans.....23

APPENDIX A: MULTI-PARTY DISCUSSIONS ABOUT COORDINATED MONITORING 25

The Exploratory Discussions that Resulted in the Consortium’s Establishment25

The Consortium’s First-Year History and Accomplishments27

APPENDIX B: THE SAN FRANCISCO ESTUARY INSTITUTE..... 31

APPENDIX C: THE CONSORTIUM’S SPRING 2008 PRESENTATION TO THE
PUGET SOUND SCIENCE PANEL..... 33

*A summary of the Science Panel’s response to the presentation and
 recommended next steps*.....34

PUGET SOUND MONITORING CONSORTIUM

APPENDIX D: THE STORMWATER WORK GROUP’S PURPOSE AND GOALS..... 35

APPENDIX E: THE FOUR “PILOT PROJECTS” 39

1. Standard Operating Procedures (SOPs) for Collecting Samples of Stormwater Runoff39
2. Sound-wide Database of Benthic Invertebrate Biotic Index (BIBI) Information for Wadeable Streams39
3. Inter-laboratory Calibration Exercise.....40
4. Field Testing of a New In-line Ditch Stormwater Treatment Methodology40

THE GOVERNANCE COMMITTEE

Joel Baker, Center for Urban Waters at the University of Washington, Tacoma
Pam Bennett-Cumming, Mason County
Sarah Brace, formerly with the Puget Sound Partnership
Paul Bucich, formerly with the City of Federal Way
Doug Bulthuis, Padilla Bay National Estuarine Research Reserve
Allison Butcher, Master Builders Association of King and Snohomish Counties
Tracy Collier, National Oceanic and Atmospheric Administration (NOAA)
Paul Crane, City of Everett
Bruce Crawford, National Oceanic and Atmospheric Administration (NOAA)
Ken Currens, Northwest Indian Fisheries Commission (NWIFC)
Bill Derry (CH2MHill), APWA Stormwater Managers
Rich Doenges, Washington State Department of Natural Resources
Rob Duff, Washington State Department of Ecology
Tom Eaton, U.S. Environmental Protection Agency (EPA)
Leska Fore, Statistical Design
Gary Gill, Pacific Northwest National Laboratory (PNNL)
Stuart Glasoe, Washington State Department of Health
Maryanne Guichard, Washington State Department of Health
Julie Hall, City of Seattle
Kris Holm, Business Caucus of the Puget Sound Partnership and Association
of Washington Business, including The Boeing Company
Bob Johnston, U.S. Navy
Bruce Jones, Northwest Indian Fisheries Commission (NWIFC)
Doug MacDonald, unaffiliated
Kathy Minsch, City of Seattle
Fran McNair, Washington State Department of Natural Resources
Kit Paulsen, City of Bellevue
Matt Peterson, Quadrant Homes and Master Builders Association
Scott Redman, Puget Sound Partnership
Joanna Richey, King County
The Hon. Lynda Ring-Erickson, Mason County Commissioner
Mark Sadler, City of Everett
Susan Crowley Saffery, City of Seattle
Russ Scranton, National Oceanic and Atmospheric Administration (NOAA)
Melodie Selby, Washington State Department of Ecology
Ron Shultz, Washington State Conservation Commission
Ken Stone, Washington State Department of Transportation
Heather Trim (People for Puget Sound), Environmental Caucus of the
Puget Sound Partnership
Gary Turney, U.S. Geological Survey (USGS)
Rob Wilson, U.S. Environmental Protection Agency (EPA)
Karen Dinicola (Ecology), Project Manager
Jim Reid, Facilitator

PUGET SOUND MONITORING CONSORTIUM

EXECUTIVE SUMMARY

OUR DIRECTIVE FROM THE LEGISLATURE

The Washington State Legislature in 2007 directed the Department of Ecology to “facilitate the development of an ongoing monitoring consortium similar to Chesapeake Bay or San Francisco Bay to institute coordination between local, state, and regional monitoring agencies. The goal is to integrate ongoing monitoring efforts for stormwater, water quality, watershed health, and other state indicators and enhance monitoring efforts in Puget Sound.”

OUR RELATIONSHIP TO THE PUGET SOUND PARTNERSHIP AND THE WASHINGTON FORUM ON MONITORING SALMON RECOVERY AND WATERSHED HEALTH

During the same session, the Legislature created both the Puget Sound Partnership, with broad monitoring duties and responsibilities related to Puget Sound ecosystem recovery, and the Washington Forum on Monitoring, with statewide monitoring coordination and oversight duties. The Puget Sound Monitoring Consortium has been providing recommendations and briefings to the Partnership, and briefing the Forum on its activities and recommendations.

OUR MEMBERS

The Puget Sound Monitoring Consortium is a diverse group of motivated and engaged stakeholders representing approximately 40 local, state, federal, tribal, private and non-profit entities that share the common goal of coordinated, efficient data collection and efficient access to meaningful and credible environmental data for the Puget Sound basin. Our recommendations for, and our accomplishments toward, forming an integrated, coordinated monitoring and assessment program for the Puget Sound basin follow.

OUR RECOMMENDATIONS

The Consortium recommends the Legislature fully support and contribute to funding a coordinated, integrated regional monitoring and assessment program to more effectively and cost-efficiently achieve federal, state, and local environmental mandates and goals, including Puget Sound ecosystem recovery.

Our specific recommendations are:

1. Determine the organizational structure: Before June 30, 2009, the Partnership should formally review the Consortium’s governance recommendations, which include two possible organizational models, and decide what governance structure will house the ecosystem recovery-monitoring program and the key functions to coordinate, integrate, and manage a regional monitoring and assessment program as an element of the Partnership’s regional science program.
2. Provide capacity and resources: For the 2009-2011 biennium and the long-term, to ensure the success and sustainability of the coordinated, integrated regional monitoring and assessment program, the Consortium specifically recommends:
 - For the 2009-2011 biennium, the Legislature should contribute funding to adequately staff a successful transition to an integrated, coordinated regional monitoring and assessment program during the biennium. These staff will analyze science across

PUGET SOUND MONITORING CONSORTIUM

topic areas from an ecosystem perspective and recommend meaningful prioritization and integration of ongoing monitoring and assessment efforts.

- For the 2009-2011 biennium and the long-term, the Legislature should continue to provide ongoing funds to state agencies to support the basic monitoring and assessment activities that are the foundation of a regional program.
- In 2009-2011, the \$800,000 in state funds allocated for the Consortium's work should continue to support staff and projects related to ongoing Consortium activities, including the Stormwater Work Group and the Partnership's transition to and implementation of the integrated, coordinated monitoring and assessment program.
- The Partnership should initiate cost-sharing arrangements in 2009-2011 with local, state, federal, tribal, private, and non-profit groups to implement regional monitoring and assessment activities. The state's ongoing contribution will complement and enhance the contributions of other entities, and provide leadership to produce greater efficiencies as well as more meaningful data to support management decisions.

OUR ACCOMPLISHMENTS

- Developed organizational models: The Consortium analyzed 17 programs from around the country and developed two organizational models. One model is a state agency-based structure housed at the Partnership; the other model is an independent private institute. Both proposals are built the same from the bottom up with topical work groups that are coordinated and integrated under an umbrella structure. Both models build on the existing Puget Sound Assessment and Monitoring Program (PSAMP), with agencies continuing to collect and analyze data.
- Established a work group for stormwater: The Consortium established the Stormwater Work Group comprised of 26 representatives of local, state, federal, tribal, private, and non-profit entities. This work group has begun identifying and prioritizing objectives and will create a regional stormwater monitoring and assessment strategy by June 2010. The strategy will be integrated with other regional efforts, such as status and trends monitoring for the Chinook recovery plan, and will inform the next cycle of municipal stormwater National Pollutant Discharge Elimination System (NPDES) permits. This work group will be an ongoing activity, implementing the recommendations of the advisory committee that preceded the Consortium.
- Began pilot projects: The Consortium launched four projects to meet pressing needs for coordination and improved credibility of the monitoring data that is routinely collected in the Puget Sound region:
 - Develop standard operating procedures for automated sampling of stormwater and subsequent analysis of the data. Local jurisdictions currently have different methods for using the samplers and performing subsequent calculations, resulting in data sets that are not comparable. This project brings jurisdictions together to agree to and document common methodologies.
 - Standardize reporting methods and expand a database for stream benthos information that can be populated by all entities in Puget Sound that collect this information. The effort will improve data use and comparability.

PUGET SOUND MONITORING CONSORTIUM

- Conduct inter-laboratory calibration activities to improve comparability of data and ensure consistency among laboratories in analyzing environmental data.
- Expand an effort to establish performance and maintenance requirements for in-line ditch treatment methodologies for open stormwater conveyances. Most of the currently approved treatment methods require property purchases and significant capital investment by local jurisdictions. These new methods may provide significant water quality benefits in rural areas at reasonable cost to local governments.
- Provided technical assistance: The Consortium continues to provide the Partnership with an effective means for engaging experts and capacity in diverse areas of science related to ecosystem recovery.

INTRODUCTION

The health of Puget Sound cannot be recovered without a substantial monitoring and assessment effort to inform scientists and policy makers whether management actions are succeeding and the ecosystem is on a path to recovery. Unfortunately, the monitoring and assessment programs currently in place throughout Puget Sound are neither well coordinated nor integrated. These existing programs can list many individual successes, but as separately managed programs, they are typically designed to meet specific agency mandates. Thus, they do not address the monitoring and assessment needs of the ecosystem, create and communicate a comprehensive and accurate picture of ecosystem health, or effectively inform and guide efforts to recover the Puget Sound ecosystem. Policy and management decisions based on current monitoring and assessment data lack sufficient credibility and accountability, to engender broad public understanding of and support for the recovery of the ecosystem. Cost efficiencies need to be assessed and realized, but even then, current levels of funding may not meet the Puget Sound ecosystem's monitoring and assessment needs. We must improve our monitoring and assessment system so that we can answer key questions about the health of the Puget Sound ecosystem.

HISTORY

The Puget Sound Monitoring Consortium (Consortium) was established following agreement among diverse stakeholders in Puget Sound that there is a widespread need for an interest in coordinated regional monitoring and scientific analysis throughout Washington State, and that, initially, a joint monitoring and assessment program needs to focus on the Puget Sound basin. These earlier discussions on coordinated regional monitoring and assessment are detailed in Appendix A.

In 2007, the Washington State Legislature found that “Currently, stormwater and water quality monitoring activities in Puget Sound are conducted by multiple groups using different standards and protocols. The Department [of Ecology] will facilitate the development of an ongoing monitoring consortium similar to Chesapeake Bay or San Francisco Bay to institute coordination between local, state, and regional monitoring agencies. The goal is to integrate ongoing monitoring efforts for stormwater, water quality, watershed health, and other state indicators and enhance monitoring efforts in Puget Sound.”

The Washington State Department of Ecology (Ecology) hired a project manager and a facilitator to support the Consortium, and Ecology Director Jay Manning invited about 30 representatives of federal, state, local, tribal, private, and non-profit entities “to participate in an exciting new effort to create a Puget Sound Coordinated Monitoring Program. The purpose of this effort is to establish a new coordinated multi-party structure to provide credible and useful information about the Puget Sound Basin's freshwater and marine environments and aquatic habitat. We hope that this program will guide Ecology's and others' monitoring efforts and improve our policy and management decisions.”

The Consortium has evolved into a diverse group of motivated and engaged stakeholders representing nearly fifty local, state, federal, tribal, private, and non-profit entities that share the common goal of coordinated, efficient data collection and easy access to meaningful,

PUGET SOUND MONITORING CONSORTIUM

credible environmental data for the Puget Sound basin's marine, freshwater, and upland areas.

Also during the 2007 session, the Legislature created the Puget Sound Partnership with broad monitoring duties and responsibilities related to Puget Sound ecosystem recovery, and the Washington Forum on Monitoring Salmon Recovery and Watershed Health (Forum) with statewide monitoring coordination and oversight duties. From its earliest meetings, the Consortium's staff and members have been providing advice, analysis, recommendations, and assistance to the Partnership and briefing the Forum about its activities, findings, and recommendations.

The Legislature allocated \$800,000 in ongoing funds for the 2007-2009 biennium to support the establishment and operations of the Consortium. For the 2009-2011 biennium and the long term, the Consortium supports continuation of this budget allocation and recommends that the funds be used to support the integration, coordination, prioritization, and implementation of monitoring and assessment activities in the Puget Sound basin. The Consortium also supports redirecting Ecology's proviso for these activities to the Partnership.

GOALS

The Consortium recognizes the need to build on the existing monitoring and coordination efforts of, and the lessons learned by, the 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.

In making recommendations to build an integrated, coordinated monitoring and assessment program for the Puget Sound basin, the primary shared interests of the Consortium members are to:

- Collect and analyze information that provides a comprehensive perspective and accurate understanding of the factors that are causing the degradation of the ecosystem;
- Enable decision-makers to determine whether or not the actions being taken to combat that degradation are working;
- Engage all the parties with power and influence to affect the recovery of the ecosystem in decisions, and the implementation of those decisions:
 - so that neither the State nor any one organization or agency is unfairly burdened with sole responsibility for monitoring and assessment;
 - to ensure that the decisions reflect the mutual interests and highest priorities of the key stakeholders, and have broad support;
 - to improve the caliber and transparency of the decisions; and
 - to fully and cost-effectively utilize the capacity of all stakeholders for implementing decisions.
- Ensure that the resources devoted to monitoring and assessment are sustainable.

PUGET SOUND MONITORING CONSORTIUM

The integrated, coordinated monitoring and assessment program for the Puget Sound ecosystem that the Consortium envisions would accomplish three primary goals:

- Assemble key scientists and technical leaders from government agencies, universities, businesses, private organizations, and citizen groups to optimize and collaborate on sampling designs, data collection methods, data management and quality assurance procedures. Broad, inclusive participation and agreement on monitoring and assessment approaches up-front can reduce confusion and disagreement around subsequent results.
- Expand the focus to include monitoring and assessment activities that are directed at key ecosystem indicators and other information required to track the success and effectiveness of new management initiatives and improve the way the Clean Water Act, Endangered Species Act, Growth Management Act, and other key laws are implemented in Puget Sound.
- Achieve greater results with existing public and private funds by reducing duplication of effort and eliminating other inefficiencies. The new program will still require additional funding to be able to achieve its vital and urgent goals.

The Partnership's new regional science program for Puget Sound will integrate research, monitoring and assessment (including laboratory and field research, monitoring, data interpretation, modeling, mapping, literature reviews, and other types of analyses) across all topics relevant to ecosystem recovery including the marine, freshwater, and upland areas of the basin. The regional science program, including the integrated, coordinated monitoring and assessment program, will support and provide accountability for the Partnership's plan for ecosystem recovery. Based upon the recommendations of experiences elsewhere in the country, the Consortium believes that, to be successful in the long run, a new regional program should begin somewhat modestly and strategically, and then build upon its early successes.

This report details the recommendations, accomplishments, and future plans of the Consortium.

THE CONSORTIUM'S RECOMMENDATIONS

The most important recommendation of the Puget Sound Monitoring Consortium is this:

Fully support and fund a coordinated, integrated regional monitoring and assessment program to more effectively and cost-efficiently achieve federal, state, and local environmental mandates and goals, including Puget Sound ecosystem recovery.

To ensure the program is successful, the Consortium makes two specific recommendations:

1. Select the governance structure that best meets the interests and needs of an integrated, coordinated monitoring and assessment program for the Puget Sound ecosystem.
2. Provide sustainable capacity and resources for ecosystem-level coordination, integration, and synthesis; and for the “work groups” that form the basis of the regional monitoring and assessment program.

Each of the above recommendations is described and explained in detail below. In making these recommendations, the Consortium relies heavily on its research and analysis of other regional science programs around the country, and on the lessons learned from coordination efforts here in Puget Sound and elsewhere in Washington State. The Consortium recognizes the considerable pressures of the current State budget situation and emphasizes that funding and other capacity and resources must come from local, state, federal, private, and non-profit sources in order for the regional program to succeed. The program should also begin modestly and strategically and build from there.

- 1. Before June 30, 2009, the Partnership should select the governance structure that will best meet the interests and needs of an integrated, coordinated monitoring and assessment program for the Puget Sound ecosystem.**

In requesting the establishment of a coordinated monitoring and assessment program for the Puget Sound ecosystem, the Consortium is recommending that the Legislature direct the Partnership to decide before the end of this biennium, in preparation for the next fiscal year's activities, what governance structure will house the ecosystem recovery monitoring program and the key functions to coordinate, integrate, and manage a regional monitoring and assessment program as an element of the Partnership's regional science program. The regional program will be implemented during the 2009-2011 biennium and built over time, so it is imperative that the Partnership make an early decision on the governance structure to guide the startup of the program.

The Partnership should base its decision on the Consortium's recommendations. The Consortium researched and analyzed 17 monitoring programs around the country, including large regional programs such as the Chesapeake Bay Program and San Francisco Estuary Institute, and identified eight possible organizational models. Taking into consideration the unique interests and needs of the Puget Sound region, the Consortium has proposed two model options for governance, both of which are workable for structuring and managing a regional monitoring and assessment program here. The Partnership should select one of the

PUGET SOUND MONITORING CONSORTIUM

two proposed models that are described, compared, and contrasted in the following sections of this report. After deciding upon a structure, the Partnership should implement a transition to the selected governance structure during the 2009-2011 biennium, and build the program over time. The Partnership needs to engage key staff from other entities to successfully accomplish this transition.

The Consortium also strongly recommends that as part of the governance structure, the Partnership adopt the proposed inclusive, coordinated “bottom up” structure of topic-focused work groups under the umbrella structure at the top. The Consortium believes that this combined structure will provide institutionalized coordination and management as well as cross-topic synthesis and analysis of the science. The transition to this new structure should result in a reorganized and substantially expanded version of the current Puget Sound Assessment and Monitoring Program (PSAMP).

The Consortium finds that either of the two recommended models for a governance structure could achieve the primary interests of the stakeholders who would be involved in the regional coordinated monitoring and assessment program.

Regardless of the “umbrella” structure that is chosen, the Partnership needs to define the decision-making process, reporting relationships, and flows of information for the regional monitoring and assessment program.

ESSENTIAL FUNCTIONS, BASIC PROGRAM STRUCTURE, AND TWO GOVERNANCE MODELS

This section describes the basic functions and structure that the Consortium believes will be needed for a successful integrated, coordinated regional monitoring and assessment program. Regardless of the governance structure selected for the program, the Consortium recommends that it include all the essential functions in the box on the following page.

The Consortium recommends that a successful integrated, coordinated regional monitoring and assessment program for the Puget Sound basin specifically include the following partners and components:

- Leadership: The Puget Sound Partnership, per its mandates for ecosystem recovery and accountability;
- Multiple mandates: Other government agencies with responsibilities and authorities to implement specific regulatory programs, and permittees that are required to conduct monitoring;
- Inclusive and transparent decision-making: Other parties with interests in program oversight and decision-making, through a steering committee, a technical committee, and coordination and links to other programs and agencies, and a public advisory process;
- Inclusive and comprehensive science: Many coordinated topical work groups that inform and conduct the monitoring and assessment,
- Easy access to credible information: Data management responsibilities and capabilities, and independent reporting of scientific findings;
- Capacity: Sufficient dedicated staffing; and

ESSENTIAL FUNCTIONS AND CHARACTERISTICS OF THE REGIONAL PROGRAM

No matter what governance structure is selected, the Consortium recommends that the Legislature specify that the regional monitoring and assessment program will include and/or perform all these essential functions, elements or characteristics from the outset.

- Make decisions transparently for key stakeholders and the public.
- Involve all interested and affected parties at both management and technical levels. Institutionally formalize representation of local, state and federal agencies, tribes, businesses, ports, private entities, and NGOs that conduct or have an interest in the work of the program.
- Link scientific findings and management decisions directly. Produce management information that frames and prioritizes the monitoring questions. Address regulatory monitoring requirements, particularly of local governments. Use inter-disciplinary techniques to predict the outcomes of various management approaches.
- Prescribe a strategic, efficient and credible approach to monitoring and assessment. Develop one-year and longer-term work plans to help implement the Partnership's Strategic Science Plan and Biennial Science Work Plans:
 - Monitor key ecosystem indicators. Capitalize on existing monitoring and assessment efforts around the Puget Sound region. Collect and assemble scientific and technical information to fill "gaps" in knowledge and understanding.
 - Integrate information about watershed, fresh and marine waters at multiple scales. Serve the ecosystem monitoring needs of as many interested parties as possible at the regional scale and provide a framework for scaling down to meet others' needs.
 - Produce credible results. Promote and facilitate the flow and sharing of information and new findings.
- Have stable funding. Incorporate state agency Action Agenda provisions into the program structure and funding and identify other long-term funds and in-kind resources. Initiate cost-sharing arrangements.
- Include mechanisms to ensure accountability.
- Select a director or manager with recognized scientific credibility. Hire and retain staff with expertise, experience, and in-depth knowledge of specific topics to conduct research, synthesize data and information, and collaborate with other scientists to provide a holistic integration of information.
- Identify processes to define and articulate needs for contracting and to address contracting issues.

PUGET SOUND MONITORING CONSORTIUM

- **Governance:** An “umbrella” governance structure, either a state agency-based program or an independent private institute.

Each of these components is described below.

Leadership: 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. The Partnership has recognized the Consortium as a process that will help achieve this mandate. 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. Under one of the two models proposed in this report, the Partnership would also house the monitoring and assessment coordination functions.

To address the specific needs of the Partnership’s Action Agenda and science plans, the program needs to address all types of monitoring and assessment necessary for evaluating ecosystem recovery (see box at right). Coordinating and tracking the many types of monitoring required (see text box at right) will be a fundamental role of the entity that manages a comprehensive monitoring and assessment program for the Puget Sound ecosystem.

Multiple mandates: Federal, tribal, state and local government agencies have responsibilities and authorities to implement specific regulatory programs. These mandates are unchanged by the creation of a regional coordinated monitoring and assessment program. The program must be useful and accessible to these agencies, and adaptable and flexible to address their interests and needs and those of the regulated entities. Examples of different interests and needs include:

- *Local governments* have specific science needs related to Growth Management Act, Clean Water Act, and endangered species decisions and are faced with multiple and sometimes conflicting or duplicative monitoring mandates;
- *Ecology* has specific science needs for implementing the Clean Water Act and other mandates;
- *National Oceanic and Atmospheric Administration (NOAA)* has specific science needs for Endangered Species Act listing and de-listing decisions;
- *Stormwater and other NPDES permittees*, including local governments, businesses, and the Washington State Department of Transportation, want this process to address and

TYPES OF MONITORING

The Partnership has requested that the regional 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 & biodiversity; and water quantity & 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;
- Effectiveness monitoring to evaluate whether actions are achieving desired results.
- Implementation and compliance monitoring to determine whether actions are occurring and commitments are met; and
- Validation monitoring to improve our understanding of the ecosystem;

The new coordinated monitoring and assessment program will coordinate, integrate, and synthesize status and trends, validation, and effectiveness monitoring. Most implementation and compliance monitoring will be conducted by the entities that require the actions, but the regional program can coordinate and track the data and recommend ways to make such data more environmentally meaningful.

PUGET SOUND MONITORING CONSORTIUM

influence permit requirements to coordinate the required monitoring and make it both meaningful and reasonable to implement.

- *The Washington Forum on Monitoring Salmon Recovery and Watershed Health* has statewide responsibilities for coordinating monitoring activities.

All these entities or groups need the ability to fund or otherwise support specific programs that address science and management needs not identified in the Puget Sound Action Agenda and Strategic Science Plan. Each of the other government agencies will also need a “Science-Policy Interface” to provide an ongoing feedback loop between policy and science and give direction to the regional monitoring and assessment program related to their information needs.

Inclusive and transparent decision-making: The Consortium strongly recommends that all parties with interests in program oversight and decision-making have representation at both management and technical levels. The decision-making bodies of the regional program need to include local, state and federal agencies, Tribes, businesses, ports, private entities, and non-profit organizations that conduct or have an interest in the work of the program. This broad representation needs to be institutionally formalized to ensure transparency, inclusiveness, and support of the decision-making process.

- A Steering Committee: A large Steering Committee will oversee the regional program. The committee needs to include at least these entities: state agencies; federal agencies; local governments; Tribes; environmental organizations; businesses; ports; and research institutions. The representatives on the Steering Committee are people with scientific and environmental policy backgrounds and practical experience in specific topic areas. The Steering Committee will:
 - a) oversee the Technical Committee’s work to integrate and coordinate monitoring and assessment needs across the ecosystem;
 - b) initiate “Science-Policy Interface” discussions based on scientific findings; and
 - c) coordinate with others, including decision-makers on statewide and regional data collection and management approaches.
- A Technical Committee: A Technical Committee within the regional program will integrate and coordinate monitoring and assessment needs for the ecosystem and across the work groups. This committee will recommend who will monitor what and where. It will provide synthesis and inter-disciplinary approaches; analyze data and write reports; and propose monitoring plan changes to the Science Panel. The Technical Committee should be comprised of chairs or other appointed liaisons of the topical work groups described below.
- Coordination and Links to Other Programs and Agencies: In addition to coordinating with Puget Sound Partnership, the program will need to focus on early coordination with other cooperative science efforts, including programs that are at a larger scale than Puget Sound, such as the Washington Forum on Monitoring Salmon Recovery and Watershed Health (Forum) and the Pacific Northwest Aquatic Monitoring Partnership (PNAMP).
- Public Advisory Process: The program must regularly seek citizen input, particularly in recommending updates to its monitoring plan. Agendas and summaries from all meetings should be posted on the program webpage and all meetings should be open to any interested person.

Inclusive and comprehensive science: The Consortium recommends that many Topical Work Groups be formally included in the regional program to support, inform, and conduct the basic monitoring and assessment functions of the regional program. Many if not most of the work groups for topics such as salmon recovery, stormwater, and toxic chemicals already exist in some form and will be built upon. The Consortium recommends that each work group be chartered and its chair (or another designated member) be included as a member of the Technical Committee. The work of these groups should be transparent and accessible (*e.g.*, agendas and meeting notes posted on the web and provisional data available).

WHAT ARE THE TOPICAL WORK GROUPS?

Topical work groups provide a forum for key stakeholders to determine monitoring and assessment needs by geography or issue and to oversee collection of the data that help improve our understanding of the ecosystem. Many work group members are involved in conducting monitoring and assessment activities; the work group ensures that the activities are coordinated. The work groups could be somewhat organic: some will be ongoing while others may be convened to meet a specific need; each likely includes several sub-groups.

For more information about Topical Work Groups, see the section beginning on page 19 of this report.

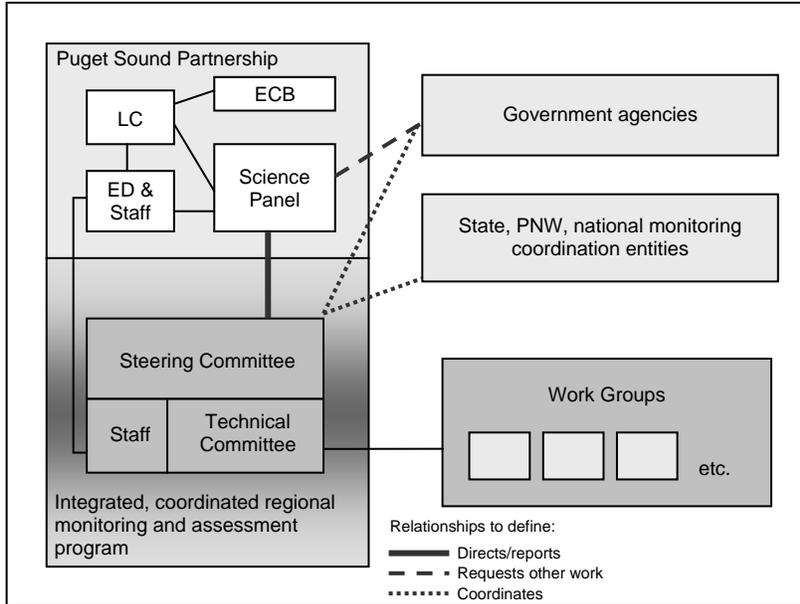
Easy access to credible information: The regional program needs strong data management capabilities and a means for independently reporting its scientific findings. The Consortium recommends that all agencies collecting data for the program participate in a cooperative and collaborative data management system that provides ready access to the data and meets agency mandates, the Partnership's responsibilities, and the needs of the coordinated regional program. Overall data management (*e.g.*, coordinating and housing a data management system that includes portals to other systems through the Northwest Data Exchange Network or a similar neutral system) might be conducted by program staff, or coordinated among the agencies collecting data or by contracted consultants. The Washington Forum on Monitoring plays a key role.

The regional program should produce an annual report on its scientific findings. The report should measure progress against indicators and benchmarks for decision-makers and the public, and recommend updates to regional monitoring and assessment plans.

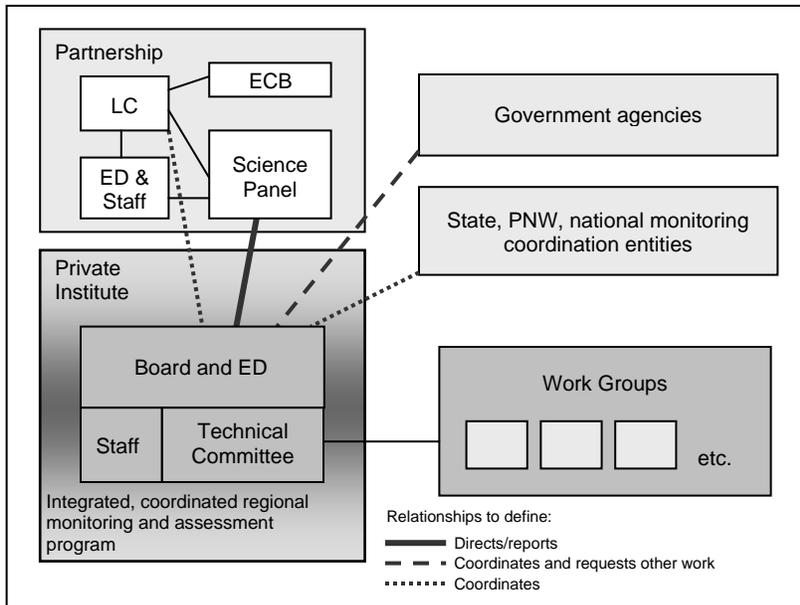
Capacity: The Consortium believes that long-term, dedicated staff are needed to support and manage the committees of the coordinated monitoring and assessment program; support the science-policy interfaces; manage, compile and analyze data (topic analyses and cross-topic synthesis); conduct GIS and other mapping analyses; and write reports. The Consortium recommends that the staff initially focus on priority areas identified in the Puget Sound Science Plan. The majority of the monitoring and assessment (basic data collection) will be conducted by partnering agencies, similar to the current PSAMP. Program staff may conduct additional sampling and lab work but these functions are more likely to be contracted out. Depending on the model being considered, staff will report to the Partnership's Science Manager or to the private institute's Executive Director. The specific characteristics of staff and management needed to support particular functions include: a) a director with recognized scientific credibility; b) staff with expertise, experience and in-depth knowledge of specific topics to manage and support work groups and provide continuity; and c) ability of staff to freely report the program's scientific findings and science-based recommendations.

PUGET SOUND MONITORING CONSORTIUM

PROPOSED ORGANIZATIONAL STRUCTURES AND RELATIONSHIPS FOR THE TWO GOVERNANCE MODELS



State Agency-Based Program Housed at the Partnership



Independent Private Institute

LC = Leadership Council; ECB = Ecosystem Coordination Board; ED = Executive Director; PNW = Pacific Northwest

Governance: The Consortium recommends that the Partnership select one of the following two models for providing the overall umbrella structure for the regional program: a state agency-based program housed at the Partnership or an independent private institute, each described in detail in the following pages of this report.

- ***A state agency-based program housed at the Partnership***

State agency staff at the Partnership, under the direction of the Puget Sound Science Panel, would coordinate research, monitoring, and assessment for the Puget Sound ecosystem. The program would be focused on implementing the Puget Sound Strategic Science Plan, and, more specifically, the monitoring elements of that plan. It would utilize data collected by other agencies and contractors. Partnership staff would integrate science across topics and write interpretive reports, including “State of the Sound” reports.

- OR -

- ***An independent, private institute***

A new, private, independent, non-profit, non-governmental institute (perhaps modeled after the San Francisco Estuary Institute, see Appendix B) would coordinate research, monitoring, and assessment for the Puget Sound ecosystem. The institute could be housed anywhere (including the Partnership’s offices). The Puget Sound Science Panel would inform the overall scientific work plan through its Strategic Science Plan and Biennial Science Work Plans. The institute would also work on science that addresses the needs and interests of other governmental entities (*e.g.*, related to the Endangered Species Act, the Clean Water Act, and the Growth Management Act, etc.). The program would rely on data collected by other agencies and contractors, with additional assessments conducted by institute staff and supplemented by contracting. Institute staff would integrate science across topics and write interpretive reports, including “State of the Sound” reports.

A COMPARISON OF THE TWO PROPOSED GOVERNANCE MODELS

This section provides a comparison and articulation of the key differences between the two proposed models and the primary perceived benefits of implementing one model over the other. The Consortium finds that either model could work, provided that while establishing the governance structure of the regional program, the concerns summarized here that have been articulated by Consortium members and other key stakeholders are addressed.

The key benefit of the state agency-based model is the ability to fully implement the new program via the legislation that established the Partnership, without setting up an additional program structure. The key benefit of the private institute model is separation of the analyses and the reporting of findings from the agency charged with planning and implementing the ecosystem recovery efforts.

The key differences between the two proposed governance models are: a) structure and organization; b) the likely reporting relationships of the staff performing analyses, writing reports, and communicating the findings of the regional monitoring and assessment program; and c) resulting perceptions of the autonomy of program staff and trust that the program’s findings are credible. Differences between the two models are:

PUGET SOUND MONITORING CONSORTIUM

- Structure: The state agency-based model uses the executive management structure of the Puget Sound Partnership to hire and oversee staff, write budgets and work plans, and be responsible and accountable for getting the work done. The private institute model creates a new Board and Executive Director to conduct these required basic management activities. The state agency-based model has the Science Panel directly overseeing the monitoring and assessment work done on behalf of the Partnership and others. In the private institute model, the Science Panel provides guidance and an independent peer review function and must approve the work directly related to Partnership activities.
- Analyzing and Reporting the Findings: Data analyses would be conducted collaboratively with staff at partnering agencies under both models, but primarily by Partnership contractors and staff in the state agency-based model, and by institute staff and technicians in the private institute model. Under the state agency-based 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. A private institute might follow the state agency-based model for writing an annual report or it might produce an independent annual report that is then transmitted to the Science Panel for review. Additional science-based reports under the private institute model might be contracted out or conducted in-house.

Under both models, 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 state agency-based model. The private institute model also includes a feedback loop with other federal, state, tribal and local management entities that can request studies directly from the private institute through the Board.

- Perceptions: Aside from these objective structural and reporting differences, the other key differences between the two basic proposals fall into the category of perceptions; perceptions about credibility, transparency, trust, independence, buy-in, and long-term stability of staffing and funding (see "concerns expressed by interested parties" sections below).
- Primary benefit of the state agency-based umbrella structure: This model implements the legislation that created the Puget Sound Partnership. It can be implemented immediately without creating an additional structure and associated expenses.
- Primary benefits of the private institute umbrella structure: Accountability may be improved by creating a private institute that does not need to explain or defend policy decisions or management actions overseen by the Partnership and others. By institutionally separating the regional monitoring and assessment program from management agencies and giving responsibility to an independent institute to scientifically assess management actions the Partnership, key stakeholders, and the public may gain a more meaningful review.
- Concerns expressed by interested parties about either model: Consortium members have been actively seeking input from interested parties with the intent of better defining a vision of a successful coordinated monitoring and assessment program. Concerns that have been expressed that apply to either model include:
 - How will the program ensure transparency and include interested parties in its decision-making?
 - How will the program provide open access to its data and findings?

PUGET SOUND MONITORING CONSORTIUM

- How will the program ensure long-term funding, stability, and retention of highly qualified, dedicated staff?
- What happens if a key source of money disappears? If that were to occur, what structure would remain to carry out the program's functions, and to help ensure that the program does not disappear so individual work groups could continue to operate?
- How would outside entities submit requests for work to address their science needs?
- How can the new regional program create efficiencies and avoid proliferation of groups, and make the most efficient use of staff time?
- The Consortium believes that the state agency-based model could work, provided that the Partnership:
 - Ensures that staff members are hired to focus on essential program functions and are not diverted to other agency priorities. If topic expert staff are "on loan" from other agencies, their focus on data compilation, analysis and reporting dedicated to this program needs to be stable over time. For all program staff, sufficient time needs to be dedicated to cross-topic synthesis and other analytical work.
 - Recognizes other entities as clients of the new program and defines a process for them to submit requests for work to address their science needs that are not identified as part of the Action Agenda.
 - Provides all interested parties with a voice in the decision-making process. Trust means that these entities help influence how the funding they contributed is allocated and how the data and findings are used.
 - Maintains a long-term focus on monitoring.
- The Consortium believes that the private institute model could work, provided that the institute:
 - Efficiently uses resources in creating a new management structure and hiring its Executive Director.
 - Creates efficiencies through agreements with public agencies that utilize their capacities for monitoring and assessment activities and ensure that the staff members and other resources of the institute's clients are allowed to participate.
 - Shares overhead costs.
 - Has an effective, representative board.
 - Provides a strong link to management decisions and implementation of actions that are recommended based on scientific findings.
 - Maintains independent coordination role despite grants and other funding sources.
 - Gains commitment and support from the Partnership's leadership.
 - Incorporates into its founding documents language requiring responsibility to implement the Action Agenda, and responsiveness to the Partnership's legislated mandates.

2. Provide sustainable resources for regional coordination, integration, and synthesis; and for the "topical work groups" that form the basis of the monitoring and assessment program.

Achieving cost efficiency will be a high priority of the new regional program. A more streamlined but effective monitoring and assessment program will help reduce duplication, target the highest priority areas for continued and enhanced efforts, and fill critical gaps in our understanding of the ecosystem (marine, freshwater, and uplands). The Consortium finds

PUGET SOUND MONITORING CONSORTIUM

that additional resources will still be needed for an integrated monitoring and assessment program. In 2009-2011 the Partnership and Science Panel will need adequate funding for new, dedicated staff and other necessary capacity for building the integrated, coordinated monitoring and assessment program during the biennium.

Regardless of the structure the Partnership selects for implementing a regional monitoring and assessment program, the program will need additional resources to ensure its success.

The Consortium recommends that, once the regional program is established, sufficient new, permanent employees be assigned to focus full-time on ecosystem science and monitoring coordination activities.

Dedicated, permanent, full-time staff will be critical to making a successful transition to an integrated, coordinated regional monitoring and assessment program during the next biennium. These staff will perform science-based analysis from an ecosystem perspective, and recommend meaningful prioritization and integration of ongoing monitoring and assessment efforts. They will also coordinate the topical work groups that perform the basic science activities that are the foundation of a regional monitoring and assessment program.

In requesting the establishment of a coordinated monitoring and assessment program for Puget Sound, the Consortium is recommending that the Legislature:

- For the 2009-2011 biennium, provide adequate funding for new, dedicated staff and other necessary capacity for ecosystem monitoring and assessment activities. These staff will be critical to making a successful transition to an integrated, coordinated regional monitoring and assessment program for marine, freshwater, and uplands areas during the next biennium. These staff will perform science-based analysis from an ecosystem perspective, and recommend meaningful prioritization and integration of ongoing monitoring and assessment efforts. They will also coordinate topical “work groups” that perform the basic science activities that are the foundation of an ecosystem monitoring and assessment program. The Legislature should expect that some efficiency be realized in how the existing resources of key stakeholders are used to support the program.
 - Specifically, support the hiring of several new, dedicated employees to staff the program. These permanent employees need to be focused full-time on ecosystem monitoring and assessment coordination activities. Dedicated staff are needed to:
 1. Perform scientific analysis and cross-topic synthesis and integration;
 2. Assist the Puget Sound Science Panel in identifying the highest priority science activities for ecosystem recovery. The Science Panel has identified this function as one of its top priorities for the 2009-2011 Biennial Science Work Plan to support the Action Agenda for Puget Sound ecosystem recovery efforts;
 3. Ensure that there is a direct, strong, and transparent connection between policy and management decisions and the scientific and technical information and data that support them. The Consortium has found that it is crucial for a regional monitoring and assessment program to have a fully supported science-policy interface and communication function. As the Partnership defines the decision-making process, reporting relationships, and flows of information for the regional program, the specific roles, duties, and need for dedicated staff to perform this function will become clearly evident;

PUGET SOUND MONITORING CONSORTIUM

4. Serve as the liaison between the Science Panel and the numerous public and private agencies and organizations with an interest in the regional monitoring and assessment plan. This function includes supporting the Work Groups and providing continuity;
5. Provide Geographic Information Systems (GIS) and mapping analyses including coordinating with and filling gaps in existing data from private, university, tribal, federal, state, and local sources. These analyses need to be done in support of the work groups and cross-topic analyses. They will help the Science Panel and the regional monitoring and assessment program understand and focus on the areas of greatest risk and uncertainty;
6. Oversee information management. The importance of this function cannot be overstated. The Consortium has found that the ability to freely access, share, and analyze information is the foundation for a successful regional monitoring program. Without a fully supported information management framework and services, cross-topic analysis, integration, and prioritization will fall short of providing the ecosystem perspective necessary to successfully restore Puget Sound; and
7. Oversee all work that is contracted out. The Consortium has found that it is important to avoid making the science staff responsible for the business aspects of contract work. It is appropriate to expect the science staff to review the work performed in areas of expertise, but a separate project manager or liaison is needed to execute all the necessary paperwork and act as the primary point of contact for multiple contractors performing data collection and other monitoring and assessment activities being done by other entities on behalf of the program.

For all or at least the first year of the 2009-2011 biennium, these staff should report to the Partnership's Science Manager and perform their duties under the direction of the Science Panel. Beyond this transition period, depending on the governance structure the Partnership selects, these staff would either continue to report to the Partnership's Science Manager or to a private, non-profit institute's Executive Director.

The Consortium has found from its research and analysis that:

- The organization employing these staff members needs to resist the temptation to assign them other duties that would detract from this focus.
- It is important to have knowledgeable, highly qualified, credible staff members that are topic experts devoted to performing these duties.
- An integrated, coordinated monitoring program for Puget Sound would, over time, need a level of staffing comparable to programs elsewhere. Based on staffing levels of programs elsewhere, a minimum of about six to twelve dedicated employees is likely needed to start up the program, manage it, fully support the necessary functions, and provide continuity in the long term. The new program in Puget Sound can also rely on "loaned" staff from other jurisdictions and organizations.

HOW MANY STAFF ARE NEEDED TO ENSURE A SUCCESSFUL REGIONAL MONITORING PROGRAM?

Consider these examples:

- The San Francisco Estuary Institute has more than 40 full-time staff.
- The Chesapeake Bay Program lists about 12 staff for the program and research consortium. Another 80 or so employees of other agencies are listed as program staff.

PUGET SOUND MONITORING CONSORTIUM

- Lessons learned from similar programs across the country show that dedicated staff capacity is critical and is often short-changed in the budgeting and planning processes. In order to properly access and use monitoring and assessment data for management decisions, resources comparable to those dedicated to data collection should be dedicated to the data management, analysis, and assessment functions.
- New funding is not required for all of these new staff. The \$800,000 in ongoing funds allocated for the Consortium can fund staff and projects, and State agencies can support some of these functions through existing monitoring provisions. Cost sharing arrangements will enhance the State's contribution.

TOPICAL WORK GROUPS

The Consortium recommends that topical work groups be included and supported as a key element of an integrated, coordinated monitoring and assessment program for the Puget Sound ecosystem, no matter what umbrella governance structure is ultimately established for the regional program. Many of these work groups already exist (and are already funded) and some new groups will need to be established.

Topical work groups will address vital and urgent monitoring and assessment needs and provide accountability for the comprehensive Puget Sound ecosystem recovery effort. These work groups are comprised of knowledgeable people committed to a team approach to science in a given topic area. They prioritize the monitoring and assessment needs, determine exactly what data need to be collected where and how, and identify the capacity to collect and analyze the information. In some cases, the work groups direct or conduct studies, ongoing monitoring, and/or various types of assessment. Through a chair or other designate, they participate in the umbrella structure of the regional coordinated, integrated monitoring and assessment program to ensure that their efforts support and complement other topic areas and to ensure that information is collected in an efficient and cost-effective manner.

Work groups take a coordinated and integrated approach to all science related to a topic area such as marine water quality, salmon recovery, or stormwater. For each given topic area this includes: oversight of data collection, including sampling protocols and site selection; information management; assessment of status and trends for key indicators; evaluating the effectiveness of management strategies and restoration projects; performing key research; and modeling. These work groups also set up processes for integrating monitoring and assessment done at various scales. These work groups are envisioned to include representatives of state, local and federal agencies, Tribes, business, environmental groups, universities and other research institutions, and other key stakeholders that conduct monitoring and assessment activities in the Puget Sound basin.

Continuing or new funding will be needed to convene the key stakeholders in each work group, develop the groups' charters and bylaws, develop and reach agreement on work plans, and begin to implement those work plans. Funding will come from federal, state, local and private contributions in different combinations specific to each work group.

PUGET SOUND MONITORING CONSORTIUM

Existing work groups will not need new funding sources; however, some existing work groups may need to expand or refocus some of their efforts. The Consortium recommends that the Partnership precede any decision to redirect ongoing work with a careful and thorough analysis that takes into account other mandates being fulfilled by the group(s):

- In the 2009-2011 biennium, the Partnership's staff should work with key stakeholders to determine which existing work groups would most beneficially continue under their current missions (but incorporated into or otherwise coordinated with the new regional monitoring and assessment program structure), which ones would need to be reorganized or refocused to be most useful, and what additional work groups need to be created. Existing work groups include at least:
 - Puget Sound Assessment and Monitoring Program (PSAMP);
 - Puget Sound Nearshore Ecosystem Restoration Project (PSNERP);
 - Hood Canal Dissolved Oxygen Program (HCDOP);
 - Cooperative Monitoring, Evaluation and Research Committee (CMER);
 - Chinook Recovery Monitoring and Adaptive Management Plan, including the regional status and trends work being done by Ecology;
 - Steering Committee for Control of Toxic Chemicals in Puget Sound;
 - Stormwater Work Group (launched by the Consortium in 2008);
 - and many others.

Following the Puget Sound Science Panel's recommendation, the Consortium took steps to establish one new work group as a test of the proposed structure and to initiate prioritizing objectives and developing a monitoring and assessment strategy. Because stormwater is a high priority topic of immediate interest, the Consortium decided to form the Stormwater Work Group in the summer of 2008. The Stormwater Work Group is in the earliest stages of discussing and setting priorities for an urgently needed regional monitoring and assessment strategy. The goal of the group is to develop, before June 2010, a coordinated approach to monitoring and assessing the impacts of stormwater on the Puget Sound basin and to evaluating the effectiveness of stormwater management approaches. The work group is also expected to make recommendations to Ecology regarding monitoring requirements for future NPDES stormwater permits. More information about the formation of the Stormwater Work Group is provided in the "Accomplishments" section later in this report.

The Consortium recommends that the State continue to fund the Stormwater Work Group. This funding should come from the \$800,000 allocated funds for the Consortium's work, and cost sharing to implement the strategy should be a required element of continued funding. Many NPDES permittees have expressed interest in contributing to a joint funding arrangement for a regional effort in lieu of conducting all or part of their monitoring requirements.

The Consortium further recommends that State continue to contribute funds and dedicated staff to support the topical work groups and their projects. The Consortium supports the requests by the Puget Sound Partnership for funds to conduct new science initiatives; these efforts may result in the formation of new work groups. The Consortium also recommends cost-sharing agreements also be initiated with federal agencies, local governments, tribes, businesses, and non-profit groups to implement these new science initiatives as well as basic monitoring and assessment activities. Ongoing and targeted state funds will enhance the

PUGET SOUND MONITORING CONSORTIUM

funding and in-kind services contributed by other entities that are involved in each of the work groups.

The current investments of each of the “clients” of the new regional program in existing monitoring, research, and analysis should be quantified to inform cost-sharing arrangements. Several models of cost sharing can be explored.

THE CONSORTIUM'S ACCOMPLISHMENTS AND FUTURE PLANS

The Puget Sound Monitoring Consortium has three committees that have been active since the Consortium received \$800,000 allocated funding for the 2007-09 biennium:

1. The **Governance Committee** has developed and recommended two possible organizational structures for a regional integrated, coordinated monitoring and assessment program. This committee presented its preliminary recommendations to the Puget Sound Science Panel in April 2008 (see Appendix C) and further refined these options for inclusion in this report to the Legislature.

A subcommittee of the Governance Committee has since provided the Puget Sound Science Panel with access to technical expertise and knowledgeable stakeholder input for its Biennial Science Work Plan and Strategic Science Plan.

Another subcommittee drafted a charter, bylaws and work plan as initial steps in establishing a new Stormwater Work Group.

2. The **Stormwater Work Group** is creating a regional stormwater monitoring and assessment strategy that will be integrated with other regional efforts, and will inform the next cycle of municipal stormwater NPDES permits that will be issued by the Department of Ecology. This work group is envisioned to be an ongoing long-term effort.
3. The **Technical Advisory Committee** identified and launched and is overseeing four pilot projects that expand on existing efforts and address pressing needs for improving the comparability and usefulness of environmental data that are routinely collected around Puget Sound. These projects will be completed before June 30, 2009.

THE GOVERNANCE COMMITTEE'S ACCOMPLISHMENTS AND FUTURE PLANS

The Consortium researched and analyzed 17 monitoring programs around the country, including large regional programs such as the Chesapeake Bay Program and the San Francisco Estuary Institute, and identified eight possible organizational models. Taking into consideration the unique interests and needs of the Puget Sound region, the Consortium has proposed two model options for governance. Both of the models are workable for structuring and managing a regional monitoring and assessment program for the Puget Sound ecosystem. One model is a state agency-based structure housed at the Partnership; the other is governed as an independent private institute. Both proposals are built the same from the bottom up, founded on inclusive, comprehensive topical work groups that are coordinated and integrated with the umbrella governance structure.

Because the Consortium provides the Partnership with an efficient means for engaging experts and capacity in diverse areas of science related to ecosystem recovery, the Partnership asked the Consortium in May 2008 to assist in providing broader technical input to its Biennial Science Work Plan. A subcommittee was formed whose members helped draft discussion documents for summer 2008 versions of the Biennial Science Work Plan. A

PUGET SOUND MONITORING CONSORTIUM

small group of technical experts will soon be convened by the Science Panel. A workshop, or series of technical workshops, might be held in 2009 to get further input. Topical work groups focused on the Partnership's key subject areas will likely be formed in the 2009-2011 biennium.

The Governance Committee, having produced this report and delivered its recommendations to the Legislature, the Partnership, and other interested parties, will no longer meet on a regular basis, but will meet as needed to provide additional analysis and advice about establishing and implementing an integrated, coordinated monitoring and assessment program for the Puget Sound basin.

THE STORMWATER WORK GROUP'S ACCOMPLISHMENTS AND FUTURE PLANS

At the recommendation of the Partnership and Ecology, the Consortium established a Stormwater Work Group. The first task of the Stormwater Work Group is to create by June 2010 a regional monitoring and assessment strategy to address the impacts of stormwater on the health of the Puget Sound ecosystem and evaluate stormwater management approaches.

A subcommittee of the Governance Committee drafted a charter, bylaws, and a work plan, and proposed these founding documents to a broad, diverse group of 26 stakeholders representing local, state, federal, tribal, private, and non-profit entities. The work group met in October and December 2008, and is identifying and prioritizing monitoring and assessment objectives. The stormwater strategy will be integrated with other regional efforts such as status and trends monitoring for the Chinook recovery plan, toxic chemical loading assessments, and others, and will inform the next cycle of municipal stormwater NPDES permits.

More information about the Stormwater Work Group's work plan through June 2010 is provided in Appendix D. After the work group submits its regional monitoring and assessment strategy and implementation plan to Ecology and the Partnership, the work group is expected to continue to provide oversight and set priorities, develop and analyze new components of the strategy, and make recommendations for adaptive management of stormwater.

THE TECHNICAL ADVISORY COMMITTEE'S ACCOMPLISHMENTS AND FUTURE PLANS

The Consortium launched four projects to meet pressing needs for coordination and improved credibility of monitoring data that are routinely collected in the Puget Sound region, and to expand the application of ongoing work. They are:

1. Develop standard operating procedures for automated sampling of stormwater and subsequent analysis of the data. Automated sampling equipment can provide high quality data in a cost-effective manner. However, local jurisdictions currently have different methods for using the samplers and performing subsequent calculations, resulting in data sets that are not comparable. This project brings jurisdictions together to agree to and document common methodologies.
2. Standardize reporting methods and expand a database for stream benthos information that can be populated by all entities in Puget Sound that collect this information. The

PUGET SOUND MONITORING CONSORTIUM

effort will improve data comparability and allow a gap analysis to be performed to identify areas in the Puget Sound basin where these data are not being collected.

3. Conduct inter-laboratory calibration activities to improve comparability of data and ensure consistency among laboratories in analyzing environmental data.
4. Expand an effort to establish performance and maintenance requirements for in-line ditch treatment methodologies for open stormwater conveyances. Most of the currently approved treatment methods require property purchases and significant capital investment by local jurisdictions. These new methods may provide significant water quality benefits in rural areas at reasonable cost to local governments.

For a more detailed description of these pilot projects, see Appendix E. The Technical Advisory Committee will oversee these projects through the end of this biennium on June 30, 2009, and its members will continue to participate in topical work groups of the new integrated, coordinated regional monitoring and assessment program.

APPENDIX A: MULTI-PARTY DISCUSSIONS ABOUT COORDINATED MONITORING

THE EXPLORATORY DISCUSSIONS THAT RESULTED IN THE CONSORTIUM'S ESTABLISHMENT

Representatives of twenty-four public and private organizations met between September and December 2006 to discuss the need for and components of a regional monitoring and assessment program for surface waters and aquatic habitat. This exploratory group, the Surface Water and Aquatic Habitat Advisory Committee, quickly reached agreement that there is a need for and interest in coordinated regional monitoring throughout Washington State. The Advisory Committee also reached consensus that initially the joint monitoring and assessment program needs to focus on the Puget Sound Basin before being extended throughout or replicated elsewhere in the State.

The exploratory committee found that the need for coordinated regional monitoring is urgent. Why? Because exemplary local monitoring and assessment programs exist throughout the Puget Sound region, but that they are often efforts designed to help shape local policies and direct local management decisions. While of potential interest to the State, region and other jurisdictions, their development in isolation and with a local focus means that we cannot expect these efforts to help us gain a broad perspective or picture of the health of the Puget Sound at a time when we so greatly need one. The need and desire for a more complete picture is a major impetus for the growing interest in a coordinated regional approach to monitoring.

Other reasons why this exploratory group determined that coordinated regional monitoring is more necessary and urgent today than ever were:

1. An increasing number of organizations, both public and private, are required to monitor their activities and the environment. The costs of these monitoring and assessment programs are considerable to each organization, and it is believed that efficiencies and economies of scale could be realized by coordinating efforts.
2. Regional monitoring could fill in the geographic and informational "gaps" that are created when local or individual monitoring efforts are not coordinated. Furthermore, independent monitoring efforts can lead to contradictory data and conclusions due to differing protocols based on study goals.
3. Reporting and monitoring protocols could become more uniform and data more comparable and credible as more parties share and blend their expertise, protocols, and methodologies.
4. A regional approach is more likely to produce information and findings that are more meaningful and relevant to a larger audience, including elected officials and the public-at-large.
5. A regional program that convenes regulatory agencies with those they regulate is likely to facilitate a greater shared understanding, cooperation, and trust between these entities that often have competing interests.
6. By raising the profile of monitoring, the regional program should increase the credibility of and attention to the information it produces. It should also increase accountability for the expenditure of funds necessary to generate the information. The regional monitoring and assessment program might even contribute to greater accountability in the policy decisions

PUGET SOUND MONITORING CONSORTIUM

and management actions necessary to achieve successes in conserving, protecting, and restoring the Puget Sound Basin.

The opportunity to more efficiently gather credible and relevant monitoring data led the group to unanimously and strongly recommend the establishment of a coordinated monitoring and assessment program. The Advisory Committee recommended that the program initially be focused on the Puget Sound Basin for these four reasons:

1. Multi-jurisdictional management of Puget Sound and its watershed and tributary surface waters is currently a priority of the State of Washington and a coalition of public and private interests in the region.
2. Forums and programs focusing on some aspects of monitoring fresh and marine waters in the Puget Sound Basin already exist and provide a foundation upon which to build a more coordinated inter-jurisdictional program.
3. Active participants in the Committee were predominantly from the Puget Sound region.
4. Successful efforts elsewhere demonstrate the value of starting small, thereby affording an opportunity for the lessons learned from a successful Puget Sound Basin Regional Coordinated Monitoring and Assessment Program to more efficiently and cost-effectively establish similar programs throughout the State.

In addition to providing a framework to coordinate the collection, analysis, and dissemination of credible and useful information about surface waters and aquatic habitat, the Advisory Committee's recommendations called for structuring a Puget Sound monitoring and assessment program to achieve the following goals:

1. Attract the voluntary participation of parties who are interested in, affected by, or likely to benefit from monitoring of surface water and aquatic habitat in the Puget Sound Basin.
2. Build upon and implement the recommendations of existing policy and technical forums and programs, including, but not limited to, the State's Comprehensive Monitoring Strategy, the on-going work of the Governor's Monitoring Forum, the Puget Sound Partnership, and the Department of Ecology's requirements and expectations for monitoring by NPDES permittees.
3. Provide information that improves decision-making for public policy and aquatic resource management through more direct communication and connection between policy-makers and the scientific and technical community.
4. Assist regulators and the regulated to work collaboratively to ensure that monitoring-related regulatory requirements are consistent with the monitoring priorities identified by the regional monitoring and assessment program.

In proposing these goals, the Advisory Committee stated that its vision would become reality if the program were not only voluntary but also flexible and dynamic. It must be flexible enough to allow jurisdictions and organizations to participate at various levels or according to different topics of interest. It must be flexible enough to incorporate and integrate existing programs and forums, including but not limited to the Comprehensive Monitoring Strategy, PSAMP, and the Governor's Monitoring Forum. It also needs to create a dynamic relationship between policy-makers and technical experts so that the results of monitoring—the information generated and the analysis offered—become cornerstones in the policy decisions and management actions that give future generations a healthy Puget Sound Basin.

PUGET SOUND MONITORING CONSORTIUM

Finally, the exploratory group recommended that a coordinated regional monitoring and assessment program should develop a framework that is capable of addressing questions in the following categories: a) What are the status and trends of surface waters and aquatic habitat in the Puget Sound Basin? b) Do surface waters and aquatic habitat meet water quality goals? c.) If the goals are not being met, what are the reasons for that and what would it take to achieve them? d) How do we ensure monitoring is applicable and useful?

THE CONSORTIUM'S FIRST-YEAR HISTORY AND ACCOMPLISHMENTS

In March 2007, the Surface Water and Aquatic Habitat Advisory Committee submitted its report and recommendations to the Department of Ecology. The Department then submitted to the Legislature a request to implement the Advisory Committee's recommendations to fund, develop and structure a coordinated monitoring and assessment program for Puget Sound during the 2007-'09 biennium.

Following issuance of an exploratory committee's initial report in March 2007, the Washington State Legislature granted \$800,000 for the 2007-'09 biennium to formally create the Puget Sound Monitoring Consortium. Its mandate was to recommend an approach to coordinated regional monitoring, including how that program should be structured. This report is intended to fulfill the Consortium's obligation to the Legislature.

In approving this request and providing \$800,000 for the biennium, the Legislature established its expectations and provided direction and guidance through this language in a proviso to the Department of Ecology's budget:

“Currently, stormwater and water quality monitoring activities in Puget Sound are conducted by multiple groups using different standards and protocols. The Department will facilitate the development of an ongoing monitoring consortium similar to Chesapeake Bay or San Francisco Bay to institute coordination between local, state, and regional monitoring agencies. The goal is to integrate ongoing monitoring efforts for stormwater, water quality, watershed health, and other state indicators and enhance monitoring efforts in Puget Sound.”

While providing this direction to Ecology, the Legislature also established the Puget Sound Partnership, providing the agency with responsibility for overseeing monitoring activities in Puget Sound, and reconstituted the Governor's Monitoring Forum into the Washington Monitoring Forum, expanding its scope and authority to oversee monitoring activities statewide.

In September 2007 Ecology Director Jay Manning issued an invitation to representatives of about 30 public and private organizations to work together to help establish and organize the Puget Sound Monitoring Consortium. The following month the Puget Sound Monitoring Consortium began meeting to fulfill the Legislature's mandate. The Consortium, consisting of dozens of representatives of federal, tribal, state and local governments, business and environmental groups, and the scientific community, formed two subgroups, a Governance Committee and a Technical Advisory Committee. The Governance Committee was charged with identifying, analyzing, and recommending a governance structure by which a regional coordinated monitoring and assessment program would operate. The Technical Advisory Committee's mandate was to identify and launch “pilot projects” that would test multi-jurisdictional coordinated monitoring in Puget Sound on a variety of issues and in a variety of locations while meeting urgent needs to coordinate, standardize, and improve regional monitoring efforts.

As the Consortium began organizing the two committees, its members also engaged with the Puget Sound Partnership's Leadership Council, the Puget Sound Science Panel, and Partnership staff to coordinate the Consortium's efforts with those of the Partnership. The ongoing dialogue

PUGET SOUND MONITORING CONSORTIUM

between the Consortium and Partnership led to Partnership Executive Director David Dicks formally encouraging the Consortium to consider governance options for structuring coordinated monitoring, and to request that the Consortium play a role in helping the Partnership develop the monitoring element of its strategic science plan.

By February 2008, the Consortium's Governance Committee had reviewed 17 large regional programs from around the country and from those examples identified and assessed seven governance options. The committee narrowed to two the options it considered meriting additional consideration by the Partnership and the Legislature. Following a presentation by the Consortium to the Puget Sound Science Panel describing these two options (See Appendix C), and more specifically, the common characteristics and components of a coordinated monitoring and assessment program, the Science Panel requested the Consortium initiate a component to specifically address coordination of stormwater monitoring. The Science Panel also requested that the Consortium provide access through its membership to technical experts, and that the Consortium assist the Partnership in convening a process to solicit knowledgeable input on a monitoring plan to track ecosystem recovery efforts.

Throughout winter and spring 2008, the Consortium's Technical Advisory Committee solicited suggestions for "pilot projects" to test coordinated monitoring around Puget Sound, narrowing approximately two dozen initial suggestions to a list of seven. After further defining the seven options and assessing and discussing them, the Technical Advisory Committee reached agreement on four, and submitted them to the Governance Committee. Once the Governance Committee approved the recommended "pilot projects," the Department of Ecology worked with sponsoring governments to produce contracts under which initial funding could be granted to begin implementing them. The first official status report on each project was issued when the Technical Advisory Committee convened in October 2008. Each "pilot project" is described and the status report is summarized in the report and in Appendix E.

One of the original "pilot project" suggestions was to develop a comprehensive strategy and monitoring plan to better understand the impacts of land development and management actions, and to indicate whether or not we are reducing harm from stormwater. The members of the Technical Advisory Committee agreed that this initiative had broader implications and importance than a "pilot project" and recommended to the Governance Committee that such a plan could be one vehicle by which the Puget Sound Partnership achieves its mandate to produce a monitoring element for the biennial science work plan that it is producing as part of its Action Agenda. The Governance Committee agreed, and the Consortium established and convened a Stormwater Work Group to design and implement the comprehensive strategy and management plan for monitoring the effects of stormwater. The Stormwater Work Group Oversight Committee held its initial meeting in October 2008, with a subcommittee laying the foundation for the Committee's work during the preceding summer. The mission, goals and membership of the Stormwater Work Group are summarized in this report, and its draft work plan is presented as Appendix D.

Also during summer 2008, a volunteer subcommittee of the Consortium's Governance Committee met to plan a series of workshops and to draft technical documents to assist the Partnership in developing the monitoring plan for ecosystem recovery. These efforts are described in the report.

A copy of the letter to the Consortium from Partnership Director David Dicks is included on the following pages.

PUGET SOUND PARTNERSHIP

State of Washington

February 10, 2008

Memo to the Puget Sound Coordinated Program Monitoring Governance Committee

To: Members of the Committee through Karen Dinicola, Project Manager

for From: David Dicks, Executive Director, Puget Sound Partnership



The Partnership supports and encourages the efforts of the Puget Sound Coordinated Monitoring Program Governance Committee in exploring governance options for a coordinated monitoring program in Puget Sound. The process described by the Governance Committee will help the Partnership with the larger task of developing a monitoring program as an element of the Action Agenda. Exploring options for the ideal governance structure to carry out these functions is an important step.

A few specific comments:

- The Partnership encourages the Governance Committee to move forward on developing options for a structure that will coordinate all types of monitoring in Puget Sound's action areas. The scope of monitoring should include all topics 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 any entity that manages a comprehensive monitoring program.
- The Governance Committee and Technical Advisory Committee should look for ways to combine and coordinate with on-going monitoring efforts in Puget Sound, to help eliminate duplication of efforts and to improve efficiencies across programs.
- In order to meet the Partnership's needs, the Governance Committee must ensure that the proposed governance structure and emerging monitoring program are consistent and in alignment with the Action Agenda.
- The timeline proposed in your January 7th memo states that the Governance Committee's proposal will include a strategic plan of 'what to accomplish' through 2020. The Partnership's agenda development will include an analysis of the questions we hope to answer through monitoring and design of a monitoring program to support the adaptive management and accountability functions. We ask that you continue to coordinate with the Partnership to determine how your program can best contribute to the overall goals.
- We encourage an opportunity for stakeholders (beyond those already engaged) and the public to comment on the proposed governance structure. The plan should be available for review during the public comment process planned for the Action Agenda.

PUGET SOUND PARTNERSHIP

State of Washington

Sarah Brace and Scott Redman will continue to participate on the Governance Committee, to keep the group informed of progress on the Action Agenda development, and to provide input on the scoping of governance options. Sarah Brace will work with the Science Panel Chair to ensure that the Panel members are engaged and have a clear role in this process. She will work with Karen Dinicola to prepare briefings and summary reports to the Science Panel, Ecosystem Coordination Board, and Leadership Council on the Governance Committee's progress, as needed.

Thank you for your time and effort in initiating and carrying out this early planning work. We need a more coordinated approach to monitoring in Puget Sound, and your work will be a tremendous help in getting us get there.

APPENDIX B: THE SAN FRANCISCO ESTUARY INSTITUTE

The San Francisco Estuary Institute (SFEI) is a non-profit organization composed of more than seventy stormwater management districts, dischargers, industries, and publicly owned treatment works (POTWs). Membership also includes city and county government agencies, utilities, environmental organizations, and federal agencies, including U.S. Environmental Protection Agency (EPA) Region IX and the U.S. Geological Survey (USGS).

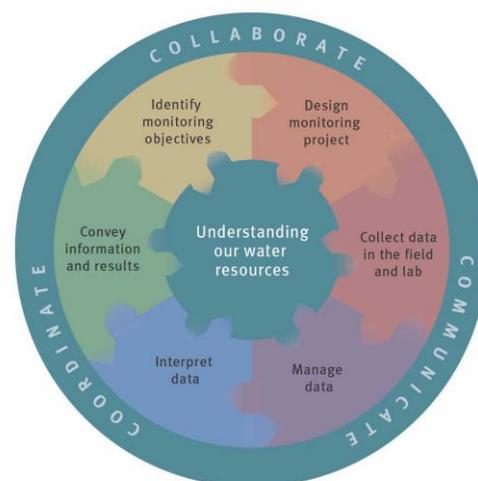
Geographic Area: The Institute focuses on San Francisco Bay and its tributaries. San Francisco Bay-Delta is a tidally influenced estuary, the largest estuarine system on the entire west coast of the Americas.

History: SFEI was formed in 1992 as a restructuring of the Aquatic Habitat Institute. The restructuring responded to regulatory monitoring needs as directed by the CA EPA Regional Water Quality Control Board (Resolution 92-043). The initial focus was on water quality issues related to dischargers but has now expanded to a more ecosystem-wide approach.

Scope: The Institute's goal is to produce credible scientific information and provide an interface between science and management for the San Francisco Estuary and its watershed. SFEI is a science-based organization that conducts monitoring and research studies of the San Francisco Bay ecosystem. Major SFEI programs include:

- Regional Monitoring Program for Water Quality (RMP)
- Contaminant Monitoring & Research (CMR)
- Wetlands Science Program
- Biological Invasions Program
- Historical Ecology
- EcoAtlas
- Aquatic Pesticides
- Monitoring Program

Governance Structure: The institute's approach is based on three Cs: "coordinate, collaborate and communicate." The Institute is governed by a 12-15 member board and is staffed by an executive director and scientist program managers and support staff. Decisions for major programs are made by consensus.



The RMP (SFEI's largest program) is made up of a steering committee, technical review committee and work groups. Local scientists, regulators, and other scientists with expertise in areas of interest to the RMP serve on the three workgroups. The steering committee allocates funds, determines the budget and manages the program. The Technical Review Committee oversees the activities of the three workgroups. The RMP steering committee and technical committee each meet 2-3 times per year (staggered). Scientists outside the agency regularly participate, providing a level of peer review. A formal peer review process takes place every five years.

Monitoring Programs: Status and trends monitoring forms the basis of the RMP. SFEI focuses on six major objectives:

1. Describe distribution and trends of pollutants in the estuary;

PUGET SOUND MONITORING CONSORTIUM

2. Project future contaminants;
3. Describe sources, pathways and loading of pollutants entering the Estuary;
4. Measure pollution exposure and effects on biota;
5. Compare monitoring information to relevant benchmarks such as water chemistry and toxicity, sediment chemistry and toxicity, sport fish and TMDL targets; and
6. Effectively communicate information from a range of sources.

Data Management: All data are available on the website. RMP staff maintains the database using the State of California's SWAMP database format. RMP stakeholders input the data. The state's Water Board, dischargers, RMP staff, the scientific community and environmental groups frequently utilize the data. For the general public, SFEI publishes an annual report, *The Pulse of the Estuary*. This document presents the data analysis in an easy-to-read format.

Funding: Cash contributions from dischargers, including large and small POTWs, industries, stormwater management districts, and the dredging industry, fund the RMP. Flow determines allocations among the categories of stormwater, industry, dredging, etc. Members of each contingent have discretion over further distribution of funds.

Successes:

- Participation in the RMP has steadily increased since its inception in 1993. Originally, the regulators agreed to give the dischargers some relief in monitoring requirements in exchange for participation in the RMP.
- Site-specific requirements led to changes in pollutant loadings to San Francisco Bay. Studies of copper and nickel in the Bay determined that impairment due to these metals was unlikely, freeing resources to focus on other priorities like persistent and bio-accumulative toxins (PCBs, PBDEs, pesticides, etc.) As a result, the Estuary's waters were de-listed for copper and nickel.
- RMP data forms the basis for 303(d) listings in the San Francisco Bay Estuary. These data help to set priorities for clean up plans. RMP's data on PBDE provided the impetus to ban use of this chemical in California. The RMP strives to answer questions outside of mandates as well.

For more information and lessons learned: "Report of the 2003 Program Review: Regional Monitoring Program for Trace Substances in the San Francisco Estuary" at http://www.sfei.org/rmp/reports/Program_Review/RMP2003_Prog_Review_Rept.pdf

APPENDIX C: THE CONSORTIUM'S SPRING 2008 PRESENTATION TO THE PUGET SOUND SCIENCE PANEL

The Puget Sound Monitoring Consortium's Governance Committee's deliberations on institutional structure options for a coordinated monitoring program were presented to the Puget Sound Science Panel at its meeting on April 15, 2008. The complete ten-page discussion paper and 13-slide PowerPoint presentation are available for download at the website: <http://www.ecy.wa.gov/programs/wq/psmonitoring/index.html>. Below is a summary of some of the key messages of that presentation and some points of discussion that are not included elsewhere in this report.

Puget Sound Needs A Coordinated Monitoring And Assessment Program: 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.

We need a new business model that builds on existing monitoring coordination efforts and the lessons learned by the Washington Monitoring Forum, the Salmon Recovery Funding Board, the Puget Sound Assessment and Monitoring Program (PSAMP), and others. 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 (available for download at http://www.ecy.wa.gov/programs/wq/psmonitoring/ps_monitoring_docs/16%20Mar%202007%20Final%20Report%20%20temp.pdf), 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:

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 key functions and characteristics are included on page 9 of this report. 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.

PUGET SOUND MONITORING CONSORTIUM

Stable funding: The Puget Sound Partnership has a key role in procuring funding for the program, directly or by influence. Some State agency funding provisos are already shifting to the Partnership. Additional funding might come from agencies or businesses that are allowed to provide funds in lieu of independently conducting permit-required monitoring. 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. Cost-sharing arrangements are needed.

Work Plans: Once it is up and running, the new regional program will develop 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.

A SUMMARY OF THE SCIENCE PANEL'S RESPONSE TO THE PRESENTATION AND RECOMMENDED NEXT STEPS

Panel members asked for clarification as to how a state agency-based program could adequately provide independence of the science, but generally expressed agreement that either model might work in Puget Sound. Panel members also were interested in further development of the bottom-up work group organization.

Because stormwater is seen as a dominating and yet insufficiently understood issue contributing to the decline of the Puget Sound ecosystem, the panel specifically directed the Consortium to convene a work group to coordinate and oversee the monitoring of stormwater. The work group was to define a monitoring strategy that includes: identification of the status and trends in stormwater impacts to the Puget Sound basin, calculation of pollutant loadings, and evaluation of the effectiveness of stormwater management actions.

The Panel also requested that the Consortium provide a forum for technical experts to inform the development of the monitoring component of the Biennial Science Work Plan. A memo detailing the Partnership's initial proposal was presented to the Consortium by Science Panel Chair Joel Baker at the May 9, 2008 meeting of the Governance Committee.

APPENDIX D: THE STORMWATER WORK GROUP'S PURPOSE AND GOALS

A broad, comprehensive regional monitoring and assessment program is needed for Puget Sound to provide a better understanding of the relative magnitude of the sources, inputs, and impacts of pollution into fresh and marine waters from all land uses and human activities. The purpose of the Stormwater Work Group is to develop a regional cooperative strategy and a monitoring and assessment plan that enable decision-makers to know whether or not our management actions are successfully reducing harm caused to Puget Sound by stormwater. The Consortium recommends developing the comprehensive program in steps, starting with producing priority questions and data needs, and building from existing, ongoing monitoring and assessment efforts.

The near-term objective of the Stormwater Work Group is to develop a regional stormwater monitoring and assessment program that can be presented to the Department of Ecology in June 2010 to inform the monitoring requirements that may be included in the next round of municipal NPDES stormwater permits. Once developed, the program will constitute a coordinated implementation plan for three basic study design components:

1. Long-term status and trends monitoring to assess stormwater impacts is likely to include sampling of various media (water, sediment, biota) for analysis of contamination from stormwater.
2. Characterizing stormwater pollutant concentrations and loadings from the full spectrum of urbanization in the Puget Sound Basin, as well as various activities, land uses and other associated variables that contribute to contaminant loading rates.
3. Monitoring the effectiveness of management actions that are specifically intended to better control stormwater volumes and/or reduce pollutant loadings.

With funding provided by the Legislature for the 2007-'09 biennium, the Consortium established and convened in Fall 2008 a Stormwater Oversight Committee to provide direction and input for the development of the regional stormwater monitoring and assessment program. These are the additional goals the Work Group, headed by the Oversight Committee, proposes to accomplish before June 2010:

1. Review and refine preliminary assessment questions within each component of the monitoring and assessment strategy.
2. Identify priority objectives for each component of the strategy.
3. Host a public forum to discuss the regional stormwater monitoring and assessment program.
4. Direct "task groups" to develop study designs, one for each of the three basic components of the monitoring plan.
5. Direct another task group to produce a single coordinated implementation plan for the studies.
6. Review and approve the study designs and implementation strategy before submitting them to Ecology and the Partnership.

The Stormwater Work Group will coordinate its work with the Partnership. It is currently taking direction from the Puget Sound Science Panel's strategic priorities for stormwater, including:

- Focus on the most important and urgent problems. Measure and define the effects of stormwater on receiving waters, habitat, biota or human health in a watershed. What size,

PUGET SOUND MONITORING CONSORTIUM

location or other variable makes a particular stormwater discharge more or less likely to cause harm?

- Protect intact ecosystems. Does watershed-scale application of LID maintain the hydrologic regime in a stream?
- Restore ecosystem processes. To what extent can retrofits reverse the harm? Measure benefits of retrofitting a basin to: a) restore hydrologic equilibrium to an urban stream, but not return it to its historic conditions; b) reduce toxics in an urban watershed; and c) reduce nutrients/pathogens in a suburban or rural watershed.
- Reduce pollution at the source. Evaluate the effectiveness of watershed-scale combinations of stormwater management actions and techniques at reducing harm in Puget Sound and identify under what conditions these findings are likely to be transferable to other watershed.

The Stormwater Work Group's charter, bylaws, and work plan are available for download at the website: <http://www.ecy.wa.gov/programs/wq/psmonitoring/swworkgroup.html>.

A copy of the letter to the Consortium from Ecology Director Jay Manning is included on the following pages.



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000

711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 17, 2008

Honorable Members
Puget Sound Monitoring Consortium
Governance and Technical Advisory Committees
(through Karen Dinicola, Project Manager)

RE: PS Monitoring Consortium – NPDES Permits

Dear Ladies and Gentlemen:

The Department of Ecology (Ecology) very much appreciates your work on the Puget Sound Monitoring Consortium (Consortium). Please know that Ecology shares your interest in ensuring that the Consortium will be of value to all parties. In particular, we acknowledge that local governments are concerned about the prospect of new monitoring requirements that could be included in future National Pollutant Discharge Elimination System (NPDES) permits.

The Consortium was convened in part to address local governments' requests that Ecology and other agencies look for ways to reduce duplication of efforts and improve the environmental information that is produced as a result of required monitoring activities. The Puget Sound Partnership and the Washington Forum on Monitoring support the Consortium's efforts to establish a coordinated monitoring and assessment program for Puget Sound. I believe that a truly integrated program will address local frustrations and deliver efficient and effective monitoring for the Sound.

Ecology expects the coordinated monitoring and assessment program's future work to inform our policy and management decisions. As you know, Ecology is responsible for administering the Clean Water Act in Washington State. Ecology adopts water quality standards, writes and issues NPDES permits, develops the state nonpoint source pollution control plan, assesses the condition of state waters, and develops water cleanup plans for waters not attaining standards.



While specific permit conditions imposing monitoring requirements must comply with state and federal law, it is our objective that monitoring requirements be as meaningful, effective, and efficient possible. I understand that the Consortium will soon be launching several pilot projects, including a process to design a scientific study, that evaluate the effectiveness of stormwater management practices, including monitoring requirements. These pilot projects will contribute to our understanding of the ecosystem, and could be incorporated into future NPDES stormwater permit monitoring requirements. In order to meaningfully provide input to the next cycle of the municipal stormwater permits, Ecology needs to have a tangible study design in hand by the summer of 2010, at the latest. With your help, we can accomplish that objective.

Ecology is committed to the Consortium process and will continue to work to achieve the goals of a coordinated monitoring and assessment program. We believe that a successful program can be achieved by bringing the best thinking of local governments and other Consortium members to the table. If you have questions about how to move forward with discussions about future permit requirements, please contact Bill Moore of our Water Quality Program at bmoo461@ecy.wa.gov / (360) 407-6444.

Sincerely,



Jay J. Manning,
Director

cc: Dave Williams, Association of Washington Cities
Eric Johnson, Washington Association of Counties
Eric Johnson, Washington Public Ports Association
Grant Nelson, Association of Washington Business
Bill Moore, Water Quality Program - ECY
Karen Dinicola, Water Quality Program - ECY

APPENDIX E: THE FOUR “PILOT PROJECTS”

In 2008 the Consortium launched four “pilot projects” to meet the urgent needs for coordination and improved credibility of monitoring data that is routinely collected in the Puget Sound region, and to expand the application of ongoing work. As of late November 2008, there is increasing interest among the local and state governments in each project, and they are moving forward toward accomplishing their goals by the end of the current biennium on June 30, 2009.

Here is a description of each project, including its purpose and goals, and the status of each as of late November 2008:

1. Standard Operating Procedures (SOPs) for Collecting Samples of Stormwater Runoff

Goal: The project’s goal is to expand stormwater SOPs for any agency conducting monitoring, and to have a broadly available library of SOPs that could be easily referenced and used.

Status:

- At the first meeting of interested stakeholders, the group brainstormed twenty-five procedures for stormwater that need to be standardized. The first one selected was automated sampling.
- The four selected Standard Operating Procedures will be developed cooperatively. Then they will be “handed off” to people not involved in developing them so that they can be field-tested “cold.” The goal is to then assess whether or not the SOPs were implemented with limited problems or issues, and to identify the reactions to the SOPs by folks not familiar with their development.
- Ecology is interested in this pilot project because it will allow the agency to do things a bit differently and to collaborate with other agencies and jurisdictions.
- A SharePoint web site is being set up for collecting, organizing and maintaining data and the SOPs. The website will endure beyond the June 2009 deadline for this pilot project, and it is likely the Washington Monitoring Forum would be the keeper of information. A field manual may also be a vehicle for maintaining information about SOPs and helping to communicate them to a large audience.
- Private entities, including businesses such as Boeing, are interested in how the SOPs will be communicated for their use as well.

2. Sound-wide Database of Benthic Invertebrate Biotic Index (BIBI) Information for Wadeable Streams

Goal: The project’s goal is to expand and improve the data management system for stream benthos by standardizing the methodology for collecting, organizing and analyzing the information.

Status:

- In addition to King, Pierce and Snohomish Counties and the City of Seattle, the four jurisdictions that launched this project, others, such as Clallam County Streamkeepers, and the cities of Federal Way, Everett, and Redmond, are very interested in it and seeking to be involved.

PUGET SOUND MONITORING CONSORTIUM

- The first phase of the pilot project, the gap analysis, will commence in January 2009. Data will be compiled about what each jurisdiction has done or is doing, which will help them determine what gaps exist.
- 2006 data from the four jurisdictions that launched the project has already been loaded; 2007 data that they provided is currently being loaded. In the future, labs, rather than individual jurisdictions, will load the data. The goal is to have data that can be shared among jurisdictions, and which can be published.
- Developing protocols regarding how long it takes to put data on-line should be a result or product of this project. It was suggested that ideally it should take no more than a year to bring information on-line.
- The bulk of work on this pilot will be undertaken during the first half of 2009.

3. Inter-laboratory Calibration Exercise

Goal: The goal of this project is to conduct a laboratory analytical inter-calibration (or inter-comparison) exercise for copper, lead, mercury, and zinc in stormwater. The results from this study will be used, in part, to help assess the need and/or desirability of establishing a routine, ongoing laboratory inter-calibration program in the Puget Sound region.

Status:

- The King County Environmental Laboratory (KCEL) in Seattle, Washington, will serve as the coordinating laboratory. It is anticipated that the Washington State Department of Ecology's Manchester Laboratory and the Pacific Northwest National Laboratory's Marine Science Laboratory in Sequim, Washington will participate in the inter-calibration study. Four additional laboratories will be selected to participate in the study based on a solicitation of interest from certified laboratories in the Puget Sound region.
- The Department of Ecology and King County are finalizing the contract between them that will allow the project to commence in December.
- There continues to be a high level of interest in this pilot project among a wide variety of jurisdictions throughout the Puget Sound and from a number of laboratories.
- With the project being initiated in December or January, all four tasks of the proposed scope of work will be finished by the end of the biennium, 30 June 2009. Those tasks are: 1) identify participating laboratories; 2) prepare a Quality Assurance Project Plan (QAPP); 3) collect and analyze samples; and 4) produce and submit the final project report.

4. Field Testing of a New In-line Ditch Stormwater Treatment Methodology

Goal: The goal of this pilot project is to develop Best Management Practices (BMPs) for local stormwater treatment in ditches, including new approaches to research and development.

Status:

- There are four stages or designs in the project: 1) enlarge the number of BMPs in "the tool box" for infiltration and filtration, depending on the type of contaminant; 2) conduct a literature search to identify additional BMPs; 3) conduct outreach to government agencies and interested organizations to encourage involvement; and 4) identify key lessons on how to maintain and expand the BMPs.
- The first deliverable—the literature search—is expected in November 2008.

PUGET SOUND MONITORING CONSORTIUM

- King County received a grant from another source to look at eight sites. At each site, a structure will be installed and performance measurements will be used and evaluated to assess the results.
- Jurisdictions currently involved include King, Pierce, Snohomish and Clark Counties, and the cities of Burien, Kent, Seattle, and Tacoma.