2012 State of the Sound

A Biennial Report on the Recovery of Puget Sound

PugetSoundPartnership

LEADING PUGET SOUND RECOVERY

Puget Sound Facts

- ☑ Second largest estuary in the United States
- ☑ 2,800 square miles of inland marine waters
- ☑ 2,500 miles of shoreline
- ☑ 20 major river systems
- ☑ Home to 4.1 million people, about two-thirds of Washington State's population
- ☑ About 70% of all jobs and 77% of total income in the state come from the Puget Sound basin

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Cover
Top row, left to right: Tifotter@flickr, Northwest Coast Indian Fisheries Commission, Ingrid Taylar, Doug Felts
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Additional thanks to the Coastal Watershed Institute for providing photography

Recommended citation:
Puget Sound Partnership.2012.2012 State of the Sound: A Biennual Report on the Recovery of Puget Sound.
Tacoma, Washington. XXpp.

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Letter from the Leadership Council

To the Governor, Legislature, and the People of Puget Sound:

The *2012 State of the Sound* includes a number of messages that are critical to our ongoing success as a region in restoring and recovering Puget Sound:

Accomplishments: the efforts to restore Puget Sound have involved tribal, federal, state, and local agencies, it has also included Non-Governmental Organization's and local citizens. We can all take pride in the number of accomplishments that have been achieved through our collective hard work in this region. The investments we have made in improving water quality and restoring critical salmon habitat have been crucial for reversing the decline.

Still more to do: despite this progress, we have not sufficiently "moved the needle" in reaching the recovery targets we set for ourselves. We only completed two-thirds of the actions we deemed critical in 2008. Insufficient funding and staff resources were noted as the primary impediments.

Need larger scale efforts: to make further progress, we must do more and at a much larger scale. And concentrate our efforts at the local level—where the major work lies ahead.

Will take time: clearly the impacts to Puget Sound that occurred in the past century cannot be reversed overnight nor even in a decade. Still we continue to over harvest depleted fish and timber stocks, build our communities up against the water's edge, and despite major efforts to reduce pollution, are still putting millions of tons of our waste in our rivers and in the Sound itself.

Our problem: many of our citizens still assume solving these problems is someone else's responsibility.

Budget gaps: The Puget Sound Partnership and its partners have identified a significant budget gap of over $400 million for implementing just the 2012 Near Term Actions the region identified as our "game-changers" for the next biennium. This cost estimate does not include the ongoing and future costs of many of our existing state and local programs—such as building and maintaining waste and stormwater treatment facilities—nor does it include the yet-to-be-determined costs for fully implementing the habitat protection and restoration work that is likewise critical to our long range success.

Future challenges: we, the members of the Puget Sound Leadership Council, accept the challenges affirmed in the State of the Sound:

- to redouble our efforts
- to critically evaluate our performance
- to work collectively to obtain the support and funding required to move the needle on our recovery targets over the finish line

This will require setting clear priorities that allow us to tackle those key areas where we may have the most impact while evaluating the efficacy of our programs to ensure that we can maximize and demonstrate results to the public.

We are confident that all those who have been part of our effort and who have been most interested in solving the problems will join us in meeting these objectives.

Sincerely,

What is the State of the Sound?

Puget Sound: National Treasure

Puget Sound is one of the most spectacular places on earth. Carved by glaciers and fed by 10,000 rivers and streams, it is the second largest estuary in the United States. In this vast and beautiful place, salt water from the Pacific Ocean mixes with the freshwater that drains from the majestic landscape that surrounds it.

Puget Sound is an ecosystem defined by the movement of water. Freshwater begins as rain or snow from high in the Cascade and Olympic mountains and flows through streams and down fertile valleys, connecting to a complex network of salt marshes, wetlands, smaller estuaries, bluffs, beaches, and bays before meeting up with the shifting tides of the Sound.

Gifts of Extraordinary Nature

Puget Sound's snowcapped mountains, marine waters, dynamic rivers and beaches, lush forests, and extraordinary wildlife draw millions of visitors each year. Puget Sound is also home to more than four million people.

We derive many benefits from Puget Sound. It provides us with drinking water and protects us from Pacific storms and flooding. It gives us timber to build our homes and food to nourish us, including world-renowned seafood. It also offers multiple opportunities for recreation and cultural activities.

Puget Sound is also an economic engine. Its shellfish and fish harvests alone bring in over $100 million per year. Approximately another $270 billion in goods and trade travel through its ports. Because of all the Sound has to offer, it has created an unparalleled quality of life that has attracted some of the most creative and innovative people from across the nation and around the world to live and work here.

Human Actions and Consequences

But decades of a growing human population have impacted the health of Puget Sound's ecosystems. These changes were incremental: rural areas were converted to urban uses, new roads were built, new development was added to cities, shorelines were paved to protect adjacent uses. We used its waterways to dump our waste, assuming that its capacity to dilute the waste was unlimited. We have also overharvested our fish populations and our timber supplies, which in turn have had significant effects on the balance of our ecosystems.

Collectively these impacts have taken a huge toll on Puget Sound. We have threatened the survival of a number of its iconic species, including salmon and orca. Three-quarters of its saltwater marsh habitat have been eliminated through dikes and drainage systems, and 90% of the estuaries and wetlands have been lost or degraded. We have removed over 70% of our old growth forests in the past 50 years and armored over one-third of our shorelines. We have spilled hundreds of thousands of gallons of oil and hazardous waste into our rivers and marine waters; we have built ten major dams and thousands of smaller diversions. Between 1991 and 2001 alone, we paved an additional 10% of our land to accommodate our homes, business, and roadways. As a result, we have stressed the functioning of the very systems that we rely upon for services to the point where there are no longer simple and inexpensive remedies.

Puget Sound Partnership Goals and Responsibilities

For many years several state and federal agencies, local governments, local organizations, and non-governmental organizations have been addressing various problems in Puget Sound as part of their often wider obligations. Yet, the Sound is still not as healthy as we would like. In 2007, leaders in our region recognized we needed to act to provide better leadership, coordination, and focus on the unique problems threatening the Puget Sound.

At the behest of Governor Christine Gregoire, the Legislature adopted RCW 90.71.210, which created the Puget Sound Partnership to organize and monitor recovery efforts. The Partnership was charged with defining an Action Agenda to identify the effort required to protect and restore the Sound, to determine and measure accountability, to use money efficiently, and to promote public awareness and build support for changing practices that negatively affect the viability of the Sound. Recognizing that this was a difficult and ambitious undertaking, the Governor and Legislature understood there needed to be an organization in the region whose sole purpose was to focus the work and lead the recovery effort.

Leadership, collaboration, and coordination are key to saving Puget Sound. We have made progress that would not be possible without the collaboration of more than 750 partners across 12 counties and 110 cities all working together to protect and restore Puget Sound. We also have long lists of accomplishments. By combining efforts and clearly defining priorities, more than 2,440 acres of habitat have been protected, 70 miles of streams and rivers have been restored, and game-changing restoration projects have been advanced. We thank our many partners for their tireless devotion to the recovery work in Puget Sound.

"It is our task to ensure that the Puget Sound forever will be a thriving natural system, with clean marine and freshwaters, healthy and abundant native species, natural shorelines, and places for public enjoyment and a vibrant economy that prospers in productive harmony with a healthy Sound."

– Governor Gregoire, 2007

The *2012 State of the Sound*

The *2012 State of the Sound* is the second report to the Legislature on the status of this restoration effort. It is a report card on our efforts to recover Puget Sound and addresses the following questions:

- Have we implemented the critical actions necessary to reverse the decline?
- To what extent have these actions been successful, and if not, why?
- Are we making progress toward our 2020 recovery targets?
- Have we addressed the fiscal challenges of funding a comprehensive ecosystem recovery effort?
- What opportunities and challenges lie ahead?

There are no simple answers to complex questions such as these, but the bottom line is this: Although we have made significant strides in restoring and protecting habitat, we continue to lose more ground than we are gaining. We have slowed the overall decline and are seeing improvements in many key parts of the ecosystem as a direct result of our investments; yet the outcomes of these investments have not produced the changes in magnitude we had hoped for or at the speed we had expected.

Based on the results we have seen to date, progress has not been sufficient to meet our 2020 recovery targets. We were unable to fully fund all of the ongoing programs in the Action Agenda deemed key to recovery, and therefore the region did not complete all of the work we tasked ourselves to achieve. We raised public awareness of the crisis in Puget Sound, but even that sense of crisis has receded as competing issues and forces have taken center stage.

That said, the pace of change for many of our desired outcomes is consistent with what scientists would expect, given what we know about how slowly or quickly different parts of the ecosystem respond to intervention. It is also consistent with the degree of intervention possible given economic realities and the level of public engagement.

New Diagnosis: Serious Condition

A medical analogy may be the best way to explain the overall health of Puget Sound. Our patient (Puget Sound) was in critical condition—unable to function and in danger of imminent collapse. The patient was treated in the emergency room, stabilized, and then moved to the hospital floor. The patient is not out of the woods and still needs constant monitoring, care, and vigilance.

We know bad habits have led to the crisis, and that a radical change in lifestyle is needed in order to regain some semblance of health. We also know that even when the need for change is obvious and the best medical advice is available, altering long-held behaviors is slow and sometimes painful. Even under the best of possible outcomes, the patient will never be the same. We can't turn back the clock. But we don't have to accept this diminished capacity as the new normal; we can hope that, over time, the patient can achieve good health and lead a long, vibrant, and productive life.

Like our current healthcare system, preventable illnesses are at the core of the high cost of recovery for Puget Sound. In some ways, you can think about the financial section of this report as an itemized list of the costs of a lengthy hospital stay, repeat doctor's visits, frequent testing, and expensive prescriptions to treat a preventable illness. Were it not for the investments of time and money made to date, Puget Sound would be in the intensive care unit on life support. Just as one hospital visit far exceeds the cost of preventive care, the emergency measures that will be required to prevent the collapse of a failing ecosystem will greatly eclipse the preventative measures recommended in this report.

What We Have Learned

We set high targets for 2020 knowing they were ambitious. If we are to make progress towards our targets, we must continue to set our performance goals and measures high, report accurately on what has occurred—even if it is less than we had anticipated— and use what we learn from our successes and failures to make continuous improvements.

Were it not for the investments of time and money made to date, Puget Sound would be in the intensive care unit on life support.

We must continue to communicate the message of the importance of Puget Sound to all of the communities that reside in its boundaries and rely on its resources. We must also make it clear that the work is far from complete. Only with their support can we be successful.

To avoid this foreseeable and preventable fate, we must redouble our efforts to fund this critical work. The investments we have made to date and the estimated costs for the next biennium appear significant when contrasted with competing needs in our state, but they pale in comparison to the benefits we will derive from a healthy Puget Sound. These preventative measures may come at a price, but the benefits are INCALCULABLE.

2012 STATE OF THE SOUND

OVERVIEW

The Puget Sound Partnership is charged with preparing a State of the Sound report every two years to inform the legislature and the public on the status of the restoration effort, including how the ecosystem has been responding to the measures adopted and our success in implementing the actions proposed. The State of the Sound also reports on our accomplishments in the use of state and other funding and recommendations on what other measures are necessary to sustain the effort, including realignment in the use of funds.

The purpose of the analysis undertaken to prepare the *2012 State of the Sound* is to sharpen our focus on the pathway ahead. Along with the *2012 Action Agenda*—which identified Strategic Initiatives that include what our partners believe represent the highest priorities—this report describes the measures we need to move forward.

*The **2012 State of the Sound** report is organized around ecosystem indicators and targets adopted by the Leadership Council in 2010-2011 as the primary focus of reporting on our ecosystem recovery. These were incorporated into a dashboard of "Vital Signs". The report contains five major elements:*

a) Information on the status of the ecosystem
b) Status of the implementation effort
c) Role of adaptive management in regional decision-making
d) Allocation and effectiveness of funding for recovery
e) Alignment of programs with priorities

Each of these elements is a critical component of a comprehensive system for managing and measuring performance. This information will in turn inform future decision-making regarding the adjustments that might be required to reduce the threats to Puget Sound health and reach both our short- and long-term goals.

Chapter 1 *Status of the Ecosystem: Progress Towards 2020*

Technical staff prepared reports for each indicator, which include information on whether the 2020 target has been achieved, and whether we are making progress toward the target. The report also includes data graphs and maps that further clarify the status of the indicator.

The individual indicator reports are prefaced by a synthesis submitted by the Puget Sound Ecosystem Monitoring Program (PSEMP). The synthesis fulfills a statutory requirement to report findings that arise from the assessment and monitoring program.

The analysis concludes that of the 21 indicators, two showed clear progress, five showed mixed results (only portions of targets were met or targets were met in one or more geographic areas), seven demonstrated no progress, and seven were considered incomplete because there were no data or because the targets had not been adopted or were still in development.

Local Stories

Although the *2012 State of the Sound* primarily relies on the data collected by state and federal agencies to describe region-wide progress in meeting our ecosystem targets, there are many important projects in each of our subregions that are contributing toward the recovery of Puget Sound. Since these may or may not be reflected in the regional databases, we highlight some of them in this report. These efforts and the data generated by these projects are important contributors to the collective work required to meet our goals in reversing degradation in Puget Sound.

The local stories include four exemplary citizen monitoring programs. Citizen science activities—engaging the public in making observations, and collecting and recording data—contribute to our overall understanding of the status and health of Puget Sound. Thousands of people participate in citizen science projects around the Sound. Projects range from large regional, national, or international projects with thousands or hundreds of thousands of participants covering broad geographic areas, to more localized projects typically involving fewer participants, but potentially in more intensive activities.

While some efforts are driven by scientists who have identified a research, management, or monitoring need and solicited volunteer participation, other efforts are driven by communities and local groups who have identified a question or issue of interest, and may or may not have significant participation by a scientist. All citizen science efforts offer the unique opportunity to engage the public and enhance stewardship of Puget Sound and provide credible, cost-effective data essential to research, monitoring, and management in Puget Sound.

We have identified ten projects in the region, each of which is linked to one of the indicators in our Vital Signs Dashboard. For each, the indicator report includes a brief summary of that effort. Lengthier discussions of some of these projects as well as the data provided by the project sponsors will be included in the electronic version of the *2012 State of the Sound*. We are grateful to the project sponsors and staff for assisting us in developing these stories and for their contributions to our understanding of what will be required collectively to progress recovery.

We hope to expand the number of local stories in subsequent editions of the State of the Sound.

Climate Change

Chapter 1 also includes a discussion of how the work of recovering Puget Sound is affected by climate change and what considerations are necessary in integrating this information into ongoing and future decision-making. This discussion is based upon a report prepared for the Puget Sound Partnership by the Climate Action Group at the University of Washington.

Local Stories	Vital Sign or issue
Salish Sea Hydrophone Network and Orca Network (Sound-wide)	Orcas
Washington State University Extension Island County Beach Watchers (Island County)	Eelgrass
Skagit Stream Team and STORM Team	Shellfish beds
Funding Mechanisms (Snohomish County Public Works, Nisqually Tribe, Nisqually River Council, Northwest Natural Resource Group, and the Nisqually Land Trust)	Summer stream flows
Elwha (North Olympic Peninsula) National Park Service	Salmon
Water Typing (Hood canal, Kitsap County)	Freshwater quality
Bainbridge Shoreline Armoring (Bainbridge Island Land Trust)	Shoreline armoring
Carpenter Creek (Kitsap County)	Estuary
Puyallup Rain Garden (City of Puyallup)	Marine water quality
Thea Foss Waterway (City of Tacoma)	Marine sediment quality

CHAPTER 2 *Performance Management: Tracking the Action Agenda*

The discussion in the Performance Management chapter of the State of the Sound focuses on our progress in implementing the actions outlined in the 2008 Action Agenda, the regional blueprint that identifies the work necessary to protect and restore Puget Sound. The chapter includes a discussion of what work was completed, what remains and which of the actions that were not completed were carried forward to the 2012 Action Agenda. Only 72% of the near term actions in the 2008 Action Agenda were completed or had made the progress anticipated by owners during the biennium.

This section also discusses a) the approach and tools that were utilized to track implementation of the 2008 Action Agenda and b) new tools that have been subsequently developed to aid the region in better tracking our progress.

There have been significant barriers to full implementation of the Action Agenda as well as all of the programs and projects that are critical to our regional mission. We have included a discussion of the barriers to implementation as both an evaluation of why we were not completely successful in implementing the 2008 Action Agenda as well as what will be required for us to succeed moving forward.

Chapter 2 concludes with a memo from the Science Panel to the Leadership Council, which provides the Panel's perspective on our progress in implementing the Action Agenda.

CHAPTER 3 *Adaptive Management: How We Make Decisions*

Adaptive management is a scientific approach to managing complex systems that tests assumptions in order to learn and adapt. The Partnership has been working with leaders from many of its partner organizations to improve adaptive management in the region and build a performance framework with which to assess progress toward ecosystem recovery. Through this process we are engaging scientists, policy leaders, decision makers, resource managers, conservation practitioners, communications experts, and other key leaders integral to our success in improving the health of the Sound. We are using the Open Standards for the Practice of Conservation to develop our adaptive management framework and to produce products that will support adaptive management and recovery planning at multiple scales throughout the region.

Chapter 3 describes the role of adaptive management in regional decision-making in greater detail including examples of how this tool has successfully been employed to inform the decisions that have been made within the region, such as integrating information on implementation, ecosystem indicators, and costs as well as the implications of policy changes.

Chapter 4: *Action Agenda Funding: Tracking costs, accomplishments, and recommendations*

The fourth chapter of the *2012 State of the Sound* focuses on the financial aspects of the recovery effort. It includes information provided by the owners of Near Term Actions on the costs of implementing the *2008 Action Agenda* and cost estimates for the recently adopted *2012 Action Agenda*. The *2008 Action Agenda* costs are compared to the cost estimates provided in 2009 to generate an assessment of the gap between what implementers indicated it would cost to fully implement the necessary actions against what funding was provided. There was an estimated gap of $187 million between the amount that was considered necessary for carrying out the Near Term Actions and the amount of funding received.

Similarly, for the *2012 Action Agenda* cost estimates are compared to the amounts that implementers assume are available in their budgets, as well as existing or prospective grants. The gap between the estimated cost for implementation of the *2012 Action Agenda* and the budget currently available is approximately $475 million. This number does not include the cost for ongoing programs in the region nor for current and future costs for stormwater protection and other infrastructure projects.

This section highlights the key accomplishments that have been achieved as a result of the funding that has been obtained. The list has been provided by our regional partners.

Chapter four also provides recommendations to the Governor and Legislature on how the expenditure of state funds could be better linked to the Action Agenda and to better achieve the recovery goals that have been outlined.

The chapter concludes with a brief summary of Partnership funds.

CHAPTER 5 *Public Views on Recovery: Aligning Programs with Priorities*

Chapter 5 presents an analysis of actions by implementing agencies that may or may not be consistent with the Action Agenda. This analysis, which was initiated in 2011, was utilized to help inform the development of the updated *2012 Action Agenda*. There is also a brief discussion of ongoing program review for consistency.

The Partnership has developed a robust program addressing public engagement in the work of recovery. The role of citizens in this effort was recognized by the Legislature in its creation of the Partnership and it remains one of our key measures of success. Chapter 5 includes a description of the public engagement program, what we have learned, and challenges ahead.

The chapter concludes with a summary of the comments received by members of the public regarding the work of the Partnership with a focus on the content of the Action Agenda.

Electronic elements of the 2012 State of the Sound

The 2012 State of the Sound will be presented in two formats. This hardcopy version includes all of the required elements outlined in statute as well as summaries and syntheses of the information underpinning the analysis. We recognize, however, that the public and decision-makers may wish to have access to more detailed information on the indicators, status of Near Term Actions, and other information. Accordingly, we are preparing an electronic version of the document that includes links to data, information on a particular subject, and links to tools on the Partnership website and other organizational websites that meets the diverse needs of decision-makers and members of the public. Many of these links will be noted throughout the final hardcopy edition.