

2007 - 2009

---

# PUGET SOUND CONSERVATION & RECOVERY PLAN

*July 2007*



PUGET SOUND PARTNERSHIP

*State of Washington*

This 2007-2009 *Puget Sound Conservation and Recovery Plan* was developed by the Puget Sound Action Team and the Puget Sound Council, whose members are listed below. The Action Team and Council was succeeded by the Puget Sound Partnership effective on July 1, 2007 but the plan will continue to guide the state's work on Puget Sound throughout the biennium.

## Puget Sound Action Team

**Brad Ack**, Chair  
Puget Sound Action Team

**Ken Berg**, Manager  
U.S. Fish and Wildlife Service

**Mark Clark**, Executive Director  
Washington State Conservation Commission

**Rex Derr**, Director,  
State Parks & Recreation Commission

**Jay Manning**, Director  
Department of Ecology

**Laura E. Johnson**, Director  
Interagency Committee for Outdoor Recreation

**Jeffrey Koenings**, Director  
Department of Fish & Wildlife

**Bob Lohn**, Regional Administrator  
NOAA Fisheries

**Valoria Loveland**, Director  
Department of Agriculture

**Doug MacDonald**, Secretary  
Department of Transportation

**Joan McGilton**, Mayor of Burien  
Representing City Government

**Elin Miller**, Regional Administrator  
U.S. Environmental Protection Agency

**Dan McShane**, Whatcom County Council  
Representing County Government

**Mary Selecky**, Secretary  
Department of Health

**Doug Sutherland**, Director  
Department of Natural Resources

**Juli Wilkerson**, Director  
Department of Community, Trade and Economic  
Development

**Daryl Williams**, Director  
Department of the Environment, Tulalip Tribes  
(*Representing tribal governments*)

---

## Puget Sound Council

**Brad Ack**, Chair  
Puget Sound Action Team

**Bill Dewey**, Taylor Shellfish Co., Inc., representing  
the shellfish industry

**Scott McCreery**, British Petroleum, representing  
Business

**David Herrera**, Skokomish Tribe, representing tribal  
governments

**Doug Mah**, City of Olympia council member,  
representing city government

**Kenneth A. Dahlsted**, Skagit County  
Commissioner, representing county government

Vacant position, representing the state House of  
Representatives

**Naki Stevens**, People for Puget Sound, representing  
the environmental community

**Jerry Vander Veen**, representing agriculture

**Sen. Karen Fraser** (D-Olympia), representing the  
state Senate\*

**Rep. Christine Rolfes** (D-Kitsap County),  
representing the state House of Representatives

**Sen. Dan Swecker** (R-Rochester), representing the  
State Senate

# 2007 - 2009 PUGET SOUND CONSERVATION & RECOVERY PLAN

*July 2007*

---

## **PUGET SOUND PARTNERSHIP**

P.O. Box 40900  
Olympia, WA 98504-0900

360-725-5444  
800-54-SOUND  
[www.psp.wa.gov](http://www.psp.wa.gov)

---

### **Puget Sound Conservation and Recovery Plan acknowledgements**

Project manager: Harriet Beale and Ron Shultz  
Layout and inside design: Toni Weyman Droscher  
Cover design: Rae Anne McNally  
Proofreading: Stephanie Lidren

To obtain this publication in an alternative format, please contact the Puget Sound Partnership's ADA Coordinator at (360) 725-5444. The Puget Sound Partnership's TDD number is (800) 833-6388.

This report is available on the Puget Sound Partnership's Web site at [www.psp.wa.gov/our\\_work/pscrp.htm](http://www.psp.wa.gov/our_work/pscrp.htm).

# Abbreviations used in this plan

## Washington State agencies

Agriculture.....	WSDA
Community, Trade and Economic Development.....	CTED
Conservation Commission .....	WSCC
Ecology.....	Ecology
Fish and Wildlife.....	WDFW
Governor's Salmon Recovery Office.....	GSRO
Health.....	Health
Interagency Committee for Outdoor Recreation.....	IAC
Joint Legislative Audit and Review Committee .....	JLARC
Natural Resources .....	DNR
Parks and Recreation Commission .....	State Parks
Puget Sound Action Team.....	Action Team
Puget Sound Partnership.....	Partnership
Transportation .....	WSDOT
Washington State University Extension .....	WSU Extension
Washington Sea Grant Program.....	Sea Grant

## Federal government agencies

U.S. Environmental Protection Agency .....	EPA
National Atmospheric and Oceanic Administration .....	NOAA
NOAA National Marine Fisheries Service .....	NOAA Fisheries
U.S. Army Corps of Engineers.....	ACOE
U.S. Fish and Wildlife Service .....	USFWS
U.S. Geological Survey.....	USGS

## Other entities

Hood Canal Coordinating Council.....	HCCC
Hood Canal Dissolved Oxygen Program .....	HCDOP
Northwest Indian Fisheries Commission .....	NWIFC
Northwest Straits Commission .....	NWSC
Puget Sound Nearshore Project.....	PSNP

# Glossary of planning terms used in this plan

**Priority:** The priorities break down the goals of the long-term *Puget Sound Water Quality Management Plan* into specific areas that are the most important to make progress on together during the 2007-2009 biennium, based on an assessment of the existing threats and opportunities in Puget Sound.

**Long-term goal:** For each priority this is an environmental condition or outcome that represents a significant aspect of resolving the problem over a time period that extends beyond the two-year budget period.

**Strategies:** For each priority these are the key methods or approaches that describe how the partnership will achieve progress on the priority during the two-year budget period.

**Expected results:** Each priority includes results that agencies are expected to achieve, based on funding they receive under the 2007-2009 biennial budget.

A comprehensive glossary of terms used in this plan is in the *Puget Sound Water Quality Management Plan* at [www.psp.wa.gov/publications/our\\_work/pscrp/MGMTPLAN.pdf](http://www.psp.wa.gov/publications/our_work/pscrp/MGMTPLAN.pdf)

June 25, 2007

Dear Partners in Puget Sound Recovery:

I am pleased to present the final **2007-2009 Puget Sound Conservation and Recovery Plan** developed by the Puget Sound Action Team and the Puget Sound Council. This plan is the last biennial plan and budget to be produced by the Puget Sound Action Team. The Action Team, created in 1996 to lead the state's conservation efforts in Puget Sound, will be succeeded by the Puget Sound Partnership effective on July 1, 2007.

The law creating the new Puget Sound Partnership specifies that this **2007-2009 Puget Sound Conservation and Recovery Plan** shall continue to guide the state's work on Puget Sound from July 1, 2007 to June 30, 2009. During this same period of time, the Partnership will be working to build a new **2020 Action Agenda** that will eventually become the state's new comprehensive plan for Puget Sound.

While a new and more comprehensive plan is needed, it is perhaps even more important to ramp up our collective efforts on the ground now. This plan does just that, with a total budget of \$460 million dollars, which represents a \$124 million dollar increase over levels in the 2005-2007 biennium. All of the appropriated dollars in this plan have specific results and a responsible party. This detail allows for the accountability to ensure that we move forward on the vital work of protecting and restoring this ecosystem.

The Puget Sound is one of Washington's crown jewels, and is home to a marvelous array of life. But Puget Sound is in grave trouble, as evidenced by significant declines in salmon, orcas and marine birds, closures of shellfish beds, and a growing dead zone in Hood Canal. The building blocks of a healthy environment for people and all other living things – clean water, healthy and connected habitat and an intact food web – are continuing to erode. Our **State of the Sound Report 2007** reports in great detail on the troubling status and trends in Puget Sound's environment.

This coming decade represents our last best chance to secure the wonders and the natural bounty of the Puget Sound ecosystem for our children and grandchildren. I hope you will join the new Puget Sound Partnership's efforts to build a new plan and a new ethic backed up by real action in this magnificent place we are fortunate to call home.

For a cleaner and healthier Puget Sound forever,

A handwritten signature in black ink, appearing to read "Brad Ack", with a large, stylized initial "B" and a long horizontal stroke extending to the right.

Brad Ack  
Executive Director  
Puget Sound Action Team



# Table of Contents

Introduction .....	9
Figure 1—2007-2009 Puget Sound Budget by Priority.....	12
Priority 1: Clean up contaminated sites and sediments .....	13
Priority 2: Prevent toxic contamination.....	16
Priority 3: Prevent harm from stormwater runoff.....	21
Priority 4: Prevent nutrient and pathogen pollution.....	26
Special Focus Area: Hood Canal.....	31
Priority 5: Protect functioning marine and freshwater habitats.....	35
Priority 6: Restore degraded marine and freshwater habitats .....	41
Priority 7: Protect species diversity.....	45
Priority 8: Prepare for and adapt Puget Sound efforts to a changing climate.....	51
The role of science in Puget Sound efforts.....	53
Coordinating Puget Sound conservation and recovery.....	56
Budget for 2007-2009 .....	58
Figure 1: 2007-2009 Puget Sound Budget by Priority.....	59
Table 1: 2007-2009 Puget Sound Plan Budget by Priority.....	60
Table 2: 2007-2009 Budget by Agency, Budget Code and Fund Source .....	65
Figure 2: 2007-2009 Puget Sound Budget by Agency .....	71
Table 3: 2007-2009 Puget Sound Plan Budget by Agency.....	72
Table 4: 2007-2009 Budget Item Descriptions.....	74

## **APPENDIX: Detailed Budget Information by Agency**

Information in the separate Appendix of Agency Budget Detail for the *2007-2009 Puget Sound Conservation and Recovery Plan* is submitted by state agencies and university programs to describe the activities and expected results to be accomplished with funding in the plan budget. Detailed budget information is linked to priorities, strategies and results. The Appendix is available upon request by calling 800-54-SOUND or online at [http://www.psp.wa.gov/our\\_work/pscrp.htm](http://www.psp.wa.gov/our_work/pscrp.htm).



# Introduction

The *2007–2009 Puget Sound Conservation and Recovery Plan* is the last biennial plan and budget to be produced by the Puget Sound Action Team (Action Team). The Action Team, created in law in 1996, with responsibility to lead the state’s conservation efforts on Puget Sound, was succeeded by the Puget Sound Partnership (Partnership) effective July 1, 2007.

## The Puget Sound Partnership

The Partnership is a new state agency, created by the 2007 Washington Legislature to lead the recovery of Puget Sound’s health by 2020. The Partnership is designed to bring together citizens, governments, tribes and businesses in that mission.

The Partnership is different from the Action Team in some key ways. First, in terms of its governance, the Partnership will be led by a seven-member *Leadership Council* of leading citizens from around the Sound. That Council will be advised by an *Ecosystem Coordination Board* made up of diverse representative interests from around the Sound, and a *Science Panel* made up of esteemed scientists. An *Executive Director* will lead day-to-day operations and employ a professional staff.

The Partnership has other important differences as well:

- **An expanded scope of work:** The Partnership has the new responsibility to ensure a sufficient water supply for people and wildlife, and starting Jan. 1, 2008, the Partnership will assume lead responsibility for regional salmon recovery work in Puget Sound.
- **Greater authority:** The Partnership has authority to craft a 2020 Action Agenda with prioritized actions and benchmarks needed for all levels of government and watershed groups.

- **More tools:** The Partnership is required to oversee the work toward these priorities, and has been given tools to ensure broad accountability.
- **Expanded geographic area:** The Partnership’s geographic scope is expanded to include the entire Puget Sound basin from the crests of the Cascades and the Olympics to the center of the Sound.
- **Firm deadline:** The Partnership is charged with recovery of the Sound by 2020.
- **Working within seven action areas:** The Partnership is charged with organizing its planning and implementation work around seven “action areas” designated in the law, and must collaborate with local watershed groups in this planning and implementation.

## The 2007-2009 Puget Sound Conservation and Recovery Plan and the Partnership

The law creating the Partnership specifies that the *2007–2009 Puget Sound Conservation and Recovery Plan* will continue to guide the state’s work on Puget Sound from July 1, 2007 to June 30, 2009. During this time, the Partnership will build a new *2020 Action Agenda* that will become the new comprehensive plan and path forward to a healthy Puget Sound by 2020.

## Priorities for 2007-2009

The *2007–2009 Puget Sound Conservation and Recovery Plan* identified eight core priorities as the most important for the next two years of work in Puget Sound. The priorities are not ranked or in any order.

- Clean up contaminated sites and sediments.

- Prevent toxic contamination.
- Prevent harm from stormwater runoff.
- Prevent nutrient and pathogen pollution.
- Protect functioning marine and freshwater habitats.
- Restore degraded marine and freshwater habitats.
- Protect species diversity.
- Prepare for and adapt Puget Sound efforts to a changing climate.

Education and public involvement are not called out as a specific priority but instead is an overarching strategy throughout the entire plan. Public understanding and involvement is critical to achieving progress on each priority, and there are actions in each priority that pursue increased public engagement.

For each priority, the plan begins with the long-term environmental goals contained in the *Puget Sound Management Plan*<sup>1</sup> (Management Plan) – the comprehensive plan for Puget Sound recovery. The long-term goals represent the desired future condition. The strategies outlined for each priority are the approaches that Action Team member agencies will use to achieve progress towards the goals during the 2007-2009 biennium.

These priorities and the strategic approaches to addressing them are based on the most current scientific data on the status and trends of indicators of Puget Sound's health. This data can be found in the Partnership's *2007 Puget Sound Update* and *State of the Sound 2007*.

### Accountability for Plan Results

The core of this plan is the specific, measurable results outlined in each section, with each result linked to an approved budget. These results represent measurable progress towards the long-term environmental goals and outcomes. Agencies with primary responsibility for delivering or reporting on the results are clearly listed, along with key partners.

**Each agency is accountable for the results described in the 2007-2009 plan** and each will report on progress and make adjustments as needed during the next biennium. The Partnership is required to sign performance agreements with many of these agencies and to report on their progress in accomplishing the results promised in this plan.

### Developing the Plan

Agencies developed their internal work plans and proposed budgets for 2007-2009 based on the core priorities and strategies described above. Agencies used public comments submitted in response to the April 2006 draft plan to revise and finalize the priorities, strategies and results. Several federal agencies also committed to specific results for work in Puget Sound, both as partners with state agencies and as stand-alone federal activities. Action Team members representing tribal and local governments participated in discussions and development of the plan, and the entire Action Team was advised on the plan by members of the Council.

### The Plan as a Strategic Framework for the Budget

This 2007-2009 Puget Sound plan is fueled by a combined state agency budget of nearly **\$460 million dollars**. This budget is linked to the delivery of specific results needed to accelerate progress on the eight core priorities. Complete budget information starts on page 58.

---

<sup>1</sup> The *Puget Sound Management Plan* will become one of the bases for the new *2020 Action Agenda*.

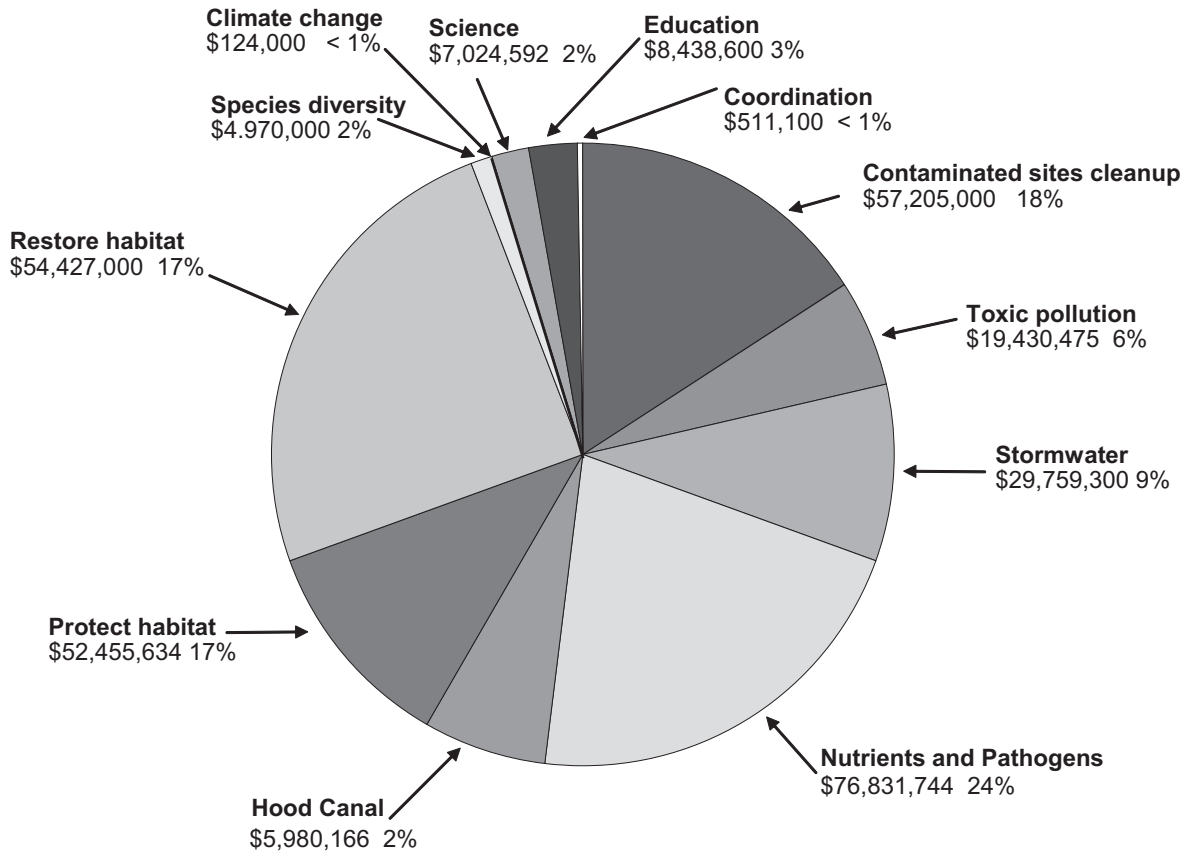
The Agency Budget Detail (Appendix) provides much greater detail on the approved budget in a separate document. The Appendix also links individual budget activities to the results shown under each priority.

## **Acknowledgements**

State and federal agencies could not deliver the results in this plan without the significant contributions of tribal and local governments, and other public, private and non-profit entities that all work to protect and restore Puget Sound's water quality, habitats and species diversity. Tribal governments, cities and counties, businesses, farmers, trade associations, industries, ports, environmental organizations and others are critical partners in developing and implementing this plan.

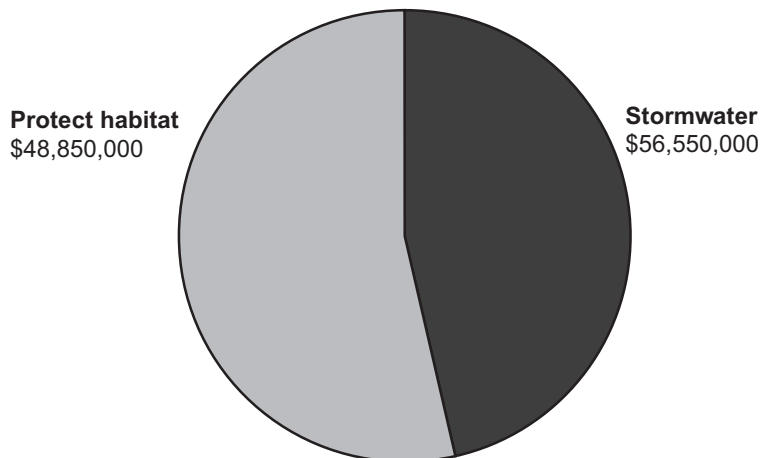
Most importantly, individual citizens acting as stewards of Puget Sound and working together as neighbors and communities are essential if we are to reach our long-term goal of a healthy, thriving and economically viable Puget Sound.

Figure 1. 2007-2009 Puget Sound Budget by Priority: \$352,794,611



Does not include WSDOT mitigation funds See figure below.

Total WSDOT wetland and stormwater mitigation funds: \$105,400,000



# Priority 1: Clean up contaminated sites and sediments



The City of Tacoma's Tahoma Saltmarsh contaminated sediment cleanup and restoration project (2003). | *City of Tacoma*

**Long-term goal:** Clean up all sites and sediments exceeding state standards for contamination.

In the past 125 years, human activities around Puget Sound have introduced a wide array of chemicals into the environment that cause health problems for humans, plants and animals. Toxic chemicals have been released into the waters of the Puget Sound basin and have also contaminated upland sites. The contaminated upland sites are a continuing source of contamination to the Sound. Some of the more persistent chemicals have accumulated in the sediments of the Sound and from there have spread to accumulate in tissues of living organisms in the aquatic food web. Many types of fish as well as seals and orcas now show elevated levels of toxic contamination. Department of Health (Health) advisories to limit consumption of fish and shellfish from the Sound are increasing. Recent efforts include a fish consumption advisory for the Lower Duwamish River to address some of the highest polychlorinated biphenyl (PCB) levels observed in Washington State fish.

Some present day activities continue to release toxic chemicals such as polyaromatic hydrocarbons (PAHs from combustion), dioxins and mercury. However, pollution control practices are far better today than they were before existing environmental laws came into force. Most contaminated sites and sediments are the legacy of 125 years of uncontrolled or poorly controlled dumping and discharges to the upland, groundwater and submerged lands of the Puget Sound basin.

Contaminated sites on land are widely scattered because operations that caused the contamination like oil storage facilities, dry cleaners, creosote plants, smelters, and other activities were located in many communities. Contaminated underwater sites on submerged lands are concentrated in the major urban bays, including Commencement Bay, Elliott Bay, Bellingham Bay, Sinclair Inlet, and other areas with extensive histories of industrial activities.

Today, large portions of Puget Sound's 1.8 million acres of submerged sediments show some form of chemical or biological degradation. The Department of Ecology (Ecology) has identified more than 5,000 acres as highly contaminated. Some of the contaminated acreage may recover naturally without cleanup if the sources of contamination are controlled, but the majority is scheduled for cleanup activities.

## Partners in cleaning up contaminated sites and sediments

### Identifying and cleaning up contaminated sites

Ecology is the state's lead agency in site cleanup, and administers the state's sediment management standards. The U.S. Environmental Protection Agency (EPA) is the federal lead agency for site cleanups under the Comprehensive Environmental

Response, Compensation and Liability Act (CERCLA). Ecology and EPA focus resources on cleaning up the “worst sites first” to remove the greatest risks to public health and the environment. To date, EPA and Ecology have addressed over 850 acres of contaminated sediments in Puget Sound.

Ecology and/or the EPA manage each site as it moves through the stages of the cleanup process. In some cases, no responsible party is identified or able to fund the cleanup, and those sites are designated as orphan sites. The state departments of Natural Resources (DNR), Transportation (WSDOT), and Fish and Wildlife (WDFW), as well as ports and local governments, clean up these orphan sites and sites on public lands. Ecology, EPA and others monitor cleaned up sites to identify and address causes of recontamination. Recontaminated sediments may not be related to the original source but may be from new sources such as stormwater, and may include new contaminants.

The Northwest Straits Commission (NWSC), DNR, NOAA Fisheries Service (NOAA Fisheries) and other partners are working to inventory and remove creosote-soaked logs from Puget Sound beaches. Washington State Parks and Recreation Commission (State Parks), DNR and WSDOT are removing creosote-soaked pilings on state-owned aquatic lands, in state parks, and at Washington State Ferry facilities. Creosote wood can be a source of PAHs in Puget Sound waters.

### **Managing navigation dredging operations**

In 1988, agencies in Puget Sound completed the Puget Sound Dredged Disposal Analysis and adopted comprehensive testing requirements and limits on dredged material allowed for disposal at unconfined open water sites. Washington State passed the Model Toxics Control Act (MTCA), the state’s contaminated site cleanup law, in

1989. Ecology adopted comprehensive sediment management standards for Puget Sound in 1991.

### **2007-2009 strategies for cleaning up contaminated sites and sediments**

- 1. Continue to identify and clean up contaminated sites.**
- 2. Manage dredging operations to prevent contamination of disposal sites.**

### **Expected results for cleaning up contaminated sites and sediments**

- 1. Continue to identify and clean up contaminated sites.**
  - a. Cleanups are being initiated or continued at 50 upland and aquatic sites within one half mile of the Puget Sound shoreline. (Ecology, DNR)
  - b. Measurable progress takes place on cleanups at High Priority Hazardous Waste facilities. (Ecology reports on progress)
  - c. 5,000 acres are evaluated to assess whether cleanup is needed. (Ecology)
  - d. An inventory of creosote logs is conducted on Puget Sound beaches and a cleanup program is implemented. (NWSC, NOAA, DNR, The Nature Conservancy)
  - e. 700 to 800 tons of creosote-soaked logs are removed from Puget Sound beaches. (DNR, State Parks)
  - f. 5,000 tons of creosote pilings are removed from the Puget Sound marine environment. (DNR, State Parks, WSDOT/Washington State Ferries)
  - g. Monitoring, shoreline surveys and a public process begin in Dumas Bay in King County to develop sewer outfall extension alternatives to partially or

completely reopen shellfish tracts on state-owned aquatic lands. (DNR, King County, Ecology)

- h. The Superfund program cleans up 200 acres of contaminated sediments in Puget Sound by 2011. (EPA)
- i. 3 state parks have sediments contaminated with wood waste from old log dumps cleaned up. (State Parks)
- j. New investigations are being conducted or planned in 6 areas of the Puget Sound (Port Gardner Bay, Fidalgo/Padilla Bay, Kitsap Peninsula/Port Gamble, Port Angeles, Shelton/Oakland Bay, Dumas Bay) during 2007-2009. (Ecology)

**2. Manage dredging operations to prevent contamination of disposal sites.**

- a. 100 percent of disposal sites meet site monitoring goals. (DNR)
- b. Part of the remedial action for contaminated marine sites includes the use of clean material from navigation dredging. (Ecology)

## Priority 2: Prevent toxic contamination



Point Defiance in Tacoma becomes the staging area for bags of material used to clean up Dalco Passage Oil Spill, October 13, 2004. | *Photo by Kathy Taylor*

**Long-term goal:** Eliminate the harm from toxic pollutants entering Puget Sound.

While cleaning up contaminated sites and sediments (page 5) helps to correct the legacy of historic toxic contamination, this priority focuses on reducing ongoing contamination and preventing future contamination. Toxic contaminants continue to harm Puget Sound in the following key areas:

- **People put their health at risk when they eat contaminated seafood from Puget Sound.** For example, Persistent Bioaccumulative Toxins (PBTs) in Puget Sound seafood may cause developmental effects in children.
- **Toxic contaminants harm marine life in Puget Sound.** Continued exposure to toxic chemicals harm marine life in the region's urban bays. For example, exposure to some pesticides and PBTs suppresses the immune function of salmon and marine mammals.
- **Future risks are unknown.** Harm from emerging contaminants, such as pharmaceuticals and personal care

products, and the increase in pollution due to expected population growth is poorly understood.

In 2004, large industrial facilities (such as petroleum refineries, pulp mills, and other manufacturing plants) discharged about 4,300 pounds of the toxic chemicals that harm or threaten Puget Sound (such as polyaromatic hydrocarbons or PAHs, mercury, lead, and copper) into surface waters in the basin. The approximately 65 sewage treatment plants that discharge roughly 600 million gallons per day of treated wastewater contribute more contaminants, but the exact amounts are not available. Air emissions from large industrial facilities in the Puget Sound basin in 2004 included 34,000 pounds of the toxic chemicals that harm or threaten Puget Sound, and diesel engines in trucks, cars, ships, locomotives, and other equipment released about 8 million pounds of diesel soot into the air in the Puget Sound basin. Air contaminants from global sources also reach the Puget Sound region. The magnitude and geographic extent of ongoing toxic releases into the basin is a significant threat to the system's long-term health.

As our population increases, it is likely that the flow of chemicals from households and businesses into our municipal sewage treatment plants will increase. Toxic compounds that are not completely removed by conventional wastewater treatment plants will reach the environment in greater quantities. These releases include a mixture of largely unstudied chemicals (from medicines, fragrances, creams and other consumer products referred to collectively as pharmaceuticals and personal care products or PPCPs) that pass through humans and our households, into and through sewage treatment plants, and ultimately into the water and the aquatic food web.

## Partners in preventing toxic contamination

### Reducing the use and generation of toxic chemicals

Agencies at all levels of government are working to improve our ability to remove toxic substances at both the “end of the pipe” by treating and reclaiming wastewater and the “beginning of the pipe” in the production process and in consumer behaviors.

Washington State has an initiative to phase out PBTs through a strategy led by Ecology, and involving key support from Health. Ecology and Health are implementing chemical action plans (CAPs) for mercury and for flame retardants (polybrominated diphenyl ethers) known as PBDEs, which have been found in human breast milk and the marine food web.

Efforts to phase out the generation and use of PBTs are underway worldwide. Ecology recently adopted the PBT regulation (Chapter 173-333 WAC). The rule contains a list of chemicals defined as PBTs, lays out a process to set priorities and schedule future CAPs and establishes procedures for developing these plans. Legislation passed in 2006 at Ecology’s request establishes a program for manufacturers of certain electronic products to implement and finance recycling of electronic waste, one source of PBDEs and other toxic substances.

Ecology has a PBT schedule for 2007-2009 that includes completing a CAP for lead and initiating plans for PAHs and perfluorinated octynal sulfonate (PFOS). Lead is used in tire balancing weights, fishing equipment, solder, car batteries and various consumer products. PAHs are a group of chemicals formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco. PAHs are found throughout the environment. They

are of particular concern for air pollution and impacts on some marine life. PFOS was the key ingredient in the fabric protector Scotchgard™, but 3M stopped using the chemical in 2002. The chemical is still used in a wide variety of industrial and consumer products. They include firefighting foam, waterproof clothing, and wrapping for microwave popcorn and other food products. PFOS is extremely resistant to environmental breakdown and has been found in polar bears in the Arctic, dolphins in Florida, seals and otters in California, albatross in the mid-Pacific and in people worldwide.

### Reducing the release of toxic chemicals

Ecology’s approach to preventing toxic substances from entering the waste stream includes technical and engineering assistance for businesses to redesign their systems in order to reduce the production and use of toxic chemicals. For example, the Technical Resources for Engineering Efficiency (TREE) program provides no-cost audits that generate suggestions to help businesses increase efficiency, reduce supply costs, decrease hazardous waste disposal costs, and reduce toxic substances in the waste stream.

Ecology issues permits for municipal and industrial discharges under the National Pollutant Discharge Elimination System (NPDES) program. Ecology also works with communities that have municipal wastewater treatment plants to increase the volume of reclaimed wastewater for conservation and reuse, as well as to decrease the waste discharged to Puget Sound. Ecology and Health will work together to carry out 2006 legislation requiring that they develop and adopt rules for use of reclaimed water and gray water, and to determine the related permitting responsibilities for each agency.

Stormwater carries a significant amount of toxic pollutants, especially from air emissions deposited on land and from commercial areas and roads.

Reducing the harm from stormwater runoff is a separate priority in this plan (page 13). Ecology and regional clean air agencies regulate air emissions from stationary and mobile sources, are collaborating on programs to reduce emissions of diesel soot from fleets of school buses and other government vehicles, and are working with Ports and others to understand the diesel emissions from maritime activities.

The Washington Department of Agriculture (WSDA) works with the agricultural community to develop and implement integrated pest management plans and collects waste pesticides and other hazardous materials to ensure safe disposal.

### **Improving spill prevention and response**

Ecology's Spill Prevention, Preparedness and Response Program's efforts include ship inspections, marine terminal spill prevention plans and inspections, and administering the Neah Bay rescue tug that assists disabled vessels. Spill preparedness initiatives include regional response planning, oil spill preparedness drills and multi-agency training. The program is also the state's lead agency for providing around-the-clock assistance to oil and hazardous material spills. The 2006 legislature adopted more protective standards for oil transfer operations at Ecology's request. The Oil Spill Advisory Council in the Governor's Office issued recommendations for a state-of-the-art oil spill prevention program and sustainable funding options for the oil spill program in fall 2006 that Governor Gregoire considered in developing 2007-2009 budget and legislative proposals.

### **Education to reduce toxic contamination**

Individual citizen behaviors contribute toxic substances to the environment through poor vehicle and boater maintenance, landscaping practices, and disposal of some household products through onsite sewage systems. Staff from the

Partnership, Ecology, Health, Washington Sea Grant Program (Sea Grant), Washington State University Extension (WSU Extension) and others conduct education and involvement activities to change behaviors and reduce this source of contamination. Partners in local governments and non-profit organizations in Puget Sound communities promote and reward sustainable business practices.

### **2007-2009 strategies for preventing toxic contamination**

- 1. Reduce the use and generation of toxic chemicals.**
- 2. Reduce the release of toxic chemicals to the environment.**
- 3. Improve spill prevention and response.**
- 4. Educate residents to change behaviors to reduce toxic contamination.**
- 5. Study toxic contamination in Puget Sound.**

### **Expected results for preventing toxic contamination**

- 1. Reduce the use and generation of toxic chemicals.**
  - a. 550 pounds of mercury reduction from waste streams is achieved, which is a 40 percent improvement over the previous two years. (Ecology, Health)
  - b. A chemical action plan for lead is completed in 2008 under the PBT rule. (Ecology, Health)
  - c. Chemical action plans for PAHs and PFOs are initiated during the two-year budget period. (Ecology, Health)
  - d. One industrial facility receives engineering or other technical assistance for quantifiable reductions in toxics use through TREE and Lean Manufacturing programs. (Ecology)

## 2. Reduce the release of toxic chemicals to the environment.

- a. 800-ton reduction of toxic emission and waste generation in the Puget Sound basin. (Ecology)
- b. 150 entities in the Puget Sound basin participate in environmental leadership or performance-based regulatory programs. (Ecology)
- c. 5 percent reduction in emissions of diesel particulate matter over the 2006 baseline. (Ecology)
- d. 2 million gallon-per-day increase in the amount of reclaimed water in Puget Sound, which is a 10 percent increase. (Ecology)
- e. Cross-agency and external work groups are convened to develop reclaimed water standards. (Ecology, Health)
- f. 90 percent of NPDES permits for municipal sewage treatment plants have been issued within the past five years. (Ecology)
- g. 90 percent of NPDES permits for industrial facilities have been issued within the past five years. (Ecology)
- h. 6 events to collect unusable, cancelled or suspended pesticides are held in the Puget Sound basin and collect about 60,000 pounds of pesticides. (WSDA)
- i. The Puget Sound Naval Shipyard facility is issued an NPDES industrial discharge permit. (EPA)
- j. A statewide strategy is developed to reduce the release of PPCPs in the marine environment. (Partnership)
- k. The amount of mercury discharged by individual, wastewater point dischargers is estimated to establish a baseline for future reductions. (Ecology)

1. Permitted loadings of toxic contaminants from individual, wastewater point dischargers are estimated. (Ecology)

## 3. Improve spill prevention and response.

- a. The number of oil spills greater than 25 gallons reaching surface waters is decreased. (Ecology)
- b. 5 percent reduction in the number of large commercial vessels having incidents that can lead to oil spills. "Incidents" refer to events such as propulsion losses, steering failures, collisions, structural failures, fires, or spills. (Ecology)
- c. 100 percent of all spills greater than 25 gallons receive a rapid and aggressive response. (Ecology)
- d. 400 ship inspections and 450 oil transfer inspections are conducted in the first year of the biennium; 450 ship inspections and 650 oil transfer inspections are conducted in the second year. (Ecology)
- e. Oil Spill Advisory Council recommendations that are adopted and fully funded by the legislature are implemented. (Ecology)
- f. Local and tribal governments and Marine Resource Committees help develop oil spill Geographic Response Plans. (Ecology)
- g. A study of small spills of less than 25 gallons in Puget Sound waters takes place to identify the extent of pollution, primary causes and sources, and water quality effects. (Partnership, Ecology)

**4. Educate residents to change behaviors to reduce toxic contamination.**

- a. 8 marinas achieve Clean Marina status as a result of spill prevention education. (Sea Grant)
- b. 30 Puget Sound shellfish growers receive spill prevention and preparedness education and training. (Sea Grant)
- c. 100 commercial fishermen receive spill prevention outreach aimed at eliminating fuel spills and bilge discharges. (Sea Grant)
- d. Agricultural users receive education on pesticide application to minimize adverse environmental impacts. (WSDA)
- e. 500 homeowners and 500 boat owners adopt least toxic cleaning practices and demonstrate improved understanding of consumer labels for commercially available products. (Sea Grant)

**5. Study toxics in Puget Sound.**

- a. A characterization of the status and trends of toxic contamination and the ecosystem impacts and potential human health impacts is coordinated, with newly identified contaminants of concern included in the characterization. (PSAMP, Partnership, EPA, U.S. Fish and Wildlife Service (USFWS), WDFW, Health)
- b. The contributions of key toxic contaminants from land, air and marine discharge sources are determined and used to determine toxic loading. (Partnership)
- c. A characterization of atmospheric deposition of toxics to Puget Sound is begun. (Ecology)
- d. A summary is made of analyses of PPCPs in ground and surface water and wastewater treatment capabilities to assess their impacts on human health and the environment. (Ecology)

## Priority 3: Reduce the harm from stormwater runoff



Bioretention facilities alongside streets capture runoff and prevent pollution from entering the Sound through stormwater systems. | Photo by Bruce Wulkan

**Long-term goal:** Stormwater runoff and combined sewer overflows do not impair water quality in any waters of the basin.

Stormwater runoff presents a high risk to the health of Puget Sound. Two species of salmon and bull trout are listed as threatened under the federal Endangered Species Act (ESA), and loss of habitat due to stormwater is one factor limiting recovery. In many shellfish growing areas, stormwater runoff contributes to harvest restrictions or closures. Many state waters fail to meet water quality standards in part due to stormwater. The EPA cites stormwater runoff as one of the greatest threats to the health of the nation's waters.

Stormwater runoff causes two major problems. First, it transports a mixture of pollutants from roads, parking lots, lawns, and other developed lands to the Sound, degrading water quality and harming species as it moves throughout the food web. Pollutants include toxic petroleum products and heavy metals from vehicles and industries, fertilizers and pesticides from homes and farms, animal wastes, and sediment from construction

sites. In older areas of the basin, stormwater carried in storm drainage systems is discharged with little or no water quality treatment. In areas with combined sanitary and storm sewers, during heavy rains a mixture of stormwater and raw sewage can spill into the Sound in events called combined sewer overflows (CSOs).

The second major problem is that during the wet season, the volume and peak flow of runoff increases dramatically. This effect is greater where development has hardened the land surface and stormwater is collected and conveyed to receiving waters in piped systems. High volumes can erode stream channels and greatly alter and damage fish and wildlife habitat and can increase flooding in areas downstream. Improving stormwater management to protect habitat is especially important as state agencies and Puget Sound watersheds carry out actions to recover threatened species in the Puget Sound salmon recovery plans.

This risk to the Sound is magnified by predicted population growth and the limitations of current stormwater practices to fully manage the effects of development. Traditional development practices have led to significant loss of forest cover and increases in impervious surfaces. To protect Puget Sound, state and local governments and increasing numbers of developers are placing greater emphasis on innovative low impact development (LID) practices and other cost-effective solutions for new developments, and on retrofitting outdated stormwater facilities.

## **Partners in preventing harm from stormwater runoff**

### **Increasing communities and activities under stormwater permit requirements**

Ecology issues and oversees general stormwater permits for industrial, municipal and construction activities under the NPDES program mandated by the federal Clean Water Act. Perhaps the most significant action for stormwater will be the issuance of a new municipal permit that will cover some 76 smaller cities and towns in Puget Sound and smaller construction sites. These NPDES Phase II permits are scheduled to be issued in January 2007.

A revised general construction permit was issued and subsequently appealed. Despite the appeal, the construction permit remains in effect. The Pollution Control Hearings Board will hear and rule on the appeal. The WSDOT, now covered under the Phase I permit for its highways in Phase I jurisdictions, will be issued its own permit in 2007 that will satisfy both Phase I and II requirements. The five most populous local governments will be covered by a reissued NPDES Phase I municipal general permit, also in January 2007. An updated general industrial permit is scheduled to be issued in September 2007.

Technical assistance, guidance, and some funding to meet new permit requirements is available from Ecology, Partnership staff, WDFW and the Department of Community, Trade and Economic Development (CTED).

### **Increasing communities adopting comprehensive stormwater management programs**

Partnership staff work to help all Puget Sound local governments adopt the local comprehensive stormwater program from the *Puget Sound Water Quality Management Plan*. The local comprehensive program includes all of the minimum requirements of Phase II NPDES permits as well as several

additional elements to protect habitat and water quality, such as identifying and ranking existing problems and conducting environmental and programmatic monitoring.

### **Increasing the use of low impact development**

One element of the comprehensive program is promoting the use of innovative LID measures. Partnership staff, Ecology, WSU Extension, WSDOT, conservation districts, local governments and others in academia and the private sector are providing funding, support, technical assistance, education and research to increase information and projects in Puget Sound. Projects using this innovative approach preserve native vegetation and soils, reduce and disconnect impervious surfaces, and use small-scale controls at a site level to manage, treat and where appropriate, infiltrate stormwater runoff. As more local governments amend regulations to encourage or require these practices, there are increasing numbers of cost-effective, on-the-ground projects that demonstrate success in reducing the environmental effects of development.

### **Managing runoff from state highways**

WSDOT manages stormwater from state highways and other transportation facilities according to requirements in its NPDES permit and an updated highway runoff manual. WSDOT is an important partner in preventing harm from stormwater runoff because highways comprise significant paved surfaces in the state that can transport pollutants from vehicles if the stormwater is not adequately treated. WSDOT also plays an important role in preventing erosion and sediment pollution at highway construction project sites.

### **Reducing combined sewer overflow events**

In Puget Sound, 10 jurisdictions are still working to reduce the number and volume of CSO events. Ecology oversees each local government's

reduction plan and administers the state revolving fund loans used to correct and retrofit systems so as to reduce overflows of untreated sewage during heavy rainstorms.

### **Public education and technical assistance to small acreage landowners**

WSU Extension, Sea Grant, Partnership staff, and local conservation districts provide education and technical assistance in communities to local governments, landowners, realtors, developers and others to improve stormwater management and build support for local programs. Local governments provide significant education and outreach to residents, often working with state agencies, university programs and EPA as partners. The Washington State Conservation Commission (WSCC) funds conservation district technical assistance that is increasingly called upon to help small acreage landowners address drainage problems to prevent pollution.

### **2007-2009 strategies for preventing harm from stormwater runoff**

- 1. Increase the number of communities managing stormwater under NPDES permits.**
- 2. Increase the number of communities implementing the comprehensive stormwater management program as outlined in the *Puget Sound Water Quality Management Plan*.**
- 3. Increase the use of LID.**
- 4. Manage runoff from state highways.**
- 5. Reduce the number and volume of CSO events.**
- 6. Develop and begin to implement a Soundwide impacts and effectiveness monitoring program.**
- 7. Increase small acreage landowner technical assistance and voluntary incentive programs.**

### **8. Educate and involve the public in preventing harm from stormwater runoff.**

#### **Expected results for preventing harm from stormwater runoff**

- 1. Increase the number of communities managing stormwater under NPDES permits.**
  - a. The number and percent of NPDES municipal general permittees meeting the compliance schedule is tracked. (Ecology)
  - b. 100 percent of NPDES municipal general permittees receive technical assistance to help them comply with the permits. (Ecology)
  - c. The NPDES general industrial stormwater permit is reissued by December 2007. (Ecology)
  - d. 100 percent of permitted construction sites have an average of 1 stormwater inspection every 2 years. (Ecology)
  - e. At least 400 inspections of permitted industrial facilities located in the 12 Puget Sound counties will be conducted in each of the next two fiscal years. (Ecology)
- 2. Increase the number of communities implementing the comprehensive stormwater management program as outlined in the *Puget Sound Water Quality Management Plan*.**
  - a. 20 percent increase in the number of local governments adopting the elements of the Puget Sound comprehensive local stormwater management programs. (Partnership)
  - b. 25 local governments receive assistance in developing comprehensive stormwater programs that link to

salmon recovery, land use and watershed plans. (Partnership)

- c. Thurston County receives assistance to implement the results of the Henderson Inlet stormwater basin planning project. (Partnership, EPA)

**3. Increase the use of LID.**

- a. 4 (or up to 16 with additional funding) local governments adopt or revise regulations to allow for or encourage the use of LID techniques. (Partnership)
- b. 10 LID projects (at least 30 with additional funding) receiving the LID grants are reported on to the public. (Ecology will track projects and Partnership will disseminate information on them)
- c. The LID Technical Guidance Manual for Puget Sound is updated to incorporate recent monitoring results and research. (Partnership, WSU Extension)
- d. LID training increases for local government staff, the development community, consultants and others. (Partnership, WSU Extension)
- e. 2 to 4 state parks use LID techniques to eliminate direct discharge into Puget Sound and Hood Canal. (State Parks)
- f. Stormwater is monitored to document LID benefits to receiving waters and downstream aquatic resources. (EPA)
- g. A local case study assesses the economic value of natural environmental services provided by “green infrastructure” in meeting stormwater management objectives. (EPA)
- h. Developers and private landowners receive LID technical assistance from conservation districts. (WSCC)

**4. Manage runoff from state highways.**

- a. Of construction sites considered to be moderate to high risk to cause erosion, 90 percent attain compliance with all 13 erosion and sediment control assessment measures. (WSDOT)
- b. 29 stormwater retrofits for existing impervious surfaces are completed for prioritized outfalls from state highways where high-volume traffic drains to sensitive water bodies. (WSDOT)
- c. Runoff treatment and flow-control best management practices to mitigate the impacts of new impervious surfaces are implemented as part of transportation construction projects. (WSDOT)
- d. 7,500 stormwater outfalls and tributary conveyances will be identified and mapped as part of compliance with the NPDES permit. (WSDOT)
- e. Significant inland oil spills and hazardous material incidents receive a rapid and aggressive response to clean them up. (Ecology)

**5. Reduce the number and volume of CSO events to Puget Sound.**

- a. The number of CSO events and total volume of overflows decreases, taking into account fluctuations in precipitation. (Ecology)

**6. Develop and begin to implement a Soundwide impacts and effectiveness monitoring program.**

- a. A comprehensive monitoring program is begun to better understand the impacts of stormwater runoff on Puget Sound and the effectiveness of management practices. (Ecology)

- b. 100 percent of stormwater outfalls are identified in a Geographic Information Systems database. (DNR, Ecology)
- c. 125 researchers and practitioners engage in a Puget Sound LID stormwater monitoring forum to increase the exchange of information and protocols. (WSU Extension)

**7. Increase small acreage landowner technical assistance and voluntary incentive programs.**

- a. 1,360 private small acreage landowners receive technical assistance from conservation districts to reduce contamination and volume of stormwater runoff. (WSCC, WSU Extension)
- b. 300 private small acreage landowners implement best management practices to reduce contamination and volume of stormwater runoff. (WSCC)

**8. Educate and involve the public in preventing harm from stormwater runoff.**

- a. At least 1 shellfish growing area threatened or degraded by stormwater runoff is upgraded or protected. (Health, Partnership, Ecology)
- b. 10,000 homeowners, vehicle owners, members of the real estate and development community, and state, tribal and local government staff increase their knowledge, skills and motivation to change practices to reduce contamination and volume of stormwater runoff. This includes awarding 8,000 clock hours to real estate professionals. (WSU Extension)
- c. 75 percent of local governments provide public education and involvement opportunities to citizens. (Partnership)
- d. 300 homeowners implement best management practices to prevent stormwater runoff from their properties. (Sea Grant)

## Priority 4: Prevent nutrient and pathogen pollution



Workers retrofit an existing septic system on a Hood Canal property. | Photo by Terry Hull

**Long-term goal:** Nutrient and pathogen pollution meets water quality standards and protects public health in all Puget Sound waters.

Puget Sound's marine and fresh waters are vulnerable to nutrient and pathogen pollution from an array of human and animal sources, including municipal sewage treatment plants; onsite sewage systems; stormwater runoff and combined sewer overflows; agricultural, forest and landscaping practices; ship/boater discharges; pet waste; and wildlife. Nutrients, particularly different forms of nitrogen, can enrich estuarine and marine waters and cause a number of problems, including algal blooms that can take up oxygen when they die and reduce the oxygen available to other aquatic life. This is the condition that led the Action Team partners to place a special focus on Hood Canal, where extremely low oxygen levels led to fish die-offs in recent years (page 23). In addition to Hood Canal, Puget Sound has other areas such as the South Sound and the Whidbey Basin that are particularly susceptible to nutrient pollution.

Pathogens are disease-causing microorganisms. They include a variety of protozoan parasites, bacteria and viruses that can contaminate shellfish beds, swimming beaches, and other water resources, and can harm humans, aquatic life and ecosystem functions. Pathogen pollution in some areas of Puget Sound exceeds water quality standards.

Clean water is particularly important to the abundant shellfish resources of Puget Sound and to preserving Washington State's position as the nation's leading producer of farmed bivalve shellfish. Shellfish resources are a significant cultural and economic resource for Puget Sound tribes and also provide a recreational asset enjoyed by other residents of the region and by tourists who contribute to the state's economy. An estimated 165,000 acres in Puget Sound are classified by Health for harvest. Out of that total, approximately 28,000 acres are restricted or prohibited for commercial and recreational harvest.

Research indicates that pathogen and nutrient pollution is closely associated with the region's large and fast-growing population and rapidly urbanizing landscape. In recent decades, updated municipal sewage treatment plants dramatically lowered the concentration of many conventional pollutants discharged to Puget Sound. However, population growth and higher discharge volumes have offset some of these gains, and some pollutants—including nutrients—have received limited attention. Residents living outside urban areas are served by an estimated half-million onsite sewage systems that can contaminate Puget Sound if they do not provide effective treatment and are not managed to prevent failures.

Livestock and pet wastes contribute to nutrient and pathogen pollution when they are not properly managed. Some commercial livestock operations are covered under the state dairy nutrient management program or the water quality permit program. Thousands of small-acreage operations are not regulated and may lack effective waste management practices. In addition, fertilizers that are applied in agriculture, forestry or landscaping include nutrients that are carried to streams and marine waters in surface and stormwater runoff. Some nutrients infiltrate to reach groundwater and can impair drinking water supplies.

Dramatic increases in passenger ship traffic raise questions about wastewater discharges, treatment methods, and potential impacts associated with these vessels. A companion concern—discharges from the nearly 180,000 registered boats in the region—underscores the continued need for accessible and functional boat pump-out facilities and consideration of more carefully regulated discharge zones.

## **Partners in preventing nutrient and pathogen pollution**

### **Focusing on high risk areas**

Health works with local health authorities to develop plans and programs to regulate onsite sewage systems. As the region's population grows, the legislature, the State Board of Health and state agencies are increasing support and requirements for responsible management of onsite sewage systems, particularly those used in high-risk areas where sensitive resources are easily polluted. Health also reviews and approves new technologies to help ensure that onsite sewage treatment options are available to meet a variety of site conditions. Health shares responsibility with Ecology in regulating large onsite sewage systems that serve small communities. Legislation passed in 2006 requires Puget Sound local health authorities to develop program management

plans to strengthen their efforts to prevent onsite sewage systems from contributing to water quality problems. New legislation also directs Ecology to provide financial and technical assistance to local and tribal governments to fund grants and expanded loan programs for system replacement and repair.

Health monitors and classifies shellfish growing areas and supports water quality restoration activities when shellfish areas are threatened or closed to harvest. Health, Ecology, WSDA and Partnership staffs support the shellfish restoration efforts of local governments, farmers, shellfish growers, tribes and others. The roles of each agency are spelled out in an interagency memorandum of understanding.

### **Improving state agency coordination and implementation**

Many entities work to reduce nutrient and pathogen pollution in Puget Sound. These include state agencies, local governments, not-for-profit organizations, educational institutions and individuals. State agencies that play major roles include Ecology, Health, WSDA, the Partnership, State Parks and WSCC.

Ecology issues permits and monitors the performance of sewage treatment plants under the NPDES mandated by the federal Clean Water Act. Ecology monitors discharges from large passenger ships under the terms of a memorandum of understanding with the industry. Health is undertaking studies to assess the need for shellfish closure zones around passenger ships. Health and Ecology coordinate to efficiently address human health and environmental standards.

Ecology is required under the Clean Water Act to develop water cleanup plans for waters that do not meet state water quality standards. Ecology, with state and local partners, is working with different partners to develop and implement Water Quality

Improvement Plans to address problems associated with nutrients, dissolved oxygen, and fecal coliform bacteria. Ecology administers grant and loan funds for projects throughout the Sound to improve water quality and to build or update sewage and stormwater infrastructure. Because a large portion of the pollution is from diffuse, scattered and small sources, Ecology and other agencies work together to carry out the state's plan to prevent and reduce this "nonpoint" pollution.

WSDA administers the Dairy Nutrient Management Program that regulates licensed dairies through planning and site management requirements, regular inspections and compliance assistance in preventing pollution. WSDA also responds to complaints about certain livestock operations and coordinates with Ecology on inspections of non-dairy animal feeding operations that are covered by the NPDES Concentrated Animal Feeding Operation (CAFO) permit program. WSDA coordinates with the WSCC and conservation districts in each county that educate landowners and provide voluntary and incentive programs to help owners of small and large operations prevent pollution by managing animal waste.

State Parks provides public education and manages sewage disposal facilities at state parks, coordinating the Health as needed. In addition, State Parks funds construction of pump-outs for disposal of boat sewage, and works with other educators to encourage boaters to use these facilities.

### **Educating and involving residents**

Regulatory programs help reduce pollution from many sources, but education and voluntary actions are critical to reducing sources of nutrient and pathogen pollution from individual homes, small farms and businesses across the basin. Sea Grant, WSU Extension, Partnership staff, conservation districts and other state, tribal, local and federal partners work with local communities to offer

alternatives and programs that change polluting behaviors.

### **2007-2009 strategies to prevent nutrient and pathogen pollution**

- 1. Focus on high-risk areas.**
- 2. Improve state agency coordination and implementation.**
- 3. Support effective and innovative regulatory and non-regulatory approaches.**
- 4. Strengthen the capacity of local jurisdictions to implement comprehensive control programs.**
- 5. Educate and involve residents and others to enhance stewardship activities.**
- 6. Increase scientific understanding to guide management activities.**

### **Expected results to prevent nutrient and pathogen pollution**

- 1. Focus on high-risk areas.**
  - a. 500 commercial and recreational shellfish acres of net gain per year are upgraded for harvest based on improvements in water quality. (Health)
  - b. 12 commercial or recreational shellfish areas that are degraded or threatened have projects to restore water quality. (Health)
  - c. 2 shellfish growing areas degraded or threatened by discharges from concentrations of onsite sewage systems are upgraded or protected. (Health)
  - d. All recreational beaches with an average use of greater than 300 harvesters per year, or requested by local health departments, have classifications initiated over a three-year period. (Health)

- e. 60 beaches are monitored for bacteria and the percent that exceed bacteria standards for safe swimming decreases over the biennium. (Ecology, Health)
- f. Wastewater treatment plants for the City of Oak Harbor in the Whidbey Basin and the Squaxin Tribal Village in south Puget Sound are designed and permitted and construction begins. (EPA funds tribal/local governments)

## 2. Improve state agency coordination and implementation.

- a. 5 percent increase in the volume of boater waste collected at pump-outs as a result of State Parks education and pump-out facilities, or approximately 140,000 gallons based on current annual estimates. (State Parks)
- b. 14 boater waste facilities are installed or replaced in Puget Sound. (State Parks)
- c. 8 Water Quality Improvement Reports focused on dissolved oxygen (2) and fecal coliform (6) are completed. (Ecology)
- d. 24 percent increase in the number of large onsite sewage systems without operating permits are identified and inspected or documented as in compliance with Health and Ecology operating permits. (Health)
- e. Percentage of sewage facilities at state parks that are in compliance with Health and Ecology operating permits increase over previous biennium due to new or repaired facilities. (State Parks)
- f. 74 percent of Puget Sound state parks have pet waste disposal stations installed to reduce pet waste. (State Parks)
- g. By June 2009, state agencies improve their coordinated responses to shellfish closures and threatened shellfish areas

based on an updated interagency guidance agreement. (Partnership, Health, Ecology, WSDA)

## 3. Support effective and innovative regulatory and non-regulatory approaches.

- a. At least 90 percent of inspected Puget Sound dairies and 95 percent of permitted CAFO facilities are in compliance with state and federal water quality rules, as indicated by no need for follow-up inspections and no reported discharges. (WSDA)
- b. 400 best management practices are implemented on non-commercial livestock operations. (WSCC)
- c. 60 best management practices are approved and implemented on livestock operations that designated as Animal Feeding Operations and CAFOs. (WSCC)
- d. 400 conservation plans are completed by conservation districts. (WSCC)
- e. 250 small farm operators receive comprehensive farm management training programs. (WSU Extension)
- f. NPDES general permit is issued for tribal and federal hatchery wastewater discharges. (EPA)

## 4. Strengthen the capacity of local jurisdictions to implement comprehensive control programs.

- a. All 12 Puget Sound local health jurisdictions are implementing onsite sewage program management plans approved by Health. (Health)
- b. 6 local health jurisdictions develop the data to inventory and map onsite sewage systems in priority marine areas. (Health)

- c. Loan programs are in place in Puget Sound counties to fix failing onsite sewage systems. (Ecology manages contracts with local entities)

**5. Educate and involve residents and others to enhance stewardship activities.**

- a. Throughout Puget Sound, citizens engage in public education and involvement opportunities that change behavior and result in actions to reduce nutrient and pathogen pollution. (Partnership, WSU Extension, Sea Grant, State Parks)
- b. 6,000 homeowners change their landscape practices to ensure that fertilizers applied to their yards do not migrate to surface waters. (Sea Grant, WSU Extension)
- c. 500 homeowners will actively manage their tideland for shellfish culture that filters nutrient-rich phytoplankton from the water column. (Sea Grant)
- d. 200 tideland owners will monitor, record, quantify, and map the varieties of macroalgae and shellfish residing on their beaches. (Sea Grant)

- e. 150 environmental health professionals, conservation district staff, and environmental educators will participate in continuing education trainings regarding pathogen and nutrient pollution. (Sea Grant)

**6. Increase scientific understanding to guide management activities.**

- a. Monitoring data are collected and work begins on a dissolved oxygen and nutrient model for south Puget Sound. (Ecology)
- b. An assessment of nitrogen loading begins for Puget Sound as a whole. (EPA)

# SPECIAL • Low Dissolved Oxygen FOCUS • in Hood Canal



Looking northward toward Hood Canal.  
| Photo by Terry Hull

Hood Canal's deep marine waters are at serious risk from hypoxia, a lack of dissolved oxygen. While Hood Canal has had a history of low dissolved oxygen levels resulting in fish kills documented as far back as the early 1950s, monitoring data from 2002-2003 found dissolved oxygen levels at their lowest in recorded history.

This problem caught the public's attention in the spring of 2002, the fall of 2003 and early fall of 2006 when dead fish and other marine life washed up on Hood Canal beaches, having essentially suffocated. During 2004, the canal's oxygen levels were the lowest in recorded history. The Canal experienced another major fish kill in 2006, and current measurements in deep waters of lower Hood Canal show that the oxygen decline continues, with levels approaching "anoxic," or nearly devoid of measurable oxygen.

In recent years the area of low dissolved oxygen has been getting larger, spreading northward from the Great Bend of the canal, and the periods of low dissolved oxygen are lasting longer throughout the year.

Many natural factors contribute to the low dissolved oxygen problem: slow water circulation and mixing, the incoming ocean water quality, changes in the weather, high growth of algae, loadings of carbon and nitrogen, and changes in the native marine life composition.

Human activities also affect the dissolved oxygen concentration in several ways, including altering the river flows, landscapes, and marine life, and adding excess nutrients to the waters that can fuel extra algae growth that takes up oxygen when it dies.

Determining the causes of the problem in Hood Canal and restoring water quality is critical to save the aquatic life of a unique part of Puget Sound. Solutions for Hood Canal will also help to prevent and address low dissolved oxygen problems elsewhere in Puget Sound. As the basin's population increases, work in Hood Canal to address nutrient pollution and low dissolved oxygen problems may be used in other areas of Puget Sound.

## Partners in restoring Hood Canal water quality

The Hood Canal Dissolved Oxygen Program (HCDOP) is a partnership of 38 organizations that conducts monitoring, modeling and analysis and develops corrective actions to address the human inputs of nitrogen that contribute to the low dissolved oxygen problem. The Partnership staff chair the HCDOP coordinating group and co-manage the corrective action and education component of the group with the Hood Canal Coordinating Council (HCCC). Partnership staff also coordinate a group of agencies that focus funding, technical assistance and other

resources on supporting HCDOP efforts. The HCDOP has three main areas of work: implementing early actions, developing scientific information to better determine the causes of the problem, and public education and involvement.

### **Carrying out corrective actions**

Partnership staff and the HCCC collaborated to produce the *Hood Canal Low Dissolved Oxygen Preliminary Assessment and Corrective Action Plan (PACA)* in May 2004. The plan identified the most likely human causes of nitrogen loading and the recommended actions that will help reduce the overall nitrogen inputs to Hood Canal. Federal and state funding initiated a series of early action projects to address human-caused pollution in October 2004.

In 2005, the legislature established the Hood Canal Aquatic Rehabilitation Zone and appropriated 20 million dollars to accelerate corrective actions. In 2006, an additional \$6.1 million was added. Projects initiated and underway include: improvements to State Parks wastewater systems; shoreline water quality surveys to find pollution sources; loans for fixing failing onsite sewage systems; design of an anaerobic digester to treat organic waste; feasibility studies needed in advance of design phases to ultimately construct wastewater systems for the Skokomish to Hoodspout area and the Belfair area; education activities to improve stewardship, improvements to the state's Hoodspout fish hatchery to reduce pollution; and installing and monitoring onsite sewage systems with new technologies to reduce nitrogen.

Ecology, WSCC, Health, CTED, EPA and other agencies provided technical assistance and advice for many of the projects.

### **Improving scientific understanding**

The HCDOP Integrated Assessment and Modeling Study is a three-year study to use marine, freshwater and biota monitoring data to develop a computer model. The model will be used to determine the effect of various sources of nutrients on the dissolved oxygen levels and to evaluate the effect of proposed corrective actions. Federal funding supports work by the U.S. Geological Survey (USGS) and the University of Washington Applied Physics Laboratory for the study. The study is a collaboration among 17 organizations. Based on the model results, the HCDOP will propose additional corrective actions to address the significant causes of the low dissolved oxygen.

Ecology and other HCDOP partners are presently sharing and coordinating work on monitoring and modeling.

### **Educating the public**

The Hood Canal Watershed Education Network is a group of organizations that are conducting education and public involvement activities in the Hood Canal watershed. State agencies and WSU Extension and Sea Grant play an integral role in Hood Canal education efforts. The Partnership hosts a Web site for information about Hood Canal's water quality problems and what people can do to help, and publish a quarterly electronic newsletter about Hood Canal in cooperation with the HCCC. Many of the HCDOP partners and other local organizations are working to build a citizen stewardship network to promote actions that reduce pollution.

## 2007-2009 strategies for improving Hood Canal water quality

1. Carry out early actions to help fix water quality problems in Hood Canal.
2. Strengthen local governments' abilities to correct existing pollution problems and to deal effectively with the impacts of increasing population.
3. Improve the scientific understanding of Hood Canal and apply that understanding to solutions.
4. Educate and inform the public about the low dissolved oxygen problem and engage them in activities to improve water quality.

## Expected results for improving Hood Canal water quality<sup>2</sup>

1. Carry out corrective actions to help fix water quality problems in Hood Canal. (State agencies are identified where they are managing contracts with local entities responsible for completing the work.)
  - a. Construction begins for a sewage treatment system(s) in Skokomish-Hoodsport corridor (Mason County). (Ecology manages contract for facilities design with Mason County; Parks coordinates wastewater facilities plans with wastewater treatment plans in the adjacent Potlatch area as appropriate.)
  - b. Design/construction begins for a sewage treatment system for the Belfair Urban Growth Area and adjacent service area (Mason County). (Ecology manages

- contract for facilities design with Mason County; CTED administers funds for construction; State Parks coordinates wastewater facilities at Belfair State Park with the Belfair system as appropriate.)
- c. Shoreline surveys in Mason, Jefferson and Kitsap counties are completed, and failing onsite sewage systems are identified and addressed. (Ecology contract with local entities)
  - d. Mason, Jefferson and Kitsap counties have loan programs in place to fix failing onsite sewage systems. (Ecology contract with local entities)
  - e. Stormwater management plans for Hoodsport and Belfair are completed, the overall Mason County stormwater program is enhanced, and initial actions are taken to implement recommendations of those plans. (Ecology contract with Mason County)
  - f. Construction begins for wastewater systems at Dosewallips State Park and 3 other Hood Canal state parks. (State Parks)
  - g. Construction is completed for the Hoodsport fish hatchery wastewater treatment system and the mass loading of nitrogen from this hatchery is reduced by 75 percent. (WDFW)
  - h. Fecal coliform bacteria concentrations in water draining to Hood Canal from the Skokomish River/Annas Bay watershed meet water quality standards. (Ecology)

<sup>2</sup> Results listed are those that are unique to Hood Canal as a special focus area under this priority. A number of the Sound-wide results to prevent nutrient and pathogen pollution under the broader priority include work that will benefit Hood Canal.

- i. Fecal coliform bacteria loading from the Union River meet water quality standards and Water Quality Improvement Plan targets. (Ecology)
- 2. Strengthen local governments' abilities to correct existing pollution problems and to deal effectively with the impacts of increasing populations.**
- a. Mason, Jefferson and Kitsap health boards adopt and implement a program to manage onsite sewage systems. (State agencies assist Mason, Jefferson and Kitsap counties)
  - b. The findings of the 2005-2007 governance study are implemented. (HCCC)
  - c. An assessment is made of the effect of projected growth on the canal's nitrogen input and ultimately on dissolved oxygen levels. (HCDOP and the Integrated Assessment and Monitoring program, HCCC, local governments)
- 3. Improve the scientific understanding of Hood Canal and apply that understanding to solutions.**
- a. Sub-watersheds are identified where new and replacement onsite sewage systems need to incorporate nitrogen removal. (HCDOP)
  - b. The Integrated Assessment and Modeling study of Hood Canal is completed and used to inform corrective actions and to evaluate the effect of various sources of nutrients on the dissolved oxygen levels. (HCDOP)
  - c. Population surveys of deepwater geoduck and sea cucumbers are conducted to gather information on health, distribution and ecologic function. (DNR reappropriation requested, Ecology, Hood Canal Salmon Enhancement Group, UW)
- d. A study of nitrogen pathways from onsite sewage systems entering Hood Canal is completed (the second of two phases). (Partnership contracts with consultant—additional funding requested)
  - e. Nitrogen-removing onsite sewage systems are monitored to evaluate the technologies. (Partnership contract with Jefferson County—additional funding requested)
  - f. Nitrogen reductions achieved from 2005-2007 corrective actions in Hood Canal are calculated. (EPA funds HCDOP)
- 4. Educate and inform the public about the low dissolved oxygen problem and engage them in activities to improve water quality.**
- a. 1,500 residents receive information about corrective actions in the Canal and resources to help them adopt behaviors that will protect the Canal. (WSU Extension, Sea Grant, Partnership)
  - b. 1,000 residents actively participate in stewardship programs and adopt canal-friendly practices in managing their homes and landscapes. (WSU Extension, Sea Grant)
  - c. Hood Canal education programs are coordinated and educational materials provide scientifically accurate and updated information. (Partnership)
  - d. 8 quarterly newsletters, 2 Hood Canal Forums, and an updated Web site keep the public informed. (Partnership)

## Priority 5: Protect functioning nearshore and freshwater habitats



Nisqually estuary saltmarsh in Thurston County. | *Photo by Brian Walsh*

**Long-term goal:** Preserve marine and freshwater habitats and the ecological processes that create and maintain them.

Puget Sound's population has doubled from 2 million to 4 million since 1960 and is projected to reach 5.4 million by 2025. This growth has led to changes across the landscape that include loss of and damage to habitats for a number of species that are critical to the Puget Sound aquatic food web. ESA listings of salmon and orca, the alarming declines in many other species, the list of polluted water bodies, the disappearance of nearshore habitats, the acres of closed shellfish harvest areas, and changes in streamflows and flooding patterns are evidence of the loss of habitats, the processes that support them and the functions they perform in the ecosystem.

In some parts of Puget Sound, the landscape is now urban. In less urbanized areas there is increasing pressure to accommodate growth by expanding development into remaining habitats. As growth continues, preserving functioning habitats and the associated ecological processes requires a combination of regulatory and voluntary

approaches. Those efforts are connected to the work described under the priorities for restoring degraded habitats and for protecting species diversity.

In addition, aquatic nuisance species not native to the Sound can alter and destroy habitats and cause rapid and irreversible impacts to the ecosystem. The recent discovery of invasive colonial tunicates in areas of the Sound is an example of this threat. The experiences of other major estuaries in the United States that have high population growth rates, a large boating community, and international port facilities are a reminder that it is imperative that Puget Sound prepare to respond to such events to protect the Sound's ecosystem.

Land-use regulations are necessary to protect public health and safety, public and private property, as well as public trust resources that benefit society and are needed to sustain future generations. Local governments protect habitats using a regulatory approach in large part by implementing the state Growth Management Act and Shoreline Management Act. By July 1, 2007 almost all Puget Sound local governments will have completed critical areas ordinances updates. A number of Puget Sound jurisdictions will be revising regulations to meet requirements of Ecology's Shoreline Master Program (SMP) Guidelines that were updated in 2004 to improve protections for shoreline ecological functions.

Working lands such as well-managed agricultural and forest lands support habitat protection. Protecting working resource lands from conversion and urbanization is consistent with the state's goals in the Growth Management Act.

At the same time, local watersheds in Puget Sound are completing a period of significant watershed-based planning. Regional efforts funded in part by the state include Water Resources Inventory Area plans under the Watershed Planning Act, local watershed chapters of the *Draft Puget Sound Salmon Recovery Plan* coordinated by the Puget Sound Shared Strategy, and the recovery plan for Hood Canal Summer Chum Salmon developed by the HCCC. In addition to completing and now implementing these plans, the local and tribal governments, agricultural, forestry and business interests, non-governmental organizations, and individual citizens who contributed to these efforts formed watershed groups. Watershed councils continue to benefit local communities as forums for finding cooperative solutions to natural resource questions. State agencies are responsible to implement state government actions, as well as to fund and assist local watersheds in making on-the-ground progress in local actions. State, tribal, local and citizen partnerships are also building stewardship networks of volunteers, homeowners, realtors, farmers, business and other interests to support habitat protection in communities across Puget Sound.

### **Partners in protecting functioning habitats**

#### **Preserving habitat using conservation tools**

Many communities have land trusts, salmon recovery groups, conservation organizations and others working to purchase land and conservation easements in high-value habitat areas for permanent protection, as a voluntary approach to habitat conservation. Local governments provide tax incentives to landowners and often join as partners with conservation or restoration groups in acquiring land as part of a larger restoration project. The Cascade Agenda in King County led by the Cascade Land Conservancy is an example of a successful large-scale approach to protect habitats using innovative incentives and market-based tools.

IAC administers funding from several sources used by local groups to protect and restore habitat and purchase land and easements. The IAC also supports the state's Invasive Species Council and the Washington Biodiversity Council. DNR designates and manages aquatic reserves in Puget Sound for areas of special ecological value. Agencies that manage state-owned land such as DNR, WDFW, WSDOT and State Parks apply a conservation approach in the context of individual agency mandates. WSCC helps protect agricultural and forest resource lands and related habitat through technical assistance and cost-share programs to improve habitat and water quality.

#### **Updating land use regulations to protect habitat**

CTED, as the lead agency for the Growth Management Act, coordinates among state agencies for updates of local critical areas ordinances that protect critical habitat. Ecology leads efforts to assist local governments in updating local SMPs. As local governments begin to use newly updated regulations, state resource agencies provide improved scientific data, guidance, and training. Resource agencies such as WDFW, DNR, WSDA, Health, and Partnership staff provide technical assistance, data, public education, and funding.

#### **Integrating and implementing watershed plans**

Ecology is the state lead for watershed planning by Water Resources Inventory Area for water supply, as well as optional elements for habitat, instream flows and water quantity. Local watershed groups developed salmon recovery plans coordinated by the Shared Salmon Strategy for Puget Sound, a public-private effort funded through the Salmon Recovery Funding Board. WDFW, Health, DNR, WSDA, IAC, the conservation districts, and Partnership staff all assisted with funding, technical support, and guidance and will continue this support as watersheds implement the plans. Watershed plans around water quality include nonpoint plans, Water Quality Improvement

Plans for impaired water bodies, and shellfish closure response plans led by Ecology, Health, or the Partnership. All of these efforts were led at the local level by groups that included local governments, tribal governments, environmental organizations, agricultural and business interests, and citizens.

State agencies have developed computer-based watershed characterization and analysis tools and are transferring these tools to local governments. These integrative tools provide better information to decision-makers by showing the combined effects of regulatory and voluntary actions from a number of plans on watershed and habitat-forming processes. Demonstration projects use these tools developed by resource scientists in Ecology, WDFW and WSDOT to find practical solutions to watershed issues and to prioritize and sequence actions from various plans to implement them more effectively and efficiently. Project partners include CTED, Partnership staff, EPA, WSCC and other agencies.

### **Preventing introduction of aquatic nuisance species**

WSDA leads the state's effort to monitor for and eradicate invasive spartina infestations in the state. The agency also prevents the introduction of invasive aquatic plants through its quarantine programs, and controls other invasive aquatic plants. The state Noxious Weed Control Board works with landowners to control and eradicate invasive aquatic plants infesting private property. Ecology provides technical and financial assistance to local governments and lake associations to manage and eradicate freshwater invasive weeds. WDFW regulates pathways and practices that introduce non-native animals, and responds to newly found invaders. Partnership staff coordinates and supports a number of activities, including staffing the state Ballast Water Committee, and coordinating the state's response to eradicate invasive tunicates recently found in Puget Sound.

In 2006, the governor and the legislature provided emergency and supplemental funds to eradicate invasive non-native tunicates. The 2006 legislature also created a policy level Invasive Species Council to coordinate among state agencies on aquatic and terrestrial invasive species issues.

### **Building a network for education and stewardship**

Building public awareness and stewardship is a cornerstone of the approach to habitat protection in many watersheds. WSU Extension, Sea Grant, Partnership staff, conservation districts, and others provide funding and assistance for public involvement and education efforts. Experts from most state agencies assist in education and training. The rapid expansion of Beach Watcher and Shore Steward programs, and the Soundwide success of neighborhood bay and stream protection groups testifies to the growing commitment of Puget Sound's residents to protecting its habitats.

### **2007-2009 strategies for protecting functioning habitats**

1. **Preserve functioning habitats through a variety of conservation tools.**
2. **Help effectively update and implement regulations that protect functioning habitats.**
3. **Integrate and implement local watershed, salmon recovery and other plans.**
4. **Prevent the introduction or expansion of new aquatic nuisance species.**
5. **Develop a network of sustainable resources to support Soundwide education and stewardship.**
6. **Identify and fill information needs to improve the effectiveness of protection strategies.**

## **Expected results for protecting functioning habitats**

### **1. Preserve functioning habitats through a variety of conservation tools.**

- a. An additional 5,000 acres of ecologically important land is protected. (DNR, WDFW, IAC, EPA, State Parks, Ecology)
- b. Designation of one aquatic reserve during the course of the biennium. (DNR)
- c. Planning for a Habitat Conservation Plan to protect federally-listed endangered and threatened species on state-owned aquatic lands is finalized. (DNR, USFWS, NOAA Fisheries)
- d. The Office of Farmland Preservation is created to provide technical and financial assistance to local groups and governments for economic incentives to protect agricultural lands from development. (WSCC)

### **2. Help effectively update and implement land-use regulations that protect functioning habitats.**

- a. King and Jefferson counties and the cities of Seattle, Burien, Shoreline, Auburn, Kirkland, Federal Way, Lynnwood, Monroe, Sammamish, Sumas, Tukwila and Woodinville complete inventories for SMP updates. All are on track to adopt more protective guidelines by December 1, 2009. (Ecology)
- b. Local governments receive technical assistance and inventory data to update critical areas maps for effective critical areas ordinance implementation. (Partnership, WDFW, Ecology, CTED, DNR)

- c. 10 trainings and presentation provide guidance on implementing wetland management. (Ecology—additional funding provided under the “Mitigation That Works” initiative.)
- d. Adoption of wetland mitigation banking rule is completed by end of biennium. (Ecology)
- e. Compliance monitoring of approved wetland mitigation sites increases from nearly zero to 75 percent, with monitoring accomplished within 18 months of receipt of as-built plans. (Ecology)
- f. 100 percent of new wetland permit data will be entered for new permitted wetland mitigation sites, beginning in 2008. (Ecology)
- g. A critical areas ordinance guidance document is provided to small cities. (CTED)
- h. Guidance and training in alternatives to “hard” shoreline armoring are provided to state, local, tribal and federal staff and the consulting and building communities. (Partnership, WDFW)
- i. Demonstration projects in “soft” shoreline stabilization alternatives are constructed and monitored for effectiveness. (Partnership)
- j. A study of financial incentives is conducted for local governments to install natural process features as part of waterfront re-development plans. (Partnership)

### **3. Integrate and implement local watershed, salmon recovery and other plans through regulatory and voluntary approaches.**

- a. Local watershed groups receive resources and guidance to integrate

- watershed, salmon recovery and other plans to carry out actions effectively. (Partnership, all agencies)
- b. Whatcom County receives assistance to implement results of the Birch Bay stormwater and watershed protection project. (Partnership, EPA, Ecology, WDFW, CTED)
  - c. Demonstrate Watershed Characterization as a promising standard for watershed-based mitigation by providing assistance to 3 to 4 local jurisdictions over the biennium. (Ecology, WDFW, WSDOT)
  - d. 2 watersheds adopt new instream flow or water management rules that protect freshwater salmon habitat. (Ecology)
  - e. Pilot projects in the Skagit River basin demonstrate incentives to protect wildlife habitat, improve water quality and maintain or improve the economic vitality of participating farmers. (EPA, Skagit Systems Cooperative, The Nature Conservancy)
- 4. Prevent the introduction or expansion of new aquatic nuisance species.**
- a. At least 5 percent of all vessels that arrive at Puget Sound ports are inspected to make sure that ballast water is properly managed. (WDFW)
  - b. Ballast water samples furnished by WDFW for all vessels that arrive at Puget Sound ports are analyzed to evaluate the risks for introducing non-native species to the Sound. (Sea Grant)
  - c. Volunteer organizations monitor about 70 sites in Puget Sound for the presence of the invasive non-native European green crab and report their findings. (WDFW)
  - d. A strategic plan is prepared that addresses agency coordination and preventing, detecting, and responding to invasive species. (IAC reports as staff to Invasive Species Council)
  - e. Training and educational materials are provided to recreational divers to identify and report the presence of invasive aquatic species. (WDFW, Sea Grant, Partnership)
  - f. 25 percent of Puget Sound's 145 marinas are monitored for the presence of non-native plants and animals. (WDFW)
- 5. Identify and fill information needs to improve the effectiveness of protection strategies.**
- a. The percent of development that occurs within Urban Growth Areas (UGAs) increases as compared to the percent that occurs outside of UGAs in Puget Sound counties required to report on buildable lands (King, Pierce, Snohomish, Kitsap, and Thurston). (CTED)
  - b. Information on regional changes in land cover and impervious surfaces is available to use to evaluate the effectiveness of protection strategies. (Partnership, EPA)
  - c. A "Conservation Registry" database is developed for locations of past, present and future conservation projects located in Puget Sound region. (WDFW)
  - d. Eelgrass status and trends are monitored annually throughout Puget Sound and focused studies are completed in two regions. (DNR)
  - e. The effects of stressors on eelgrass abundance and distribution are evaluated at two sites. (DNR)

- f. The status and trends in floating kelp abundance and distribution are tracked. (DNR)
  - g. Biodiversity in intertidal biotic communities in central and southern Puget Sound are tracked. (DNR)
  - h. A review of Hydraulic Project Approval compliance and effectiveness is conducted, including evaluation of mitigation. (WDFW)
- 6. Develop a network of sustainable resources to support Soundwide public outreach and landowner education and stewardship.**
- a. 10 counties have shoreline landowner workshops to build stewardship behaviors that protect and restore habitats. (Partnership)
  - b. 800 local government staff, real estate professionals, developers and citizens increase their knowledge and behaviors to better protect functioning habitats. This will include awarding 10,000 clock hours to real estate professionals. (WSU Extension)
  - c. 400 Beach Watcher volunteers are trained and Shore Stewards increase membership in the north Sound by 1,000 members. (WSU Extension, Sea Grant, NWSC)
  - d. 500 tideland owners will be able to identify and maintain the tideland plants growing in their tidelands and understand their ecological value. (WSU Extension)
  - e. Educational programs on estuary and wetlands serve 8,000 school children at the Padilla Bay National Estuarine Reserve. (Ecology)
  - f. Updated guidelines for Puget Sound-friendly nearshore development are disseminated to property owners. (Ecology, Partnership, other agencies)
  - g. 150 Puget Sound 7th and 8th grade students attend an annual Science Camp to study fisheries, marine mammals, environmental assessment, oceanography, and weather at the NOAA facility at Sand Point. (NOAA Fisheries)

## Priority 6: Restore degraded marine and freshwater habitats



Broken concrete bulkhead on West Beach Road, Whidbey Island. | Photo by Marsha Engel

**Long-term goal:** Restore streams, nearshore, and estuarine habitats within Puget Sound to achieve a net gain in ecological function and area.

Extensive development and land conversion throughout the Puget Sound basin over the last hundred years has resulted in significant loss of fish and wildlife habitat, on the shorelines, near rivers and streams that empty into the Sound and in the uplands. Habitat has also been impaired through the introduction of non-native and invasive species, which can alter habitats and overwhelm native species, and by derelict fishing gear such as abandoned or lost nets and crab pots in marine waters.

This loss and alteration of key habitat and habitat-forming processes has led to a resulting pressure on many of the Sound's living resources, from salt marshes, eelgrass beds and forage fish. Loss of these habitats and species spreads through the food web to affect salmon, marine birds and orca whales. Protecting remaining functioning habitat and restored habitats along with work under this priority area is necessary to recovering the species in decline in Puget Sound.

Evidence of habitat degradation includes declining water quality, altered instream flows and water levels, invasions of non-native plants and animals, and lack of native vegetation, especially along streams and shorelines. Increased development in river floodplains and marine shorelines disrupts habitat-forming processes as individuals and communities attempt to manage new flooding, erosion and landslide hazards. The greatest habitat losses have occurred in areas of high population density and areas associated with major infrastructure such as roads, ports, dams, and leveed agricultural areas. A majority of the Sound's shoreline has been modified, with impacts to nearshore habitats and species that function as critical links in the food web.

State, federal, tribal and local partners working to restore freshwater and nearshore habitats focus efforts on recovering the underlying natural processes that move water, organic material, and sediment. State and federal agencies and restoration scientists making funding decisions look at how the projects will continue to function and support habitat-forming processes over time.

### Partners in restoring degraded marine and freshwater habitats

#### Restoring habitat forming processes

State and federal agencies provide funding for habitat restoration through a variety of programs. The state Salmon Recovery Funding Board (SRFB) and Aquatic Lands Enhancement Account (ALEA) are administered by the IAC. Other funds are provided through Ecology, DNR, WDFW and WSCC. Federal agencies with funding programs include the EPA, NOAA Fisheries and USFWS. Citizen volunteers working in Regional Fisheries Enhancement Groups receive funding from WDFW to coordinate

salmon restoration activities, and cooperative groups of local and tribal governments and citizens develop and submit ranked project proposals to the SRFB through lead entities established under the Salmon Recovery Act in 1998.

### **Carrying out large-scale restoration initiatives**

All of these agencies and the Partnership work with the U.S. Army Corps of Engineers (ACOE) and other federal agencies under the Puget Sound Nearshore Partnership (PSNP) which explores the feasibility of large-scale nearshore ecosystem restoration. Through PSNP they benefit from improved science, strategic planning and early action implementation. In addition to the regional PSNP efforts, the state and federal agencies also support smaller-scale restoration work done by many local groups.

The NWSC developed protocols and initiated a project to remove abandoned gear from Puget Sound waters that causes significant harm to habitats and marine life. NOAA Fisheries, DNR, WDFW and other partners assist the NWSC in removing tons of derelict gear from marine waters and are expanding this successful program to other parts of the Sound.

### **Controlling and eradicating aquatic nuisance species**

WSDA receives state funding to control and eradicate spartina infestations in Puget Sound. WDFW and local groups receive some funds from WSDA for this purpose. WDFW is also the lead agency for implementing the Early Detection and Rapid Response Plan for aquatic invasive species.

### **2007-2009 strategies for restoring degraded habitats**

1. **Restore degraded habitats by restoring habitat-forming processes.**
2. **Plan and undertake large-scale nearshore restoration initiatives through PSNP.**
3. **Improve restoration projects by applying the best scientific principles and a process-based approach.**
4. **Improve and streamline permitting for restoration projects.**
5. **Control and stop aquatic nuisance species from spreading and rapidly and effectively respond when any new species are detected.**

### **Expected results for restoring degraded habitats**

1. **Restore degraded habitats by restoring habitat-forming processes.**  
(The IAC will report on habitat gains for results a, b and c that are carried out by many agencies/entities).
  - a. 700-acre increase in the area of tidally and seasonally influenced estuarine wetlands. (IAC)
  - b. 500 acres of Puget Sound shorelines, estuaries, rivers and streams are improved by habitat restoration projects. (IAC)
  - c. 4 Puget Sound drift cells are improved through efforts to restore and protect the natural delivery of sediment and organic matter. (IAC)
  - d. 400 new acres and 20 new stream miles of increased riparian habitat are protected by the Conservation Reserve Enhancement Program. (WSCC)
  - e. Habitat is improved at 3-6 state parks to serve as demonstrations of Sound-friendly development. (State Parks)

- f. Derelict fishing nets and derelict crab and/or shrimp pots are removed from Puget Sound to uncover marine habitats and prevent further harm to marine life. (NWSC, NOAA Fisheries, DNR, WDFW)
- g. 14 derelict vessels are removed from the marine environment. (DNR)
- h. A Puget Sound Chapter of the Corporate Wetlands Restoration Program is established to help fund local habitat protection and restoration projects. (EPA through Pacific Northwest National Labs)

## 2. Plan and undertake large-scale restoration initiatives through PSNP.

WDFW is the state lead agency, ACOE is the federal lead agency. Partners include multiple state, federal, tribal and local governments and entities.

- a. Phase II of the PSNP study, and the Deschutes Estuary Restoration and Burlington Northern Santa Fe projects have completed feasibility studies.
- b. Restoration projects for the Nisqually Estuary, the Qwuloolt Estuary, the Skokomish Estuary, and the Wiley Slough Skagit Estuary are completed.
- c. Complete estuary and salmon restoration projects funded in the 2006 supplemental budget. (projects as identified for WDFW, State Parks)
- d. PSNP Strategic Needs Analysis and the Future Without Project Analysis are completed. (WDFW, Partnership, EPA)

## 3. Improve restoration projects by applying the best scientific principles and a process-based approach.

- a. Criteria for project design and funding prioritizes are developed that incorporate Guiding Restoration Principles developed by the PSNP. (IAC, WDFW)
- b. Recommendations of the *Puget Sound Salmon Recovery Plan* regional nearshore chapter are carried out in restoration projects. (IAC, WDFW)
- c. Restoration strategies in updated Shoreline Master Programs address marine shoreline restoration. (Ecology)
- d. Priority actions in Shoreline Master Program restoration strategies receive technical and financial assistance. (Ecology, WDFW, IAC)

## 4. Improve and streamline permitting for restoration projects.

- a. A streamlined process for Endangered Species Act consultation on restoration projects is developed by federal agencies. (ACOE, NOAA Fisheries, USFWS, EPA)

## 5. Control and stop aquatic nuisance species from spreading, and rapidly and effectively respond when any new species are detected.

- a. 100-acre reduction in the area of Puget Sound infested by spartina, which is an approximately 20 percent decrease per year in the total infested area. (WSDA)
- b. Established populations of the club tunicate (*Styela clava*) are controlled and eliminated at locations in Puget Sound. (WDFW, Partnership, DNR)

- c. A response strategy is developed and implemented for non-native *Styela clava* (club tunicate) and *Ciona savignyi* (transparent tunicate). (WDFW, Partnership, Ecology, DNR)
- d. A strategy to raise public awareness of invasive species as a significant environmental threat to Puget Sound is developed and implemented. (Aquatic Nuisance Species Committee: WDFW, Partnership, Ecology, DNR, WSDA, State Parks, IAC)

## Priority 7: Protect species diversity



Copper rockfish. | Photo by Jim Ramaglia

**Long-term goal:** Manage Puget Sound to protect the full range of its biological diversity.

Pollution, loss of habitat, over-harvest or competition with non-native species can reduce the population of a native species until it is at risk of extinction. Any native species whose abundance is steadily declining is at risk. Conserving and recovering Puget Sound species at risk requires significant progress on all of the priorities of this plan.

The region's biodiversity is threatened by declines in the abundance of some aquatic species to levels that signal ecosystem imbalance. This imbalance, if not corrected, could lead to significant degradation of the ecosystem. Federal and state laws require special protection efforts and recovery plans for species at risk of extinction. All of the efforts underway in other priorities of this plan to clean up and prevent pollution from entering the food web and to protect and restore habitat will benefit the species at risk, but additional actions identified in recovery and management plans will accelerate that recovery.

This priority addresses at-risk species of orca, salmon, forage fish, marine fish, marine birds and native shellfish. During the 2007-2009 budget period the Partnership will develop a strategic approach for this priority to protect Puget Sound biodiversity that be broader and more comprehensive, while continuing to implement the legally-required species-based recovery plans.

### Orca

In 2005, NOAA Fisheries designated southern resident orca—or killer whales—as endangered under the federal ESA. The State Fish and Wildlife Commission in 2004 added all orcas to the state list of endangered species. Canada has listed both the northern and southern resident whales under their Species At Risk Act. In a draft *Orca Conservation Plan for Southern Resident Killer Whales* issued in 2005, NOAA Fisheries listed toxic contamination, availability of food, and disturbance by noise and other activities as key factors in orca survival. Transient orcas prey on seals and other marine mammals and are part of a widespread population. The northern resident orcas are fish-eaters and spend much of their time in British Columbia but occasionally enter Washington waters.

A key prey for the southern resident orca is salmon, especially chinook salmon. These orcas spend summers in the transboundary waters of the San Juan Islands and may travel throughout the Sound other parts of the year. Some also travel south to California and north along the west coast of British Columbia during the winter. The survival of resident orcas has been linked to salmon survival, and thus to freshwater and nearshore habitat conditions as well as open ocean habitat and fishing and hatchery decisions. Forage fish that rely on nearshore habitat are a food supply

for both orca and salmon and many other marine fish, marine birds, and other marine mammals. Toxic contamination of orcas may occur if the orca eat bottomfish from toxic hot spots, or other fish that have accumulated toxic chemicals in their tissues as the chemicals spread through the food web. Human disturbances may occur from vessel activity and other underwater noise sources. An oil spill would have disastrous effects on the orca.

In addition to the NOAA Fisheries proposed *Orca Conservation Plan for Southern Resident Killer Whales*, Canada's Department of Fisheries and Oceans (DFO) has completed a recovery strategy for the northern and southern residents. NOAA Fisheries also protects orcas under the Marine Mammal Protection Act. A committee that includes NOAA Fisheries, Ecology, EPA, DFO and the British Columbia Ministry of Water, Land and Air Protection shares information and coordinates among the various recovery efforts. Puget Sound also has an active community of interested citizens with representatives in these processes.

### **Salmon**

In 1999, NOAA Fisheries listed Puget Sound chinook and Hood Canal Summer Chum salmon as threatened under the federal Endangered Species Act (ESA). USFWS also listed as threatened Puget Sound stocks of bull trout. The causes of salmon declines have been broadly characterized as habitat destruction, harvest management, hatchery management, and hydropower projects. In March 2006, NOAA Fisheries proposed listing Puget Sound steelhead as threatened under the federal ESA with a final decision due in late 2006.

In addition to funding salmon habitat restoration programs the state helped fund the Puget Sound Shared Strategy's efforts to coordinate a Soundwide collaborative effort to develop the *Draft Puget Sound Salmon Recovery Plan* for Puget

Sound Chinook salmon. Submitted to NOAA Fisheries in June 2005, the plan is currently undergoing review. Agencies have contributed a variety of results in this plan that help to implement the draft salmon recovery plan, and with the Governor's Salmon Recovery Office (GSRO) will track and report on them.

NOAA Fisheries is working with state and tribal co-managers to integrate harvest and hatchery operations into the plan. At the same time, state, local, tribal and private parties are beginning to implement actions in the plan. The Shared Strategy has created the Puget Sound Salmon Recovery Council with representatives of each of the 14 watershed areas that wrote local chapters for the plan. Early actions in nearshore and estuarine waters have been undertaken through funding provided by the Washington State Legislature and Governor in 2006.

In addition, HCCC drafted a *Hood Canal Summer Chum Recovery Plan* with funding from the state SRFB. It was submitted to NOAA Fisheries in October 2005 and is under review for adoption.

### **Forage Fish**

Several important species of forage fish such as surf smelt, sand lance, and Pacific herring that live and spawn on the shoreline or in the shallow nearshore marine waters of Puget Sound are the focus of management plans to address historical declines. Forage fish and their eggs are critical prey for a large variety of marine life including fish, birds, and marine mammals. Migrating and resident salmon rely on Puget Sound forage fish as the salmon travel to and from the Pacific Ocean.

Inventories by WDFW and others suggest that extensive shoreline development has significantly reduced the spawning habitats of surf smelt and sand lance, which occur high up on beaches and are susceptible to scouring from hard shoreline modifications such as seawalls and water pollution

from runoff. Dredging, pollution and shading of nearshore waters can remove or diminish eelgrass beds that herring use as spawning habitat. Pacific herring stocks declined sharply in the north Sound (Cherry Point) and Discovery Bay in the early 1990s although there were slight increases in the central and south Sound stocks during the same time frame. Although NOAA Fisheries reviewed the severe decline of the Cherry Point herring stock for listing under the ESA, in 2005 it determined that the stock does not qualify for protection because it does not meet the standards for a “species” under the ESA. Both of these stocks have demonstrated some limited recovery during the ensuing period.

WDFW has a forage fish management plan and is transferring years of inventory data to digital maps to make available to local governments and restoration groups. A number of recent local government critical areas ordinance updates added forage fish protection measures. Marine Resource Committees, salmon restoration groups, tribes and others are undertaking inventory and mapping projects to better understand and protect these species. Shoreline landowner education conducted by Partnership staff, Ecology, Sea Grant, WSU Extension, other agencies and local partners helps to increase awareness and improve protections along targeted shorelines.

While certain forage fish stocks are in decline, anchovies have been documented in recent years in south Puget Sound and are the subject of a work group of state, tribal, federal and other scientists to understand whether this signals a change in the ecosystem, and how significant this species is to the food web in Puget Sound.

## Groundfish

Puget Sound groundfish include over 150 species, including sharks, rockfish, codfish, flatfish and lingcod, among others. They make up a high percent of the biomass of the ecosystem. Several key species including rockfishes, dogfish, Pacific cod, Pacific hake, and walleye Pollock have undergone dramatic declines during the past 20 years. Eighteen species were reviewed for listing under the federal ESA by NOAA Fisheries. Although the petition was denied in 2000, the federal agency concluded that Pacific hake are a candidate species and other species are vulnerable. They recommended that the state impose stronger conservation measures and target meaningful recovery efforts.

WDFW manages groundfish under the terms of the Puget Sound Groundfish Management Plan and has limited fisheries and, under the approval of the state Fish and Wildlife Commission, has also been establishing a series of Marine Protected Areas/Conservation Areas as part of a rockfish recovery effort in Puget Sound. The long-term strategy is to provide a series of such sites in geographically separate areas coupled with other management tools to help recover Puget Sound rockfish populations.

WDFW is completing a review of status and trends of several species of rockfish and developing a rockfish management and conservation plan and will be submitting it to tribal co-managers for their consideration. Rockfish are slow-growing, long-lived and many are not migratory, so they are susceptible to fishing pressure. WDFW conducts surveys and studies of rockfish and other groundfish species and will be implementing new conservation measures for rockfishes. Marine Resource Committees and the NWSC have worked to draw attention to the problem in local communities, including establishing voluntary bottomfish protection areas and a Marine Stewardship Area in San Juan County.

### Marine Birds

More than 100 species of marine birds, including seabirds, sea ducks and shorebirds<sup>3</sup> are full or part-year residents of Puget Sound. Like salmon and orca, many marine birds are at or near the top of the food web and are thus important indicators of overall ecosystem health. Unfortunately, like salmon and orca, significant declines have occurred in the region's marine bird populations. Fourteen of 18 marine bird species studied between 1978-1979 and again in 1992-1999 have experienced a 56 to 95 percent decline. The total number of marine birds in the region dropped approximately 27 percent during this same time period. A variety of human and natural sources are blamed for these declines, though scientists do not fully understand all of the sources or their relative contributions. In addition to changes in the food web and loss of habitat, some human-related causes of declines are derelict gear and plastic debris in the marine environment.

Few of the at-risk species of marine birds are currently protected under state or federal law. Only three species—brown pelicans, marbled murrelets and common loons—are listed as threatened species in Washington State. The brown pelican and marbled murrelet are also listed as threatened under the federal ESA. Six others are state “candidate” species, including western grebe, common murre, Brandt's cormorant, Cassin's auklet, tufted puffin and short-tailed albatross. The pigeon guillemot, whose numbers have declined by 55 percent since 1979, is not listed as a candidate under state or federal endangered species acts. Surf scoters, whose numbers are down 70 percent for the same time period, are ineligible for listing in the state due to their status as a game bird. WDFW and federal agencies responsible for managing marine birds in Puget

Sound acknowledge that they need to improve coordination and add resources, particularly in prioritizing and carrying out research activities, identifying science, management and education gaps, conducting status reviews for at-risk species, and implementing conservation measures. A gathering of marine bird scientists and managers in September 2005 identified 62 specific science, education and management gaps related to marine birds in Puget Sound. Many more gaps have subsequently been identified, such as the need to conduct a status review for the red-throated loon.

WDFW biologists are conducting ongoing monitoring and focused studies of selected marine bird populations and are gathering data needed for reports on the status of candidate species. Audubon Washington is working with local chapter volunteers to develop site conservation strategies for Port Susan Bay, which is one of several key habitats for many species of marine birds. WDFW and Partnership staffs are providing technical and conservation planning assistance to this effort. Marine birds rely for survival on a complex balance between habitats and available food for survival, and those with serious declines are less able to adapt to changes in timing, prey or habitat conditions.

### Native Shellfish

The Olympia oyster (*Ostreola conchapila*) is the only oyster species native to the Pacific northwest. Although not threatened in its native range, the Olympia oyster is staging a comeback in many areas of Puget Sound. These oysters historically existed in abundance in south Puget Sound and Willapa Bay, but their numbers have been reduced by pollution, over-harvesting, habitat loss, and conversion of native oyster grounds to other economically valuable species. The Puget Sound

---

<sup>3</sup> **Seabirds** are birds (except waterfowl) that frequent coastal waters and the open ocean, such as gulls, murre, pelicans, cormorants and albatrosses. **Seaducks** are diving ducks that frequent the sea, such as scoters, harlequins, long-tailed ducks, and mergansers. **Shorebirds** are any bird that frequents the seashore such as western sandpipers and black oystercatchers. The term **marine birds** is used in this document to capture all three categories.

Restoration Fund, a non-profit organization, works closely with the public and private sectors, local and tribal governments, and private tideland owners to reestablish the Olympia oyster.

WDFW has guidelines for restoring Olympia oysters in Washington State that are designed to preserve the genetic integrity of remaining populations by seeding new locations with brood oysters from the same management area. WDFW developed a plan for rebuilding stocks of Olympia oysters, but implementation actions have not been funded. Reestablishing this species also requires protection of water quality to sanitation standards that allow for shellfish harvest and human consumption.

The northern abalone (*Haliotis kamtschatkana*) a native shellfish, has experienced significant declines and was closed to harvest in 1994. Although several groups are working on abalone recovery, no comprehensive abalone recovery plan has been written. Research related to abalone is underway through the Puget Sound Restoration Fund, Pacific Shellfish Institute, the University of Washington and WDFW.

### **2007-2009 strategies for protecting species diversity**

- 1. Achieve significant progress on all priorities for overall ecosystem and food web protection and recovery to support recovery of the at-risk species.**
- 2. Implement the *Puget Sound Salmon Recovery Plan*, the *Hood Canal Summer Chum Recovery Plan*, the *Recovery Plan for the Coastal-Puget Sound Bull Trout* and the *Proposed Conservation Plan for Southern Resident Killer Whales (*Orcinus orca*)*.**
- 3. In anticipation of completion of a rockfish conservation plan, support regulatory and voluntary tools for rockfish recovery.**

- 4. Assess the relative abundance and geographic distribution of major forage fish species in Puget Sound as the basis for management and recovery strategies.**
- 5. Identify research needs and develop management strategies for marine bird populations considered at risk.**
- 6. Increase efforts to reestablish and protect Puget Sound Olympia oyster populations.**

### **Expected results for conserving and recovering species at risk**

#### **Orca**

- a. Strategies and priority actions of the orca conservation plan are implemented. (WDFW, other agencies)
- b. The NOAA Fisheries orca conservation plan begin implementation in coordination with the conservation plan of Canada's DFO. (NOAA Fisheries, Partnership)

#### **Salmon**

- a. Hatchery and natural chinook integration plans are developed for chinook salmon populations included in the NOAA Fisheries Hatchery Listing Policy, consistent with the Hatchery Reform Project of Puget Sound. (WDFW, Tribal Governments)
- b. Additional chinook salmon recovery exploitation rates, to include the Puyallup, Nooksack and Nisqually rivers are developed consistent with the adaptive management strategy in the Puget Sound Chinook Harvest Management Plan. Recovery exploitation rates defined in the current plan will be refined as new stock and fishery data are collected reflecting improved estimates of actual

- exploitation rates, escapement, and survival (WDFW, Tribal Governments)
- c. State agency actions in the *Draft Puget Sound Chinook Salmon Recovery Plan* and draft *Hood Canal Summer Chum Recovery Plan* begin implementation. (All agencies)
- d. Indicators for salmon recovery plan implementation are tracked and reported. (GSRO)
- e. Integration of watershed and regional scale actions for salmon recovery in the nearshore are completed. (WDFW, Partnership)

**Marine fish**

- a. WDFW's Forage Fish Management Plan begins implementation.
- b. A comprehensive forage fish assessment, monitoring and research plan is designed and begins implementation. (WDFW, USGS, NWSC, NOAA Fisheries, Northwest Indian Fisheries Commission (NWIFC) and interested tribal governments, Sea Doc Society)
- c. Direct and indirect harvest impacts on rockfish are minimized. (WDFW)
- d. Develop two new groundfish conservation plans for key species detailing the status, fishery and needs to recover or maintain healthy populations. (WDFW)

**Marine birds**

- a. Final status reports for "candidate" species are completed to determine whether a listing is warranted. Species include western grebe, common murre, Brandt's cormorant, Cassin's auklet, tufted puffin and short-tailed albatross. (WDFW)

- b. A recovery plan for marbled murrelet is completed and begin implementation. (WDFW)
- c. A conservation plan for at-risk marine bird species in Puget Sound is developed. (Partnership, WDFW)
- d. Local conservation groups and the public receive education on issues related to at risk marine birds. (Partnership, WDFW)
- e. Surveys of residential and wintering marine bird species in decline are expanded, and monitoring activities investigate sources of marine bird declines. (WDFW)
- f. Marine birds are provided the best achievable protection from the risk oil spills. (Ecology)

**Native shellfish**

- a. Funding and other resources are identified to implement the plan to rebuild Olympia oyster stocks. (WDFW, NOAA Fisheries)
- b. State agencies support the efforts of the Puget Sound Restoration Fund and other partners to reestablish Olympia oyster populations in Puget Sound. (WDFW, Partnership, NOAA Fisheries)
- c. The West Coast Native Oyster Restoration Workshop is held in Washington State in 2007/2008. (NOAA Fisheries)

## Priority 8: Prepare for and adapt Puget Sound efforts to a changing climate



Scientists monitoring global changes in climate agree that rapid accumulation of greenhouse gases in the atmosphere is heating the planet and that this climate change will continue far into the future. Past, current and future human emissions of greenhouse gases are contributing to this effect. The vast majority of scientists worldwide who study this problem agree on these facts. There is uncertainty, however, in predicting how much the planet will warm, at what rate, and what the impacts will be in particular regions.

The Partnership released a report in 2005 developed by the Climate Impacts Group at the University of Washington documenting changes in Pacific Northwest climate and hydrologic patterns to date. The report identified Puget Sound ecosystem conditions and resources likely to experience impacts under changes as predicted by climate models. The scientists predict that the region is likely to experience average warming of several degrees by mid-century, with modest increases in winter precipitation, but greater runoff in streams because more precipitation will fall as rain rather than snow. The snowpack that feeds and cools many rivers in the basin in spring

and early summer will decrease, and the region will experience higher winter flows, including more flooding, and lower flows during spring and summer. Global relative sea level rise will accelerate in Puget Sound, especially in the south Sound where the land is sinking compared to the uplift of the Earth's crust in the north and northwest parts of the basin.

Impacts on the Puget Sound ecosystem from these changes will include greater stress for salmon and other freshwater aquatic species, changes to Puget Sound circulation, salinity and stratification patterns, and potentially, warmer water temperatures. Fragile marine aquatic species whose life-cycles depend on narrow ranges of conditions will be most severely affected. Nearshore salt marshes and other estuarine habitats that many species depend upon at critical life stages would be at risk of erosion, flooding and other changes. Increased bluff erosion and human efforts to hold back this process could further imbalance the Sound's nearshore habitats.

Efforts to protect and restore Puget Sound's biological diversity and water quality cannot succeed if they are designed and carried out independently of anticipated regional changes in climate. It is a priority to increase our understanding of the nature and rate of these changes and take actions to increase the adaptability of regional ecosystems to them. Decision-makers and resource managers will benefit from monitoring information and models for managing risks to vulnerable ecosystem processes. State agencies will begin to consider climate change impacts as they address other Puget Sound priorities and will incorporate an approach that increases the region's flexibility and adaptability to changing ecosystem conditions.

## **2007-2009 strategies to prepare and adapt efforts to a changing climate**

1. Support, track and report on science related to the effects of climate change on the Puget Sound ecosystem.
2. Provide risk-assessment models to help identify vulnerabilities to existing infrastructure and work with affected entities to prepare for or respond to potential impacts.
3. Review state, federal and local activities and expenditures on conservation and recovery in the Puget Sound basin in light of climate change impacts, and make specific recommendations for changes, if necessary.
4. Make specific recommendations on management and planning adaptations in response to climate change for all levels of government in Puget Sound.

## **Expected results to prepare and adapt efforts to a changing climate**

- 1. Support, track and report on science related to the effects of climate change on the Puget Sound ecosystem.**
  - a. 2 reports are provided annually on the most recent scientific studies relating to climate change and its impact on marine systems. (Partnership)
  - b. A workshop is held for regional scientists and resource managers to exchange research findings on the implications of climate change to the Puget Sound region. (Partnership)
- 2. Provide risk-assessment models to help identify vulnerabilities to existing infrastructure and work with affected agencies to prepare for or respond to impacts.**
  - a. A risk-assessment model applicable to Puget Sound is provided to state,

local and tribal government agencies. (Partnership)

- b. Key individuals in federal, state, local and tribal agencies identify how a risk-assessment model meets their needs and 20 percent apply the model to drafting risk-assessment plans for their areas of responsibility. (Partnership)

### **3. Review state, federal and local activities and expenditures on conservation and recovery in the Puget Sound basin in light of climate change impacts, and make recommendations for changes, if necessary.**

- a. A report is produced to address the most recent research relating to implications to conservation and recovery activities, with recommendations for changes to these activities. (Partnership)
- b. Regional leaders working on conservation and recovery projects incorporate the recommendations on possible climate change impacts into conservation and recovery plans. (Partnership)

### **4. Make recommendations on management and planning adaptations in response to climate change for all levels of government in Puget Sound.**

- a. A strategy for state agencies is developed to examine how resource management policies would perform in the future if various elements of climate were altered. (Partnership)
- b. A system to monitor and report on regional climate and ecosystems for ongoing changes is developed with an adaptive management loop to incorporate monitoring findings into management and planning decisions. (Partnership)

# The Role of Science in Puget Sound in 2007-2009



Scientists from the Puget Sound Ambient monitoring program conduct research on English sole in Elliott Bay. | Photo by Sarah Brace

**Long-term goal:** Environmental policy and management in Puget Sound is informed by ongoing and comprehensive science.

Science is the foundation for the work of the Partnership to conserve and recover Puget Sound.

The statute creating the Partnership also created a new Puget Sound Science Panel. The nine-member panel will provide independent, nonrepresentational scientific advice to the leadership council, and will assist the council, ecosystem coordination board, and executive director in preparing and updating the Action Agenda. The panel will also develop an ecosystem-level science program that will: address monitoring,

modeling, data management, and research; and identify science gaps and recommend research priorities. The panel will collaborate with other scientific groups and scientists, and will direct the work of the Puget Sound Assessment and Monitoring Program (PSAMP).

Scientists from a number of federal, state, local and tribal governments, universities, colleges, environmental organizations, and industry groups collaborate and share information on the Puget Sound ecosystem. The scope of their work includes examining how the ecosystem functions and the influence of humans on the ecosystem. Long-term monitoring helps to detect changes and measure the effectiveness of our management activities, while other studies focus on cause-and-effect relationships to help shape management solutions. An interagency Governor's Forum on Monitoring including DNR, Ecology, WDFW, WSCC and IAC conducted a statewide survey of monitoring programs and developed a report with recommendations on data management and on monitoring needing elimination or enhancement. The report also included a component on a monitoring framework needed to support salmon recovery to meet requirements of the federal ESA.

PSAMP is an ongoing collaborative science effort that seeks to assess the health of Puget Sound and our management strategies and fills science gaps to help develop management actions. Partners in PSAMP scientific investigation include King County, EPA, the USFWS, the NOAA Fisheries, the University of Washington Applied Physics Laboratory, WDFW, Health, DNR and Ecology. PSAMP scientists use funding designated in this biennial plan to provide status and trends information on habitat, species and water quality. These include:

- Marine water quality (dissolved oxygen, nutrients, chlorophyll, pathogens).
- Fresh water quality (nitrogen, phosphorus, dissolved oxygen, pathogens).
- Sediment quality (contaminants, infauna diversity).
- Eelgrass and floating kelp distribution and abundance.
- Contaminants in fish (PBTs, PAHs, PBDEs, metals).
- Wintering marine bird and water fowl populations.
- Groundfish abundance.
- Pathogens in shellfish growing areas.
- Intertidal invertebrate abundance.

Every two years PSAMP scientists summarize the main findings from their work and identify other key research in the region that is then compiled and edited by the Partnership staff and published in the *Puget Sound Update*. The Partnership staff presents the status and trend information to the general public in the *State of the Sound*.

### **2007-2009 strategies for the role of science**

- 1. Continue ongoing monitoring of the status and trends of key components of the Puget Sound ecosystem.**
- 2. Provide scientific information to stakeholders, decision-makers and the public.**
- 3. Direct new monitoring activities to focus on the effectiveness of management activities and policy initiatives.**
- 4. Develop a road map to prioritize, finance and conduct focused research on emerging topics or research questions that are brought forth through PSAMP and science programs.**

### **Expected results for the role of science**

- 1. Continue ongoing monitoring and initiate new monitoring of the status and trends of key components of the Puget Sound ecosystem.**
  - a. Information from monitoring the ongoing status and trends is used to determine if conditions are improving or declining for forage fish, groundfish, marine birds, eelgrass, sediments and water quality and other components of the Puget Sound ecosystem. (PSAMP)
  - b. Data from status and trends monitoring is used to watch for “red flags” (e.g. species declines, deteriorating water quality and habitat degradation) and, with federal state and local agencies to launch diagnostic studies on red flag issues in a timely manner. (PSAMP)
  - c. Threats to human health from marine environmental conditions such as harmful algal blooms, domoic acid, paralytic shellfish poisoning and other water contaminants are identified and measured. (Health)
  - d. Threats to human and marine wildlife health from exposure to major contaminants PCBs, PBDEs, mercury, PAHs, metals and pesticides) and new emerging contaminants (PPCPs, others) are identified and measured in key indicators in the food web including mussels, herring, salmon, and seals. (WDFW)

- 2. Provide scientific information to stakeholders, decision-makers and the public.**
  - a. Research and monitoring results are disseminated to managers via technical publications, Partnership newsletters, meetings and workshops, a spring 2008 Forum on Toxics in Puget Sound, and the 2009 Puget Sound Georgia Basin research conference. (Partnership)
  - b. A conceptual model of Puget Sound is developed using data from PSAMP, PSNP and other science programs to communicate and organize scientific information, relationships and results across the priorities. (PSAMP)
- 3. Direct new monitoring activities to focus on the effectiveness of management activities and policy initiatives.**
  - a. The contributions of key toxic contaminants from terrestrial, atmospheric and marine discharge sources are determined. This information is used to determine toxic loading in sediments and key fish, mammal and water bodies in Puget Sound. (PSAMP)
  - b. A characterization of the status and trends of toxic contamination and their effects in the Puget Sound ecosystem is coordinated, with newly identified contaminants of concern included in the characterization. (PSAMP, Partnership, EPA, USFWS, WDFW, Health)
  - c. A conceptual model of Puget Sound (see 2.b.) is used to predict changes in conditions of ecosystem components with application of specific management activities and to help drive management decisions. (PSAMP)
- 4. Develop a road map to assign priorities, finance and conduct focused research on emerging topics or research questions that are brought forth through PSAMP and science programs.**
  - a. A detailed work plan is developed for science activities in Puget Sound that describes the status and trends, effectiveness monitoring and research tasks that will be carried out by state agencies, and the funding level and need for each activity. (Partnership)
  - b. A mass balance model of nutrient sources, reservoirs and pathways and risk to ecosystem components is developed. (PSAMP and others)
  - c. A science program and science work plan will be developed by the science panel. (Partnership)

## Coordinating Puget Sound conservation and recovery



Bill Dewey (center), public affairs manager for Taylor Shellfish Co., Inc. and member of the Puget Sound Council explains the company's Oakland Bay shellfish operation in Mason County. | Photo by Kevin Anderson

**Long-term goal:** Coordinate and lead the protection and restoration of Puget Sound.

The Puget Sound Action Team, and now its successor, the Puget Sound Partnership are charged by the Washington State Legislature with responsibility to protect and restore Puget Sound and its spectacular diversity of life, now and for future generations. The Partnership has the authority and responsibility to lead efforts throughout the basin to reach a healthy Puget Sound ecosystem by 2020.

The bill creating the Partnership, ESSB 5372 spells out a number of specific requirements for the Partnership. This section captures *only some* of those required over the plan period.

### 2007-2009 strategies for coordinating and leading Puget Sound protection and conservation

1. Define, coordinate, and implement the state's environmental agenda for the Puget Sound basin.

2. Oversee progress and ensure accountability for results in the plan.
3. Engage and involve Puget Sound governments, organizations, and citizens in efforts to protect and restore Puget Sound.

### 2007-2009 results for coordinating and leading Puget Sound protection and conservation

1. **Define, coordinate and implement the state's environmental agenda for the Puget Sound basin.**
  - a. Measurable progress is achieved and documented on all priorities in the 2007-2009 Puget Sound Conservation and Recovery Plan. (Partnership, all agencies)
  - b. A new 2020 Action Agenda to recover Puget Sound by 2020 as specified in law is created and approved and submitted to the Governor and the legislature. (Partnership)
  - c. A Puget Sound budget for the 2009-2011 biennium is prepared, approved, and submitted to the governor and the legislature. (Partnership)
2. **Oversee progress and ensure accountability for results in the plan.**
  - a. The Partnership uses the Government Management, Accountability and Performance system or an alternative system to track, manage, improve and periodically report on progress in achieving desired results. (Partnership, all agencies)
  - b. A report detailing progress by state and non-state entities as required in section

19 of ESSB 5372 is in preparation for submittal to the governor, the legislature and the public by November 2009. (Partnership)

- c. The Partnership assesses the work of particular agencies and entities as needed and convenes appropriate parties to make improvements where needed, resolve conflicts and impasses, and develop new areas and ways of engagement. (Partnership)

**3. Engage and involve Puget Sound governments, organizations, and citizens in efforts to protect and restore Puget Sound.**

- a. The Puget Sound community is provided with accurate, relevant and accessible information on the status of the Puget Sound ecosystem, issues related to the health of the ecosystem, and activities of the Action Team. (Partnership, other agencies)
- b. Partnership staff help to implement a new Soundwide campaign to dramatically increase public awareness about the problems facing Puget Sound, begins in partnership with non-profit organizations, the private sector, and local and tribal partners. (Partnership)
- c. Outreach, technical assistance and funding for Public Involvement and Education (PIE) program projects are provided to governments, community groups, businesses, organizations and individual. PIE projects reach 400,000 citizens with education directed at behavior change and to raise awareness around priorities. (Partnership)
- d. A Puget Sound communications, outreach and education network is established in partnership with public and private entities. (Partnership)

# Budget for the 2007-2009 Puget Sound Conservation and Recovery Plan

Tables and graphs on the following pages present information on the budget proposed for implementing the *2007-2009 Puget Sound Conservation and Recovery Plan*.

## Key to Budget Table Information

**Budget Code:** A budget code is assigned to help identify specific agency funds in the work plan, and identifies activities that will be done with these funds.

**Title:** Short descriptive title of the budget activity.

**Base Funding:** Funding that was provided in previous years and is carried over to the next biennium.

**2007-09 Add:** New funding provided for the 2007-2009 biennium.

**Provisoed in 07-09 Operating or Capital Budget:** Funds appropriated for the 2007-2009 biennium that include specific direction and requirements for how the funds are to be spent. Terms of a proviso can be found in the budget bill, and are incorporated into the Plan result.

**Total:** The total amount of funds including base funding and 07-09 add.

**Fund Source:** The account or source of the funds (see list).

## Codes for Fund Sources

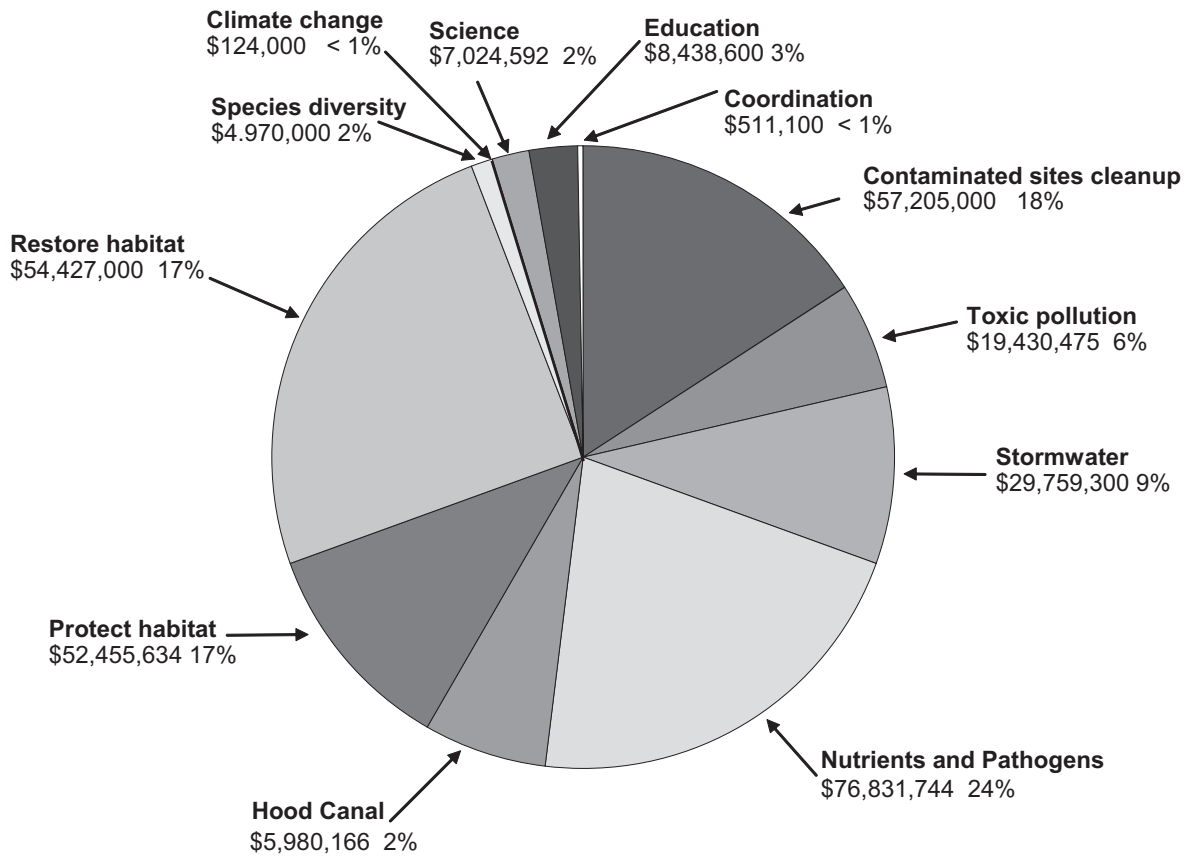
### OPERATING FUND SOURCES

<b>ALEA</b>	Aquatic Lands Enhancement Account
<b>DVRA</b>	Derelict Vessel Removal Account
<b>FAWA</b>	Freshwater Aquatic Weed Account
<b>GF-S</b>	General Fund-State
<b>GF-F</b>	General Fund-Federal
<b>GF-P/L</b>	General Fund-Private Local
<b>HWAA</b>	Hazardous Waste Assistance Account
<b>LTCA</b>	Local Toxics Control Account
<b>MVF</b>	Motor Vehicle Fund
<b>OSPA</b>	Oil Spill Prevention Account
<b>STCA</b>	State Toxics Control Account
<b>VRA</b>	Vessel Response Account
<b>WQA</b>	Water Quality Account
<b>WQPF</b>	Water Quality Permit Fees

### CAPITAL FUND SOURCES

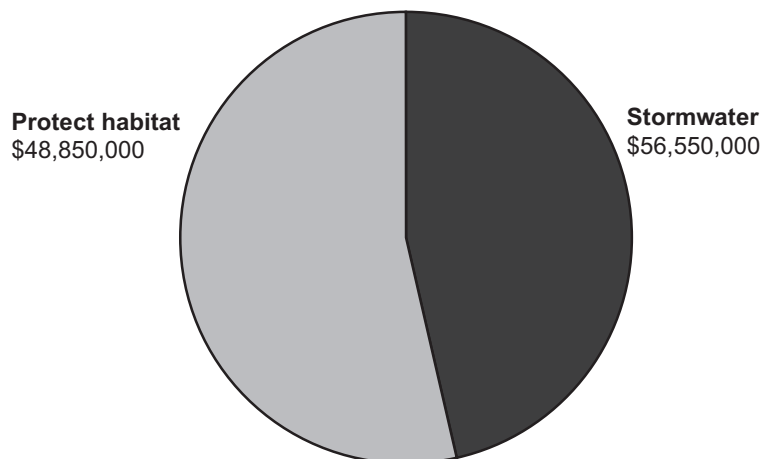
<b>ALEA</b>	Aquatic Lands Enhancement Account
<b>GF-F</b>	General Fund - Federal
<b>LTCA</b>	Local Toxics Control Account
<b>PWAA</b>	Public Works Assistance Account
<b>SBCA</b>	State Building Construction Account
<b>SRF</b>	Salmon Recovery Fund
<b>STCA</b>	State Toxics Control Account
<b>WQA</b>	Water Quality Account

**Figure 1. 2007-2009 Puget Sound Budget by Priority: \$352,794,611**



*Does not include WSDOT mitigation funds See figure below.*

**Total WSDOT wetland and stormwater mitigation funds: \$105,400,000**



**Table 1: 2007-2009 Puget Sound Budget by Priority**

Budget Code	Title	Base Funding	2007-09 Adds	Provisoed in 07-09 Budgets	Total
<b>Priority 1: Clean up contaminated sites and sediments</b>					
DOE-07	Contaminated sediments, dredging and various Puget Sound cleanups	\$1,181,000	\$39,000,000	\$39,000,000	\$40,181,000
DOE-16	Puget Sound cleanup and restoration - upland	\$0	\$4,000,000	\$4,000,000	\$4,000,000
DOE-17	Voluntary cleanup within 0.5 miles of Puget Sound	\$730,000	\$0	\$0	\$730,000
DOE-18	Puget Sound cleanup and restoration - aquatic	\$0	\$5,000,000	\$5,000,000	\$5,000,000
DOE-21	Urban waters cleanup and protection	\$0	\$1,713,000	\$0	\$1,713,000
DOE-22	Local toxic control specialists	\$0	\$2,026,000	\$2,026,000	\$2,026,000
DOE-23	Safer chemical alternatives	\$0	\$200,000	\$0	\$200,000
DOE-33	Puget Sound Aquatic Cleanup	\$0	\$597,000	\$0	\$597,000
DNR-03	State-owned aquatic lands cleanup	\$170,000	\$0	\$0	\$170,000
PSAT-02 -03	Policy and technical guidance and outreach to Puget Sound communities	\$105,000			\$105,000
DOT-02	Contaminated sediments	\$270,000	\$0	\$0	\$270,000
<b>PRIORITY 1 TOTAL</b>		<b>\$2,456,000</b>	<b>\$52,536,000</b>	<b>\$50,026,000</b>	<b>\$54,992,000</b>
<b>Priority 2: Prevent toxic contamination</b>					
WSDA-01	Pesticide technical assistance	\$74,000	\$0	\$0	\$74,000
DOE-02	Wastewater discharge permits	\$4,376,475	\$0	\$0	\$4,376,475
DOE-09	Oil spills prevention and response	\$11,243,000	\$0	\$0	\$11,243,000
DOE-13	Persistent bioaccumulative toxin (PBT) strategy	\$1,454,000	\$0	\$0	\$1,454,000
DOE-14	Technical Resources for Engineering Efficiency (TREE)	\$25,000	\$0	\$0	\$25,000
DOE-32	Cleanup Toxic Sites - Puget Sound	\$0	\$529,000	\$0	\$529,000
PRC-06	Toxics and creosote removal and structure replacement	\$300,000	\$0	\$0	\$300,000
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$350,000			\$350,000
UW-02	Small Oil Spill Study (UW Sea Grant)	\$170,000	\$0	\$170,000	\$170,000
<b>PRIORITY 2 TOTAL</b>		<b>\$17,992,475</b>	<b>\$529,000</b>	<b>\$170,000</b>	<b>\$18,521,475</b>
<b>Priority 3: Prevent harm from stormwater runoff</b>					
DOE-06	Stormwater program	\$1,458,000	\$280,000	\$0	\$1,738,000
DOE-19	Local innovative stormwater projects and stormwater retrofit projects	\$2,500,000	\$17,920,000	\$0	\$20,420,000
DOE-24	Stormwater monitoring consortium	\$0	\$800,000	\$0	\$800,000
DOE-25	Local Government Phase II Jumpstart Grants	\$0	\$7,000,000	\$0	\$7,000,000
PRC-04	Stormwater Improvements at State Parks	\$0	\$571,000	\$571,000	\$571,000
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$480,300			\$480,300
PSAT-07	Low Impact Development Local Ordinance Development and Training	\$0	\$500,000	\$0	\$500,000
<b>PRIORITY 3 TOTAL</b>		<b>\$4,438,300</b>	<b>\$27,071,000</b>	<b>\$571,000</b>	<b>\$31,509,300</b>

Budget Code	Title	Base Funding	2007-09 Adds	Provisoed in 07-09 Budgets	Total
<b>Priority 4: Prevent nutrient and pathogen pollution</b>					
WSCC-01	Technical assistance and funding for Puget Sound conservation districts for water quality projects	\$394,000	\$0	\$0	\$394,000
DOE-04	Nonpoint source pollution	\$2,306,741	\$0	\$0	\$2,306,741
DOE-20	Onsite septic replacement program (Shorebank Model Pilot)	\$1,500,000	\$3,000,000	\$3,000,000	\$4,500,000
DOE-26	Puget Sound modeling - nutrients	\$0	\$446,000	\$0	\$446,000
DOE-27	Reclaimed water rule completion	\$0	\$246,000	\$0	\$246,000
DOE-28	Reclaimed water program Grants	\$0	\$5,455,000	\$5,455,000	\$5,455,000
CTED-02	Public Works Trust Board water and sewer projects	\$0	\$31,760,000	\$31,760,000	\$31,760,000
CTED-03	Belfair sewer construction	\$0	\$4,800,000	\$4,800,000	\$4,800,000
DOH-02	Protection and restoration of shellfish beds	\$953,300	\$0	\$0	\$953,300
DOH-03	Recreational shellfish program	\$676,000	\$0	\$0	\$676,000
DOH-04	Onsite sewage management	\$1,304,800	\$0	\$0	\$1,304,800
DOH-05 / DOH-06	Wastewater Management Program - Large Onsite Sewage Systems and Shoreline Survey	\$0	\$1,437,000	\$375,000	\$1,437,000
DOH-07	Maintenance level onsite systems supprt for local health jurisdictions	\$0	\$1,158,000	\$0	\$1,158,000
PRC-01	Marina and boater grants program	\$925,000	\$0	\$0	\$925,000
PRC-02	Environmental education for boaters	\$266,000	\$0	\$0	\$266,000
PRC-03	Wastewater management and water conservation at State Parks	\$12,946,903	\$4,287,000	\$4,287,000	\$17,233,903
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$420,000			\$420,000
<b>PRIORITY 4 TOTAL</b>		<b>\$21,692,744</b>	<b>\$52,589,000</b>	<b>\$49,677,000</b>	<b>\$74,281,744</b>
<b>Special Focus Area: Hood Canal</b>					
DOE-15	Hoodsport to Skokomish wastewater facilities	\$1,000,000	\$0	\$0	\$1,000,000
	Hood Canal Counties onsite sewage system surveys	\$460,000	\$0	\$0	\$460,000
	Belfair and Hoodsport stormwater management Plans	\$300,000	\$0	\$0	\$300,000
	Belfair area wastewater facility design	\$802,352	\$1,107,814	\$0	\$1,910,166
	Hood Canal onsite sewage system corrections	\$1,000,000	\$0	\$0	\$1,000,000
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$310,000			\$310,000
CTED-04	Belfair sewer construction	\$0	\$5,500,000	\$5,500,000	\$5,500,000
CTED-05	Belfair sewer construction (reappropriation)	\$3,200,000	\$0	\$3,200,000	\$3,200,000
CTED-06	Belfair sewer construction (reappropriation)	\$8,000,000	\$0	\$8,000,000	\$8,000,000
<b>HOOD CANAL TOTAL</b>		<b>\$15,072,352</b>	<b>\$6,607,814</b>	<b>\$16,700,000</b>	<b>\$21,680,166</b>

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 1: 2007-2009 Puget Sound Budget by Priority, *continued***

Budget Code	Title	Base Funding	2007-09 Adds	Provided in 07-09 Budgets	Total
<b>Priority 5: Protect functioning marine and freshwater habitats</b>					
CTED-01	Technical assistance for local planning	\$126,336	\$0	\$0	\$126,336
DOE-03	Watershed planning - achieving watershed compliance - Local Watershed Masters	\$3,500,000	\$0	\$0	\$3,500,000
DOE-08	Wetland protection and restoration	\$450,400	\$1,285,000	\$1,285,000	\$1,735,400
DOE-10	Aquatic nuisance species	\$116,848	\$0	\$0	\$116,848
DOE-11	Shoreline Management Act	\$5,136,000	\$0	\$0	\$5,136,000
DOE-29	Achieving Environmental Compliance	\$0	\$500,000	\$500,000	\$500,000
DFW-01	Puget Sound technical assistance for nearshore and estuarine habitat	\$150,000	\$0	\$0	\$150,000
DFW-04	Aquatic nuisance species and ballast water programs	\$170,000	\$188,000	\$188,000	\$358,000
DFW-13	Shoreline guidance for local governments	\$0	\$320,000	\$0	\$320,000
DFW-22	Fish population monitoring	\$0	\$691,000	\$691,000	\$691,000
DFW-23	Puget Sound Nearshore Partnership	\$800,000	\$0	\$800,000	\$800,000
DFW-24	Hood Canal Study	\$0	\$70,000	\$70,000	\$70,000
DNR-01	Nearshore habitat program/eelgrass monitoring	\$1,652,050	\$68,000	\$0	\$1,720,050
DNR-02	Management of wetlands	\$36,000	\$0	\$0	\$36,000
DNR-08	Endangered Species Act - habitat conservation plan	\$644,000	\$490,000	\$0	\$1,134,000
IAC-01	Washington wildlife and recreation program - Puget Sound investments	\$0	\$21,280,000	\$21,280,000	\$21,280,000
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$450,000			\$450,000
<b>PRIORITY 5 TOTAL</b>		<b>\$13,231,634</b>	<b>\$24,892,000</b>	<b>\$24,814,000</b>	<b>\$38,123,634</b>
<b>Priority 6: Restore degraded marine and freshwater habitats</b>					
WSCC-02	Implementation of Puget Sound conservation district water quality projects	\$840,000	\$860,000	\$0	\$1,700,000
DFW-02	Puget Sound field assistance for nearshore and estuarine habitat	\$690,000	\$0	\$0	\$690,000
DFW-09	Estuary and salmon restoration projects	\$0	\$13,000,000	\$13,000,000	\$13,000,000
PSAT-10	Invasive species tunicate response	\$0	\$500,000	\$0	\$500,000
DNR-06	Estuarine restoration projects	\$0	\$300,000	\$300,000	\$300,000
DNR-07	Puget Sound creosote removal	\$0	\$4,000,000	\$4,000,000	\$4,000,000
DNR-09	One-time derelict vessels removal increase	\$0	\$500,000	\$500,000	\$500,000
DOT-05	Creosote piling removal	\$6,500,000	\$0	\$0	\$6,500,000
IAC-02	Nearshore/Shared Strategy - Puget Sound investments	\$0	\$40,750,000	\$40,750,000	\$40,750,000
IAC-03	Salmon Recovery Funding Board - Puget Sound investments	\$0	\$8,100,000	\$8,100,000	\$8,100,000
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$340,000			\$340,000
DOT-04	Fish passage barrier inventory and removal	\$8,500,000	\$0	\$0	\$8,500,000
<b>PRIORITY 6 TOTAL</b>		<b>\$16,870,000</b>	<b>\$68,010,000</b>	<b>\$66,650,000</b>	<b>\$84,880,000</b>

Budget Code	Title	Base Funding	2007-09 Adds	Provisoed in 07-09 Budgets	Total
<b>Priority 7: Protect species diversity</b>					
DOE-12	Northwest Straits Commission	\$3,200,000	\$0	\$0	\$3,200,000
DFW-03	Forage fish spawning habitat inventory project	\$350,000	\$0	\$0	\$350,000
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$320,000			\$320,000
<b>PRIORITY 7 TOTAL</b>		<b>\$3,870,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,870,000</b>
<b>Priority 8: Prepare for and adapt Puget Sound efforts to a changing climate</b>					
PSAT-02-03	Policy and technical guidance and outreach to Puget Sound communities	\$120,000			\$120,000
<b>PRIORITY 8 TOTAL</b>		<b>\$120,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$120,000</b>
<b>ACTIVITIES THAT CUT ACROSS PRIORITIES</b>					
<b>The Role of Science</b>					
DOE-01	Ambient monitoring and laboratory certification	\$4,065,692	\$0	\$0	\$4,065,692
DFW-05	Fish contaminant status and trend monitoring	\$704,000	\$0	\$0	\$704,000
DFW-06	Long-term monitoring of Puget Sound marine birds	\$220,000	\$0	\$0	\$220,000
DFW-07	Puget Sound marine fish recovery	\$680,000	\$0	\$0	\$680,000
DFW-08	Census of burrow-nesting seabirds in Puget Sound	\$150,000	\$0	\$0	\$150,000
DFW-10	Comprehensive surveys for marine rockfish	\$0	\$411,000	\$0	\$411,000
DOH-01	Monitoring, data management and reporting	\$467,900	\$0	\$0	\$467,900
PSAT-05	Coordinate and communicate Puget Sound science	\$398,000	\$0	\$0	\$398,000
<b>ROLE of SCIENCE TOTAL</b>		<b>\$6,685,592</b>	<b>\$411,000</b>	<b>\$0</b>	<b>\$7,096,592</b>
<b>Education and Communication</b>					
DOE-30	Public participation grants - Toxics	\$0	\$1,752,000	\$1,752,000	\$1,752,000
PSAT-04	Inform and engage people in Puget Sound conservation and recovery	\$1,536,600	\$0	\$0	\$1,536,600
PSAT-06	Puget Sound Partnership communication, education and outreach campaign	\$0	\$4,500,000	\$4,500,000	\$4,500,000
UW-01	Water quality agents	\$330,000	\$0	\$0	\$330,000
WSU-01	Water quality agents	\$420,000	\$0	\$0	\$420,000
<b>EDUCATION and COMMUNICATION TOTAL</b>		<b>\$2,286,600</b>	<b>\$6,252,000</b>	<b>\$6,252,000</b>	<b>\$8,538,600</b>
<b>Coordinating Puget Sound conservation and recovery</b>					
PSAT-01	Coordinate the work of Puget Sound Action Team and Council	\$742,100	\$0	\$0	\$742,100
<b>COORDINATING PUGET SOUND CONSERVATION and RECOVERY TOTAL</b>		<b>\$742,100</b>	<b>\$0</b>	<b>\$0</b>	<b>\$742,100</b>

## 2007-2009 Puget Sound Conservation and Recovery Plan

Budget Code	Title	Base Funding	2007-09 Adds	Provisoed in 07-09 Budgets	Total
<b>Implementing Puget Sound Partnership</b>					
WSDA-02	Puget Sound Partnership communication, education and outreach campaign	\$0	\$150,000	\$150,000	\$150,000
WSCC-03	Puget Sound Partnership communication, education and outreach campaign	\$0	\$150,000	\$150,000	\$150,000
DOE-31	Puget Sound Federal Funds	\$2,000,000	\$4,000,000	\$0	\$6,000,000
DOE-34	Puget Sound Partnership	\$0	\$347,000	\$347,000	\$347,000
DFW-25	Puget Sound Partnership	\$0	\$226,000	\$226,000	\$226,000
DOH-8	Puget Sound Partnership	\$0	\$78,000	\$78,000	\$78,000
IAC-04	Puget Sound Partnership	\$0	\$44,000	\$44,000	\$44,000
JLARC-01	Puget Sound Partnership Bill	\$0	\$75,000	\$75,000	\$75,000
DNR-12	Puget Sound Partnership	\$0	\$249,000	\$249,000	\$249,000
PSAT-14	Puget Sound Partnership Bill	\$0	\$1,000,000	\$1,000,000	\$1,000,000
UW-03	Puget Sound Partnership - PS Science Panel	\$0	\$60,000	\$60,000	\$60,000
WSU-02	Puget Sound Partnership - PS Science Panel	\$0	\$60,000	\$60,000	\$60,000
<b>IMPLEMENTING PUGET SOUND PARTNERSHIP</b>		<b>\$2,000,000</b>	<b>\$6,439,000</b>	<b>\$2,439,000</b>	<b>\$8,439,000</b>
<b>Puget Sound Conservation and Recovery Plan TOTAL</b>		<b>\$107,457,797</b>	<b>\$245,336,814</b>	<b>\$217,299,000</b>	<b>\$352,794,611</b>

Note: Does not include Washington Department of Transportation funds:

- DOT-01 \$48,850,000 for stormwater mitigation
- DOT-03 \$56,550,000 for wetland mitigation for transportation projects.

Table 2: 2007-2009 Budget by Agency, Budget Code and Fund Source

Budget Code	Title	Base Funding	2007-09 Add	Provisoed in 07-09 Operating or Capital Budget	Total	Fund Source
<b>DEPARTMENT OF AGRICULTURE</b>						
WSDA-01	Pesticide technical assistance	\$74,000			\$74,000	GF-S
WSDA-02	Puget Sound Partnership communication, education and outreach campaign		\$150,000	\$150,000	\$150,000	GF-S
<b>Total</b>	<b>Department of Agriculture</b>	<b>\$74,000</b>	<b>\$150,000</b>	<b>\$150,000</b>	<b>\$224,000</b>	
<b>DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT</b>						
CTED-01	Technical assistance for local planning	\$126,336			\$126,336	GF-S
CTED-02	Public Works Trust Board water and sewer projects		\$31,760,000	\$31,760,000	\$31,760,000	PWAA Cap
CTED-03	Belfair sewer construction		\$4,800,000	\$4,800,000	\$4,800,000	PWAA Cap
CTED-04	Belfair sewer construction		\$5,500,000	\$5,500,000	\$5,500,000	SBCA Cap
CTED-05	Belfair sewer construction (reappropriation)	\$3,200,000		\$3,200,000	\$3,200,000	PWAA Cap
CTED-06	Belfair sewer construction (reappropriation)	\$8,000,000		\$8,000,000	\$8,000,000	SBCA Cap
<b>Total</b>	<b>Community, Trade and Economic Development</b>	<b>\$11,326,336</b>	<b>\$42,060,000</b>	<b>\$53,260,000</b>	<b>\$53,386,336</b>	
<b>CONSERVATION COMMISSION</b>						
WSCC-01	Technical assistance and funding for Puget Sound conservation districts for water quality projects	\$394,000			\$394,000	GF-S
WSCC-02	Implementation of Puget Sound conservation district water quality projects	\$840,000	\$860,000		\$1,700,000	WQA
WSCC-03	Puget Sound Partnership communication, education and outreach campaign		\$150,000	\$150,000	\$150,000	GF-S
<b>Total</b>	<b>Conservation Commission</b>	<b>\$1,234,000</b>	<b>\$1,010,000</b>	<b>\$150,000</b>	<b>\$2,244,000</b>	
<b>DEPARTMENT OF ECOLOGY</b>						
DOE-01	Ambient monitoring and laboratory certification	\$3,280,886			\$3,280,886	GF-S
		\$540,806			\$540,806	WQA
		\$244,000			\$244,000	GF-F
DOE-02	Wastewater discharge permits	\$70,000			\$70,000	GF-S
		\$3,111,220			\$3,111,220	WQPF
		\$1,195,255			\$1,195,255	GF-F
DOE-03	Watershed planning - achieving watershed compliance - Local Watershed Masters	\$3,500,000			\$3,500,000	WQA
DOE-04	Nonpoint source pollution	\$1,110,000			\$1,110,000	GF-S
		\$1,196,741			\$1,196,741	GF-F

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 2: 2007-2009 Budget by Agency, Budget Code and Fund Source, *continued***

Budget Code	Title	Base Funding	2007-09 Add	Provisoed in 07-09 Operating or Capital Budget	Total	Fund Source
DOE-06	Stormwater program	\$1,143,000			\$1,143,000	STCA
		\$315,000	\$280,000		\$595,000	WQPF
DOE-07	Contaminated sediments, dredging and various Puget Sound cleanups	\$1,181,000			\$1,181,000	STCA
			\$39,000,000	\$39,000,000	\$39,000,000	LTCA Cap
DOE-08	Wetland protection and restoration	\$362,000	\$1,285,000	\$1,285,000	\$1,647,000	GF-S
		\$88,400			\$88,400	GF-F
DOE-09	Oil spills prevention and response	\$1,438,000			\$1,438,000	VRA
		\$5,305,000			\$5,305,000	OSPA
		\$4,500,000			\$4,500,000	STCA
DOE-10	Aquatic nuisance species	\$70,000			\$70,000	STCA
		\$46,848			\$46,848	FAWA
DOE-11	Shoreline Management Act	\$4,818,000			\$4,818,000	GF-S
		\$318,000			\$318,000	GF-F
DOE-12	Northwest Straits Commission	\$3,200,000			\$3,200,000	GF-F
DOE-13	Persistent bioaccumulative toxin (PBT) strategy	\$1,454,000			\$1,454,000	STCA
DOE-14	Technical Resources for Engineering Efficiency (TREE)	\$12,500			\$12,500	HWAA
		\$12,500			\$12,500	STCA
DOE-15	Hoodspport to Skokomish wastewater facilities	\$1,000,000			\$1,000,000	WQA Cap
	Hood Canal Counties onsite sewage system surveys	\$460,000			\$460,000	WQA Cap
	Belfair and Hoodspport stormwater management Plans	\$300,000			\$300,000	LTCA Cap
	Belfair area wastewater facility design	\$802,352	\$1,107,814		\$1,910,166	SRF Cap
	Hood Canal onsite sewage system corrections	\$1,000,000			\$1,000,000	SRF Cap
DOE-16	Puget Sound cleanup and restoration - upland		\$4,000,000	\$4,000,000	\$4,000,000	STCA Cap
DOE-17	Voluntary cleanup within 0.5 miles of Puget Sound	\$730,000			\$730,000	STCA
DOE-18	Puget Sound cleanup and restoration - aquatic		\$5,000,000	\$5,000,000	\$5,000,000	STCA Cap
DOE-19	Local innovative stormwater projects and stormwater retrofit projects	\$2,500,000			\$2,500,000	SBCA Cap
			\$12,920,000		\$12,920,000	SBCA Cap
			\$5,000,000		\$5,000,000	LTCA Cap
DOE-20	Onsite septic replacement program (Shorebank Model Pilot)	\$1,500,000	\$3,000,000	\$3,000,000	\$4,500,000	WQA Cap
DOE-21	Urban waters cleanup and protection		\$1,353,000		\$1,353,000	STCA
			\$360,000		\$360,000	LTCA

Budget Code	Title	Base Funding	2007-09 Add	Provisoed in 07-09 Operating or Capital Budget		Fund Source
				Total	Total	
DOE-22	Local toxic control specialists		\$2,026,000	\$2,026,000	\$2,026,000	LTCA
DOE-23	Safer chemical alternatives		\$200,000		\$200,000	HWAA
DOE-24	Stormwater monitoring consortium		\$400,000		\$400,000	WQA
			\$400,000		\$400,000	WQPF
DOE-25	Local Government Phase II Jumpstart Grants		\$7,000,000		\$7,000,000	LTCA
DOE-26	Puget Sound modeling - nutrients		\$446,000		\$446,000	WQPF
DOE-27	Reclaimed water rule completion		\$246,000		\$246,000	WQA
DOE-28	Reclaimed water program Grants		\$5,455,000	\$5,455,000	\$5,455,000	SBCA Cap
DOE-29	Achieving Environmental Compliance		\$500,000	\$500,000	\$500,000	GF-S
DOE-30	Public participation grants - Toxics		\$876,000	\$876,000	\$876,000	STCA
			\$876,000	\$876,000	\$876,000	LTCA
DOE-31	Puget Sound Federal Funds	\$2,000,000	\$4,000,000		\$6,000,000	GF-F
DOE-32	Cleanup Toxic Sites - Puget Sound		\$529,000		\$529,000	STCA
DOE-33	Puget Sound Aquatic Cleanup		\$597,000		\$597,000	STCA
DOE-34	Puget Sound Partnership		\$328,000	\$328,000	\$328,000	GF-S
			\$19,000	\$19,000	\$19,000	OSPA
UW-02	Small Oil Spill Study (UW Sea Grant)	\$170,000		\$170,000	\$170,000	OSPA
<b>Total</b>	<b>Department of Ecology</b>	<b>\$48,975,508</b>	<b>\$97,203,814</b>	<b>\$62,535,000</b>	<b>\$146,179,322</b>	
<b>DEPARTMENT OF FISH AND WILDLIFE</b>						
DFW-01	Puget Sound technical assistance for nearshore and estuarine habitat	\$150,000			\$150,000	GF-S
DFW-02	Puget Sound field assistance for nearshore and estuarine habitat	\$690,000			\$690,000	GF-S
DFW-03	Forage fish spawning habitat inventory project	\$350,000			\$350,000	GF-S
DFW-04	Aquatic nuisance species and ballast water programs	\$170,000	\$188,000	\$188,000	\$358,000	GF-S
DFW-05	Fish contaminant status and trend monitoring	\$704,000			\$704,000	GF-S
DFW-06	Long-term monitoring of Puget Sound marine birds	\$220,000			\$220,000	GF-S
DFW-07	Puget Sound marine fish recovery	\$680,000			\$680,000	GF-S
DFW-08	Census of burrow-nesting seabirds in Puget Sound	\$150,000			\$150,000	GF-S
DFW-09	Estuary and salmon restoration projects		\$13,000,000	\$13,000,000	\$13,000,000	SBCA Cap
DFW-10	Comprehensive surveys for marine rockfish		\$411,000		\$411,000	RRA
DFW-13	Shoreline guidance for local governments		\$320,000		\$320,000	WQA
DFW-22	Fish population monitoring		\$691,000	\$691,000	\$691,000	GF-S

2007-2009 Puget Sound Conservation and Recovery Plan

Table 2: Proposed 2007-2009 Budget by Agency, Budget Code and Fund Source, *continued*

Budget Code	Title	Base Funding	2007-09 Add	Provisoed in 07-09 Operating or Capital Budget	Total	Fund Source
DFW-23	Puget Sound Nearshore Partnership	\$800,000		\$800,000	\$800,000	GF-S
DFW-24	Hood Canal Study		\$70,000	\$70,000	\$70,000	GF-S
DFW-25	Puget Sound Partnership		\$226,000	\$226,000	\$226,000	GF-S
<b>Total</b>	<b>Department of Fish and Wildlife</b>	<b>\$3,914,000</b>	<b>\$14,906,000</b>	<b>\$14,975,000</b>	<b>\$18,820,000</b>	
<b>DEPARTMENT OF HEALTH</b>						
DOH-01	Monitoring, data management and reporting	\$467,900			\$467,900	GF-S
DOH-02	Protection and restoration of shellfish beds	\$953,300			\$953,300	GF-S
DOH-03	Recreational shellfish program	\$676,000			\$676,000	GF-P/L
DOH-04	Onsite sewage management	\$1,304,800			\$1,304,800	GF-S
DOH-05	Shoreline surveys for shellfish program		\$206,000		\$206,000	GF-S
DOH-06	Large onsite sewage systems technical assistance and regulatory oversight		\$375,000	\$375,000	\$375,000	GF-S
	Local health jurisdiction onsite plan implementation		\$856,000		\$856,000	GF-S
DOH-07	Maintenance level onsite systems supprt for local health jurisdictions		\$430,000		\$430,000	GF-S
	Maintenance level onsite systems supprt for local health jurisdictions		\$430,000		\$430,000	ALEA
	Local health jurisdiction support for data systems and contract management		\$128,000		\$128,000	GF-S
			\$170,000		\$170,000	ALEA
DOH-8	Puget Sound Partnership		\$78,000	\$78,000	\$78,000	GF-S
<b>Total</b>	<b>Department of Health</b>	<b>\$3,402,000</b>	<b>\$2,673,000</b>	<b>\$453,000</b>	<b>\$6,075,000</b>	
<b>INTERAGENCY COMMITTEE FOR OUTDOOR RECREATION</b>						
IAC-01	Washington wildlife and recreation program - Puget Sound investments		\$21,280,000	\$21,280,000	\$21,280,000	SBCA Cap
IAC-02	Nearshore/Shared Strategy - Puget Sound investments		\$40,750,000	\$40,750,000	\$40,750,000	SBCA Cap
IAC-03	Salmon Recovery Funding Board - Puget Sound investments		\$8,100,000	\$8,100,000	\$8,100,000	SBCA Cap
IAC-04	Puget Sound Partnership		\$44,000	\$44,000	\$44,000	GF-S
<b>Total</b>	<b>Interagency Committee for Outdoor Recreation</b>	<b>\$0</b>	<b>\$70,174,000</b>	<b>\$70,174,000</b>	<b>\$70,174,000</b>	
<b>JOINT LEGISLATIVE AUDIT AND REVIEW COMMITTEE</b>						
JLARC-01	Puget Sound Partnership Bill		\$75,000	\$75,000	\$75,000	GF-S
<b>Total</b>	<b>JLARC</b>	<b>\$0</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	

Budget Code	Title	Base Funding	2007-09 Add	Provisoed in 07-09 Operating or Capital Budget	Total	Fund Source
<b>DEPARTMENT OF NATURAL RESOURCES</b>						
DNR-01	Nearshore habitat program/eelgrass monitoring	\$1,652,050	\$68,000		\$1,720,050	ALEA
DNR-02	Management of wetlands	\$36,000			\$36,000	GF-S
DNR-03	State-owned aquatic lands cleanup	\$170,000			\$170,000	ALEA
DNR-06	Estuarine restoration projects		\$300,000	\$300,000	\$300,000	ALEA Cap
DNR-07	Puget Sound creosote removal		\$4,000,000	\$4,000,000	\$4,000,000	STCA Cap
DNR-08	Endangered Species Act - habitat conservation plan	\$644,000	\$490,000		\$1,134,000	ALEA
DNR-09	One-time derelict vessels removal increase		\$500,000	\$500,000	\$500,000	DVRA
DNR-12	Puget Sound Partnership		\$249,000	\$249,000	\$249,000	ALEA
<b>Total</b>	<b>Department of Natural Resources**</b>	<b>\$2,502,050</b>	<b>\$5,607,000</b>	<b>\$5,049,000</b>	<b>\$8,109,050</b>	
<b>STATE PARKS AND RECREATION COMMISSION</b>						
PRC-01	Marina and boater grants program	\$925,000			\$925,000	GF-F Cap
PRC-02	Environmental education for boaters	\$191,000			\$191,000	ALEA
		\$75,000			\$75,000	GF-F
PRC-03	Wastewater management and water conservation at State Parks	\$12,946,903	\$2,187,000	\$2,187,000	\$15,133,903	SBCA Cap
			\$2,100,000	\$2,100,000	\$2,100,000	STCA Cap
PRC-04	Stormwater Improvements at State Parks		\$571,000	\$571,000	\$571,000	SBCA Cap
PRC-06	Toxics and creosote removal and structure replacement	\$300,000			\$300,000	SBCA Cap
<b>Total</b>	<b>State Parks and Recreation Commission</b>	<b>\$14,437,903</b>	<b>\$4,858,000</b>	<b>\$4,858,000</b>	<b>\$19,295,903</b>	
<b>PUGET SOUND PARTNERSHIP</b>						
PSAT-01	Coordinate the work of Puget Sound Action Team and Council	\$608,600			\$608,600	WQA
		\$133,500			\$133,500	GF-F
PSAT-02	Policy guidance and technical assistance on Puget Sound environmental priorities	\$1,125,600			\$1,125,600	WQA
		\$381,900			\$381,900	GF-F
PSAT-03	Outreach to Puget Sound governments and communities on environmental priorities	\$1,035,500			\$1,035,500	WQA
		\$352,300			\$352,300	GF-F
PSAT-04	Inform and engage people in Puget Sound conservation and recovery	\$1,344,800			\$1,344,800	WQA
		\$191,800			\$191,800	GF-F
PSAT-05	Coordinate and communicate Puget Sound science	\$302,500			\$302,500	WQA
		\$95,500			\$95,500	GF-F

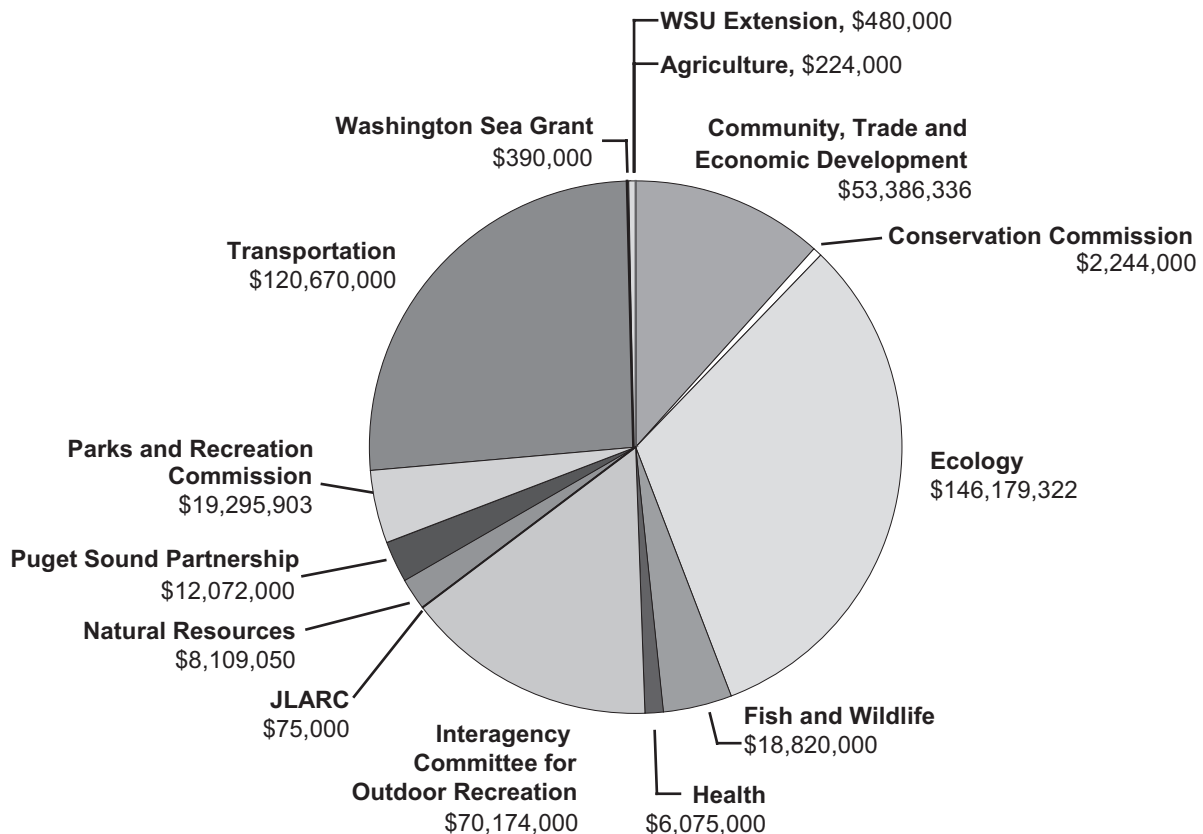
## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 2: 2007-2009 Budget by Agency, Budget Code and Fund Source, *continued***

Budget Code	Title	Base Funding	2007-09 Add	Provised in 07-09 Operating or Capital Budget	Total	Fund Source
PSAT-06	Puget Sound Partnership communication, education and outreach campaign		\$2,000,000	\$2,000,000	\$2,000,000	WQA
			\$2,500,000	\$2,500,000	\$2,500,000	GF-P/L
PSAT-07	Low Impact Development Local Ordinance Development and Training		\$500,000		\$500,000	WQA
PSAT-10	Invasive species tunicate response		\$500,000		\$500,000	ALEA
PSAT-14	Puget Sound Partnership Bill		\$1,000,000	\$1,000,000	\$1,000,000	GF-S
<b>Total</b>	<b>Puget Sound Partnership</b>	<b>\$5,572,000</b>	<b>\$6,500,000</b>	<b>\$5,500,000</b>	<b>\$12,072,000</b>	
<b>DEPARTMENT OF TRANSPORTATION</b>						
DOT-01	Stormwater	\$48,850,000			\$48,850,000	MVF
DOT-02	Contaminated sediments	\$270,000			\$270,000	MVF
DOT-03	Wetland impact mitigation	\$56,550,000			\$56,550,000	MVF
DOT-04	Fish passage barrier inventory and removal	\$8,500,000			\$8,500,000	MVF
DOT-05	Creosote piling removal	\$6,500,000			\$6,500,000	MVF
<b>Total</b>	<b>Department of Transportation</b>	<b>\$120,670,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$120,670,000</b>	
<b>UNIVERSITY OF WASHINGTON SEA GRANT PROGRAM</b>						
UW-01	Water quality agents	\$330,000			\$330,000	GF-S
UW-03	Puget Sound Partnership - PS Science Panel		\$60,000	\$60,000	\$60,000	GF-S
<b>Total</b>	<b>UW Sea Grant Program</b>	<b>\$330,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$390,000</b>	
<b>WASHINGTON STATE UNIVERSITY EXTENSION</b>						
WSU-01	Water quality agents	\$420,000			\$420,000	GF-S
WSU-02	Puget Sound Partnership - PS Science Panel		\$60,000	\$60,000	\$60,000	GF-S
<b>Total</b>	<b>WSU Extension</b>	<b>\$420,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$480,000</b>	
Subtotal	All agencies GF-S	\$17,661,222	\$6,900,000	\$6,080,000	\$24,561,222	GF-S
Subtotal	All agencies GF-F	\$9,472,396	\$4,000,000	\$0	\$13,472,396	GF-F
Subtotal	All agencies WQA	\$9,297,806	\$4,326,000	\$2,000,000	\$13,623,806	WQA
Subtotal	All agencies WQPF	\$3,426,220	\$1,126,000	\$0	\$4,552,220	WQPF
Subtotal	All agencies STCA	\$9,090,500	\$3,355,000	\$876,000	\$12,445,500	STCA
Subtotal	All agencies LTCA	\$0	\$10,262,000	\$2,902,000	\$10,262,000	LTCA
Subtotal	All agencies VRA	\$1,438,000	\$0	\$0	\$1,438,000	VRA
Subtotal	All agencies OSPA	\$5,475,000	\$19,000	\$189,000	\$5,494,000	OSPA
Subtotal	All agencies FAWA	\$46,848	\$0	\$0	\$46,848	FAWA
Subtotal	All agencies HWAA	\$12,500	\$200,000	\$0	\$212,500	HWAA
Subtotal	All agencies GF-P/L	\$676,000	\$2,500,000	\$2,500,000	\$3,176,000	GF-P/L
Subtotal	All agencies ALEA	\$2,657,050	\$1,907,000	\$249,000	\$4,564,050	ALEA
Subtotal	All agencies DRVA	\$0	\$500,000	\$500,000	\$500,000	DVRA
Subtotal	All agencies MVF	\$120,670,000	\$0	\$0	\$120,670,000	MVF

Budget Code	Title	Base Funding	2007-09 Add	Provisoed in 07-09 Operating or Capital Budget	Total	Fund Source
Subtotal	All agencies RRA	\$0	\$411,000	\$0	\$411,000	RRA
Subtotal	All agencies ALEA - Cap	\$0	\$300,000	\$300,000	\$300,000	ALEA Cap
Subtotal	All agencies WQA - Cap	\$2,960,000	\$3,000,000	\$3,000,000	\$5,960,000	WQA Cap
Subtotal	All agencies LTCA - Cap	\$300,000	\$44,000,000	\$39,000,000	\$44,300,000	LTCA Cap
Subtotal	All agencies GF-F - Cap	\$925,000	\$0	\$0	\$925,000	GF-F Cap
Subtotal	All agencies SRF - Cap	\$1,802,352	\$1,107,814	\$0	\$2,910,166	SRF Cap
Subtotal	All agencies STCA - Cap	\$0	\$15,100,000	\$15,100,000	\$15,100,000	STCA Cap
Subtotal	All agencies SBCA - Cap	\$23,746,903	\$109,763,000	\$104,843,000	\$133,509,903	SBCA Cap
Subtotal	All agencies PWAA - Cap	\$3,200,000	\$36,560,000	\$39,760,000	\$39,760,000	PWAA Cap
<b>TOTAL ALL AGENCIES, ALL FUNDS</b>		<b>\$212,857,797</b>	<b>\$245,336,814</b>	<b>\$217,299,000</b>	<b>\$458,194,611</b>	

Figure 2: 2007-2009 Puget Sound Budget by Agency



**Table 3: 2007-2009 Puget Sound Budget by Agency**

Agency	Operating or Capital Funds	Base Funding	2007-09 Adds	Provided in 07-09 Budgets	Total
Agriculture	Operating	\$74,000	\$150,000	\$150,000	\$224,000
	Capital				\$0
	<b>Total</b>	<b>\$74,000</b>	<b>\$150,000</b>	<b>\$150,000</b>	<b>\$224,000</b>
Community, Trade and Economic Development	Operating	\$126,336			\$126,336
	Capital	\$11,200,000	\$42,060,000	\$53,260,000	\$53,260,000
	<b>Total</b>	<b>\$11,326,336</b>	<b>\$42,060,000</b>	<b>\$53,260,000</b>	<b>\$53,386,336</b>
Conservation Commission	Operating	\$1,234,000	\$1,010,000	\$150,000	\$2,244,000
	Capital				\$0
	<b>Total</b>	<b>\$1,234,000</b>	<b>\$1,010,000</b>	<b>\$150,000</b>	<b>\$2,244,000</b>
Ecology	Operating	\$41,413,156	\$21,721,000	\$6,080,000	\$63,134,156
	Capital	\$7,562,352	\$75,482,814	\$56,455,000	\$83,045,166
	<b>Total</b>	<b>\$48,975,508</b>	<b>\$97,203,814</b>	<b>\$62,535,000</b>	<b>\$146,179,322</b>
Fish and Wildlife	Operating	\$3,914,000	\$1,906,000	\$1,975,000	\$5,820,000
	Capital		\$13,000,000	\$13,000,000	\$13,000,000
	<b>Total</b>	<b>\$3,914,000</b>	<b>\$14,906,000</b>	<b>\$14,975,000</b>	<b>\$18,820,000</b>
Health	Operating	\$3,402,000	\$2,673,000	\$453,000	\$6,075,000
	Capital				\$0
	<b>Total</b>	<b>\$3,402,000</b>	<b>\$2,673,000</b>	<b>\$453,000</b>	<b>\$6,075,000</b>
Interagency Committee for Outdoor Recreation	Operating		\$44,000	\$44,000	\$44,000
	Capital		\$70,130,000	\$70,130,000	\$70,130,000
	<b>Total</b>	<b>\$0</b>	<b>\$70,174,000</b>	<b>\$70,174,000</b>	<b>\$70,174,000</b>
Joint Legislative Audit and Review Committee	Operating		\$75,000	\$75,000	\$75,000
	Capital				\$0
	<b>Total</b>	<b>\$0</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$75,000</b>
Natural Resources	Operating	\$2,502,050	\$5,607,000	\$5,049,000	\$8,109,050
	Capital				\$0
	<b>Total</b>	<b>\$2,502,050</b>	<b>\$5,607,000</b>	<b>\$5,049,000</b>	<b>\$8,109,050</b>
Parks and Recreation Commission	Operating	\$266,000			\$266,000
	Capital	\$14,171,903	\$4,858,000	\$4,858,000	\$19,029,903
	<b>Total</b>	<b>\$14,437,903</b>	<b>\$4,858,000</b>	<b>\$4,858,000</b>	<b>\$19,295,903</b>
Puget Sound Partnership	Operating	\$5,572,000	\$6,500,000	\$5,500,000	\$12,072,000
	Capital				\$0
	<b>Total</b>	<b>\$5,572,000</b>	<b>\$6,500,000</b>	<b>\$5,500,000</b>	<b>\$12,072,000</b>

Agency	Operating or Capital Funds	Base Funding	2007-09 Adds	Provisoed in 07-09 Budgets	Total
Transportation	Operating	\$120,670,000			\$120,670,000
	Capital				\$0
	<b>Total</b>	<b>\$120,670,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$120,670,000</b>
Washington Sea Grant	Operating	\$330,000	\$60,000	\$60,000	\$390,000
	Capital				\$0
	<b>Total</b>	<b>\$330,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$390,000</b>
WSU Extension	Operating	\$420,000	\$60,000	\$60,000	\$480,000
	Capital				\$0
	<b>Total</b>	<b>\$420,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$480,000</b>
All Agencies Operating		\$179,923,542	\$39,806,000	\$19,596,000	\$219,729,542
All Agencies Capital		\$32,934,255	\$205,530,814	\$197,703,000	\$238,465,069
<b>Total All Agencies</b>		<b>\$212,857,797</b>	<b>\$245,336,814</b>	<b>\$217,299,000</b>	<b>\$458,194,611</b>

**Table 4: 2007- 2009 Puget Sound Budget Item Descriptions**

Budget Code	Title	Total	Description
<b>Priority 1: Clean up contaminated sites and sediments</b>			
DOE-07	Contaminated sediments, dredging and various Puget Sound cleanups	\$40,181,000	Grants to local governments for new or continued cleanup work at 18 contaminated sites within 1/2 mile of Puget Sound, one derelict ship removal, and site hazard assessments at approximately 7 sites.
DOE-16	Puget Sound cleanup and restoration - upland	\$4,000,000	Initiate or continue cleanup work at 25 sites within 1/2 mile of Puget Sound out of 115 site total.
DOE-17	Voluntary cleanup within 0.5 miles of Puget Sound	\$730,000	This program will ultimately result in the most highly contaminated sites being cleaned up. Public and environmental health will be protected, and contaminated sites will be ready for redevelopment and job creation.
DOE-18	Puget Sound cleanup and restoration - aquatic	\$5,000,000	Initiate or continue cleanup work at 25 sites within 1/2 mile of the Puget Sound. In addition, Ecology will be conducting investigations in 6 areas of the Puget Sound (Port Gardner Bay, Fidalgo Bay, Kitsap Peninsula/Port Gamble, Port Angeles, Shelton/Oakland Bay, Dumas Bay) during 07-09.
DOE-21	Urban waters cleanup and protection	\$1,713,000	Prevent the recontamination and/or continued contamination of Commencement Bay and the Lower Duwamish River, complete 2 Source Control Action Plans in high priority urban waters to prevent the recontamination of past successful toxic site cleanups, and provide technical assistance to 225 businesses in preventing toxic releases.
DOE-22	Local Toxic Control Specialists	\$2,026,000	Reduce 25-35 tons of hazardous waste and 3,000 - 4,500 tons of solid waste each year by training 15 local government toxic control specialists from the Puget Sound counties who will conduct 2,000 - 3,000 on-site business technical assistance visits annually. This effort will help reduce toxic releases so there will be less toxics in stormwater, less toxics in sediments, less recontamination, and will result in fewer cleanup sites.
DOE-23	Safer chemical alternatives	\$200,000	A 25% increase in 'Buy Green' state government expenditures, resulting in a reduction of 600 tons of toxic products purchased by state agencies in 2009, a 100% increase in GA's Environmentally Preferred Purchases, and reach 37,000 businesses through publications, internet, workshops and technical assistance. Examples of safer alternatives include paper that is processed without chlorine, use of citrus based solvents and cleaners, lead-free solders in many electronic items, non-chlorinated cutting fluids at machine shops in place of persistent chlorine compounds, and epoxy paints replacing copper-containing bottom paint on some ship and boat types.
DOE-33	Puget Sound Aquatic Cleanup	\$597,000	

Budget Code	Title	Total	Description
DNR-03	State-owned aquatic lands cleanup	\$170,000	This portion of the Puget Sound Initiative, jointly carried out by DNR and the Department of Ecology (DOE), targets contaminated aquatic sites where early cleanup and source control actions will foster recovery of aquatic species and habitats for restoration. The selected pilots integrate aquatic cleanup with adjacent upland source removal and source control.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$105,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
DOT-02	Contaminated sediments	\$270,000	Washington State Ferries (WSF) operates the Eagle Harbor Maintenance Facility. This site is located in an Environmental Protection Agency Superfund site. The costs shown are for the expected monitoring and management costs for the next biennium including costs for State Force work.
<b>PRIORITY 1 TOTAL</b>		<b>\$54,992,000</b>	
<b>Priority 2: Prevent toxic contamination</b>			
WSDA-01	Pesticide technical assistance	\$74,000	Funded activities include technical assistance to pesticide applicators, educating them on the proper use and disposal of pesticides.
DOE-02	Wastewater discharge permits	\$4,376,475	This program regulates the discharge of pollutants to surface and ground waters by issuing discharge permits for sewage treatment plants. Activities funded include permit issuance and maintenance, technical assistance, site inspections, follow-up on permit violations, research, and training to locals and tribes.
DOE-09	Oil spills prevention and response	\$11,243,000	Funding will cover the following activities: Inspection of large commercial vessels to verify compliance with international, federal, and state vessel safety and spill prevention requirements; Inspection of vessel fuel transfer (bunkering and lightering) operations; Inspection of facility oil transfer operations; Review and approval of large marine facility spill prevention plans; and other related compliance activities.
DOE-13	Persistent bioaccumulative toxin (PBT) strategy	\$1,454,000	The PBT Strategy seeks to reduce human exposure to PBTs. The main activity is developing Chemical Action Plans (CAP) to phase out PBTs or prevent them from affecting humans. Steps include monitoring of water quality and toxins in fish, finding safe alternatives, and implementing protective policies. The strategy is statewide, and while it benefits Puget Sound, it is not exclusive to Puget Sound.

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 4: Proposed 2007- 2009 Budget Item Descriptions, *continued***

Budget Code	Title	Total	Description
DOE-14	Technical Resources for Engineering Efficiency (TREE)	\$25,000	Ecology's Technical Resources for Engineering Efficiency (TREE) program will complete an evaluation that suggests quantifiable water, waste, and energy reductions for one industrial facility in the Puget Sound basin during the biennium.
DOE-32	Cleanup Toxic Sites - Puget Sound	\$529,000	
PRC-06	Toxics and creosote removal and structure replacement	\$300,000	Funding is provided for the removal of creosote-soaked logs and pilings from various State Parks around Puget Sound.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$350,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
UW-02	Small Oil Spill Study (UW Sea Grant)	\$170,000	
<b>PRIORITY 2 TOTAL</b>		<b>\$18,521,475</b>	
<b>Priority 3: Prevent harm from stormwater runoff</b>			
DOE-06	Stormwater program	\$1,738,000	Activities funded by this proviso include technical assistance and training to locals and tribes; developing and maintaining technical standards; issuing municipal, industrial and construction National Pollutant Discharge Elimination System (NPDES) permits; conducting inspections at stormwater facilities; researching and sharing stormwater management technologies.
DOE-19	Local innovative stormwater projects and stormwater retrofit projects	\$20,420,000	Funds are pass through to local governments in the Puget Sound basin to fund innovative, low impact development (LID) stormwater management projects. At workshops for the first round of funding, attendees estimated financial LID project needs of approximately \$10 million. Many others who were not at these workshops have also shown interest in the program. The \$7.75 million request will provide
DOE-24	Stormwater monitoring consortium	\$800,000	Would create a new structure, the Puget Sound Basin Regional Monitoring Program, to collect, analyze and disseminate credible and useful information about surface waters and aquatic habitat to strengthen policy and management decisions affecting the Puget Sound Basin, including both marine and fresh waters.
DOE-25	Local Government Phase II Jumpstart Grants	\$7,000,000	Would provide for grants to stormwater NPDES Phase II permittees to help permittees carry out permit requirements.

Budget Code	Title	Total	Description
PRC-04	Stormwater Improvements at State Parks	\$571,000	State Parks will use this funding to install Low Impact Development technologies to manage storm water so there is no direct discharge into the Puget Sound and Hood Canal, directly or indirectly through drainage systems, streams and rivers.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$480,300	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
PSAT-07	Low Impact Development Local Ordinance Development and Training	\$500,000	The funding requested would provide two types of LID assistance: 1) direct technical assistance to help local governments revise their ordinances and development standards to allow for LID projects as a matter of course rather than a special exception; and 2) focused, in-depth training for landowners, contractors, engineers, and local government staff on LID techniques and practices.
<b>PRIORITY 3 TOTAL</b>		<b>\$31,509,300</b>	
<b>Priority 4: Prevent nutrient and pathogen pollution</b>			
WSCC-01	Technical assistance and funding for Puget Sound conservation districts for water quality projects	\$394,000	Funds the conservation district infrastructure necessary to provide technical assistance to Puget Sound private landowners to improve natural resources.
DOE-04	Nonpoint source pollution	\$2,306,741	Activities funded by this proviso include providing education and outreach to locals and tribes, encouraging community action, providing funding and technical support to local decision makers, collaborating with other agencies, locals and tribes to carry out organized strategies to correct water quality problems relating to shellfish in threatened areas and prevent growing area downgrades; participating on advisory committees, administering grants, preparing and implementing water cleanup plans related to nonpoint pollution sources, conducting compliance and enforcement efforts, and participating in shellfish closure and response planning.
DOE-20	Onsite septic replacement program (Shorebank Model Pilot)	\$4,500,000	Will provide grant money to local governments and tribes, in conjunction with loans from the Water Pollution Control State Revolving Fund, to replace failing on-site septic systems in the Puget Sound basin.
DOE-26	Puget Sound modeling - nutrients	\$446,000	Ecology will develop a model that will describe how nutrients move throughout Puget Sound. Information from this model will inform and support policy actions.

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 4: 2007- 2009 Budget Item Descriptions, *continued***

Budget Code	Title	Total	Description
DOE-27	Reclaimed water rule completion	\$246,000	Ecology was directed by the legislature to develop rules on reclaimed water use. Funding will allow Ecology to complete this rule.
DOE-28	Reclaimed water program Grants	\$5,455,000	Funding is provided for grants to local governments and utilities to install reclaimed water infrastructure.
CTED-02	Public Works Trust Board water and sewer projects	\$31,760,000	This amount reflects the portion of Public Works Trust Fund projects that benefit Puget Sound.
CTED-03	Belfair sewer construction	\$4,800,000	In 2006, funding for the Belfair Sewer project was reduced to reflect that the project was still in the planning and design phase. This money is added back to the project as it moves into the construction phase.
DOH-02	Protection and restoration of shellfish beds	\$953,300	DOH monitors water quality and evaluates pollution sources in selected shellfish areas to provide information needed to restore sanitary conditions. Health works closely with local health jurisdictions (LHJs) and Ecology to investigate pollution sources and to assist in developing closure response plans and watershed action plans. DOH has developed strategies to ensure that LHJs and other stakeholders are kept informed of the status of water quality and pollution sources in shellfish growing areas to enable early response to declining conditions.
DOH-03	Recreational shellfish program	\$676,000	DOH works with local health jurisdictions to: classify recreational shellfish beaches; assist in biotoxin monitoring; and provide health information to the public. DOH manages the biotoxin monitoring program and maintains a toll-free biotoxin hot line and an internet web site to inform the public of areas closed due to high biotoxin levels or pollution problems. DOH develops an Annual Inventory of Commercial and Recreational Shellfish Beaches. DOH develops and distributes educational information and participates in community events to share information regarding safe shellfish
DOH-04	Onsite sewage management	\$1,304,800	The Wastewater Management Program provides technical assistance to citizens, local health jurisdictions and the onsite sewage system design, installation, and service sectors. The program evaluates new and emerging technologies, develops standards and guidelines for their application, reviews and approves proprietary products, and works with the State Board of Health to update the administrative code. The program also directly regulates community and commercial large onsite sewage (non-mechanical) systems with daily design flows between 3,500 and 14,500 GPD. Through project review, permitting, and operational oversight the program helps ensure well designed, installed, and operated systems.

Budget Code	Title	Total	Description
DOH-05 / DOH-06	Wastewater Management Program - Large Onsite Sewage Systems and Shoreline Survey	\$1,437,000	Funding will provide resources to complete shoreline surveys within required timeframes, identify and assess pollution sources, and to follow-up with remedial activities around commercial and recreational shellfish harvesting areas. Funding will also provide the resources for technical assistance and regulatory oversight of Large Onsite Sewage Systems (LOSS), and for local health jurisdictions to implement their onsite sewage system management plans required under Third Substitute House Bill 1458.
DOH-07	Onsite Sewage Management in Marine Areas	\$1,158,000	This funding will assist counties implementing onsite sewage system management plans and enhance electronic databases to inventory onsite sewage systems.
PRC-01	Marina and boater grants program	\$925,000	Proviso funds will be used to fund new or replaced boat sewage disposal (pumpout) facilities at various public and private marinas throughout the state.
PRC-02	Environmental education for boaters	\$266,000	State Parks will supply maps at 150 boater access destination sites showing boaters locations of pumpout facilities in Puget Sound. Parks will also provide an environmental education map/large interpretive display to make the boaters aware of the major environmental issues in Puget Sound. Distribute environmental information to boaters in partnership with volunteer groups and the local marine law enforcement.
PRC-03	Wastewater management and water conservation	\$17,233,903	Parks is working with neighboring communities, DOH and DOE to replace aging and failing septic systems and drainfields at parks around the Sound using new technologies. Where feasible, Parks will hook up with local municipal wastewater treatment facilities.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$420,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
<b>PRIORITY 4 TOTAL</b>		<b>\$74,281,744</b>	
<b>Special Focus Area: Hood Canal</b>			
DOE-15	Hoodsport to Skokomish wastewater facilities	\$1,000,000	The funded activities provide support for local governments to address water quality problems identified in the Hood Canal Preliminary Assessment and Corrective Action plan (2004) and coordinated state, local and federal efforts as human contributors to the Hood Canal low dissolved oxygen problem.
	Hood Canal counties onsite sewage system surveys	\$460,000	
	Belfair and Hoodsport stormwater management plans	\$300,000	
	Belfair area wastewater facility design	\$1,910,166	
	Hood Canal onsite sewage system corrections	\$1,000,000	

Table 4: 2007- 2009 Budget Item Descriptions, *continued*

Budget Code	Title	Total	Description
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$310,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
CTED-04	Belfair sewer construction	\$5,500,000	
CTED-05	Belfair sewer construction (reappropriation)	\$3,200,000	
CTED-06	Belfair sewer construction (reappropriation)	\$8,000,000	
<b>HOOD CANAL TOTAL</b>		<b>\$21,680,166</b>	
<b>Priority 5: Protect functioning marine and freshwater habitats</b>			
CTED-01	Technical assistance for local planning	\$126,336	Funding will support Senior Planner position providing technical assistance and planning coordination with state, federal and local agencies and tribes relating to comprehensive planning under the GMA, critical areas planning, shoreline management and watershed planning.
DOE-03	Watershed planning - achieving watershed compliance - Local Watershed Masters	\$3,500,000	As the first watershed plans are coming to completion, emphasis is shifting to implementation of the water management strategies contained in the plans. Ecology supports watershed planning and implementation by providing staff support, technical and financial assistance to local groups and by adopting the county approved plans into rules. Ecology will also implement strategies for water resource management, as agreed to in the locally developed watershed plans.
DOE-08	Wetland protection and restoration	\$1,735,400	Ecology will develop a landscape-scale computer-based tool for assessing projects and sub-basin areas is developed to assist local governments in protecting shorelines and other critical areas that provide important ecological functions. Local governments will receive technical information and assistance with comprehensive planning decisions and permits related to wetlands. Citizens will receive technical information and assistance on wetlands restoration and stewardship in the context of voluntary actions, as well as regulatory.
DOE-10	Aquatic nuisance species	\$116,848	Activities funded by this proviso include permit development, providing technical assistance, administering grants, developing educational materials, training for locals and tribes, reviewing and approving integrated vegetation management plan for noxious emergent vegetation, researching and developing management strategies for various chemicals.

Budget Code	Title	Total	Description
DOE-11	Shoreline Management Act	\$5,136,000	Ecology will help local governments effectively update and implement land use regulations that protect shorelines and critical areas, and increase the funding and assistance for additional cities and counties to update SMPs with more protective programs. Ecology will also develop a network of sustainable resources to support Soundwide public outreach and landowner education and stewardship. Funding will also improve restoration
DOE-29	Achieving Environmental Compliance	\$500,000	
DFW-01	Puget Sound technical assistance for nearshore and estuarine habitat	\$150,000	Provides technical expertise and policy application for issues affecting Puget Sound marine and nearshore habitat. Disseminates and applies current monitoring and research findings to facilitate scientifically based decision-making and resource protection in review and permitting of development projects and associated mitigation. Facilitates external coordination with other state and federal agencies, tribes, and ports to enhance cooperation and effectiveness in protecting, enhancing, and restoring marine and nearshore habitats. Coordinates staff technical support to facilitate
DFW-04	Aquatic nuisance species and ballast water programs	\$358,000	The funding will allow the program to continue overseeing the implementation and enforcement of ballast water regulations to prevent the introduction of new aquatic nuisance species in Puget Sound. Monitoring and control efforts will continue and be expanded, and response strategies will be developed and implemented for non-native invasive species that are present in State waters.
DFW-13	Shoreline guidance for local governments	\$320,000	WDFW will assemble the science using literature reviews and coordination meetings with other agencies and researchers. Using a similar format as previous PHS documents, WDFW will develop management recommendations and maps of marine and nearshore priority habitats and species. Lastly, WDFW will submit draft documents for external peer review, including local planners, prior to completion and distribution to local governments and interested citizens.
DFW-22	Fish Population Monitoring	\$691,000	Funding this proposal provides the scientific data essential to successfully guide and assess the effectiveness of recovery actions.
DFW-23	Puget Sound Nearshore Partnership	\$800,000	
DFW-24	Hood Canal Study	\$70,000	
DNR-01	Nearshore habitat program/eelgrass monitoring	\$1,720,050	DNR monitors the status and trends of nearshore habitats, focusing on several plant species including eelgrass and floating kelp species, and the structure of intertidal biotic communities as indicators of nearshore habitat health.

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 4: 2007- 2009 Budget Item Descriptions, *continued***

Budget Code	Title	Total	Description
DNR-02	Management of wetlands	\$36,000	DNR Natural Areas Program manages sites to retain natural features and ecological function. Funding will continue site visits and management by regional personnel and volunteers to wetland sites in Puget Sound Trough.
DNR-08	Endangered Species Act - habitat conservation plan	\$1,134,000	This proposal would fund the DNR federal Endangered Species Act (ESA) project to completion, allowing DNR and the United States Fish & Wildlife Service (USFW) to negotiate a final Habitat Conservation Plan (HCP). The HCP would cover those activities that are least covered under existing ESA compliance methods, that are within Washington DNR's jurisdiction, and that have the greatest potential to negatively impact endangered species.
IAC-01	Washington wildlife and recreation program - Puget Sound investments	\$21,280,000	Every biennium IAC submits to the Governor and Legislature ranked lists of projects seeking WWRP grants for outdoor recreation and habitat protection projects around the state. At the \$70 million WWRP appropriation in the Governor's capital budget, a total of 24 projects benefiting Puget Sound would be funded, totaling \$12M.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$450,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
<b>PRIORITY 5 TOTAL</b>		<b>\$38,123,634</b>	
<b>Priority 6: Restore degraded marine and freshwater habitats</b>			
WSCC-02	Implementation of Puget Sound conservation district water quality projects	\$1,700,000	This program provides private landowners with technical, educational and project design assistance from the 12 Puget Sound Conservation districts to work with landowners proactively, voluntarily, and on a non-regulatory basis with issues including but not limited to: air quality issues, erosion, pesticide use, manure, water quality/ quantity issues from the impacts of livestock, crop production, forest health, wildlife habitat concerns, energy consumption, and potential urban-rural interface conflicts.
DFW-02	Puget Sound field assistance for nearshore and estuarine habitat	\$690,000	WDFW will provide technical assistance within Puget Sound watersheds to local governments, salmonid recovery groups and the interested public to conserve, protect, and restore freshwater, marine, and nearshore habitats for salmon, forage fish, and other species that utilize these areas.
DFW-09	Estuary and salmon restoration projects	\$13,000,000	Funds restoration and protection projects consistent with the findings of the Puget Sound Nearshore Ecosystem Restoration Project and the Regional Salmon Recovery Plan and local Lead Entity and Marine Resource Committee strategies.

Budget Code	Title	Total	Description
PSAT-10	Invasive species tunicate response	\$500,000	Funding will implement the Tunicate Response Work Plan with activities including continued removal of tunicates from known locations, surveys to identify other locations of the invasive species, and tests to determine the most effective means of eradication.
DNR-06	Estuarine restoration projects	\$300,000	Continues Aquatic Lands Enhancement Account (ALEA) capital funds dedicated toward restoration of state owned aquatic land. Each of the two Aquatics districts located in the Puget Sound would utilize \$100,000 to leverage other funds to conduct restoration projects. The program plans to continue and expand 2005-07 biennium partnerships, working cooperatively with the Marine Resource Committees, Hood Canal Salmon Enhancement Group, Port of Bellingham, Washington State Parks, Washington Department of Fish and Wildlife (WDFW) and groups in Commencement Bay.
DNR-07	Puget Sound creosote removal	\$4,000,000	This 2007-09 capital project is a continuation of efforts to remove derelict creosote-treated pilings and debris from the marine and estuarine waters and shorelines of Puget Sound including Georgia Basin, Strait of Juan de Fuca, and Puget Sound proper.
DNR-09	Derelict Vessel Removal Program and Puget Sound Partnership	\$500,000	There are approximately 100 vessels on the Derelict Vessel Inventory and, to date, removal efforts have managed to keep that number from rising. However, the total has generally remained static. This funding includes an additional \$450,000 to allow DNR to remove 26 more derelict and abandoned vessels.
DOT-05	Creosote piling removal	\$6,500,000	Provided for DOT activities, including \$6,000,000 for the demolition of the Defense Fuel Supply Point tank farm dock in preparation for moving the Mukilteo ferry terminal to a new location, and \$500,000 for planned work at four other ferry terminals.
IAC-02	Nearshore/Shared Strategy - Puget Sound investments	\$40,750,000	The Shared Strategy Salmon Recovery Group has submitted a list of projects proposed by the salmon recovery entities around Puget Sound. This figure represents those projects that will take place in nearshore areas.
IAC-03	Salmon Recovery Funding Board - Puget Sound investments	\$8,100,000	Funding is provided to assist regional salmon recovery efforts in Puget Sound.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$340,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 4: 2007- 2009 Budget Item Descriptions, *continued***

Budget Code	Title	Total	Description
DOT-04	Fish passage barrier inventory and removal	\$8,500,000	Funds the WSDOT/WDFW cooperative fish passage barrier inventory and removal program. This amount includes funding for habitat assessment and pre-scoping of projects and funding for the removal of 12 barriers for 07-09 in Puget Sound counties.
<b>PRIORITY 6 TOTAL</b>		<b>\$84,880,000</b>	
<b>Priority 7: Protect species diversity</b>			
DOE-12	Northwest Straits Commission	\$3,200,000	The Northwest Straits Commission is housed within the Padilla Bay National Estuarine Research Reserve. Its purpose is to halt the degradation of marine resources in the Northwest Straits. The Northwest Straits are from the Strait of Juan de Fuca and northern Puget Sound to the Canadian border. The Northwest Straits Marine Conservation Initiative provides a way for local, tribal, state and community representatives to work together to protect vital marine resources.
DFW-03	Forage fish spawning habitat inventory project	\$350,000	Funding will enable WDFW to complete surveys of potential forage fish spawning sites within the Puget Sound basin. DFW will begin comprehensive analyses of the newly completed forage fish database, and will begin to produce modeled results of forage fish habitat in the context of a routed GIS Puget Sound shoreline and satellite imagery to examine predictive models that include shoreline development. The project would also entail public out-reach/education efforts.
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$320,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communities.
<b>PRIORITY 7 TOTAL</b>		<b>\$3,870,000</b>	
<b>Priority 8: Prepare for and adapt Puget Sound efforts to a changing climate</b>			
PSAT-02 PSAT-03	Policy and technical guidance and outreach to Puget Sound communities	\$120,000	Action Team program managers lead interagency work around core priorities. This includes developing and implementing a strategic approach, planning, and tracking implementation of the management plan and biennial plans, and reporting on progress through the Government Management and Accountability Program (GMAP) and other processes. It also includes outreach to local governments and communications.
<b>PRIORITY 8 TOTAL</b>		<b>\$120,000</b>	

Budget Code	Title	Total	Description
<b>ACTIVITIES THAT CUT ACROSS PRIORITIES</b>			
<b>The Role of Science</b>			
DOE-01	Ambient monitoring and laboratory certification	\$4,065,692	Ecology, in conjunction with PSAT and PSAMP, has established a monitoring network to assess the current status of state waters, identify threatened or impaired waters, and evaluate changes/trends in water quality over time. This network includes sampling stations in rivers streams, and marine waters. The collected monitoring data are used for various purposes including assessing the health of waterbodies and tracking and assessing the effectiveness of water cleanup activities. The agency also certifies laboratories that conduct tests or submit data to the agency in order to help assure these laboratories have the demonstrated capability to provide accurate and defensible data.
DFW-05	Fish contaminant status and trend monitoring	\$704,000	Funding will continue WDFW long term monitoring of the contaminant levels and contaminant induced liver disease in selected species of Puget Sound fish. This work evaluates the status and trends that flame retardants like PBDEs and other contaminants are in Puget Sound fish. These data are necessary to assess potential harms to humans from consuming Puget Sound fish and to the health of the Puget Sound ecosystem.
DFW-06	Long-term monitoring of Puget Sound marine birds	\$220,000	Will continue, at a reduced (once per biennium) level, use of aerial surveys, which have been used annually throughout 1992-2006 winter aerial bird surveys in the inner marine waters of Washington.
DFW-07	Puget Sound marine fish recovery	\$680,000	This program provides the resources to conduct stock assessment, long-term monitoring, and management of Puget Sound groundfish populations. The role of marine reserves (marine protected areas) will also be investigated as a management and stock rebuilding tool. These activities provide the basis for groundfish recovery actions and fishery regulations. Results will be used to evaluate and increase the effectiveness of fish management actions.
DFW-08	Census of burrow-nesting seabirds in Puget Sound	\$150,000	WDFW will re-survey all historic Puget Sound breeding colonies to determine presence/absence and to estimate breeding populations of both species at Smith and Protection Islands. At-sea survey data will be used to examine population trends over the past 8 years. Finally, reproductive success on both coastal and Puget Sound populations will be assessed in order to begin to determine potential population decline causes.
DFW-10	Comprehensive surveys for marine rockfish	\$411,000	Basin wide surveys will be conducted with new and existing technology to estimate the current abundance and future recovery of rockfish populations.

## 2007-2009 Puget Sound Conservation and Recovery Plan

**Table 4: 2007- 2009 Budget Item Descriptions, *continued***

<b>Budget Code</b>	<b>Title</b>	<b>Total</b>	<b>Description</b>
DOH-01	Monitoring, data management and reporting	\$467,900	DOH shellfish and water quality program staff collect water quality and biotoxin data and analyze it to help meet the PSAMP goals to assess the health of Puget Sound, identify existing environmental problems, provide data to measure the success of environmental programs, provide a permanent temporal record of changes in key environmental indicators in Puget Sound and to support research activities by making available scientifically valid data.
PSAT-05	Coordinate and communicate Puget Sound science	\$398,000	PSAT coordinates the Puget Sound Ambient Monitoring Program for the research of individual agency investigators. PSAT staff leads steering and management committees to facilitate development and communication of Puget Sound science. PSAT advances science by funding and disseminating research and convening scientists around regional scientific questions to fill gaps in research, address emerging issues, and provide accurate information to decision-makers.
<b>ROLE of SCIENCE TOTAL</b>		<b>\$7,096,592</b>	
<b>Education and Communication</b>			
DOE-30	Public participation grants - Toxics	\$1,752,000	Funding is provided to Ecology for public participation grants to provide information to local citizens regarding cleanup of contaminated sites in their local area.
PSAT-04	Inform and engage people in Puget Sound conservation and recovery	\$1,536,600	PSAT staff provide education and communications activities and information about Puget Sound, its issues and the Action Team structure to various audiences. A percentage of education funds are distributed through the Public Involvement and Education (PIE) funds community-based education to engage the public around Puget Sound priorities.
PSAT-06	Puget Sound Partnership communication, education and outreach campaign	\$4,500,000	These funds are intended to match private donations for an information campaign to support the efforts to clean up Puget Sound. This campaign will build public awareness about Puget Sound's conservation and recovery issues and encourage public participation in a way that will ensure a long-term, comprehensive change in the issues affecting Puget Sound.
UW-01	Water quality agents	\$330,000	WA Sea Grant water quality field agents, in coordination with other entities, will conduct a number of activities including outreach to local citizen volunteers through workshops, distribution of reference materials, and provide technical assistance to shoreline residents in shellfish growing and monitoring, elimination of organic debris in Hood Canal, and watershed management in Kitsap and Mason counties.

<b>Budget Code</b>	<b>Title</b>	<b>Total</b>	<b>Description</b>
WSU-01	Water quality agents	\$420,000	WA Sea Grant water quality field agents, in coordination with other entities, will conduct a number of activities including outreach to local citizen volunteers through workshops, distribution of reference materials, and provide technical assistance to shoreline residents in shellfish growing and monitoring, elimination of organic debris in Hood Canal, and watershed management in Kitsap and Mason counties.
<b>EDUCATION and COMMUNICATION TOTAL</b>		<b>\$8,538,600</b>	
<b>Coordinating Puget Sound conservation and recovery</b>			
PSAT-01	Coordinate the work of Puget Sound Action Team and Council	\$742,100	Funding allows for the coordination of the work of the Puget Sound Action Team (Action Team) and Council to implement the Puget Sound management plan and biennial work plans and report on progress as required in statute.
<b>COORDINATING PUGET SOUND CONSERVATION and RECOVERY TOTAL</b>		<b>\$742,100</b>	
<b>Puget Sound Conservation and Recovery Plan TOTAL</b>		<b>\$344,355,611</b>	

**Note:** Table 4 does not include the Washington Department of Transportation's \$48,850,000 for stormwater mitigation (DOT-01) and \$56,500,000 for wetland mitigation (DOT-03) for transportation projects; or Implementing Puget Sound Partnership.





