

# Monitoring to Assess the Health of Puget Sound

## What is the Puget Sound Assessment and Monitoring Program?

The Puget Sound Assessment and Monitoring Program (PSAMP) measures the status and trends of components of Puget Sound's marine and freshwater ecosystems including:

- Water quality
- Sediment quality
- Marine vegetation
- Marine birds and mammals
- Contaminants in birds and fish
- Shellfish health
- Groundfish populations

PSAMP also conducts research studies on specific topic or issues, when funding is available.

PSAMP was launched in 1989 to evaluate the effectiveness of the Puget Sound Water Quality Management Plan and to begin to track long-term trends in environmental quality. Resource managers and other decision-makers use PSAMP findings to plan conservation and recovery efforts.

### How Does PSAMP Function?

PSAMP is made up of two committees, the Steering Committee and Management Committee, and is guided by the Puget Sound Partnership's Science Panel. The Partnership's Science Program Coordinator chairs the committees.

The PSAMP Steering Committee consists of principal investigators from participating local, state and federal agencies as well as ad-hoc members appointed by PSAMP's Management Committee. The role of the Steering Committee is to review monitoring procedures and sampling plans, share and discuss findings with other committee members, and provide analysis and interpretation of results of the monitoring program to Partnership staff and agency managers through reports, presentations and publications.

The PSAMP Management Committee consists of managers from participating agencies who bring PSAMP's findings to decision-makers within their agencies. The Management Committee's key role is to ensure that agencies are informed of the monitoring and research findings and to ensure that appropriate actions are taken to managing the resource.



PSAMP scientists from Fish and Wildlife survey English sole for contaminants.

| Sarah Brace

### Why Monitor?

Monitoring Puget Sound over time is necessary to:

- Assess the health of the Sound and document geographic patterns in the condition the Sound's resources.
- Document natural and human-caused changes over time in the ecological components of Puget Sound.
- Identify existing environmental problems and, where possible, identify the causes of the problems.
- Provide information to assist in measuring the success of environmental programs.
- Provide scientifically sound data to policy-makers and other scientists.

## PSAMP Reporting

PSAMP shares its findings about the condition of the Sound and its resources through:

- *Puget Sound Update*—Eight issues of the report have been published from 1990 to 2007. New Updates will be produced every four years.
- Articles in various Partnership publications.
- Presentations at scientific meetings, including Puget Sound Georgia Basin Research conferences.
- Agency reports and briefings to natural resource managers.

## Contact PSAMP

For more information on PSAMP or other research and monitoring activities in Puget Sound, contact:

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## PSAMP Studies

Through PSAMP, the following agencies conduct PSAMP studies of the health of Puget Sound:

► **Washington State Department of Ecology.** Ecology's **freshwater ambient monitoring** program collects and analyzes monthly samples from approximately 30 stations in the Puget Sound drainage basin. The program collects data on nutrients, suspended solids, fecal coliform bacteria, metals, temperature and dissolved oxygen.

Ecology's **marine sediment monitoring** program collects information on sediment chemistry, sediment toxicity and the community of sediment-dwelling organisms at stations distributed throughout Puget Sound.

Ecology's **marine water monitoring** program provides monthly data on salinity, temperature, dissolved oxygen, turbidity, ambient light conditions, fecal coliform bacteria, nutrients and other parameters at approximately 30 stations in greater Puget Sound.

► **Washington Department of Fish and Wildlife.** Fish and Wildlife **monitors concentrations of contaminants in five fish species:** English sole, quillback and copper rockfish, coho salmon and Pacific herring. Fish and Wildlife also evaluates liver disease in English sole as an indicator of the effects of toxic pollution on fish health. Scientists from the National Marine Fisheries Service's Northwest Fisheries Science Center collaborate on these studies.

Fish and Wildlife conducts bottom trawls to collect specimens and to **estimate groundfish abundance.**

Fish and Wildlife **conducts aerial surveys of marine birds** to develop estimates of the population size of marine diving ducks and other diving birds in Puget Sound. Fish and

Wildlife and the U.S. Fish and Wildlife Service also conduct surveys of pigeon guillemot colonies to estimate the numbers of these year-round residents.

Fish and Wildlife **monitors the number and condition of harbor seals** at Gertrude Island in south Puget Sound, and has cooperated in annual assessments of harbor seal numbers in Puget Sound conducted by aerial survey at all of the Sound's known harbor seal haulout sites. Fish and Wildlife also cooperates in monitoring contaminant concentrations in harbor seal blubber tissue and other indicators of seal health.

► **Washington State Department of Health.** Health **monitors fecal coliform bacteria concentrations** in seawater at shellfish growing areas around Puget Sound. Staff conduct sampling six or 12 times per year at many locations in each area.

In addition, Health surveys for **marine biotoxins** to measure the concentrations of paralytic shellfish poison (PSP) in shellfish from Puget Sound.

► **Washington State Department of Natural Resources.** Natural Resources **maps aquatic vegetation and a series of physical shoreline attributes** that strongly affect the distribution of marine plants and animals. Natural Resources conducts inventories and monitoring at a number of levels of detail and offers a variety of hard copy and electronic map products.

► **King County Department of Natural Resources and Parks.** King County **monitors fresh and marine water quality and conditions of sediment and nearshore resources** at a number of locations in central Puget Sound. Parameters measured include nutrients, pathogens and toxic contaminants.