

Monitoring to Assess the Health of Puget Sound

What is the Puget Sound Ambient Monitoring System?

The Puget Sound Ambient Monitoring Program (PSAMP) is a long-term, comprehensive plan to assess Puget Sound and its resources.

The PSAMP was adopted to evaluate the effectiveness of the *Puget Sound Water Quality Management Plan* and long-term trends in environmental quality, and to improve decision-making and prevent overlaps and duplication in monitoring efforts.

Through PSAMP studies, data on marine and fresh waters, fish, sediments and shellfish in Puget Sound have been collected since 1989; surveys of nearshore habitat have been conducted since 1991; and marine bird populations have been surveyed since 1992.

How Does the PSAMP Work?

The Puget Sound Water Quality Action Team defines the direction, scope and design of the PSAMP. Action Team support staff includes a PSAMP science coordinator and a representative on the PSAMP Management Committee.

Agencies that implement the program (see sidebar) are responsible for staffing the PSAMP Management Committee and Steering Committee, and for carrying out PSAMP studies as directed by these committees and the Action Team.

The PSAMP Management Committee directs and oversees program planning, budgeting, staffing, program implementation, data management, external relations and evaluations. The Management Committee also ensures that the PSAMP draws from all available information in developing a comprehensive picture of Puget Sound conditions.

Agency scientists convene as the PSAMP Steering Committee to coordinate topic and task planning and to collaborate with agency managers and others in designing and implementing the program. The Steering Committee comprises the principal investigators for each of the PSAMP studies, ad-hoc members appointed by the Action Team chair, and the PSAMP science coordinator.



Why Monitor?

Monitoring Puget Sound over time is necessary to:

- Assess the health of the Sound and its resources and document geographic patterns in the condition of the Sound and its 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 reasons for the problems.
- Provide information to assist in measuring the success of environmental programs.
- Provide scientifically valid data to support research activities.

State Partners

The following state, local and federal agencies are involved in directing and implementing the Puget Sound Ambient Monitoring Program:

- Puget Sound Water Quality Action Team
- Department of Ecology (sediment, marine water and fresh water)
- Department of Fish and Wildlife (fish contaminants, fish abundance and marine birds and mammals)
- Department of Health (shellfish)
- Washington State Department of Natural Resources (nearshore habitat)
- King County Department of Natural Resources (marine water, sediment and shellfish)
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service (fish health)

Contacts

To obtain more information on the PSAMP or ambient monitoring in Puget Sound please contact the PSAMP science coordinator or the PSAMP principal investigators.

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PSAMP Studies

PSAMP studies of the health of Puget Sound are conducted by the Washington departments of Ecology, Fish and Wildlife, Health, and Natural Resources and by the King County Department of Natural Resources.

DEPARTMENT OF ECOLOGY. Ecology's fresh water 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 ambient 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.

DEPARTMENT OF FISH AND WILDLIFE. Fish and Wildlife monitors contaminant concentrations 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 toxic impacts 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 ground fish 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.

DEPARTMENT OF HEALTH. Health monitors fecal coliform bacteria concentrations in seawater at shellfish growing areas around Puget Sound. Sampling is done six or 12 times per year at many locations in each area.

In addition, Health conducts marine biotoxin surveys that are designed to measure the concentrations of paralytic shellfish poison or PSP in shellfish from Puget Sound.

As part of PSAMP, Health analyzes and reports on spatial and temporal patterns observed through its monitoring programs.

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. King County monitors water column, sediment and nearshore resource conditions at a number of locations in central Puget Sound. Parameters measured include nutrients, pathogens and toxic contaminants.

PSAMP Reporting

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

- *Puget Sound Update*—seven Updates have been published from 1990 to 2000; new editions will be produced every two years.
- Articles in the Action Team's *Sound Waves* newsletter.
- Presentations at scientific meetings, including Puget Sound Research conferences.
- Agency reports and briefings to natural resource managers.

For more information, check out the complete text of the Puget Sound plan, additional fact sheets about the update process, and information about the Action Team at www.psat.wa.gov or call the Action Team at (360) 725-5444 or 1 (800) 54-SOUND. If you need these materials in an alternative format, call our TDD number 1-800-833-6388.