

Washington Sea Grant

Science Leading Citizen Action in Puget Sound

Puget Sound is central to Washington's heritage, culture and quality of life, contributing billions of dollars to the state's economy. The Sound's social and environmental importance is tied directly to its well-being and the richness and diversity of its natural resources. Unfortunately, many Sound species and habitats are threatened and others are in serious decline. By 2020, the regional population is expected to grow almost 40 percent, to more than 5 million residents. Such rapid growth will put increased pressure on the Sound and, without action now, will jeopardize its future.

Based at the University of Washington, Washington Sea Grant (WSG) offers scientific and outreach expertise to support the protection and restoration of Puget Sound. WSG serves the state and the region by providing technical assistance to marine resource users and managers, engaging the public in activities that promote ecosystem health, and funding vital Puget Sound research. WSG is funded through a state-federal partnership with the National Oceanic and Atmospheric Administration.

Puget Sound Research

WSG-sponsored research combines scientific excellence and a focus on problems and opportunities facing ocean and coastal users, managers and educators. At the present time, WSG is supporting 36 ongoing projects involving 48 investigators and 13 research institutions. In Puget Sound, WSG-supported research is:

- Using advanced genetic analyses to understand and predict the movement of young rockfish within and beyond an artificial reef in Puget Sound, assisting efforts to better manage these depleted populations.
- Developing new techniques to characterize the acoustic environment in Puget Sound and assess underwater noise exposure for Washington's endangered Southern Resident Killer Whales.
- Examining the recolonization of the upper Cedar River watershed by coho and Chinook salmon — after more than a century's absence — following dam modifications in 2003.
- Integrating experiments and modeling to identify environmental conditions and algal behaviors that drive the formation of toxic algal slicks.
- Identifying genes in Puget Sound salmon that are affected by exposure to contaminants and assessing the implications for salmon reproduction.
- Evaluating the effects of geoduck aquaculture on Puget Sound and Strait of Juan de Fuca environments through a focused state research program.
- Assessing benefits to Elliot Bay plant and animal populations of incorporating complex intertidal habitats into vertical seawalls along the Seattle shoreline to guide reconstruction of the Seattle seawall and similar structures.
- Conducting baseline studies prior to Elwha Dam removal to better explore sediment transport and seabed deposits resulting from concentrated flows of river water and sediment.

Public Outreach and Technical Support

WSG specialists operate throughout Puget Sound, sharing university resources and their own expertise with local communities and user groups. They offer training and workshops, provide informational materials, and host conferences and seminars that address a variety of Puget Sound issues, including water quality, small oil spill prevention and habitat restoration. WSG currently is:

- Reducing nutrients and pathogens in surface waters by teaching Puget Sound homeowners the fundamentals of septic system operation — how systems work and why they fail, how to avoid problems, proper maintenance and landscaping — and providing instruction on installing native plant barriers, diffusing stormwater runoff, reducing use of nutrients and properly disposing of pet waste.
- Guiding tideland owners in managing shellfish, practicing good landscaping and monitoring pollution problems in their neighborhoods. Participants learn to document shellfish growth, nutrient sequestration and changes in tideland vegetation.
- Working directly with vessel owners, marina operators and agencies to target spills of less than 25 gallons and provide safe and practical alternatives to spill-prone practices, as well as recruiting Puget Sound marinas and boatyards into the national Clean Marina Program and encouraging use of best management practices.
- Teaming with Washington State University Extension to bring university faculty and the public together to improve environmental literacy, create beach naturalist programs, expand Beach Watchers into a Sound-wide volunteer network and create a model citizen science program to monitor key indica-

tors of Puget Sound health.

- Sampling ship ballast water to identify invasive threats and developing new treatment technologies and assessing their effectiveness in reducing unwanted invaders.
- Working with researchers and resource managers to understand the pathways by which various aquatic invasive species can arrive in Puget Sound, helping prevent their spread and minimizing their impacts.
- Developing marine riparian guidelines that federal, state and local jurisdictions can use as they create strategies to protect Puget Sound shoreline habitats. Providing technical assistance to communities, nongovernmental organizations, tribes and citizen groups engaged in developing improved protection, restoration and enhancement of Puget Sound nearshore habitats and species.



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