WASHINGTON SEA GRANT







Clockwise: Lime Kiln Lighthouse on San Juan Island; digging for razor clams; a shellfish grower harvests oysters; the Elwha River

Washington State is a constal society, with almost 70 percent of its seven

million residents living within its 15 coastal counties. The Pacific Northwest's vibrant and diverse marine ecosystems and resources have been foundational to human sustenance, livelihood and culture since people have been here, and remain so today. For example, the state's maritime sector—including commercial fishing and shellfish aquaculture —is an economic engine that directly employs nearly 69,500 people and directly and indirectly contributes \$30 billion in economic activity.



This means that the challenges that affect Washington's shores and waters affect the entire state. From sea level rise to ocean acidification and habitat degradation, these challenges are many. Washington Sea Grant (WSG) helps to address these challenges so that the state's coastal residents can continue to thrive.

Based at the University of Washington's College of the Environment, WSG is part of a national network of 33 Sea Grant institutions located in U.S. coastal and Great Lakes states and territories. The National Sea Grant College Program is administered by the National Oceanic and Atmospheric Administration (NOAA) and funded through federal-university partnerships.

WSG funds important marine research and works with communities, managers, businesses and the public to strengthen understanding and sustainable use of the region's ocean and coastal resources. WSG-supported researchers are at the scientific forefront of vital topics—from the impacts of stormwater on salmon to how communities could be affected by tsunamis. Such research remains an academic enterprise if its findings are not communicated for use by stakeholders such as marine industry, natural resource managers and the public. WSG's wide-ranging outreach services work to bridge this knowledge gap, develop practical tools for management and guide equitable access throughout Washington's diverse communities and economies to our shared marine resources and opportunities. WSG's educational programs help ensure that Washington's legacy of important marine work will continue through the next generation.

How We Work

WSG organizes its activities around three core functions: research, outreach and education. WSG's communications work is woven through each of these areas as well. The integration of these functions is key to carrying out WSG's mission.



capacity and provide knowledge WSG funding by core function for use in the marine and coastal

environment. From understanding how ocean change will affect vulnerable species to developing new ventures within the aquaculture industry, WSG supports a mix of basic and applied research.

- **Outreach** experts provide technical assistance and connect marine and coastal constituents to the best scientific information available. WSG specialists work in a broad range of topic areas, including aquaculture, fisheries, water quality, habitat restoration, coastal development, marine operational safety, oil spill prevention, and hazard resilience.
- Education activities engage learners of all ages to enhance understanding and stewardship of marine resources and provide professional development opportunities that nurture ocean-related careers. WSG supports informal educational programs for K-12 students and presents undergraduate and graduate students, as well as recent graduates, with fellowship programs that expand horizons and enhance future careers.

Communications is important to each of the three core functional areas described above in order to maintain the program's commitment to being a public resource for unbiased, science-based information. Using a variety of platforms, such as websites, social media and publications, WSG works to translate technical and scientific findings into useful information for a broad set of constituents.



Clockwise: The San Juan Islands; WSG Crab Team in the field; three species of albatross; a school of salmon

OUR PRIORITIES

Through national and local strategic planning processes, WSG identified four critical program areas. These program areas respond to issues of major importance to WSG constituents and partners, including NOAA, the National Sea Grant Office, research scientists and WSG stakeholders and partners throughout the Pacific Northwest.

Healthy Coastal Ecosystems

Washington is located in one of the world's most productive marine regions, home to iconic species such as southern resident killer whales and Chinook salmon. However, these ecosystems face numerous obstacles, including warming waters, pollution, a history of overharvesting commercially valuable species, and lost or degraded habitat. WSG seeks to understand ocean environments and stressors and to advance ecosystem-based approaches to manage, protect and restore natural resources.

Sustainable Fisheries and Aquaculture

From tribal fishermen to commercial oyster farmers, seafood harvesting is a vital part of Pacific Northwest culture and commerce. However, local seafood industries are

Washington Sea Grant experts provide scientific and technical assistance to resolve complex marine issues with focus on win-win solutions. By leveraging support, WSG brings academic, government, tribal, industry, and citizen scientists together to conserve and support coastal ecosystems.

Northwest Yachting Magazine



confronted with difficult issues such as diminishing stocks, complex regulations and the inherent dangers of commercial fishing. WSG facilitates sustainable use of living marine resources through science-based management and environmentally and economically responsible approaches.

Resilient Communities and Economies

Washington's coastal communities must be prepared for a wide range of risks that threaten lives and livelihoods, including coastal development, oil spills, flooding, landslides and tsunamis. WSG builds capacity for coastal communities to become economically vibrant, environmentally healthy, and resilient to hazards and climate change.

Ocean Literacy and Workforce Development

Despite strong physical and cultural ties to the coast, most Washington residents know little about the sea and its vulnerabilities. Ocean literacy is critical for citizens to understand their own impacts, for the passage of policies that promote healthy oceans, and for supporting Washington's ocean economy, which relies on a well-trained and wellinformed workforce. WSG educates students of all ages and strengthens the maritime sector.

Left: A marine sunset at Fishermen's terminal in Seattle; Right: Students learning in the field



CROSS-CUTTING PRINCIPLES

VITAL PARTNERSHIPS

Partnerships are key to everything WSG does. WSG cultivates partnerships by integrating the expertise and capabilities of partners from federal, tribal, state and local agencies from academia, nongovernmental organizations and industry.

WSG partners include:

- State agencies such as Washington State Parks, which WSG works with to manage and conduct the Pumpout Washington campaign to encourage boaters to pump, not dump, their sewage.
- Tribes such as the Squaxin Island Tribe, whom WSG teamed up with to conduct social science research that explores the risks of ocean acidification to the Tribe's health and wellbeing.
- Marine industry organizations such as the Northwest Marine Trade Association, which WSG works with to provide marina and boat dealers data on in-state boat sales.
- Volunteers such as the ones who participate in WSG's SoundToxins program and Crab Team. SoundToxins is relied upon by public health and fisheries managers to provide warnings of harmful algal blooms. Crab Team is an early detection and monitoring program to understand the spread of invasive European green crab and how local ecosystems could be affected.

DIVERSITY, EQUITY AND INCLUSION

WSG seeks and welcomes diverse perspectives and strives to provide leadership, equitable access and opportunities for the diverse communities and cultures found throughout Washington.

WSG LEADERSHIP Russell Callender, Director wrc4@uw.edu

Paul Dye, Assistant Director for Outreach pbdye16@uw.edu

Kate Litle, Assistant Director for Programs kalitle@uw.edu

MaryAnn Wagner, Assistant Director for Communications maryannb@uw.edu

Katy Curtis, Administrator katy123@uw.edu

www.wsg.washington.edu 206.543.6600

I've been partnering with Washington Sea Grant for over eight years, working directly with almost 1,000 independent fishermen families from coastal communities around the state, from Whatcom to Pacific counties. Through this work, Washington Sea Grant helps to ensure economic viability and cultural dynamism in some of Washington's most underserved communities.

Peter Phillips, Owner and Publisher, *Fishermen's News*



Students in a WSG sea safety class practice using survival suits



College of the Environment University of Washington

3716 Brooklyn Avenue NE Seattle, WA 98105-6716

> seagrant@uw.edu wsg.washington.edu

> > 206.543.6600



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