



## ALEXANDRA KARPOFF

*Project Biologist*

Alexandra has over 8 years of experience working as a biologist, with an expertise in marine invertebrate ecology focused on shellfish population restoration, biomonitoring, and resource management. She enjoys tackling projects from many angles, and provides data management, exploration, and statistical analysis, as well as wide-ranging field expertise, including performing surveys (vegetation, marine mammals, seabird, and shellfish), developing and constructing long-term monitoring designs in the nearshore environment, collecting fish and invertebrates for tissue analysis, and conducting water quality monitoring. She additionally assists in planning and permitting efforts by preparing documents such as biological assessments, critical areas reports, mitigation plans, and data summary reports.

### Representative Projects

**Broodstock Collection Facility Replacement Project Environmental Compliance, Seattle Public Utilities, Renton, WA.** *Project Biologist.* Preparing a biological assessment to support Endangered Species Act compliance for this project to replace an existing facility with one that allows fish collection at higher flow rates.

**Jim's Slough Salmon Habitat Enhancement Project, Aquilini Group, Skagit County, WA.** *Environmental Scientist.* Provided technical support for habitat enhancement project involving installation of engineered logjams. Performed a wildlife and vegetation survey at the site and prepared a biological evaluation and critical areas report to assist in permitting the project.

**Pacific Salmon Gas Bubble Trauma Study, Bonneville Power Administration, Columbia River Basin, WA.** *Environmental Scientist.* Compiled, cleaned, and analyzed 20 years of salmon smolt monitoring data and water quality data collected from several hydroelectric projects on the Columbia and Snake rivers. Used R statistical software to explore and visualize data, analyzed trends, and prepared and presented findings.

**Port Gamble Bay Clean-Up Biomonitoring, Pope Resources, Port Gamble, WA.** *Environmental Scientist.* Port Gamble Bay provides critical fishing and shellfish harvesting grounds for the Port Gamble S'Klallam Tribe. The Bay is also the site of a former logging mill. The Port Gamble Bay Cleanup Project included the removal of creosote-treated wood piles and wood waste, subtidal dredging, and intertidal excavation of the former mill site. Monitoring contaminants of concern (CoC) in shellfish was implemented using caged mussels to determine if inwater construction activities increased the risks to CoC contamination in the food chain. Alexandra worked closely with tribal representatives to lead this monitoring effort during construction activities. She assisted in designing a



#### EDUCATION

B.S., Environmental Science, Western Washington University, Bellingham, 2006  
 Certificate, Statistical Analysis with R Programming, University of Washington, Seattle, 2018

#### CERTIFICATIONS

40-Hour HAZWOPER certification

#### EXPERTISE

Biological Assessments/Evaluations  
 Fish, Shellfish, and Invertebrate Biology  
 Statistical Analysis (R Programming and ProUCL)  
 Environmental Permitting  
 Water Quality Monitoring and Analysis  
 Plant, Fish, and Wildlife Surveys  
 Mitigation Planning, Design, Monitoring



sampling strategy to reduce the risk of mussel cage loss in monitoring areas with high traffic, organized and led the field efforts to both deploy and retrieve mussel cages, managed and analyzed data, and authored the monitoring report.

**Whatcom Waterway Clean-Up Compliance Monitoring, Port of Bellingham, Bellingham, WA.** *Environmental Scientist.* Whatcom Waterway sediments were identified as containing mercury released from historic industrial waterfront activities. Remediation efforts, including dredging and capping were conducted in 2016. Alexandra led the tissue sampling for 3 consecutive years as part of compliance monitoring to evaluate the effect of clean-up activities in the marine food chain. Alexandra led the tissue collection field effort, which included developing a labor budget, coordinating with subcontractors and the clients, scheduling and staffing, and conducting field work. The effort included deploying, retrieving, and depurating in-situ clams; collecting adult and juvenile crab; and performing trawls for benthic fish. Alexandra also authored the Tissue Monitoring Report as part of the Completion Report, providing a summary of field efforts, analytical results, and performing statistical analysis and data visualization.

**Hancock County Marsh Living Shoreline, National Oceanic and Atmospheric Administration, Hancock County, MS.** *Environmental Scientist.* To protect one of the largest marsh complexes in coastal Mississippi from storm surges and erosion, and to enhance habitat, Alexandra provided oyster and bivalve expertise and worked as part of an interdisciplinary team to design, install, and monitor living shorelines along several miles of the Mississippi Gulf Coast. Alexandra was instrumental in designing and installing novel biological monitoring apparatuses to assess infauna, epifauna, and bivalve colonization along engineered breakwaters. She performed the first year of biological monitoring, vegetation surveys, and structural integrity surveys; analyzed results, including species diversity and abundance; and was the primary author on the Year 1 monitoring summary report.

**Hatchery Management, Puget Sound Restoration Fund, Statewide, WA.** *Technician.* Alexandra assisted in the restoration of native oyster habitat on over 10 beaches in the Puget Sound and Salish Sea using hatchery-reared seed. Alexandra collected broodstock samples, collaborated with geneticists and regulators to design breeding programs, and monitored larvae health and development. She also managed the microalgae cultivation program, monitored water quality, and developed hatchery procedures and protocols. Alexandra also built and managed a database to organize hatchery-generated data to inform hatchery management and practices in the future.

**Riparian Habitat Restoration, Washington State Department of Ecology, Whatcom County, WA.** *Crew Member.* Restored riparian habitat in over 15 salmon-bearing streams and surveyed habitat recovery through macroinvertebrate and water quality sampling. Trained volunteers and elementary school groups in macroinvertebrate ecology.

**Watershed Monitoring, Institute for Watershed Studies, Bellingham, WA.** *Laboratory Assistant.* Identified, enumerated, and analyzed macroinvertebrate samples to evaluate ecosystem health in a variety of urban, suburban, and rural streams. Conducted monthly surface water quality assessments by collecting samples in the field and analyzing conventional parameters in the laboratory, in support of a long-term water quality monitoring project.