



KELLY McDONALD

Project Ecologist III

Kelly's work focuses on the biology and ecology of marine ecosystems. She conducts projects involving shellfish aquaculture and eelgrass, estuarine field sampling, taxonomic identification, and data collection. Kelly is an expert in GIS, drone imagery, data analysis and management, mapping of natural resources, calculation of impacts to critical areas and required mitigation for nearshore projects, and marine permitting. She is knowledgeable in local, state, and federal regulations such as the Endangered Species Act (ESA), National Environmental Policy Act, Marine Mammal Protection Act (MMPA), and Magnuson-Stevens Fishery Conservation and Management Act (MSA). Kelly also is a licensed unmanned aerial vehicle (UAV) pilot, and she regularly conducts remote sensing projects. She also is known for clearly communicating science to the public in an accessible manner.

Representative Projects

Assessment of Ecological Functions of Oyster Culture and Eelgrass, Pacific Shellfish Institute, Willapa and Samish Bays, WA, Pacific States Marine Fisheries Commission, Washington State. *Project Ecologist.* Kelly supports the development of a West Coast assessment of eelgrass response to shellfish culture practices to better understand the value of habitats for managed fish and invertebrate species. This multi-year, grant funded research project is in collaboration with staff from the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, University of Washington, University of California-Santa Cruz, and Pacific Shellfish Institute. Kelly is involved with mapping the spatial relationship between eelgrass and aquaculture using a low-elevation UAV to evaluate the responses of eelgrass to the introduction or withdrawal of oyster culture over time. Kelly processes and analyzes the drone imagery to classify eelgrass and other habitats within the study area using remote sensing and spatial analysis software (e.g., Agisoft, ArcGIS Pro).

State Route 520 Bridge Replacement and HOV Program—Rest of the West Project GIS Support, Washington State Department of Transportation, Seattle, WA. *Project Ecologist.* Following an established environmental impact analysis framework, Kelly supported the quantification of potential environmental impacts following modifications and phasing of the proposed project, primarily for the Portage Bay Bridge and west approach of the floating bridge. Analyses included quantification of effects from project construction and operation to riparian and nearshore aquatic habitats important to fish and wildlife. Kelly managed evolving project spatial data in GIS and provided robust analysis products to support environmental permitting. Spatial products were organized in project geodatabases for efficient spatial analyses and appropriate project tracking.

Permitting for Maintenance Dredge and Bulkhead Repair, Zittel's Marina, Baird Cove in Olympia, WA. *Project Ecologist.* Kelly provided local, state, and federal permitting assistance for maintenance dredging and bulkhead repair work associated with an existing marina. Maintenance dredging would remove sediment deposition from a small stream south of the marina, to allow for vessel passage within the marina. Kelly completed the GIS analysis to calculate the proposed dredge volume based on the current bathymetry. Bulkhead work includes replacement of a failing bulkhead and will involve proposed mitigation associated with surf smelt spawning habitat in coordination with the Washington Department of Fish and Wildlife (WDFW). Kelly assisted in the mitigation calculation analysis related to the bulkhead repair and developed figures associated with permitting/regulatory requirements, including a biological assessment for ESA compliance, essential fish habitat (EFH) assessment to satisfy requirements of the MSA00, U.S. Army Corps of Engineers Section 404 and Section 10 permits, shoreline permitting, WDFW Hydraulic Project Approval, and Washington State Department of Ecology Water Quality Section 401.

Marine Mammal Monitoring During Pier Repair and Replacement, Manke Lumber Company, Shelton, WA. *Marine Wildlife Observer.* To



EDUCATION

M.S., Marine Resource Management, Oregon State University, Corvallis, 2018
 B.A., Environmental Biology; Minor: Anthropology, Washington University, St. Louis, 2014

CERTIFICATIONS

U.S. Department of Transportation, Remote Pilot License (Certificate Number: 4384681)

EXPERTISE

Marine Biology
 Estuarine Ecology
 Marine Plant Ecology
 Data Collection and Analysis
 Standardized Sampling
 Quantitative Analysis using R, ArcGIS, and Microsoft Access
 Statistics

AFFILIATIONS

National Shellfisheries Association, student member



satisfy requirements under the ESA and MMPA, Kelly conducted 20 hours of marine mammal monitoring during pile-driving and removal activities for replacement of a commercial pier within Oakland Bay. She conducted monitoring within specified stop-work zones near pile removal and installation using high-quality, 10X42-mm binoculars and recorded observations of marine mammals within the monitoring area, including the number, type, and distance from work. Kelly prepared a memorandum documenting monitoring results.

Biomonitoring for Holden Mine Remediation Project, Rio Tinto, Lucerne, WA. *Project Ecologist.* This project includes extensive annual fish and macroinvertebrate sampling along Railroad Creek to assess the effectiveness of Rio Tinto's remediation efforts at Holden Mine—a former copper mine active between 1938 and 1957. Kelly is providing extensive field assistance to senior staff in both the macroinvertebrate and fish sampling, which require an understanding of standard benthic macroinvertebrate sampling methods and electrofishing technique. Kelly has also led the data analysis (using R) of the benthic macroinvertebrate data and supported the reporting following the field event.

Habitat Conservation Plan, Taylor Shellfish Farms, Washington State. *Project Ecologist.* Taylor Shellfish is pursuing development of a Habitat Conservation Plan (HCP) under Section 10 of the ESA to cover shellfish aquaculture activities in Washington State. Kelly prepared species accounts for 30 ESA-listed and potential ESA-listed species. Ongoing tasks include development of an analysis framework for the effects of Taylor's activities in North Puget Sound on species proposed to be covered under the HCP. The deliverable will be a regional assessment of potential interactions between Taylor Shellfish activities and species that will support a future Incidental Take Permit. This work will be expanded into other project areas (e.g., South Puget Sound, Hood Canal, and Willapa Bay).

Coastal Streams and Embayments Prioritization along Puget Sound Shores with a Railroad, Washington Department of Fish and Wildlife Puget Sound National Estuary Program, Blaine to Olympia, WA. *Project Ecologist.* Through this grant-funded project, a prioritization framework was developed to evaluate coastal embayments and streams along 75 miles of railroad-impacted shoreline between Blaine and Olympia, Washington. Kelly completed analysis and processing of GIS data to score assessed stream crossings within the prioritization framework.

Mid-Barataria Sediment Diversion Project Endangered Species Act and Essential Fish Habitat Consultation, Coastal Protection and Restoration Authority, Louisiana. *Project Ecologist.* This project consists of a \$1.2 billion program to restore natural delta processes from the Mississippi River by reintroducing freshwater and sediment from the river into the Mid-Barataria Basin. The ESA and EFH consultations associated with the project are being conducted in close coordination with the third-party environmental impact statement being developed by the U.S. Army Corps of Engineers to ensure consistent analyses. Kelly contributed to writing the biological assessment and EFH report.

Nearshore Acquisition Strategy Development, Whidbey Camano Land Trust, Island County, WA. *Project Ecologist.* The project developed a science-based prioritization of shoreline parcels in Water Resource Inventory Area (WRIA) 6 for use in acquiring parcels for conservation (and associated restoration, where applicable) of nearshore and estuarine processes and in aiding the recovery of salmonid populations that use the nearshore areas of WRIA 6. Kelly compiled a geodatabase of parcels and relevant data sets to support the prioritization. Using this spatial data, she developed a framework to prioritize parcels to inform future conservation and restoration efforts.

14104 – 111th Avenue NE Fish Exclusion, Dungeness Construction, Kirkland, WA. *Staff Scientist.* Kelly participated in fish exclusion activities on Juanita Creek for this development project. The project includes replacement of a failing culvert under the street. One juvenile fish was removed and relocated downstream during exclusion efforts.

Hjelm and New Caslin Geoduck Farms Habitat Assessment Report, Northwest Shellfish Company, Thurston County, WA. *Staff Scientist.* Kelly wrote a habitat assessment report (HAR) to determine potential effects from the proposed construction of a commercial geoduck operation within the intertidal and subtidal habitat of Eld Inlet, in Thurston County. The HAR was prepared as part of the process to obtain a permit from Thurston County and evaluated the potential effects of the proposed project on habitats and species identified as important by the county.

Ash Way Roadway Improvement, Snohomish County Public Works, Lynnwood, WA. *Staff Scientist.* Kelly assisted in field work and subsequent GIS map creation to identify and delineate critical areas per the U.S. Army Corps of Engineers Wetland Delineation Manual and the local Regional Supplement. This project proposes improvements to 2.2 miles of Ash Way between 18th Avenue W and the intersection of Gibson Road and Admiralty Way. She assisted in report production by completing the wetland ratings using the Washington State Wetland Rating System for Western Washington (Ecology Publication #14-06-029).