



AQUATIC RESOURCE ASSESSMENTS

Hamer Environmental uses a multi-disciplinary, ecosystem-based approach to help clients solve complex aquatic resource issues. Our team of creative and innovative scientists has experience conducting a wide variety of aquatic assessments and surveys for freshwater, marine, and estuarine environments. This technical experience, combined with our understanding of federal and state regulations, allows us to provide our clients with high quality, personalized, and effective aquatic resource solutions.



Our Services

- **Water Quality Sampling & Assessments**
 - short & long term monitoring
 - nutrient sampling & analysis
- **Biological Assessments/Evaluation & Biomonitoring**
 - benthic & terrestrial invertebrates
 - phyto- & zoo-plankton
 - periphyton
 - amphibians
 - fish
 - indices of biological integrity (IBI)
- **Habitat Assessments**
 - aquatic & terrestrial vegetation
 - large woody debris (LWD)
 - Limiting Factors Analysis (fish)
- **Watershed Assessments**
 - condition evaluation
 - restoration recommendations



Lake Assessments

- trophic state index (TSI)
- algal bloom studies
- noxious weed surveys
- **Wetland & Riparian Assessments**
 - wetland delineation & riparian inventories
 - functions & values analyses
 - NEPA/SEPA checklists & determinations
 - mitigation & restoration planning
 - tide level & local datum calculations
 - topographic & bathymetric mapping
 - sediment deposition & erosion
 - tidal channel development
- **Stream Assessments**
 - classification & rating
 - ordinary high water mark (OHW)
 - stability, gradient & flow
 - channel development



Highlighted Services

- **Survey and Monitoring Design** - With our extensive experience developing successful survey and monitoring projects, **Hamer Environmental** can help you define objectives, recommend a site specific sampling strategy, and provide you with standardized protocols and suggestions for analyses. We utilize protocols based on sampling and monitoring techniques that have been broadly applied across the Pacific Northwest including:



- ✓ EPA's Rapid Bioassessment Protocols Wadeable Streams and Rivers
- ✓ EPA's Macro-invertebrate Methods for Evaluating the Biological Integrity of Surface Waters
- ✓ EPA's Ecological Performance Standards for Wetland Mitigation
- ✓ TFW Monitoring Program, Watershed Analysis, and the Salmon and Steelhead Habitat Inventory and Assessment Process
- ✓ Pacific Northwest Aquatic Monitoring Partnership
- ✓ Environmental Monitoring and Assessment Program
- ✓ Aquatic and Riparian Effectiveness Monitoring Program
- ✓ Integrated Status and Effectiveness Monitoring Program
- ✓ Tidal Marsh Monitoring

• **Data Analyses** – The distribution, abundance, and health of aquatic biological communities are often linked to habitat conditions, such as water quality, flow, and vegetative cover. We use several multivariate statistical techniques including correlation and regression analyses, principal components analysis, non-metric clustering analysis and others to understand these relationships and determine which parameters are affecting biological communities.

• **Restoration Studies** – Our scientists have worked on tidal wetland, stream, river, and lake restoration projects and understand that restoration monitoring is a critical component of project evaluation. We use Before-After/Control-Impact (BACI) studies to assess physical and biological responses to restoration actions by measuring conditions *before* restoration and comparing them to conditions *after* restoration. By including a *Control* site to compare to the *Impacted*, or restoration site, we can discern the success of restoration actions from natural variability or trends in the region.

• **Wetland & Riparian Science** – **Hamer Environmental**, in association with wetland scientists, has expertise in wetland delineation, plant ecology, soil science, mitigation, monitoring, and restoration and creation of wetlands and riparian corridors. We have conducted jurisdictional wetland delineations and assessments in multiple wetland habitat types including tidal salt and freshwater wetlands, non-tidal seasonal wetlands, forested and shrub wetlands, and mountain meadows. Using our field experience and understanding of the latest regulatory compliance and permit requirements we help our clients successfully streamline the permitting process and move forward with their projects.



Contact Us

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