

Research Vessel Services

Fisheries, Wildlife, Water Quality, and Sediment



HARTCROWSER

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The R/V Catalyst

Services

Hart Crowser provides a range of unique sampling and reporting services in Oregon and Washington's rivers, bays, and estuaries using our customized research vessel, the **R/V Catalyst**. Our experienced field staff use this floating platform to perform and support a variety of research and monitoring activities, including:

- Fisheries and wildlife studies
 - eDNA sampling
 - Deepwater electrofishing
 - Habitat mapping
 - Fish and shellfish sampling
- Water quality testing and monitoring
- Sediment sampling and characterization
- In-water construction oversight
- Mitigation planning and monitoring

Hart Crowser's sampling plans, designs, and field studies include laboratory and quantitative analyses, results, and report preparation. Our biologists, ecologists, geologists, and geotechnical engineers are recognized regional practitioners. We are proud of our reputation for excellent service as gained through hard work, innovative research, and an unwavering commitment to providing the highest quality services and deliverables.

Eulachon eDNA Study, Lower Columbia River, OR/WA

Hart Crowser and Port of Portland partnered with Oregon State University's (OSU) Quantitative Wildlife Ecology and Conservation Lab to implement a multi-year study using eDNA to investigate presence, migration timing, and relative abundance of eulachon in the lower Columbia River (LCR). Eulachon (also known as hooligan, ooligan, or candlefish) are a federally threatened smelt species and important prey for marine mammals, salmon, sturgeon, and birds. They migrate from the ocean up the LCR to spawn, much like salmon. However, the exact timing of this migration is not known and, therefore, the existing protective state in-water work windows do not account for eulachon. This uncertainty has created questions and controversy about the timing of dredging and pile driving activities. Our unique partnership with OSU has yielded intriguing preliminary results that support the further use of eDNA as a cost effective alternative to traditional fish sampling methods. Results also clearly demonstrate large differences in eulachon run timing between downriver and upriver sampling sites.





Charleston Shipyard, Charleston, OR

Hart Crowser developed a sediment investigation work and sampling plan to address Oregon Department of Quality's (DEQ) concerns about potential risks to people and marine organisms from concentrations of copper and tributyltin (TBT) in the Port of Coos Bay. Initially, these contaminants were infrequently detected above the original cleanup goals. To determine if this risk was continuing, Hart Crowser sampled from the R/V Catalyst for sediment, shellfish tissue, and used other biological testing methods. Although chemical analyses confirmed the occasional occurrence of cleanup goal exceedances, subsequent tissue and biological testing showed that copper and TBT presence did not pose an unacceptable risk to human health or the environment.



Dredge OREGON Water Quality Compliance Monitoring, OR/WA

Over multiple years, Hart Crowser conducted water quality compliance monitoring in support of Dredge OREGON operations in the LCR, which involves monitoring water quality (turbidity and dissolved oxygen) during active dredging required by DEQ and Washington State Department of Ecology (DOE) for water quality certification. Our staff performs turbidity plume characterization studies to determine how and if dredging operations contribute to water quality exceedances. Hart Crowser also tests specific dredging and material placement techniques.



Investigation of Larval Lamprey, Lower Columbia and Willamette Rivers, OR

To determine how dredging affects larval lamprey, Hart Crowser (in collaboration with research scientists from Battelle's Pacific Northwest National Laboratory and OSU), prepared a study plan that includes: 1) eDNA sampling, 2) sediment grab sampling, and 3) deepwater electrofishing, all of which are intended to collect information about the presence/absence and density of Pacific larval lamprey at select marine terminals. For this lamprey study, Hart Crowser fabricated a custom larval lamprey electrofishing system to be deployed from the R/V Catalyst for sampling presence and abundance relative to dredging activities. This research will further the science about lamprey use for this river section.



Mid-Coast Marine – Isthmus Slough, Coos Bay, OR

Hart Crowser developed a sampling strategy and sediment investigation for DEQ to evaluate sediment quality during dredging through bioassay testing for a current assessment of the presence of metals, polychlorinated biphenyl (PCB), and TBT. In the late 1980s, this estuarine site was identified as a potential source of TBT impacts and was linked to oyster deformities. Following upland and sediment remedial actions in 1999 and 2000, contaminant concentrations remained above remedial action levels. Background surveys found potential unacceptable risks to aquatic receptors from TBT and metals in sediment. Following recent Hart Crowser sampling, our testing results (which also included prior shellfish tissue data) found that the site no longer poses an unacceptable risk to benthic organisms. The DEQ and EPA agreed with these conclusions and the site is slated for a "no further action" determination.