

Conner Schultz

Assistant Scientist



Education and Credentials

B.A., Environmental Business,
University of Redlands, Redlands,
California, 2016

Continuing Education and Training

Coursera AI for Everyone (2018)

MATLAB Deep Learning Onramp
(2018)

Hazardous Waste Operations and
Emergency Response 40-Hour
Certification (2019)

First Aid and CPR Certified (2018)

Professional Affiliations

Member of Young Environmental
Professionals

Professional Profile

Mr. Conner Schultz is an environmental consultant with experience in data collection, analysis, and management and in GIS. He extends his use of applications, such as ArcGIS and QGIS, with additional programming languages that include SQL and MATLAB®, to perform quantitative analyses and to develop supporting data visualizations. Mr. Schultz assists in analyzing both spatial and non-spatial data for a variety of projects, including environmental risk assessments, natural resource damage assessments, and RI/FSs. He also has performed analyses to support the development of custom image processing algorithms using deep learning and machine learning methodologies.

Relevant Experience

Standardized and Cost-Effective Benthic Habitat Mapping Tools for Marine and Hydrokinetic Site Environmental Assessments, U.S. Department of Energy—Worked closely with a computer vision/pattern recognition professional to create a standard operating procedure (SOP) for curating images used to estimate sediment grain size from sediment profile images. The SOP was used to sort more than 100,000 images to develop and train a neural network to expedite the process of detecting grain size in future images. Similar approaches are currently in development to assist in detecting apparent redox potential discontinuity, penetration depth, and other features of interest.

Invasive Species Detection, Methow Conservancy, Winthrop, Washington—Identified and annotated an invasive plant species (whitetop) using orthomosaics developed from drone surveys over a 400+ acre area within a land conservancy. The process involved locating patches of whitetop, assigning a certainty assessment, and using these annotations to help the training of a deep neural network being developed to automatically detect whitetop from aerial imagery.

Toxicology Modeling Support, Confidential Location—Supported a team using AQUATOX® to model and analyze single species- and ecosystem-level effects of a specific herbicide in edge-of-field waterbodies. Helped with model calibration, validation, testing, and sensitivity analysis in addition to assisting with comprehensive literature reviews and report writing.



GIS Technical Support, Multiple Projects—Created and designed maps using the ArcGIS platform, as well as open sources mapping software (e.g., QGIS). Generated visualizations of spatial data for use in allocation, remediation, and restoration projects. Incorporated various ArcGIS extensions to create sophisticated interpolations of point-based measurements that were subsequently used to support additional high-level analyses and reporting efforts.

Ward Cove Long-Term Monitoring, Ketchikan, Alaska—Assisted in the collection and processing of surface sediment samples for chemical analysis and benthic fauna. Served as field lead and in a support role for collection of sediment profile imaging and plan view (SPI/PV) images prior to construction of a marine terminal used for docking of future cruise lines. Analyzed SPI/PV images and assisted in mapping for final data report.

Groundwater Monitoring, Wood Treatment Superfund Site, Bellingham, Washington—Supported field team lead for biannual groundwater sampling event and assisted in the long-term groundwater compliance monitoring of an active Superfund site. Collected groundwater samples using low-flow purging methods and dedicated bladder pumps.

Enhanced Natural Recovery/Activated Carbon Pilot Study, Lower Duwamish Waterway, Seattle, Washington—Assisted field lead for year 3 of SPI/PV investigation to collect semiquantitative information on the stability of materials used in enhanced natural recovery (ENR) and ENR amended with activated carbon for sediment remediation. Analyzed SPI/PV images and assisted in the interpretation of results.

Port Gardner Nondispersive Dredge Material Disposal Site, Everett, Washington—Analyzed SPI images, assisted in the interpretation of results, and wrote portions of the data report for a historical and current dredge disposal site in the Puget Sound.

Presentations/Posters

Sackmann, B., G. Revelas, K. Whitehead, C. Schultz, and C. Jones. 2020. Artificial intelligence and computer vision for cost-effective benthic habitat characterizations. Poster presentation at the Ocean Sciences Meeting. Co-sponsored by the American Geophysical Union, the Association for the Sciences of Limnology and Oceanography, and The Oceanography Society, San Diego, CA. February 16–21.

