Conner Schultz
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; refreshers 2020 to present)

Basic Offshore Safety Induction and Emergency Training (including Helicopter Underwater Escape Training and Emergency Breathing System) (2020)

First Aid and CPR certified (current)

Transportation Worker Identification Credential (current)

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. Since joining Integral in early 2019, he has been a contributing member to Integral's sediment-profile and plan view imaging (SPI–PV) field survey team. He supports SPI–PV field surveys, and conducts PV image analysis and SPI–PV data post-processing. He also has performed analyses to support the development of custom image processing algorithms using deep learning and machine learning methodologies. In addition, Mr. Schultz has served as a project manager for three projects with responsibilities that include cost management, resource allocation, and successful deliverable tracking and client communication.

Relevant Experience

Offshore Wind Farm Baseline Surveys, East Coast, United States, Confidential Clients—Served as lead for post-survey PV image analysis for four proposed offshore windfarm lease areas and export cable routes off the U.S. Atlantic coast. Managed the pre-processing of the acquired images, conducted extensive image analysis using CMECs guidance, and generated supporting data visualizations used in the technical reporting. Assisted field team lead in the collection of SPI–PV images and benthic grab samples to document and analyze baseline conditions at the proposed wind farm site during the July 2021 survey.

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 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.

Enhanced Natural Recovery/Activated Carbon Pilot Study, Lower Duwamish Waterway, Seattle, Washington—Assisted field lead for

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Year 3 of SPI–PV investigation to collect semi-quantitative 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, assisted in the interpretation of results, and wrote contributing sections to data report.

Former Port Blakely Mill, Bainbridge Island, Washington—Assisted field team lead in conducting an intertidal site-walk using a handheld SPI system to capture SPI images as part of a RI/FS and draft cleanup action plan to gather baseline conditions of a former pulp mill site. Analyzed SPI–PV images and assisted in the interpretation of results.

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.

Project Management Support, Multiple Projects—Provided project management services, including updating schedules, managing financial administration, and allocating resources for multiple modeling projects. Managed client communications and subcontracting. Assisted in facilitating communications between all project stakeholders.

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.

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.