



Wright Water Engineers, Inc.

NOAH S. GREENBERG, PWS
SENIOR WATER RESOURCE
SCIENTIST

CURRENT Company lead on waters of the U.S. identification and evaluation and Clean Water Act Section 404 permitting; consultant on projects related to wetlands, aquatic biology, and ecological assessments.

EDUCATION M.A., Ecology, University of Colorado, 2008
Boulder, Colorado

B.A., Biology, The Colorado College, 2001
Colorado Springs, Colorado

REGISTRATIONS Certified Professional Wetland Scientist (Issued 2018, current)

Water Education Colorado Water Leader Program (2020)

PROJECT EXPERIENCE

Potential Waters of the U.S. Delineation and Section 404 Permitting

Confidential Gas Client in Colorado. Provided written testimony in an enforcement action regarding an alleged discharge of pollutants into waters of the U.S. Testimony included an evaluation of the alleged discharge location for the presence of wetlands, an evaluation of another consultant's wetland delineation for technical accuracy and adherence to U.S. Army Corps of Engineers (USACE) methods, and an evaluation of the complainant's prehearing factual disclosures. This case was settled prior to hearing.

Confidential Colorado and New Mexico Project. Conducted desktop review of potential waters of the U.S. for permitting and planning purposes in the San Juan River Basin of New Mexico and Colorado. Effort included two days of site visits to refine criteria for desktop approach. Results of this work were intended to assist operator planning and prioritization efforts.

Eastern Nebraska Wetlands Evaluation. Conducted a delineation of wetlands and other waters of the U.S. for an approximate 50-acre parcel in the Salt Creek watershed near Lincoln, Nebraska. A central focus of this evaluation was the subject wetland's connectivity to downstream waters. To this end, WWE conducted a delineation of contributing basins to the wetland, evaluated local topography, and developed a surface hydrology model that predicted the frequency of events that would result in a direct surface hydrological connection between the subject wetlands and downstream receiving waters.

Red Mountain Ditch. Conducted delineation of wetlands and other potential waters of the U.S. for Red Mountain Ditch in the Animas and Uncompahgre River watersheds. Following delineation, navigated permitting requirements for planned ditch rehabilitation activities.

Sigua Highlands Development on Territory of Guam. Conducted a delineation of wetlands and other potential waters of the U.S. for a large parcel planned for rezoning and development. Site included complex wetland types, including forested wetland mosaics and tall grass savannah emergent wetlands.

Confidential Colorado and Wyoming Natural Gas Projects. Conduct delineations of wetlands and other waters of the U.S. for projects associated with the exploration, development, production, and delivery of natural gas. Work includes any necessary permitting steps under Section 404 of the Clean Water Act.

Douglas County Department of Public Works Engineering. Conducted evaluation of Douglas County's facilities that are maintained under their Municipal Separate Storm Sewer System (MS4) to develop opinions regarding the facilities' potential jurisdiction under existing guidance and the Environmental protection Agency (EPA) and USACE 2014 proposed rule on Waters of the U.S. Evaluation report was subsequently attached to the County's comments on the proposed rule.

Casto Reservoir. Delineated wetlands surrounding a reservoir in Mesa County, Colorado, for a dam repair including the installation of two new proposed outlet pipes. Obtained confirmation from the USACE that the project was agriculturally exempt.

Snowmass Water Supply Wetland Permitting. Conducted a delineation of wetlands and other potential waters of the U.S. in the vicinity of a water supply project in Snowmass, Colorado. This delineation included evaluation of areas for potential fen presence in addition to hydrologic analysis of the water source for the wetlands. Analytical methods used included soil organic carbon measurements and water quality fingerprinting.

Craig Reservoir. Delineated wetlands surrounding a reservoir in Mesa County, Colorado, for a dam repair. Obtained confirmation from the USACE that the project was agriculturally exempt.

Arapahoe County Water and Wastewater Authority. Reviewed a proposed pipeline installation project for Section 404 of the Clean Water Act considerations in Arapahoe County, Colorado. Received confirmation from the USACE that the project qualified for Nationwide Permit No. 12: Utility Line Activities without pre-construction notification.

Basalt Sanitation District. Delineated wetlands for a sewer line replacement project in western Colorado. Prepared a pre-construction notification for submittal to the USACE and received authorization that the project qualified for Nationwide Permit No. 12: Utility Line Activities. Prepared construction specifications for wetland reclamation.

Flattops Water Company. Delineated wetlands and other waters of the U.S. adjacent to two reservoirs and one gulch that could potentially be used for future reservoir sites in Routt County, Colorado. Completed vegetation surveys in each area. Coordinated with the Denver Botanic Gardens to confirm unique plant identification.

Fraser, Colorado. Delineated wetlands and other waters of the U.S. at a 160-acre project site in Grand County, Colorado. A key aspect of this delineation was identifying which wetland areas were dependent on irrigation. To achieve this, groundwater monitoring and vegetation health assessments were used to identify which portions of the project area were unlikely to meet USACE criteria for wetlands in the absence of irrigation.

West Elk Mine. Delineated wetlands and other waters of the U.S. for the West Elk Mine in Somerset, Colorado. These wetlands included areas adjacent to the North Fork Gunnison River.

Wetland and Other Aquatic Resource Mitigation and Monitoring

Eagle's Nest Golf Course. Assessed constructed wetland areas on a golf course in Silverthorne, Colorado, to confirm that wetland mitigation had been completed in accordance with permit requirements. Coordinated a wetland mitigation sign-off from the USACE.

Perry Mine. Ongoing monitoring of vegetation (transects and statistical analysis) and water levels at a mitigation area in Weld County, Colorado. Provided recommendations to meet USACE-approved performance standards.

South Shore. Provided guidance for the construction of a wetland mitigation shelf located adjacent to a large pond in Aurora, Colorado. As part of the project, a wetland-vegetated channel was created upstream of the pond. The purpose of the project was to meet Section 404 requirements as well as to create wildlife habitat and visual interest for the surrounding residential community. Signage was developed for the local residents to help them identify wildlife and plant species. Monitoring of the wetland (vegetation and water levels) and surrounding trees/shrubs occurred for two years until the USACE agreed that the mitigation area reached the established performance standards.

Biological Assessments, Vegetation Surveys, Water Quality Evaluations

Williams Overland Pass Pipeline Stormwater Permit Evaluation. Evaluated over 300 miles of a natural gas liquids pipeline right-of-way in Wyoming to evaluate potential for stormwater permit closure. WWE used this information to develop a revised monitoring plan that reduced inspection costs, maintained a high level of protection for State Waters, and met the intent of Wyoming's stormwater permitting program.

Bowie Coal Mine No. 2. Evaluated physical stream habitat to establish baseline conditions prior to proposed long wall mining in a stream with a federally listed fish subspecies. Subsequently, working with geologists, developed a model for post-mining stream channel conditions that would occur as a result of the proposed mining. The results of these evaluations were compiled into a Biological Assessment which was reviewed and supported by the U.S. Fish and Wildlife Service.

Colorado Water Quality Control Commission Regulation 93 Rulemaking. Submitted written testimony with regard to the potential use of Policy 10-1 (Aquatic Life Use Attainment) on Salt Creek in the San Juan River basin. This testimony was in support of the La Plata County Energy Council's response to the Water Quality Control Division's preliminary proposal.

Irrigation Ditch Assessment. Assessed whether an irrigation ditch had been seeded in accordance with design drawings, and provided expert opinion. The assessment included floristic survey, quadrat, and statistical analysis.

Restoration Design and Monitoring

Confidential Pipeline in Western Colorado. Provided regulatory and design guidance for restoration of roughly eight miles of pipeline right-of-way in a Colorado River valley. This restoration included roughly 12 acres of wetland areas and three perennial river crossings. Encountered challenges included ongoing cattle grazing, adjacent disturbance by others that modified hydrology and persistent invasive weed seed banks. Following restoration construction, provided ongoing monitoring and maintenance recommendations. These restoration areas were deemed to be in attainment of the permitted performance criteria and accepted by the USACE.

Williams Overland Pass Pipeline in Wyoming. Provided guidance for the restoration of a 150-foot-wide, 330-mile-long pipeline right of way in southern Wyoming. Included site condition assessments, recommendations for soil stabilization and planting measures, weed management guidelines and drainageway restoration criteria. This work resulted in more targeted permittee corrective actions and facilitated the right-of-way's progression toward meeting final reclamation guidelines.

Confidential Texas Oil and Gas Client. Developed conceptual restoration plans for several projects owned by a confidential oil and gas client in Texas. These plans focused on restoring hydrologic connectivity, establishing stable channels, and promoting development of native vegetation on disturbed areas.

Sanderson Gulch Drainageway. Obtained USACE Individual Permit for a residential development of the former Green Gables Country Club. To offset impacts to Sanderson Gulch, designed a native riparian corridor that met a variety of natural and human objectives, including promotion of water quality, establishment of wildlife habitat, and floodplain management.

The Ranch in Sidney, Nebraska. Working for the outdoor equipment supplier, Cabela's, developed conceptual plans for a roughly 70-acre portion of the Lodgepole Creek floodplain that would be restored to be a natural open space area. The project included an approximate 10-acre pond, riparian wetlands, and stormwater quality wetlands. This project was acknowledged by the South Platte Natural Resources District and resulted in their dedication of substantial water rights for maintenance of the designed pond and native vegetation areas.

PRESENTATIONS AND TRAININGS

2015 through 2020 SWCA Trainings. Developed two-day training for clients covering Clean Water Act and Endangered Species Act compliance for project stakeholders. Presented a total of 10 times between 2015 and 2020 in Denver, Houston, and New Orleans.

2015 EUCI Trainings. Developed and taught a two-day course on Clean Water Act, Endangered Species Act and National Environmental Policy Act compliance for oil and gas operators. Course was held in Houston, Texas, in March 2015 and Denver, Colorado in July 2015.

2014 EUCI Trainings. Developed course materials and taught 1.5-day courses in Denver, Colorado, and New Orleans, Louisiana, on Clean Water Act and Endangered Species Act regulations for oil and gas operators.

2014 International Erosion Control Association Mountain States Conference. Agency and Stakeholder Perspectives of the EPA and Corps of Engineers' Proposed Rule on Waters of the U.S.

2014 Cherry Creek Stewardship Partners Watershed Conference. When Well-Intentioned Regulations Interfere with Each Other: Wetlands, Water Quality and Water Rights.

July 2014 Colorado Environmental Management Society Luncheon. Introduction and Interpretation of the EPA's Proposed Rule on Waters of the United States.

2013 Colorado Environmental Management Society Annual Conference. Challenges to the U.S. Army Corps of Engineers' Ability to Authorize Impacts to Waters of the U.S.—the Keystone Pipeline and other Linear Projects.

2013 Ditch and Reservoir Company Alliance Annual Convention. Section 404 of the Clean Water Act—Jurisdiction and Permitting Considerations for Ditch, Reservoir and Farming Activities.

2013 Colorado Association of Stormwater and Floodplain Managers. Riparian Habitat Mitigation Banking and Nutrients.

2013 Boulder County Bar Association September Luncheon. Clean Water Act Section 404 vs. City of Boulder Title 9-3; Comparisons and Considerations for Projects in the City of Boulder.

PREVIOUS EXPERIENCE

SWCA Environmental Consultants Client Services Director for Water Resources (2019 to January 2023). Created Water Resources Practice Group for environmental consulting company with more than 1,000 employees throughout the United States. The Water Resources Practice Group includes sub-groups for wetland science, stormwater management and permitting, water quality and watershed science, hydrology and hydrogeology, and fisheries and aquatics. The developed program includes internal collaboration platforms on Microsoft Teams, external communications via Microsoft SharePoint sites, peer group learning and mentoring programs, and quality assurance/quality control tools such as standard operating protocols, trainings, and reporting tools. Within one year of program inception, the Practice Group consisted of over 160 water resources professionals.

Wright Water Engineers Senior Aquatic Resource Scientist (2008 to 2018). Served as company lead on waters of the U.S. identification and evaluation and Clean Water Act Section 404 permitting; consultant on projects related to wetlands, aquatic biology, and ecological assessments.

Environmental Protection Agency Region 8 Headquarters, Graduate Student Intern. Supported several working groups within the Ecosystem Protection Program. Specific duties included conducting research to help develop water quality standards, reviewing environmental impact statements prepared for National Environmental Protection Act compliance and supporting jurisdictional determination reviews.

University of Colorado at Boulder, Graduate Teaching Assistant. Taught laboratory and classroom sections for the Department of Ecology and Evolutionary Biology. Courses taught included ecology, microbiology, genetics, general biology and scientific writing.

Dartmouth College, Research Technician. Conducted aquatic toxicology research on invertebrates and fish. Research included analysis of metal toxicity, genetic response to metal exposure and acquired tolerance to elevated metal levels.

ADDITIONAL QUALIFICATIONS

Mile High Flood District Stream Academy (2022)

Water Education Colorado Water Leaders Program (2020)

Basic Wetland Delineation Certificate, Wetland Training Institute, 2008

Invasive Weed Management Master Course, Colorado State University Extension Program, 2010