

Appendix 5.2C
Biological Resources Staff Resumes

Melissa Fowler

Small Mammal Ecologist/Wildlife Biologist

Education

M.S., Environmental Studies, Emphasis: Environmental Science, California State University, Fullerton (2010)

B.S., Biological Science, California State University, Fullerton (2005)

A.A., Liberal Studies, Fullerton College, Fullerton (2001)

Relevant Experience

Ms. Fowler is a biologist specializing in small mammal ecology, particularly desert species, and wildlife biology. She has over 9 years of experience conducting a variety of wildlife studies in a range of California habitats, including aquatic (freshwater and marine) and terrestrial ecosystems, and has worked with a wide range of species that include large carnivores, small mammals, raptors and other avian species, reptiles, marine fishes and aquatic macroinvertebrates. Ms. Fowler has conducted a variety of surveys for commercial projects including botanical surveys, wildlife surveys, habitat assessments, vegetation mapping, biological monitoring, rare plant surveys (primarily in the Mojave Desert), re-vegetation monitoring and wetland delineations. She has a scientific collecting permit for mammals and reptiles in Kern, Los Angeles, Riverside and San Bernardino Counties and the coast horned lizard in Region 5 (SC-11611).

Representative Projects

Biologist, Union Pacific Railroad, Imperial County, California. Conducted preconstruction clearance surveys for burrowing owls, habitat assessments and construction monitoring for desert pupfish.

Biologist, San Timoteo Canyon Derailment, Union Pacific Railroad, Riverside County, California. Conducted revegetation monitoring of site restoration activities for derailment affected areas, replanting of native vegetation and establishment of weed management areas were conducted in accordance with U.S. Army Corps of Engineers (USACE) (USACE #2006-01654-JPL) and State Water Resources Control Board (State Water Board) (WDID #836C343929) requirements. Prepared annual revegetation monitoring report.

Biologist, Confidential Solar Energy Client, Kern County, California. Conducted raptor migration and raptor landscape use surveys throughout the proposed wind energy site.

Biologist, Saudi Aramco Lubricating Oil Refining LUBEREF, Saudi Arabia. Prepared baseline sections for terrestrial ecology and marine ecology, impact assessments, and mitigation sections for an Environmental Impact Assessment (EIA).

Biologist, BP Iraq NV. Iraq. Prepared baseline ecology, impact assessment, and mitigation sections for an Environmental and Social Impact Assessment (ESIA). Ecology baseline included terrestrial and wetland habitats.

Biologist, Hidden Hills Solar Electric Generating System, Inyo County, California. Prepared the Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) for the Colorado River Basin Regional Water Quality Control Board (RWQCB).

Biologist, Painted Hills IV, Greyback Wind, LLC, Riverside County, California. Prepared application packages for a proposed wind energy project for a Lake and Streambed Alteration (LSA) Notification for California Department of Fish and Game (CDFG) and the CWA Section 401 WQC for the Colorado River Basin RWQCB.

Biologist, Ivanpah Solar Electric Generating System, BrightSource Energy, Inc., San Bernardino County, California. Conducted delineation surveys of ephemeral washes for a potential mitigation site in the Mojave Desert. Prepared report for delineation surveys and analyzed the suitability of confidential location as a mitigation site for a solar project.

Biologist and Task Manager, Los Angeles World Airports (LAWA). Los Angeles, California. Prepared cost estimate and met with client for Riverside Fairy Shrimp relocation project to help determine the cost effectiveness of

Melissa Fowler

mitigation site alternatives. Coordinated with client and subcontractors, ensured tasks are within scope of work, finalized and distributed deliverables, prepared meeting agendas and summaries.

Biologist, Rice Solar Energy Project, Rice Solar Energy, LLC, Riverside County, California. Prepared the Evaporation Pond Plan and assisted with preparing the Biological Resources Mitigation Implementation and Monitoring Plan.

Biologist, TID Almond 2 Power Plant, Turlock Irrigation District, Stanislaus County, California. Conducted construction and dewatering monitoring for the giant garter snake within areas of suitable habitat.

Biologist, Oakdale Irrigation District, Stanislaus County, California. Prepared a jurisdictional delineation of wetlands and Waters of the United States report.

Biologist, Terra-Gen Power, LLC, Kern County, California. Supported multiple projects by conducting wetland delineations, habitat assessments, vegetation mapping, condor monitoring and multiple wildlife surveys, desert tortoise and Mohave ground squirrel monitoring, geotechnical escorting, potholing monitoring, assisted with protocol southwestern willow flycatcher surveys, supported project permitting, including multiple LSAs and Section 401 Waste Discharge Requirements (WDR), and prepared technical memos.

Biologist, North Sky River Wind Energy Project, NextEra, Kern County, California. Conducted rare plants surveys along a transmission line corridor. Attended county planning meeting and participated in the renewable energy forum, which included multiple stakeholders. Assisted with biological monitoring during the construction phase.

Biologist, Confidential Solar Energy Client, Imperial County, California. Prepared and revised avian and bat protection plans for two proposed solar farms in Imperial County, California.

Biologist, Chiquita Canyon Landfill Master Plan Revision, Waste Management, Inc., Los Angeles County, California. Revised and updated the Biological Resources section of the Draft Environmental Impact Report. Conducted vegetation surveys, oak tree surveys, revegetation monitoring and updated all vegetation mapping in accordance with the expanded project boundary.

Biologist, Alpine Solar Project, NRG Solar Alpine, LLC, Los Angeles County, California. Conducted preconstruction surveys for coast horned lizards, burrowing owls and badgers, rare plants surveys and assisted with preparing the biological technical report for an additional 35-acre project.

Biologist, Beaver to Junction, Central Federal Lands Highway Division, Fishlake National Forest, Utah. Performed acoustic goshawk surveys in summer of 2010.

Biologist and Field Lead, Tehachapi Renewable Transmission Project (TRTP) – Segments 4-11 Compliance Monitoring, Southern California Edison (SCE), California. CH2M HILL is providing environmental compliance support to SCE during construction of the TRTP in accordance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The TRTP includes construction of new and upgrade of 173 miles of transmission lines, construction of one new substation, major upgrade of one existing substation and upgrade of other ancillary facilities. When complete the TRTP will deliver up to 4300 MW of renewable energy to the Los Angeles Basin and the western Inland Empire. Provided general project support including preparing mitigation plans, conducting historical research on oil fields and obtaining abandonment details when applicable for the entire project. Field lead for preconstruction photographic documentation, coordinated with subcontractors, quality assurance/quality control of fieldwork and data, developed field protocols to streamline and standardize fieldwork and prepared task-related deliverables.

Biologist, Devers-Palo Verde No. 2 Transmission Line Project (DPV2) - Compliance Monitoring, SCE, California. CH2M HILL is providing environmental compliance support to SCE during construction of the DPV2 in accordance with the NEPA and CEQA. The DPV2 includes construction of 153 miles of new transmission lines, construction of one new substation, major upgrades of two existing substations and upgrade of other ancillary facilities. Data entry of environmental data sheets, compiled all environmental data entry into a single

database, prepared summaries of surveys needed and tasks completed at proposed substation, and reviewed project-related mitigation plans.

Publications and Presentations

“Small mammal community structure in response to post-fire vegetation changes in the Mojave National Preserve.” California State University, Fullerton (2010).

“Foraging behaviors of *Chaetodipus* spp. (pocket mice) in response to predation risk.” Published in *Dimensions* (2006).

“Foraging behaviors of pocket mice in response to rattlesnake olfactory cues” presented at the American Society of Mammalogists conference. Springfield, Missouri (2005).

Specialized Training

Desert Tortoise Council: Introduction to Surveying, Monitoring, and Handling Techniques Workshop

Legends of the Fall: Exploring the Clandestine Flora of Early Fall in the Eastern Mojave Desert Workshop

Occupational Safety and Health Administration 10-hour Construction Safety and Health certified

Safety Coordinator – Construction

CPR certified

United States Fish and Wildlife Service, Pacific Pocket Mouse Workshop, 2008

Russell T. Huddleston

Wetland Ecologist/Botanist

Education

M.S., Ecology, University of California, Davis, 2001

B.S., Biology, Southern Oregon University, 1998

Professional Registrations

Professional Wetland Scientist (PWS #1634)

Endangered Species Act Section 10 Scientific Take Permit for Threatened and Endangered Vernal Pool Crustaceans and Selected Rare Plant Species (Permit TE-054120-2)

California Department of Fish and Game Scientific Collectors Permit for Threatened and Endangered Vernal Pool Crustaceans (Permit No. 005934)

California Department of Fish and Game Scientific Collectors Permit for State-listed Threatened and Endangered Plants (Permit No. 08030.1)

Distinguishing Qualifications

- Specialized experience in wetland delineation and assessment
- Specialized experience in rare plant surveys and habitat characterization
- Specialized experience surveys for listed vernal pool invertebrates

Relevant Experience

Mr. Huddleston is a wetland ecologist/botanist in the Environmental Business Group in CH2M HILL's Bay Area office. He has more than 12 years of professional experience in wetland science, plant community classification, habitat assessment, and special-status species surveys. In addition, he has training and experience with global positioning system (GPS) technology used for habitat mapping, wetland delineation, and special-status species surveys.

Mr. Huddleston is a Certified Professional Wetland Scientist and has worked in a variety of wetland types throughout the western United States including Coastal and tundra wetlands in Alaska; vernal pools and seasonal wetlands in California and southern Oregon; mountain streams and seeps in Utah; and desert playas and washes in Arizona, Nevada and Southern California. Mr. Huddleston has also received specialized training in wetland delineation methodology, hydric soils and wetland plants. Mr. Huddleston is a member of the Society of Wetland Scientists and has been a volunteer docent at the Jepson Prairie vernal pool preserve for over 9 years.

Mr. Huddleston has conducted numerous botanical inventories, habitat assessment and characterization studies and surveys for rare, threatened and endangered plant species throughout California in a variety of habitats including coastal sage scrub, valley grasslands, montane forests and the Mojave deserts. He holds scientific collection permits for California State-listed threatened and endangered plants as well as selected federally-listed plant species. Mr. Huddleston is an active member of the California Native Plant Society and other professional botanical organizations.

Mr. Huddleston has conducted protocol level surveys for federally-listed vernal pool crustaceans for a variety of clients, including Travis Air Force Base, Camp Pendleton Marine Corps Base, the California Department of Transportation and the Riverside County Transportation Commission. In addition, he has been involved in long-term population monitoring projects for vernal pool species in the Greater Jepson Prairie ecosystem in Solano County, California.

Russell T. Huddleston

Representative Projects

Ecologist; Kingdom of Saudi Arabia Presidency of Meteorology and Environment, Al Khobar, Saudi Arabia.

Environmental assessment and ecological restoration planning for the northern Saudi Arabian desert affected by the 1991 Gulf War. This project involves collaboration with the Saudi Ministry of Agricultural as well as the United Nations. Project activities to date have included assessment of existing conditions in both impacted and non-impacted areas, planning and design for ecological restoration and the development of a long-term monitoring plan. Revegetation plans call for the reintroduction of important shrub species *Haloxylon salicornicum* and *Rhanterium epapposum*, both of which are ecologically important species in northeastern Saudi Arabia and Kuwait.

Task Lead Ecologist; State Route 79 Realignment Project, Riverside County, California. Responsibilities for this project included leading the field effort to map and characterize wetland resources for multiple alternatives for a highway realignment project in Southern California. In 2010, this project was selected for the Transportation Environmental Stewardship Excellence Award by the U.S. Fish and Wildlife Service because of its partnership-based approach to project planning and environmental review that focused on ecosystem sustainability while meeting increasing transportation demands in the region.

Ecologist; Sulfur Bank Mercury Mine, Lake County, California. Field lead for a wetland delineation as requested by the U.S. EPA as part of the Remedial Investigation/Feasibility Study to eliminate, reduce, or control risks to human health and the environment resulting from contaminant sources at the Sulphur Bank Mercury Mine.

Update to Natural Resource Management Plan, Travis Air Force Base, Solano County, California. Conducted an assessment and evaluation of base wide natural resources, including vernal pool habitats, rare plants, and special-status species. Various projects for the Base included vernal pool habitat mapping and assessment, protocol-level surveys for federally-listed vernal pool crustaceans, rare plant surveys, and wetland habitat mitigation monitoring.

On-call Environmental Services, California Department of Transportation, District 4. Provide a variety of environmental support services for highway projects including wetland delineations, rare plant/endangered species surveys, mitigation planning, permitting, and agency coordination.

On-call Environmental Services, Sacramento Municipal Utility District, California. Provided a range of environmental services, including wetland delineations, special-status species surveys, habitat assessment and compliance monitoring as part of the on-call environmental services contract.

Forest Highway 114/Hyampom Road Reconstruction, U.S. Federal Highway Administration, Trinity County, California. As part of the environmental review process, consulted with federal resource agency staff, assisting with rare plant surveys and habitat mapping and classification. Habitat types included Douglas-fir forest, oak woodland and riparian ecosystems. The U.S. Federal Highway Administration in cooperation with the U.S. Forest Service and Trinity County proposed to reconstruct approximately 8.5 miles of Forest Highway in Trinity County, California.

California-Oregon Border Power Plant, People's Energy Resources, Bonanza, Oregon. CH2M HILL was contracted by the California-Oregon Border Power Plant to prepare the Site Certificate Application for submittal to the Oregon Office of Energy. Project related facilities included a nominal 1,150-megawatt generating facility, a 7.2-mile electric transmission line, a 4.1-mile natural gas supply pipeline and a 2.8-mile water supply pipeline. Responsible for coordinating with state and federal resources agencies and conduction habitat mapping, rare plant surveys, and wetland delineations for the proposed project. Natural habitats included sagebrush steppe, juniper woodland, ponderosa pine forest and seasonal wetlands. Vegetation within each habitat was characterized and the habitat was evaluated based on the Oregon Department of Fish and Wildlife's Habitat Classification System.

Sacramento Army Depot, U.S. Army Corps of Engineers, Sacramento, California. Conducted an assessment of jurisdictional waters of the U.S. (including wetlands) on an approximately 110-acre site at the Sacramento Army

Depot in southern Sacramento County, California. This assessment includes lands to be transferred to the City of Sacramento as part of the Base Realignment and Closure Act.

State Route 153 Roadway Improvement Project, Federal Highway Administration, Beaver, Utah, September 2003. Conducted an assessment of jurisdictional waters of the U.S. (including wetlands for approximately 766 acres along Utah State Highway 153. Wetland delineation was conducted along 11.5 miles of roadway.

In-Delta Storage Project, California Department of Water Resources, Sacramento and Contra Costa Counties. Assisted DWR botanists with rare, threatened and endangered plant surveys in the Sacramento-San-Joaquin Delta. Habitat types included inter-tidal areas, annual grassland, riparian areas and agricultural lands.

Sacramento Municipal Utility District's Cosumnes Power Plant, California. Conducted a wetland delineation for the proposed energy facility site, laydown area, and 26-mile natural gas supply pipeline. Habitat types included annual grassland, seasonal wetlands, vernal pools, and riparian areas.

Proposed Sewer Alignment, Vallejo Flood and Sanitation District, California. Conducted preconstruction plant surveys for special status plant species along a proposed sewer pipeline alignment. Habitat types included inter-tidal marsh, annual grasslands, wet meadows, riparian areas, and wetlands.

Pacific Gas & Electric Line 401 Capacity Loops Project, Pacific Gas & Electric, California. Conducted biological resource surveys including rare, threatened and endangered plant species. Habitat types included mixed conifer forest, sagebrush steppe, seasonal wetlands and riparian areas.

Utah-Nevada Pipeline Project. Task lead for wetland delineation for an approximately 400-mile pipeline from Salt Lake City, Utah to Las Vegas, Nevada for Holly Energy Partners. Delineation included numerous wetlands and other waters including ephemeral washes, lakes, streams and emergent wetlands.

Alaska Department of Transportation Dalton Highway Maintenance Sites. Conducted habitat and wetland assessment of 24 gravel excavation areas for roadway maintenance of the Dalton Highway between Prudhoe Bay and Fairbanks, Alaska.

Peñascal Wind Farm, Kennedy County, Texas. Conducted wetland assessment and mapping for PPM Energy proposed wind turbine locations. Surveys included identification of wetland areas and delineation proposed locations for turbine locations and access roads to avoid and minimize impacts to wetland resources.

Professional Organizations/Affiliations

Society of Wetland Scientists (Past president of the Western Chapter)

Ecological Society of America

California Botanical Society

California Native Plant Society

Northern California Botanists

Honors and Awards

Phi Kappa Phi – Honor Society, Southern Oregon University Chapter

Hollenbeck Fellowship in Biology – Southern Oregon University

Jean Davis Memorial Scholarship – Native Plant Society of Oregon

Professional Development

California Wetlands, Sacramento, CA 2007

Introduction to the Asteraceae, Chico, CA 2006

Introduction to the Salicaceae of California Chico, CA 2006

Administration and Enforcement of Wetlands and Endangered Species Regulations; Sacramento, CA 2005

Tidal Wetlands Workshop; Tiburon, CA 2005

CEQA and NEPA for Botanists; Chico, CA 2004

Fundamentals of Soil Morphology, Corvallis, Oregon 2004

Russell T. Huddleston

Introduction to Lichen Identification, Davis, California 2004
Applied Hydric Soils, Sacramento, California 2003
Identification of Plants from Vernal Pools and other Seasonal Wetlands, Chico, California 2003
Introduction to Keying Carex, Chico, California 2003
Army Corps of Engineers Wetland Delineation Training, Sacramento, California 2002
Identification of Fairy Shrimp and Tadpole Shrimp, Sacramento, California 2002
Field Indicators of Hydric Soils, Sacramento, California 2002
Identification of Mosses, Chico, California 2002
Introduction to the Poaceae, Davis California 2001

Publications and Presentations

Huddleston, 2007. *Wetland Delineation – Dealing with Problem Areas in the Arid West*. Platform Presentation at the National Society of Wetland Scientist Meeting. (Sacramento, CA June 10 through 15.)

Huddleston, J.H. and R. T. Huddleston. 2005. *Hydric Soils of Seasonal Pools in Semiarid Parts of Oregon and California*. Platform Presentation at the National Soil Science Society of America. (Meeting, Salt Lake City, Utah, November 6 through 10.)

Young, T. P. and R. T. Huddleston. 2005. *Weed Control and Soil Amendment Effects on Restoration Plantings in an Oregon Grassland*. *Western North American Naturalist* 65(4) 507-515.

Young, T. P. and R. T. Huddleston. 2004. "Spacing and competition between planted grass plugs and pre-existing perennial grasses." *Restoration Ecology*. 12:546-551

Huddleston, R.T. 2001. *Vernal Pool Plant Community Composition and Diversity on the Agate Desert in Southwestern, Oregon*. Platform Presentation at the 22nd Annual Conference of the Society of Wetland Scientists, Chicago, Illinois. May 27 through June 1.

Young, T. P., J.M. Chase, and R.T. Huddleston. 2001. "A comparison and synthesis of community succession and assembly as conceptual bases for restoration ecology." *Ecological Restoration*. 19:1.

Huddleston, R.T. 1997. *Plant Ecology of the Vernal Pools on the Nature Conservancy's Agate Desert Preserve*. Poster Presentation at the First Conference on Siskiyou Ecology. Siskiyou Regional Education Project, Cave Junction, Oregon.

Sharook P. Madon

Senior Principal Technologist & Global Technology Leader
Ecosystem Planning and Restoration, CH2M HILL, Inc.

Education

Ph.D., Aquatic Ecology/Zoology, Ohio State University, 1993

M.S., Environmental Sciences, State University of New York, College of Environmental Science and Forestry, 1988

M.S., Biotechnology, St. Xavier's College, Bombay University, 1984

B.S., Life Sciences, St. Xavier's College, Bombay University, 1982

Distinguishing Qualifications

- Expertise in coastal and freshwater wetlands and ecosystems restoration; large-scale research on wetland restoration designs and methods for both treatment and habitat-based wetlands
- Broad experience in physical, chemical and biological processes in freshwater, estuarine, and marine ecosystems, including large floodplain rivers, and restoration of these ecosystems.
- Expertise in wetlands ecology
- Expertise in invasive species dynamics, impacts and controls
- Expertise in environmental assessments and impact analysis for terrestrial and aquatic systems
- Expertise in biological and ecological modeling, especially bioenergetics models to evaluate species responses to environmental stressors

Relevant Experience

Dr. Sharook Madon is a Senior Principal Technologist in the Water Business Group at CH2M HILL, San Diego, California, U.S.A, and also serves as the firm-wide Global Technology Leader for the Ecosystem Planning and Restoration technology area in the Water Resources & Environmental Management Services at CH2M HILL. He comes to CH2M HILL from the Pacific Estuarine Research Laboratory at San Diego State University, where he served as the Associate Director of the laboratory. His research on physical, chemical and biological processes in coastal and freshwater wetlands, estuarine, marine and large river ecosystems impacted by environmental stressors is nationally recognized and widely published in the peer-reviewed literature. Dr. Madon has led several ecosystem restoration, monitoring and assessment projects for both natural treatment and habitat-based wetlands and has conducted important NSF-supported research at the Model Marsh, an unique 20-acre experimental wetland at the Tijuana River National Estuarine Research Reserve, where various designs, restoration methods and techniques are being tested in replicated tidal creek systems at multiple habitat and trophic levels. Dr. Madon is an invited member of several Science Advisory Panels dedicated to the preservation and restoration of coastal habitats and ecosystems. He has experience working with local, state, and federal agencies and stakeholders on multiple wetland issues. Broadly trained as an ecologist, Dr. Madon has also conducted research in a variety of freshwater, estuarine and marine ecosystems in the U.S.A, Middle East and Asia. Before joining CH2M HILL in 2003, Dr. Madon served on the faculty of the University of Maryland, Pace University and San Diego State University, and continues to serve as adjunct professor at San Diego State University, California, USA.

Sharook P. Madon

Representative Projects

Coastal Restoration and Wetlands Design and Restoration Projects – Natural Treatment Systems and Habitat Wetlands

Senior Principal Ecologist, Remediation and Restoration of Coastal Ecosystems Impacted by 1991 Gulf War Oil Spill, Presidency of Meteorology and Environment, Kingdom of Saudi Arabia and United Nations Compensation Commission (June 2009 – present). The oil spills related to the 1991 Gulf War remain the largest in history. Over 11,000,000 barrels of oil (40 times the size of the *Exxon Valdez* spill) impacted approximately 800 km of Saudi Arabia's shoreline between the Kuwait Border and Abu Ali Island. Providing technical direction on the management of the coastal and marine restoration it has embarked upon during the 3-year period beginning in 2009. Specific key tasks include assessment of ecosystems impacts, the review/evaluation of the remediation and restoration designs, technical meetings with stakeholders, field validation surveys, development of remediation and restoration objectives, prioritization of coastal remediation and restoration projects, design of pilot, demonstration and large-scale remediation/restoration projects, overall implementation of these projects, and development and implementation of monitoring protocols, metrics and assessment framework including indices of biotic integrity and multi-metric indices to evaluate remediation and restoration success.

Senior Principal Ecologist, Biological and Ecological Characterization of Jeddah Sewage Lake, National Water Company, Kingdom of Saudi Arabia (June 2010 – January 2011). The purpose of this project was to develop the Jeddah Sewage Lake (Lake) Evacuation and Sediment Reuse/Disposal Plan, a component of which included surveys of wetlands habitat and wildlife around the lake. This planning project was initiated in July 2010 by the National Water Company (NWC) concurrent with a contract being approved for the evacuation of the lake water, removal of the dam, and cleanup or removal of organic sediment deposited in the Lake. This planning project was tasked to examine several specific issues related to the lake water evacuation performed by Huta Hegerfeld Saudi Ltd. (Lake Contractor), including the flooding potential associated with the removal of the dam; alternatives for sediment cleanup or disposal; potential impacts to water use, agricultural uses dependent on water, ecological features (wildlife and habitat) associated with the Lake; and regulatory issues and international best practices associated with the applicable lake water and sediment management issues.

Project Manager, Inventory and Study of Urban and Treatment Wetlands in Southern California, Southern California Coastal Water Research Project (December 2004 – September 2007). Developed an inventory and database consisting of preliminary design, operations, maintenance, and site history information on 40 urban and treatment wetland sites in southern California. This study is providing valuable insights into pollutant treatment effectiveness and habitat values provided by stormwater treatment wetlands and whether treatment effectiveness of these wetlands is compatible with habitat goals. Field studies on vegetation and habitat mapping at each of the 40 wetlands sites commenced in February 2006, and intense biological surveys of macroinvertebrates, fish and birds were completed by summer 2006 in addition to other physical and chemical constituents.

Wetland Design Task Leader, Conceptual Design of the Managed Marsh Ecosystem, Imperial Irrigation District (January 2005 – December 2006). Developing conceptual-level designs for approximately 650-1,200 acres of wetlands to be constructed as mitigation for impacts of IID's construction and seepage recovery activities on wetlands habitat. Follow-on phase is likely to involve the engineering design and construction of the wetlands area for habitat and incidental treatment of water quality.

Wetlands Design Task Leader, Conceptual Design of Treatment Wetlands for Control of Thermal and Nutrient Pollution: A Component of the City of Tracy Master Plan, City of Tracy (January 2006 – December 2006). Developing conceptual designs for up to 1,200 acres of treatment wetlands to be constructed as part of the City of Tracy's Masterplan to develop integrated natural treatment systems and passive recreational facilities. The wetlands will be designed with the goal of treating the effluent temperature and high nutrient loads from the City of Tracy's Wastewater Treatment plant before the effluent is discharged to the Old River. This phase of the study involves the development of conceptual plans for a 100 acre pilot treatment wetlands site as well as the larger 1,200 acre site.

Principal Wetlands Ecologist and Task Lead, Physical, Chemical and Ecological Characterization of Farmington Bay and the Great Salt Lake Wetlands and Development of a Bioassessment Framework for Impounded Wetlands, Utah Department of Water Quality (June 2004 –present). Conducted a detailed field study, including the development of extensive monitoring designs to characterize saline, brackish and freshwater wetlands around Farmington Bay and the Great Salt Lake, Utah. The project is identifying sensitive wetland indices and metrics and their responses to environmental gradients including salinity, nutrients, temperature and algal mats and other stressors, with the goal of defining beneficial uses of these wetlands. Analyzed data for development of multimetric indices.

Principal Wetlands Ecologist QA/QC Reviewer, Matagorda Bay Health Evaluation Project, Lower Colorado River Authority (LCRA) and San Antonio Water System (SAWS) (June 2004 – June 2009). Provided senior QA/QC reviews of all documents/data associated with the evaluation of the health of Matagorda Bay, Texas. Studies evaluated included Flow needs in tidal and freshwater sections of the Lower Colorado River and its tributaries, wetland characterization, water quality analysis, biostatistical analysis, habitat assessments, hydrological and salinity analysis and modeling, and bay food web analysis.

Science Advisory Panel Leader, Pond A4 Tidal Wetland Restoration Project, Santa Clara Valley Water District (July 2003 – December 2005). Provided senior science reviews of preliminary reports of opportunity and constraints analysis and draft environmental assessment reports (EARs) of biology and water quality sections, and guidance of the alternatives screening process of the 304-acre Pond A4, a former Cargill Salt evaporator pond located in the south San Francisco Bay area, set aside for restoration to tidal wetlands.

Task Leader, Design, Construction and Maintenance Guidance for the Maine-Yankee Forebay Wetland, Maine Yankee Atomic Energy Plant (July 2003 – December 2003). Developed and wrote a white paper describing various physical, chemical and biological processes in Maine coastal wetlands, and provided restoration methods and design guidance for 1.2 acres of the decommissioned forebay.

Principal Ecologist, Upper San Joaquin River Conceptual Restoration Plan – Phase II, San Joaquin River Management Coalition (September 2003 – October 2005). Developed scope of work and complex water needs, water supply options and alternatives for restoration of the Upper San Joaquin River to support riverine biota and riparian wetlands while adequately addressing the needs of the multiple water users in the region.

Principal Ecologist, Ecological Assessments of Impacted Coastal Wetlands, Earth Island Institute & Coastal Environments (September 1998 – July 2003). Many coastal wetlands in southern California are tidally-restricted because of roadways and/or railroads that bisect the inlet or other tidal areas of the lagoons and estuaries. As a result, salt water supply to these wetlands is often restricted, while increasing freshwater runoff from developed upstream areas changes the salinity, sediment and nutrient profiles of these systems, often along environmental gradients. These water quality changes have resulted in dramatic shifts in vegetation patterns and biological interactions in the food webs of these wetlands. I have conducted research and led monitoring and assessment efforts to characterize the ecological condition of these wetlands (Los Penasquitos Lagoon, Sweetwater Marsh and Tijuana Estuary), in relation to various environmental stressors (salinity, nutrients, sediment). Such assessments are being used to propose various enhancements, restoration projects, and beneficial uses in these systems.

Principal Ecologist, Ecological Patterns and Processes in Coastal Wetlands, Earth Island Institute (September 1998 to July 2003). Designed and led research efforts to evaluate structural and functional patterns and processes in coastal wetlands. Led research and monitoring of salt marshes (hydrology, geomorphology, biotic, and abiotic factors). Developed quality assurance/quality control (QA/QC) procedures to improve site selection (both reference and target sites), experimental, sampling, and monitoring (physical, chemical, and biological parameters) procedures and protocols as part of restoration and ecological projects in southern California wetlands. Conducted bioenergetics modeling and experimental evaluation of the importance of salt marshes to fish feeding and growth.

Sharook P. Madon

Principal Ecologist, Tijuana Estuary Tidal Restoration Program, National Science Foundation and California Coastal Conservancy (October 2001 – July 2003). Led restoration research and monitoring efforts at the 20-acre Model Marsh, a newly created, tidally influenced coastal wetland in the Tijuana River National Estuarine Research Reserve, San Diego County. Conducted large-scale experiments and caging experiments to assess the effects of topographic heterogeneity (tidal creek designs and multiple salt marsh habitats) on coastal wetland ecosystem development and functional attributes of salt marsh plants, invertebrates, and fish. This study is providing new scientific information on restoration designs and methods.

Senior Ecologist, Ormond Beach Tidal Wetland Restoration Project, California Coastal Conservancy (March to June 2003). Participated as lead ecologist in preparing a detailed study approach and work plan in response to a Request for Proposal (RFP) for the Ormond Beach Tidal Wetland Restoration feasibility study, a 750-acre coastal site in Ventura County, California.

Biological Reviews and Assessments

Senior Technical Consultant, Technical Evaluations of the Programmatic Environmental Impact Statement/Review for the San Joaquin River Restoration Program, Exchange Contractors, California (May – July 2011). Provided detailed technical evaluations and biological opinions on the Draft PEIS/R for the San Joaquin River Restoration Program, specifically focusing on restoration of the T&E salmonid species and aquatic resources.

Senior Technical Consultant, Biological Resources Evaluations, AES-Southland (May 2011 – present). Providing technical guidance and on-site evaluations of biological resources present on AES sites, including descriptions of general settings and surrounding land use, protected areas and conservation lands, special status plants and wildlife species, and wetlands and aquatic resources on site. AES-Southland (AES-SL) owns and operates approximately 4,200 megawatts (MW) of electrical generation capacity located at three natural gas powered generating stations (Alamitos, six units; Huntington Beach, four units; and Redondo Beach, four units). To meet the requirements of the State Water Resources Control Board (SWRCB) new Once Through Cooling (OTC) Policy requiring the reduction in use of ocean water in power plant operations, support the electrical system's needs, and meet the expected Long-Term Procurement Process (LTTP) and new source solicitation timelines, AES-SL plans to implement a comprehensive, phased repowering program of its entire generation fleet at these three facilities.

Senior Technical Consultant, Third-Party EIS Reviews, Port of Gulfport Restoration Program, Mississippi State Port Authority, Gulfport, MS (May – September 2010). Provided evaluations of detailed proposals and input on selection of contractors for preparations of the Third Party EIS triggered due to the Port's rebuilding mandated after damages suffered from Hurricane Katrina. As part of this program, also provided technical input on impact assessments to T&E species including the Gulf Sturgeon.

Large Estuaries Projects

Senior Scientist, Population and Energy Dynamics of an Invasive Species in the Hudson River Estuary, Scholarly Research Grants of the Pace University Foundation (May 1997 to March 1999). Led a study that included biochemical analyses and field and laboratory experimentation to assess seasonal energetic and population dynamics of zebra mussels in the Hudson River. This study provided insights into the patterns of exotic species invasions and their potential environmental impacts in a tidal, freshwater river.

Senior Scientist, Trophic Interactions in the Chesapeake Bay and Associated Tidal Systems, Environmental Protection Agency (September 1994 to September 1995). Used mesocosm experiments, bioenergetics, and population models to assess the role of planktivorous and benthivorous fish in mediating trophic interactions among pelagic, benthic, and salt marsh invertebrate communities in the Chesapeake Bay and associated tributaries. Data were used in a larger study investigating environmental processes and human impacts in this estuary, including restoration efforts associated with the bay and its tidal tributaries.

Project Scientist, Predatory Impacts of Invertebrates in the Chesapeake Bay, Environmental Protection Agency (September 1994 to September 1995). Developed and used bioenergetics and population models for the sea-

nettle medusae, *Chrysaora quinquecirrha*, to quantify its environmental impact on zooplankton population dynamics in the Chesapeake Bay.

Fisheries Ecology Projects

Principal Technologist, Palos Verdes Shelf Study on Marine Contaminants, U.S. Environmental Protection Agency (January 2004 – present). Developing and organizing training for State and Federal environmental officials to investigate accumulation and effects of PCBs and DDTs in marine fish from the Palos Verdes Shelf of the coast of southern California. Training includes the development of field identification schedules and keys for various croaker species, especially the white croaker, *Genyonemus lineatus*.

Senior Ecologist, Effects of Environmental Stressors on Marine and Estuarine Fishes, Earth Island Institute (September 1999 to September 2002). Led field and experimental study to evaluate effects of abiotic and biotic environmental stressors on energetics, growth, and distribution of marine and estuarine fish. Conducted an energetics-based evaluation of life history strategies of estuarine and marine fish species with direct applications to conservation and habitat restoration.

Senior Ecologist, Trophic Ecology of Marine and Estuarine Fishes, Earth Island Institute (September 1998 to December 2001). Led an intensive field study to evaluate mechanisms underlying trophic interactions in marine and estuarine fish. Assessed the effects of tidal and diurnal influences on feeding patterns of marine and estuarine fish and their interactions with their predators and prey. Developed integrated bioenergetics and predator-prey interaction models to quantify the effects of these interactions on the fish community. Developed QA/QC procedures to build model parameters and test and validate the modeling approach and its usefulness in environmental analysis.

Senior Scientist, Sublethal Effects of Pesticides on Fish, Scholarly Research Grants of Pace University Foundation (January 1997 to August 1998). Conducted laboratory assessments of sublethal effects of malathion on bluegill energetics. Developed a bioenergetics model that incorporated malathion effects on bluegill and applied the model to assess population level environmental impacts of malathion on bluegills in local freshwater aquatic ecosystems.

Senior Scientist, Fish-Zooplankton Interactions and Population Dynamics, Ohio Sea Grant – National Oceanic and Atmospheric Administration (March 1994 to September 1995). *Ohio Sea Grant (NOAA)*. Development of quantitative bioenergetics and population models for various species of Lake Erie fish larvae. Improved in situ estimates of fish metabolic rates via biochemical assays. The models were used to assess the magnitude of various environmental impacts in freshwater ecosystems.

Large Floodplain Rivers/Aquatic Invasive Species Projects

Senior Scientist, Invasive Species in Large Turbid Rivers, Environmental Protection Agency (April 1993 to August 1994). Led an intensive study to assess the potential of invasive species colonization in the Illinois and Upper Mississippi Rivers. Conducted environmental assessments to quantify the effects of varying inorganic sediment loads and food concentrations on zebra mussel energetics. Led in situ studies on growth of zebra mussels in large rivers, and modeled population dynamics. This project allowed assessment of the colonization potential of invasive species in large rivers.

Project Scientist, Invasive Species Impacts on Native Species, Illinois-Indiana Sea Grant, National Oceanic and Atmospheric Administration (April 1994 to September 1995). Participated in designing a study that investigated the ecological, population, and energetic impacts of zebra mussels on native gastropods and bivalves. This project was used to develop conservation plans for native bivalves.

Senior Scientist, Environmental Bioassay for Invasive Species Impacts, Environmental Protection Agency (April 1994 to April 1996). Developed, tested, and used a biochemical assay to estimate in situ metabolic rates of zebra mussels. Used this assay to assess biochemical oxygen demand (BOD) by zebra mussel populations in large rivers. The study results showed that heavy infestations of zebra mussels exert significant demands on dissolved oxygen in large rivers.

Sharook P. Madon

Aquatic Invasive Species Projects/Quagga and Zebra Mussels

Senior Technical Consultant – Evaluation of Control and Management Methods for Zebra Mussel in the Hollister Conduit and Distribution System, San Benito County Water Authority, Hollister, California (2009-2011).

Technical input and overall guidance to allow SBCWA to choose appropriate control technologies for controlling and managing mussel populations in the conduit and distribution system. Work involved exploring a suite of control options and their feasibility for use based on key criteria, an analysis of the conduit hydrology and flows in distribution system, and pros and cons of implementing various control technologies. Developed a monitoring plan for mussels to evaluate success of eradication measures in the reservoir and the conduit and distribution system.

Senior Technical Consultant – Scoping for Dreissenid Mussel Control in the State Water Project, Department of Water Resources, Sacramento, CA. 2009. Developed, coordinated and conducted a 3-d workshop for managers and personnel of the various field divisions to assess potential approaches for a work plan on the control and management of mussels in case of infestations in SWP waters.

Senior Technical Consultant – Dreissenid Mussels Habitat Evaluation, Tehema-Colusa County Authority (TCCA) Fish Screen Project. 2009. Evaluated habitat suitability in the Sacramento River area in the vicinity of the proposed fish screening/diversion facility. Designed water quality sampling protocol and analyzed data on water quality in relation to environmental parameters for dreissenid (zebra and quagga) mussels. Wrote technical memorandum describing habitat suitability and colonization potential for mussels.

Senior Technical Consultant – Dreissenid Mussels Habitat Evaluation, Trinity River. Dallas Water Utility. 2009. Evaluated habitat suitability in the Trinity River area in the vicinity of the Southside wastewater Treatment Plant outfall. Analyzed data on water quality in relation to environmental parameters for dreissenid (zebra and quagga) mussels. Wrote technical memorandum describing habitat suitability and colonization potential for mussels.

Senior Technical Consultant – Quagga Mussel Control, Coachella Valley Water District's Mid-Valley Pipeline, with GEI Consultants, CA. 2009. Provided senior technical advice on chlorination approaches to control quagga mussels in CVWD's water distribution system. Preparation of a position paper on control and management approaches for invasive mussels.

Senior Technical Consultant – Quagga and Zebra Mussel Control, Southern Delivery System, Colorado Springs Utilities. 2008. Provided overall guidance on implementation of control measures that will lead to the design of appropriate control structures to reduce mussel infestations of SDS infrastructure. Whole suite of control technologies were considered in a multi-barrier approach.

Senior Technical Consultant – Quagga Mussel Monitoring and Control Plan for Irvine Lake, Irvine Ranch Water District and Serrano Water District, Irvine, CA. 2008. Overall guidance and technical input into preparation of a comprehensive mussel control and management plan as required by the California Department of Fish and Game.

Senior Technical Consultant – Biology and Control, Project Development Evaluation Relative to Dreissenid (Quagga & Zebra) Mussels, Freeport Regional Water Authority (FRWA), CA. 2008. Developed and evaluated options relative to control approaches that can be implemented within the Freeport Regional Water Project to manage the threat of infestations by quagga and zebra mussels. Provided technical guidance into the development of near- and long-term control approaches that included preventative approaches, operational control measures and proactive and reactive control methods to minimize potential impacts to the facilities from mussel infestations.

Senior Technical Consultant and Task Lead, Preliminary Assessment of the Vulnerability of State Water Project Facilities to Potential Infestations by Quagga Mussels, Department of Water Resources, Sacramento, CA. 2007. Assessment of at-risk components of State Water Project facilities to infestations by quagga mussels. Conducted 3-day workshop, including site visit to facilities to assess infestation risk of various facility components, and discuss potential control and management strategies once infestations should occur. The project is currently in progress with a draft report approved by DWR and a final report being prepared for submission.

Senior Technical Consultant and Director, Assessment of Potential Non-oxidizing Molluscicides for the Control and Management of Zebra and Quagga Mussels, Metropolitan Water District, Los Angeles, CA. 2008. Conducted a study to assess the efficacy and feasibility of using non-oxidizing molluscicides in the control of quagga mussels in specific contained locations within the CRA and its water distribution system in southern California.

Senior Technical Consultant - Biology and Control, Quagga Mussels in Lake Mead and Potential Impacts to Water Utilities, City of Henderson, NV. 2007. Technical guidance to the City of Henderson on the quagga mussel threat in Lake Mead, including life cycle requirements of the mussel, assessment of environmental conditions in Lake Mead and at the water treatment plant and potential control alternatives. Conducted site visits to detect the presence of quagga mussels in the City's raw water reservoirs.

Senior Technical Consultant and Biology Task Lead, Wichita Zebra Mussel Control Study, Wichita, KS. 2005. Analysis of the probable zebra mussel life cycle in Cheney Reservoir and the potential control alternatives. The analysis included water temperature variations, pH, alkalinity, hardness, major inorganic species, organic content, water clarity, phytoplankton populations, suspended sediment content, ecosystem species, and reservoir bottom information. CH2M HILL developed and in partnership with the City, screened a list of alternatives for each of the three basic control approaches: prevention, proactive treatment, and reactive treatment.

Lead Organizer and Presenter, Southern California Quagga Mussel Workshop, San Diego, CA. 2007. Developed, organized and held the Quagga Mussel Workshop for Water Utilities staff in coordination with the San Diego County Water Authority. Goal of the workshop was to share current state of knowledge and information on quagga mussels (and zebra mussels), operational and economic impacts of the mussel infestation, control measures including Best Management Practices, as those relate to issues affecting Southern California water utilities and natural resources.

Lead Presenter, Quagga Mussels and Water Treatment Facilities, Lunch and Learn Seminar, Olivenhain Municipal Water District, San Diego, CA. 2007. Presented an overview of quagga mussel biology and ecology, what they mean to water treatment utilities, common measures and best management practices for their control.

Aquatic Ecology Projects

Senior Scientist, Freshwater Aquatic Communities, Population Dynamics and Trophic Interactions, Ohio Department of Natural Resources (January 1988 to December 1992). Led intensive scientific investigations of how zooplankton populations are regulated by various population densities of density-dependent regulation of planktivorous fish. This study showed that population-level compensatory mechanisms in zooplankton induced by fish predation can help sustain the prey base for economically valuable fish species and thus sustain increased stocking densities of key fish species.

Senior Scientist, Applications of Fish Food Consumption and Bioenergetic Models in Ecological Investigations, Ohio Department of Natural Resources (January 1993 to September 1997). Developed and used models to quantify responses of fish to environmental changes and impacts of fish predation on prey resources. The models provided a low-cost, low-effort alternative to environmental assessments and investigations of environmental impacts.

Senior Scientist, Using Ecological Manipulations to Maximize Aquaculture Fish Production, Ohio Department of Natural Resources (January 1988 to December 1992). This award-winning project applied ecological principles to produce a tenfold increase in aquaculture production of fingerling walleye and saugeye. The project involved application of principles of community ecology and limnology to improve fish production techniques by manipulating N and P ratios in freshwater to promote growth of favorable algae, manipulating timing of fish stocking and fish densities to set up trophic cascade effects that favored balanced interactions between fish and their zooplankton prey.

Great Lakes Projects

Project Scientist, The Deepwater Food Web of Lake Ontario, New York Sea Grant, National Oceanic and Atmospheric Administration (January 1985 to December 1987). Conducted field sampling of the fish community,

Sharook P. Madon

including salmonids, using midwater and otter trawls. Developed and used an integrated predator-prey/population model to assess relative impacts of predation by rainbow smelt and juvenile lake trout on slimy sculpin population dynamics. Results showed that even low levels of predation by rainbow smelt can adversely affect food resources for juvenile lake trout.

Project Scientist, Food Resources of Trout and Salmon in the Great Lakes, New York Sea Grant, National Oceanic and Atmospheric Administration (January 1985 to December 1986). Participated in a large-scale study designed to investigate the lakewide food resources of various species of trout and salmon in Lake Ontario. This study played an important role in defining the fish community and food web for establishing best management practices for trout and salmon in Lake Ontario.

International Projects

Senior Principal Ecologist, Remediation and Restoration of Coastal Ecosystems Impacted by 1991 Gulf War Oil Spill, Presidency of Meteorology and Environment, Kingdom of Saudi Arabia and United Nations Compensation Commission (June 2009 – present). The oil spills related to the 1991 Gulf War remain the largest in history. Over 11,000,000 barrels of oil (40 times the size of the *Exxon Valdez* spill) impacted approximately 800 km of Saudi Arabia's shoreline between the Kuwait Border and Abu Ali Island. Providing technical direction on the management of the coastal and marine restoration it has embarked upon during the 3-year period beginning in 2009. Specific key tasks include assessment of ecosystems impacts, the review/evaluation of the remediation and restoration designs, technical meetings with stakeholders, field validation surveys, development of remediation and restoration objectives, prioritization of coastal remediation and restoration projects, design of pilot, demonstration and large-scale remediation/restoration projects, overall implementation of these projects, and development and implementation of monitoring protocols, metrics and assessment framework including indices of biotic integrity and multi-metric indices to evaluate remediation and restoration success.

Senior Principal Ecologist, Biological and Ecological Characterization of Jeddah Sewage Lake, National Water Company, Kingdom of Saudi Arabia (June 2010 – January 2011). The purpose of this project was to develop the Jeddah Sewage Lake (Lake) Evacuation and Sediment Reuse/Disposal Plan, a component of which included surveys of wetlands habitat and wildlife around the lake. This planning project was initiated in July 2010 by the National Water Company (NWC) concurrent with a contract being approved for the evacuation of the lake water, removal of the dam, and cleanup or removal of organic sediment deposited in the Lake. This planning project was tasked to examine several specific issues related to the lake water evacuation performed by Huta Hegerfeld Saudi Ltd. (Lake Contractor), including the flooding potential associated with the removal of the dam; alternatives for sediment cleanup or disposal; potential impacts to water use, agricultural uses dependent on water, ecological features (wildlife and habitat) associated with the Lake; and regulatory issues and international best practices associated with the applicable lake water and sediment management issues.

Senior Reviewer, Wastewater Reuse Study, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia (May – September 2011). Provided senior reviews of water quality and wastewater disposal options, focusing on the Red Sea and Arabian Gulf. Reviewed and provided guidance on developing an overview of physical and hydrologic conditions as a context for understanding water quality and the potential for various reuse activities to affect water quality. Provided guidance and technical input on how these conditions influence water use management decisions and policy in KSA, while presenting gaps in currently policy, planning, and data collection.

Principal QA/QC Reviewer, Report on Eco-environmental Impact Investigation of Baotou 11.21 Plane Crash Incident on Nanhai Park and Nanhaizi Lake, China and the Environmental Recovery Plan, Barlow Lyde and Gilbert. (April – May 2006). Provided a comprehensive review of the EIR prepared by Chinese Research Academy of Environmental Science (CRAES) to assess conformity of procedures and processes of the impact analysis with international standards, including impacts of hydrocarbons (airplane fuel spill) on aquatic life.

Project Scientist, Microbial Degradation of Petroleum Wastes in Aquatic Ecosystems, Bombay, India (January 1982 to June 1984). Conducted research on biochemical pathways used by microbes to degrade petroleum

wastes and assessed bioremediation processes for coastal systems in the Arabian Sea, off the coast of Bombay, India.

Project Scientist, Assessing Industrial Pollution in the Mithi River, Bombay, India, (January 1980 to June 1981).

Participated in a large-scale study designed to investigate the types and effects of industrial pollutants present in the Mithi River.

Professional Recognition, Organizations/Affiliations

Member of the American Academy of Environmental Engineers
Science Panel & Review, Restore America's Estuaries
Society of Wetlands Scientists
Society of Ecological Restoration
American Fisheries Society

Specialized Computer Skills

Ecological Modeling packages

Professional Development

Science/Technical Advisory Panels and Senior Science Advisor Roles

Great Salt Lake Science Panel. Providing guidance and support on research and restoration activities for the Great Salt Lake ecosystem, an arid climate terminal lake with significant pollutant issues. 2005-present.

Southern California Wetlands Recovery Project. Prepare position papers for the Governing Board on important scientific issues related to wetlands ecology and restoration. Guide Southern California wetlands restoration research programs and aid in the development of a regional strategy for restoration and monitoring. 2000-2006.

Southern California Edison. Provided expert guidance on ecological monitoring and scientific analysis of a restored coastal system, San Dieguito Lagoon. 2002.

Southwest Wetlands Interpretive Association/State Coastal Conservancy. Provide expert guidance on coastal and estuarine habitat restoration projects. 2002-2003.

San Dieguito Wetlands Draft EIR/EIS. Reviewed the EIR/EIS and evaluated which of the six restoration alternatives would be best suitable for the habitat. Wrote a letter of support for the selected alternatives. 2002.

Camp Pendleton Wastewater Disposal Project. Served as biological consultant to scope out alternatives to wastewater disposal and assess potential impacts of each alternative to adjacent and onsite salt marshes. 1999.

Research and Restoration Committee Panel of the Tijuana River National Estuarine Research Reserve (TRNERR). Provide guidance and identify research issues of local and national importance to NERRs. Participate in selection and guidance of NERR graduate fellows. 1998-2003.

Zebra Mussel Population Invasions in North American Rivers – Future Research Goals: Was a panel member at the New York Sea Grant Workshop to discuss potential future invasion patterns of zebra mussels in inland waters, and to discuss priorities for future research with nonindigenous species. 1996.

Research and Strategy Panel for Nonindigenous Species: Was an advisory panel member at the Upper Mississippi and Illinois River Zebra Mussel Strategy Session, U. S. Army Corps of Engineers, North Central Division, Chicago, Illinois. 1993-1994.