

Curriculum Vitae

MARK ROBERT TOMPKINS  
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**EDUCATION**

University of California, Berkeley - PhD, Environmental Planning, 2006  
*Dissertation Title: "Floodplain Connectivity and River Corridor Complexity: Implications for River Restoration and Planning for Floodplain Management"*

University of Illinois at Urbana-Champaign - MS, Environmental Engineering, 1998

University of Illinois at Urbana-Champaign - BS, Civil Engineering, 1996

**PROFESSIONAL EXPERIENCE**

NEWFIELDS RIVER BASIN SERVICES, LLC – BERKELEY, CA  
Principal Engineering Geomorphologist. 2009 to present. Founding partner of specialty consulting firm providing river science and engineering, river infrastructure analysis, water resources planning, and ecological design services.

CH2M HILL – SACRAMENTO, CA & OAKLAND, CA  
River Science and Engineering Technologist, 1998 to 2009. Registered California Civil Engineer #64524. Supported river science and engineering project throughout the United States and internationally.

UNIVERSITY OF CALIFORNIA, BERKELEY  
Faculty Lecturer for "*California Water Colloquia Seminar*," a graduate-level course for students interested in water issues in California from all departments at UC Berkeley. Course exposes students to a variety of current water issues in California and requires written and oral thinking and evaluation of each colloquia presentation. Selected course readings on a variety of California water-related topics, led discussion sections, graded student papers, planned and executed a field tour of California water infrastructure sites, and coordinated with the Water Resources Center Archives Water Colloquia Committee. Spring 2007 semester.

Faculty Lecturer for "*Restoration of Rivers and Streams*," a graduate-level course for environmental engineers, scientists, and planners. Course provides students with a comprehensive introduction to fundamentals in the field of river and stream restoration. Taught, organized, led field trips, and handled all class responsibilities. Fall 2006 semester.

UNIVERSITY OF CALIFORNIA EXTENSION  
Instructor for "*Geomorphic and Ecological Fundamentals for River and Stream Restoration*," a short-course for professionals working in the river and stream restoration field. Delivered lectures, organized and led field exercises, and planned course logistics. July 2006, July 2007, August 2008, May 2009.

Graduate Student Instructor, Spring 2006. Co-taught *Hydrology for Planners* (LA 222) with Professor G.M. Kondolf. Teaching duties included technical lectures, organization and instruction for laboratory sessions, development and grading of problem sets, organization of field trips, writing and grading of midterm exam, organization of final project symposium, and grading of final projects.

UC Extension Teaching Assistant, 2004 & 2006. Lectured on floodplain processes, organized field trips, and assisted students with in-class assignments at week-long short course called *Fluvial Geomorphology: Principles and Applications to River Restoration*.

Guest Lecturer, 2002 – 2009. Lectured on hydraulic modeling, river restoration, and floodplain management in Professor G.M. Kondolf's *Hydrology for Planners* and *River Restoration* courses.

#### UNIVERSITY OF ILLINOIS AT URBANA CHAMPAIGN

Research Assistant, 1996 – 1998. Vulnerability of Water Resources to Global Climate Change Project funded by the U.S. Environmental Protection Agency. Collected geomorphologic and hydrologic data and developed ecohydrologic models for streams in east-central Illinois.

Research Assistant 1995 – 1996. Time Scales of Effect and Impact of Stormwater Toxicity Project funded by the Water Environment Research Foundation. Cultured test organisms and conducted toxicity tests.

#### AWARDS AND FELLOWSHIPS

National Academy of Engineers “Frontiers of Engineering” Symposium Selection, 2009  
University of Illinois at Urbana-Champaign Civil and Environmental Engineering Department Young Alumni Achievement Award, 2008  
Switzer Foundation Environmental Fellowship, 2004-2005  
Beatrix Farrand Teaching and Research Scholarship, 2004-2005  
University of California, Berkeley University Fellowship, 2003  
Beatrix Farrand Memorial Scholarship, 2003  
Harry W. Shepherd Fellowship in Environmental Planning, 2002-2003  
University of California, Berkeley University Fellowship, 2001  
Water Education Foundation “Water Leader” Award, 2000  
William C. Ackermann Water Resources Engineering Award, 1997  
Graduated with Honors in Civil Engineering, University of Illinois at Urbana-Champaign, 1996  
Chi Epsilon – Civil Engineering Honorary, 1995

#### PUBLICATIONS AND PRESENTATIONS

Tompkins, M.R. and G.M. Kondolf. 2010. Sediment transport dynamics in dam-influenced reaches of the Klamath River: lessons from 10 years of study. Klamath Basin Science Conference. Medford, OR. (presentation and published abstract)

Kondolf, G.M. and M.R. Tompkins. 2010. Effects of dams on the Klamath: historical changes, distinct sediment impacts by reach, and implications for restoring native fish. Klamath Basin Science Conference. Medford, OR. (presentation and published abstract)

- MacWilliams, M.L., M.R. Tompkins, R.L. Street, G.M. Kondolf, Ph.D., and PK Kitanidis. 2010. An Assessment of the Effectiveness of a Constructed Compound Channel River Restoration Project on an Incised Stream. *Journal of Hydraulic Engineering*. HYENG-6865R3. In Press. (peer-reviewed journal article)
- Tompkins, M.R. and G.M. Kondolf. 2009. Dam Effects on Sediment Transport and Channel Form in the Klamath River: Implications for Salmonid Restoration. American Geophysical Union Fall Meeting. December 14-18. San Francisco, California. (presentation and published abstract)
- Tompkins, M.R. , D. Mengel, K. Winslow, A. Falzone, P. Frank, B. Dongell, G. Welch, and G. Ajemian. 2009. Restoring Urban Ecosystems: The Trinity River Corridor Program, Dallas, Texas. National Conference on Ecosystem Restoration. July 20-24 2009. Irvine, California. (presentation and published abstract)
- Tompkins, M.R., D. Mengel, and T. Hamaker. Post Project Appraisal of Riparian, Wetland, and Aquatic Habitat Restoration at Best Slough, Beale Air Force Base, Marysville, CA. American Society of Civil Engineers Environmental and Water Resources Institute World Environmental and Water Resources Congress. May 17-21, 2009. Kansas City, Missouri. (presentation and published proceedings paper)
- Tompkins, M.R., G. Ajemian, G. Welch, A. Falzone, K. Winslow, P. Frank, B. Dongell, and D. Mengel. Integrating fluvial geomorphology and two-dimensional hydraulic and sediment transport modeling to support sustainable design of large river and floodplain improvements: The Trinity River Corridor Project, Dallas, Texas, USA. American Society of Civil Engineers Environmental and Water Resources Institute World Environmental and Water Resources Congress. May 17-21, 2009. Kansas City, Missouri. (presentation and published proceedings paper)
- Tompkins, M.R., G. Ajemian, G. Welch, A. Falzone, J. Barry. The Dallas Trinity Lakes Project: challenges and approaches to designing a channel realignment scheme to satisfy multiple objectives. American Society of Civil Engineers Environmental and Water Resources Institute World Environmental and Water Resources Congress. May 13-16, 2009. Honolulu, Hawaii. (presentation and published proceedings paper)
- Tompkins, M.R. 2008. The high-flow low-flow problem in river restoration. American Society of Ecological Engineering Meeting - Beyond Wetlands: Engineering the Landscape. June 11-14, 2008. Blacksburg, Virginia. (presentation and published abstract)
- Tompkins, M.R. 2008. The Trinity River Corridor Project: An integrated hydrology, fluvial geomorphology, and two-dimensional hydraulic and sediment transport modeling based approach to channel and floodplain design. *Stream Restoration in the Southeast: Advancing the Science and Practice*. November 3-6, 2008. Asheville, North Carolina. (presentation and published abstract)
- Tompkins, M.R. and G.M. Kondolf. 2008. Floodplain disconnection, changes in river corridor complexity, and implications for river restoration along lower Deer Creek, Tehama County, CA. American Geophysical Union Fall Meeting. December 15-19. San Francisco, California. (presentation and published abstract)

- Tompkins, M.R. and G.M. Kondolf. 2008. Evaluation of design roughness and post-project performance of the Tassajara Creek compound channel restoration project, Dublin, California. American Geophysical Union Fall Meeting. December 15-19. San Francisco, California. (poster and published abstract)
- Tompkins, M.R., A.C. Falzone, and M. Klemencic. 2007. Monitoring performance of a novel approach to channel design for environmentally sensitive stormwater management: lower Silver Creek, California. In Proceedings from the 80th Annual Water Environment Federation Technical Exhibition and Conference. October 2007. San Diego, California. (edited conference proceedings)
- Falzone, A., M.R. Tompkins, C. Salas, D. Medina, T. Ajello, L. Van der Tak, J. Thomas, B. Hicks, and J. Papacosma. 2007. GIS-based rapid geomorphic assessment to guide sustainable river restoration and riverfront redevelopment: Four Mile Run, Alexandria, Virginia. In Proceedings from the 80th Annual Water Environment Federation Technical Exhibition and Conference. October 2007. San Diego, California. (edited conference proceedings)
- Tompkins, M.R. and G.M. Kondolf. 2007. Systematic post-project appraisals of compound channel restoration projects in Northern California. *Restoration Ecology* 15(3): 524-537. (peer-reviewed journal article)
- Tompkins, M.R. 2007. Conference planning committee member and technical session moderator. "Still Battling the Inland Sea: Exploring Solutions to California's Complex Water Problems. Moderator for "Living with Levees" technical session. Three-day conference jointly sponsored by the Society of Military Engineers and the American Society of Civil Engineers. July, 2007. Sacramento, California. (invited conference organizer and moderator positions)
- Tompkins, M.R. and A.C. Falzone. 2007. Compound channels for stream restoration and flood management in urban and urbanizing watersheds: case studies of Tassajara Creek, CA and lower Silver Creek, CA. In Kabbes, K.C. 2007. Restoring our Natural Habitat: Proceedings from the World Environmental & Water Resource Congress. May 2007. Tampa, Florida. (edited conference proceedings paper)
- Tompkins, M.R. 2006. Conference Organizer and Moderator – "The Fourth Annual Berkeley River Restoration Symposium." December 9. University of California, Berkeley. (invited conference organizer position)
- Tompkins, M.R. 2006. Session Chair – "Rivers and Wetlands" Track. "Lessons Learned from Post-Project Assessments" Session. 4th Biennial CALFED Science Conference – "Making Sense of Complexity: Science for a Changing Environment." October 23-25. Sacramento, California. (invited session chair position)
- Tompkins, M.R. 2006. Systematic post-project appraisals (PPAs) of compound channel restoration projects in the San Francisco Bay Region. 4th Biennial CALFED Science Conference – "Making Sense of Complexity: Science for a Changing Environment." October 23-25. Sacramento, California. (presentation and published abstract)

- Tompkins, M.R. 2006. Floodplain disconnection, changes in river corridor complexity, and hyporheic exchange along lower Deer Creek, Tehama County, California. 4th Biennial CALFED Science Conference – “Making Sense of Complexity: Science for a Changing Environment.” October 23-25. Sacramento, California. (presentation and published abstract)
- Tompkins, M.R. 2006. Tassajara Creek compound channel restoration post-project appraisal. National Center for Earth Surface Dynamics (NCED) Stream Restoration Workshop. June 6-8. Berkeley, California. (invited workshop presentation)
- Tompkins, M.R. 2006. Compound channel restoration post-project appraisal results: implications for improved future channel designs and adaptive management. American Water Resources Association 2006 Summer Specialty Conference: Adaptive Management of Water Resources. Missoula, Montana. (invited presentation and published abstract)
- Tompkins, M.R. 2006. Floodplain connectivity and river corridor complexity: implications for river restoration and planning for floodplain management. Doctoral dissertation. University of California, Berkeley, USA. 392 pages. (published dissertation)
- Tompkins, M.R. 2005. Northern California multistage channel construction projects for flood control and river corridor ecosystem restoration – an initial assessment. Floodplain Management Association Annual Conference. Sacramento, CA. (presentation and published abstract)
- Langis, R., M.R. Tompkins, and M. Klemencic. 2005. Lower Silver Creek flood protection project. FMA News – The Newsletter of the Floodplain Management Association 15(4), p. 13-15. (invited technical newsletter article)
- Tompkins, M.R. 2005. Floodplain disconnectivity: why does it occur and what is its significance? California Society for Ecological Restoration - Riparian Guild Workshop. Oakland, CA (invited presentation)
- Tompkins, M.R. and E. Herricks. 2004. PHABSIM analysis of a straight trapezoidal reach and a highly sinuous reach in a low-order agricultural stream in the midwest. *Hydroécologie Appliquée* 14(1), p. 175-192. (peer-reviewed journal article)
- Tompkins, M.R. and G.M. Kondolf. 2004. Sixty years of river corridor change induced by the construction, operation, and maintenance of flood control infrastructure on lower Deer Creek, CA. Proceedings from the American Geophysical Union Fall Meeting. San Francisco, CA. (poster and published abstract)
- Tompkins, M.R. 2004. Restoring active channel – floodplain connections: case studies and research opportunities. American Ecological Engineering Society Annual Meeting. Fayetteville, AR. (poster and published abstract)
- Tompkins, M.R. 2003. Floodplains. p. 527-529 in Lehr, J.H., J. Keely, and J. Lehr (eds.). *Water Encyclopedia: Surface and Agricultural Water*. Wiley Interscience. Hoboken, N.J. (edited)

encyclopedia entry)

- Tompkins, M.R. 2003. Fish Passage Facilities. p. 529-532 *in* Lehr, J.H., J. Keely, and J. Lehr (eds.). Water Encyclopedia: Surface and Agricultural Water. Wiley Interscience. Hoboken, N.J. (edited encyclopedia entry)
- Tompkins, M.R. 2003. Fishing Waters. p. 532-533 *in* Lehr, J.H., J. Keely, and J. Lehr (eds.). Water Encyclopedia: Surface and Agricultural Water. Wiley Interscience. Hoboken, N.J. (edited encyclopedia entry)
- Tompkins, M.R. and G.M. Kondolf. 2003. Integrating geomorphic process approach in riparian and stream restoration. *In* Faber, P.M. (ed.). 2003. California Riparian Systems: Management, Ecology, and Restoration, 2001 Riparian Habitat and Floodplains Conference Proceedings. Riparian Habitat Joint Venture. Sacramento, CA. (peer-reviewed conference proceedings article)
- Hamaker, T.L., Tompkins, M.R. Mengel, D., and M. O'Brien. 2002. Channel realignment and bank vegetation enhance fish habitat at Best Slough (California). Ecological Restoration. University of Wisconsin Press. Madison, Wisconsin (journal "news item" article)
- Mengel, D.L., M.R. Tompkins, P.E., Scott Eckman, P.E., and Michael O'Brien, P.E. 2001. Riparian, Wetland, and Aquatic Habitat Development as an Ancillary Benefit of Hazardous Waste Remediation. Proceedings of the 2001 Wetlands Engineering & River Restoration Conference, August 27-31, 2001, Reno, Nevada. Section 29, Chapter 2. (conference proceedings article)
- Hamaker, T.L., Tompkins, M.R., Mengel, D., and M. Brenner. 2000. Best Slough realignment and restoration, Beale Air Force Base, California, United States of America. Proceedings from the Society for Ecological Restoration 2000 Annual Meeting. (published abstract)
- Mengel, D., Tompkins, M.R., and M. Brenner. 2000. Riparian area remediation: Best Slough realignment and restoration, Beale AFB, California. Proceedings from the American Water Resources Association 2000 Riparian Restoration Conference. (published abstract)
- Tompkins, M.R. 1999. PHABSIM analysis of a straight trapezoidal reach and a naturally meandering reach in the Midwest. 33rd Annual Meeting of the Cal-Neva Chapter of the American Fisheries Society. (conference presentation)
- Tompkins, M.R. 1998. Analysis of the fisheries in maintained streams using the PHABSIM model and a habitat driven population model. University of Illinois at Urbana-Champaign Masters Thesis. (published thesis)
- Schaeffer, J.A., Brent, R.N., Hauser, T., and M.R. Tompkins. 1998. Effects of barge traffic on mussels in the Upper Mississippi River system. Technical Report prepared for the U.S. Army Corps of Engineers, St. Louis, Missouri. (published report)

I have also published more than fifty popular magazine articles on river conservation, angling, and other watershed-related topics in TROUT (the magazine of Trout Unlimited), Sacramento Magazine, Outdoor

Life, Wild Outdoor World, Fly Rod and Reel, Northwest Fly Fishing, Southwest Fly Fishing, California Fly Fisher, Saltwater Fly Fishing, American Angler, and Warmwater Fly Fishing. Please visit [www.markrtompkins.com](http://www.markrtompkins.com) for more information on my outdoor writing.

## CONSULTING PROJECT EXPERIENCE

**Senior River Ecosystem Restoration Engineer; Ala Wai Watershed Project; U.S. Army Corps of Engineers; Honolulu, Hawaii.** Conducted project kick-off and visioning workshops to outline large-scale concepts for flood risk management, ecosystem restoration, and water quality improvement in the Ala Wai watershed. Led stream walks of the three major streams (Makiki, Palolo, and Manoa) in the Ala Wai watershed. Coordinated with USACE on hydraulic modeling. Developed ecosystem restoration objectives, sub-objectives, and metrics for the project. Created an ecosystem valuation model selection matrix and developed protocol for ecosystem model implementation. Developed multi-objective ecosystem restoration measures.

**Senior Fluvial Geomorphologist; Little Miami River Corridor Project; ENTRAN (for Ohio Department of Transportation); Dayton, OH.** Developed a geomorphically-based approach to assess potential bridge crossing locations over the Wild and Scenic Little Miami River. Analyzed and interpreted historical channel conditions and calculated channel bank migration rates. Coordinated with Stantec, Inc. on collection and formatting of river topographic and bathymetric data. Developed 2-D hydraulics and sediment transport model. Provided guidance on relative strengths of proposed bridge crossings with respect to expected channel change and hydraulic forces. Presented results of evaluation to project stakeholders.

**Senior River Restoration Designer and Project Manager, Kallang River Realignment and Restoration at Bishan Park; Government of Singapore; Singapore.** Outlined initial technical approach to providing river restoration guidance for final design of two miles of realigned and restored river in Singapore. Coordinated review of historical channel morphology and development of existing conditions hydraulic model. Contributed to the development of proposed conditions hydraulic model and evaluation of design alternatives. Reviewed and provided guidance on conceptual bioengineering bank protection measures.

**Senior Fluvial Geomorphologist; Bay Delta Conservation Plan (BDCP); California Department of Water Resources; Sacramento, California.** Charted geomorphology team and guided research on historical and current geomorphic conditions in the Sacramento – San Joaquin Bay Delta. Coordinated with interdisciplinary BDCP team to integrate geomorphology sections with other surface water topics. Drafted and reviewed sections of the baseline conditions document.

**Senior Fluvial Geomorphologist; Geomorphic Assessment, Site Selection Guidance, and Construction Method Analysis for Wastewater Treatment Plant Outfalls; City of Redding, California; Sacramento River, California.** Designed and provided senior review on historical channel morphology analyses, hydrologic analyses, and hydraulic modeling in support of the site selection and design for new outfall diffuser pipes at the Clear Creek and Stillwater wastewater treatment plants (WWTP) operated by the City of Redding, CA on the Sacramento River. Proposed a new, geomorphically sustainable outfall location for the Stillwater WWTP outfall pipe (the original outfall had been buried by approximately 8 feet of river alluvium and was no longer functioning properly). Analyzed location of new Clear Creek WWTP outfall

and assessed hydraulic and erosion risk during construction of this outfall, which included installation of sheet piles that constricted the river cross section by more than fifty percent. Also provided sustainable design guidance for the depth to install each outfall below the river bed to prevent scour or deposition damage.

**Senior Fluvial Geomorphologist; Streambank Stability Assessment; Fort Leonard Wood, Missouri.** Assessed hydrology of a small watershed draining Fort Leonard Wood and evaluated channel hydraulics of a small stream flowing adjacent to closed landfill sites. Recommended sustainable bank treatments based on local geology, channel slope, channel bank materials, and hydraulic stresses for a range of flows.

**Senior Fluvial Geomorphologist; Mississippi River Delta Management Study Literature Review; Louisiana Department of Natural Resources; New Orleans, Louisiana.** Developed list of key search terms for geomorphic issues associated with the Mississippi River Delta Management Study (MRDMS). Reviewed several hundred abstracts and selected approximately 30 relevant articles for detailed review. Summarized key geomorphic understanding and data gaps from the literature. Drafted guidance on filling geomorphic data gaps, which included recommendations for members of an expert panel.

**Senior Fluvial Geomorphologist; Geomorphic Assessment of Rock Slope Protection on the San Benito River at the Hollister Wastewater Treatment Plant; City of Hollister, California.** Reviewed existing design drawings for rock slope protection (RSP) for the San Benito River adjacent to settling ponds for the wastewater treatment plant (WWTP). Conducted flood frequency analysis, historical geomorphic assessment, and flood risk assessments. Drafted report summarizing potential geomorphic impacts of RSP and recommended improvements for the RSP design.

**Fluvial Geomorphologist; Geomorphic Support for North of Delta Offstream Storage (NODOS) Investigation on the Sacramento River, California; Department of Water Resources, Sacramento, California.** Provided on-call geomorphic assistance, primarily regarding finalization of the NODOS status report and ecosystem modeling of riparian vegetation recruitment and succession. Also drafted rules guidance for Shasta Dam on the Sacramento River to protect critical geomorphic processes for channel migration and habitat creation.

**Ecosystem Restoration Expert; Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) Riparian Vegetation and Floodplain Conceptual Model Development; Calfed, Davis, California.** Worked with small groups of Delta ecosystem restoration experts to develop conceptual models designed to evaluate proposed restoration actions using the DRERIP scientific evaluation process. Researched relevant literature on Delta floodplains and riparian zones, created conceptual model frameworks, and drafted text describing the development and implementation of conceptual models.

**Fluvial Geomorphologist; FERC Hydroelectric Project Relicensing – Geomorphic Assessment of the Klamath River; PacifiCorp; Southern Oregon and Northern California.** Designed and conducted a fluvial geomorphic assessment of approximately 100 miles of the Klamath River in Southern Oregon and Northern California. Wrote and edited study plan. Led a 6-person team in collection of bed material, channel geometry, channel slope, riparian vegetation, and large wood data at 14 representative river reaches. Conducted tracer gravel experiments to identify discharge required to mobilize bed sediments. Developed a sediment transport model to assess impacts of hydroelectric facilities on sediment transport. Wrote and edited technical report that summarized background information, methods, and results of the

study. Presented preliminary and final study results at collaborative stakeholder meetings. Developed mitigation and enhancement measures (including designs of future studies) to be applied as part of license implementation.

**Fluvial Geomorphologist; FERC Hydroelectric Project Relicensing – Cultural Resources Impact Assessment; PacifiCorp; Southern Oregon and Northern California.** Assessed riparian and in-channel sites of Native American cultural significance for impacts from Project operations. Wrote technical memorandum describing potential impacts and outlining potential future studies and mitigation measures.

**Fluvial Geomorphologist; FERC Hydroelectric Project Relicensing – Expert Testimony; PacifiCorp; Southern Oregon and Northern California.** Provided expert testimony on fluvial geomorphology and sediment transport issues in a first-ever federal trial on 4e license conditions. Wrote direct testimony on flushing flows in the J. C. Boyle bypass reach and impacts of flow regulation on riparian bird habitat. Wrote rebuttal testimony and assisted attorneys in preparing cross examination questions for trial. Provided oral cross-examination testimony at trial.

**Fluvial Geomorphologist; FERC Hydroelectric Project Relicensing; Idaho Power; Hells Canyon Section of the Snake River, Idaho.** Conducted a literature review on sand bar formation in the Hells Canyon Section of the Snake River to support FERC relicensing. Also provided senior technical review on document that examined changes in sand bar formation since completion of the Hells Canyon power facilities in 1964. Final document addressed hydrology, geomorphic processes, and the methods of prior studies on this issue.

**Fluvial Geomorphologist; Flood Management and Ecosystem Restoration Feasibility Study on Deer Creek; CALFED; Vina, California.** Developed and conducted fluvial geomorphology, hydrology, hydraulics, and sediment transport analyses as part of a flood management and ecosystem restoration feasibility study for the lower eleven miles of Deer Creek. Produced ecological evaluation criteria to inform both restoration and flood management design decisions. Guided hydraulic and sediment transport modeling and interpretation of model results to inform ecosystem restoration design elements.

**Fluvial Geomorphologist; Geomorphic Assessment and Restoration Design for Upper Coyote Creek; Gilroy, California.** Designed and managed a geomorphic assessment to provide guidance for a realignment design for Coyote Creek to protect a road stabilization structure and maintain the existing aquatic and riparian habitat values. Led creek realignment and habitat restoration design. Monitored construction activities.

**Fluvial Geomorphologist; Geomorphic Assessment and Restoration Design for Arroyo Canejo near Hill Canyon Wastewater Treatment Plant; City of Thousand Oaks, California.** Conducted geomorphic condition assessment and provided design guidance for gradient control and pond turtle habitat enhancements for Arroyo Canejo. The assessment included bed composition, channel geometry, and riparian vegetation characteristics. River restoration design elements included bioengineered streambank treatments and habitat-sensitive gradient control structures.

**Geomorphic Team Leader; Sacramento River Flow Regime; CALFED; Sacramento, California.** Managed a project aimed at identifying a flow regime to restore the geomorphic processes and aquatic and riparian habitat in meander migration reach of the Sacramento River. Managed a team of stream

restoration experts from academia, public agencies, and other California consulting firms and worked closely with CALFED staff to provide technical support to the restoration team. Also collected and analyzed fluvial geomorphic data on the Sacramento River and compiled the work of the restoration team into a White Paper that has guided CALFED and DWR management of the river and its reservoirs.

**Senior Fluvial Geomorphologist and Channel Relocation Design Lead; Trinity River Corridor Project; City of Dallas, Texas.** Designed and conducted comprehensive geomorphic and hydrologic assessments of the Trinity River watershed and project area in Dallas. Led field data collection effort. Developed initial channel relocation and restoration design alignment and geometry. Refined initial design through collaborative work with hydraulic and sediment transport modeling team, landscape architecture team, and civic art team. Presented geomorphic assessment and basis of design at project workshop and design charettes. Developed channel design criteria. Drafted geomorphic assessment and basis of design report. Completed 35% design drawings and report.

**Task Lead, River Realignment, Enhancement, and Protection Design - Trinity River Corridor Project, City of Dallas, Texas.** Led the river channel realignment task. Planned and led an assessment of fluvial geomorphic characteristics of eight miles of the Trinity River channel corridor and its contributing watershed. Guided development and calibration of hydraulic and sediment transport modeling for river channel realignment and floodplain park design. Developed design criteria and guidelines for river channel realignment design to satisfy objectives of the Trinity River Balanced Vision Plan. Integrated findings from the fluvial geomorphic assessment into a schematic design for the realigned channel. Produced 35% design documents based on schematic design. Evaluated constructability and permitting issues associated with channel realignment.

**Fluvial Geomorphologist and Stream Restoration Design Lead; Las Flores Canyon Creek; City of Malibu, California.** Conducted geomorphic, hydrologic, and hydraulic assessments of the project site. Provided senior review on conceptual design. Led transition of conceptual design to final design documents and specifications. Designed channel geometry, sustainable bioengineered bank treatments, and aquatic and riparian habitat enhancements. Also assessed potential fish passage impacts of channel alterations and collaborated with landscape architects and bridge designers to blend the river restoration design with critical park and access features at the site. Completed final design drawings, details, and specifications. Provided monitoring and field engineering support during construction.

**Senior Fluvial Geomorphologist and Restoration Designer; Four Mile Run Restoration; U.S. Army Corps of Engineers and City of Alexandria, Virginia.** Developed geomorphic assessment of 2-mile reach of Four Mile Run, a degraded creek near Washington, D.C. Assessed erosion and scour potential throughout project area. Completed conceptual designs for alluvial reaches of project area and reviewed restoration designs for tidal reaches. Collaborated with landscape architects, planners, and urban artists to develop a comprehensive site plan that reconnected the surrounding communities of Arlington and Alexandria with the Four Mile Run Corridor.

**River Restoration Design Lead; Realignment of Best Slough; Beale Air Force Base; Marysville, California.** Led stream realignment task that was part of an Interim Remedial Action (IRA) designed to remove Best Slough from contact with contaminated groundwater at Site 17, an area of contaminated groundwater on the Base. Conducted hydrologic and fluvial geomorphologic analyses, designed channel planform alignment and cross-sectional geometry, and coordinated with fisheries

biologists and wetland ecologists to enhance the riparian habitat in the realigned reach of Best Slough. Designed bioengineered erosion control measures to protect the channel banks during the riparian vegetation establishment period and enhance instream and riparian habitat. Completed final design drawings, details, and specifications. Provided construction monitoring and field engineering support.

**Stream Restoration Task Manager; Integrated Watershed Management Plan; Colusa Basin Drainage District; Glenn County, California.** Developed stream restoration alternatives for the Colusa Basin Drainage Watershed Management Plan for use in hydrologic modeling of the basin. Also developed detailed cost estimates for stream restoration alternatives as part of a feasibility assessment of stream restoration in the basin.

**Senior River Restoration Engineer; Coyote Creek Watershed Program; Santa Clara Valley Water District; San Jose, California.** Provided technical oversight and review of stream restoration design elements of the watershed program. Coordinated several design teams to develop compound channel restoration designs for Lower Silver Creek, a tributary to Coyote Creek. Created a site-specific incipient motion analysis tool to refine compound channel designs. Developed operation and maintenance guidelines for restored creek reaches. Reviewed and refined final design drawings and specifications. Monitored post-project performance of compound channel design features.

**Project Engineer; Groundwater Banking; Fresno, California.** Analyzed complementary options associated with a groundwater banking project near Fresno. Developed baseline assessments of the project site and prepared conceptual plans for conservation banking, recreational use, and site restoration. Also created conceptual plans for riparian and wetland restoration.

**Project Engineer; Giant Garter Snake Mitigation Habitat Design; U.S. Bureau of Reclamation; Sacramento, California.** Completed a detailed conceptual design and final design documents for a 112-acre giant garter snake (*Thamnophis couchii gigas*) mitigation habitat site in northern California that transformed agricultural fields into a complex of ponds, channels, wetlands, and special giant garter snake habitat elements. Performed site investigations and consulted with endangered species experts. Conducted hydrologic and hydraulic analyses in support of site design. Oversaw construction and early post-project monitoring after construction was completed in 2002.

**Riparian Vegetation Analyst, Lower Colorado River Riparian Vegetation GIS Database Development; U.S. Bureau of Reclamation; Arizona.** Completed an intensive 10-day field effort along the Lower Colorado River in Arizona to assess riparian habitat conditions. Validated riparian vegetation mapping that had been performed using GIS tools and remote sensing imagery. Identified and classified dozens of randomly selected stands of riparian vegetation and recorded all data on a portable GPS unit.

**Project Engineer; Ecological Restoration Concepts for the Lower Colorado River; U.S. Bureau of Reclamation, Lower Colorado River Division; Boulder City, Nevada.** Provided technical review of several stream restoration designs for reaches of the Lower Colorado River. Designs were aimed at creating habitat for the Colorado razorback sucker and the bonytail chub, both endangered species. Reviewed maps and documents and provided suggestions for improving river corridor habitat restoration designs.

**Project Engineer; Meyers Farms; Merced County, California.** Provided technical support for a financial feasibility analysis of a mitigation banking project near Merced. Described conceptual design

requirements for giant garter snake habitat and riparian habitat creation and developed cost estimates for a variety of habitat restoration types.

**Project Engineer; Wetland Creation and Stream Restoration Project; Nature Conservancy; Sacramento, California.** Developed conceptual designs for a wetland creation and stream restoration project with the Nature Conservancy. The project included development of treatment wetlands, giant garter snake habitat, and riparian habitat in an area adjacent to the Cosumnes River Preserve and a proposed organic dairy farm.

**Project Geomorphologist; Truckee River Riparian and Wetland Restoration Plan; U.S. Army Corps of Engineers; Reno, Nevada.** Completed several sections of a fishery restoration plan for the Truckee River downstream of Lake Tahoe. Coordinated with local U.S. Fish and Wildlife Service and Nevada Division of Wildlife staff to prepare the restoration plan and completed field surveys of existing instream and riparian habitat. Provided a cost estimate for screening water diversions and providing passage over dams and summarized findings in a fishery restoration report for the Truckee River.

**Project Engineer; Fish Passage Improvement Project; Anderson-Cottonwood Irrigation District; Redding, California.** Prepared design support information for a fish screen and fish ladder project in the Sacramento River near Redding. Prepared a findings report that summarized hydrology, geology, and other site conditions. Analyzed existing fish screen and ladder structures and conducted an initial rewrite of the project specifications.

**Project Manager; Comprehensive Assessment and Monitoring Program; U.S. Fish and Wildlife Service; California.** Prepared the initial draft of the “Adult Chinook Salmon” section of the 1998 Comprehensive Assessment and Monitoring Program (CAMP) Annual Report. Report preparation tasks included data collection from state agencies and private consultants, data analysis using a customized spreadsheet tool, and a discussion of 1998 monitoring results.

**Project Manager; Comprehensive Assessment and Monitoring Program. U.S. Fish and Wildlife Service; California.** Managed the 1998 and 1999 juvenile salmonid outmigrant trapping activities on the Stanislaus River at Caswell State Park in northern California. Accompanied the subcontractor to the site for field activity oversight and reviewed drafts of the trapping report from the subcontractor.

**Project Manager; Meyers Farms; Fish Population Assessment; Merced County, California.** Collaborated with fisheries biologist to perform an accurate, quick, and cost-effective survey of the fish community in an intake channel off the Mendota Pool for a groundwater recharge project on Meyers Farm in central California. Acquired and deployed trapping equipment for a 24-hour sample, identified and counted specimens, photographed the site and collected fish species, and prepared an illustrated report. The report was submitted to local agencies and the client in support of mitigation bank feasibility evaluation.

**Project Engineer; Tributary Production and Enhancement Program; U.S. Fish and Wildlife Service; Sacramento and San Joaquin River Basins, California.** Completed a set of descriptions of the existing chemical, physical, and biological conditions of Sacramento River and San Joaquin River tributaries. Collected information from published reports and provided maps of each region showing the locations of water conveyance facilities impacting fishery resources.

**Task Lead; California Central Valley Floodplain Evaluation and Delineation Program – Existing Channel Capacity Analysis; California Department of Water Resources; Sacramento, California.** Led research on channel design capacities and existing capacities of the Sacramento River and tributaries in the Northern Central Valley Region. Identified river reaches with capacity deficiencies. Developed technical memorandum format for summary of results for all Central Valley regions on the Sacramento and San Joaquin Rivers.

**Project Engineer; Sacramento River Replacement Intake Project; City of Sacramento, California.** Conducted a HEC-RAS analysis for the river water intake tower for the Sacramento Water Treatment Plant. Calculated the change in water surface elevations in the river with the installation of the proposed tower and calculated the depth of scour around the intake tower. The HEC-RAS modeling contributed to the final siting of the intake tower to facilitate design.

**Project Engineer; Conveyance of Refuge Water Supply, East Bear Creek Unit of the San Luis National Wildlife Refuge; U.S. Bureau of Reclamation; Los Banos, California.** Identified water supply alternatives for the Refuge. Researched water rights information and water conveyance options to provide recommendations on water supply to meet the needs of the Refuge. Also modeled water deliveries and demands to predict the capacity of potential water supply options.

**Project Engineer; Application for Certification; Calpine Delta Energy Center; Pittsburgh, California.** Completed the water resources section of the Application for Certification for Calpine's Delta Energy Center. The water resources section presented information on site hydrology and expected water resources impacts from the construction of the Delta Energy Center.

**Project Engineer; Technically Based Local Limits (TBLL) Report; Alaska Waste Water Utility; City of Anchorage, Alaska.** Calculated local limits using information on background water quality conditions, treatment plant efficiency, and effluent regulations. The TBLLs were approved by the EPA and adopted by the Utility.

**Project Engineer; Financial Analysis; Kodiak Wastewater Treatment Plant; Kodiak, Alaska.** Reviewed the financial analysis and drafted a letter to the EPA in support of the utility's desire to continue treating their influent to 75 percent removal of BOD and TSS. Supported the letter with a brief cost estimate and a detailed discussion of the regulations as they applied to the Kodiak plant.

**Project Engineer; Sediment Contamination Study; Marina del Rey and Ballona Creek; Los Angeles, California.** Collected data from several sources and summarized information on the biological, physical, and chemical characteristics of sediment stored in Ballona Creek and Marina del Rey. Incorporated this information into a summary report for the U.S. Army Corps of Engineers that was used to define future maintenance and monitoring of the sediment in the watershed.

#### **PROFESSIONAL AFFILIATIONS**

American Society of Civil Engineers  
American Geophysical Union  
American Ecological Engineering Society  
American Fisheries Society