

**ANDREW S. TODD**

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**EDUCATION:**

University of Colorado at Boulder, Boulder, CO

Graduated with Doctoral Degree in Civil Engineering, December 2005.

Dissertation Title: Mining Legacies in the Snake River: The Interaction of Biogeochemistry, Stream Ecology, and Human Use. Dissertation research related the response of a cohort of caged, sentinel rainbow trout to a gradient of surface water-quality conditions found in the Snake River. Sampling points were located downstream of headwaters contributing acid-rock drainage of both natural and anthropogenic origins in the Rocky Mountains above the resort town of Keystone, Colorado. Laboratory techniques and analyses included use of ICP-AES, ICP-MS, microwave accelerated tissue digestion, and MINTEQ modeling.

University of Colorado at Boulder, Boulder, CO

Graduated with Masters of Science Degree in Civil Engineering, August 2001.

Concentration in Water Resources and Environmental Engineering. Courses included Aquatic Organic Contaminants, Differential Equations, Environmental Microbiology, Hydrology, Stream Ecology, Environmental Water Chemistry, Biogeochemistry, Fluvial Geomorphology, Water Resource Management, Fluid Mechanics, and Vector Mechanics. Final GPA: 3.9

Williams College, Williamstown, MA

Graduated with Bachelor of Arts Degree in Biology, June 1997. Courses included Ecology, Biochemistry, Calculus, Environmental Science, Genetics, Organic Chemistry, Physics, Virology, and Animal Physiology. Final GPA: 3.3

Monteverde Institute, Monteverde, Costa Rica

Independent Tropical Biology and Conservation Study, Summer 1995. Courses included Advanced Spanish, Agroecology, Tropical Ecology, and an Independent Research Study project on endemic clearwing Ithomiine butterflies.

Manual High School, Denver, CO

Graduated with honors, June, 1993.

## **WORK EXPERIENCE:**

### **U.S. Geological Survey**

Crustal Imaging and Characterization Team, Denver, CO, January 2007 - present.

#### *Research Biologist*

I was selected to the highly competitive Mendenhall Postdoctoral Research Fellowship Program as a Research Biologist on a collaborative water quality research project with the U.S. Geological Survey, the Colorado Division of Wildlife, and the Colorado School of Mines. This project will focus on the development of stable-metal isotope techniques to determine metal pathways and bioavailability to rainbow, brown, and brook trout. Also, as part of an interagency agreement with the U.S. EPA, I provide senior level aquatic toxicological and biological assistance in data review, compilation, and interpretation related to investigation at the Pennsylvania Mine and Peru Creek Mining District sites.

### **Trout Unlimited**

Colorado Water Project Office, Boulder, CO, August 2005 – January 2007.

#### *Aquatic Specialist*

I served as the lead staff scientist for the Colorado Water Project, a project which works on decisions impacting water allocation and water quality. Prior to my hiring, this office mainly focused on litigation and negotiation. I created the science arm of the Colorado Water Project. In this capacity, I reviewed and provided expert scientific opinion on state and federal agency proposals impacting flows, river habitat, and water quality. Additionally, I established working relationships with agency staffs, including extensive work with the Colorado Water Quality Control Division in the development of scientifically-defensible water temperature standards leading up to the January 2007 Colorado Water Quality Control Commission Hearing. At this hearing, I served as the expert scientific witness for Trout Unlimited in this matter.

### **U.S. Fish and Wildlife Service**

Rocky Flats Project Office, Broomfield, CO, December 2003 – August 2005.

#### *Contaminants Biologist*

My primary responsibility involved development and implementation of Level III Pre-Acquisition Survey at the Rocky Flats Superfund site, identifying areas of potential residual contaminants-related risk to resident fish and wildlife populations following property transfer from the U.S. Department of Energy (DOE). Designing this survey involved conducting a detailed review of historical contaminant release information, synthesizing existing environmental and ecological data, identifying data gaps, and design of field assessments. I represented the Service in working groups with DOE, U.S. Environmental Protection Agency, Colorado Department of Public Health and Environment, and other agencies, cooperators, and contractors on issues including ecological risk assessment, Interim Remedial Actions, remediation design reviews, Long-Term Stewardship, and natural resource damage assessment. I prepared and reviewed on strict deadline official correspondence related to the ESA, NEPA, CERCLA/SARA, and other State or Federal laws and regulations to ensure full protection and restoration of fish and wildlife and their habitats at the future Rocky Flats National Wildlife Refuge.

### **University of Colorado at Boulder**

Boulder, CO, Fall 2004.

#### *Lecturer in Stream Ecology*

I designed and instructed a graduate-level field, laboratory and classroom course in Stream Ecology. The course covered the natural interactions between physical, chemical, and biological processes of streams and rivers, and impacts resulting from anthropogenic changes within these ecosystems.

### **Institute of Arctic and Alpine Research / Snake River Task Force**

Boulder, CO, May 2000 – August 2003.

#### *Research Assistant on Acid-Mine Drainage*

My field responsibilities included conducting aquatic and riparian habitat inventories, measurement of stream flows, water quality sampling, benthic invertebrate sampling, and metal-oxide sample collection. I frequently presented my research findings to technical and non-technical audiences through university graduate-level science classes, university lecture series, local watershed group meetings, national and regional ecotoxicology conferences, and local newspaper and radio interviews. During these years, I served as mentor and research advisor for several “Research Experience for Undergraduates” students (2001 and 2003).

### **Trout Unlimited**

Roscoe, NY, Summer 2000.

#### *Geomorphic River Restoration Researcher*

I worked directly with the Trout Unlimited Catskill Mountains’ Regional Coordinator to complete the physical characterization of several critical New York City Watershed rivers and tributaries, including the Beaverkill River and the Willowemoc River. I conducted river surveys, including laser-level longitudinal and cross-sectional profile analyses, bed and bank material characterization, and identification of floodplain, bankfull, and geomorphic stress indicators. In this job, I was instrumental in data management and analysis, and in the development of restoration plans for impacted river reaches, including the design of artificial riffle/pool structures, step-pool structures, and the removal of berms to restore active floodplains.

### **Aqua Sierra Fisheries Consultants, Inc.**

Morrison, CO, August 1997 to August 1999.

#### *Environmental Fisheries Consultant*

As a project manager at a private fisheries and water consulting firm, I organized field investigations, analyzed field data, and designed and implemented resultant resource management plans for non-technical clients including private pond owners, small wastewater treatment plants, agricultural clients, and the ski industry. I routinely conducted fish stocking, water sampling, sediment sampling, and fish sampling surveys (including gill netting, seine netting, and electrofishing).

## **FUNDING SOURCES, APPOINTMENTS, AND AWARDS:**

### **USGS National Global Warming and Wildlife Science Center Grant**

Co-wrote grant proposal and active member of research team funded in the amount of \$230,822 to evaluate the potential influence of changing climate on the persistence of native salmonids in the western United States. 2008-2009.

### **Colorado Water Quality Control Commissioner**

Appointed by Colorado Governor Bill Ritter to serve on nine member board. The Colorado Water Quality Control Commission is the administrative agency responsible for developing specific water quality policy in Colorado. 2007-2010.

### **Colorado Trout Unlimited Distinguished Service Award**

Received award recognizing outstanding individual contribution to Trout Unlimited and its mission of conserving, protecting and restoring Colorado's coldwater fisheries and their watersheds. 2007.

### **Institute of Arctic and Alpine Research Affiliate**

Appointed as an INSTAAR affiliate to conduct collaborative research with institute scientists, 2006-present.

### **Rocky Mountain SETAC Board of Directors**

Elected to the Board of Directors of the Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry. 2005-present. Elected vice-president, 2008.

### **U.S. Fish and Wildlife Service STAR Award**

Received award in recognition of representing the Service as Acting Lead Contaminants Biologist at the Rocky Flats Environmental Technology Sites, 2004.

### **NSF Integrated Graduate Education and Research Traineeship Fellowship**

Selected to a small cohort of science and journalism doctoral students in the Carbon, Climate, and Society Initiative, funded through the IGERT program of the National Science Foundation. 2001-2003.

### **Federal Regional Geographic Initiative and NPDES Project Grant**

Co-wrote grant proposal and active member of research team funded in the amount of \$85,000 to complete chemical, physical, and biological surveys of the acid-mine drainage impacted Snake River Watershed in Summit County, Colorado. 2001.

### **Engineering Excellence Fund, University of Colorado at Boulder**

Co-Wrote grant proposal that received funding in the amount of \$34,000 for the purchase of field equipment and microscopes with advanced video imaging capabilities for environmental engineering curricula in applied ecology and environmental microbiology. 2000.

### **SELECT PUBLICATIONS:**

Todd, A.S., Brinkman S., Wolf, R.E., Lamothe, P.J., Smith K.S., and Ranville, J.F. (2008) Use of an Enriched Stable-Isotope Approach to Determine the Gill-Zinc Binding Properties of Juvenile Rainbow Trout (*Oncorhynchus mykiss*) During Acute Zinc Exposures in Hard and Soft Waters. Accepted at *Environmental Toxicology and Chemistry*.

Todd, A.S., Coleman, M.A., Konowal, A.M., May, M.K., Johnson, S., Vieira, N.K.M and Saunders, J.F. (2008) Development of New Water Temperature Criteria to Protect Colorado's Fisheries. *Fisheries* **33**(9): 433-443.

Todd, A.S., McKnight, D.M., Jaros, C.L., and Marchitto, T.M. (2006) Effects of acid rock drainage on stocked rainbow trout (*Oncorhynchus mykiss*): an in-situ, caged fish experiment. *Environmental Monitoring and Assessment* **130**: 111-127.

Todd, A.S. and Sattelberg, R.M. (2005) Actinides in Deer Tissues at the Rocky Flats Environmental Technology Site. *Integrated Environmental Assessment and Management* **1**(4): 391-396.

Todd, A.S., McKnight, D.M., and Duren, S. (2005) Water Quality Characteristics for the Snake River, North Fork of the Snake River, Peru Creek, and Deer Creek in Summit County, 2001-2002. *INSTAAR Occasional Paper*, 40 pgs.

Todd, A.S., McKnight, D.M., and Wyatt, L. (2003) Abandoned mines, mountain sports and climate variability: Implications for the tourism economy of Colorado. *EOS, Transactions of the American Geophysical Union* **84**(38):377,386.

Todd J, Todd A.S. (1998). Twenty years of toxic shock syndrome: evolution of an emerging disease. *Royal Society of Medicine: Int Congress Symp Series* **229**:201-204.

Todd J, Kurtz B., Combs P., Todd A.S., Anderson J. (1998) Epidemiology of TSS in Colorado 1970-96. *Royal Society of Medicine: Int Congress Symp Series* **229**: 24-26.

### **OTHER TRAINING, SKILLS, AND ABILITIES:**

Completed short courses on the Biotic Ligand Model, Spring, 2008, 2007, 2004. Wilderness 1<sup>st</sup> Aid certified, Spring 2007. HAZWOPER and First Aid/CPR Training, Spring, 2004. Completed short course on Multivariate Statistics, Spring, 2003. Active memberships in Trout Unlimited and the Society of Environmental Toxicology and Chemistry.