

Matt Kunze
Wyoming Department of Environmental Quality, Land Quality Division
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PROFESSIONAL PROFILE

Mr. Kunze is a surface water hydrologist with nearly 15 years of experience working in natural resources. For nearly the last ten years, he has worked with the State of Wyoming Department of Environmental Quality as a hydrologist to support environmental regulation and permitting of coal mining. He currently prepares cumulative hydrological impact assessments and maintains a database of hydrological monitoring data. Prior to his current position, he worked at Colorado State University to provide data management and statistical analysis support to natural resources projects on military lands. He studied the effects of wildfire on streamflow and sediment transport as part of his M.S. Degree in Watershed Science at Colorado State University.

EDUCATION

M.S. Watershed Science, 2003. Colorado State University, Fort Collins, CO.

B.A.-B.S. Environmental Studies, 1997. Evergreen State College, Olympia, WA.

EXPERIENCE

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND QUALITY DIVISION, State of Wyoming, Cheyenne, WY

Natural Resources Program Principle: November 2011 to present.

I act as a surface water hydrologist to support the environmental regulation and permitting of coal mining in Wyoming. All work is conducted to implement the State of Wyoming's program under the Federal Surface Mining Control and Reclamation Act (SMCRA). Responsible for preparing cumulative hydrologic impact assessments (CHIAs) to evaluate the effect of multiple coal mining operations on surface water resources. Evaluate the potential for coal mining to affect surface water rights and cause exceedances to Wyoming surface water quality standards. Use ArcGIS 10.3 to prepare spatial geodatabases and maps for reports. Responsible for maintaining a relational database that contains groundwater level and quality data, surface water flow and quality data, and precipitation data submitted annually by nearly 30 coal mines in Wyoming. Use appropriate statutes, rules and regulations, and policy guidelines to review the hydrology sections of mine permit applications and annual reports. Assist in the development of guidelines for mine operators to ensure compliance with statutes and environmental rules and regulations. Develop and maintain spatial data of mine permit boundaries for use by agency staff and the public.

Natural Resources Analyst: May 2007 to October 2011.

I acted as a surface water hydrologist to support the environmental regulation and permitting of coal mining in Wyoming. Responsible for preparing the surface water section of cumulative hydrologic impact assessments (CHIAs) to evaluate the effect of multiple coal mining operations on surface water resources. Evaluated the potential for coal mining to affect surface water rights and cause exceedances to Wyoming surface water quality standards. Used ArcGIS to prepare spatial geodatabases and maps for reports. Responsible for maintaining a database that contains groundwater level and quality data, surface water flow and quality data, and precipitation data submitted annually by over 30 coal mines in Wyoming.

CENTER for ENVIRONMENTAL MANAGEMENT of MILITARY LANDS, Colorado State University, Fort Collins, CO

Research Associate II: February 2004 to May 2007; **Technician III:** December 2002 to January 2004.

Provided data analysis support for environmental services/projects on Department of Defense (DOD) lands.

- Co-author of several technical reports/studies involving: effects of military vehicles on vegetation and erosion, soil compaction monitoring, and trends in biotic integrity and hydrologic stability on military lands.
- Developed field protocol for assessing condition of unpaved roads; provided site-training for implementation at Fort Leonard Wood, MO, Fort Jackson, SC, and Fort Indiantown Gap, PA.
- Assisted with writing Environmental Assessments (EAs) for proposed actions on DOD lands.

DEQ Exhibit 21

EXPERIENCE (CONTINUED)

DEPARTMENT of EARTH RESOURCES, Colorado State University, Fort Collins, CO

Graduate Research Assistant: January 2001 to June 2001; June 2002 to October 2002.

- Maintained stream gages, rain gages, data loggers, pressure transducers, and automatic pumping samplers to monitor the effects of wildfire on two watersheds in the Colorado Front Range.
- Presented papers at two professional conferences. A manuscript was published in the journal *Hydrological Processes* in 2006.

Graduate Teaching Assistant: August 2001 to May 2002.

- Teaching assistant for two undergraduate courses in the Watershed Science program.

GIS Cartographer: August 2000 to February 2001.

Student employee with Water Resources Division of the National Park Service.

- Created GIS maps for water quality reports for national parks and monuments.

THE ENVIRONMENTAL CAREERS ORGANIZATION, INC., Seattle, WA

Watershed Survey Assistant: May 1998 to November 1998.

Placed with Bureau of Land Management, Medford District, Medford, OR.

- Member of stream survey team that surveyed 213 miles of streams draining 21,000 acres. Collected data on channel morphology, large woody debris, riparian functioning condition, riparian and upland vegetation, and stream type; evaluated disturbances to the stream/riparian system.

AGUA TIERRA ENVIRONMENTAL CONSULTING, INC., Olympia, WA

Hydrologic Technician Intern: November 1997 to March 1998.

- Assisted with a monitoring project to evaluate the effects of forest management on streamflow and sediment transport. Installed, maintained, and operated stream discharge and sediment monitoring equipment. Processed sediment samples and assisted with streambank revegetation projects.

WASHINGTON DEPARTMENT of ECOLOGY, Olympia, WA

Puget Sound Wetland Restoration Volunteer: July 1997 to March 1998.

- Assisted with a watershed analysis of the Snohomish Basin, WA to support wetland restoration efforts.

WASHINGTON DEPARTMENT of FISH AND WILDLIFE, Montesano, WA

Scientific Technician II (Port Sampler): July 1997 to September 1997.

- Conducted port sampling surveys to support ocean sport fisheries management.

SELECTED PUBLICATIONS

- Kunze, M.D. and J.D. Stednick. 2006. Streamflow and suspended sediment yield following the 2000 Bobcat fire, Colorado. *Hydrological Processes* 20: 1661-1681.
- Kunze, M.D. and D.S. Jones. 2004. *Unpaved Roads Condition Assessment Protocol*. CEMML TPS 04-16. Colorado State University, Fort Collins, CO. 41 pp.
- Cederholm, C.J., M.D. Kunze, T. Murota, and A. Sibatani. 1999. Pacific salmon carcasses: Essential contributions of nutrients and energy for aquatic and terrestrial ecosystems. *Fisheries* 24 (10): 6-15.