

## **Project Summary**

### **Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** Monitoring water quality and quantity at Bighorn Canyon NRA: Seeps, springs and river and stream locations

**Discipline:** Natural

**Type of Project:** Technical Assistance

**Funding Agency:** National Park Service

**Other Partners/Cooperators:** Montana State University

**Effective Dates:** 3/1/2009 - 12/31/2010

**Funding Amount:** \$23,862

**Investigators and Agency Representative:**

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Investigator: Adam Sigler, MSU Extension Water Quality, 245 Leon Johnson Hall Montana State University, Bozeman, MT 59717; (406) 994-7381; asigler@montana.edu

**Project Abstract:** Desert seeps and springs and water quality in Bighorn Canyon National Recreation Area (BICA) are given a high priority for long-term monitoring in the Greater Yellowstone Network's (GRYN) Vital Signs Monitoring Program. Planning for the seep & spring monitoring protocol was initiated in 2004 with help from cooperators at Montana State University; this work involved an inventory and description of all the known seeps and springs in BICA (reference spring inventory reports (s)), preparation of a monitoring protocol for seeps & springs as well as implementation of the regulatory water quality and draft water quality monitoring protocols.

The project involves monitoring water quality and quantify at 8 river and stream locations 4 times a year and at 9 spring locations 2 times per year following the Standard Operating Procedures approved for the regulatory water quality monitoring program.

**THE NATIONAL PARK SERVICE WILL:**

1. Provide financial assistance to Montana State University to accomplish the goals of this agreement.
2. Work closely with MSU personnel throughout the project to coordinate project activities, evaluate the progress of this project, and provide direction for reports and products.
3. Provide housing (when available) while work is being conducted at Bighorn Canyon NRA.
4. Provide analytical services through the NPS contract laboratory.
5. Deliver final products to RM-CESU Research Coordinator

**MONTANA STATE UNIVERSITY WILL:**

1. Appoint Adam Sigler, MSU Extension Water Quality as Principal Investigator.
2. Complete the activities as described in this Scope of Work and referenced protocols and standard operating procedures.
3. Send water samples to analytical labs ensuring that the holding time and temperature have not been exceeded.
4. Manage and deliver data collected in its original and electronic formats

**BOTH THE NATIONAL PARK SERVICE AND MONTANA STATE UNIVERSITY WILL:**

1. Cooperatively determine type, timing and progress of project activities as described in the scope of work.

**Outcomes with Completion Dates:** Final Report is due December 31, 2009.

**List of Products:**

1. Original field data sheets and copies of all chain-of-custody forms, analytical lab results and invoices.

2. Database records in NPSTORET
3. Verification and validations reports
4. Annual accomplishment report
5. Annual data summary report

**Keywords:** water quality monitoring, Vital Signs Monitoring Program, Bighorn Canyon NRA, seeps, springs, Montana State University, Greater Yellowstone Network I & M Program