

## **Project Summary**

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

**Project Title:** Effects of Climate Change on Aquatic Ecosystems in the Great Northern Landscape: Vulnerability Assessment of Invertebrate Foodwebs, Landscape Remote Sensing of Tributaries, and Modeling for Conservation

**Type of Project:** Research

**Project Discipline:** Natural

**Funding Agency:** USGS

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

**Effective Dates:** 9/7/2010 - 7/31/2011

**Funding Amount:** \$52,875

#### **Investigators and Agency Representative:**

**Investigator:** Richard Hauer, Flathead Biological Station, The University of Montana, Polson, MT; Phone: 406-982-3301 x232; ric.hauer@umontana.edu

**Agency:** Clint Muhlfeld, USGS - Northern Rocky Mountain Science Center (NOROCK), Glacier National Park, MT phone: 406-88-7926; cmuhlfeld@usgs.gov

#### **Project Abstract:**

Global climate change is expected to dramatically impact the structure and function of freshwater systems, yet no studies have comprehensively assessed the potential effects of climate change on aquatic ecosystems in the great Northern Landscape. The proposed research aims to build on an existing climate change research project focuses on hydrologic and thermal effects on foodwebs and lotic habitats in the transboundary (US and Canada) Flathead River system. The project will work collaboratively with the proposed project by Clint Muhlfeld to this program. In the collaborative research we will apply new and existing techniques for combining downscaled climate spatial data with fine-scale aquatic species vulnerability assessments (invertebrates-fish), population genetic data and remotely sensed riparian and aquatic habitat analysis. Results may be used to identify populations and habitats most susceptible to the impacts of climate change; develop monitoring and evaluation programs; inform future research needs; and develop conservation delivery option in response to climate change and other stressors (e.g. habitat loss and invasive species) that are often complicated or exacerbated by climate change.

**Outcomes with completion dates:** July 1, 2015

**Keywords:** aquatic ecosystems, climate change, Flathead River system, transboundary, Glacier National Park, University of Montana