

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Coal mine and coalbed methane development in British Columbia, Canada threatens aquatic biota of Glacier National Park and Federal Wild and Scenic North Fork of the Flathead River, Montana; Environmental Assessment Data Collection

Type of Project: Research
Discipline: Natural
Funding Agency: National Park Service
Other Partners/Cooperators: University of Montana
Effective Dates: 9/30/2009 - 12/31/2012
Funding Amount: \$25,000

Investigators and Agency Representative:

NPS Contact: Chris Downs, Science Center, Glacier National Park, West Glacier, Mt 59936, 406-888-7917, chris_downs@nps.gov

Investigator: Andrew Wilcox, Assistant Professor, Department of Geosciences, 32 Campus Dr., #1296, Missoula, MT 59812; Phone: 406.243.4761; andrew.wilcox@umontana.edu

Project Abstract: Current proposals for open-pit coal mining, coalbed methane (CBM) and hard rock mining target the Canadian headwaters of the North Fork of the Flathead River in British Columbia (BC). The proposed mines and CBM wells would be located in fractured geologic formations with a high probability of polluting Glacier National Park, the Flathead watershed and destroying aquatic habitat with impacts to all aquatic environments downstream to Flathead Lake in Montana. The Flathead Basin is also the headwaters for the entire Columbia River System and the impacts associated with mining and CBM development could impact this River system, negating efforts to restore salmon, bull trout, cutthroat and other threatened and endangered species. To date, millions of dollars have been spent on efforts to restore these fisheries. However, these efforts are now at risk as the water flowing down the North Fork of the Flathead will cross the USA-Canada border within hours of leaving the proposed mine site and CBM fields. Industrial CBM infrastructure, discharge of drilling waste and CBM coal seam wastewater, in addition to effluent discharges from the proposed mine, carrying sediment, heavy metals and other water pollution would degrade water quality and aquatic habitat in the North Fork of the Flathead, Glacier National Park and Flathead Lake.

Focused Environmental Assessment studies are needed to delineate the existing environmental condition, the nature and breadth of the threat, and the level of risk associated with the proposed coal mining, CBM and hard rock mining developments. The assessment must be comprehensive to include the entirety of the North Fork watershed to Flathead Lake and must be sufficient in scope to address the entirety of the mining proposals. A comparative analysis with the mine-impacted Elk will provide data regarding expected degradation to water quality and aquatic life. All analyses will be conducted within the scope and processes analysis of the USA Federal Clean Water Act.

Goal: Provide a physical and biological assessment of the transboundary bullfishery with emphasis on bull trout (ESA listed), west slope cutthroat trout (MT species of special concern) and sculpin. These data will include assessment of waters in the North Fork of the Flathead River in BC and Glacier National Park. Analyses shall include risk analysis of the proposed Lodgepole/Foisey coal mine in the Canadian Headwaters of the North Fork of the Flathead River and potential effects on critical bull trout spawning and rearing habitats in Glacier National Park, the US reaches of the Flathead River and Flathead Lake. Additionally, the analyses shall include assessing the potential changes of climate change on these habitats, with emphasis on impacted versus impacted drainages.

Objectives: This study will provide quantitative data on the physical (geomorphology, hydrology) and biological characteristics of bull trout spawning and juvenile habitat quality for trout species in tributary streams in Glacier National Park and the BC Flathead. The proposed surveys include determination of fish species distribution and genetic composition throughout the basin and characterization of bull trout spawning habitats. Additionally, temperature monitoring and habitat inventories will be used to quantitatively assess spawning and rearing habitat quality and availability under various climate change scenarios.

Outcomes with Completion Dates: Final Report due - December 31, 2012

List of Products: Quantitative baseline dataset that includes species distribution, genetic composition, and habitat classifications bull trout, westslope cutthroat trout and sculpin; Evaluation of physical (geomorphic habitat characteristics in bull trout spawning areas; Fine-scale analysis of climate change impacts on ground and surface water interactions; and Master's level thesis will serve as final report

Keywords: coal mine development, risk aquatic biota, North Fork Flathead River, Glacier National Park, University of Montana