

**Fish and Fish Habitat and Water Quality  
Baseline Environmental Program Summary  
BP Canada Energy Company Mist Mountain Coalbed Gas Project**

Matrix Solutions Inc. (Matrix) and North South Consultants Inc. have developed water quality and fish and fish habitat programs designed to collect baseline information on current conditions in the Elk River, Michel Creek and upper Flathead River Watersheds. The objectives of the study are to provide a regional level characterization of water quality and fish and fish habitat in the rivers and tributaries within the three main watersheds of the study area. The goal is to select enough sites to characterize the diversity of aquatic habitats in the study area in a manner that facilitates the assessment of the aquatic environment over time. Water quality and fish and fish habitat are strongly linked, therefore these components will be completed as an integrated “aquatics program.”

The fish and fish habitat and water quality studies are in their third year. Field programs were started in the summer of 2007 and continued through 2008. Aquatic studies during the first year provided results that characterized water quality and fish and fish habitat in 13 watercourses; 3 in the Flathead watershed, 3 in the Elk watershed and 7 in the Michel watershed. In 2008, 2 sites were added in the Flathead watershed, 1 in the Michel watershed and 3 in the Elk watershed. In 2009, plans are to continue seasonal field studies at 11 of these locations and add an additional 10 to 15 locations to incorporate more streams in the study. The study design includes:

- review of historic water quality data from the study area (e.g., government and industry water chemistry data).
- fish habitat surveys and habitat mapping. Several watercourses are being visited and the information collected is being used to characterize fish habitat in area streams. Locations that appear to have important habitat characteristics are being mapped and revisited on a seasonal basis. Habitat of sensitive species at these locations is being identified.
- seasonal fish surveys (primarily electrofishing) to identify fish habitat use in the area. Important habitat to assess includes areas used for spawning, rearing, overwintering, migration, etc. The research guidelines for British Columbia are being followed.
- in-situ water quality which provides information on habitat quality (e.g., water temperature/dissolved oxygen concentration suitability for fish eggs).
- seasonal water quality samples. Water chemistry is being assessed to document and understand current conditions and seasonal variability.
- sediment quality samples. Chemistry analyses are being conducted on the sediments within the streams to understand current conditions (summer only).
- a benthic invertebrates survey. Samples are being collected at various locations throughout the study area in the fall season (when populations are most stable) to provide information on aquatic ecosystem conditions and food supply for fish.
- a periphyton survey. Algae is being collected seasonally at various locations to better understand trophic conditions and ecosystem productivity.