

Natural Environment Studies

The proposed KSM Project will be developed under strict environmental guidelines and has undergone a comprehensive regulatory review. The project received environmental approvals from the Government of British Columbia and the Government of Canada in 2014. The protection of water quality, fisheries and wildlife are top priorities.

Environmental baseline studies determine the current state of environmental components that could be affected by the project, prior to developing the site. This information is used to avoid, or minimize, potential adverse effects, while maximizing positive effects of the project. Baseline studies were initiated in 2008 and some are ongoing.

The KSM Project will be developed in a manner consistent with the management direction provided by the Cassiar Iskut-Stikine Land and Resource Management Plan and the draft Nass South Sustainable Resource Management Plan.

Fisheries

Comprehensive fish and fish habitat assessments have been conducted at stream crossings along all proposed primary road alignments and at the proposed mine and tailing management facility.

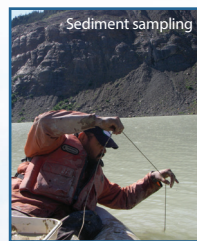


- Fish are not present in Sulphurets and Mitchell Creeks, in part because of the naturally low pH levels and high metal contents of these streams.
- Fish tissue has been tested for baseline metals concentrations.
- Fish inventory surveys have been conducted using electrofishing, gillnets, minnow traps and beach seines.
- Habitat compensation studies are exploring the creation of optimal fish habitats to compensate for disturbed areas.

Aquatics and Water Quality

Aquatic biology, sediment and water quality baseline studies have been completed for a broad area within and surrounding the proposed project site.

- Stream, river and lake water and sediment have been tested for metals, nutrients, ions, and other characteristics.
- Aquatics surveys of algae, benthic invertebrates (e.g. clams, worms, insects), and plankton have been conducted.
- Toxicity testing of select stream waters has been conducted to help classify water prior to project development.



Wildlife

Comprehensive wildlife studies have confirmed the presence of 121 wildlife species, including 94 species of birds, within the proposed project area.

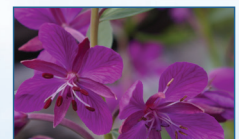
- Common species in the vicinity include moose, grizzly and black bear, mountain goat, and a variety of breeding birds, raptors, and waterfowl.
- Grizzly bear DNA analysis has been conducted using hair samples to determine population size and distribution in the proposed project area.
- Habitat suitability mapping studies have been conducted for key mammals to identify prime habitat.



Vegetation

The vegetation study program describes the terrestrial ecosystems and vegetation by:

- Surveying and mapping ecosystems throughout the study area using aerial photography and satellite imagery.
- Surveying rare plant species and communities, and invasive species.
- Testing baseline metal concentrations in plant tissue (focusing on species that may be consumed by humans, or by animals that may be consumed by people).



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Geochemistry

Oxidation of KSM's naturally occurring mineral deposits now causes some springs to have low, or acid, pH levels (less than 3 compared to a neutral value of 7). Mitchell Creek is influenced by these springs and during the spring and early summer it is highly acidic (pH levels 2.5 to 4). Additionally, streams in the area have naturally high levels of elements such as arsenic, cadmium, copper, iron and zinc.

- Extensive rock and water sample testing has been conducted (over 2,000 rock samples and monthly water samples).
- A geochemical deposit model and a water quality model are being developed to assist with mine design and management planning.



Surface Water and Groundwater

The study of the movement, distribution and quality of groundwater and surface water is being conducted to design the mine in a way that protects water quality and function.

- Installed groundwater monitoring wells throughout the study area and conducted groundwater sampling.
- A groundwater model was developed to help mitigate project effects to the groundwater system.
- Monitoring of the Mitchell Glacier.
- Continuous monitoring of streams and rivers at 17 hydrometric stations in the proposed project area, and modeling of flows.

Meteorology and Air Quality

An on-going study program is defining the local climate to support project design and to enable a thorough effects assessment of the proposed project.

- Installed automated meteorology stations near proposed open pits and the tailing management facility. Data being collected include:
 - Wind speed and direction
 - Air temperature
 - Relative humidity
 - Snow depth
 - Total precipitation
 - Global solar radiation
 - Visibility
- Surveying snow courses/transects in the project area for engineering design and water management.
- Visibility sensor allows projection of times when production may be affected by fog or falling snow.
- Installation and monitoring of dustfall collectors to measure baseline air quality.



Soils and Terrain

Field studies have resulted in detailed data on soil type (physical and chemical properties) in the project area and along the proposed access roads.

- Information is being used to develop site reclamation and soil handling plans for mine closure.
- Landform mapping has been carried out using aerial photo interpretation.



Wetlands

Wetlands studies and activities to determine wetland function and distribution have been conducted in areas that could potentially be affected by project infrastructure.

- Following extensive surveying of the proposed project area, wetland ecosystems have been mapped and classified.
- No "red listed" (endangered, threatened, or extirpated) wetlands have been identified in the study area.

