2015 Hope Bay Baseline Study Annual Summary

ERM Canada Inc. would like to close out their 2015 NRI Research permit and have provided the summary below. In 2015, the environmental studies that were completed were the following:

- Hydrology
- Aquatics
- Fish and fish habitat
- Wildlife and wildlife habitat; and
- Atmospherics

Hydrology

Hydrologic data was collected as part of the 2015 Doris North Hydrology Compliance Monitoring Program. A network of three streamflow and three lake level hydrometric stations were established and monitored during the 2015 open water season. Field visits included water level surveying, and stream discharge measurements. Surveys of stream channel cross-sections and stream discharge measurements were conducted in support of an environmental flow needs assessment. In addition, a bathymetric survey of Roberts Bay was conducted to monitor sediment deposition and erosion in the Bay.

Aquatics

The field season included four trips to Hope Bay between June and September (once a month), and sampling sites included five stream sites, five lake sites and three marine sites. Water quality and physical limnology samples were collected from all lake, marine and stream sites during all four trips. Phytoplankton was collected from all lakes and marine sites during all four trips. Periphyton was collected from stream sites three times (the first trip of the season was used to place the periphyton samplers in streams). Benthos and sediment samples were collected once over the course of the summer from streams, lakes, and marine sites.

Fish and Fish Habitat

Fisheries sampling was completed at Roberts Lake Outflow, Doris Lake, and two small, unnamed streams in 2015. At Roberts Lake Outflow, the progress of compensatory habitat constructed in 2013 was monitored. Data were collected from Doris Lake and two small streams to establish baseline conditions in these waterbodies prior to potential future mine development.

Wildlife and Wildlife Habitat

A total of four wildlife field trips were completed in 2015. In the May, the Raptors Occupancy, and Camera Set-up trip included conducting i) aerial surveys determine the occupancy of raptor nests located on cliffs; ii) an assessment of potential safety implications in monitoring raptor nests situated over water; iii) camera checks, and relocations of a subset of wildlife cameras.

In June, the Waterbird Spring Pair survey and Upland Breeding Bird Survey trip included conducting i) upland breeding bird point counts and PRISM plot ground surveys; ii) waterbirds aerial surveys to determine species abundance and diversity during the pairing stage; iii) camera checks/relocations in a subset of remote cameras that were previously covered in snow. Low ambient temperatures beginning on June 14 that were incompatible with survey methodology, necessitating an additional trip in July for this work to be completed under improved weather conditions.

In August, the Waterbird Brood survey, Raptor Productivity, Camera Maintenance trip included conducting: i) aerial brood surveys for waterbirds to determine species abundance and diversity during the brood stage; ii) aerial surveys to determine the productivity of raptor nests; and iii) camera checks. All assigned work was completed.

Atmospherics

The 2015 Atmospherics field program had three main components: meteorological compliance monitoring, air quality compliance monitoring, and construction dustfall monitoring.

Meteorological compliance monitoring field work included the de-winterization and winterization of the tipping bucket rain gauges at the Doris and Boston meteorological stations. There was regularly scheduled data downloads and QAQC of the data to ensure proper operation of the meteorological instruments. The installation of the Doris Lake micro-meteorological station in Doris Lake during the ice free period also took place.

Air quality monitoring field work included the scheduled maintenance, service and filter exchanges to the Partisol (TSP, PM_{10} and $PM_{2.5}$) samplers, the filter exchanges for the passive air sampling system (PASS) monitoring program, and re-implementation of a historical construction dustfall monitoring program.