**Project Dashboard**

Lake Ice in the Canadian High Arctic (148191)

**Proposal Status: Conformity Determination Issued**

**Project Overview**

Type of application: **New**

|  |  |
| --- | --- |
| Proponent name: | Dr. Laura Brown |
| Company: | University of Toronto Mississauga |

**Schedule:**

|  |  |
| --- | --- |
| Start Date: | 2016-05-07 |
| End Date: | 2016-05-12 |
| Operation Type: | Seasonal |

**Project Description:**

The overall research project spans temperate (Haliburton, ON), sub-arctic (Churchill, MB) and High Arctic lakes (Resolute and PBP, NU) and aims to examine recent changes to the timing and thickness of the ice cover on Canadian lakes. This will be done through field work, modelling and the use of satellite imagery, which will be validated using the data we measure manually in the field. We plan to spend 5 days in Resolute and two days (with 1 overnight) at PBP using a helicopter to transport our group and equipment for sampling on Hunting Camp Lake and back to the cabin. In Resolute, we plan to measure the ice thickness on several lakes and meet with the community members about future sampling and participation in the project. At PBP we intend to drill several small holes in the ice cover on Hunting Camp Lake to measure the thickness, examine the ice structure, and also determine the depth of the lake at those sampling points to determine the best location to set up an ice thickness sensor on the bottom of the lake. We plan to set up an outdoor digital camera based on the hillslope, aimed at the lake to capture images of the ice and snow through time lapse for the year. We also intend to download the Campbell Scientific weather station at PBP while we are there. We plan to maintain these study site as a long-term project, with recurring visits to the lakes each spring or summer to download and reinstall the equipment, ideally with the assistance from Resolute Bay community members.

**Personnel:**

|  |  |
| --- | --- |
| Persons: | 3 |
| Days: | 7 |

**Project Map**

**List of all project geometries:**

|  |  |  |
| --- | --- | --- |
| **ID** | **Geometry** | **Location Name** |
| 276 | polygon | Resolute area |
| 277 | polygon | Hunting Camp Lake, Polar Bear Pass |

**Planning Regions:**

Qikiqtani

**Affected Areas and Land Types**
No data found.

**Project Land Use and Authorizations**

**Project Land Use**

Scientific Research

**Licensing Agencies**

CWS

GN-NRI

NWB

**Other Licensing Requirements**
No data found.

**Material Use**

**Equipment**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **Quantity** | **Size** | **Use** |
| Ice Auger | 1 | to be provided by PCSP | drill holes in the ice cover on selected lakes |
| Helicopter | 1 | arranged by PCSP | travel to/from Resolute/ Polar Bear Pass |
| Snowmobiles | 3 | to be provided by PCSP | travel to lakes near Resolute to measure thickness |

**Fuel Use**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Container(s)** | **Capacity** | **UOM** | **Use** |
| Gasoline | 3 | 20 | Liters | Snowmobiles and ice auger, gas from PCSP, container size unknown, 60L total |
| Aviation fuel | 4 | 200 | Liters | Travel to Polar Bear Pass from Resolute |
| Propane | 1 | 20 | Liters | cooking stove, 1 night at Polar Bear Pass |
| Other | 1 | 0 | Liters | 1 12V battery |

**Hazardous Material and Chemical Use**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Container(s)** | **Capacity** | **UOM** | **Use** |
| No records found. |

**Water Consumption**

|  |  |  |
| --- | --- | --- |
| **Daily Amount (m3)** | **Retrieval Method** | **Retrieval Location** |
| 50 | Water jugs filled from the river | Goodsir River, this river is the closest to the Polar Bear pass cabin |

**Waste and Impacts**

**Environmental Impacts**

None expected. Several small holes will be drilled in the ice cover on lakes surrounding Resolute, and Hunting Camp Lake at Polar Bear Pass, which would be expected to refreeze quickly. One larger 1m x 1m section of ice will be removed at PBP to lower an ice thickness sensor to the bottom of the lake, also expected to refreeze within a few days. The ice thickness sensor (sealed, upward facing sensor (approx. 1 x 1 m)) will stay on the bottom of the lake until summer 2017. After that, it will be removed, serviced, and reinstalled for the subsequent summer seasons.

**Waste Management**

|  |  |  |  |
| --- | --- | --- | --- |
| **Waste Type** | **Quantity Generated** | **Treatement Method** | **Disposal Method** |
| Sewage (human waste) | 1 bag | We will be staying at PCSP for 5 nights, 1 night at Polar Bear Pass | Ferry from Polar Bear Pass to Resolute for disposal |
| Greywater | 1 bag | NA | Strain, ferry non-organic waste from Polar Bear Pass to Resolute for disposal |
| Combustible wastes | 1 bag | NA | Ferry from Polar Bear Pass to Resolute for disposal |
| Non-Combustible wastes | 1 bag | NA | Ferry from Polar Bear Pass to Resolute for disposal |
| Hazardous waste | ~8 AA Batteries, 1 12V battery | NA | Ferry from Polar Bear Pass to Resolute for disposal |

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