

SLEMA



REFERENCE LAKE  
TOUR



JULY 18, 2006



## **INTRODUCTION:**

In July 2004 the Snap Lake Aquatic Effects Monitoring Program included the establishment of a Reference Lake. The purpose of identifying a Reference lake is set out in Environment Canada's 2002 Environmental Effects Monitoring Program. This defines a reference lake as "waters frequented by fish that are not exposed to effluent, and that fish habitat is as similar as possible to the exposure area (In this case Snap Lake). The purpose of a reference area is to help separate background environmental changes and natural variability from potential effects on a water-body resulting from discharge effluent.

In the selection process a variety of Lakes were examined and six were identified as potential candidates for selection as the Reference lake. A number of factors were explored, including size of the Lake, Depth, productivity, fish community as well proximity to the mine site. The Lake, named North East Lake was chosen as the Reference Lake. The selection was made based on a number of factors. Apart from its similarity in depth and size in was also very close to Snap Lake, making it logistically easier and safer to sample.

During the May 2006 SLEMA Core group meeting, the selection process of the Reference Lake was brought into question. Although SLEMA had been involved in some of the Reference Lake Working group meetings, the input from SLEMA had been minimal. The reason for this was that SLEMA was still in its infancy and had not launched as a fully functioning organization at the time the



working group was presiding over the selection process. During SLEMA meetings certain discussions had transpired that questioned the validity of the North East Lake, as a good representative Lake. Some of the issues discussed was dissimilarity of the geological structure, and the hydro-geological connectivity of lakes due to their close proximity (potentially allowing contamination from Snap Lake to enter North East lake over time). In light of these concerns a motion was passed in the May 2006 SLEMA core group meeting to coordinate a visit to the Reference Lake during the summer months by members of the SLEMA Traditional Knowledge panel, as well as some youth from the communities.

**Project:**

The date for the Reference Lake Tour was July 18, 2006. The participants were:

- Johnny Weyallon (Tli Cho Government, SLEMA board)
- Noel Drybones (Tli Cho Government, SLEMA board)
- Eddie Camille (Tli Cho Government, SLEMA TK Panel)
- Paul Mackenzie (Yellowknife Dene First Nations, SLEMA TK Panel)
- Ashton Hawker (North Slave Metis Alliance, SLEMA TK Panel)
- Lee Mandeville (North Slave Metis Alliance, SLEMA acting board)
- Loraine Enge (North Slave Metis Alliance, youth)
- Don MacDonald (SLEMA Science Panel, Aquatic Biologist)
- John Chaulk (SLEMA employee)
- David White (SLEMA employee)



Representatives for the Lutsel K'E First Nations were scheduled to attend, but were unable to make it to the tour.

The group left the Yellowknife AIR Tindi float plane base at around 08:30 on July 18, flying in a twin otter on floats, and arrived at the reference lake at around 09:20. The plane flew the circumference of the lake two times to allow the group to view the entire lake from the air. The plane made one rotation of the lake in a clockwise direction, and then one rotation in a counter clockwise direction. This allowed passengers on both side of the plane to have an adequate aerial review of the lake. A discontinued exploration camp was observed on the South East portion of the lake. In further investigation it was determined that this camp belongs to Winspear Mining operating under the name Diamondex. The existence of this camp is curiously vague or absent from all the Reference Lake selection reports. The only mention in a review of the Reference Lake Documentation is that drilling had occurred near the lake.

*Diamondex Camp*





### *Aerial Photographs of the Reference Lake*



### Location of activity on Reference Lake



The plane landed in the northern portion of the lake docking at 63° 41' 58"N, 110° 47' 53"W. The group had an on site conference with the Aquatic Biologist Don MacDonald, a member of the SLEMA Science Panel, who explained the selection process of the Reference Lake as well as the positive and negative aspects of the Lake as a Reference Lake.



*Don MacDonald explaining the reference Lake*



After the initial conference with Mr. MacDonald, an inflatable Zebec boat was assembled and members of the group were taken out to examine some of the shore line of the lake and attempt to take fish samples.

Inflatable Zebec boat





Fish sample collection was attempted by angling, without much success. Some lines received bites but only 1 Northern Pike (*Esox Lucius*) was landed. It was the general consensus from the traditional knowledge panel that the fish were too deep due to the warmer water and that angling should only take place in early June just after the ice cover is off the lake or in late August.

*Don MacDonald examines a Northern Pike caught in the Reference lake*



The group also walked the area and observed the vegetation which was comprised of Dwarf Birch (*Betula glandulosa*), Willow (*Salix* spp.), Labrador Tea (*Ledum decumbens*), clumps of black spruce (*Picea mariana*), Bog Cranberries (*Vaccinium vitis-idaea*), Crow Berries (*Empetrum nigrum*) and Blue Berry (*Vaccinium myrtilloides*), Cloud Berry (*Rubus Chamaemorus*) and reindeer lichens (*Cladina*).



Typical Flora for Reference Lake/Snap lake area



### **Conclusion:**

The Reference lake visit afforded the participants the ability to see the Lake first hand and develop a better understanding of the topography, size and proximity of the Lake to the Mine site. It also allowed for the coming together of Elders, board members, SLEMA staff and one member of the science panel. This allowed for the transfer of ideas. Members of the Traditional Knowledge panel suggested the following

- A camp on the Reference Lake needs to be established so as to allow a base from which to properly assess the environmental impacts and to allow time to properly sample fish and participate in De Beers monitoring activities.
- Sampling should take place in early June or late August when the waters are not so warm and the fish are more active in the upper water levels.



Some of the other comments that were heard were

- SLEMA representatives should explore the idea of visiting the Ekati and Diavik mine site to do a comparison of developments and monitoring activities.
- SLEMA should explore the possibility of using satellite imagery to measure the change in Total Dissolved Solids over time.
- De Beers should expand its monitoring activities in the Reference Lake as it is not being examined broadly enough to make a good comparison of the two lakes.