

Little Jackfish River

HYDROELECTRIC POWER PROJECT

Environmental Assessment Fact Sheet

EROSION

The Ogoki Diversion of 1943 turned the Little Jackfish Creek, with a flow of four cubic metres per second, into the Little Jackfish River, with flows averaging 122 cubic metres per second and ranging up to 220 cubic metres per second.

While this Project was undertaken at the time to help the war effort, damage to the Little Jackfish River and to Ombabika Bay was significant. The resulting erosion from the Diversion created the delta of sedimentation in the bay that exists today. It damaged walleye spawning beds and hurt the Lake Nipigon fishery. It also partly contributed to the eventual fishing moratorium in Ombabika Bay that continues today.

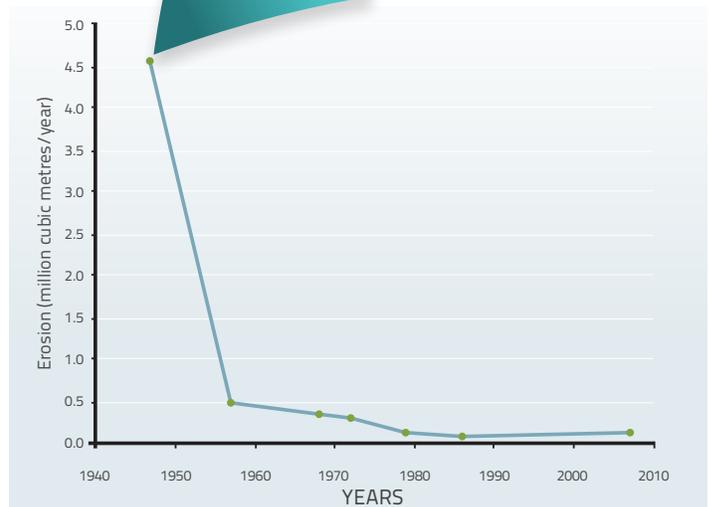
However, the erosion situation on the Little Jackfish River is vastly improving. When the Diversion was completed, nearly five-million cubic metres of sediment entered Ombabika Bay through the Little Jackfish River every year. As the River widened, the erosion rate decreased steadily. Today, the rate has dropped to approximately 130,000 cubic metres of sediment entering the Bay each year, equal to about 13,000 dump truck loads.

Today, the Little Jackfish River banks have stabilized significantly below Zigzag Lake. In July 2009, a "slump" occurred on one of the Little Jackfish banks on the lower part of the River, causing soil to fall into the River. These events are typical of the current status of the River today. Lake Nipigon First Nations members should not be surprised if further slumps along the River occur over the coming years.

● CONCLUSIONS OF EROSION STUDIES

Several detailed engineering studies were carried out throughout the Little Jackfish River Environmental Assessment process. They were conducted to estimate the effects of operating the proposed Project on current erosion and sedimentation patterns in the River. Key conclusions of these studies include:

- The proposed Little Jackfish Dam and its headpond will stop most of the sediment eroded upstream from being transported into the lower reaches of the River.



This figure illustrates that amount of sedimentation on the Little Jackfish River has levelled off over the decades since the Diversion.



Taken in 1951, this photo shows the terrible damage to the Little Jackfish River following the Diversion in the 1940s.

- Because the maximum flow rates and velocities are expected to decrease (due to automation of Summit Control Dam), reduction in the rate of sediment movement from its present rate downstream would be expected.
- For the first few years of Generating Station operation, some effects from erosion directly downstream of the generating station would be expected during a period of adjustment.
- Long-term changes in the rate of erosion due to the construction of the Little Jackfish River Project should be minor.

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The lower part of the Little Jackfish River has many examples of eroded banks caused by the Diversion.

● MITIGATION AND MONITORING

The most important measure available to reduce the amount of sediment in Ombabika Bay is the reduction of high, uncontrolled flows down the Little Jackfish River. The planned automation of Summit Control Dam will give Ontario Power Generation greater ability to control and schedule flows. The construction of the Little Jackfish Dam will also help reduce the amount of sediment reaching Ombabika Bay by trapping sediment above the dam.

During construction, the upstream side of the dam will be protected with rip rap to minimize erosion of the dam bank. Ontario Power Generation and the Lake Nipigon First Nations will develop an *Erosion and Sediment Control Plan* for this Project, and will ensure the plan be strictly followed during construction.

As part of a larger monitoring team, the Lake Nipigon First Nations will have trained members who will regularly monitor Ombabika Bay for increased sedimentation. This will be done in conjunction with other fisheries monitoring to take place both during and after construction. If erosion levels in the Little Jackfish River system are found to be higher than predicted and are affecting the Lake Nipigon fishery, the Lake Nipigon First Nations will seek compensation from Ontario Power Generation or the partnership.



This slump occurred in July 2009 in the lower portion of the Little Jackfish River. Events like this are rare, but are examples of what can still occur on the relatively new Little Jackfish River system.

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WAASKIINAYSAY ZIIBI DEVELOPMENT CORPORATION



For complete details please refer to the full Environmental Report. This summary has been prepared to assist Lake Nipigon First Nation Citizens to understand the Project. If there are any discrepancies between this document and the Environmental Report, the Environmental Report will prevail.