Gull Lake stabilization project

Gull Lake hydrology

The *Water Act* regulator (Environment and Protected Areas) requires a variety of components for the application to lift the licence suspension. This includes:

- a study to review the hydrology of the lake.
- the general impacts of pumping on lake levels
- to assess different pumping scenarios and their effects on lake levels over time.

The results from the study may be used to modify other aspects of the water licence, including pumping timing, rates, volumes and trigger elevations that will make the overall system more effective.

Hydrology and pumping study summary

The assessment was undertaken by Northwest Hydraulic Consultants (NHC). The intent of the work was to determine the benefits to lake levels from a variety of different pumping scenarios and, the cost of the scenarios based on power requirements and typical energy costs.

The current water pumping regime has used a “trigger” lake elevation of 898.93 metres as the condition to begin pumping and a target elevation of 899.16 metres to stop pumping. The report concluded that this historical pumping has increased the lake level compared to what the level would have been without pumping over the same period.

One scenario modelled by the consultant showed that by raising the trigger elevation to just below the target elevation, the pumps would be on more frequently and would pump slightly more water, on average. In this scenario, the overall average lake levels were higher, and there was less variability around the target elevation.

Another scenario assessed the maximum benefit achievable based on pumping whenever water supplies in the Blindman River were sufficient to allow pumping. This scenario assumed no annual maximum volume. It showed that pumping had the potential to significantly increase lake levels over time. Although not a realistic scenario, it shows that there is significant potential for pumping to raise levels in the lake.

Overall, the NHC study showed that pumping can significantly affect lake levels and can be a useful tool in stabilizing the levels in Gull Lake.