

Summary of the Water Management Presentations for 2016 Annual Meeting

On Saturday September 10th 2016, CEWF held its annual communications meeting in Haliburton with the representatives of our member associations. What follows is a brief summary of the water management related presentation by members of the CEWF Executive and representatives of the Trent-Severn Waterway (TSW). We have also attached the full set of slides presented to the meeting by both CEWF and TSW.

2016 – A year of Weather and Some Water Level Extremes

High Water with Ice in Spring 2016

Spring 2016 saw many reservoirs reach record or near record water levels with ice still on the lakes. As reported on the CEWF Website in early March, TSW began filling the reservoirs early on the basis of the limited snowpack and the early spring melt in order to capture the available water. By mid-March the reservoirs had captured the snowmelt and had risen to about 70% full (See TSW Slide of Haliburton Storage) with ample storage to accommodate normal spring rains. However the last half of March in Haliburton turned out to be very wet with monthly precipitation totals almost 2.5x normal levels. Even more significantly in the last 8 days of March the Haliburton weather station recorded 97 mm (~ 4 inches) of rain with some areas receiving over 125mm. The extreme rainfall far exceeded the capacity of the rivers to pass water downstream and TSW made the strategic decision to spread the water out by increasing storage in all reservoirs above the full level. Lakes rose quickly to near record levels while the downstream flows were managed to pass water as quickly as possible. In the Burnt River Reservoirs and the Central Reservoirs (Crystal, Mississagua, Anstruther, Eels and Jack's lakes) immediate log removals relieved the high water within a few days. On the Gull River managing flows to avoid flooding in Minden meant the high levels on upstream reservoirs were maintained longer. There were reports of significant damage from ice and high water across the reservoir area and CEWF is preparing a report documenting the damage based on the information we have received.

The CEWF was supportive of the TSW decision to partially fill the reservoirs earlier than normal. In their presentation TSW presented data to show how short the forecast warning time was for the unexpected extreme storm events at the end of March. Given the circumstances it appears the extreme levels were unavoidable since filling reservoirs with the available snow runoff is a recognized priority and there was not enough warning time to allow that process to be reversed before the storms hit.

CEWF noted that based on climate change projections and our experience in recent years with some low snow winters followed by early melt and spring storms, residents need to recognize that the risk of high water with ice on the lakes is now greater than in the past. Leaving lakes at lower levels until later in the spring is not a viable option as it increases the risk of low lake level extremes through the navigation season of May to early October. Waterfront property owners may need to rethink our shorelines and avoid constructing structures that are susceptible to ice damage with high water.

Extreme Drought and Water Management Challenges May to August 2016

Late spring and summer 2016, from mid-April through to the 12th of August, saw extreme drought conditions over the entire Trent River basin. CEWF presented Environment Canada data documenting that precipitation at Peterborough was 187mm below normal for the period as they only received 31% of their normal rainfall. At Haliburton the short fall was 125mm and they only received 59% of normal precipitation.

Based on the long range weather forecasts in the spring, TSW made the strategic decision to store as much water as possible throughout the Trent system. The reservoirs were kept higher than normal through May and June, The Kawartha lakes and Rice Lake were overfilled and the flow on the Otonabee River and on the Trent River was reduced to minimum flow by the end of May.

In the reservoirs only the minimum flows on both the Gull system and the Burnt system were maintained, but with very little rain reservoir levels began to decline particularly on the Burnt where reservoirs are smaller and storage is very limited. In the central lakes where there are no minimum flow protocols, reservoir levels were held high in reserve. Some spotty rainfall over some areas helped replenish some of the reservoirs in June and July. TSW managed the logs in our dams very closely to store whatever precipitation fell.

Drawdown began in late June but was limited until early August when the TSW began to draw from the higher Central Lakes. The Forecast issued on August 8th was for draws of up to half a metre over two weeks from some reservoirs. Prospects were for reservoir levels to fall well below seasonal normals. But on August 13 there was significant rainfall across the Trent basin followed by more rain on the 16th. TSW responded very quickly to the rainfall by replacing logs and bringing reservoir levels back to seasonal levels or higher.

TSW presented data on slide 63 which illustrates seasonal fluctuation across the reservoirs. The graphs show how low some reservoirs in the Burnt system fell during July as a result of minimum flows and how those lakes were given priority to fill once rains came. In contrast the graph also illustrates how the storage in the higher Central lakes was drawn heavily at the beginning of August. In all areas the relief provided by the rains on and after August 13 is clearly illustrated.

On reflection the strategy adopted by TSW in May to hold all reservoirs high along with the higher than normal levels and minimum flows on the Kawartha Lakes and downstream resulted in minimizing the impacts from the extreme drought across the entire TSW including the reservoirs. We were very fortunate that circumstances allowed for early strategic decisions and that in the end rain came just when the extreme draw on the reservoirs was beginning. We avoided what could have been very low levels by the end of our season.

Additional water management related reports from the CEWF Executive were presented dealing with our efforts to document the damage from Ice and flooding in spring 2016, and our initiatives to draw together existing reservoir- specific information which will help us to quantify potential impacts from extreme low water levels.

An update was also presented on the new Upper Trent Water Management Partnership (UTWMP). The UTWMP is a new partnership of the 6 local municipalities in Haliburton and Northern Peterborough Counties and CEWF with the primary objective of working towards integrated water management planning across the entire Trent watershed.

The full slide set from the meeting is available [here](#).