Parks Canada - Ontario Waterways

Trent-Severn Waterway
National Historic Site of Canada

Township of Minden Hills
July 18th, 2017
Water Management Interests

- Navigation and recreational interests
- Public Safety and Flood Mitigation
- Environment (Wildlife and Fishery)
- Water Supply
- Green Energy
Trent and Severn Watersheds
Monitoring Network

Level gauges on the Kawartha Lakes, Haliburton Reservoirs, and the Severn River system

- 100 Manual Level Gauges (weekly/daily readings)
- 90 Automatic Level Gauges (daily/hourly readings)
- 12 Flow Gauges: rated level gauges, flow meters
- 11 Rainfall Accumulation Gauges
Gull River – Upstream of Minden

Diagram showing the order of lakes from Gull Lake to Minden.
Annual Cycle of Operation – Reservoir Lakes

1. Set winter stoplog settings at most dams.
2. Use snow survey results and other data to show whether early refilling is necessary.
3. Monitor the spring rise of the lakes and adjust the dams accordingly.
4. Aim to have the lakes full by the end of Spring.
5. Draw water according to the need for navigation (equal percentage basis). A computer model is utilized to aid this process.
6. Set the dams to their winter settings in the fall.
Rainfall – April, May

- Monthly Average for April 75.6 mm
- Monthly Average for May 93.3 mm
# Winter/Spring Precipitation

**Haliburton**

<table>
<thead>
<tr>
<th>Month</th>
<th>Ppte Total mm</th>
<th>Rain mms</th>
<th>Snow cms</th>
<th>Normal Monthly Total mms</th>
<th>Actual as % of Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 Nov.</td>
<td>53</td>
<td>42</td>
<td>10</td>
<td>116</td>
<td>46%</td>
</tr>
<tr>
<td>2016 Dec.</td>
<td>153</td>
<td>19</td>
<td>134</td>
<td>87</td>
<td>176%</td>
</tr>
<tr>
<td>2017 Jan.</td>
<td>82</td>
<td>29</td>
<td>53</td>
<td>100</td>
<td>82%</td>
</tr>
<tr>
<td>2017 Feb.</td>
<td>100</td>
<td>45</td>
<td>55</td>
<td>73</td>
<td>137%</td>
</tr>
<tr>
<td>2017 March</td>
<td>83</td>
<td>69</td>
<td>14</td>
<td>75</td>
<td>111%</td>
</tr>
<tr>
<td>2017 April</td>
<td>144</td>
<td>131</td>
<td>13</td>
<td>75</td>
<td>192%</td>
</tr>
<tr>
<td>2017 May</td>
<td>190</td>
<td>189</td>
<td>1</td>
<td>93</td>
<td>205%</td>
</tr>
<tr>
<td>2017 June</td>
<td>168</td>
<td>168</td>
<td>0</td>
<td>81</td>
<td>207%</td>
</tr>
</tbody>
</table>
Overfilled Lakes – During Event

- Lakes were near full following the completion of the Spring Runoff (mid April)
- Lakes were set to absorb average to above average rainfall
- Lakes did not have sufficient storage available to absorb the severe rainfall that occurred
Timeline of Event

• Spring freshet (snow-melt) was done by mid April
• 72.8 mm rainfall event from April 30 to May 2
• 55.6 mm rainfall event from May 4 to May 6
Timeline of Event Continued

• Calls with partners began in the beginning of May

• Significantly increase outflow at Twelve Mile, Horseshoe and Gull Lake to make as much storage as possible

• Reduced outflow from upstream locations and overfilled lakes above to provide Minden with preparation time

• The peak came through Minden on May 12

• The peak flow observed at Norland was similar to 2013
TSW Improvements

Enhanced Communications

- Daily phone calls with MNRF for watershed status updates to their support public flood forecasting and messaging
- Advanced warning for the Township of Minden Hills
- Daily phone calls with Minden Hills reps regarding dam operations, expected time of peak, in to assist with their emergency response
- Frequent daily updates on the Parks Canada website and through email distributions for the public

Automated Gauge Network Improvements and Inflow forecasting

Infrastructure Investment - $59M in dam improvements in Haliburton

Engaging stakeholders – CEWF, cottage and lake associations, WMAC
Continued Areas for Potential Improvement

- Understanding Climate Change and potential impacts
- Flood mapping for the region to improve flood forecasting and development planning
- Flood resistance of private and public property
Thank You

Ontario Waterways