

# Cowichan Watershed Board Meeting – Review of conditions at lake Cowichan

June 25, 2018,  
Presentation by Brian Houle

# Aerial view of Lake Cowichan Weir

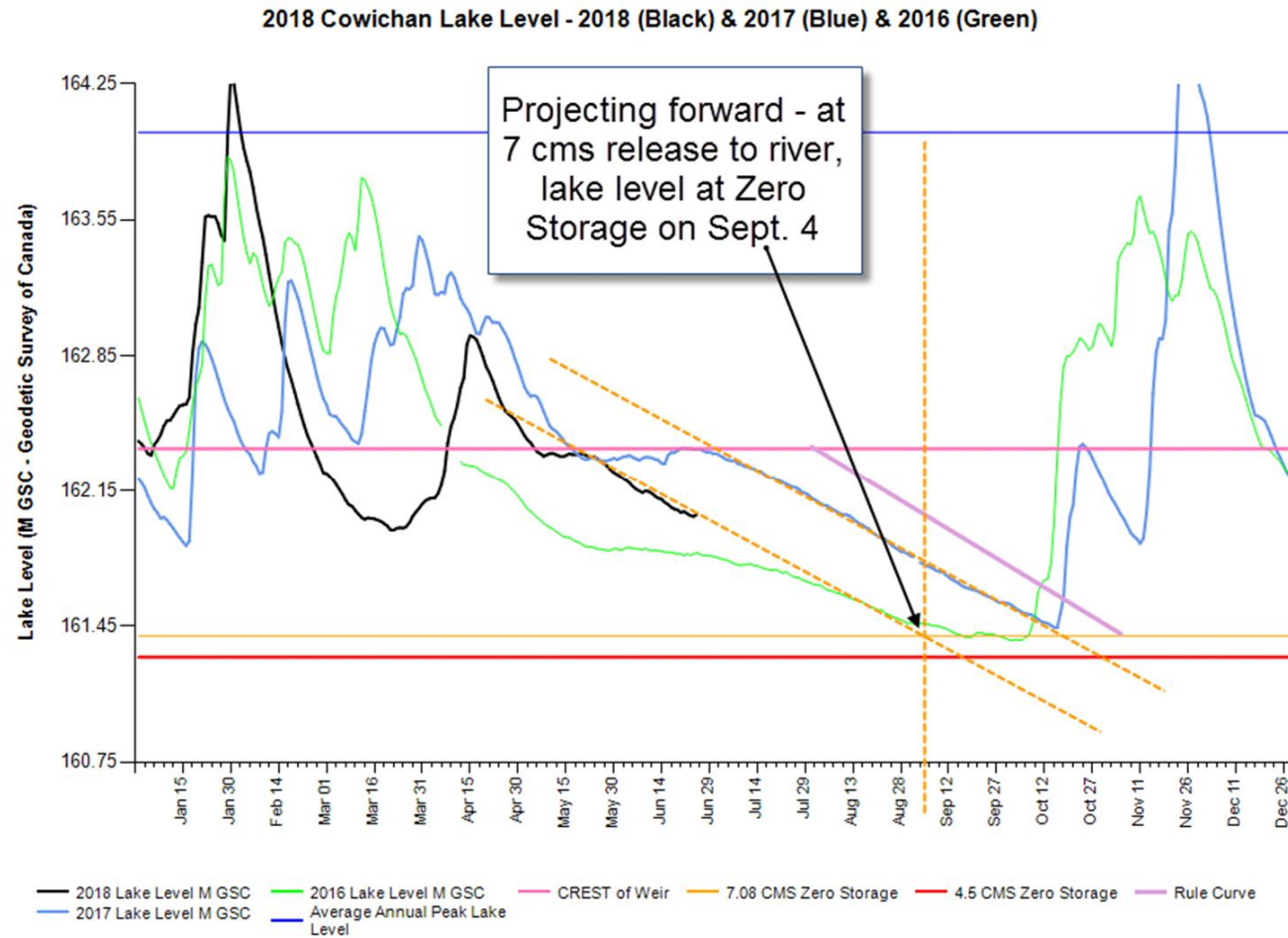


Catalyst

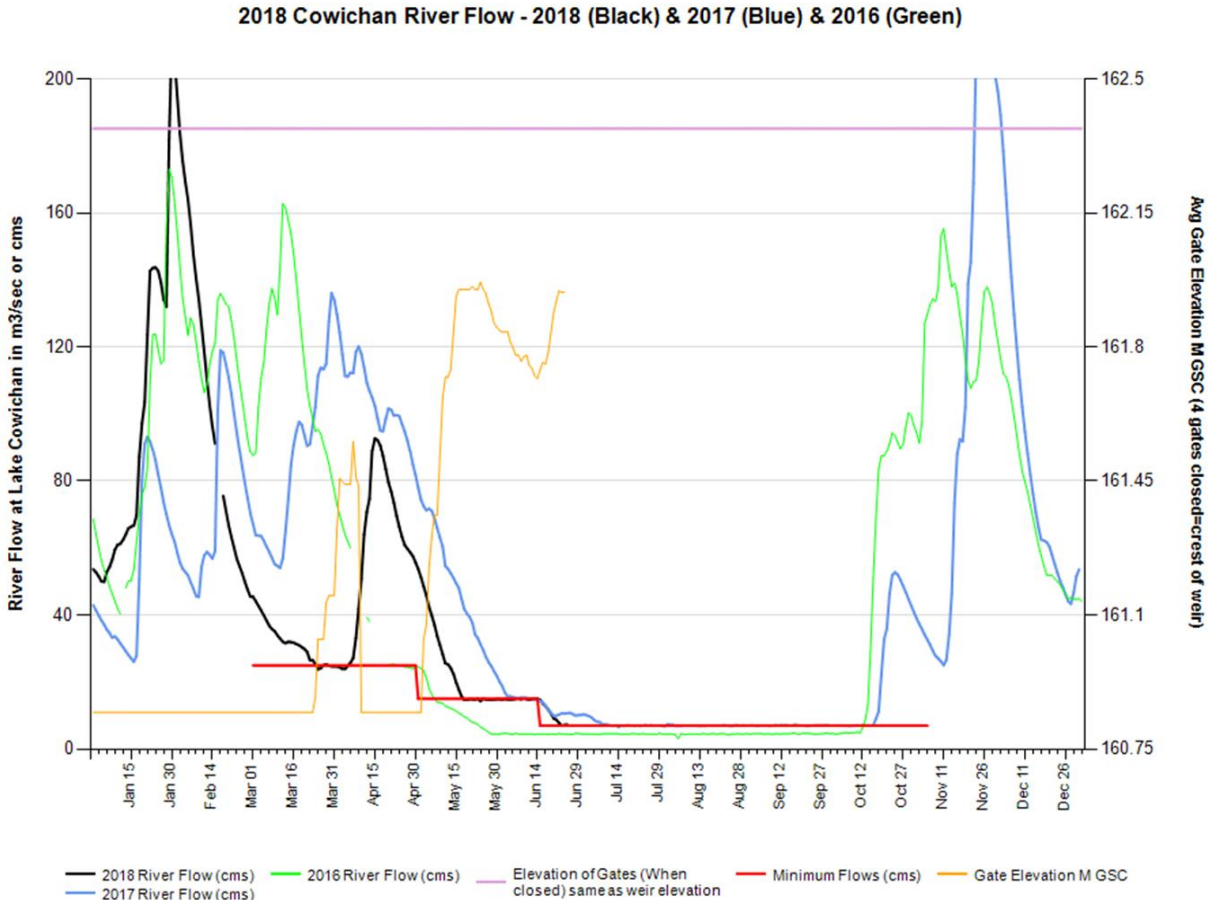
Fresh thinking on paper



# Lake level projection to fall shows inadequate inventory to sustain 7 cms

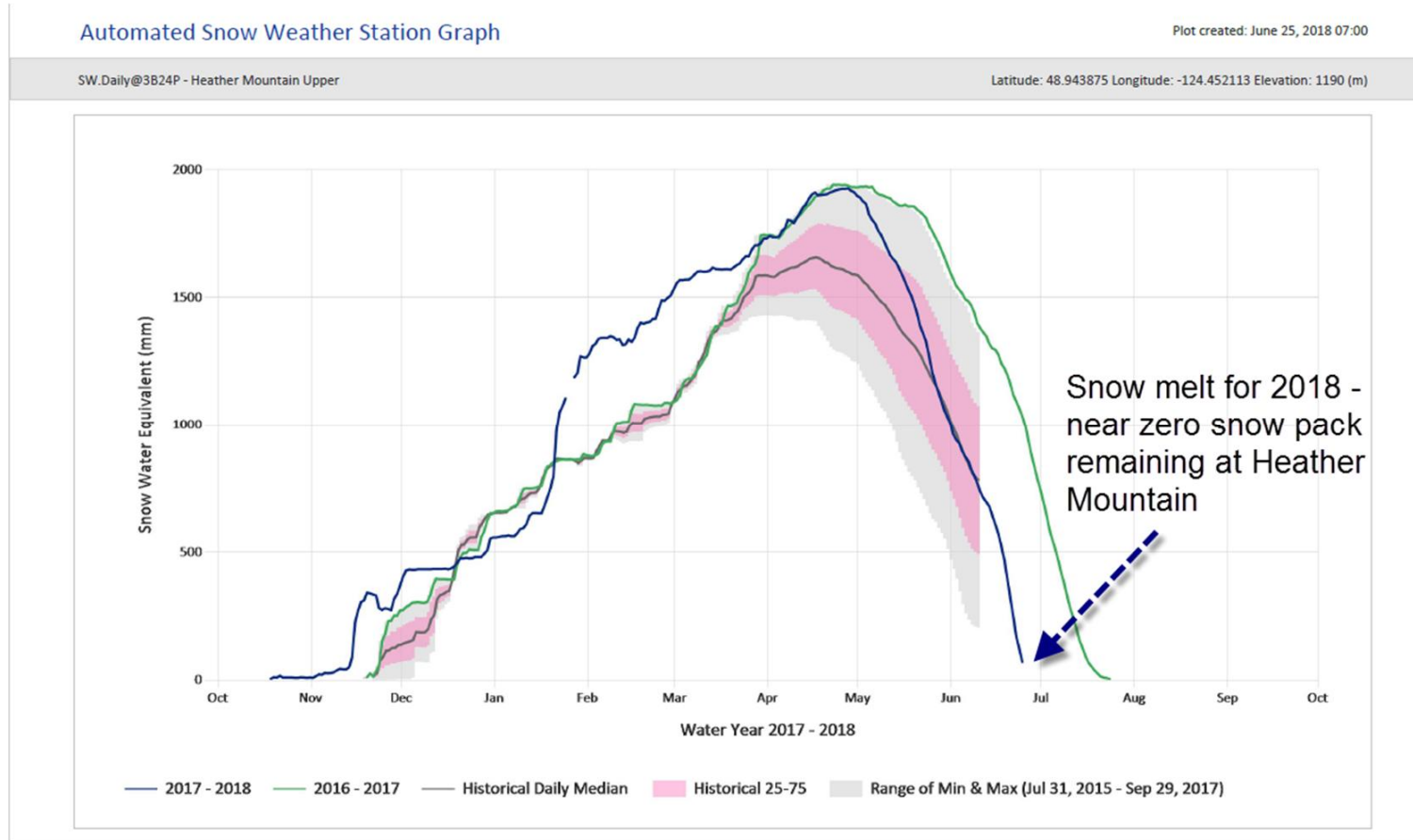


# Release of water from lake being controlled to license minimum 7.08 cms



# Heather Mountain snow pillow

2018 showing similar conditions as 2017 – except the earlier warmer weather and snow pack melting sooner



Catalyst

Fresh thinking on paper

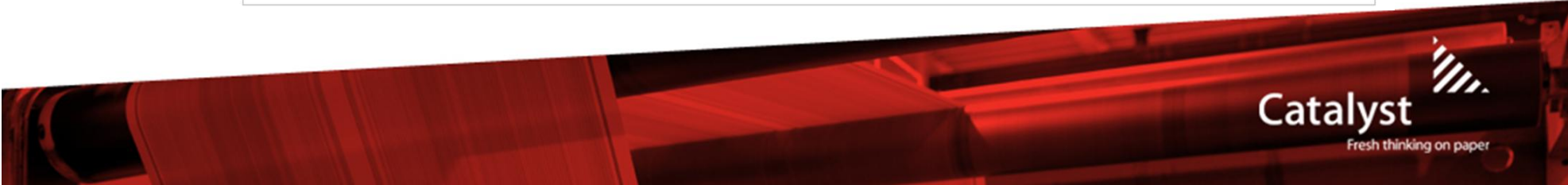
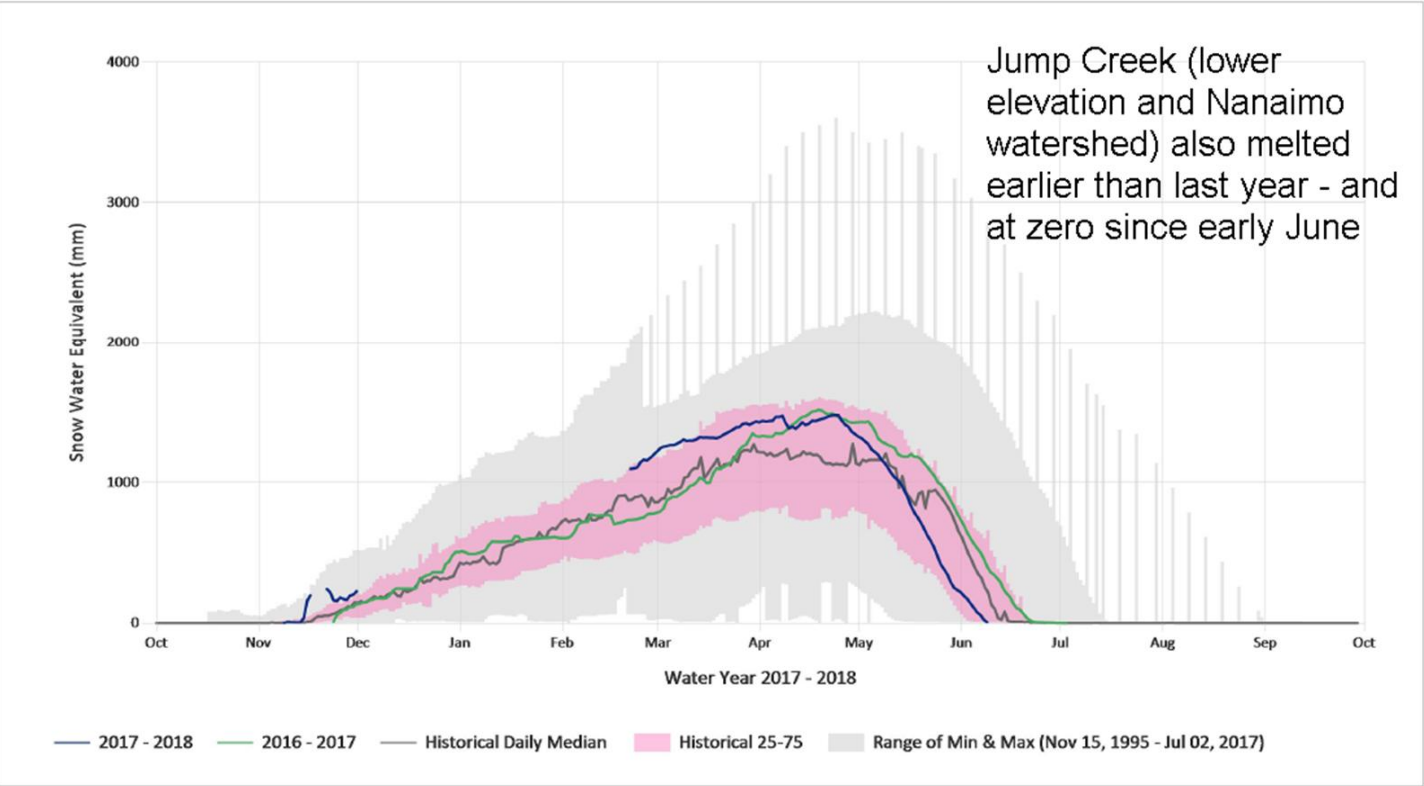
# Jump Creek snow pillow showing similar situation as Heather Mtn: 2018 was similar to 2017 except for earlier warmer weather

Automated Snow Weather Station Graph

Plot created: June 25, 2018 07:00



SW.Daily@3B23P - Jump Creek








Latitude: 48.982776 Longitude: -124.271111 Elevation: 1160 (m)





# Weather Forecast for coming week does not indicate much rainfall but does include rain

Next 7 Days  

|                  | Tue<br>06/26   | Wed<br>06/27  | Thu<br>06/28  | Fri<br>06/29  | Sat<br>06/30  | Sun<br>07/01  | Mon<br>07/02  |
|------------------|--|---|---|---|---|---|---|
|                  | A mix of sun and clouds  | Cloudy with showers   | Cloudy with showers   | Chance of a shower  | A mix of sun and clouds   | Chance of a shower  | Mainly sunny  |
|                  |  |  |  |  |  |  |  |
|                  | 17° 9°   | 17° 10°   | 14° 11°   | 16° 10°   | 18° 11°   | 21° 10°   | 21° 10°   |
| Feels like       | 17   | 17  | 13  | 16  | 20  | 23  | 22  |
| POP              | 20 %   | 40 %  | 40 %  | 40 %  | 30 %  | 40 %  | 10 %  |
| Wind (km/h)      | 7 w  | 9 sw  | 11 w  | 14 w  | 14 sw   | 10 sw   | 8 w   |
| Wind gust (km/h) | 11   | 14  | 17  | 21  | 21  | 15  | 12  |
| Hrs of Sun       | 9 h  | 4 h   | 3 h   | 7 h   | 6 h   | 8 h   | 12 h  |
| 24 Hr Rain       | -  | ~1 mm   | ~1 mm   | ~1 mm   | <1 mm   | ~1 mm   | -   |

# Kerr Wood Leidal projections

Not enough  
water in  
lake to  
sustain 7  
cms @ 10<sup>th</sup>  
% inflows  
through  
dry season

Cowichan Lake 2018 Forecast

Inflow Condition 1 - 10th Percentile Inflow

| Date water level drops below ZSL for given flow |                  |                    |
|---|------------------|--------------------|
| Minimum Release                                 | 7 cms (161.40 m) | 4.5 cms (161.29 m) |
| 7   | Aug 22           | Aug 31             |
| 5   | Sep 07           | Sep 18             |
| 4.5   | Sep 12           | Sep 24             |

From trend/table, scenario of reducing flow to 4.5 cms results in Zero level on Sep 12, and then 4.5 cms on Sep 24 - begin pumping

Figure 1a - Forecast Cowichan Lake Water Levels

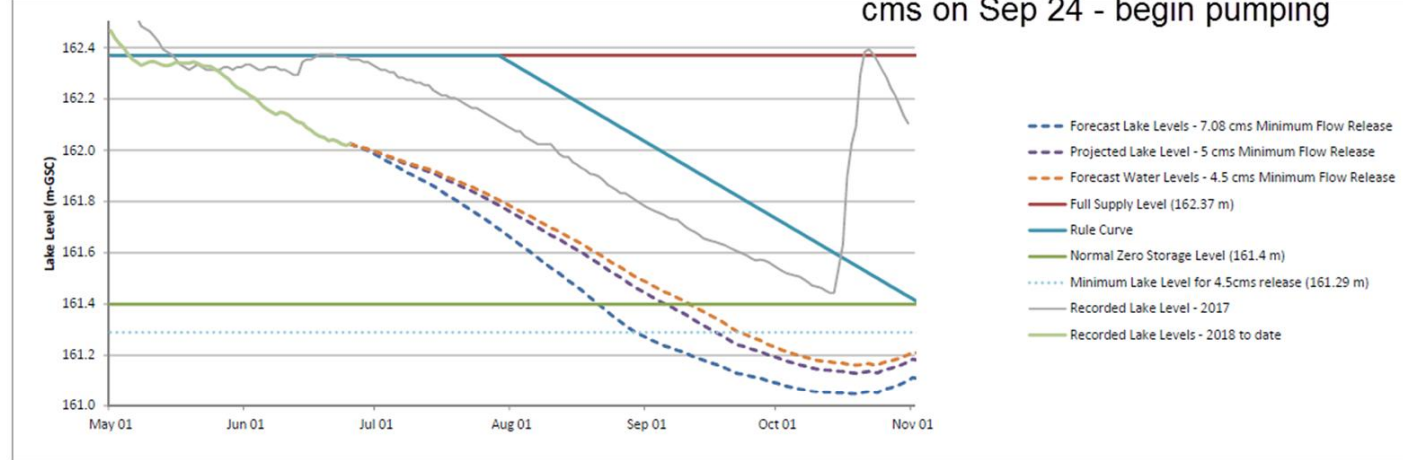
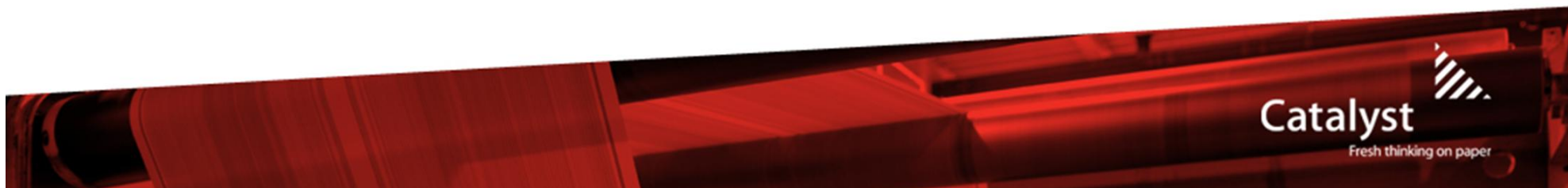
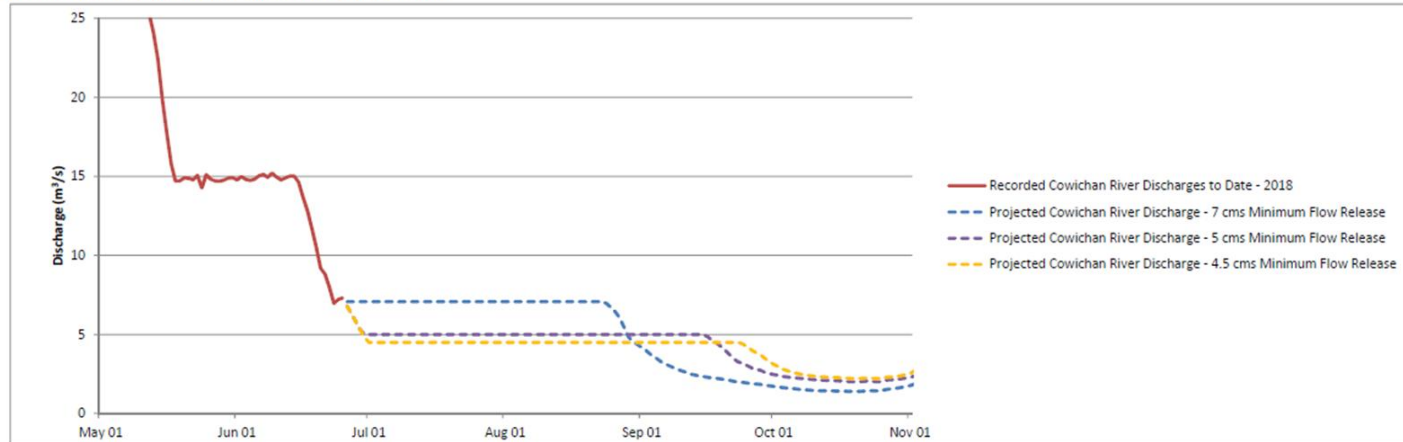


Figure 1b - Forecast Cowichan Lake Flow Releases to Cowichan River





Projections based on 2017 summer weather (more rainfall) equates to - if at 4.5 cms it is not likely that pumping will be needed

Cowichan Lake 2018 Forecast

Inflow Condition 2 - Summer 2017 Inflow

| Date water level drops below ZSL for given flow |                                |                                  |
|---|--------------------------------|----------------------------------|
| Minimum Release (m <sup>3</sup> /s)             | 7 m <sup>3</sup> /s (161.40 m) | 4.5 m <sup>3</sup> /s (161.29 m) |
| 7   | Sep 10                         | Sep 25                           |
| 5   | Oct 22                         | N/A                              |
| 4.5   | Nov 06                         | N/A                              |

If 2018 weather is like 2017 (more rain) - a flow reduction to 4.5 cms to Nov 6 and not at Zero level - and no pumping needed

Figure 2a - Forecast Cowichan Lake Water Levels

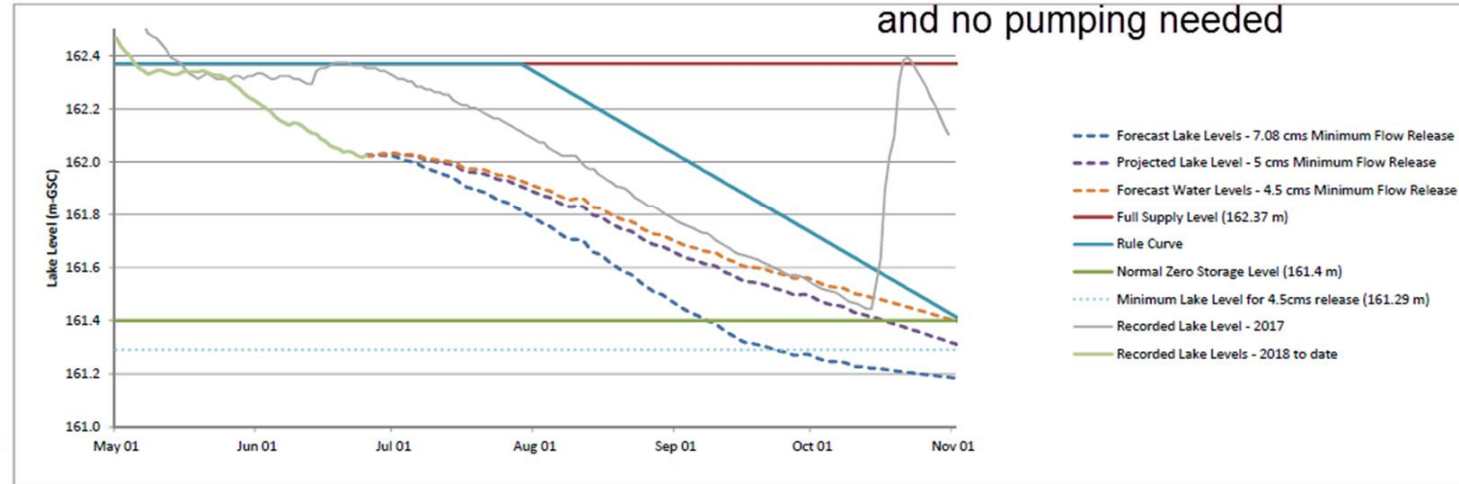
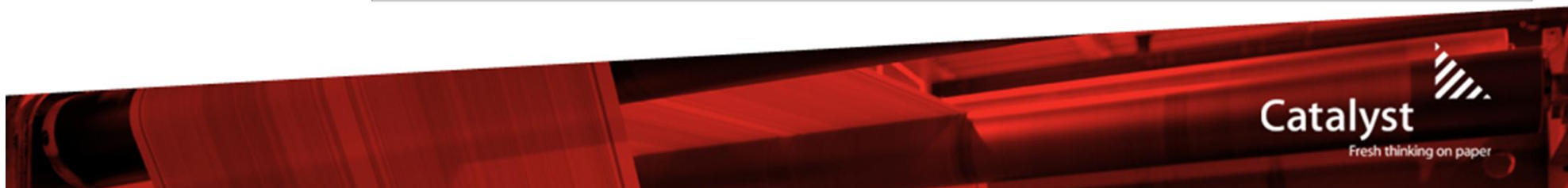
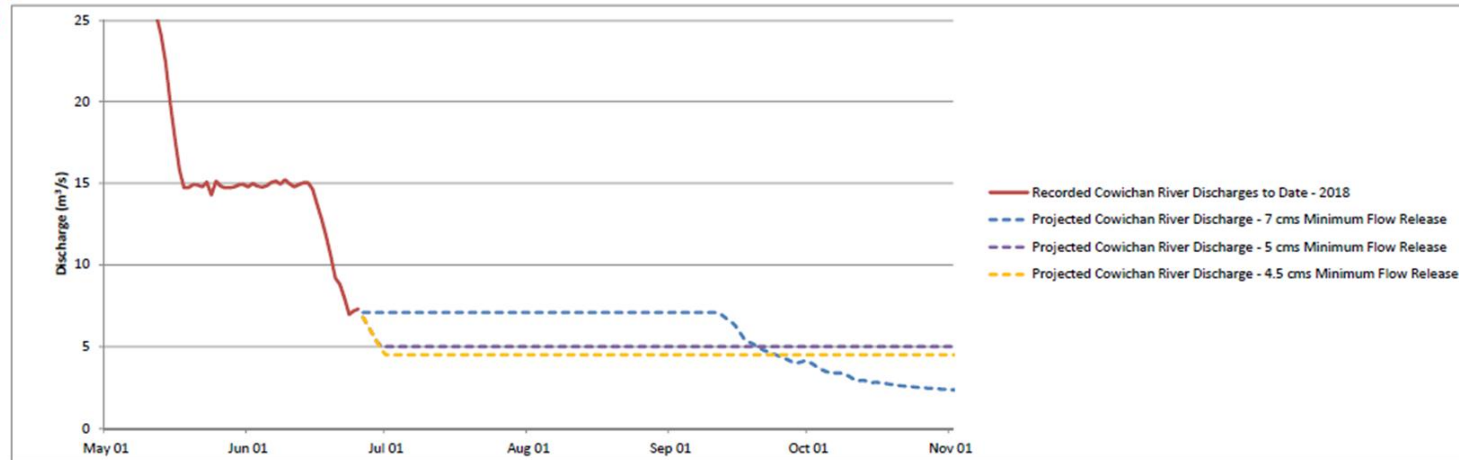


Figure 2b - Forecast Cowichan Lake Flow Releases to Cowichan River



## 2018 Conditions review – plan forward

- Boat Lock put into operation on March 21 with storage beginning prior to April 1.
- Off control early April when rainfall refilled lake
- On control again on May 1 and after May (driest May on record) and early warm weather, lake has dropped to now alarm low levels.
- With lake at 64% full, not have enough water to sustain 7 cms through to end of dry season
- Begin discussion for lower release flows from Lake Cowichan – 4.5 cms will allow sustained river flow for added 24 days: “last day of 4.5 cms / all gates 100% open” from August 31 to September 24.