CATALYST
CROFTON
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# Update of watershed conditions to Cowichan Watershed Society

July 29, 2019

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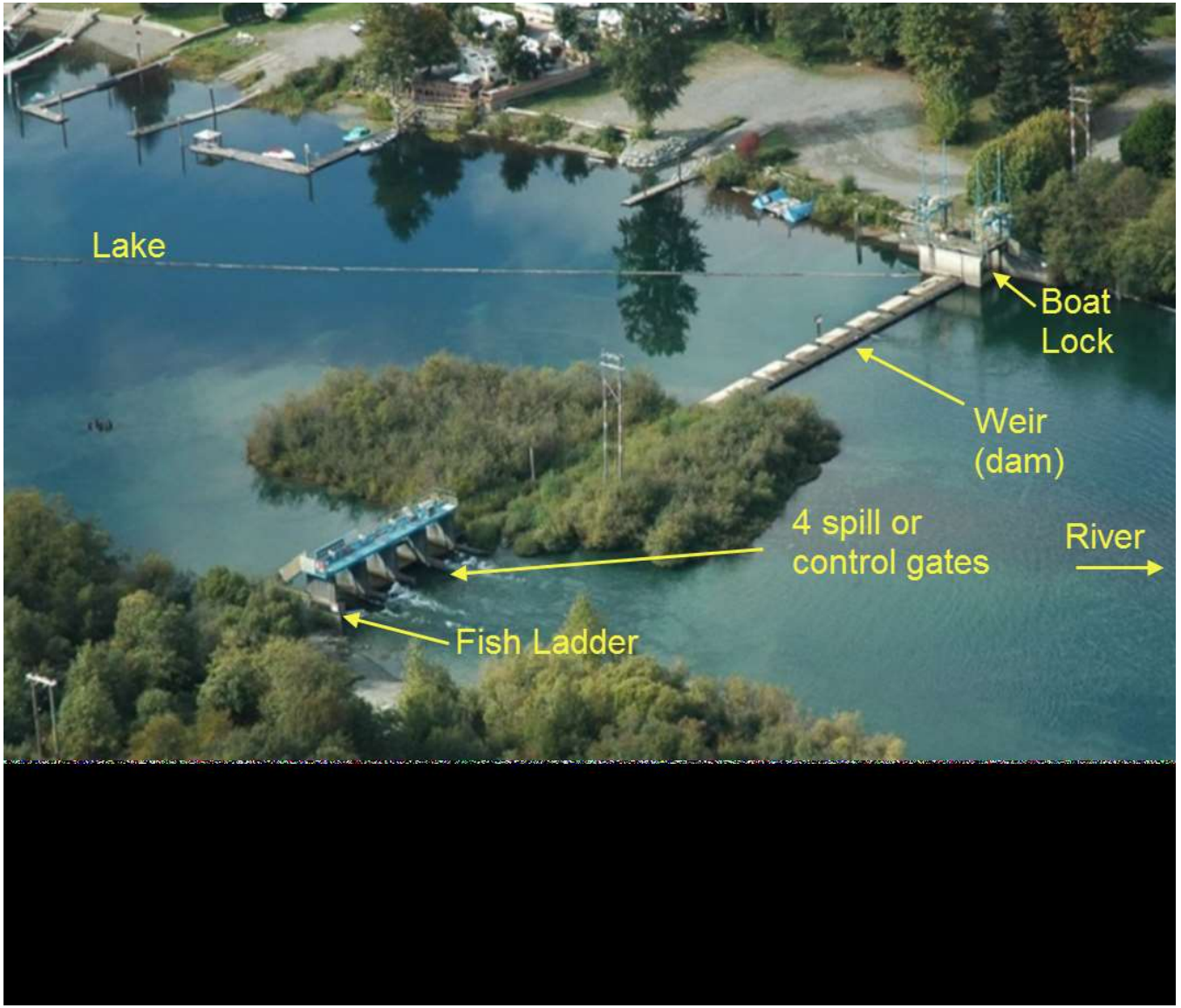
# Aerial view of Lake Cowichan Weir



# Kerr Wood Leidal lake level projections.

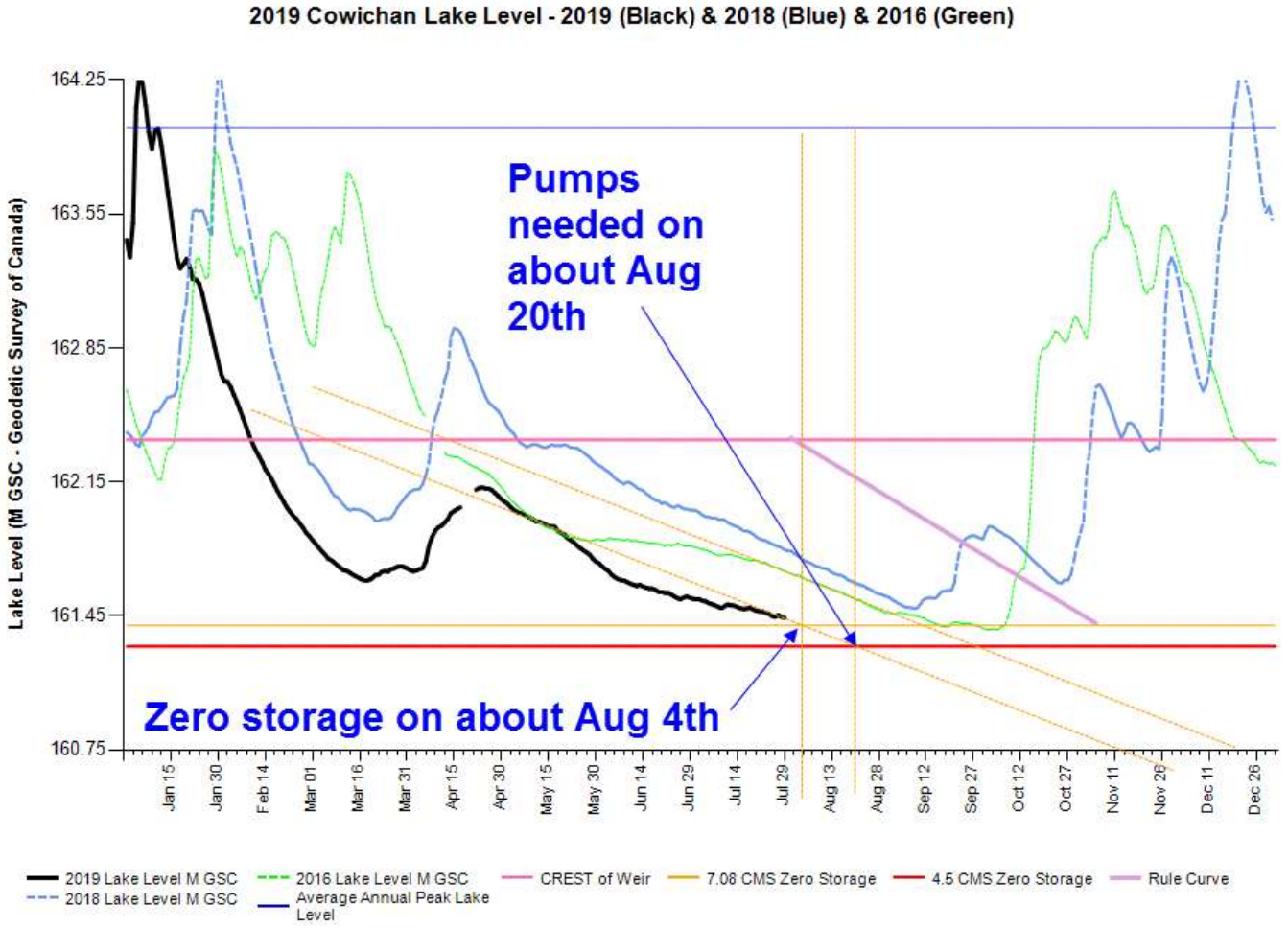
## Since projection was done (late June), weather has been between 10th and 20th % wet – lake now expected to be at "Zero Storage" on Aug 1 and 1st day of pumping expected on about Aug 17.

**Table 2 - Summary of Results**

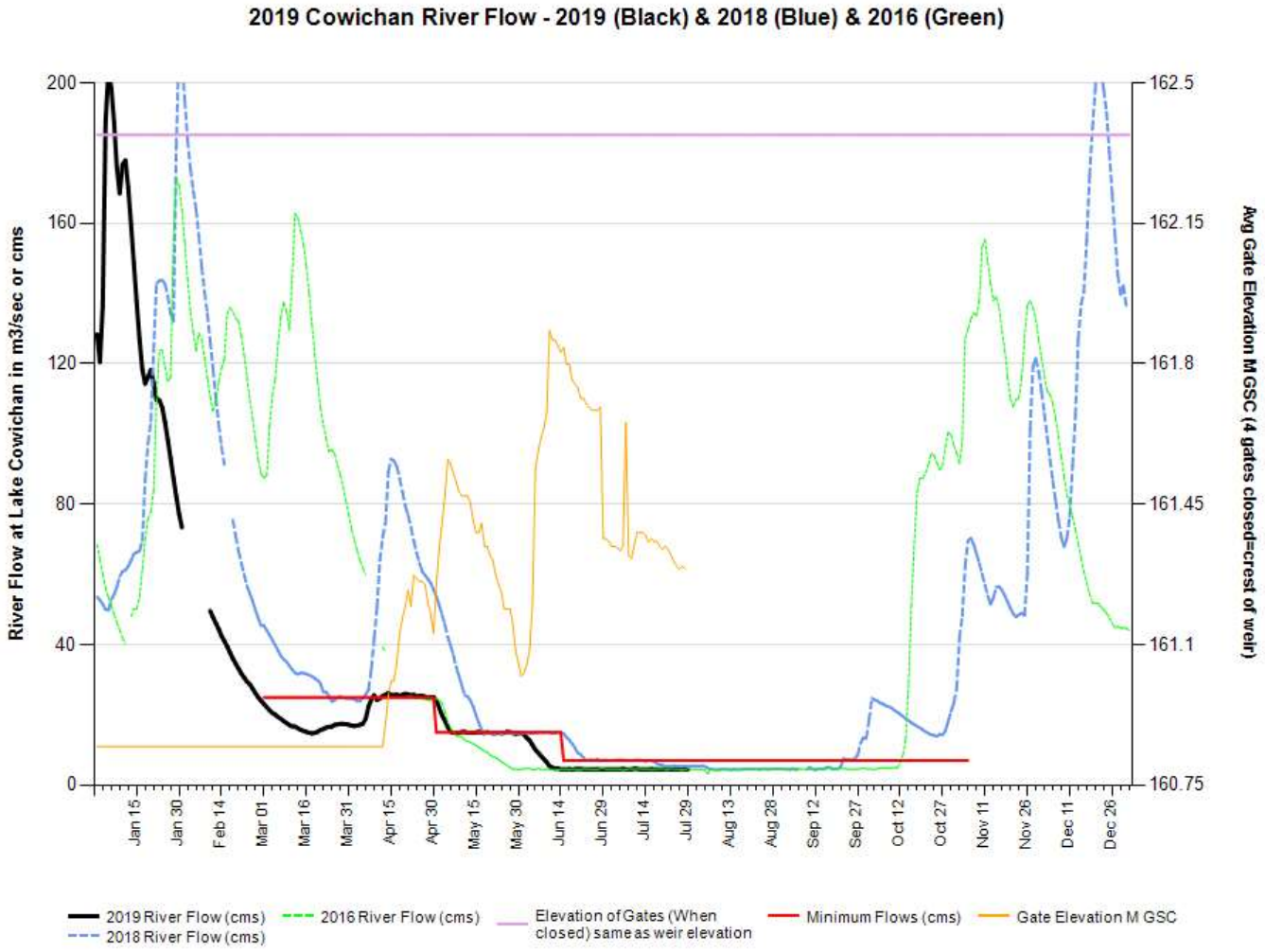
| Outflow Release Scenario | Assuming 4.5 m3/s flow release/pumping | | | | |
|---|---|---|---|---|---|
| | Date Lake Level Below Zero Storage Level (161.4 m) | First Day of Pumping (Lake level < 161.29 m) | Number of Days of Pumping | Last Day of Pumping | Lowest Lake Level (m) |
| 1 - 10th-percentile inflow (Very dry conditions) | Jul 26 | Aug 7 | 118 | Dec 2 | 160.66 |
| 2 - 20th-percentile inflow (dry conditions) | Aug 7 | Aug 27 | 79 | Nov 8 | 160.96 |
| 3 - 30tth-percentile inflow (below average conditions) | Aug 22 | Sep 9 | 45 | Oct 25 | 161.17 |

Note: Inflow conditions based on calculation of daily percentile Cowichan Lake inflows from the entire period of record (1953 to 2017 or 65 years)

# There has been rainfall in recent weeks and pumping now expected to begin on about August 20th (if weather stays dry)



# 2019 flow program with flow currently holding at 4.5 cms



# Rain predicted for 6 to 7 days out. There is still opportunity for rainfall this summer

Next 7 Days

| | Sat 07/27 | Sun 07/28 | Mon 07/29 | Tue 07/30 | Wed 07/31 | Thu 08/01 | Fri 08/02 |
|---|---|---|---|---|---|---|---|
| | A mix of sun and clouds | Mainly sunny | Mainly sunny | Chance of a shower | A mix of sun and clouds | Light rain | Cloudy with showers |
| | 19° | 23° | 23° | 20° | 20° | 19° | 19° |
| Feels like | 20 | 25 | 25 | 20 | 21 | 20 | 19 |
| Night | 13° | 13° | 13° | 13° | 13° | 13° | 13° |
| POP | 20 % | 20 % | 20 % | 40 % | 20 % | 70 % | 70 % |
| Wind (km/h) | 13 W | 7 N | 7 SW | 12 SW | 9 S | 6 SW | 6 SW |
| Wind gust (km/h) | 20 | 11 | 11 | 18 | 14 | 9 | 9 |
| Hrs Of Sun | 9 h | 9 h | 11 h | 6 h | 7 h | 3 h | 2 h |
| 24 Hr Rain | - | - | - | <1 mm | - | 1-3 mm | ~5 mm |

# Preparations for pumping

- 20 pumps installed in lake and adjacent to weir
- Pumps have been trial operated with Environmental Monitor (EDI) present to observe
- Full trial of pumps to deliver 4.5 cms to river to be scheduled in advance of needing to pump
- EDI Environmental Dynamics will provide environmental oversite during pumping
- Final approval needed for project is from DFO and relating to the SARA listed Vancouver Lamprey. DFO expects to issue that authorization to EDI and Catalyst very soon

# Resolving new intake for Town of Lake Cowichan water system

- Meeting with Town and staff of water filtration plant allowed resolution of concerns for new design of siphon – the use of pumps in lake were eliminated based on discussion with Town
- Meeting with Town and interested citizens (200+) to discuss new siphon went very well in part due to the meeting at water intake structure held in advance of town hall meeting.
- Final re-design of new siphon to be reviewed with Town of Lake Cowichan for comments prior to Health Authority review, final approval and installation.

# Managing hazards to navigation

- Lake Bathymetry file being processed by EDI GIS Technician. Plan will include highlighting areas of lake that require hazard markers to ensure boater safety – as lake level declines
- Coast Guard Canada and Transport Canada are assisting with program to address hazards to navigation that are created by pumping lake
- Catalyst working with local fishing guide who is very familiar with Lake Cowichan to deploy the hazard markers in the lake and to monitor lake for uncharted hazards like dead heads.

# Communication Plan

- Communication plan includes letters to each resident on lake front property, notices posted in local news printed media, road sign on highway as you enter Lake Cowichan area and posted notices in prominent places around the lake including marinas.
- Coast Guard Canada will also be providing public safety announcements relating to this project and are working collaboratively with Catalyst to ensure appropriate messaging
- Catalyst now using Facebook and public access website to communicate pumping project details

# Draft road side sign and next slide shows media/bulletin board notice

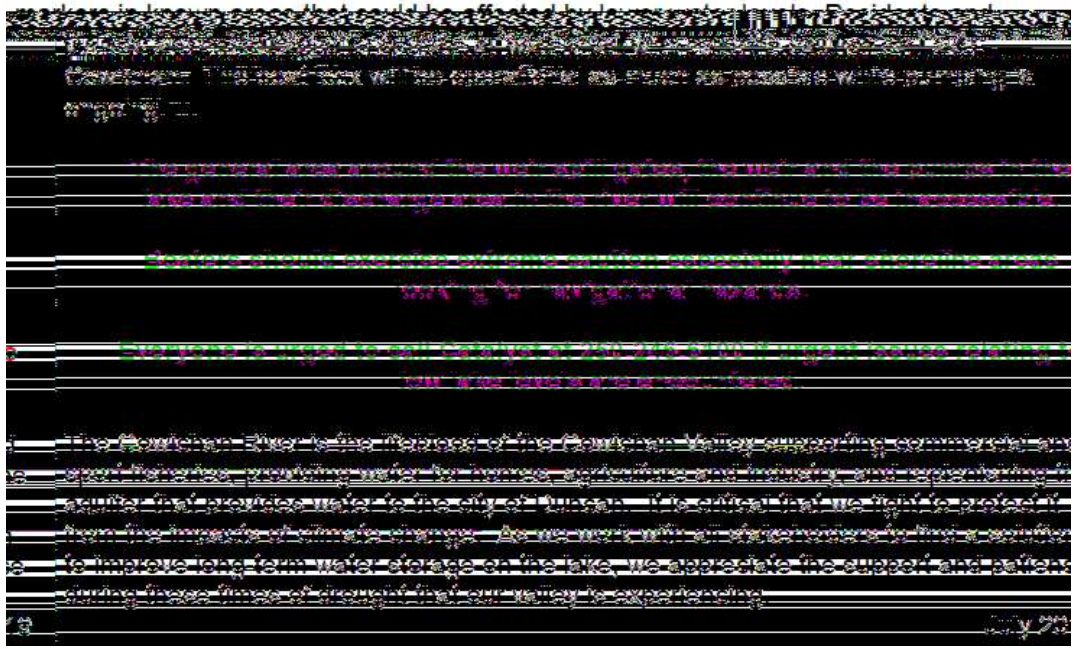
## Lake Cowichan Pumping Advisory

The Cowichan Basin has experienced eleven droughts since 1998 and 2019 is the most extreme year ever to experience spring water shortages. This has led to record low lake levels and severely reduced flows in the river.

The BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development has authorized Catalyst Crofton to pump water from Cowichan Lake into the Cowichan River. As per direction from authorities, water will be pumped at a rate designed to maintain current flow conditions in the river. Depending upon weather conditions, pumping will begin approximately in mid-August and will continue until seasonal rainfall brings the lake back up to a sustainable level.

Best efforts will be made to minimize any impacts from this action to protect the Cowichan River and the Lake. Catalyst Crofton has engaged a qualified environmental professional (QEP) to provide oversite and surveillance during pumping operations. The QEP will monitor impacts to the lake shoreline area, with a particular focus on fish and fish habitat.

It is possible that the lower levels on Lake Cowichan will uncover unexpected navigational hazards. Catalyst will monitor conditions on the lake and will attach hazard



# Thank you – Any questions?