

Review of 2023 watershed conditions after a very difficult dry year

Oct 30, 2023

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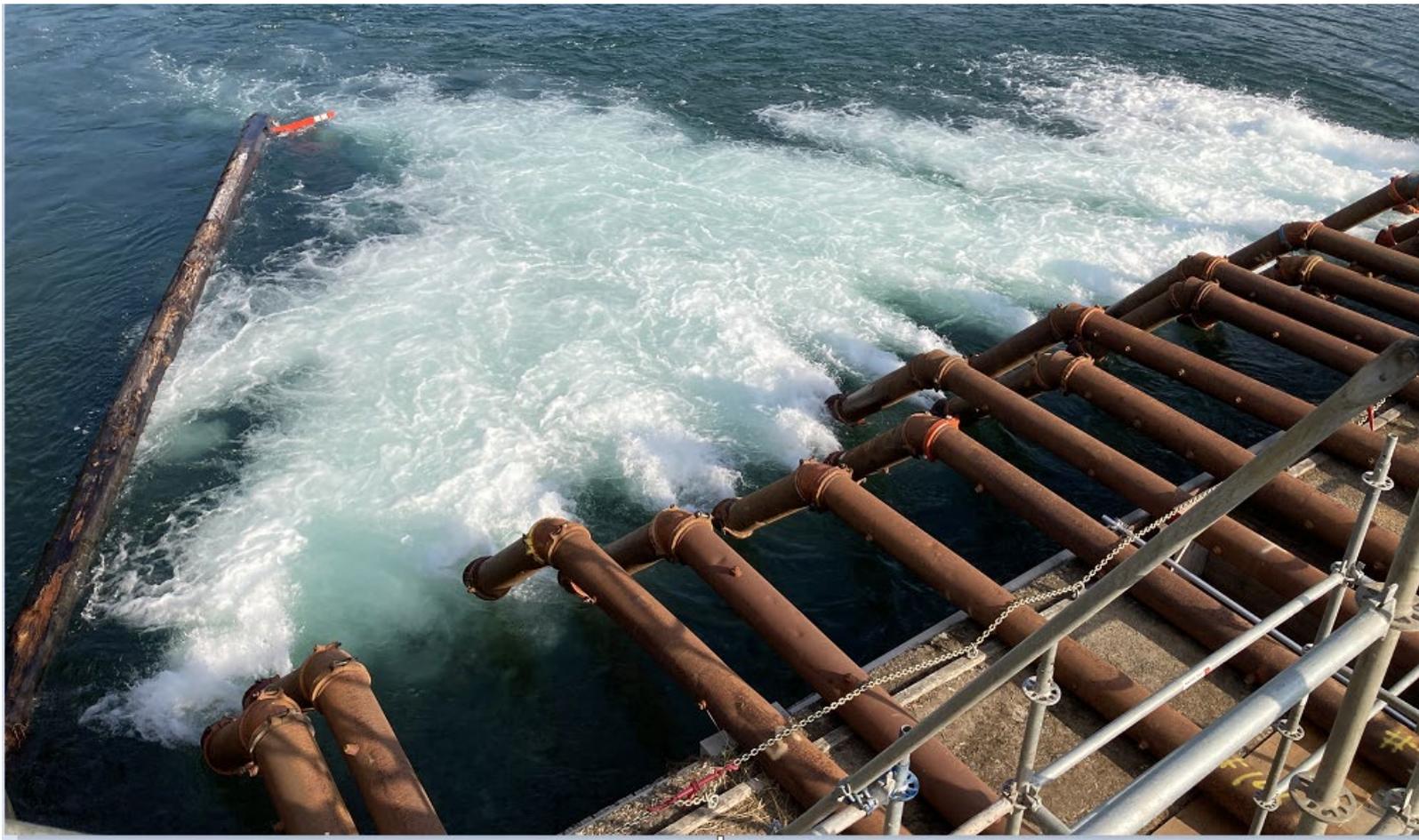
Aerial view of Lake Cowichan Weir



Lake side of pump operations

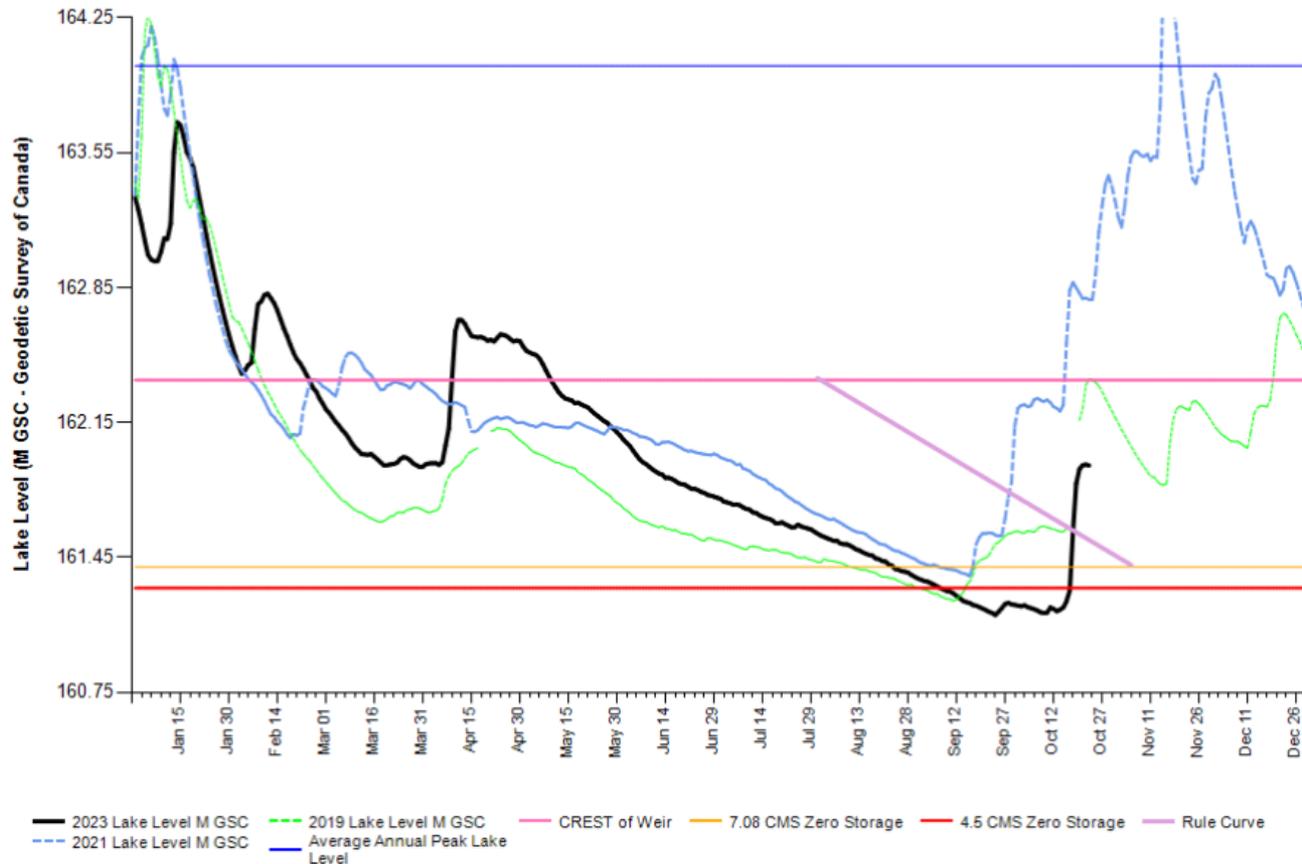


River side of pump operations



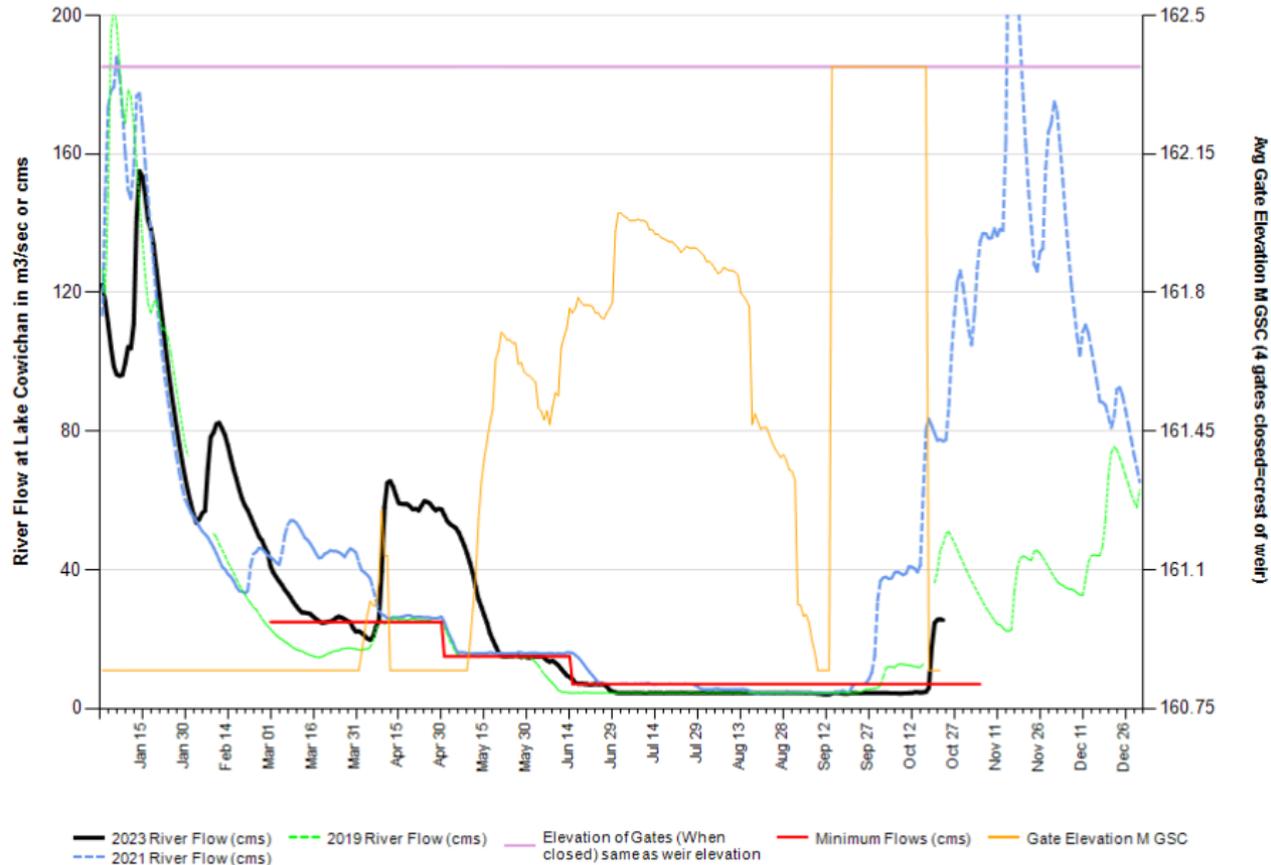
2023 brought lowest lake level ever for lake, lower than in 2019

2023 Cowichan Lake Level - 2023 (Black) & 2021 (Blue) & 2019 (Green)



2023 included flow down to 4.5 cms since July 1

2023 Cowichan River Flow - 2023 (Black) & 2021 (Blue) & 2019 (Green)

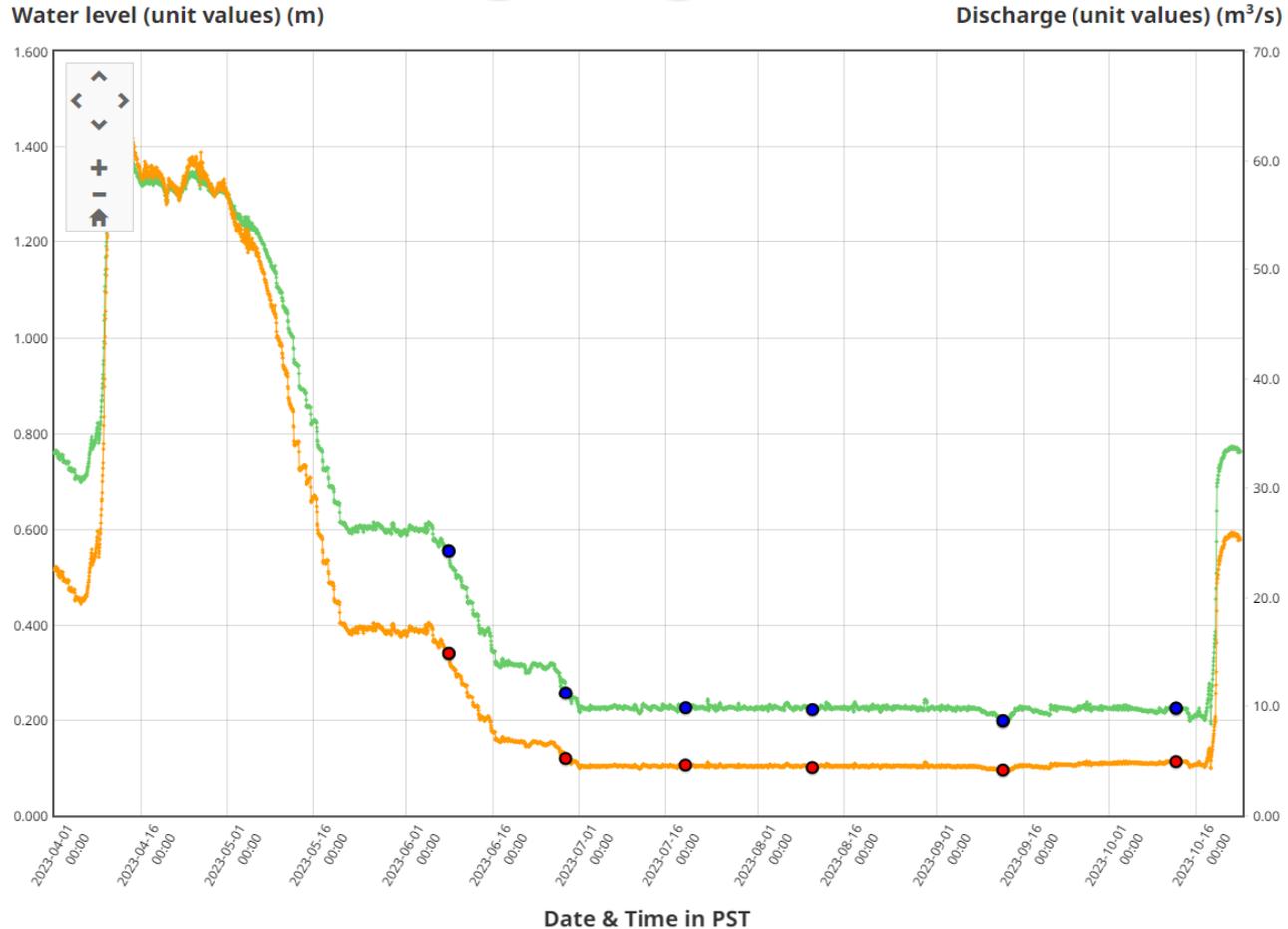


2023 lake level trends appeared to show faster rate of decline as compared to previous years

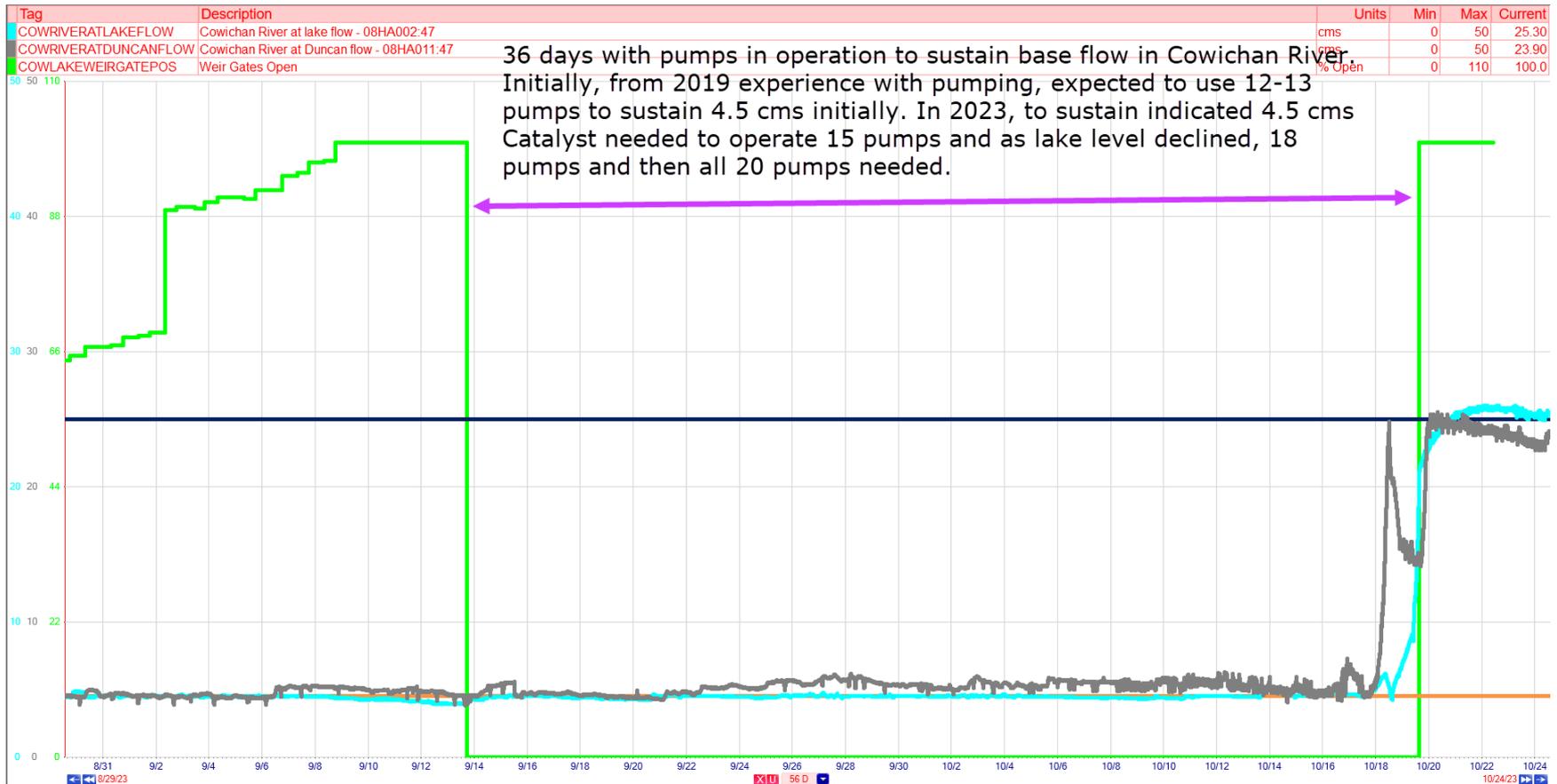
- ▶ Comments from others flagged concern for how fast lake level was dropping, earlier in spring and while flows were at 25 and 15 cms – ?
- ▶ This was again observed while at 4.5 cms flow, with suspicion that the flow in 2019 or the flow in 2023 was not as indicated – either 2019 the flow was less than 4.5 cms or in 2023 the flow is higher than 4.5 cms – flow double checked and confirmed 4.5 cms by independent flow measurement?
- ▶ During WSC technician visit to river on October 12, while gauge was showing 4.5 cms – WSC measured 4.9 cms and corrected flow table to read 4.5 cms, indicating possible issue
- ▶ Further review of this is needed – to fully understand if issues with calibration of gauge 08HA002 – river at lake outlet
- ▶ Water Survey of Canada technicians attended the gauge 6 times in 2023, evenly spaced out through the season.



Water Survey of Canada attended gauge 08HA002, 6 times in 2023 to ensure the gauge is accurate

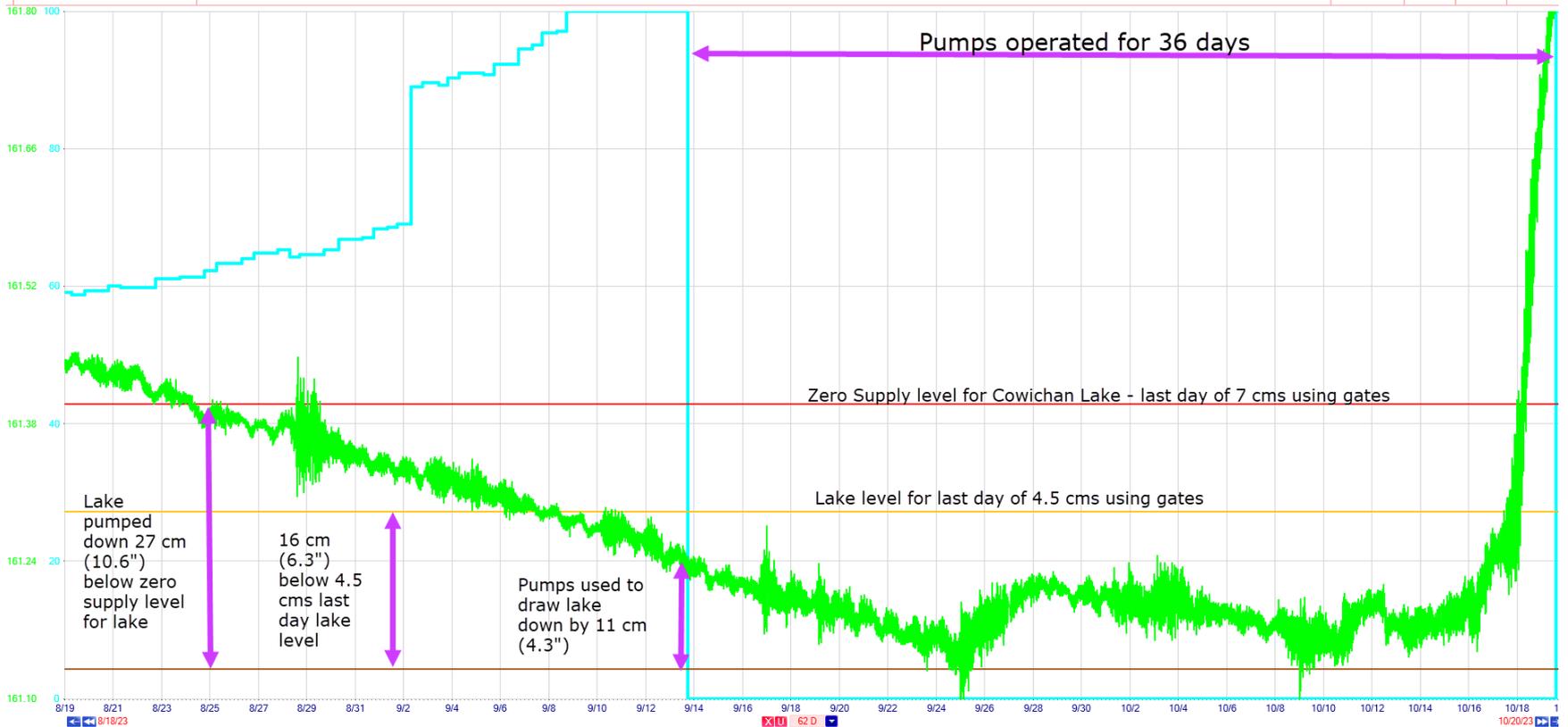


2023 pumping program went on for 36 days, vs 21 days in 2019



36 days of pumping, and lowest lake level was 161.13 M GSC

Tag	Description	Units	Min	Max	Current
COWLAKELEVEL_M_GSC	Cowichan Lake Level M GSC	M GSC	161.10	161.80	161.91
COWLAKEWEIRGATEPOS	Weir Gates Open	% Open	0	100	100.0



The proposed new dam would have contained enough water to prevent the need for pumps @ 2023



How much water was available, if we could have stored the over supply in April of 2023

- ▶ 36 days @ avg release flow of 53 cms when river only needed 25 cms = 28 cms could have been retained in the lake, for release later in summer
- ▶ 36 days of 28 cms stored in the lake is equivalent to 144 days of 7 cms in river – and that is water that was released in April
- ▶ If the new dam were in place in 2023, there would have been no need to use pumps to sustain 7 cms all summer – as we were at or below 7 cms for 124 days in 2023



Environmental Dynamics provided qualified professional support for both river flow reduction and for use of pumps to draw down lake

- ▶ Technical reports from EDI will be provided later, after compiling the various reports
- ▶ And amazing support from all the volunteers who help to steward the Cowichan River through these difficult drought years
- ▶ Catalyst Paper spent over \$500,000 to provide pumps and QP services for river/lake



Thank you

