

20 September 2022

Eastern Region Fish and Game

Private Bag 3010

Rotorua 3046

Bay of Plenty Regional Council

PO Box 364

Whakatāne

Email: Courtney.Bell@boprc.govt.nz

Dear Courtney

Lower Kaituna Wildlife Management Reserve - Additional Water Supply Culvert

Following final commissioning of the Kaituna River Re-Diversion Project February 2021, this letter provides you with an update on the current position of **Eastern Region Fish and Game** with regards to the water levels in the Lower Kaituna Wildlife Management Reserve (Reserve) and the requirements of Condition 23 of Resource Consent 67958 for the Project not to reduce water inflow into the Reserve.

Requirement for an Additional Culvert

Condition 23 set out the process for the three parties; the consent holder, Bay of Plenty Regional Council (Coastal Catchments) and the two affected parties, Department of Conservation and Eastern Region Fish and Game, to progress monitoring and an investigation into the requirements for an additional water supply culvert.

Condition 23.4 required the additional culvert to be installed prior to commencing Stage 1 commissioning of the Project.

Agreement from the three parties to defer the installation of the new culvert was agreed until sufficient monitoring data was available to quantify the effects on the water levels in the Reserve following final commissioning of the Re-Diversion Project.

Wetland Water Level Monitoring Programme

Background

Additional temporary water level monitoring sites have been installed across the Reserve, on the Kaituna River, and the adjacent Te Pourepo O Kaituna Wetland to assess effects from the Re-Diversion project. These sites add to the existing network of level and flow sites maintained by Regional Council for operational and environmental monitoring purposes. Data from the sites has been continuous since installation. The consent holder has engaged RiverSpace Ltd

(Roger Waugh) to undertake an independent analysis and present the findings to all parties. Roger Waugh has also been in contact with **Eastern Region Fish and Game** to get our observations and for us to have input into the requirements for the analysis.

Figure 1 shows locations of water level loggers. Live data can be accessed via the Environmental Data Portal on the regional council website <https://www.boprc.govt.nz/environment/maps-and-data/environmental-data>.

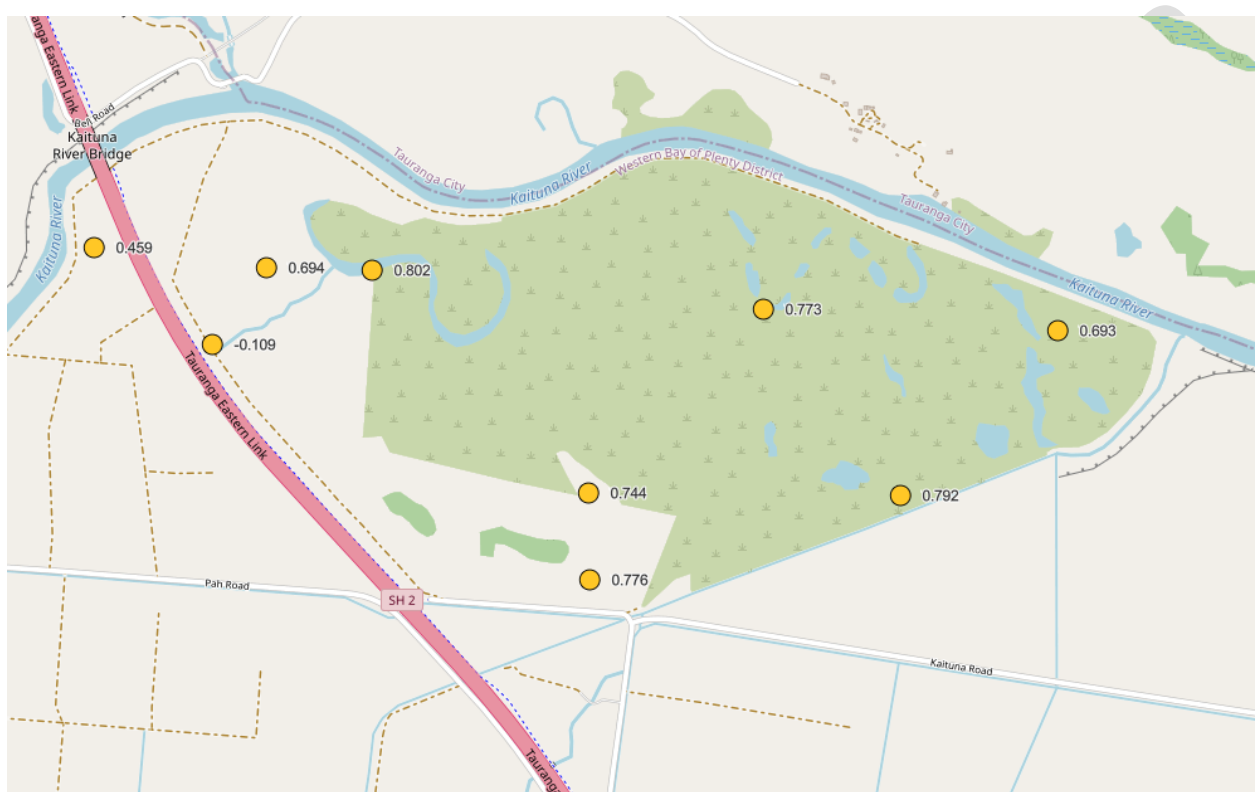


Figure 1 - location of water level loggers within Lower Kaituna Wildlife Management Reserve and Tumu Kawa block

Results

An analysis of water levels pre and post commissioning of the re-diversion project has been carried out covering key sites to understand any change in water levels affecting water supply to the wetland. Additionally, information of inlet culvert closures since the re-diversion commissioning has been collected so these periods can be excluded from the analysis. Unfortunately, information relating to inlet culvert closures is not available for pre diversion data to also exclude from the analysis, however this period does cover a much greater period of record to analyse.

Exceedance Duration – Time Weighted

Site 4, positioned on the main oxbow and the most central site, is the long-term monitoring site within the Reserve. The site was installed Oct 2008 for operational purposes to provide information to close gates during storm events. It has also provided real time water levels since installation. Records from this site have been archived as raw data, no quality control or

processing has been undertaken. External staff gauge checks of the recorded data occur on a non-frequent basis.

Data from this site provides a comparison of pre and post Re-diversion levels and is the key to understanding any changes in water levels since full opening of the re-diversion gates on 12 February 2021.

An analysis of exceedance duration – time weighted, has been carried out across the entire record with results being split on the 12 February 2021 to allow a pre vs post comparison. The results show that since opening of the re-diversion gates water levels have not reduced within the Reserve. The in the lower 50% of water levels are now higher than recorded pre diversion. Figure 2 shows this comparison.

This increase is attributed to the optimisation of existing inlets and internal reticulation detailed below.

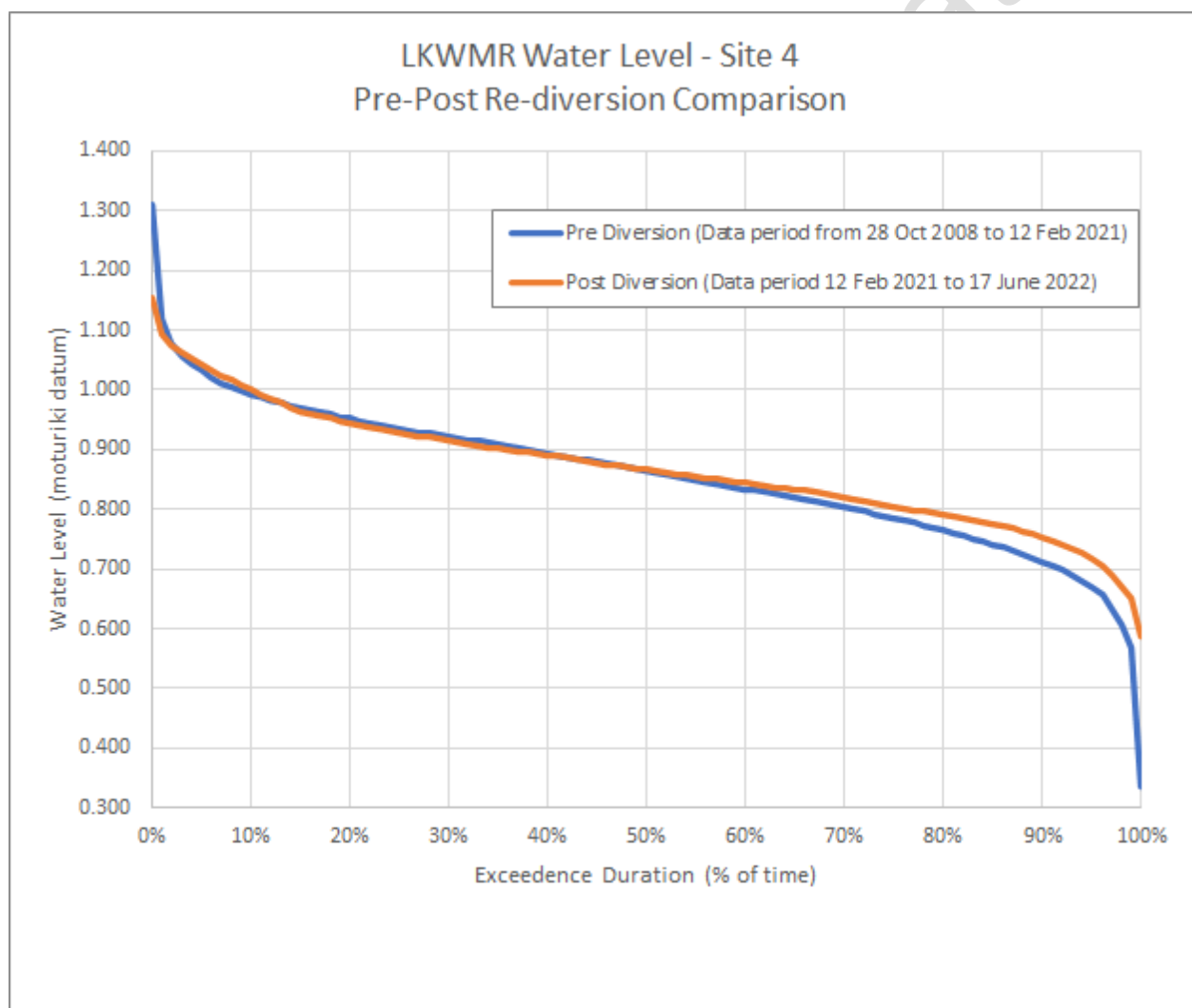


Figure 2. LKWMR Site 4 exceedance duration – time weighted

Summer Levels

Summertime is when wetlands dry due to low rainfall and high evapotranspiration. An analysis of levels in January 2017 and January 2022, periods of similar low rainfall also show daily average water levels have not reduced since the re-diversion commissioning. The average monthly water level in January 2022 is 0.84m compared with 0.79m in January 2017.

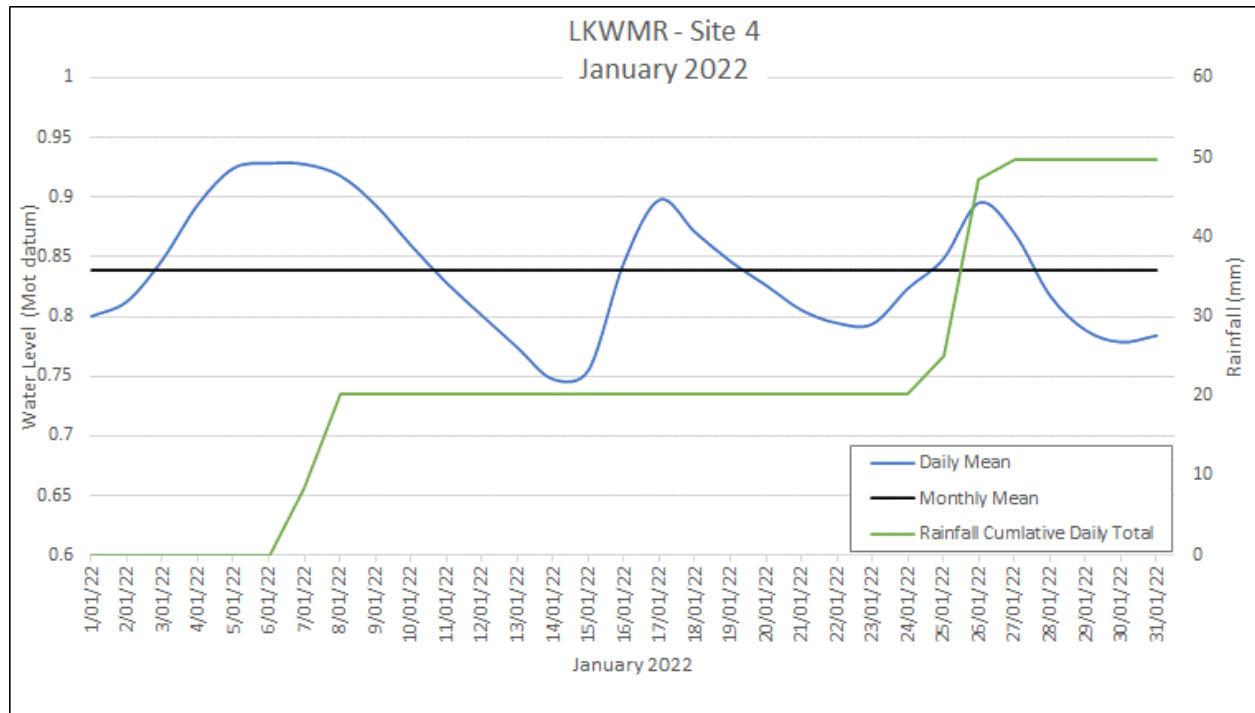


Figure 3. January 2022

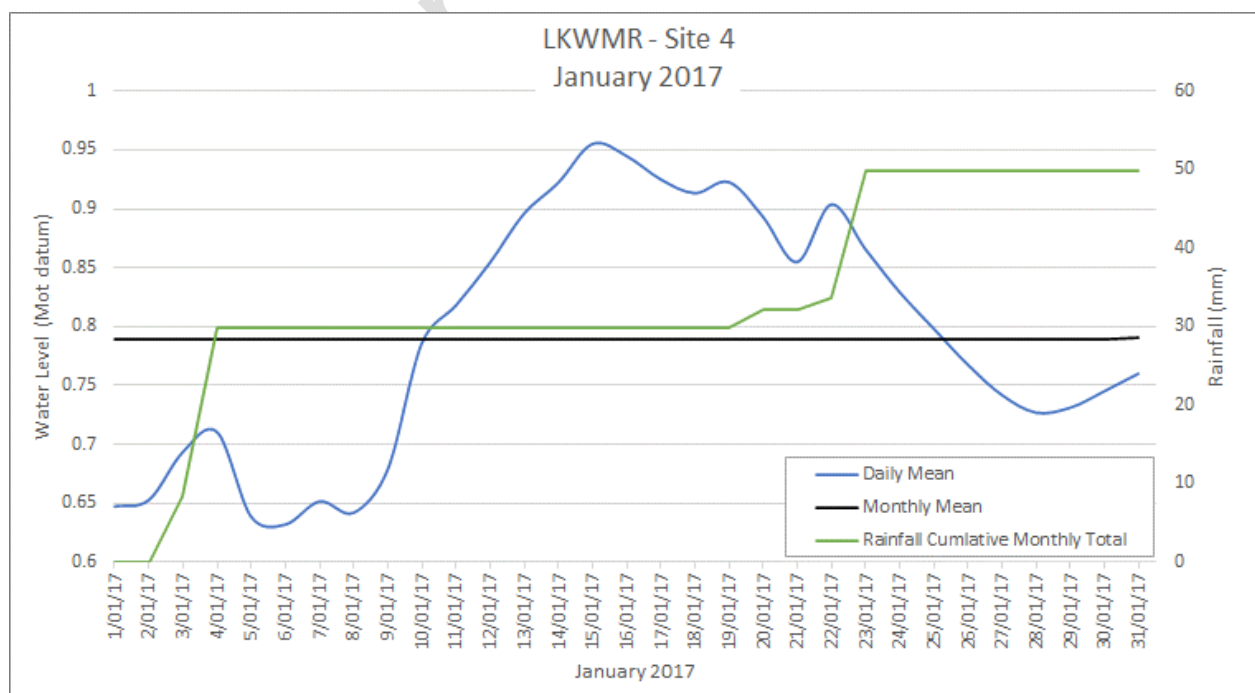


Figure 4 January 2017

Kaituna River Level

Water entering the Reserve is driven by the available head in the Kaituna River. Concern that the re-diversion would lower the water levels in the Kaituna River at the inlet culverts thus reducing the volume of flow into the reserve was held. Fords Cut water level monitoring site provides long term record to be able to assess this. Figure 5 shows that since the re-diversion commissioning the upper tide range, from 0.6m and higher, when water enters the reserve, has not changed. It can be concluded that the re-diversion project has not changed the water level regime at the inlet culverts that would reduce water flow into the reserve.

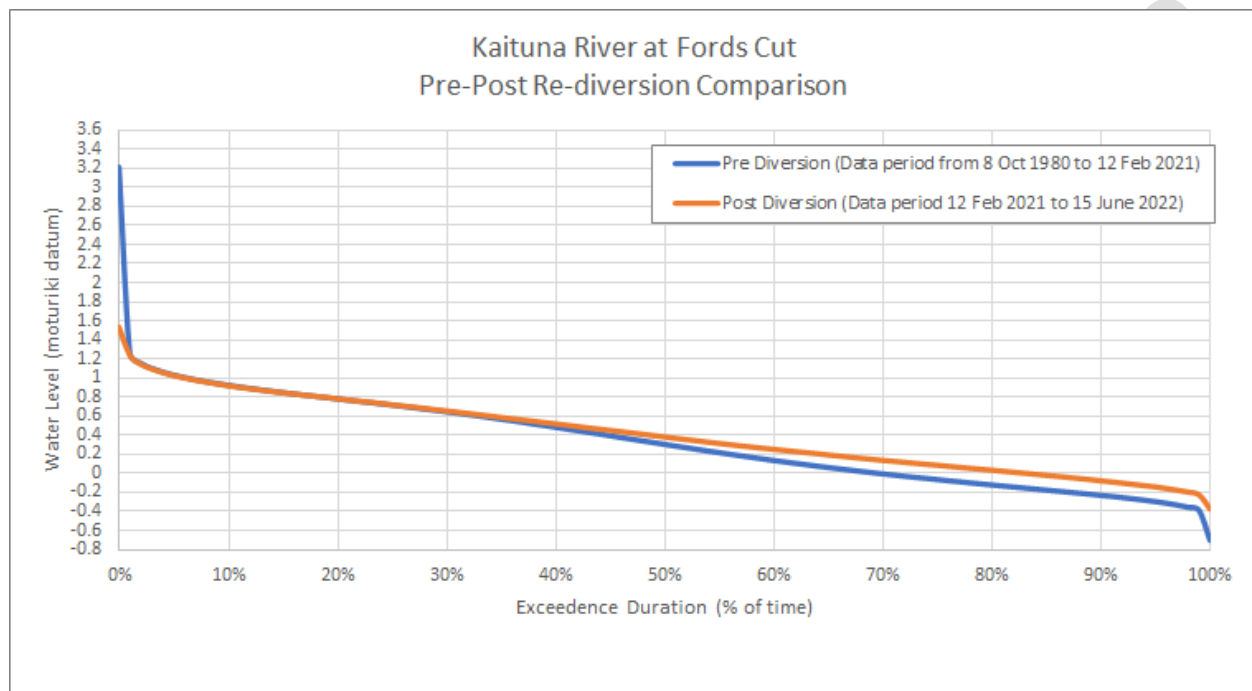


Figure 5 Kaituna River at Fords Cut exceedance duration – time weighted

Optimisation of Existing Inlets and Internal Reticulation

Over the last couple of years new “Torrent” fish friendly HDPE light weight flaps have been installed by the consent holder on the twin 600mm and the main 1800mm inlet culverts. Additionally Regional Council has been undertaking improvement works to better reticulate water throughout the Reserve. The aquatic weed control programme has also been undertaken by Regional Council to achieve efficiencies.

These works have been beneficial to the performance of the existing inlet culverts and reticulation channels and have increased the volume of water from the Kaituna River into the Reserve through dry periods by taking full advantage of high tides cycles.

Wetland maintenance agreement in lieu of requirement of Condition 23.4

Considering water levels observed in the Reserve since commissioning of the Re-Diversion Project and the other works carried out to increase efficiencies of the existing inlets and reticulation channels, the requirement for an additional culvert to maintain water levels, as per Condition 23.4, is now considered not to be required to offset any earlier predicted decrease in average water level in the reserve prior to commissioning of the Re-Diversion Project. If ongoing internal reticulation channel maintenance to a standard undertaken over the last 18-24 months and a commitment to the ownership and renewals of the existing inlet culverts and recently

installed fish friendly flap gates can be agreed, through a Maintenance Agreement , these actions could achieve a better long-term solution to maintain water levels in Reserve than an expensive additional culvert as required by consent condition 23.4.

To that end, to achieve a long-term solution to maintain agreed water levels in the Reserve, the parties have agreed to a wetland maintenance agreement, this is attached. This agreement sets out the roles and responsibilities of all parties and in particular that BOPRC to maintain the water levels through agreed maintenance methods. It is on this basis the Consent Holder requests the Consenting Authority remove the requirement to meet Condition 23.4

Signed on behalf of Eastern Region Fish and Game

Name to be inserted.

Draft for Consideration