MANUHEREKIA CATCHMENT GROUP

MANAGING WATER in the Manuherekia

The Manuherekia is probably one the most complex catchments in Aotearoa New Zealand from a water quantity perspective.

It has over 700 water users in the catchment, six irrigation schemes, three large storage impoundments and hundreds of kilometers of races and many small storage dams".

Matt Hickey July 2021

Each year, 16% of the Manuherekia catchment's water is utilised for irrigation and stock water in our catchment. Irrigation is used over a wide variety of agriculture, viticulture and horticulture systems.

Water quality of the Manuherekia is mostly good. We know this because of studies, research and monitoring carried out over the years.

Understanding the ecology and hydrology in our catchment is incredibly important to us. We, and others, have completed a range of research, some of which is assisting the Otago Regional Council with their drafting of the Land and Water Regional Plan.

Community co-operation in water management

Managing the flows in the Manuherekia will only work if all aspects of the catchment are considered, instream values at particular locations, site specific recreational uses and access, tributary and main stem interactions, storage modifications and abstraction patterns to name a few. The best solution will only be achieved with the co-operation and engagement of the local community.

See our factsheet on the '***Manuherekia catchment management plan'***.

See our accompanying factsheet '***About Manuherekia catchment***' to understand why the river is so vital to our community.

Commitment to science

The Manuherekia Catchment Group has commissioned a range of technical work, including:

- Ecological and hydrological assessments of all the main tributaries and each individual take in the catchment due for replacement in 2021. These assessments covered the following:
  - Natural and observed hydrological regime.
  - Ecological assessments including fish surveys.
  - Ecological habitat modelling.
  - Fish passage assessments in the lower river.
  - Temperature modeling in the lower river.
  - Assessment of flushing flows.
  - Flow gaugings and installation of continuous flow sites to allow better management of Falls Dam storage.
  - Drone surveys.
  - Fish passage assessment past structures.
  - Fish screening assessment at intakes.
  - Sub catchment and while catchment flow sharing to deliver residual and minimum flows.
  - Instream surveys of the Chatto, Thomson, Lauder and Dunstan streams.
  - Extra flow monitoring of streams and tributaries.
  - Main stem fish passage and river cross section assessments.
  - Weir assessments.
- Assessment of Environmental Effects for water abstraction from Manuherikia River from the Falls Dam to the confluence with the Clutha/Mata Au, Water Resource Management, Dec 2020.

Also completed by others and used in the catchment:

- Review of water quality and ecological data for the Manuherikia River Catchment, NIWA 201.9
- States and Trends of Rivers, Lakes and Groundwater in Otago 2017 – 2022, ORC in Environmental Science and Policy agenda 29 June 2023.
- NIWA's 2019 Water Quality review (for ORC).
- ORC's 2023 Water Quality Review.

How irrigation water is currently managed in the Manuherekia Rohe.

Hydrology and minimum flows

The Council monitors flow rates at the Manuherekia River Campsite, which is nearly at the bottom of the catchment and below almost all of the points of abstraction.

There is another flow site on the Manherekia at Ophir. It is a rocky gorge site that has many more years of flow monitoring records but is upstream from some abstraction points.

The Council set a minimum flow in schedule 2A of the Otago Regional Plan: Water for Otago of 820L/sec at Ophir in 2004, and the Manuherekia Campground voluntary minimum flow of 900L/sec has been upheld for since 2008.

Looking at the long-term records of flow in the Manuherekia you can conclude that over 50% of the time, flow at Ophir is 9000L/sec or above, which is more than 10x higher than the current minimum flow (820L/sec) and at Campground is 12,000L/sec or above which is 15 x higher than the current minimum flow. Under the current regime 80% of the time, the Manuherekia flow at Ophir is over 3500L/sec which is 4x higher and the flow at Campground is above 2x higher 2000L/sec which is 2x higher than current min flows.

This illustrates that for much of the year the flows in the river are well above the minimums being debated and that the river is not flat lined at low flow.

There are over 80km of main stem from above Falls Dam to the confluence with the Clutha Mata-au and the lowest flow occur for a stretch of under 20km. This stretch of river is from the Manuherikia Irrigation Society intake which is in the gorge to the confluence.

Whole catchment interaction

A flow management solution for the whole catchment needs to meet many often-competing demands. Protecting the endangered native fish in the tributaries could be in jeopardy if the minimum or residual flows are set too high as this may increase passage for their predator, trout. The water users have worked together to achieve a balance Therefore, understanding flows in these tributaries (residuals) is an important part of understanding the whole catchment and how it all works together.

How the land users use the water they take, or any proposal for minimum flows/future water regime to protect the catchment, must consider the whole catchment water management, as well as environmental impacts.

Abstraction

Having a consent doesn't mean that landowners take all the water they are consented for. The collective maximum consented rate for abstraction does not happen at any one time. There are so many variables that contribute to abstraction so it's important to caution that total consent water take does not equate to actual take. During low flow times, all water users reduce their abstraction. It is common for actual rates of take to be significantly lower than their consented rate and up to a quarter of their consented rate particularly on the tributaries.

For example,

Consented collective rate of take on the main stem Manuherekia (primary block) between July 2014 and June 2020 was 5.951m³/sec.

The maximum daily abstraction on any day between July 2014 and June 2020 was 4.949m³/sec.

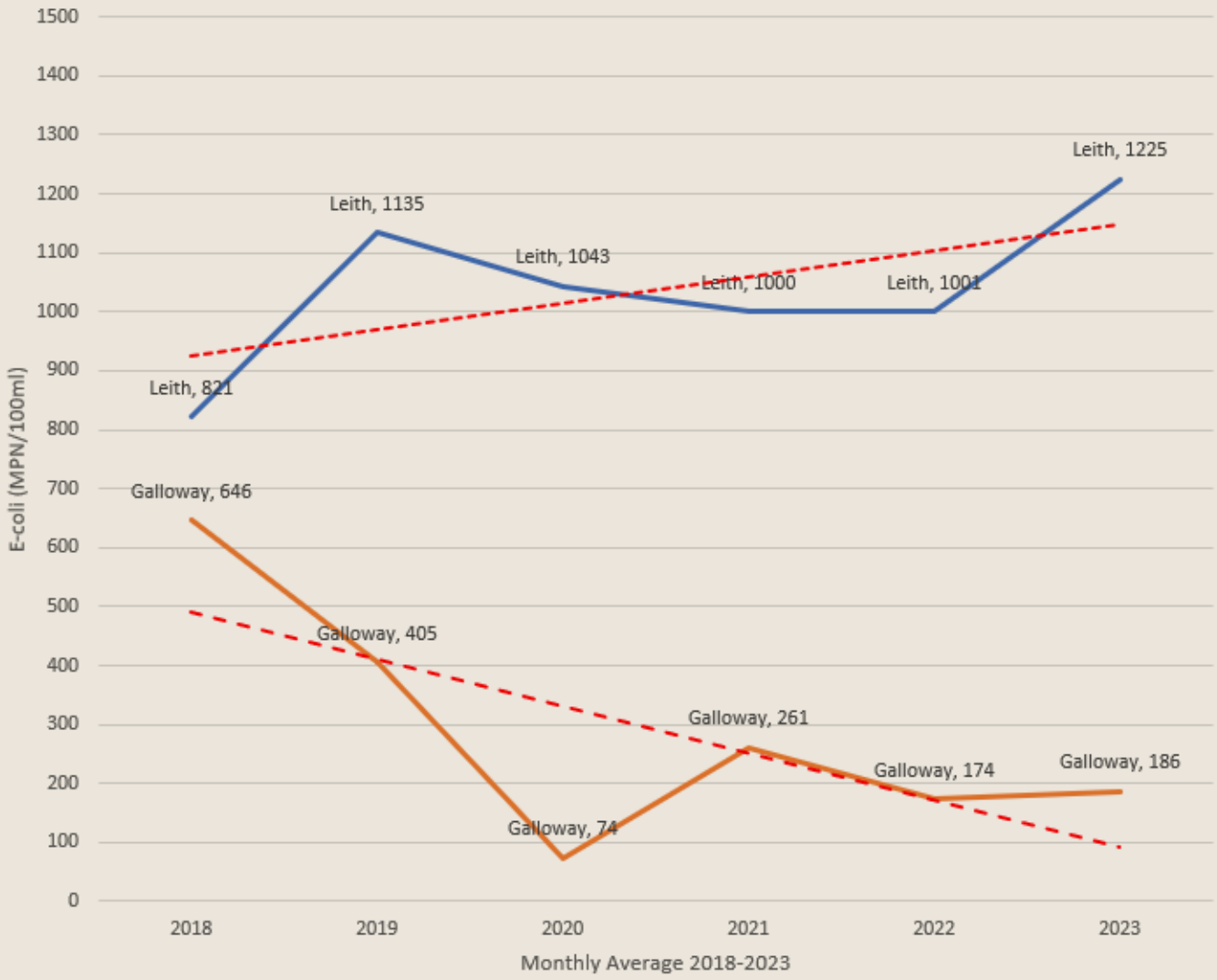
It's important to note that in summer, the storage from Falls Dam supplements any abstraction by up to half of what's being abstracted from the waterways. Further to that, Ida Valley irrigation Company uses the water from two dams, Poolburn and Manorburn that are filled in winter and spring. In summer, irrigation water relies primarily on this stored water.

The environmental situation

Overall, the environmental and water quality in the catchment is showing improving trends in the last 5 years in many environmental markers from already low concentrations. Compared nationally, Nitrogen, Phosphorus, sediment and E.Coli are, in most areas of the catchment, improving. In areas that need attention, the Group are addressing this through targeted projects and environmental work and seeing great results.

The following graph was extrapolated by the Catchment Group from real data.

E-coli (MPN/100ml) - Leith Stream @ Dundas St vs Manuherikia River @ Galloway Bridge (Monthly Averages - 2018-2023 now)



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Join the Catchment Group by contacting | manuherikiacatchmentgroup@gmail.com

Find out about our local events, planting activities at | mcg.org.nz/news-and-events