Upper Mangatāwhiri Dam
2024-2025 Annual Report

Final - November 2025

Watercare

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REVISION HISTORY

Rev	Revision Date	Name	Position	Signature
1	DD/MM/YYYY	Michiel Jonker	Environmental Care Manager	
2	31/10/2025	Brendon Dockary	Operations Controller	
3	30/10/2025	James Talbot	Headworks Manager	

APPROVED

Date	Name	Position	Signature
DD/MM/YYYY	Michiel Jonker	Environmental Care Manager	

CONSENT CHANGE AND MONITORING HISTORY

Change type	Description	Effective date	Reference / condition	Reporting / monitoring implications
Annual report due date	Watercare requested all dam annual reports to be extended from 30 September to 31 October for 2025	15/09/2025	7	Upper Mangatāwhiri Dam report to be submitted by 31 October 2025.

EXECUTIVE SUMMARY

The 2024-2025 annual report for the Upper Mangatāwhiri Dam provides an overview of compliance and monitoring activities conducted over the reporting period from 1 July 2024 to 30 June 2025. The report covers various aspects, including water abstraction, reservoir levels, spillway discharges, compensation flows, environmental monitoring, and pipeline operations, as required under the respective resource consents.

Key findings and highlights from the monitoring activities include:

- Water usage: The total volume of water abstracted during the reporting period was 22,798,545 m^3 from the Upper Mangatāwhiri Dam, measured accurately with Magflow meters
- Reservoir levels: Both dams were continuously monitored, showing average daily reservoir levels within the expected range. The Upper Mangatāwhiri Dam ranged between 20.8 and 27.3 meters.
- Compensation flows: The required minimum flows at the Lower Mangatāwhiri weir were met consistently.
- Environmental stream monitoring: Monitoring downstream of the dams highlighted stable water quality and nutrient levels and some variations in macroinvertebrate trends.
- Fisheries management: One migrating eel was caught in the Upper Mangatāwhiri Dam during the monitoring period.
- Free discharge valve operations: flushing flow operations occurred in January to March to scour excess periphyton, with turbidity monitoring in accordance with environmental standards.
- Network Efficiency and Conservation: Watercare continues its water efficiency efforts, identifying and repairing leaks across the region, reducing non-revenue water, and promoting residential and commercial water conservation initiatives

In conclusion, all resource consent conditions were compliant, and no equipment failures or maintenance activities resulted in adverse environmental effects.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

This report contains the monitoring results required annually by the following resource consents for the Upper Mangatāwhiri Dam; AUTH123494.01.0, AUTH123495.01.01, AUTH123497.01.01, and 123496. These consents cover the dam, discharge to water and water take activities respectively.

The conditions of the consents requiring annual reports are listed in Table 1-1. This report covers data for the period 1 July 2024 to 30 June 2025.

Table 1-1: Resource consent conditions requiring annual reports.

Consent number	Consent conditions
AUTH123494.01.01	4, 5
123496	17, 25
AUTH123497.01.01	13

2 WATER USAGE

The daily quantity of water being taken from the Upper Mangatawhiri Dam is measured by a Magflow meter located on the outgoing pipeline. The meter measures to an accuracy of at least ± 5%, is routinely verified and continually maintained in working condition. Waikato Regional Council is linked via telemetry to the abstraction flowmeter.

Daily abstraction for the reporting period is shown in Figure 2-1. The full dataset is in Appendix A. Over the 12 months 22,798,545 m^3 was abstracted from Upper Mangatāwhiri Dam.

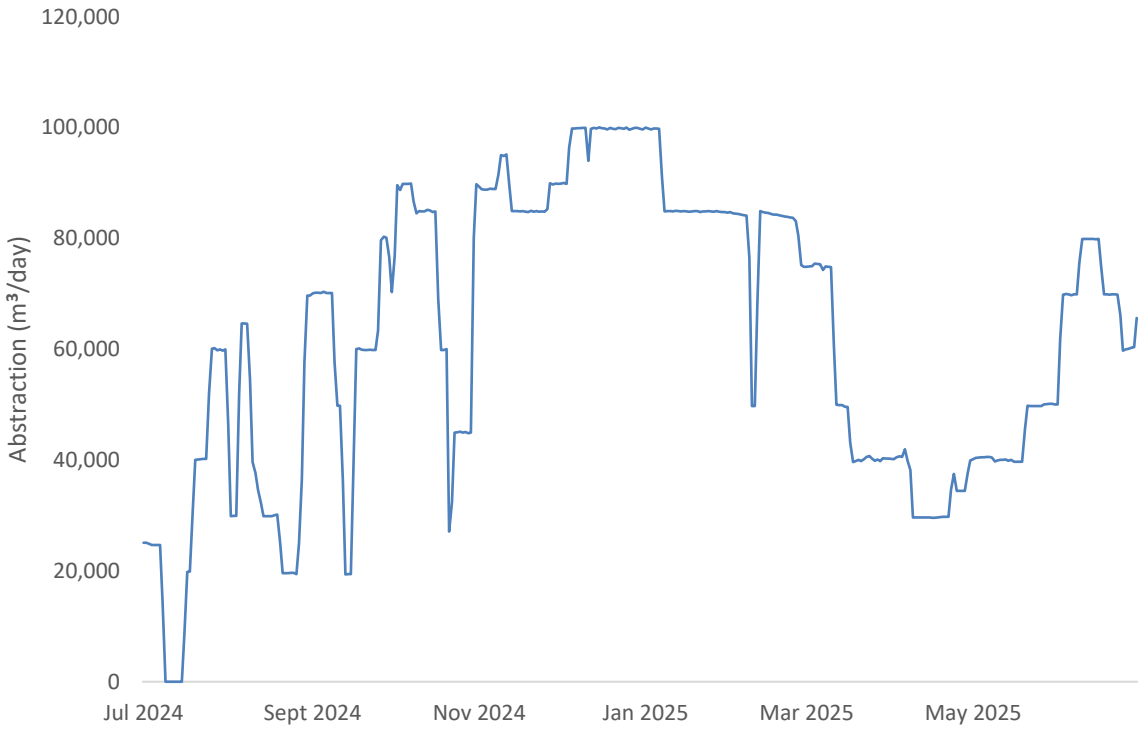


Figure 2-1: Total daily abstraction from Upper Mangatāwhiri Dam for 2024-2025.

3 RESERVOIR LEVEL

The reservoir level is monitored continuously on SCADA by a level transmitter located in the valve tower at Upper Mangatāwhiri Dam.

The daily average reservoir levels for the reporting period are shown in Figure 3-1. The full dataset is in Appendix B. The average daily lake level for Upper Mangatāwhiri Dam ranged between 20.8 – 27.3 m.

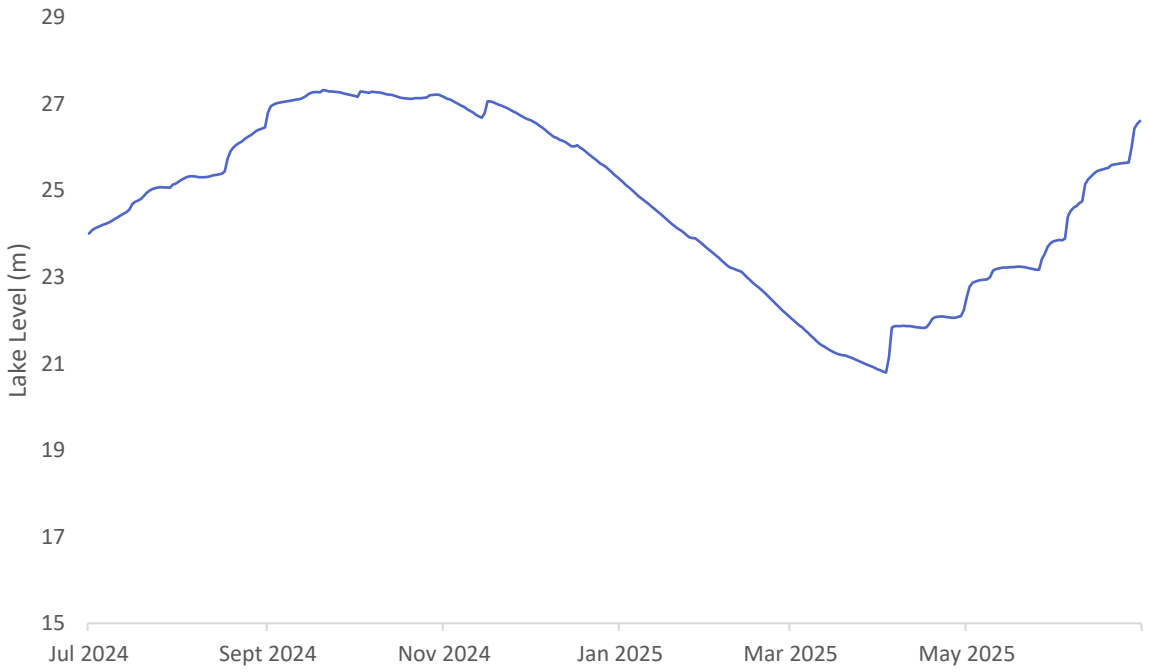


Figure 3-1: Reservoir daily average level for Upper Mangatāwhiri Dam for 2024-2025.

4 COMPENSATION FLOW

As required by consent 123496, a minimum residual flow (compensation flow) of 150 L/s is required to be maintained in Mangatāwhiri River measured at the Lower Mangatāwhiri Weir.

The minimum residual flow and daily average stream flow is shown Figure 4-1. Data was supplied from Watercare's direct feed from Lower Mangatāwhiri hydrological station via the control system network. Compensation flow from Upper Mangatāwhiri Dam is shown in Figure 4-2. The complete dataset it in Appendix C.

The average daily flow at the weir was above 150 L/s throughout the reporting period. The lowest recorded flow rate was on 15 April 2025 at 166 L/s, whereas the maximum average daily flow rate was 15,646 L/s on 27 June 2025. The maximum discharged from the dam's compensation flow to maintain a minimum residual flow was 2,044 m^3 on 12 April 2025, equating to 23.7 L/s.

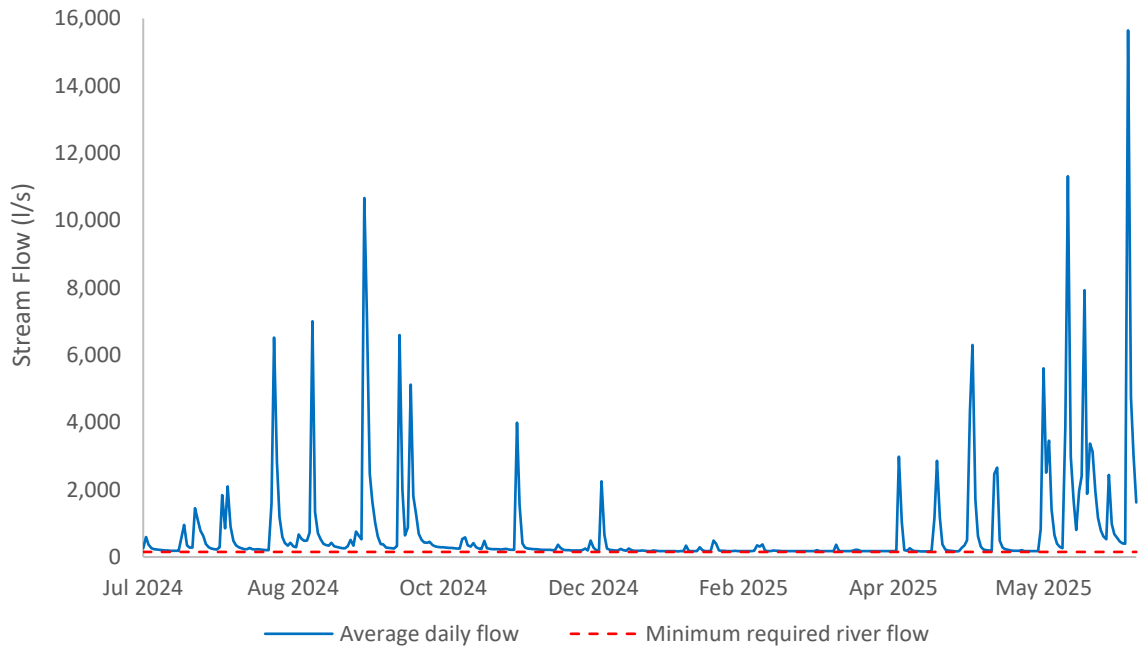


Figure 4-1: River flow rate at Lower Mangatāwhiri weir for the reporting period 2024-2025.

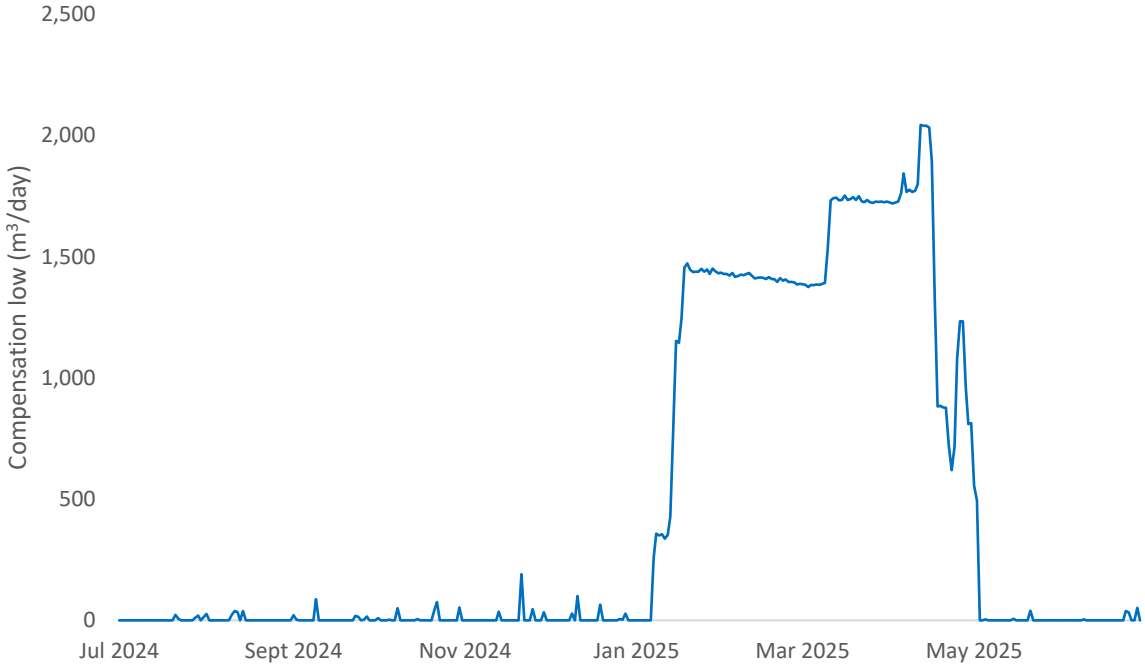


Figure 4-2: Upper Mangatāwhiri Dam compensation flow for the reporting period 2024-2025.

5 FISHERIES MANAGEMENT

Fisheries management for the downstream transfer of native fish is ongoing at Upper Mangatāwhiri Dam. Ministry of Primary Industries approval has been granted for this work under Special Permit 737. The records from the 2024-2025 trap and haul season are detailed in the annual report to the Ministry of Primary Industries, which is included in Appendix D.

One migrating eel was caught in the Upper Mangatāwhiri Dam during the monitoring period. Eight non-migrating eels ten were also caught, re-released into the dam

The benefits of continuing transfer operations are required by condition 4(vi) to be assessed every five years. This was most recently completed in September 2020 and is next scheduled for December 2025.

6 FREE DISCHARGE VALVE OPERATIONS

During the 2024-2025 reporting period, Watercare undertook free discharge valve operations to maintain the health of aquatic ecosystems and aesthetic values detailed in Table 6-1. Turbidity was measured downstream of the discharge point, approximately 30 minutes before the discharge commences and 60 to 120 minutes after the start of the discharge. Waikato Regional Council and Auckland Council (in its regional parks role) were notified more than 24 hours in advance for the discharge.

Table 6-1: Free discharge valve monitoring for Upper Mangatāwhiri Dams for the reporting period 2024-2025.

Date	Duration of discharge	Turbidity before (NTU)	Turbidity during/after (NTU)
16 January 2025	3 hours	5.00	3.15
13 February 2025	3 hours	2.10	5.75
12 March 2025	3 hours	1.02	3.62

7 NETWORK EFFICIENCY AND CONSERVATION

Watercare has published the Auckland Water Efficiency Plan 2021 to 2025[1], which includes a section detailing its water efficiency programmes and achievements. In summary, Watercare's water efficiency strategy has four main pillars:

- **Municipal water efficiency programme**: related to reducing water use by Watercare itself, mainly through reuse at its treatment plants, and by Auckland Council, through initiatives targeted at saving 30% of water use.
- **Residential water efficiency programme**: includes working with schools and sports clubs to raise awareness and water-saving campaigns, and a partnership with EcoMatters to give households the opportunity to have their water use audited and receive a report on the water and dollar savings they can achieve through simple changes.
- **Commercial water efficiency programme:** involves working with key costumers to reduce demand from our largest users, through initiatives such as the digital meter roll-out project across high-use industrial users, schools and sports clubs.
- **Non-revenue water reduction programme**: related to initiatives focused on reducing three aspects of non-revenue water: leakage, under-reading of meters, and unauthorised use.

Watercare continues with its proactive leakage detection programme, which is effectively targeting areas for leakage surveying using its district meter areas and its Leakage Management System. We continue to optimise our water networks performance through our pressure management programme, which is reducing the number of leaks and their recurrence of them.

The average consumption of Aucklanders is 257 l/p/d which is within our target for water consumption.

More details on water efficiency initiatives, performance, challenges, targets, and strategies for the future are available directly in the Auckland Water Efficiency Plan 2021 to 2025.

[1] https://waterefficiencyplan.watercare.co.nz/

8 ENVIRONMENTAL MONITORING

8.1 Overview

Condition 13 to 17 of consent 123496 requires water quality, macroinvertebrate and habitat monitoring of five established sites in the Mangatāwhiri catchment. The purpose is assessing the effects of the dam operations with respect to river and reservoir bank erosion and the ecosystem of the Mangatāwhiri River. Monitoring is undertaken by Watercare Laboratory Services.

8.2 Monitoring sites

The location of the monitoring sites is shown in Figure 8-6. The control site is located at a ponded area of stream, and Sites A and B are located at riffle habitats.

8.2.1 Control site

37°05'54.7"S 175°09'21.8"E

The Control Site monitoring location shown in Figure 8-1, is located on Acheson Stream, a tributary of the Mangatāwhiri River.

Figure 8-1: Control Site, looking across (February 2025).

8.2.2 Site A

37°05'31.2"S 175°09'15.7"E

The Site A monitoring location shown in Figure 8-2 is located on the Mangatāwhiri River, 0.5 km below the toe of the Upper Mangatāwhiri Dam spillway, on the downstream end of the Auckland Council campsite.

Figure 8-2: Site A, looking upstream (February 2025).

8.2.3 Site B

37°08'07.1"S 175°09'44.8"E

The Site B monitoring location shown in Figure 8-3 is located on the Mangatāwhiri River, approximately 14.3 km downstream of Site A and 14.8 km downstream of the Upper Mangatāwhiri Dam spillway. The site is located approximately 500 m upstream of Lower Mangatāwhiri Weir.

Figure 8-3: Site B, looking across (February 2025).

8.2.4 Site C

37°11'21.4"S 175°08'49.7"E

Site C, shown in Figure 8-4, is located near the bridge at the end of Lyons Road, approximately 9.1 km downstream from Site B. Between Site B and Site C, there is approximately 6.8 km of the catchment being surrounded by native forestry, followed by 2.3 km of farmland with some riparian planting throughout the pasture areas.

Figure 8-4: Site C, looking upstream (February 2025).

8.2.5 Site D

37°11'55.9"S 175°08'00.5"E

Site D monitoring location, shown in Figure 8-5, is located upstream of Lyons Road bridge, approximately 200 m north of the old State Highway 2 intersection. The site is 6.4 km downstream of Site C, with farmland and some riparian planting in the surrounding catchment area.

Figure 8-5: Site D, looking upstream (February 2025). Cow pictured in the river.

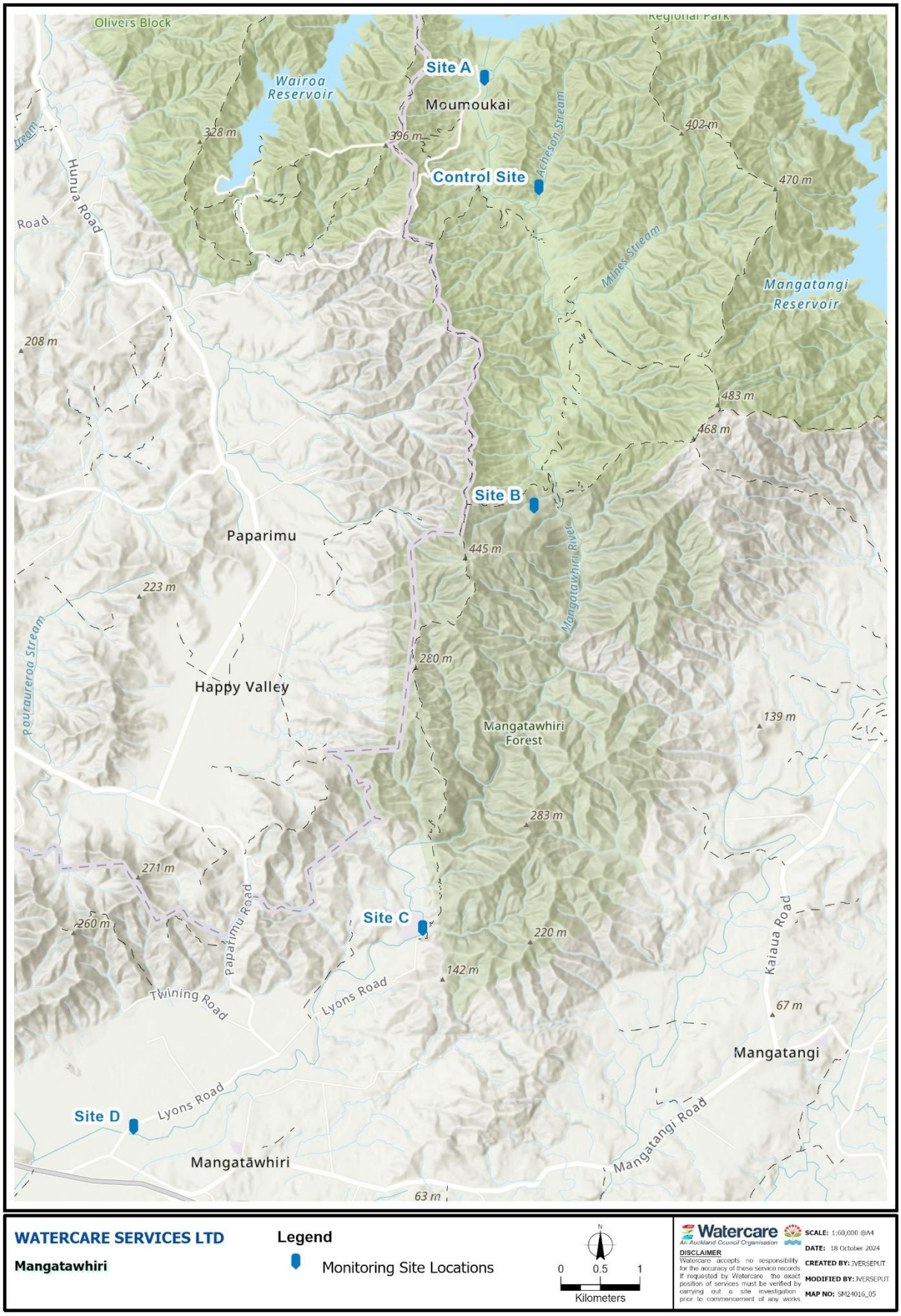


Figure 8-6: Mangatāwhiri catchment monitoring locations.

8.3 Methods

8.3.1 Water quality – discrete monitoring

Discrete water quality samples are collected monthly over summer, between December and May of each year. The parameters analysed at these sites are listed in Table 8-1. Sampling methodology and analysis techniques were carried out in accordance with APHA Standard Methods for the Examination of Water and Wastewater (2011), as per condition 5(vi).

Temperature and dissolved oxygen measurements are taken in situ using a calibrated YSI ProDSS meter. Periphyton composite samples are collected by scraping periphyton from 10 randomly selected rock surfaces[2].

Table 8-1: Summer monthly water quality parameters

Parameter	Units
Temperature*	˚C
Suspended solids	mg/L
pH	pH Unit
Turbidity	NTU
Dissolved oxygen*	mg/L and % saturation
Dissolved reactive phosphorus	gP/m³
Ammonia nitrogen (NH4–N)	gN/m³
Nitrate nitrogen (NO3–N)	gN/m³
Periphyton (*Chlorophyll a*)	mg/m²

*Parameters recorded in the field (all others analysed at the laboratory)

Best endeavours are made to conduct sampling during periods of flow recession and when there had been rainfall of no greater than 2 mm over the previous 48 hours. When these conditions are unable to be met, sampling is completed before the end of the respective month. For the 2024-2025 monitoring period, the sampling dates and preceding rainfall totals are presented in Table 8-2.

Table 8-2: Discrete water quality sampling dates and rainfall for 2024-2025.

Date	Rainfall 48 hours prior (mm)
18 December 2024	47.5
21 January 2025	6.0
5 February 2025	0.0
6 March 2025	11.5
30 April 2025	45.5

[2] Biggs BJF, Kilroy C, 2000: Stream Periphyton Monitoring Manual. Prepared for Ministry for the Environment, Wellington, New Zealand.

8.3.2 Water quality – continuous monitoring

The environmental monitoring plan requires that water temperature, dissolved oxygen, pH and conductivity is continuously monitored for five days at the Control Site, Site A and Site B in February or March at 2-yearly intervals. Temperature will be measured continuously at the Control Site, Site A and Site B from December to April (inclusive) annually. Data logs at 10-minute intervals.

Continuous monitoring of dissolved oxygen, pH, and conductivity was undertaken at all sites between 21 and 28 February 2025. The next round of monitoring is scheduled for the 2026–2027 period.

Temperature sensors were installed at the control site and Site B for the required monitoring period (1 December 2024 to 30 April 2025). A sensor was also installed at Site A; however, it was stolen, and the data could not be retrieved. A replacement sensor was installed on 21 February 2025.

8.3.3 Macroinvertebrate and habitat monitoring

Macroinvertebrate samples were collected once in winter (Jun-Jul) and in summer (Jan-Feb) each monitoring period. Three replicate samples were collected using kick-net sampling techniques[3]. Visual observations of substrate composition and embeddedness were recorded during each macroinvertebrate sampling event. Embeddedness measurements were based on a 50-100 m reach that includes the sampling site. Substrate composition was based on percentage coverage of different substrate sizes, as shown in Table 8-3.

In the 2024-2025 reporting period, macroinvertebrate and habitat monitoring occurred on 13 July 2024 and 6 February 2025.

Table 8-3: Substrate size classes.

Substratum Type	Size
Clay	<0.004 mm
Silt	0.004-0.06 mm
Sand	>0.06-2 mm
Gravel	>2-64 mm
Cobble	>64-256 mm
Boulder	>256 mm
Bedrock	-

8.4 Results

8.5 Water quality – discrete monitoring

The results for the 2024-2025 monitoring period are presented in Table 8-4.

The control site was cooler on average than the downstream sites, whereas dissolved oxygen was high at all sites, indicating well-oxygenated conditions. pH was stable and near neutral across the

[3] Stark et al. (2001). Protocols for sampling macroinvertebrates in wadeable streams

catchment, consistent with natural background conditions and no acidification risk. Turbidity and suspended solids were generally low, though slightly elevated at Site D likely due to pasture runoff or stock access. Overall, physicochemical water quality remains very good, with only minor spatial variation attributable to catchment use rather than dam effects.

Nutrients were generally low across all sites. Ammoniacal Nitrogen and nitrate are well within the A-band for river ecosystem health in accordance with NPS-FM 2020 bands. Dissolved reactive phosphorus also sits in the A-band range and shows no evidence of enrichment.

The highest values for chlorophyll *a* were at Site A and Site C, however all sites were on average below the recommended maximum chlorophyll *a* value (50 mg/m^2) for the protection of benthic biodiversity[4].

Table 8-4: Summary results (mean ± 95% confidence interval) for water quality parameters for the Mangatāwhiri monitoring sites 2024-2025.

Parameter	Unit	Control Site	Site A	Site B	Site C	Site D
Ammoniacal Nitrogen	mg/L	0.007 ± 0.003	0.006 ± 0.002	0.005 ± 0	0.006 ± 0.002	0.009 ± 0.002
Chlorophyll A	mg/L	0 ± 0	3.4 ± 3.2	0.5 ± 0.7	2.5 ± 2.3	0.4 ± 0.4
DO	mg/L	9.7 ± 0.4	7.8 ± 0.5	8.8 ± 0.5	9.5 ± 0.6	8.7 ± 0.7
DRP	mg/L	0.023 ± 0.004	0.008 ± 0.002	0.011 ± 0.002	0.013 ± 0.003	0.012 ± 0.002
Nitrate	mg/L	0.048 ± 0.029	0.047 ± 0.058	0.019 ± 0.026	0.055 ± 0.12	0.043 ± 0.089
Suspended Solids	mg/L	7.8 ± 17.5	2.4 ± 1.4	5.9 ± 10.2	12.6 ± 13.7	17.7 ± 26.7
Temperature	°C	13.9 ± 2	17.1 ± 1.4	16.2 ± 0.9	18.1 ± 1.3	18.9 ± 1.2
Turbidity	NTU	9.7 ± 18.3	3.3 ± 4	8.3 ± 13.1	13.4 ± 19.4	16.7 ± 24
pH	pH unit	6.9 ± 0.4	6.5 ± 0.3	6.8 ± 0.3	6.9 ± 0.3	7 ± 0.3

8.6 Water quality – continuous monitoring

The results for the continuous water quality monitoring are presented in Figure 8-7 to Figure 8-10.

Temperature was highest on average at Site A (18.21°C) , with the control site exhibiting the lowest average of 14.33°C. pH was typically near neutral to neutral at all sites, with the lowest pH at both control and Site A being 6.9, the lowest at Site B 7.1, and the maximum pH at all sites being 7.1, 7.7 and 7.4 respectively.

Dissolved oxygen was very similar across all sites, ranging between 9.8 to 11.4 mg/L at the control site, 6.7 to 11.6 mg/L at Site A, and 8.3 to 10.9 mg/L at Site B. Conductivity was low across all sites, the highest result being 99.1 µS/cm at Site B. This is reflective of a low concentration of dissolved organic salts and other ions.

Overall, Site A shows clear diurnal variations in pH and dissolved oxygen, reflecting strong changes in respiration and photosynthesis rates in this location.

[4] https://environment.govt.nz/assets/Publications/Files/nz-periphyton-guide-jun00.pdf

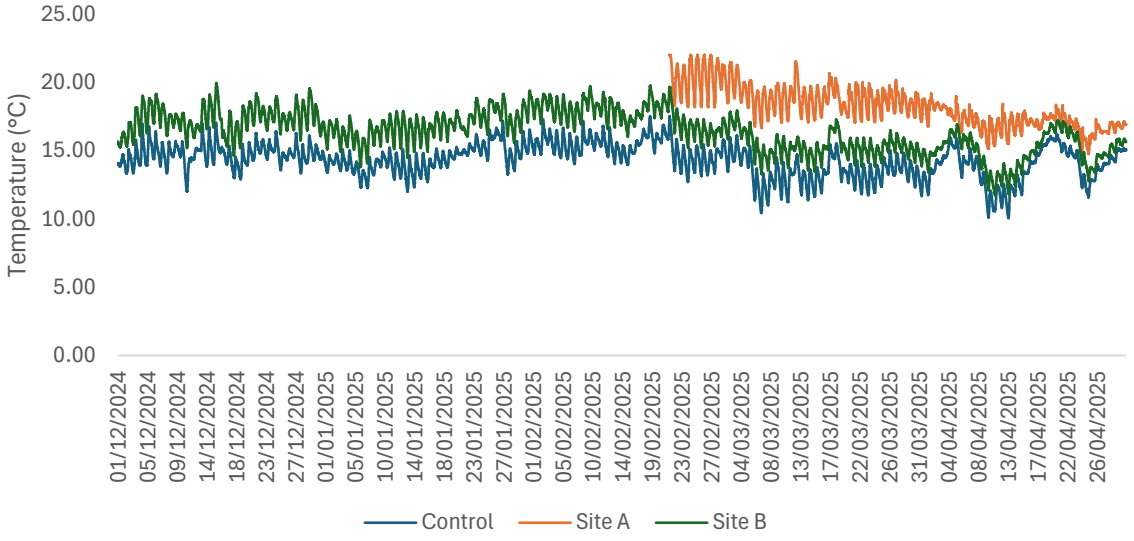


Figure 8-7: Continuous temperature monitoring in the Mangatāwhiri catchment for 2024-2025.

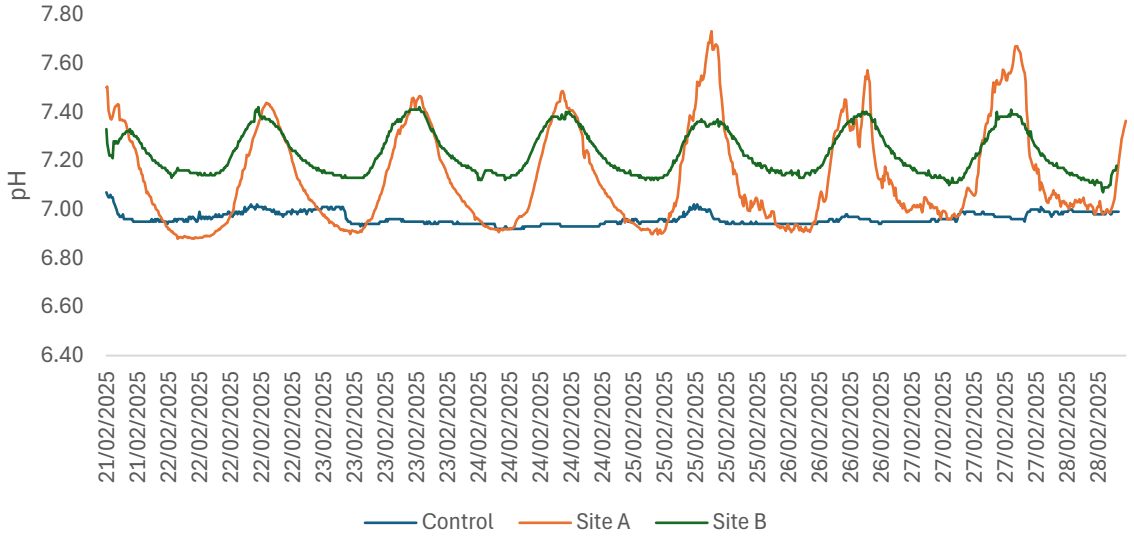


Figure 8-8: Continuous pH monitoring in the Mangatāwhiri catchment for 2024-2025.

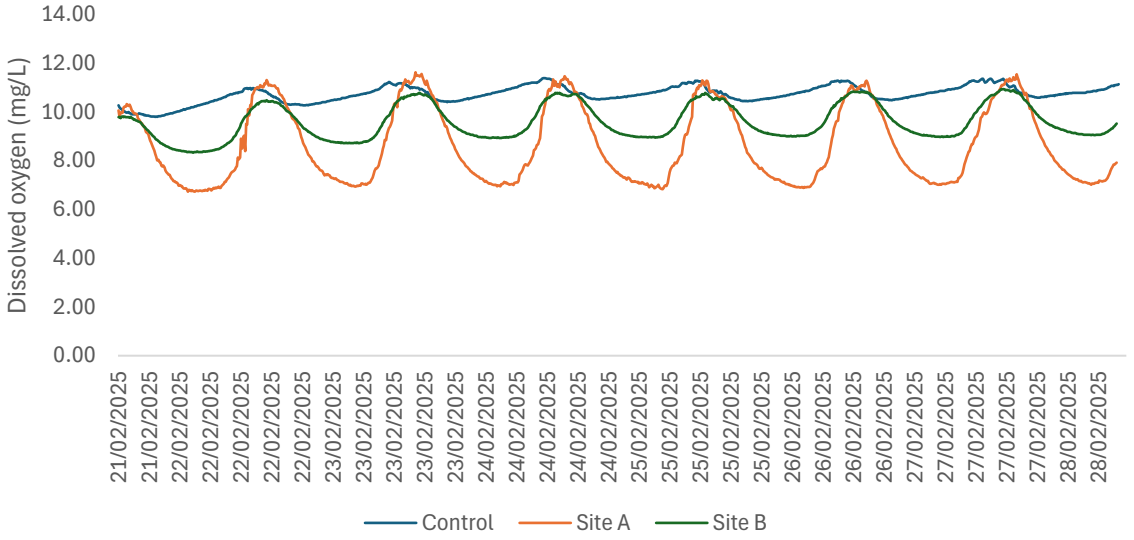


Figure 8-9: Continuous dissolved oxygen monitoring in the Mangatāwhiri catchment for 2024-2025.

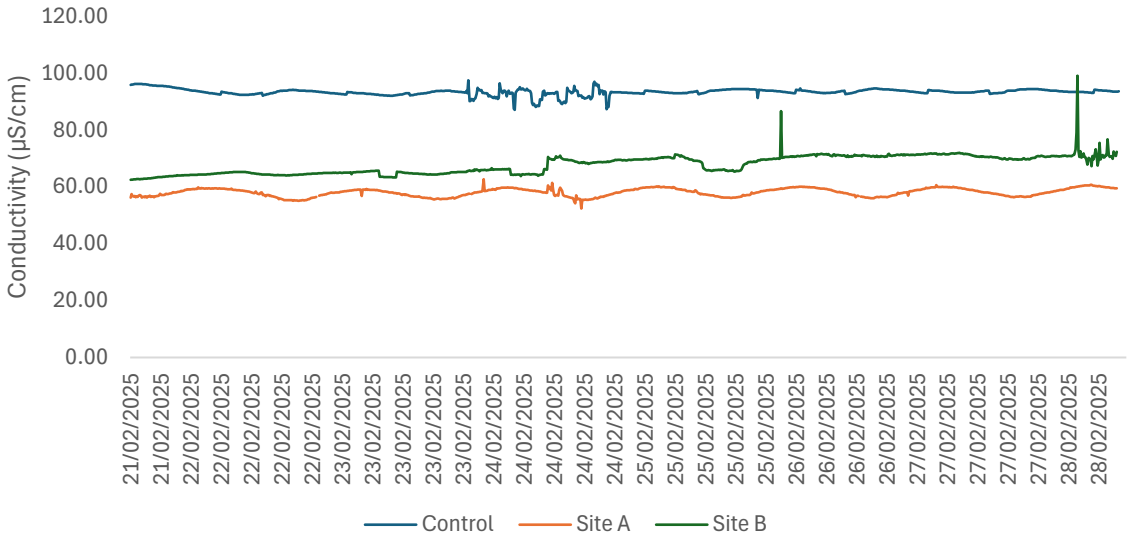


Figure 8-10: Continuous conductivity monitoring in the Mangatāwhiri catchment for 2024-2025.

8.7 Macroinvertebrate and habitat monitoring

Macroinvertebrate communities varied notably among the Mangatāwhiri monitoring sites in 2024–2025. The control site generally showed moderate to high ecological condition, with higher biotic index scores indicating good water quality. In contrast, Sites D and A consistently had the lowest scores, suggesting poorer stream health.

Site B tended to have the most diverse and sensitive macroinvertebrate communities, particularly during summer, while Site C also supported relatively high richness and abundance. Total macroinvertebrate counts were highly variable across sites and seasons, with peaks at Sites B and C during summer.

Overall, the results indicate that Sites B and C supported the most diverse and abundant macroinvertebrate communities, while Sites A and D showed reduced diversity and lower ecological quality compared with the control site.

Table 8-5: Summary results (mean ± 95% confidence interval) of macroinvertebrate community metrics for the Mangatāwhiri monitoring sites 2024-2025.

Season	Metric	Control Site	Site A	Site B	Site C	Site D
Winter	EPT taxa	6.7 ± 3.8	7.3 ± 1.4	11.7 ± 1.4	13.3 ± 2.9	2.3 ± 1.4
Summer	EPT taxa	7.3 ± 3.8	4.3 ± 5.2	17.3 ± 5.2	2.7 ± 1.4	1 ± 0
Winter	Individuals	41.3 ± 70.7	284.3 ± 312.5	216.7 ± 120	364.7 ± 124.4	34 ± 51.3
Summer	Individuals	111.7 ± 139.5	250.3 ± 315.5	747.7 ± 1296.4	312.7 ± 317.9	22 ± 42.4
Winter	MCI	154 ± 13.8	89 ± 25.2	120 ± 11.4	104.3 ± 11.2	72.7 ± 9.4
Summer	MCI	132 ± 11.4	83.3 ± 16.5	109.7 ± 8	77.3 ± 15	51 ± 25.2
Winter	QMCI	8 ± 0	4 ± 0	5.7 ± 1.4	4.7 ± 1.4	3.7 ± 1.4
Summer	QMCI	6.3 ± 1.4	3.7 ± 1.4	4 ± 0	4 ± 0	2.3 ± 1.4

Season	Metric	Control Site	Site A	Site B	Site C	Site D
Winter	Taxa richness	9 ± 5	13.7 ± 6.3	15.3 ± 5.2	21.3 ± 2.9	6.3 ± 6.3
Summer	Taxa richness	10.7 ± 5.2	11.7 ± 11.2	28.3 ± 5.2	7.3 ± 3.8	3.3 ± 3.8

8.8 Trend analysis (2013-2025)

A summary of the historical results collected by the lab between December 2013 and May 2025 are presented in Table 8-6 and Table 8-7.

Chlorophyll a is decreasing at Control and Site D, with less periphyton biomass over time and dissolved reactive phosphorus is decreasing at Sites B, C and D, both of which are positive environmental trends. pH is decreasing at all sites though values remain neutral to slightly alkaline. Suspended solids are increasing at Site A and Site D, however turbidity has no significant trend. Temperature is also stable across sites, and dissolved oxygen is increasing at Site D.

In summary, and periphyton trends are declining, indicating improved water quality since 2013. Minor increases in suspended solids are site-specific and likely linked to land use and stock presence rather than dam operations. Overall, water quality and ecological condition are improving or stable throughout the Mangatāwhiri system.

Compared with the control site, several Mangatāwhiri sites showed distinct differences in macroinvertebrate community condition and temporal trends between 2013 and 2025.

The control site remained relatively stable across all metrics, with no significant trends detected. In contrast, Site A had consistently lower average values for most metrics, but showed a significant increase in EPT taxa, suggesting gradual improvement in ecological condition. Site B also differed from the control by having a significant increase in both EPT taxa and total individuals, though its QMCI showed a decreasing trend, indicating a possible shift toward more tolerant taxa despite higher abundance.

Site C displayed lower average MCI and QMCI values than the control and showed a significant decrease in taxa richness, pointing to a decline in diversity over time. Site D had the most consistently poor results, with significantly decreasing EPT taxa, individuals, MCI, and taxa richness, all well below control levels, reflecting a clear deterioration in ecological health.

Overall, while the control site remained stable, Sites A and B showed partial improvements, and Sites C and especially D exhibited declining trends in macroinvertebrate community health.

Table 8-6: Summary results (mean ± 95% confidence interval) and Mann-Kendall trend analysis results of water quality parameters for the Mangatāwhiri monitoring sites (2013-2025).

Monitoring site	Parameter	Unit	Mean ± 95% CI	Tau	p-value	Trend
Control Site	Ammoniacal Nitrogen	mg/L	0.006 ± 0.001	-0.02	0.83	No significant trend
Site A	Ammoniacal Nitrogen	mg/L	0.007 ± 0.002	-0.08	0.4	No significant trend
Site B	Ammoniacal Nitrogen	mg/L	0.007 ± 0.003	-0.06	0.54	No significant trend

Monitoring site	Parameter	Unit	Mean ± 95% CI	Tau	p-value	Trend
Site C	Ammoniacal Nitrogen	mg/L	0.006 ± 0.001	0.01	0.91	No significant trend
Site D	Ammoniacal Nitrogen	mg/L	0.008 ± 0.001	0.01	0.95	No significant trend
Control Site	Chlorophyll A	mg/L	0.9 ± 0.5	-0.36	0	Decreasing
Site A	Chlorophyll A	mg/L	8.2 ± 2.9	-0.1	0.29	No significant trend
Site B	Chlorophyll A	mg/L	4.4 ± 1.8	-0.17	0.06	No significant trend
Site C	Chlorophyll A	mg/L	5.3 ± 1.5	-0.15	0.1	No significant trend
Site D	Chlorophyll A	mg/L	2.0 ± 0.6	-0.24	0.01	Decreasing
Control Site	DO	mg/L	9.8 ± 0.2	0.05	0.61	No significant trend
Site A	DO	mg/L	8.4 ± 0.3	0.09	0.3	No significant trend
Site B	DO	mg/L	9.4 ± 0.2	-0.14	0.12	No significant trend
Site C	DO	mg/L	9.6 ± 0.2	0.03	0.7	No significant trend
Site D	DO	mg/L	8.5 ± 0.2	0.18	0.04	Increasing
Control Site	DRP	mg/L	0.024 ± 0.002	-0.06	0.53	No significant trend
Site A	DRP	mg/L	0.008 ± 0.001	-0.15	0.1	No significant trend
Site B	DRP	mg/L	0.013 ± 0.001	-0.25	0.01	Decreasing
Site C	DRP	mg/L	0.015 ± 0.001	-0.29	0	Decreasing
Site D	DRP	mg/L	0.017 ± 0.001	-0.54	0	Decreasing
Control Site	Nitrate	mg/L	0.029 ± 0.006	0.17	0.05	No significant trend
Site A	Nitrate	mg/L	0.036 ± 0.011	0.08	0.35	No significant trend
Site B	Nitrate	mg/L	0.009 ± 0.003	0.16	0.08	No significant trend
Site C	Nitrate	mg/L	0.025 ± 0.015	0.02	0.87	No significant trend
Site D	Nitrate	mg/L	0.025 ± 0.014	0.06	0.54	No significant trend
Control Site	pH	pH unit	7.3 ± 0.1	-0.58	0	Decreasing
Site A	pH	pH unit	6.9 ± 0.1	-0.41	0	Decreasing
Site B	pH	pH unit	7.2 ± 0.2	-0.6	0	Decreasing
Site C	pH	pH unit	7.4 ± 0.1	-0.54	0	Decreasing
Site D	pH	pH unit	7.3 ± 0.1	-0.44	0	Decreasing
Control Site	Suspended Solids	mg/L	3.6 ± 1.2	0.09	0.32	No significant trend
Site A	Suspended Solids	mg/L	3.7 ± 2.4	0.19	0.03	Increasing
Site B	Suspended Solids	mg/L	4.1 ± 2.3	0.04	0.62	No significant trend

Monitoring site	Parameter	Unit	Mean ± 95% CI	Tau	p-value	Trend
Site C	Suspended Solids	mg/L	9.3 ± 7.3	0.15	0.1	No significant trend
Site D	Suspended Solids	mg/L	16.8 ± 20.3	0.33	0	Increasing
Control Site	Temperature	°C	14.2 ± 0.5	-0.08	0.35	No significant trend
Site A	Temperature	°C	17.2 ± 0.5	-0.05	0.59	No significant trend
Site B	Temperature	°C	16.0 ± 0.5	-0.06	0.51	No significant trend
Site C	Temperature	°C	18.3 ± 0.7	-0.14	0.11	No significant trend
Site D	Temperature	°C	19.0 ± 0.7	-0.14	0.12	No significant trend
Control Site	Turbidity	NTU	4.4 ± 1.5	0.08	0.37	No significant trend
Site A	Turbidity	NTU	4.4 ± 3.3	0.08	0.39	No significant trend
Site B	Turbidity	NTU	4.7 ± 2.2	-0.06	0.53	No significant trend
Site C	Turbidity	NTU	11.3 ± 13.0	0.15	0.1	No significant trend
Site D	Turbidity	NTU	15.7 ± 19.3	0.3	0	Increasing

Table 8-7: Summary results (mean ± 95% confidence interval) and Mann-Kendall trend analysis results of macroinvertebrate community metrics for the Mangatāwhiri monitoring sites 2013-2025.

Monitoring site	Metric	Mean ± 95% CI	Tau	p-value	Trend
Control Site	EPT taxa	12.2 (± 1.3)	0.0631	0.4575	No significant trend
Site A	EPT taxa	4.2 (± 0.5)	0.2677	0.0046	Increasing
Site B	EPT taxa	9.7 (± 1.0)	0.2293	0.0089	Increasing
Site C	EPT taxa	7.8 (± 0.9)	-0.1092	0.2127	No significant trend
Site D	EPT taxa	5.3 (± 0.7)	-0.3033	0.0004	Decreasing
Control Site	Individuals	190.8 (±36.0)	-0.0628	0.4495	No significant trend
Site A	Individuals	308.0 (±73.0)	0.0854	0.3387	No significant trend
Site B	Individuals	219.6 (±48.2)	0.1862	0.0289	Increasing
Site C	Individuals	307.2 (±96.4)	-0.021	0.8076	No significant trend
Site D	Individuals	204.6 (±56.8)	-0.2105	0.0108	Decreasing
Control Site	MCI	142.5 (± 3.4)	0.0323	0.7013	No significant trend
Site A	MCI	87.3 (± 3.2)	0.1102	0.2223	No significant trend
Site B	MCI	115.4 (± 3.1)	0.001	0.9955	No significant trend
Site C	MCI	109.2 (± 4.0)	-0.157	0.0652	No significant trend
Site D	MCI	98.9 (± 4.0)	-0.2133	0.0104	Decreasing
Control Site	QMCI	7.4 (± 0.2)	0.0937	0.3264	No significant trend

Site A	QMCI	4.1 (± 0.2)	0.1145	0.2706	No significant trend
Site B	QMCI	5.6 (± 0.2)	-0.2436	0.0096	Decreasing
Site C	QMCI	5.3 (± 0.3)	-0.1005	0.2746	No significant trend
Site D	QMCI	4.7 (± 0.3)	-0.1068	0.2466	No significant trend
Control Site	Taxa richness	16.9 (± 1.6)	-0.0162	0.8516	No significant trend
Site A	Taxa richness	9.5 (± 0.8)	0.175	0.0585	No significant trend
Site B	Taxa richness	15.8 (± 1.4)	0.1494	0.0863	No significant trend
Site C	Taxa richness	13.5 (± 1.3)	-0.2194	0.0113	Decreasing
Site D	Taxa richness	10.2 (± 1.1)	-0.2916	0.0006	Decreasing

9 CONCLUSION

This report presents the required data for the period of 1 July 2024 to 30 June 2025 for the Upper Mangatāwhiri Dam. All consent conditions were fully compliant throughout the monitoring period.

There were no equipment failures or maintenance activities undertaken in the reporting period that resulted in a discharge that had an observed adverse environmental effect.

The environmental stream monitoring indicates some variability in water quality and macroinvertebrate communities, although this attributed to localised differences in the structure of substrate and cover rather than flow or water quality related changes.

Appendix A. Daily water abstraction volumes

Date	Abstraction (m^3/day)	Date (continued)	Abstraction (m^3/day)
1/07/2024	25,086	1/01/2025	99,974
2/07/2024	25,106	2/01/2025	99,796
3/07/2024	24,928	3/01/2025	99,654
4/07/2024	24,647	4/01/2025	99,844
5/07/2024	24,655	5/01/2025	99,810
6/07/2024	24,654	6/01/2025	99,774
7/07/2024	24,675	7/01/2025	91,041
8/07/2024	14,087	8/01/2025	84,877
9/07/2024	0	9/01/2025	84,940
10/07/2024	0	10/01/2025	84,935
11/07/2024	0	11/01/2025	84,843
12/07/2024	0	12/01/2025	84,961
13/07/2024	0	13/01/2025	84,892
14/07/2024	0	14/01/2025	84,850
15/07/2024	0	15/01/2025	84,898
16/07/2024	8,634	16/01/2025	84,880
17/07/2024	19,837	17/01/2025	84,817
18/07/2024	19,862	18/01/2025	84,860
19/07/2024	30,714	19/01/2025	84,920
20/07/2024	40,059	20/01/2025	84,926
21/07/2024	40,122	21/01/2025	84,748
22/07/2024	40,152	22/01/2025	84,885
23/07/2024	40,189	23/01/2025	84,891
24/07/2024	40,230	24/01/2025	84,899
25/07/2024	52,059	25/01/2025	84,887
26/07/2024	60,071	26/01/2025	84,785
27/07/2024	60,204	27/01/2025	84,893
28/07/2024	59,774	28/01/2025	84,803
29/07/2024	59,952	29/01/2025	84,744
30/07/2024	59,719	30/01/2025	84,732
31/07/2024	59,941	31/01/2025	84,657
1/08/2024	46,244	1/02/2025	84,756
2/08/2024	29,897	2/02/2025	84,534
3/08/2024	29,912	3/02/2025	84,435
4/08/2024	29,924	4/02/2025	84,383

Date	Abstraction (m^3/day)	Date (continued)	Abstraction (m^3/day)
5/08/2024	51,909	5/02/2025	84,297
6/08/2024	64,619	6/02/2025	84,197
7/08/2024	64,628	7/02/2025	84,140
8/08/2024	64,591	8/02/2025	76,478
9/08/2024	54,459	9/02/2025	49,755
10/08/2024	39,618	10/02/2025	49,718
11/08/2024	37,663	11/02/2025	68,306
12/08/2024	34,584	12/02/2025	84,899
13/08/2024	32,303	13/02/2025	84,745
14/08/2024	29,862	14/02/2025	84,604
15/08/2024	29,863	15/02/2025	84,550
16/08/2024	29,874	16/02/2025	84,422
17/08/2024	29,901	17/02/2025	84,308
18/08/2024	30,060	18/02/2025	84,263
19/08/2024	30,140	19/02/2025	84,150
20/08/2024	25,125	20/02/2025	84,060
21/08/2024	19,576	21/02/2025	83,941
22/08/2024	19,597	22/02/2025	83,867
23/08/2024	19,610	23/02/2025	83,787
24/08/2024	19,628	24/02/2025	83,701
25/08/2024	19,642	25/02/2025	83,152
26/08/2024	19,440	26/02/2025	80,478
27/08/2024	24,939	27/02/2025	75,144
28/08/2024	36,613	28/02/2025	74,880
29/08/2024	57,656	1/03/2025	74,843
30/08/2024	69,676	2/03/2025	74,911
31/08/2024	69,699	3/03/2025	74,982
1/09/2024	70,065	4/03/2025	75,445
2/09/2024	70,213	5/03/2025	75,413
3/09/2024	70,185	6/03/2025	75,334
4/09/2024	70,155	7/03/2025	74,270
5/09/2024	70,377	8/03/2025	74,928
6/09/2024	70,145	9/03/2025	74,873
7/09/2024	70,137	10/03/2025	74,813
8/09/2024	70,123	11/03/2025	60,666

Date	Abstraction (m^3/day)	Date (continued)	Abstraction (m^3/day)
9/09/2024	57,741	12/03/2025	49,955
10/09/2024	49,777	13/03/2025	49,928
11/09/2024	49,800	14/03/2025	49,943
12/09/2024	36,411	15/03/2025	49,639
13/09/2024	19,382	16/03/2025	49,580
14/09/2024	19,400	17/03/2025	43,176
15/09/2024	19,412	18/03/2025	39,616
16/09/2024	40,856	19/03/2025	39,800
17/09/2024	60,026	20/03/2025	40,015
18/09/2024	60,169	21/03/2025	39,807
19/09/2024	59,932	22/03/2025	40,148
20/09/2024	59,825	23/03/2025	40,576
21/09/2024	59,876	24/03/2025	40,730
22/09/2024	59,884	25/03/2025	40,261
23/09/2024	59,874	26/03/2025	39,843
24/09/2024	59,853	27/03/2025	40,072
25/09/2024	63,350	28/03/2025	39,836
26/09/2024	79,684	29/03/2025	40,313
27/09/2024	80,274	30/03/2025	40,281
28/09/2024	80,124	31/03/2025	40,244
29/09/2024	76,568	1/04/2025	40,205
30/09/2024	70,295	2/04/2025	40,167
1/10/2024	76,857	3/04/2025	40,515
2/10/2024	89,619	4/04/2025	40,675
3/10/2024	88,730	5/04/2025	40,547
4/10/2024	89,853	6/04/2025	41,951
5/10/2024	89,832	7/04/2025	39,932
6/10/2024	89,855	8/04/2025	38,186
7/10/2024	89,897	9/04/2025	29,637
8/10/2024	86,637	10/04/2025	29,648
9/10/2024	84,512	11/04/2025	29,641
10/10/2024	84,944	12/04/2025	29,642
11/10/2024	84,835	13/04/2025	29,640
12/10/2024	84,854	14/04/2025	29,628
13/10/2024	85,131	15/04/2025	29,626

Date	Abstraction (m^3/day)	Date (continued)	Abstraction (m^3/day)
14/10/2024	85,061	16/04/2025	29,607
15/10/2024	84,755	17/04/2025	29,590
16/10/2024	84,855	18/04/2025	29,653
17/10/2024	69,043	19/04/2025	29,716
18/10/2024	59,828	20/04/2025	29,745
19/10/2024	59,848	21/04/2025	29,744
20/10/2024	60,008	22/04/2025	29,742
21/10/2024	27,109	23/04/2025	34,671
22/10/2024	32,475	24/04/2025	37,501
23/10/2024	44,971	25/04/2025	34,439
24/10/2024	44,993	26/04/2025	34,441
25/10/2024	45,098	27/04/2025	34,428
26/10/2024	44,937	28/04/2025	34,460
27/10/2024	45,039	29/04/2025	37,598
28/10/2024	44,817	30/04/2025	39,918
29/10/2024	44,938	1/05/2025	40,136
30/10/2024	80,083	2/05/2025	40,362
31/10/2024	89,768	3/05/2025	40,443
1/11/2024	89,334	4/05/2025	40,500
2/11/2024	88,837	5/05/2025	40,529
3/11/2024	88,764	6/05/2025	40,535
4/11/2024	88,817	7/05/2025	40,543
5/11/2024	88,947	8/05/2025	40,439
6/11/2024	88,903	9/05/2025	39,728
7/11/2024	88,901	10/05/2025	39,896
8/11/2024	91,505	11/05/2025	40,050
9/11/2024	95,015	12/05/2025	40,040
10/11/2024	94,827	13/05/2025	40,081
11/11/2024	95,127	14/05/2025	39,861
12/11/2024	89,612	15/05/2025	40,025
13/11/2024	84,901	16/05/2025	39,687
14/11/2024	84,909	17/05/2025	39,693
15/11/2024	84,949	18/05/2025	39,694
16/11/2024	84,869	19/05/2025	39,684
17/11/2024	84,915	20/05/2025	45,602

Date	Abstraction (m^3/day)	Date (continued)	Abstraction (m^3/day)
18/11/2024	84,808	21/05/2025	49,779
19/11/2024	84,739	22/05/2025	49,769
20/11/2024	85,005	23/05/2025	49,751
21/11/2024	84,785	24/05/2025	49,740
22/11/2024	84,928	25/05/2025	49,726
23/11/2024	84,781	26/05/2025	49,741
24/11/2024	84,837	27/05/2025	50,008
25/11/2024	84,796	28/05/2025	50,119
26/11/2024	85,242	29/05/2025	50,162
27/11/2024	89,935	30/05/2025	50,121
28/11/2024	89,709	31/05/2025	50,034
29/11/2024	89,878	1/06/2025	50,040
30/11/2024	89,827	2/06/2025	61,835
1/12/2024	89,862	3/06/2025	69,871
2/12/2024	89,983	4/06/2025	69,986
3/12/2024	89,852	5/06/2025	69,876
4/12/2024	96,442	6/06/2025	69,754
5/12/2024	99,807	7/06/2025	69,913
6/12/2024	99,812	8/06/2025	69,890
7/12/2024	99,862	9/06/2025	75,664
8/12/2024	99,885	10/06/2025	79,881
9/12/2024	99,916	11/06/2025	79,894
10/12/2024	99,950	12/06/2025	79,901
11/12/2024	94,011	13/06/2025	79,870
12/12/2024	99,787	14/06/2025	79,884
13/12/2024	99,942	15/06/2025	79,849
14/12/2024	99,833	16/06/2025	79,909
15/12/2024	100,031	17/06/2025	74,862
16/12/2024	99,895	18/06/2025	69,905
17/12/2024	99,843	19/06/2025	69,925
18/12/2024	99,658	20/06/2025	69,823
19/12/2024	99,919	21/06/2025	69,879
20/12/2024	99,771	22/06/2025	69,928
21/12/2024	99,689	23/06/2025	69,842
22/12/2024	99,966	24/06/2025	66,120

Date	Abstraction (m^3/day)	Date (continued)	Abstraction (m^3/day)
23/12/2024	99,905	25/06/2025	59,759
24/12/2024	99,783	26/06/2025	59,966
25/12/2024	99,970	27/06/2025	60,105
26/12/2024	99,607	28/06/2025	60,243
27/12/2024	99,787	29/06/2025	60,360
28/12/2024	99,963	30/06/2025	65,621
29/12/2024	99,955		
30/12/2024	99,760		
31/12/2024	99,651		

Appendix B. Daily average reservoir level

Date	Reservoir level (m)	Date (continued)	Reservoir level (m)
1/07/2024	24.008	1/01/2025	25.248
2/07/2024	24.078	2/01/2025	25.187
3/07/2024	24.122	3/01/2025	25.124
4/07/2024	24.155	4/01/2025	25.069
5/07/2024	24.185	5/01/2025	25.012
6/07/2024	24.212	6/01/2025	24.950
7/07/2024	24.237	7/01/2025	24.887
8/07/2024	24.264	8/01/2025	24.835
9/07/2024	24.305	9/01/2025	24.787
10/07/2024	24.346	10/01/2025	24.733
11/07/2024	24.385	11/01/2025	24.681
12/07/2024	24.425	12/01/2025	24.624
13/07/2024	24.462	13/01/2025	24.569
14/07/2024	24.499	14/01/2025	24.512
15/07/2024	24.562	15/01/2025	24.458
16/07/2024	24.689	16/01/2025	24.397
17/07/2024	24.736	17/01/2025	24.338
18/07/2024	24.772	18/01/2025	24.281
19/07/2024	24.808	19/01/2025	24.223
20/07/2024	24.869	20/01/2025	24.168
21/07/2024	24.948	21/01/2025	24.119
22/07/2024	24.999	22/01/2025	24.084
23/07/2024	25.035	23/01/2025	24.030
24/07/2024	25.060	24/01/2025	23.971
25/07/2024	25.075	25/01/2025	23.915
26/07/2024	25.076	26/01/2025	23.901
27/07/2024	25.073	27/01/2025	23.896
28/07/2024	25.069	28/01/2025	23.845
29/07/2024	25.068	29/01/2025	23.791
30/07/2024	25.136	30/01/2025	23.733
31/07/2024	25.164	31/01/2025	23.676
1/08/2024	25.206	1/02/2025	23.617
2/08/2024	25.252	2/02/2025	23.562
3/08/2024	25.284	3/02/2025	23.505
4/08/2024	25.313	4/02/2025	23.449

Date	Reservoir level (m)	Date (continued)	Reservoir level (m)
5/08/2024	25.331	5/02/2025	23.387
6/08/2024	25.328	6/02/2025	23.327
7/08/2024	25.321	7/02/2025	23.266
8/08/2024	25.311	8/02/2025	23.226
9/08/2024	25.307	9/02/2025	23.200
10/08/2024	25.312	10/02/2025	23.174
11/08/2024	25.319	11/02/2025	23.147
12/08/2024	25.333	12/02/2025	23.117
13/08/2024	25.350	13/02/2025	23.053
14/08/2024	25.360	14/02/2025	22.987
15/08/2024	25.372	15/02/2025	22.923
16/08/2024	25.388	16/02/2025	22.863
17/08/2024	25.439	17/02/2025	22.811
18/08/2024	25.740	18/02/2025	22.759
19/08/2024	25.909	19/02/2025	22.699
20/08/2024	25.994	20/02/2025	22.637
21/08/2024	26.054	21/02/2025	22.573
22/08/2024	26.099	22/02/2025	22.503
23/08/2024	26.139	23/02/2025	22.438
24/08/2024	26.197	24/02/2025	22.371
25/08/2024	26.241	25/02/2025	22.306
26/08/2024	26.279	26/02/2025	22.239
27/08/2024	26.333	27/02/2025	22.180
28/08/2024	26.383	28/02/2025	22.120
29/08/2024	26.414	1/03/2025	22.064
30/08/2024	26.436	2/03/2025	22.003
31/08/2024	26.463	3/03/2025	21.945
1/09/2024	26.801	4/03/2025	21.884
2/09/2024	26.952	5/03/2025	21.837
3/09/2024	26.989	6/03/2025	21.774
4/09/2024	27.017	7/03/2025	21.711
5/09/2024	27.035	8/03/2025	21.647
6/09/2024	27.045	9/03/2025	21.586
7/09/2024	27.057	10/03/2025	21.521
8/09/2024	27.071	11/03/2025	21.462

Date	Reservoir level (m)	Date (continued)	Reservoir level (m)
9/09/2024	27.077	12/03/2025	21.417
10/09/2024	27.093	13/03/2025	21.377
11/09/2024	27.104	14/03/2025	21.339
12/09/2024	27.112	15/03/2025	21.302
13/09/2024	27.142	16/03/2025	21.262
14/09/2024	27.181	17/03/2025	21.229
15/09/2024	27.230	18/03/2025	21.210
16/09/2024	27.260	19/03/2025	21.195
17/09/2024	27.274	20/03/2025	21.187
18/09/2024	27.274	21/03/2025	21.160
19/09/2024	27.272	22/03/2025	21.133
20/09/2024	27.323	23/03/2025	21.104
21/09/2024	27.313	24/03/2025	21.076
22/09/2024	27.292	25/03/2025	21.048
23/09/2024	27.291	26/03/2025	21.019
24/09/2024	27.283	27/03/2025	20.989
25/09/2024	27.276	28/03/2025	20.962
26/09/2024	27.266	29/03/2025	20.935
27/09/2024	27.250	30/03/2025	20.904
28/09/2024	27.233	31/03/2025	20.873
29/09/2024	27.215	1/04/2025	20.845
30/09/2024	27.199	2/04/2025	20.818
1/10/2024	27.190	3/04/2025	20.794
2/10/2024	27.168	4/04/2025	21.146
3/10/2024	27.294	5/04/2025	21.834
4/10/2024	27.285	6/04/2025	21.867
5/10/2024	27.266	7/04/2025	21.871
6/10/2024	27.258	8/04/2025	21.871
7/10/2024	27.286	9/04/2025	21.873
8/10/2024	27.278	10/04/2025	21.870
9/10/2024	27.270	11/04/2025	21.866
10/10/2024	27.262	12/04/2025	21.859
11/10/2024	27.246	13/04/2025	21.848
12/10/2024	27.228	14/04/2025	21.840
13/10/2024	27.214	15/04/2025	21.830

Date	Reservoir level (m)	Date (continued)	Reservoir level (m)
14/10/2024	27.207	16/04/2025	21.824
15/10/2024	27.189	17/04/2025	21.837
16/10/2024	27.166	18/04/2025	21.923
17/10/2024	27.143	19/04/2025	22.029
18/10/2024	27.136	20/04/2025	22.073
19/10/2024	27.129	21/04/2025	22.080
20/10/2024	27.119	22/04/2025	22.087
21/10/2024	27.118	23/04/2025	22.089
22/10/2024	27.135	24/04/2025	22.079
23/10/2024	27.138	25/04/2025	22.070
24/10/2024	27.139	26/04/2025	22.058
25/10/2024	27.140	27/04/2025	22.059
26/10/2024	27.150	28/04/2025	22.084
27/10/2024	27.199	29/04/2025	22.095
28/10/2024	27.211	30/04/2025	22.238
29/10/2024	27.217	1/05/2025	22.535
30/10/2024	27.218	2/05/2025	22.782
31/10/2024	27.189	3/05/2025	22.865
1/11/2024	27.155	4/05/2025	22.900
2/11/2024	27.120	5/05/2025	22.921
3/11/2024	27.104	6/05/2025	22.932
4/11/2024	27.071	7/05/2025	22.942
5/11/2024	27.032	8/05/2025	22.950
6/11/2024	26.996	9/05/2025	22.997
7/11/2024	26.961	10/05/2025	23.152
8/11/2024	26.925	11/05/2025	23.189
9/11/2024	26.880	12/05/2025	23.204
10/11/2024	26.839	13/05/2025	23.215
11/11/2024	26.800	14/05/2025	23.222
12/11/2024	26.753	15/05/2025	23.225
13/11/2024	26.715	16/05/2025	23.227
14/11/2024	26.682	17/05/2025	23.228
15/11/2024	26.785	18/05/2025	23.234
16/11/2024	27.059	19/05/2025	23.242
17/11/2024	27.060	20/05/2025	23.240

Date	Reservoir level (m)	Date (continued)	Reservoir level (m)
18/11/2024	27.039	21/05/2025	23.232
19/11/2024	27.011	22/05/2025	23.218
20/11/2024	26.983	23/05/2025	23.204
21/11/2024	26.958	24/05/2025	23.189
22/11/2024	26.931	25/05/2025	23.172
23/11/2024	26.896	26/05/2025	23.172
24/11/2024	26.861	27/05/2025	23.425
25/11/2024	26.827	28/05/2025	23.543
26/11/2024	26.794	29/05/2025	23.706
27/11/2024	26.754	30/05/2025	23.788
28/11/2024	26.715	31/05/2025	23.828
29/11/2024	26.675	1/06/2025	23.846
30/11/2024	26.644	2/06/2025	23.855
1/12/2024	26.626	3/06/2025	23.852
2/12/2024	26.589	4/06/2025	23.887
3/12/2024	26.550	5/06/2025	24.406
4/12/2024	26.503	6/06/2025	24.535
5/12/2024	26.453	7/06/2025	24.606
6/12/2024	26.400	8/06/2025	24.640
7/12/2024	26.345	9/06/2025	24.706
8/12/2024	26.293	10/06/2025	24.756
9/12/2024	26.242	11/06/2025	25.148
10/12/2024	26.219	12/06/2025	25.254
11/12/2024	26.175	13/06/2025	25.324
12/12/2024	26.155	14/06/2025	25.390
13/12/2024	26.125	15/06/2025	25.439
14/12/2024	26.080	16/06/2025	25.470
15/12/2024	26.028	17/06/2025	25.488
16/12/2024	26.022	18/06/2025	25.510
17/12/2024	26.048	19/06/2025	25.526
18/12/2024	25.999	20/06/2025	25.580
19/12/2024	25.950	21/06/2025	25.603
20/12/2024	25.897	22/06/2025	25.614
21/12/2024	25.843	23/06/2025	25.627
22/12/2024	25.790	24/06/2025	25.631

Date	Reservoir level (m)	Date (continued)	Reservoir level (m)
23/12/2024	25.738	25/06/2025	25.638
24/12/2024	25.688	26/06/2025	25.648
25/12/2024	25.628	27/06/2025	25.994
26/12/2024	25.591	28/06/2025	26.438
27/12/2024	25.544	29/06/2025	26.545
28/12/2024	25.483	30/06/2025	26.609
29/12/2024	25.425		
30/12/2024	25.363		
31/12/2024	25.308		

Appendix C. Compensation flow

Date	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)	Date (continued)	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)
1/07/2024	0.25	256.54	1/01/2025	0.00	181.97
2/07/2024	0.00	593.74	2/01/2025	0.00	177.91
3/07/2024	0.00	361.57	3/01/2025	0.00	177.67
4/07/2024	0.00	260.91	4/01/2025	0.00	196.56
5/07/2024	0.00	227.98	5/01/2025	0.09	180.67
6/07/2024	0.00	218.81	6/01/2025	0.00	176.93
7/07/2024	0.00	210.01	7/01/2025	258.02	174.56
8/07/2024	0.00	204.45	8/01/2025	358.09	175.86
9/07/2024	0.00	194.10	9/01/2025	349.64	175.72
10/07/2024	0.00	188.91	10/01/2025	355.68	173.73
11/07/2024	0.12	185.55	11/01/2025	336.90	172.14
12/07/2024	0.00	183.21	12/01/2025	353.22	170.78
13/07/2024	0.11	180.73	13/01/2025	427.34	169.24
14/07/2024	0.00	180.60	14/01/2025	783.44	170.10
15/07/2024	0.00	592.42	15/01/2025	1152.88	172.79
16/07/2024	0.00	951.57	16/01/2025	1144.89	334.07
17/07/2024	0.00	341.55	17/01/2025	1245.18	176.47
18/07/2024	0.00	278.72	18/01/2025	1455.32	173.31
19/07/2024	0.00	283.03	19/01/2025	1472.83	172.76
20/07/2024	0.40	1447.64	20/01/2025	1446.08	174.10
21/07/2024	22.36	1084.97	21/01/2025	1437.47	290.54
22/07/2024	6.41	781.72	22/01/2025	1438.38	199.36
23/07/2024	0.43	618.16	23/01/2025	1438.83	179.00
24/07/2024	0.00	379.07	24/01/2025	1449.66	176.75
25/07/2024	0.00	291.09	25/01/2025	1438.90	175.89
26/07/2024	0.00	246.15	26/01/2025	1448.04	489.47
27/07/2024	0.00	228.90	27/01/2025	1428.99	391.35
28/07/2024	10.05	221.11	28/01/2025	1451.23	191.49
29/07/2024	19.92	288.10	29/01/2025	1440.03	183.07
30/07/2024	0.27	1837.77	30/01/2025	1432.30	179.48
31/07/2024	13.49	854.32	31/01/2025	1434.07	178.19
1/08/2024	26.64	2099.51	1/02/2025	1429.59	178.11

Date	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)	Date (continued)	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)
2/08/2024	0.00	905.53	2/02/2025	1428.48	177.83
3/08/2024	0.00	479.90	3/02/2025	1422.30	182.59
4/08/2024	0.00	346.98	4/02/2025	1432.47	179.08
5/08/2024	0.09	292.71	5/02/2025	1416.85	177.17
6/08/2024	0.00	257.11	6/02/2025	1419.91	176.47
7/08/2024	0.00	236.04	7/02/2025	1426.82	176.16
8/08/2024	0.13	233.41	8/02/2025	1423.96	175.81
9/08/2024	0.00	267.55	9/02/2025	1429.70	175.50
10/08/2024	22.41	227.37	10/02/2025	1433.42	185.72
11/08/2024	38.18	218.76	11/02/2025	1421.80	342.81
12/08/2024	35.06	233.20	12/02/2025	1410.09	306.03
13/08/2024	0.00	223.25	13/02/2025	1413.83	372.97
14/08/2024	38.61	208.99	14/02/2025	1414.05	181.04
15/08/2024	0.00	206.47	15/02/2025	1413.40	176.60
16/08/2024	0.00	207.61	16/02/2025	1407.93	177.72
17/08/2024	0.00	1579.02	17/02/2025	1415.31	194.28
18/08/2024	0.00	6514.31	18/02/2025	1407.76	185.73
19/08/2024	0.00	2823.24	19/02/2025	1407.52	179.37
20/08/2024	0.00	1183.50	20/02/2025	1396.55	178.59
21/08/2024	0.00	594.22	21/02/2025	1411.40	175.51
22/08/2024	0.00	409.37	22/02/2025	1401.62	173.07
23/08/2024	0.00	332.14	23/02/2025	1407.02	172.77
24/08/2024	0.00	424.80	24/02/2025	1396.52	172.67
25/08/2024	0.00	317.55	25/02/2025	1395.51	172.44
26/08/2024	0.00	286.84	26/02/2025	1394.68	171.86
27/08/2024	0.00	667.72	27/02/2025	1385.00	171.87
28/08/2024	0.00	537.23	28/02/2025	1388.07	171.98
29/08/2024	0.00	481.80	1/03/2025	1387.04	172.60
30/08/2024	0.00	485.02	2/03/2025	1384.24	172.00
31/08/2024	0.00	730.56	3/03/2025	1375.47	171.15
1/09/2024	20.77	7001.76	4/03/2025	1384.32	173.81
2/09/2024	2.85	1333.10	5/03/2025	1383.23	205.90

Date	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)	Date (continued)	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)
3/09/2024	0.00	708.00	6/03/2025	1385.28	173.05
4/09/2024	0.00	535.69	7/03/2025	1384.00	171.56
5/09/2024	0.00	395.59	8/03/2025	1388.55	171.63
6/09/2024	0.00	351.89	9/03/2025	1392.46	171.39
7/09/2024	0.00	338.32	10/03/2025	1536.06	169.91
8/09/2024	0.00	418.86	11/03/2025	1733.36	171.05
9/09/2024	86.80	315.87	12/03/2025	1742.20	368.66
10/09/2024	0.00	299.42	13/03/2025	1744.03	176.21
11/09/2024	0.00	281.22	14/03/2025	1732.60	172.14
12/09/2024	0.00	264.00	15/03/2025	1734.56	171.29
13/09/2024	0.00	262.03	16/03/2025	1752.01	170.33
14/09/2024	0.00	315.39	17/03/2025	1734.71	171.22
15/09/2024	0.00	502.73	18/03/2025	1738.01	188.22
16/09/2024	0.00	340.67	19/03/2025	1745.72	207.86
17/09/2024	0.00	756.17	20/03/2025	1734.33	208.19
18/09/2024	0.00	630.50	21/03/2025	1750.20	176.01
19/09/2024	0.00	524.71	22/03/2025	1728.70	173.85
20/09/2024	0.00	10670.33	23/03/2025	1724.94	172.94
21/09/2024	0.00	7205.65	24/03/2025	1734.09	172.76
22/09/2024	0.00	2472.99	25/03/2025	1724.89	172.62
23/09/2024	17.99	1649.14	26/03/2025	1722.93	172.19
24/09/2024	14.26	1011.70	27/03/2025	1728.18	171.36
25/09/2024	0.10	612.28	28/03/2025	1725.81	171.60
26/09/2024	2.58	383.49	29/03/2025	1727.99	170.94
27/09/2024	15.39	371.39	30/03/2025	1724.49	171.08
28/09/2024	0.00	283.45	31/03/2025	1727.28	170.81
29/09/2024	0.00	269.68	1/04/2025	1723.94	170.66
30/09/2024	0.00	262.09	2/04/2025	1720.18	171.32
1/10/2024	9.42	252.95	3/04/2025	1723.13	180.03
2/10/2024	0.00	323.97	4/04/2025	1727.06	2978.71
3/10/2024	0.00	6598.23	5/04/2025	1761.72	1045.71
4/10/2024	0.42	1991.33	6/04/2025	1843.25	206.11

Date	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)	Date (continued)	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)
5/10/2024	2.38	638.49	7/04/2025	1767.79	182.86
6/10/2024	0.00	877.49	8/04/2025	1775.98	264.50
7/10/2024	0.12	5119.98	9/04/2025	1767.77	196.95
8/10/2024	50.48	1814.48	10/04/2025	1772.75	173.30
9/10/2024	0.00	1246.98	11/04/2025	1799.49	169.82
10/10/2024	0.00	691.82	12/04/2025	2043.85	168.35
11/10/2024	0.00	506.40	13/04/2025	2040.38	167.43
12/10/2024	0.11	431.06	14/04/2025	2040.99	166.72
13/10/2024	0.00	419.52	15/04/2025	2032.99	165.60
14/10/2024	0.11	451.95	16/04/2025	1894.47	174.84
15/10/2024	5.60	359.32	17/04/2025	1334.27	1141.77
16/10/2024	0.11	315.84	18/04/2025	882.39	2860.70
17/10/2024	0.19	301.48	19/04/2025	884.92	1162.03
18/10/2024	0.28	292.92	20/04/2025	878.54	378.55
19/10/2024	0.00	285.37	21/04/2025	877.31	217.54
20/10/2024	0.00	277.54	22/04/2025	720.56	191.78
21/10/2024	38.25	272.80	23/04/2025	620.02	179.41
22/10/2024	75.99	267.51	24/04/2025	717.36	171.05
23/10/2024	0.00	261.53	25/04/2025	1078.94	169.26
24/10/2024	0.00	253.69	26/04/2025	1233.38	170.36
25/10/2024	0.00	246.57	27/04/2025	1234.22	265.02
26/10/2024	0.00	538.10	28/04/2025	963.12	346.64
27/10/2024	0.10	581.30	29/04/2025	809.67	499.27
28/10/2024	0.00	344.06	30/04/2025	813.04	4339.07
29/10/2024	0.00	309.49	1/05/2025	556.44	6297.06
30/10/2024	52.76	411.88	2/05/2025	494.25	1698.70
31/10/2024	0.00	285.21	3/05/2025	0.00	618.88
1/11/2024	0.22	254.74	4/05/2025	0.00	306.89
2/11/2024	0.00	244.79	5/05/2025	4.15	226.28
3/11/2024	0.00	480.97	6/05/2025	0.14	203.44
4/11/2024	0.00	256.22	7/05/2025	0.00	191.70
5/11/2024	0.00	237.97	8/05/2025	0.00	185.46

Date	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)	Date (continued)	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)
6/11/2024	0.00	233.16	9/05/2025	0.00	2469.98
7/11/2024	0.00	229.90	10/05/2025	0.00	2657.80
8/11/2024	0.12	227.13	11/05/2025	0.00	489.45
9/11/2024	0.00	223.67	12/05/2025	0.00	278.71
10/11/2024	0.00	227.13	13/05/2025	0.16	227.64
11/11/2024	0.00	237.46	14/05/2025	0.00	211.88
12/11/2024	0.00	218.49	15/05/2025	7.03	196.01
13/11/2024	35.68	215.23	16/05/2025	0.00	187.65
14/11/2024	0.09	216.66	17/05/2025	0.00	181.78
15/11/2024	0.10	3986.05	18/05/2025	0.00	184.78
16/11/2024	0.00	1542.41	19/05/2025	0.19	201.82
17/11/2024	0.00	405.15	20/05/2025	0.00	178.10
18/11/2024	0.00	282.62	21/05/2025	39.16	175.35
19/11/2024	0.00	247.06	22/05/2025	0.00	173.40
20/11/2024	0.00	236.51	23/05/2025	0.00	172.93
21/11/2024	190.18	236.08	24/05/2025	0.00	171.58
22/11/2024	0.00	233.54	25/05/2025	0.00	170.83
23/11/2024	0.00	218.32	26/05/2025	0.00	818.59
24/11/2024	0.00	215.20	27/05/2025	0.27	5604.18
25/11/2024	46.61	210.10	28/05/2025	0.00	2503.20
26/11/2024	0.00	210.83	29/05/2025	0.29	3459.16
27/11/2024	0.00	210.01	30/05/2025	0.00	1409.84
28/11/2024	0.00	205.36	31/05/2025	0.00	653.05
29/11/2024	32.62	202.72	1/06/2025	0.00	391.79
30/11/2024	0.00	361.53	2/06/2025	0.00	295.77
1/12/2024	0.00	270.38	3/06/2025	0.00	263.74
2/12/2024	0.10	214.14	4/06/2025	0.28	3879.28
3/12/2024	0.00	206.08	5/06/2025	0.00	11311.33
4/12/2024	0.00	201.01	6/06/2025	0.00	2980.92
5/12/2024	0.00	196.80	7/06/2025	0.00	1658.77
6/12/2024	0.00	197.68	8/06/2025	0.00	804.79
7/12/2024	0.00	190.74	9/06/2025	4.07	1951.30

Date	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)	Date (continued)	Upper Mangatāwhiri Dam Compensation Flow (m^3/day)	Lower Mangatāwhiri Weir Daily Average Flow (L/s)
8/12/2024	0.00	189.91	10/06/2025	0.00	2397.96
9/12/2024	28.09	201.81	11/06/2025	0.00	7929.95
10/12/2024	0.00	255.23	12/06/2025	0.00	1873.31
11/12/2024	100.95	197.80	13/06/2025	0.00	3370.55
12/12/2024	0.00	491.19	14/06/2025	0.00	3135.80
13/12/2024	0.00	283.36	15/06/2025	0.00	1926.97
14/12/2024	0.00	207.38	16/06/2025	0.00	1159.52
15/12/2024	0.00	196.68	17/06/2025	0.00	784.36
16/12/2024	0.00	2249.47	18/06/2025	0.00	607.78
17/12/2024	0.00	658.33	19/06/2025	0.00	523.33
18/12/2024	0.00	248.59	20/06/2025	0.00	2436.22
19/12/2024	64.59	212.43	21/06/2025	0.00	983.28
20/12/2024	0.00	199.64	22/06/2025	0.00	677.47
21/12/2024	0.00	192.96	23/06/2025	0.00	561.39
22/12/2024	0.00	194.81	24/06/2025	38.26	457.67
23/12/2024	0.00	242.81	25/06/2025	33.53	406.90
24/12/2024	0.00	200.59	26/06/2025	0.17	393.19
25/12/2024	0.00	188.56	27/06/2025	0.60	15646.09
26/12/2024	5.84	254.23	28/06/2025	52.13	4751.80
27/12/2024	2.69	200.78	29/06/2025	0.74	3028.23
28/12/2024	28.29	183.25	30/06/2025	3.80	1622.44
29/12/2024	0.00	181.03			
30/12/2024	0.00	180.11			
31/12/2024	0.00	189.64			

Appendix D. Native fisheries MPI report

Auckland Water Supply Dams
2024-2025 Native Fisheries Annual Report

Final - August 2025

Watercare

QUALITY INFORMATION

Document	Annual Report
Date	8 August 2025
Name and position of originator	Emma Baker, Environmental Scientist
Report directory	\\water.internal\ORG\Ops\Water Supply\Headworks\SDGEN\00 - Site General\Compliance\Trap and Haul\Ministry of Fisheries Reports

REVISION HISTORY

Rev	Revision Date	Name	Position	Signature
1	24/07/2025	Michiel Jonker	Environmental Care Manager	
2	05/08/2025	AJ Grobler	Operations Controller	
3	08/08/2025	Brendon Dockary	Operations Controller	

APPROVED

Date	Name	Position	Signature
08/08/2025	Michiel Jonker	Environmental Care Manager	

TABLE OF CONTENTS

LIST OF TABLES

1 INTRODUCTION

Watercare Services Limited (Watercare) currently undertakes a Native Fisheries Management Programme utilising 'trap and haul' methods at eight of the water supply dams. Ministry of Primary Industries approval has been granted for this work under Special Permit 737 (expires on 1 October 2025; Appendix A) and Fish Transfer Authorisation NFT325. The permit covers the upstream and downstream trap and haul activities for dams in the Auckland and Waikato regions:

- Hunua Ranges:
  - Hays Creek Dam
  - Cosseys Dam
  - Wairoa Dam
  - Upper Mangatawhiri Dam
  - Mangatangi Weir
- Waitākere Ranges:
  - Lower Nihotupu Dam
  - Lower Huia Dam
  - Waitākere Dam

New permits will be applied for to continue trap and haul from the 2025-2026 season onwards.

This report provides details of the programme for the period 1 July 2024 to 30 June 2025, in fulfilment of conditions 27, 28 and 29 of Special Permit 737.

2 UPSTREAM TRANSFER

Trapping for elver and other freshwater fish was conducted at the following sites for the purpose of upstream transfer:

- Lower Nihotupu Dam
- Waitākere Dam
- Hays Creek Dam
- Cosseys Dam
- Mangatangi weir

Trapping (upstream transfer) at Lower Huia Dam has proven unsuccessful in the past and is no longer undertaken.

2.1 Collection methods

During the 2024-2025 trap and haul season, two traps were deployed in the Waitākere Ranges and three in the Hunua Ranges. The design and methodology of each trap followed those outlined in Watercare's Native Fisheries Program – Operations Manual for Undertaking Trap and Haul.

During rainfall events, traps were taken out of service as part of standard operations. Additionally, over the Christmas holiday period, the Hunua dams' traps were not in service due to low staff availability.

2.2 Fish species, elvers and approximate total weight

The estimated weight of each catch is based on the number of individuals caught, the expected weight for each species (1 g per elver and 0.5 g per juvenile galaxiid) and the measured size of the individuals. The data provided in Table 2-1 to Table 2-5 fulfil conditions 28a, 28b and 28f.

All elvers and galaxiids were released directly into the respective dams upstream of the trapping sites or above the Mangatangi weir.

Table 2-1: Approximate total weight of each species collected at Lower Nihotupu Dam during the 2024-2025 upstream trap and haul season.

Date	Elver (g)	Galaxiids (g)
20/10/2024	5	100.0
24/10/2024	-	10.0
30/10/2024	6	3.5
3/11/2024	40	1.0
7/11/2024	38	-
13/11/2024	12	-
18/11/2024	14	9.0
25/11/2024	80	30.0
28/11/2024	50	2.0
3/12/2024	200	-
6/12/2024	250	6.0
9/12/2024	300	2.5
10/12/2024	50	0.5

Date	Elver (g)	Galaxiids (g)
15/12/2024	40	1.5
22/12/2024	100	-
22/12/2024	50	-
2/01/2025	480	-
5/01/2025	107	3.0
9/01/2025	100	-
14/01/2025	60	-
16/01/2025	100	0.5
23/01/2025	120	2.0
28/01/2025	230	-
3/02/2025	200	16.0
6/02/2025	85	-
11/02/2025	48	-
17/02/2025	30	-
7/03/2025	28	-
10/04/2025	14	-
Total	**2,837**	**178.0**

Table 2-2: Approximate total weight of each species collected at Waitākere Dam during the 2024-2025 upstream trap and haul season.

Date	Elver (g)	Galaxiids (g)
10/11/2024	5	-
18/11/2024	7	-
2/12/2024	23	1.0
11/12/2024	22	2.0
19/12/2024	12	1.0
27/12/2024	3	1.5
29/12/2024	3	1.0
29/12/2024	35	-
3/01/2025	170	-
6/01/2025	12	-
7/01/2025	100	-
9/01/2025	50	-
13/01/2025	110	-
14/01/2025	5	7.5
16/01/2025	200	-
20/01/2025	24	-
21/01/2025	104	-

Date	Elver (g)	Galaxiids (g)
2/02/2025	35	-
7/02/2025	300	-
10/02/2025	140	-
17/02/2025	350	-
27/02/2025	200	-
4/03/2025	64	-
10/03/2025	184	-
12/03/2025	11	-
18/03/2025	64	-
26/03/2025	38	-
30/03/2025	44	-
16/04/2025	15	-
Total	**2,330**	**14.0**

Table 2-3: Approximate total weight of each species collected at Hays Creek Dam during the 2024-2025 upstream trap and haul season.

Date	Elver (g)	Galaxiids (g)
21/10/2024	-	1.0
28/10/2024	-	1.5
31/10/2024	-	0.5
1/11/2024	-	1.0
2/11/2024	-	2.0
4/11/2024	-	1.0
4/11/2024	-	0.5
5/11/2024	-	2
22/12/2024	52	-
27/12/2024	49	-
30/12/2024	69	-
31/12/2024	16	-
7/01/2025	17	-
13/01/2025	15	-
13/01/2025	200	0.5
15/01/2025	14	-
6/02/2025	84	-
19/02/2025	46	-
20/02/2025	25	-
24/02/2025	12	-
3/03/2025	3	-

Date	Elver (g)	Galaxiids (g)
4/03/2025	6	-
9/03/2025	6	-
Total	**614**	**10.0**

Table 2-4: Approximate total weight of each species collected at Cosseys Dam during the 2024-2025 upstream trap and haul season.

Date	Elver (g)	Galaxiids (g)
29/10/2024	3	-
7/11/2024	2	-
14/11/2024	2	-
2/12/2024	16	-
3/12/2024	5	-
3/12/2024	16	-
16/12/2024	12	-
26/12/2024	10	-
29/12/2024	26	-
31/12/2024	18	-
5/01/2025	16	-
7/01/2025	12	-
14/01/2025	12	-
27/01/2025	66	-
4/02/2025	24	-
12/02/2025	5	-
18/02/2025	11	-
19/02/2025	11	-
21/02/2025	15	-
10/03/2025	34	-
14/03/2025	3	-
18/03/2025	4	-
Total	**323**	**0.0**

Table 2-5: Approximate total weight of each species collected at Mangatangi weir during the 2024-2025 upstream trap and haul season.

Date	Elver (g)	Galaxiids (g)
8/10/2024	1	-
30/10/2024	1	-
13/11/2024	1	-
17/11/2024	2	-
20/11/2024	4	-

Date	Elver (g)	Galaxiids (g)
25/11/2024	4	-
26/11/2024	4	-
29/11/2024	6	-
1/12/2024	50	-
9/12/2024	1	-
11/12/2024	23	0.5
13/12/2024	24	-
16/12/2024	19	-
23/12/2024	3	-
24/12/2024	4	-
30/12/2024	11	1.0
31/12/2024	13	-
2/01/2025	7	-
3/01/2025	11	-
5/01/2025	13	0.5
8/01/2025	14	-
10/01/2025	5	-
20/01/2025	55	5.5
27/01/2025	78	1.5
28/01/2025	13	-
29/01/2025	35	-
30/01/2025	3	-
3/02/2025	15	0.5
7/02/2025	24	-
16/02/2025	4	-
21/02/2025	7	0.5
28/02/2025	3	-
10/03/2025	1	-
Total	**459**	**10**

2.3 Juvenile eel length

Condition 28c requires the weight of juvenile eels (i.e., greater than 20 g in weight) collected for transfer to be measured. The length was measured instead of weight, consistent with previous years' practices. The data is provided in Table 2-6.

Table 2-6: Length of juvenile eels reported during the 2024-2025 upstream trap and haul season

Location	Date	Length of juvenile eel (mm)
Waitākere	23/10/2024	250

2.4 Bycatch species and weight

The most caught bycatch species were the Kōura (*Paranephrops planifrons*) and bullies (*Gobiomorphus spp*). All bycatch species were caught in the permanent fish trap structures located at the base of the dams. On average, the bullies are estimated to weigh 2.5 g, and smelt (*Retropinna retropinna*) approximately 0.5 g, though no smelt were caught during this trap and haul season. When the bully species could not be identified, they were assumed to be common bullies. The results of the bycatch are presented in Table 2-7.

Table 2-7: Approximate total weight of bycatch reported during the 2024-2025 upstream trap and haul season.

Location	Date	Species (number if weight unknown)	Weight (g)
Lower Nihotupu	20/10/2024	Common bully	2.5
	24/10/2024	Common bully	2.5
	3/11/2024	Common bully	65.0
	7/11/2024	Common bully	17.5
	13/11/2024	Common bully	12.5
	25/11/2024	Common bully	27.5
	3/12/2024	Common bully	7.5
	3/12/2024	Common bully	15
	9/12/2024	Common bully	7.5
	10/12/2024	Common bully	17.5
	15/12/2024	Common bully	2.5
	22/12/2024	Common bully	2.5
	22/12/2024	Common bully	12.5
	14/01/2025	Common bully	2.5
	16/01/2025	Common bully	2.5
	7/03/2025	Common bully	2.5
	10/04/2025	Common bully	25.0
Waitākere	18/11/2024	Common bully	2.5
	29/12/2024	Common bully	10.0
	3/01/2025	Common bully	5.0
	10/02/2025	Common bully	7.5
Hays Creek	1/12/2024	Common bully	2.5
	7/01/2025	Common bully	2.5
Mangatangi	8/10/2025	Common bully	15.0
		Kōura (1)	n/a
	11/10/2025	Common bully	5.0
	14/10/2025	Common bully	2.5
	18/10/2024	Common bully	2.5
	22/10/2024	Kōura (1)	n/a

Location	Date	Species (number if weight unknown)	Weight (g)
	22/10/2024	Common bully	2.5
	22/10/2024	Redfin bully (1)	2.5
	24/10/2024	Kōura (1)	n/a
	29/10/2024	Kōura (1)	n/a
	29/10/2024	Common bully	7.5
	1/11/2024	Redfin bully	2.5
	4/11/2024	Common bully	2.5
	6/11/2024	Common bully	2.5
	8/11/2024	Common bully	5.0
	11/11/2024	Common bully	15.0
	13/11/2024	Common bully	15.0
	18/11/2024	Common bully	7.5
	20/11/2024	Common bully	7.5
	21/11/2024	Kōura (1)	n/a
	25/11/2024	Common bully	7.5
	26/11/2024	Kōura (1)	n/a
	26/11/2024	Common bully	17.5
	1/12/2024	Kōura (10)	n/a
	1/12/2024	Common bully	30.0
	1/12/2024	Common bully	22.5
	6/12/2024	Kōura (1)	n/a
	9/12/2024	Common bully	37.5
	11/12/2024	Common bully	42.5
	13/12/2024	Kōura (2)	n/a
	13/12/2024	Common bully	32.5
	16/12/2024	Common bully	40.0
	18/12/2024	Common bully	15.0
	23/12/2024	Common bully	12.5
	24/12/2024	Kōura (1)	n/a
	24/12/2024	Common bully	105.0
	27/12/2024	Common bully	117.5
	30/12/2024	Common bully	170.0
	31/12/2024	Common bully	27.5
	3/01/2025	Common bully	45.0
	6/01/2025	Common bully	75.0
	8/01/2025	Common bully	32.5
	10/01/2025	Common bully	12.5
	21/01/2025	Common bully	27.5

Location	Date	Species (number if weight unknown)	Weight (g)
	27/01/2025	Kōura (1)	n/a
	27/01/2025	Common bully	45.0
	29/01/2025	Common bully	37.5
	3/02/2025	Common bully	12.5
	7/02/2025	Common bully	120.0
	10/02/2025	Common bully	25.0
	16/02/2025	Common bully	42.5
	18/02/2025	Common bully	25.0
	21/02/2025	Common bully	175.0
	24/02/2025	Common bully	20.0
	28/02/2025	Kōura (1)	n/a
	28/02/2025	Common bully	10.0
	3/03/2025	Common bully	12.5
	6/03/2025	Kōura (1)	n/a
	10/03/2025	Kōura (1)	n/a
	10/03/2025	Common bully	7.5
	21/03/2025	Kōura (2)	n/a
	24/03/2025	Common bully	15.0
	24/03/2025	Kōura (2)	n/a
	26/03/2025	Kōura (4)	n/a
	31/03/2025	Kōura (3)	n/a
Total			**1,767.5**

2.5 Fish deaths

Fish deaths were observed on a number of occasions during the upstream trapping season, detailed in Table 2-8. When the bully species could not be identified, they were assumed to be common bullies. Fish deaths primarily occurred inside the permanent fish trap structures, however, deceased juvenile brown trout (*Salmo trutta*) were located on the netted ramp leading to the tank at the Mangatangi weir, and some elvers were found in the trap's outlet structure at Waitākere Dam.

Table 2-8: Fish deaths during the 2024-2025 upstream trap and haul.

Location	Date	Species	Number
Lower Nihotupu	30/10/2024	Galaxiid	5
	3/11/2024	Common bully	5
Waitākere	7/01/2025	Elver	1
	7/02/2025	Elver	2
	10/03/2025	Elver	12
	16/04/2025	Elver	4
Hays Creek	29/10/2024	Galaxiids	3
	31/10/2024	Galaxiids	1

Location	Date	Species	Number
	2/11/2024	Galaxiids	1
Cosseys	30/12/2024	Elver	1
Mangatangi	20/11/2024	Brown trout	1
	21/11/2024	Brown trout	6
	25/11/2024	Brown trout	1
	26/11/2024	Brown trout	10
	29/11/2024	Brown trout	9
	2/12/2024	Brown trout	4
	2/12/2024	Elver	3

3 DOWNSTREAM TRANSFER

3.1 Collection methods

Net setting for eels was conducted at the following eight sites for the purpose of downstream transfer:

- Lower Nihotupu Dam
- Lower Huia Dam
- Waitākere Dam
- Hays Creek Dam
- Cosseys Dam
- Wairoa Dam
- Upper Mangatāwhiri Dam
- Mangatangi Dam

Fyke nets are used as the downstream eel trapping method. They are long cylindrical netting bags with netting cones, designed for easy entry but a difficult exit. Two fyke nets were deployed near the dam face in all permitted water supply dams overnight, collected on the dates listed in Table 3-1 during the eel migration season. Migrating eels exhibit distinctive morphological features and can therefore be identified from non-migrating eels during the trapping process.

3.2 Migrating eel

Condition 28h requires reporting on several aspects of the downstream eel transfer process, including the total weight, approximate number, and species of adult migrating eels collected for transfer. It also requires the date of collection, comments on the prevailing flow conditions (e.g., normal, flood), the site of release, and the percentage of eels caught that were successfully transferred and released.

Table 3-1 provides most of the data required by this condition. There were 19 migrating eels caught in the 2024-2025 trap and haul season, this is an increase compared to the 11 eels caught in 2023-2024. Any migrant eels caught were transferred downstream on the day of capture and the remainder of the catch was released back into dams. Flow conditions were normal on the days trapping occurred.

Table 3-1: Total weight per day, eel species and approximate numbers caught for transfer, and the number and percentage of adult migrating eels transferred.

Location	Date	Total	Species		Weight (g)		Length (mm)		Migrators	
		Eels	Longfin	Shortfin	Average	Largest	Average	Largest	Count	(%)
Lower Nihotupu	4/03/2025	3	0	3	340	510	550	600	0	0
	25/03/2025	6	3	3	400	600	550	750	2	33.3
	15/04/2025	0	0	0	0	0	0	0	0	0
	6/05/2025	4	1	3	1162.5	2,900	712.5	950	2	50
	27/05/2025	3	2	1	4066.7	7,700	1000	1,400	2	66.7
Lower Huia	2/04/2025	0	0	0	0	0	0	0	0	0
	23/04/2025	0	0	0	0	0	0	0	0	0
	13/05/2025	0	0	0	0	0	0	0	0	0

Location	Date	Total Eels	Species		Weight (g)		Length (mm)		Migrators	
			Longfin	Shortfin	Average	Largest	Average	Largest	Count	(%)
	22/05/2025	0	0	0	0	0	0	0	0	0
	27/06/2025	0	0	0	0	0	0	0	0	0
Waitākere	20/03/2025	1	0	1	750	750	700	700	0	0
	5/06/2025	0	0	0	0	0	0	0	0	0
Hays Creek	19/03/2025	0	0	0	0	0	0	0	0	0
	24/04/2025	7	4	3	1000	2,900	671.4	1,100	1	14.3
	28/05/2025	4	4	0	1,780	3,555	1,000	1,500	0	0
	30/05/2025	4	4	0	3,650	6,850	912.5	1,300	1	25
Cosseys	12/03/2025	2	2	0	2,025	3,000	750	900	0	-
	14/03/2025	5	5	0	3,253	9,000	780	950	1	20
	15/04/2025	0	0	0	0	0	0	0	0	-
	18/04/2025	1	1	0	1,634	1,634	800	800	0	-
	20/05/2025	1	1	0	400	400	400	400	0	-
	21/05/2025	2	2	0	1142.5	1,600	825	900	0	-
	26/06/2025	3	3	0	569.7	956	500	800	0	-
Wairoa	5/03/2025	1	1	0	5,900	5,900	1,270	1,270	1	100
	7/03/2025	1	1	0	1,525	1,525	570	570	1	100
	9/04/2025	4	4	0	4,050.5	6,702	1,026.25	1,205	0	-
	11/04/2025	0	0	0	0	0	0	0	0	-
	14/05/2025	1	1	0	3,000	3,000	950	950	0	-
	16/05/2025	1	1	0	3,674	3,674	1,200	1,200	1	100
Mangatāwhiri	7/05/2025	3	3	0	2,803	5,675	916.7	1,200	1	33.3
	9/05/2025	6	6	0	617	985	520	600	0	-
	11/06/2025	0	0	0	0	0	0	0	0	-
	13/06/2025	0	0	0	0	0	0	0	0	-
Mangatangi	26/03/2025	1	1	0	1,950	1,950	960	960	0	-
	27/03/2025	0	0	0	0	0	0	0	0	-
	2/05/2025	7	7	0	1,205	2,390	714.3	900	6	85.7

3.3 Bycatch species and weight

Perch (*Perca fluviatilis*), rudd (*Scardinius erythrophthalamus*) and carp (*Cyprinus rubrofuscus*) were caught in the dams as part of the downstream transfer and weighed onsite.

Table 3-2: Approximate total weight of the bycatch reported during the 2024-2025 downstream trap and haul season.

Location	Date	Species	Weight (g)
Lower Nihotupu	25/03/2025	Perch	50
		Rudd	100
Hays Creek	30/05/2025	Carp	150
Cosseys	26/06/2025	Perch	300

Location	Date	Species	Weight (g)
Upper Mangatāwhiri	2/04/2025	Common bully	34

3.4 Fish deaths

Fish deaths occurred on two occasions as part of the downstream transfer operations. One deceased rudd was found at Cosseys Dam on 21 May 2025, and two carp were found on 30 May 2025 at Hays Creek Dam.

4 SUMMARY

Upstream transfer of migrating species occurred at five Watercare dams for the 2024-2025 season: Lower Nihotupu Dam, Waitākere Dam, Hays Creek Dam, Cosseys Dam and at the Mangatangi weir. All transferred both galaxiids and elvers, with Lower Nihotupu having the greatest catch rates, consistent with previous years. Notably, a significant number of bullies were also caught at the Mangatangi weir.

The downstream transfer of migrating species was undertaken at eight Watercare dams for the season: Lower Nihotupu Dam, Lower Huia Dam and Waitākere Dam in the Waitākere Ranges and Hays Creek dam, Cosseys Dam, Wairoa Dam, Upper Mangatawhiri Dam and at the Mangatangi weir in the Hunua Ranges. Eels (migratory and non-migratory) were caught on at least one occasion at most dams, with the exception of Lower Huia Dam. Migrating eels were caught at all five Hunua Ranges dams, and only at Lower Nihotupu Dam in the Waitākere Ranges.

Appendix A. Ministry of Primary Industries Special Permit 737

Fisheries New Zealand
Tini a Tangaroa

SPECIAL PERMIT (737)

The Director-General of the Ministry for Primary Industries (**MPI**) acting through his delegated officer (**Director-General**) and pursuant to section 97(1) of the *Fisheries Act 1996* (**the Act**), hereby issues a special permit to:

Watercare Services Limited
Private Bag 92521
Wellesley Street
Auckland 1141

Client Number: 9720100

and agents, representatives and employees of, as part of their association with Watercare Services Limited (**the permit holder**), subject to the following conditions specified below.

Purpose

1. This special permit is issued for the following purpose specified in section 97(1)(c) of the Act:
    a) to allow persons or agencies to take aquatic life and relocate it to a suitable habitat where this is necessary or required to mitigate adverse effects of habitat modification on the aquatic life.
2. The permit holder is permitted to take, transfer, and release native fish of the following species: shortfin and longfin eels (*Anguilla* spp.), *Galaxias* spp., *Gobiomorphus* spp., and torrentfish (*Cheimarrichthys fosteri*), irrespective of size for the above purpose.

Term of Permit

3. This special permit revokes and replaces special permit 610 and any previous amendments.
4. This special permit is valid from the date of signature until 1 October 2025, unless sooner varied or revoked.

Permitted Activities

5. This special permit allows the taking (as defined in section 2 of the Act) of aquatic life, for the purposes of relocating aquatic life, to mitigate adverse effects of habitat modification, carried out by the permit holder.

6. Fishing under the authority of this special permit for upstream migration may only be taken from the following waterways:
    a) Hūnua area:

i) Cosseys Stream or its tributaries downstream of the Cosseys Dam;

ii) Hays Creek or its tributaries downstream of the Hays Creek Dam;

iii) Mangatangi stream or its tributaries downstream of the Mangatangi Weir.

b) Waitākere area:

i) Huia Stream, downstream of the lower Huia Dam;

ii) Nihotupu Stream, downstream of the lower Nihotupu Dam, near the spillway;

iii) Waitākere River, downstream of the Waitākere Dam.

7. Fishing under the authority of this special permit may be undertaken for downstream migrant eels from the following waterways:

a) Hūnua area:

i) Cosseys Reservoir upstream of the Cosseys Dam;

ii) Hays Creek Reservoir upstream of the Hays Creek Dam;

iii) Wairoa Reservoir upstream of the Wairoa Dam;

iv) Mangatangi Reservoir upstream of the Mangatangi Dam;

v) Mangatawhiri Reservoir upstream of the Upper Mangatawhiri Dam.

b) Waitakere area:

i) Lower Huia Reservoir, upstream of the Huia Dam;

ii) Lower Nihotupu Reservoir, upstream of the Nihotupu Dam;

iii) Waitākere Reservoir, upstream of the Waitakere Dam.

8. New sites or species may only be added under the authority of this special permit through an amendment to the special permit. An application for inclusion of new site or species must be lodged with the Customary Fisheries and Spatial Allocations Manager (see Schedule One for contact details).

9. The permit holder is to obtain written approval from the taiāpure management committee or Tangata Kaitiaki/Tiaki prior to fishing in any taiāpure–local fisheries or mātaitai area. The permit holder should contact the relevant Fisheries Compliance Team Manager (see contact details in Schedule One) for current details of taiāpure-local fisheries or mātaitai reserves in the area where collection is proposed.

10. The permit holder is to consult with Waikato-Tainui before fishing in Waikato Tainui's rohe (illustrated as area A on the Iwi map attached in Schedule Two). The permit holder should avoid fishing in wāhi tapu areas within area A. To determine areas of significance to Iwi, the permit holder is advised to contact local marae in areas where fishing is to take place. Local marae details can be obtained from Waikato Raupatu River Trust [ph. (07) 858 0400].

11. Any transfer of native fish may only be undertaken with an appropriate approval pursuant to section 26ZM(2) of the *Conservation Act 1987*, or any statutory re-enactment or amendment of that provision.

Fishing Conditions

12. No fish, aquatic life, or seaweed may be taken for personal use or collection, to provide for broodstock for commercial production, or for sale, bait or berley, while fishing under the authority of this special permit.

13. For the purpose of fishing pursuant to this special permit, the permit holder is authorised to use:

    a) Fyke nets irrespective of mesh size (escapement tubes blocked if required);

    b) A floating pontoon set trap with wings and holding pen;

    c) Dip nets irrespective of mesh size;

    d) Mesh liners may be used on fyke nets to meet the desired net mesh size;

    e) A fish trap with a ramp, shaded holding tank and using a fish attractant;

    f) Any other catching device as approved by the Customary Fisheries and Spatial Allocations Manager;

    g) Any suitable vessel.

14. Any fishing equipment left unattended must be clearly labelled with the permit holder's name and the words: "Fisheries New Zealand Special Permit No. 737".

15. Explosive or toxic gas, or toxic, poisonous, or narcotic substance must not be used to take native fish under the authority of this special permit unless prior written approval is obtained from the Customary Fisheries and Spatial Allocations Manager, Fisheries New Zealand.

16. Any vessel(s) nominated to fish under the authority of this special permit must not engage in commercial fishing for any species under the authority of a fishing permit, issued under section 91 of the Act, while fishing under the authority of this special permit. Unless written approval is obtained from a Regional Fisheries Compliance Team Manager prior to fishing. For the purposes of interpretation, 'commercial fishing' is defined as the taking of fish, aquatic life, or seaweed within New Zealand fisheries waters for the purpose of sale.

Disposal Conditions

17. Any bycatch species caught while fishing under the authority of this special permit shall be released at the point of capture with the exception of dead, diseased or unwanted aquatic life[1]. The permit holder shall take measures as appropriate to minimise the capture of non-target species (eg, trout). These may include appropriate placement of fishing gear and using grills or coarse mesh.

18. The permit holder must not use any fish or aquatic life taken under this permit for personal use or collection, to stock a fish farm or use as food on a fish farm, for consumption, or for bait.

19. Native fish that cannot be returned alive to the environment (including dead, diseased or contaminated eels), must be humanely killed and disposed of in a biosecure manner, after relevant data has been collected, as per appendices.

[1] Unwanted aquatic life as defined in section 2 of the *Fisheries Act 1996*.

Upstream migrants

20. Fish taken under this special permit may be held in a 'holding pen' at the point of capture for a period of no more than 7 days. Fishing equipment should be inspected more frequently during peak migration or following floods. Releases of fish may not be made beyond any natural barrier (as natural recruitment processes should determine passage beyond these points).

Downstream migrants

21. Eels taken under this special permit as adult downstream migrants may be held at the specific capture sites for a maximum of 72 hours from the time of capture and are to be released as follows:

    a) Eels taken from the lower Nihotupu Reservoir: either below the Nihotupu Dam or in the Huia Stream below the lower Huia Dam;

    b) Eels taken from all other reservoirs: at a point in the river catchment from which they were taken where their subsequent migration is unhindered by any manmade barrier.

22. All non-migrant eels collected shall be released upstream of the collection point.

Biosecurity Conditions

23. In order to eliminate the risk of transferring species declared as noxious or unwanted organisms within the aquatic environment, the permit holder must screen catch for signs of disease or morbidity and any unwanted aquatic life before transportation.

24. During the collection fish, aquatic life, or seaweed the permit holder shall ensure that no aquatic plant, noxious fish, or unwanted organism, including eggs and larvae of noxious fish or unwanted organisms, is introduced into any other waterway, either from the water holding the collected fish, aquatic life, or seaweed, or enmeshed in fishing gear.

25. To prevent the spread of unwanted aquatic plants and animals, all equipment used in the collection and removal of fish, aquatic life or seaweed must be thoroughly checked, cleaned and dried before and after being used for fishing under this special permit:

    a) all equipment used in the transport, holding and release of aquatic life should be treated, as outlined below, before being used again:

        i. all non-fibrous (metal and plastic) smooth surfaced equipment is to be thoroughly cleaned using freshwater (chlorinated town supply water, bore water or collected rain water); and

        ii. any non-fibrous smooth surfaced equipment that can retain water such as under seals and hollows within handles etc. must be dismantled in such a way that all surfaces can be thoroughly cleaned using freshwater (chlorinated town supply water, bore water or collected rain water); and

    b) all other equipment must be:

        i. immersed for a minimum of 30 seconds, in a water bath heated to at least 50° C; or

ii. immersed in water, for a minimum of 5 minutes containing at least 35 g of sodium chloride per litre.

26. The permit holder must notify Biosecurity New Zealand's emergency hotline (0800 809 966) as soon as practicable should it observe unwanted or unusual organisms, including any distressed, diseased, or moribund aquatic life during any of its operations. None of the above organisms or contaminated water, should be released into any waterway and samples should be kept for Biosecurity New Zealand investigation. Samples should be chilled not frozen, or as advised after contacting Biosecurity New Zealand.

Reporting Requirements

27. The permit holder shall supply an annual report of all work undertaken under the authority of this special permit to the Customary Fisheries and Spatial Allocations Manager, Fisheries New Zealand (see contact details in Schedule One). This report shall be supplied no later than the 31st of August of each year. A nil return shall be made if no collection activities are undertaken by the 31st August of each year.

28. The report should contain the following information:

Upstream transfers

a) the species and approximate total weight of each species collected for transfer, and the date of collection;

b) the total weight of elvers (ie, less than 20 g in weight) collected for transfer, and the date of collection;

c) the total weight of juvenile eels (ie, greater than 20 g in weight) collected for transfer, and the date of collection;

d) the species and total weight of each bycatch species caught, and which method or specific trap resulted in their capture;

e) numbers of each species that die before release of the fish can occur;

f) the total weight of each species released at each respective release site, the location of the site, and date of respective releases;

g) the number and type of collection mechanisms employed, and any factors that reduced collection efficiency.

Downstream transfers

h) the total weight, approximate number and species of adult migrating eels collected for transfer, and the date of collection, including comment on the flow conditions that prevailed on that date (eg, normal, flood), the site of release, and the percentage caught that were transferred and released;

i) the species and total weight of each bycatch species caught, and which method or specific trap resulted in their capture;

j) numbers of each species that die before release of the fish can occur;

k) the number and type of collection mechanisms employed, and a brief description of how they work.

29. To obtain useful data for the management of native eel fisheries, the permit holder is also required to:

a) record the number and total weight of shortfin and longfin elvers in a representative sample of the catch (100 elvers) at 15 day intervals, when catch allows. For the purpose of this data collection elvers are those up to 20 g in weight;

b) supply electronic records (in Excel or txt format) on fish caught for entry into the New Zealand Freshwater Fish or eel recruitment database (currently maintained by NIWA) to Fisheries New Zealand with the annual report required by condition 27.

30. For any projects, or part projects that are carried out in Waikato-Tainui's rohe (area A in Schedule Two) a summary report of those projects must be submitted to Waikato Raupatu River Trust annually (see contact details in Schedule One).

31. For the purpose of this permit, the permit holder is not required to meet the requirements of the *Fisheries (Reporting) Regulations 2017* and the *Fisheries (Geospatial Position Reporting) Regulations 2017*.

General Conditions

32. Except as otherwise expressly provided, the provisions of the Act or any regulation, notice, direction, restriction, requirement, or condition under the Act will apply to any fishing, or any person engaged in fishing, under this special permit.

33. The permit holder must ensure that all personnel, read, understand and are fully conversant with the conditions of the special permit before the taking aquatic life commences under this special permit.

34. This special permit must be held at the permit holder's premises. The permit holder of their employees or agents at the location, must have a copy of this special permit in their possession while collecting aquatic life under the authority of this special permit. In all cases, copies of this special permit must be produced for sighting on request by a Fishery Officer.

35. The Director-General (or his delegate) may amend, add or revoke any conditions to this special permit, or revoke this special permit by notice in writing to the permit holder.

36. This special permit does not preclude the permit holder from complying with any other statutory requirement from any other governing agency.

37. No fishing undertaken, or catch taken or otherwise possessed under this special permit shall give rise to any right, privilege, or expectation or preference in regard to the granting of any future permit, license, authorisation, quota, catch history, individual catch entitlement or other right whatsoever under the Act.

38. Failure to comply with the conditions of this special permit can, at the discretion of the delegated officer, result in the revocation of the permit. Every person commits an offence who contravenes any term or condition placed on this special permit and is liable to a fine not exceeding $100 000.

DATED at Nelson on the 9th of June 2020.

David Scranney
Manager Customary Fisheries and Spatial Allocations
Acting pursuant to a delegation issued under Section 41 of the State Sector Act 1988.

SCHEDULE ONE:
Contact Details

Fisheries New Zealand Manager Customary Fisheries and Spatial Allocations can be contacted by the following:

Nelson	David Scranney Tel (03) 548 1069 Email: David.Scranney@mpi.govt.nz cc. Christine.Bowden@mpi.govt.nz

Fisheries Compliance Regional Manager can be contacted by the following:

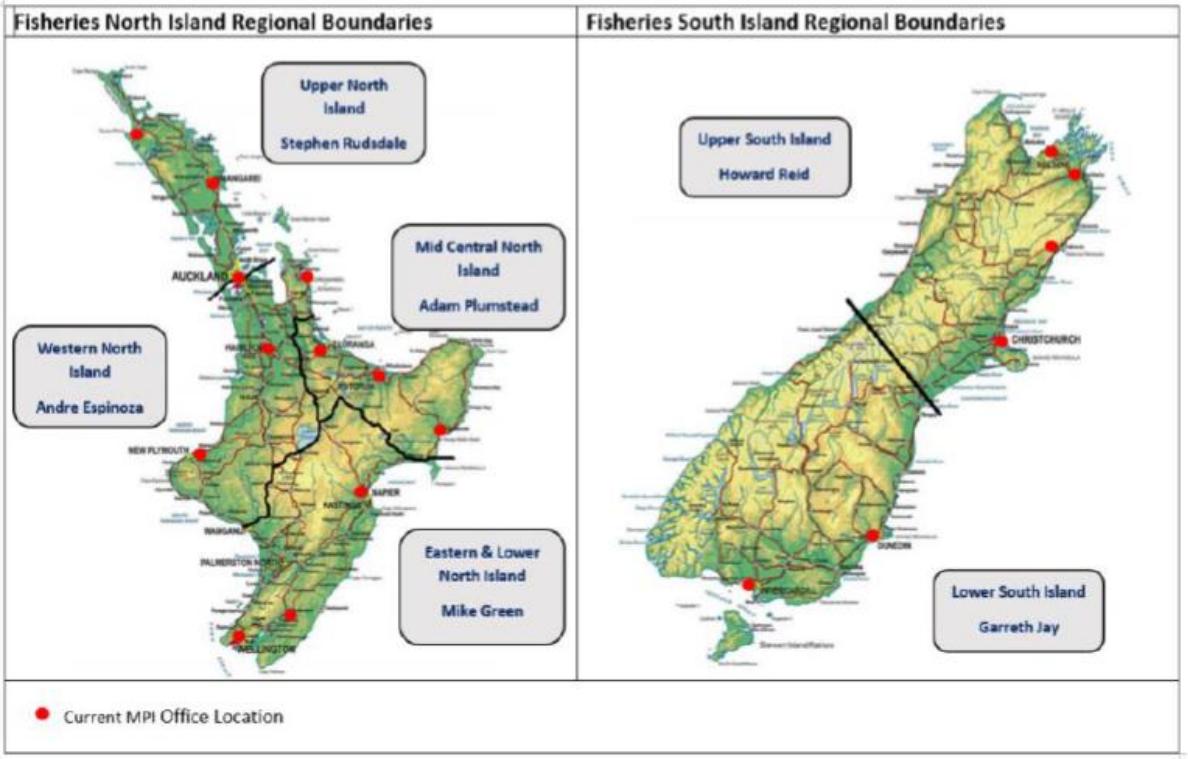
Upper North Island	Stephen Rudsdale Tel (09) 470 0580 Email Stephen.Rudsdale@mpi.govt.nz cc. Charlene.Sutton@mpi.govt.nz
Western North Island	Andre Espinoza Tel (09) 820 7742 Email: Andre.Espinoza@mpi.govt.nz cc. Louise.Kay@mpi.govt.nz

Waikato-Tainui River Iwi can be contacted on the following:

Hamilton	Taroi Rawiri Waikato-Tainui Environmental Manager Waikato Raupatu River Trust Private Bag 3344 Hamilton Tel: (07) 858 0400 Email: taroi.rawiri@tainui.co.nz

NIWA agent for otolith submissions can be contacted by the following:

Christchurch	Dr Shannan Crow NIWA 10 Kyle Street Riccarton Tel: 027 291 9119 Email: shannan.crow@niwa.co.nz


Fisheries North Island Regional Boundaries
Upper North Island
Stephen Rudsdale
Mid Central North Island
Adam Plumstead
Western North Island
Andre Espinoza
Eastern & Lower North Island
Mike Green
AUCKLAND
Fisheries South Island Regional Boundaries
Upper South Island
Howard Reid
Lower South Island
Garreth Jay
CHRISTCHURCH
Current MPI Office Location

Page 9 of 10

SCHEDULE TWO
Map of Waikato co-governance areas; Waikato-Tainui's rohe is area A