Auckland/Waikato Fish & Game Council Annual Drift Dive Monitoring Program Report 2026

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Publication date: 24 August 2026
Received by Council: 26 September 2026
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Contents

1. Executive summary

Drift dive surveys are conducted annually to ensure fish populations can sustain the current bag limits and to detect catastrophic collapses of the fish population requiring emergency closures. Events like chemical spills, large storms, slips, volcanic eruptions, droughts and heatwaves can cause trout populations to collapse. Long term monitoring also allows Fish & Game to improve the management of streams by looking at increases or declines in trout populations corresponding with land use change or management actions such as fencing and riparian planting.

Drift dive surveys were successfully conducted on the Awakino and Waihou Rivers and also undertaken on the Mangatutu Stream, but with water clarity below the recommended 3.5m the data has not been written into the report. (Table 1.1). Fewer monitoring dives were conducted during the 2026 summer due to regional staffing changes. Drift dives were conducted from mid-December 2025 to mid-February 2026. Drift dives were able to be undertaken in low flow conditions. There were no significant recruitment failures or population failures observed amongst the Auckland/Waikato Streams monitored during the 2026 drift dives. However, the flood that occurred in the Awakino River on 15 October 2025, was one of the largest ever recorded and had the potential to catastrophically affect the trout population given historical monitoring post floods of this magnitude within the Awakino catchment.

Table 1.1. Drift dive study reach elevation, trout >30cm (previous legal size) counted per kilometre, mean number of fish counted per kilometre during the previous three surveys, water temperature and water clarity during the last dive. Figures for rivers not monitored during 2026 shaded grey.

	Whakapapa	Awakino	Mangatutu	Waihou	Waitawheta	Kauaeranga
Elevation (m)	580	150	100	100	180	150
Fish km^{-1}	37	29	31	18	8	3
Mean fish km^{-1}	29	59	19	33	7	5
Dive Temp (°C)	8	15	16	14	16	19.8
Water clarity (m)	6	4.1	3.7	5.4	4	8

2. Introduction

Auckland/Waikato Fish & Game is tasked with managing the region's freshwater sports fisheries for present and future generations with the goal of maintaining and improving wild, self-sustaining populations (Ben Wilson 2021a). To successfully manage the region's wild trout population staff are required to monitor populations and their trends over time (Ben Wilson 2021a). Detecting significant changes in trout populations is important for setting bag limits and emergency closures if trout populations are significantly impacted. Drift diving is the primary tool used to monitor the Auckland/Waikato region’s trout populations.

It is impractical to monitor all the region’s streams, so a diverse set of representative streams that meet the criteria for drift dive monitoring are selected annually and surveys are conducted mid-summer. Drift dives also allow staff to monitor water quality, check on access, discuss issues with landowners and undertake compliance activities.

Drift diving is not the most precise means of monitoring fish with fish count accuracies of 21-90% (Hagen and Baxter 2005; Young and Hayes 2001). Inexperienced divers often count 50% fewer trout compared to seasoned divers, introducing significant error into counts. Water clarity is the primary factor affecting accuracy of drift dive counts. Low water clarity, similar to that found in the upper North Island (4m), can result in fish counts that represent only 20% of the actual population; water clarity approaching 16m can increase accuracy to nearly 90% (Hagen and Baxter 2005). However, most drift dive accuracy assessment work has been done on larger rivers where divers cover 5m lanes (Hagen and Baxter 2005) with flows of at least $2m^3$ per diver. In contrast Auckland/Waikato divers cover about 2.5m lanes with flows of about 0.7-1.6m^3 per diver.

Despite not being a total count of a river's trout population, drift dive data is very useful for monitoring long term trends within the same river. Variables including instream habitat, depth, flow, and water clarity make comparisons between rivers dubious. But comparing these variables within the same reaches under similar conditions in consecutive years provides a good low-cost monitoring tool. The standard error of drift diving data in water clarity below 10m is likely to be very high (±30%) and thus data should only be used to make management decisions when large shifts (40%+) in trout populations are indicated.

The size and number of fish counted in a stream can be driven by habitat quality or fishing pressure but in the Auckland/Waikato Region water temperature (influenced by elevation and latitude) is likely to be a key driver. The southernmost waters in the Auckland/Waikato Region consistently have high numbers of large trout, likely due to cooler summer temperatures and higher elevation (Tables 2.1 and 2.2). Air and water temperatures in small streams are highly correlated. The median air temperature is three degrees colder within the southern portion of the region intimating that the southern portion of the Auckland/ Waikato Region provides more suitable water temperatures for trout (Figure 2.3). Inversely streams like the Waitawheta and Kauaeranga have excellent water quality and habitat but are far too warm to support populations of large trout.

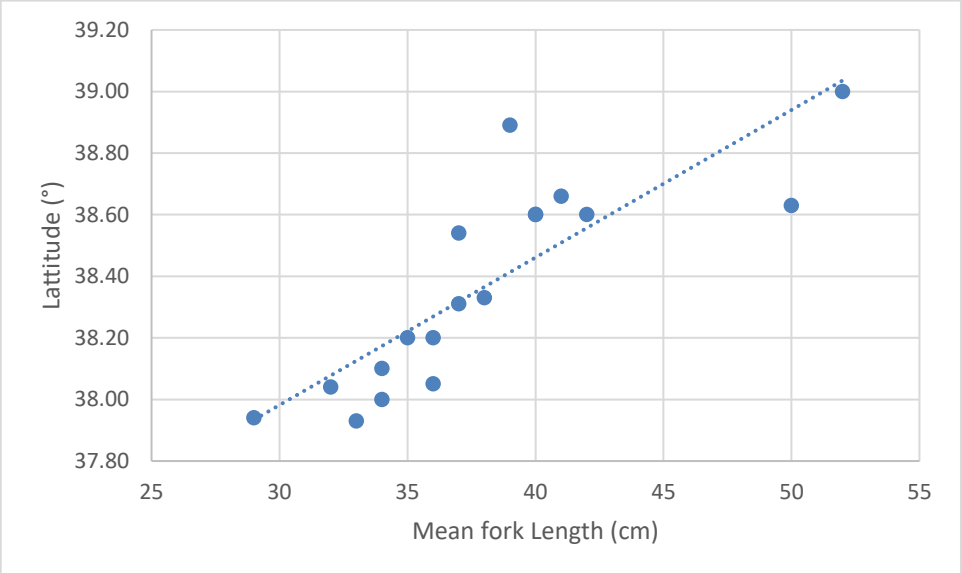


Figure 2.1. Mean fork length (cm), plotted against the latitude of streams in the Auckland/Waikato region based on unpublished wild trout tagging data.

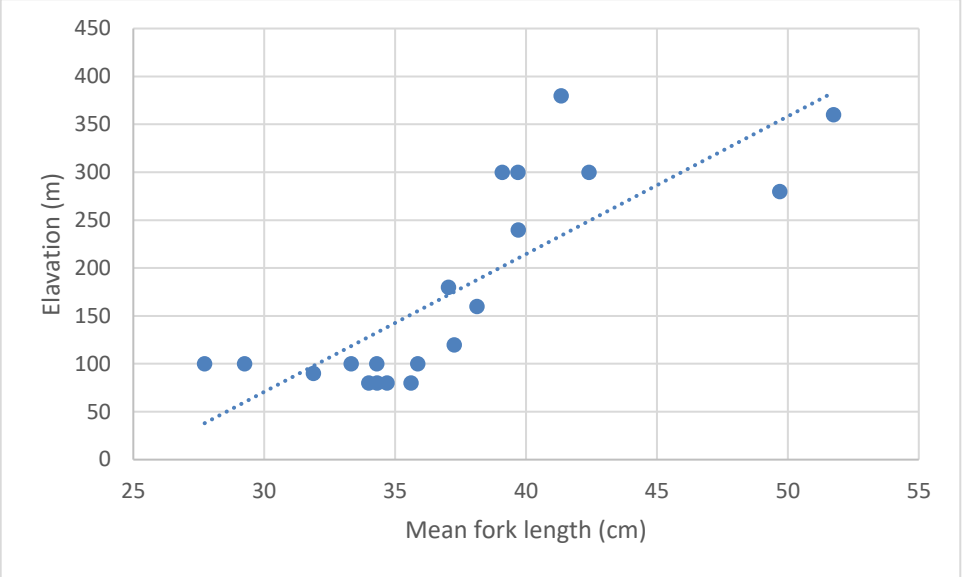


Figure 2.2 Mean fork length (cm), plotted against elevation of streams in the Auckland/Waikato region based on unpublished wild trout tagging data.

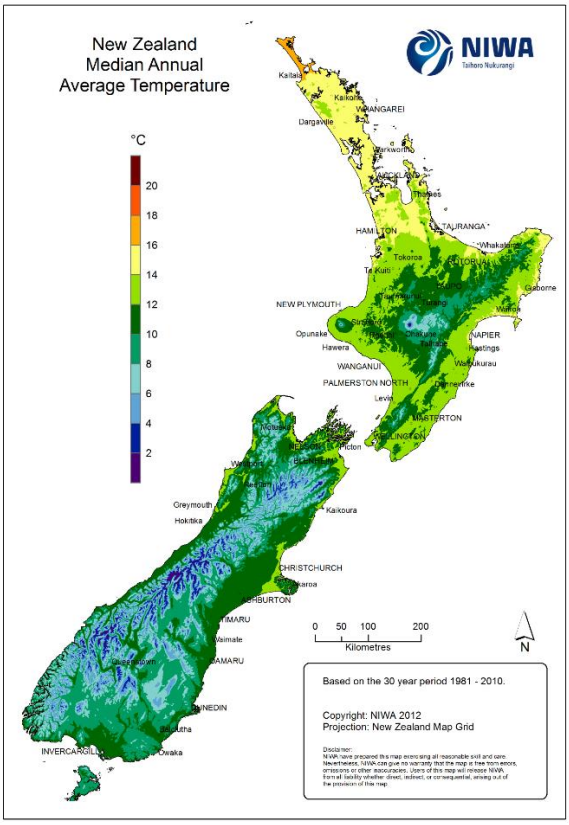


Table 2.3. The long-term median air temperature of New Zealand provided by NIWA.

3. Methods

Drift dives in the Auckland/Waikato Fish & Game Region are conducted in streams with at least 3.5 m of visual clarity and depth of at least 300mm. Poor water clarity excludes most streams in the region from being monitored. Dive reaches are between 0.9 and 2km long and are surveyed for obstructions and dangerous rapids prior to each dive. Although it is preferable to survey multiple reaches of a river, poor visual clarity, high water temperatures, low water or limited access restrict most river surveys to one or two reaches.

Drift dives are conducted with two to four divers drifting in a parallel line downstream equipped with wetsuit, mask, snorkel, and wrist-mounted recording slates. Divers maintain a parallel line perpendicular to the bank, spaced so they can see the banks and their adjacent diver or divers. The number of divers needed to survey a river is dependent on their ability to see the bottom of the river and their corresponding diver. To avoid double counting fish, as divers drift downstream they only count fish passing in the upstream direction. Dive teams stop at the end of each pool or reach to tally fish numbers and compare notes. Fish are sorted into species and size classes (<10 cm, 10-20 cm, 20-30 cm, 30-40 cm and 40+ cm) by each team member during each stop. Data is recorded by each individual diver on slates attached to their arm and then combined on a data sheet by the team leader at the end of each dive.

Prior to diving, water clarity is measured using a 20 cm black disc. The disk is walked backwards as it is observed using an underwater viewer. When the black disk just disappears, the distance to the viewer is recorded. Water temperature is recorded, and dive surveys only preceded in reaches with water temperatures of <19°C as fish commonly migrate out of warmer areas.

4. Awakino River

4.1. Awakino River introduction

The Awakino has had consistent recruitment failures recorded when base flows exceed 200m^3 during the winter spawning and rearing season (July-September);(Wilson 2009). The winter of 2025 was mild and except for an early spawning period fresh (<120m^3), flows generally remained below 50m^3 to 80m^3 during the critical winter period (Figure 4.1). In addition to high flow related reductions in recruitment, the Awakino River has also recorded a reduction in adult fish numbers during low flow years as observed in 2013-2014. Between 2015 and September 2025 no major floods had been recorded in the Awakino River, and summer temperatures were not excessive over the past four years. Although the Awakino does not have a water temperature monitoring station, the Waipa and Mangatutu Rivers had relatively mild peak summer temperatures making it unlikely trout were impacted by high water temperature in the Awakino River.

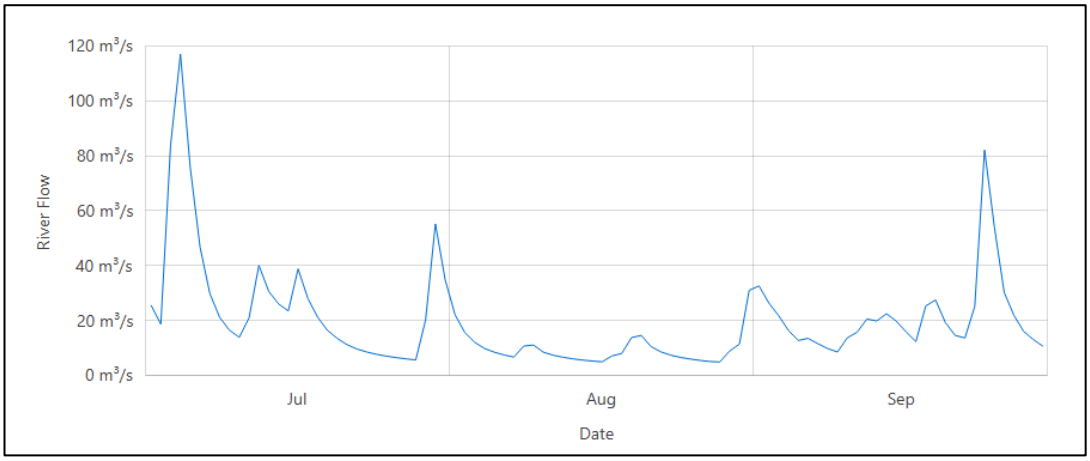


Figure 4.1. The flow of the Awakino River from July to September 2025 (Waikato Regional Council Monitoring Data).

Water quality in the upper reaches of the Awakino River is generally high but gradually deteriorates downstream as the river flows through pastoral land. There is a noticeable decline in water quality immediately downstream of the confluence with the Mangaorongo Stream. The Awakino catchment is one of many hill country areas that would benefit from mandatory fencing rules. The dissolved reactive phosphorous in the Awakino River is in the C band and E. Coli in the D band despite much of the catchment being in bush.

Rainbow and brown trout reproduce naturally in the Awakino River, so there is no artificial supplementation of the trout population even in years of recruitment failure. Brown trout contribute to less than 2% of the historic angler catch and drift dive counts (B Wilson 2004).

4.2. Awakino River study area

The Awakino River has a catchment area of 226 km² in the steep rolling hill country of the Herangi Ranges on the west coast of the North Island. In the upper reaches, upstream from the village of Mahoenui, the Awakino River meanders through mixed podocarp hardwood forest and pastoral land, providing a procession of runs and pools over a riverbed of gravel, cobble, and small boulders. River flow is measured by the Waikato Regional Council at Rauroa Farm Bridge (NZTM:1754098, - 5725781). Minimum flows are about 2.5 m³/s, mean flows about 13 m³/s, and maximum flows can be over 300 m³/s.

4.3. Awakino River methods

The upper Gribbon Road drift dive (Figure 4.2; Appendix A) was conducted in February 2026. GPS positions for the start and end points of the monitoring site are listed in Appendix A. Results of the dive were adjusted to fish per kilometre for comparison to previous surveys and other catchments. The drift dive survey was conducted with two experienced divers.

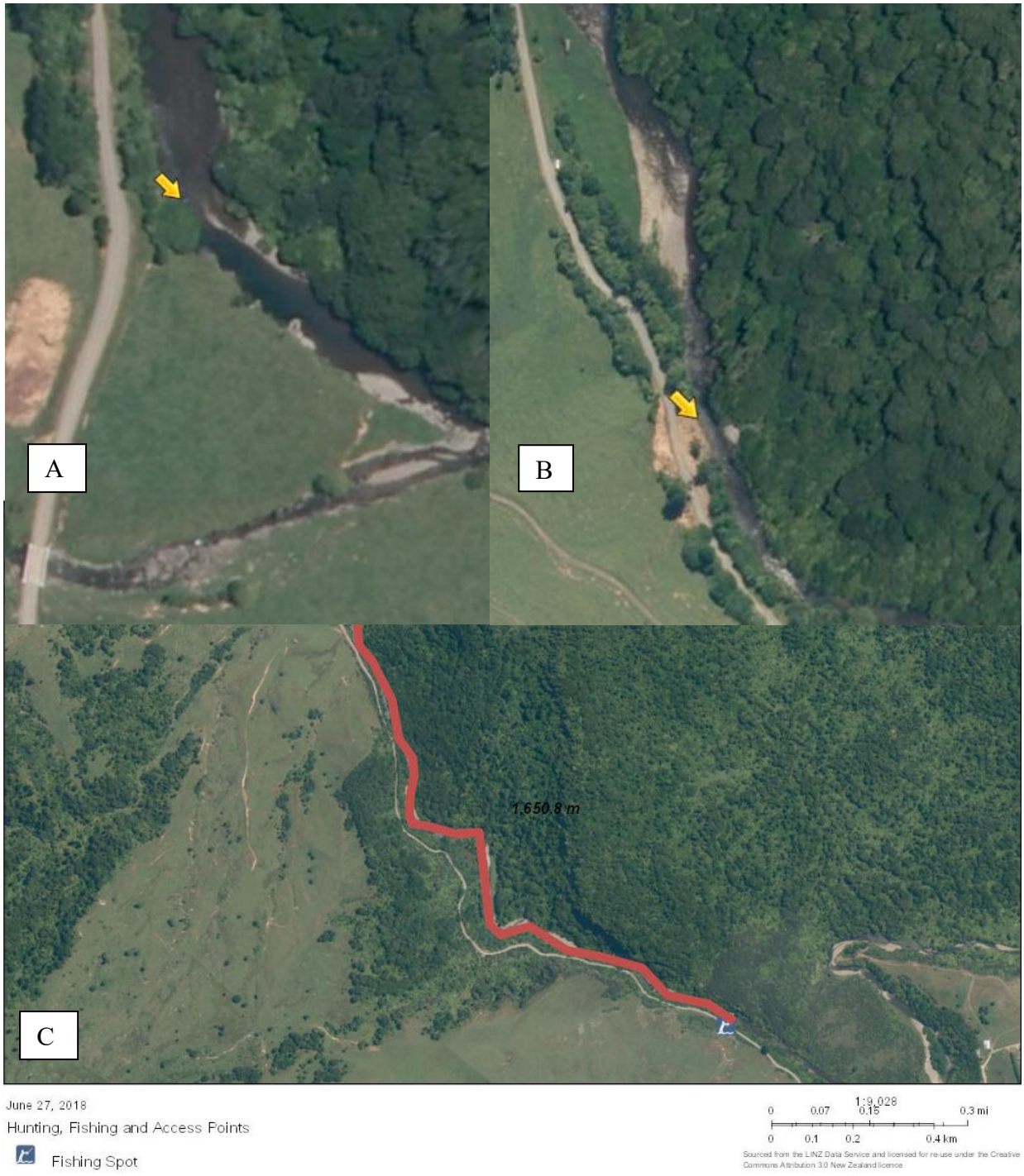


Figure 4.2. Map of the 2025 upper Awakino drift dive start "A", finish "B" and total monitoring reach "C".

4.4. Awakino River results

A very large flood occurred on the 15th of October 2025 within the Awakino Catchment. This event, in excess of 360m^3/s, was one of the largest that has been recorded for the

river (Figure 4.3). A follow up monitoring drift dive was undertaken on 15 December 2025 (2025B).

The 2026 Awakino River drift dive survey occurred on the 10th of February 2026. Water clarity and flow were very low for the Awakino River at 3.3m and 1.2m^3/s.

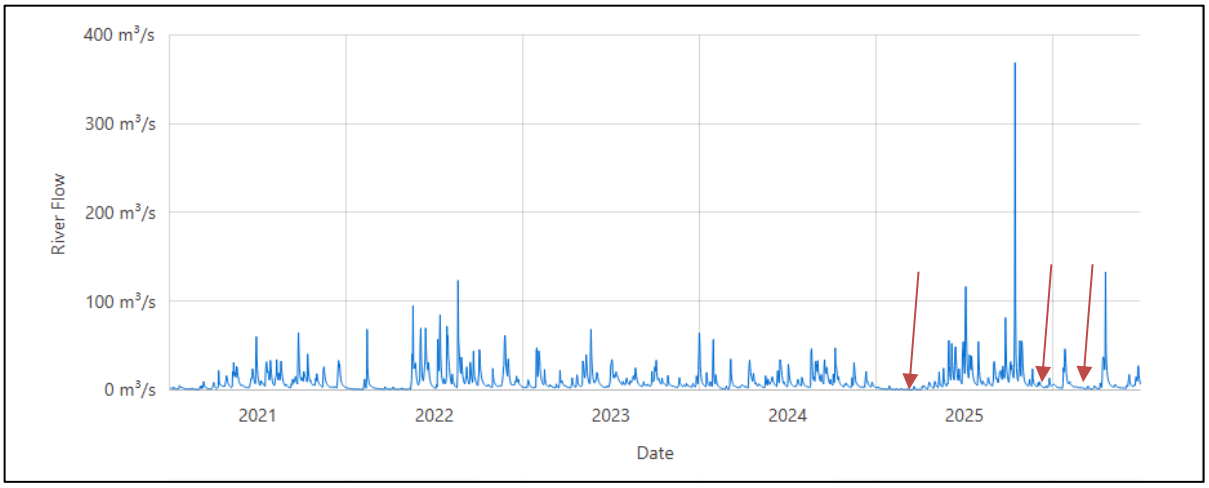


Figure 4.3. Awakino River hydro graph from the Waikato Regional Council website 1 Jan 21 – 1 Jul 2026 (big flood recorded 12 Oct 2025). Drift dive timing indicated with red arrows.

A healthy number of <20cm, 20-40cm and 40+cm (adult) rainbow trout were observed in the December 2025 (post flood) assessment (Table 4.1 and Figure 4.4). The scheduled February 2026 monitoring drift dive once more recorded typical numbers of younger age class rainbows (<20cm and 20-40cm) and a lesser number of the large size class (40cm+) rainbows.

Table 4.1. The size, frequency and species of trout seen in the upper Awakino River on the 2024-2026 drift dive surveys. Trout <20 cm in length were not identified to the species level. Trout identified as rainbow trout (R), or brown trout (B) are labelled as such.

Year	<20 cm	20-40 cm	40+ cm
2024	157	44R	19R 4B
2025	53	53R	86R 3B
2025B	17	34R	31R 0B
2026	34	41R	6R 0B

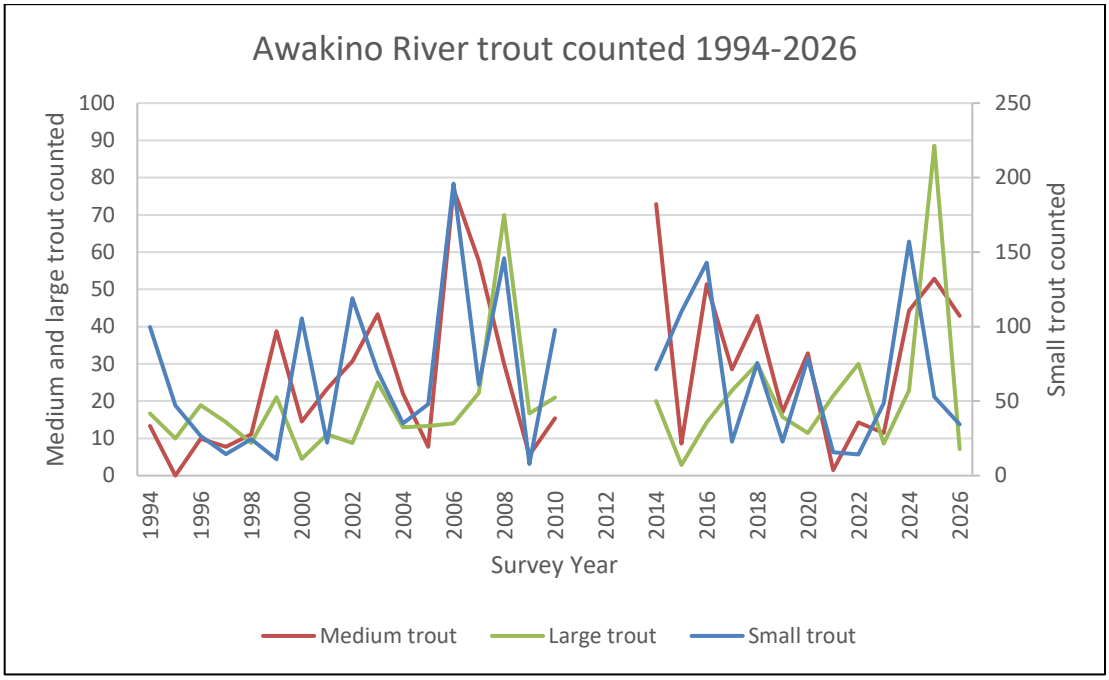


FIGURE 4.4. Large, medium, and small rainbow trout per km counted from 1994 to 2025 during the Awakino River drift dives.

4.5. Awakino River discussion

The 2023 and 2024 seasons were extremely mild with very little in the way of flooding to affect the Awakino River population. The February 2025 count displayed an extremely healthy fishery. Despite the large flood that occurred on the 15th October 2025 (one of the largest ever recorded), the Awakino River trout population was found to have come through in good shape during the follow up drift dive on 15th December 2025 and in the scheduled February 2026 monitoring event. This demonstrated that the younger and medium size-class cohorts survived the flooding in healthy numbers and form a healthy population structure of mixed age cohorts within the Awakino River. Fewer large size-class (40+cm fish) were encountered, and it is unknown as to whether these fish have succumbed to flooding or other pressures or perhaps moved to areas of the river where there may be a better food source following the floods. It is possible that the river came up so quickly that the slower laminar flow at the bed of the stream provided cover and survivable conditions whereas the surface waters would have been extremely damaging to the trout.

5. Whakapapa River (Not sampled 2026)

5.1. Whakapapa River introduction

The Whakapapa River is the only major fishery in the region that has had a steady increase in angler use over time (Figure 5.1), as it has recovered from the devastating Mount Ruapehu eruption in 1995. In 2021 Whakapapa River angler use was 3772 angler days (Stoffels and Unwin 2023).It is likely that angler use has increased, and staff expect the angler use of the Whakapapa to surpass the angler use of Lake Arapuni to become the region's most popular fishery. Auckland Waikato Fish & Game's aspirations under an recreation opportunity spectrum (AW SFGMP) for the upper Whakapapa River (Back Country to Remote angler experience) is to have clear water where the size of fish is larger than average. Increasing access to the Whakapapa has also been identified as important

to maintaining quality fishing as angler use grows. Since 2011, trophy trout numbers have leveled off at what may be the carrying capacity for the Whakapapa River under the current flow regime, but angler use is still climbing. New fees imposed by iwi in the Taupō fishery have increased use by guides and YouTube influencers, boosting publicity and use of the Whakapapa fishery.

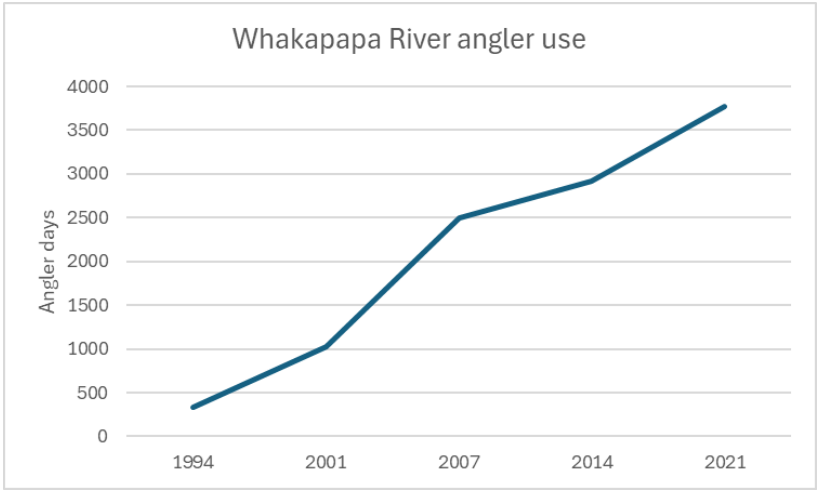


Figure 5.1. Angler use (angler days) 1994 -2021 derived from Stoffels and Unwin (2023).

The Whakapapa & Whanganui River Angler Use Monitoring Study completed in 2016 (Daniel 2017) confirmed that limited access above Owhango has led to lowered angler use and improvements to angler access in the upper river are still required. The closure of the Whakapapa Intake Road has exacerbated the issue and reopening the road is a high priority for staff. The overall angler use (>0.5km from parking areas) of the upper Whakapapa in 2014 and 2015 was very low at only 2 anglers per month on average (Daniel 2017) due to the lack of public access. The successful purchase of 1.2km of the lower river just upstream from the Kakahi landing in 2019 helped spread out anglers but the limited access available is becoming overcrowded. The Angler Access Fund, established in 2024, is intended to address significant access issues like the upper Whakapapa with the intent of purchasing property that provides access to the upper Whakapapa River.

5.2. Whakapapa River study area

The Whakapapa River is formed by the joining of the Whakapapa-nui and Whakapapa-iti Streams. Both streams drain small glaciers and snowfields on the western slopes of Mt. Ruapehu and are cold, swift and clear. The only major nutrient or sediment inputs in the upper Whakapapa River are runoff and wastewater discharge from the Whakapapa Village. DOC has proposed upgrades to the wastewater treatment plant that should increase consistency of the discharge and reduce the overall impact to the Whakapapa River but have been held up in the RMA process for nearly a decade. In addition, there is also seasonal disturbance from the Whakapapa Ski fields and corresponding access roads.

The Whakapapa Intake of the Tongariro Power Scheme is located about two kilometers downstream from the confluence of the Whakapapanui and Whakapapaiti streams. The Whakapapa Intake structure is a major impediment to the river's trout population as it blocks significant spawning and critical summer habitat for fish that move upstream to avoid the extreme summer heat in the Whanganui River below Taumarunui. Although there is good access to the Whakapapanui and Whakapapaiti, the Whakapapa intake structure isolates this population limiting fish density.

Below the intake, the Whakapapa is a turbulent river alternating between steep rapids and short deep pools. Here the river is quite narrow, generally about 10 to 20m wide. Access to the intake is via the Whakapapa Intake Road through the Taurewa Station and was closed to the public in 2019. The gauging foot bridge is the starting point for the traditional upper river drift dive, and it is located about 1 km below the Whakapapa Intake structure. Unfortunately, legal access to the upriver site is no longer accessible to staff.

5.3. Whakapapa River methods

There are currently two monitoring sites on the Whakapapa River including the new upriver site at Oio Farms and the traditional Owhango Bridge site. Due to poor water clarity only the upper Oio Farm site was surveyed in 2025. The Oio Farm monitoring reach begins 5km downstream from the Whakapapa Foot Bridge (old Whakapapa Intake Road Site; Figure 5.2). GPS positions for the start and end points of the monitoring site are listed in Appendix A. The Whakapapa is a large swift river, and the rapids are a safety risk to divers so only pools and rifles are surveyed. As a result, only a proportion of the available habitat is surveyed.

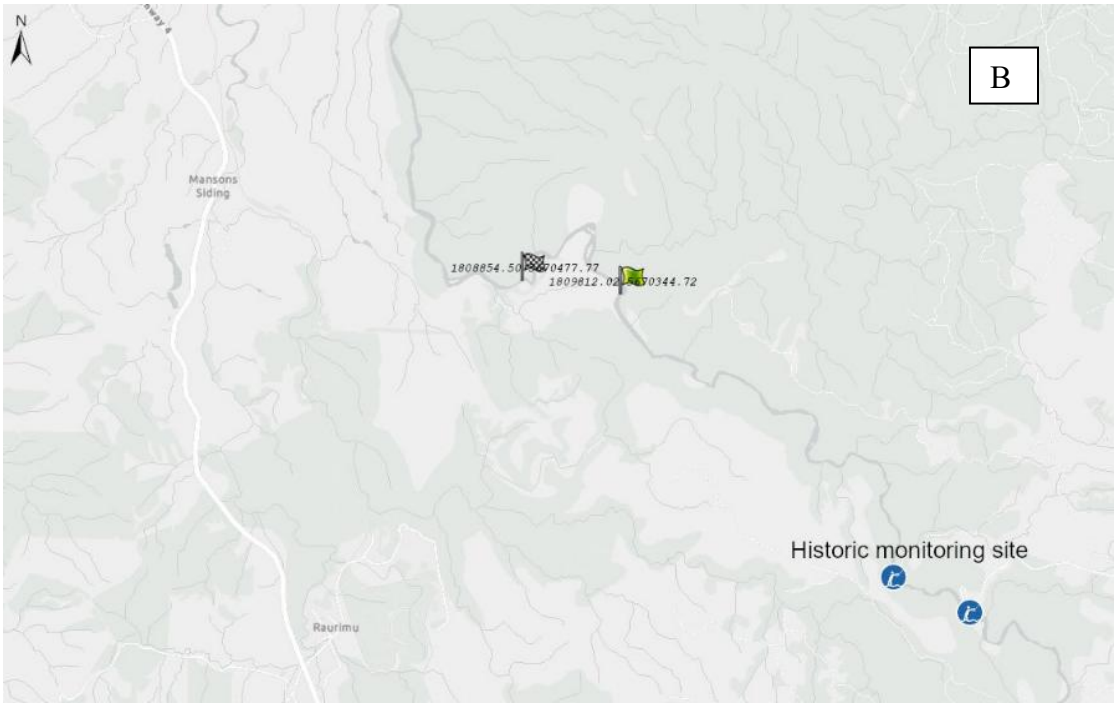


Figure 5.2. Oio Farm drift dive monitoring area (A). The put in site is marked with a green flag and the takeout site is marked with the checkered flag. The Oio Farm site is shown (B) in relation to the historic Gauging Bridge monitoring site (historic monitoring site).

5.4. Whakapapa River results

The Oio Fram dive survey started at 12:00 pm on the 11th of March 2025. Water clarity was 8.0 m with a temperature of 8.0°C. The Oio Farm reach had one of the highest counts of large fish (40+cm) on record (Figure 5.3; Table 5.1) for the Whakapapa River. Brown trout were seen in low numbers similar to previous counts (Figure 5.3; Table 5.1). Small fish (age <1 year) were spotted in low numbers, but the habitat surveyed was not ideal for small fish.

Table 5.1. Number of fish counted during each of the last three Whakapapa River drift dives 2021 (Owhango site), 2024 (Owhango site) and 2025 (Oio Farm site). Trout that were identified are labeled by species including rainbow trout (R) and brown trout (B).

Year	<10cm	10-20cm	20-30cm	30-40cm	40+cm
2021	0	2	0R	0R	11R
			0 B	0 B	2B
2024	14	41	15R	6R	27R
			0 B	0 B	4B
2025	0	0	1R	1R	30R
			0 B	0 B	5B

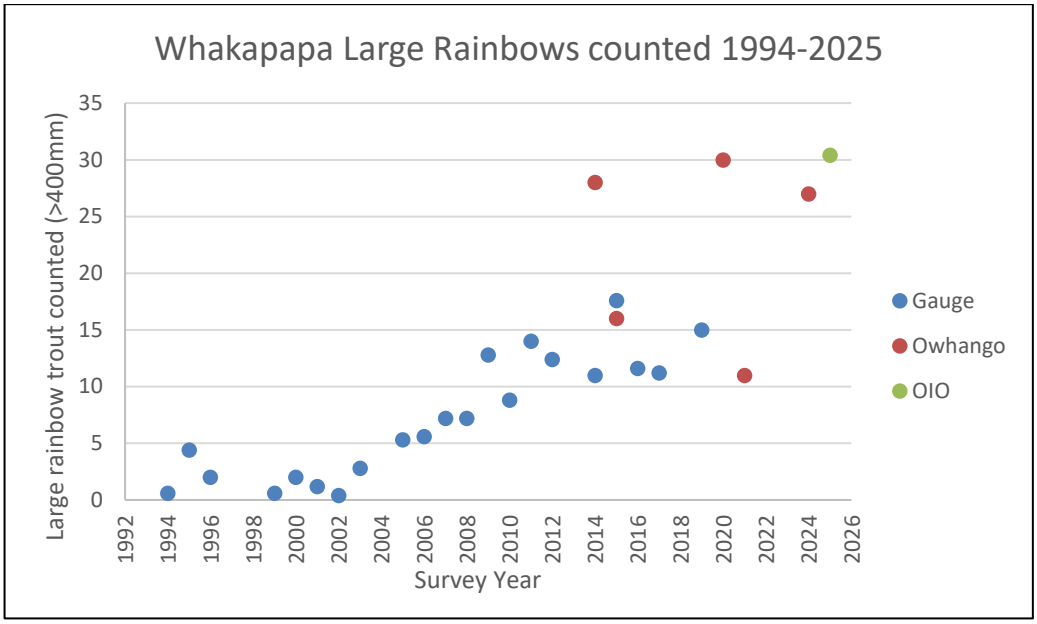


Figure 5.3. Number of large size class (≥40cm) rainbow trout per km of the upper Whakapapa River at the gauging station bridge (gauge) (1994-2019), above the Owhango Bush Road (Owhango) (2014-2024) and the Oio Farm site (Oio) 2025.

5.5. Whakapapa River discussion

The Oio Farm site has similar habitat and comparable fish number to the Owhango monitoring site. Overall, the Whakapapa fishery has moderate to high numbers of large (40+cm) rainbows and moderate to low numbers of brown trout. Water clarity during the 2025 survey at the Oio Farm site was good at 8m. The rainbow trout population was healthy, and this section of the Whakapapa is virtually untouched due to the low angling pressure. The Oio Farm reach will be a good control site for the Owhango monitoring reach that has high angling pressure. Due to the changes in monitoring sites long-term trends are not possible currently.

In terms of long-term management, the Whakapapa and Whanganui Rivers provide a key focus area for Auckland Waikato Fish & Game due to the high quality of the fisheries. Angling pressure is currently low to moderate on the upper Whanganui River due largely to accessing the river within the Tongariro Conservation Area. Improving access to the Whakapapa River is a priority including creation of public easements to the upper 20km of landlocked river through use of the Angler Access Fund.

6. Waihou River

6.1. Waihou River introduction

The upper Waihou has easy access and abundant small fish making it a great location for beginners and experienced anglers. The Whites Road section of the Waihou River is well developed with walking paths in the riparian zone that extend for over four kilometers upriver of the car park and include a composting toilet. The location, water clarity, fish numbers and ease of access make the Waihou River a priority asset in terms of the Auckland/Waikato Region's current fisheries.

The Waihou is a large spring-fed river near Putāruru and is one of the most popular fishing waters in the Auckland/Waikato region, with angler usage in the 2021-22 season estimated at 1018 angler days, a significant drop from 1930 angler days during the 2013-14 season (Unwin and Rouse 2016). (Stoffels and Unwin 2023b). Most of the angling pressure occurs immediately above the Whites Road bridge near the Blue Spring where the water is clear. Water quality rapidly declines as the river flows through several intensive dairy farms.

6.2. Waihou River study area

The Waihou River starts as small streams that wind through scrub and plantation pine forest on the Mamaku Plateau. Near Putāruru, land use transitions to dairy and flow is increased by a series of large springs.

Immediately downstream from the Blue Springs, water clarity is high with visibility exceeding 10m. Most of New Zealand's bottled water is sourced from the Waihou River near the study site. However, water quality quickly deteriorates and 2km downstream from the springs at the end of the drift dive survey reach, water clarity is typically less than 6m. Water quality continues to deteriorate and was measured at less than 3.5m at the confluence of the Waimakariri Stream just 3.8km downstream from the walkway.

A 4.7km walkway extends from Whites Road to the Blue Springs upper parking lot. During the past decade most of the upper Waihou has been fenced. However, buffer widths are far too narrow and critical source areas on neighboring farms still deposit fine sediment into the stream at an alarming rate. Despite much of the river being fenced and planted, water quality still deteriorates quickly, likely due to the intensive agriculture throughout the catchment. The lower Waihou is among the dirtiest rivers in the North Island with significantly elevated nutrient levels and heavy sediment loads.

6.3. Waihou River methods

The drift dive was 1.7km and the GPS positions for the start and end points are listed in Appendix A and shown in Figure 6.1.

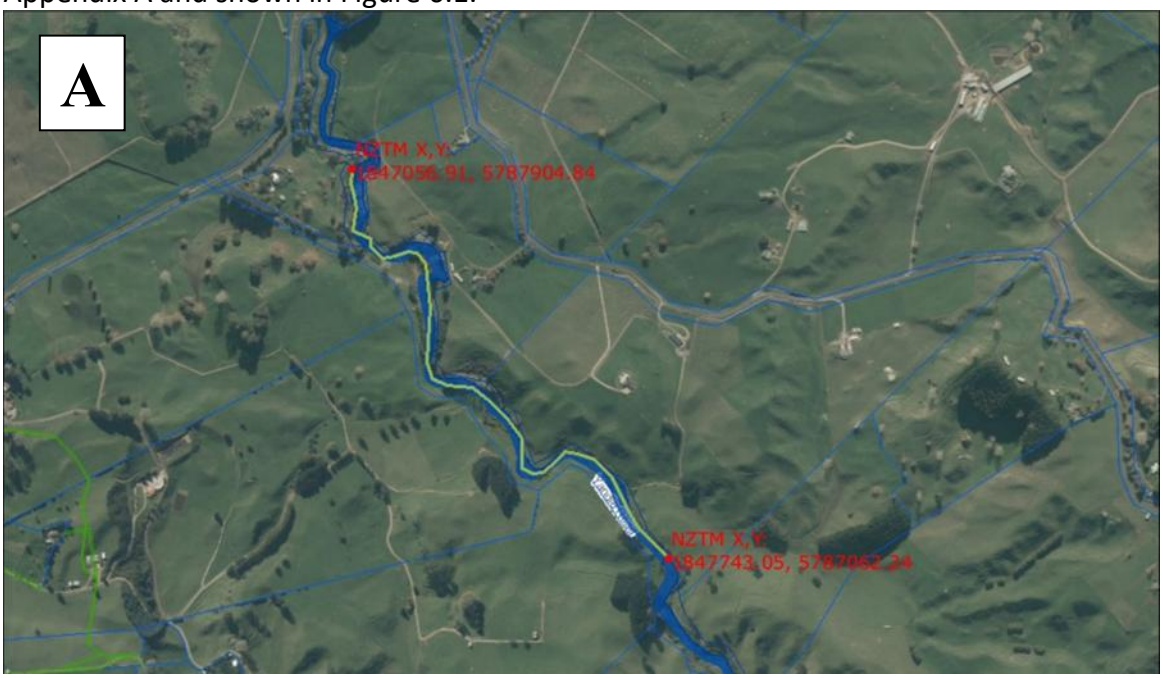


Figure 6.1. Maps of the reaches covered in the 2025 drift dive surveys of the upper Waihou River including: “A” Waihou survey reach, “B” end point, “C” start point.

6.4. Waihou River results

The 2026 Waihou drift dive was conducted on the 5th of February at 12:00 am. Water clarity on the Waihou was similar to previous dives at 5.4m. As in previous years only rainbow trout were observed on the dive. The size and frequency of rainbow trout observed on the last three drift dives (2024-2026) are summarized in Table 6.1. The Waihou River had high numbers of medium size class (<18-month-old) rainbow trout compared to previous years (Table 6.1 & Figure 6.2).

Table 6.1. The size and frequency of rainbow trout seen per kilometre in the Waihou River during the 2024-2026 drift dive surveys.

	Size and frequency of rainbow trout per kilometre of river			
Year	<20 cm	20-30 cm	30-40 cm	>40+ cm
2024	7	44	23	6
2025	194	71	41	12
2026	204	215	28	2

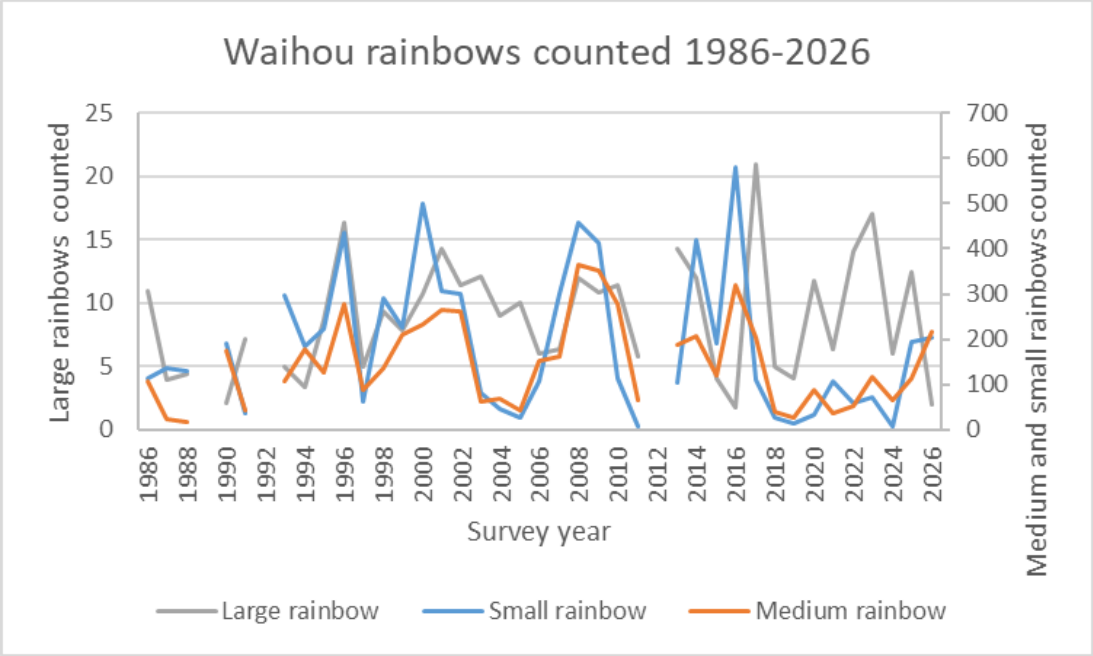


Figure 6.2. Number of rainbow trout per kilometre of the Waihou River above Whites Road as observed on drift dive surveys undertaken since 1986. Fish are grouped into small (<20; A), medium (20-40 cm; B) and large (>40 cm; B) categories.

6.5. Waihou River discussion

The Waihou fish count undertaken in February 2026 indicated a healthy fishery with high numbers of fish in the younger to mid-size class (Figure 6.2). Fewer larger (>40cm) sized fish were counted during the 2026 sampling compared to 2024 and 2025 counts. The Waihou River rainbow trout population appears stable with hundreds of rainbow trout present per kilometre of river.

7. Waitawheta River (Not sampled 2026)

7.1. Waitawheta River introduction

The Waitawheta River rises on the eastern slopes of Mt Aroha in the Kaimai-Mamaku State Forest and then flows for about 20km northward before entering the Ohinemuri River opposite the township of Karangahake. The Waitawheta is a critical spawning tributary and thermal refuge for the once productive Ohinemuri River. The historic Masonry Dam near the town of Waihi prevents fish passage to the upper reaches of the Ohinemuri River that would provide both thermal refuge and spawning habitat making the Waitawheta a critical spawning tributary and thermal refuge. Although high summer water temperature and fish passage limits trout production during most summers, the catchment is still a popular destination due to the proximity to Auckland. Extensive fencing and planting upstream could improve conditions for trout in the Ohinemuri but ultimately climate change is working against restoration efforts in this catchment. The Ohinemuri and Waitawheta trout populations do bounce back after cool summers like the conditions observed in late 2022 and early 2023 Figure (7.1).

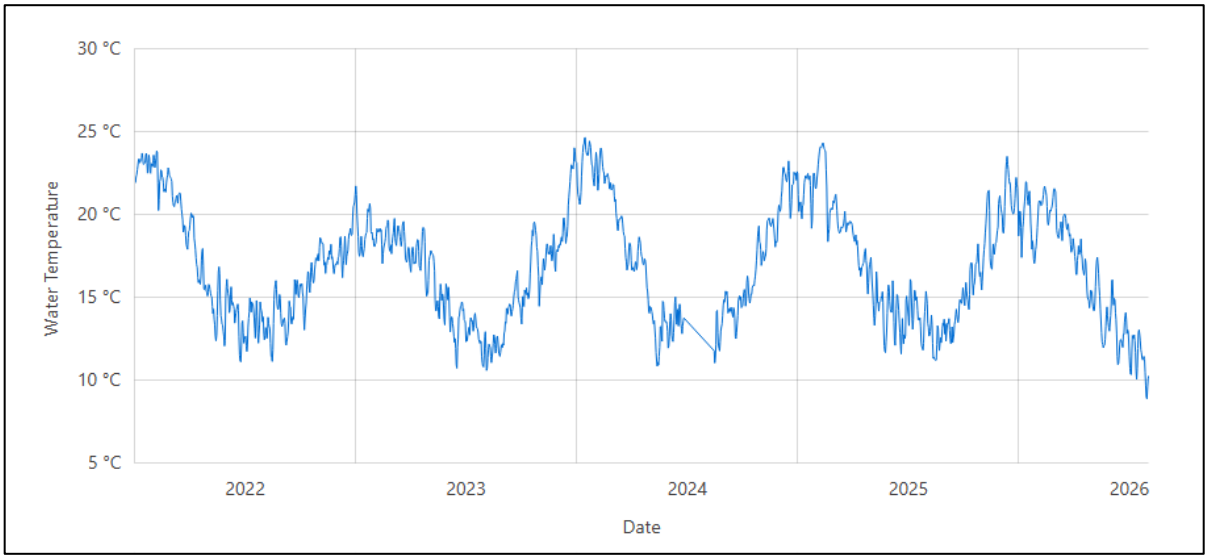


Figure 7.2. Water temperature in the Ohinemuri River from 2022-2026. Data from the Waikato Regional Council.

7.2. Waitawheta River study area

The drift dive survey occurs in the upper reaches of the Waitawheta River on the boundary of the State Forest at the end of Franklin Road. Here the river consists of a series of long deep pools separated by short turbulent runs/rapids. Although the river was modified for logging and mining the upper catchment is nearly pristine aside from the DOC tracks.

7.3. Waitawheta River methods

The drift dive stretch is 1.2km and the dive reach and GPS positions for the start and end points are displayed in Figure 7.1 A and B in addition to Appendix A. Unlike the Whakapapa most runs and rapids are safe to survey allowing for the opportunity to count <1yr cohort if present.

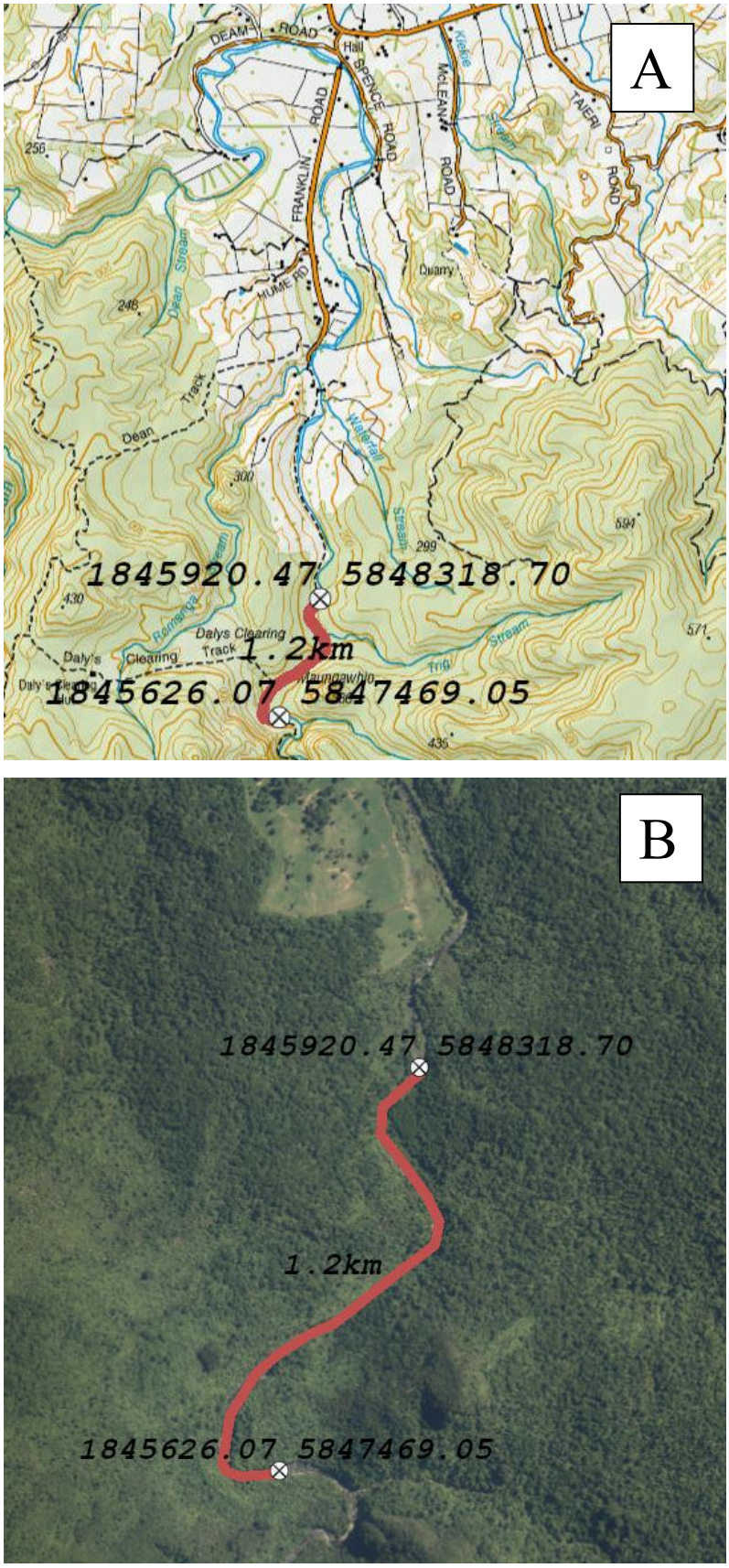


Figure 7.2. (A) 7.3. Waitawheta River drift dive location showing Franklin Road (B) photo of the drift dive area with GPS points for the start and stop locaions.

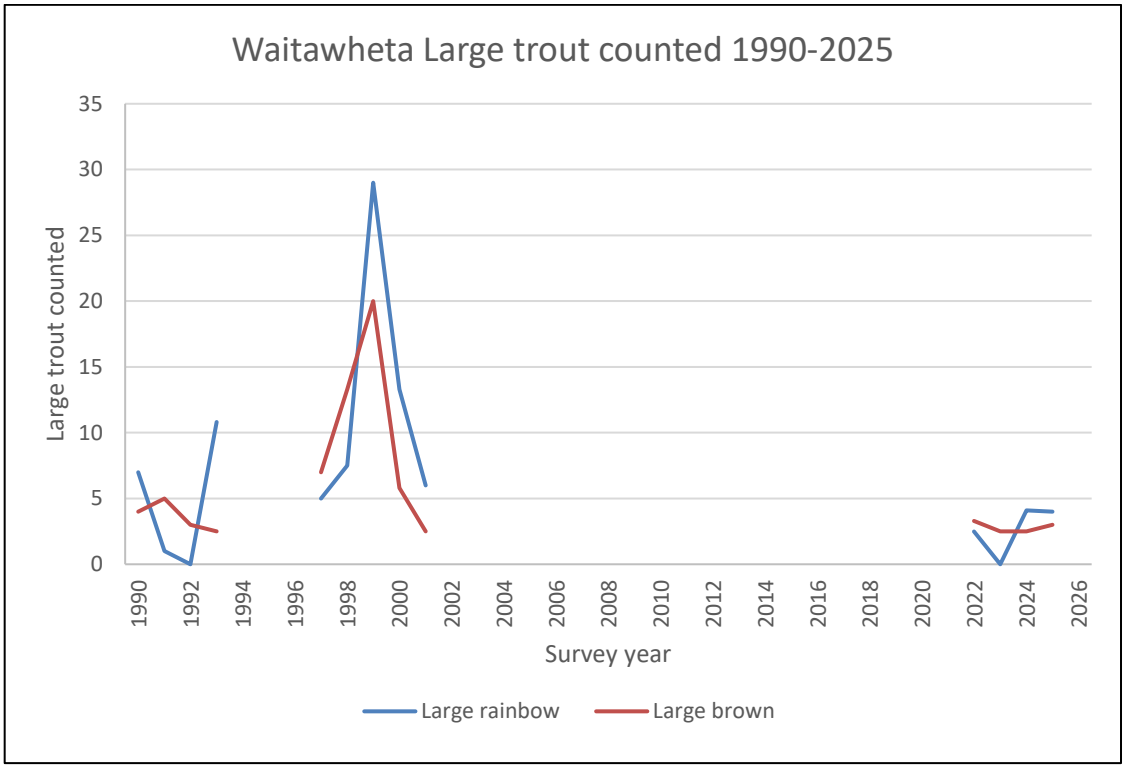
7.4. Waitawheta River results

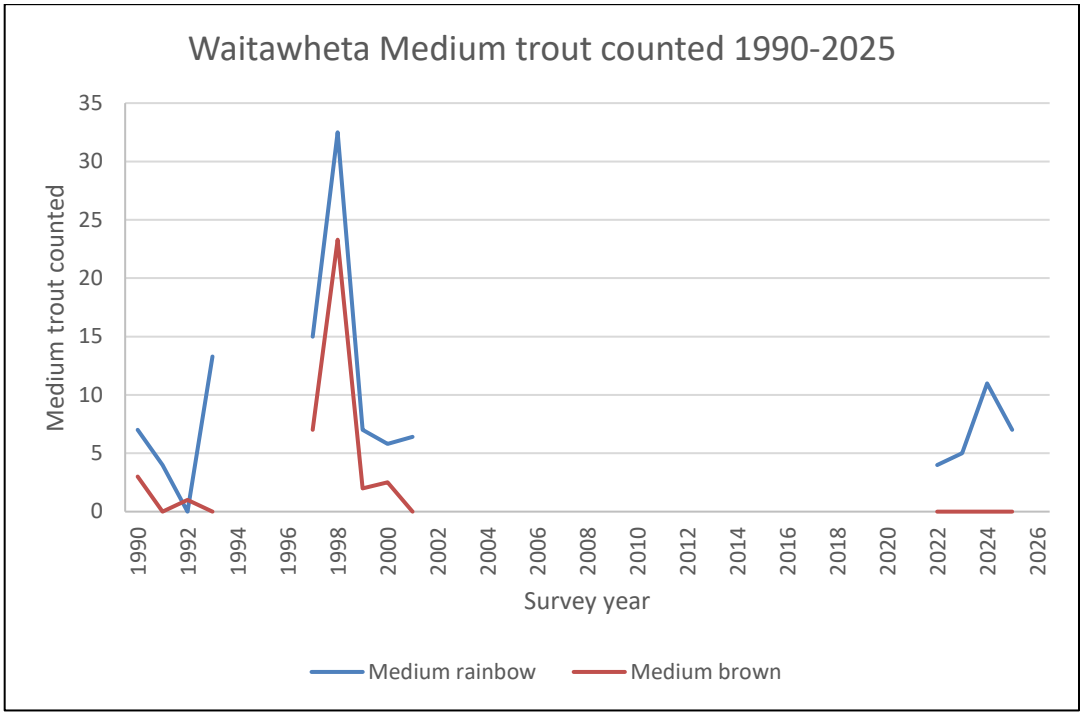
The Waitawheta River was not sampled during the 2026 season.

The last Waitawheta drift dive was conducted 3 January 2025 at 10:00am. The Waitawheta River does not have a river gauge, but the river was at base flow during the dive. Water temperature was 15.2°C with water clarity at 4.0m due to heavy periphyton and low water. Two divers conducted the dive searching all accessible water. Several shallow runs were skipped due to low water and the heavy algal growth. The largest number of small size class <20cm (≈12cm) fish ever recorded were seen on the dive indicating successful recruitment during the winter of 2025 (Table 7.1 & Figure 7.2). However, low numbers of adult trout were detected (Table 7.1 & Figure 7.2).

Table 7.1. Trout per kilometre for drift dives in the Waitawheta River (2023- 2025).

Year	<10cm	10-20cm	20-30cm	30-40cm	40+cm
2023	8	12	5	0	0
					3B
2024	36	118	7	4	4
					3B
2025	13	148	4	3	4
					3B





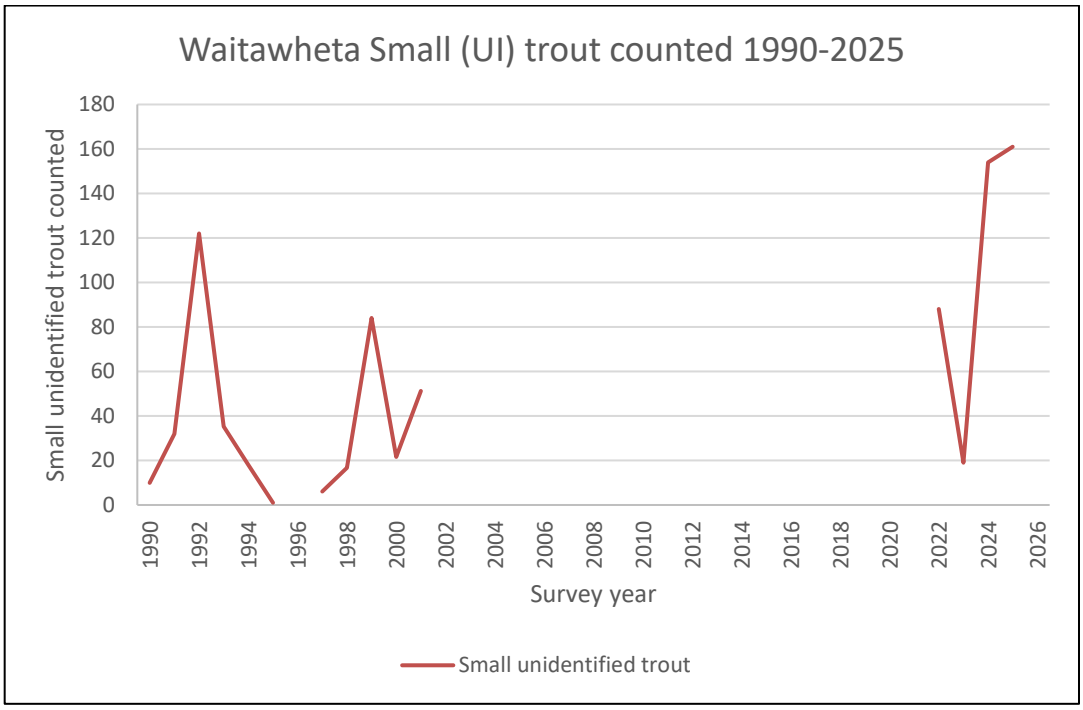


Figure 7.2. Number of large (≥40cm), medium (20-40cm) and small unidentified (<20cm) trout per kliometre of the Waitawheta River 1990-2025.

7.5. Waitawheta River discussion

A summary of drift diving results for the Waitawheta River since 1990 (Figure 7.2 A-C) indicates the reach monitored only occasionally holds high numbers of large trout. The Ohinemuri River exceeded 20°C from mid-December to early March so it is likely that fish were also stressed in the Waitawheta River. Fishing reports from the Waitawheta River in late 2025 were positive, indicating that even with low numbers of fish the fishery is still valued by anglers.

8. Kauaeranga River (Not sampled 2026)

8.1. Kauaeranga River introduction

Fish & Game management objective for the Kauaeranga River is to maintain a wild trout population intended as a secondary activity that is done in conjunction with camping at the multiple DOC sites along the river(Ben Wilson 2021b). The Kauaeranga is a steam where campers in the area can catch fish rather than a location where anglers travel to go fishing. Large storms have removed the tree canopy from the riparian zone in much of the upper catchment further exacerbating the impact of warm dry summers. The remnant trout population survives in thermal refuges created by groundwater inflows and small shaded tributaries.

8.2. Kauaeranga River study area

The Kauaeranga River rises in the Coromandel Range and flows in a southwesterly direction for about 32km before entering the Thames estuary at Thames. The catchment area of about 121km^2 is generally steep with regenerating native bush and scrub in the upper reaches, and exotic pine plantation, native scrub and pastoral land in the middle and lower reaches.

For much of the year, the Kauaeranga River can be described as a stream flowing over the bed of a large river. The wide riverbed does not allow for shading, increasing the daily peak water temperature. Although base flows in the Kauaeranga are low (mean annual 7-day low flow of 0.62m^3/s), massive floods are not uncommon as the Coromandel Range is subjected to torrential rain from northerly storms and the remnants of tropical cyclones. These massive floods have gorged out long deep pools and created broad shallow runs. Bed materials in the upper/middle reaches consist of boulders, cobbles, and hard gravel. Further downstream below the Coromandel Forest Park there are increasing quantities of mud and silt.

A large part of the Kauaeranga catchment is in the Coromandel Forest Park, and here the river is visited by many people, especially in the summer. A metal road with numerous DOC camping areas follows the river valley for some 25km.

8.3. Kauaeranga River methods

Two divers surveyed 1.2 km of the upper Kauaeranga near Booms Flat Camp. The dive reach and GPS positions for the start and end points are displayed in Figure 8.1 A and B in addition to Appendix A. The drift dive involved two divers floating downstream using snorkeling equipment and counting trout as they became visible. The wide riverbed and low water created thousands of pools making it very difficult to cover all of the available water. If there was an impact on data collection it would likely result in the undercounting of fish making the estimate a minimum.

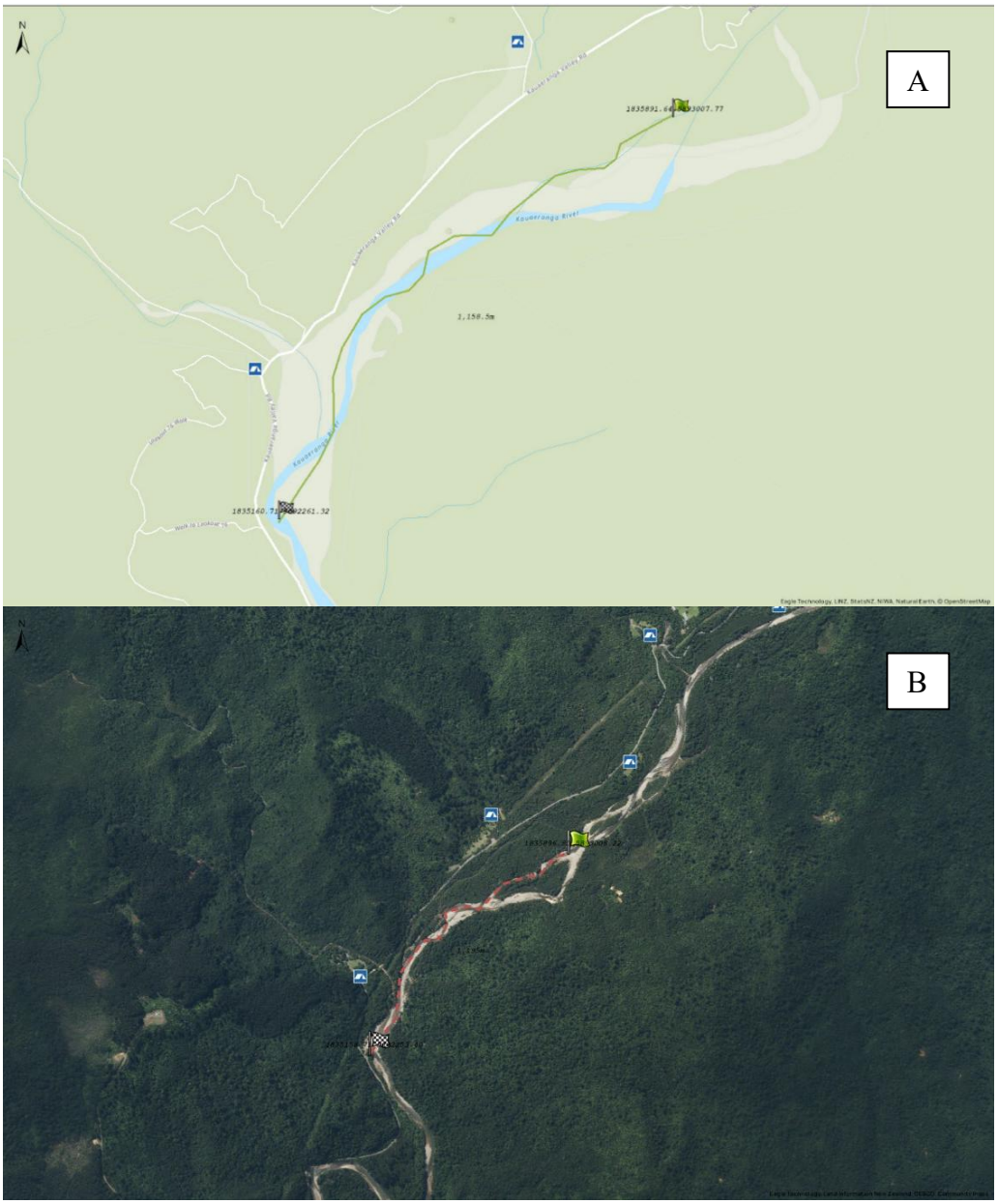


Figure 8.1. (A) Drift dive location showing the put in (green flag) and take out (checkered flag). (B) Photo of the drift dive area with GPS points in NZTM for the start (green flag) and stop location (checkered flag).

8.4. Kauaeranga River results

The Kaueranga River was not surveyed during the 2026 summer. The last completed Kauaeranga River drift dive started at the top end of the Boom Flat Island at 11:00pm on February 5th, 2025, with 8.0 m visibility and water temperature of 19.8C°. Although the water temperature was high there was a noticeable influence of groundwater in many pools creating thermal refuges far below the surface temperature. Although trout numbers were low there were positive signs for the population with relatively high numbers of small fish (Table 8.1; Figure 8.2).

Table 8.1. The size and frequency of rainbow trout seen in the Kauaeranga River 2024-2026.

Year		< 10cm	10-20cm	20-30cm	30-40cm	40+cm
2024		9	31	8	3	0
2025		31	24	6	3	0
2026		N/A				

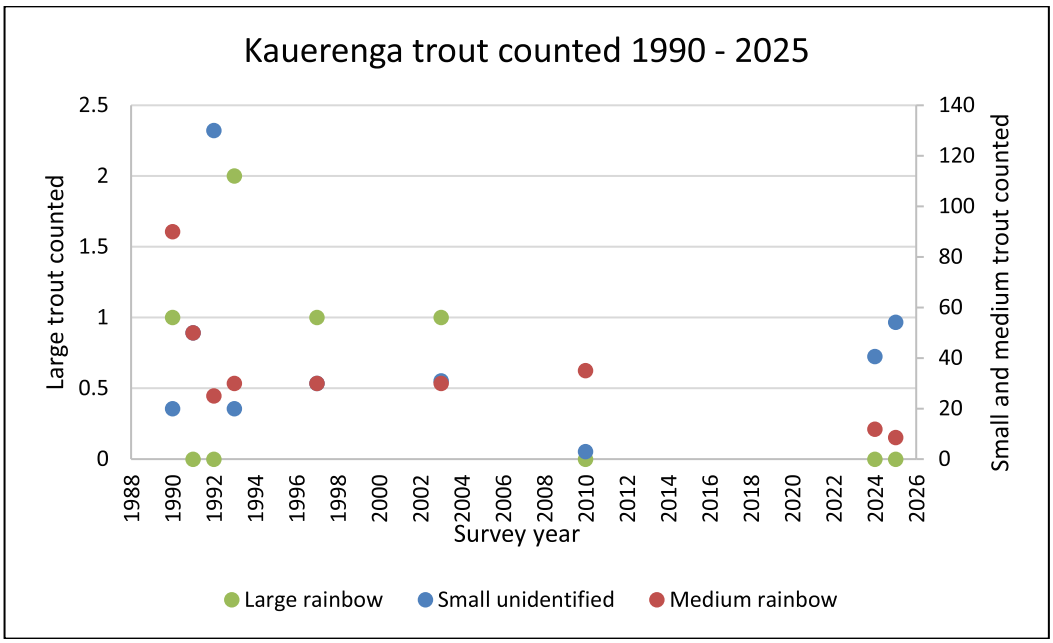


Figure 8.2. Number of large (>40cm), medium (20-40cm) and small (<20cm) rainbow trout per km of the Kauaeranga River (1990-2025).

Kauaeranga River discussion

Although the Kauaeranga River has low trout numbers it is an exceptionally scenic location with popular DOC campgrounds. The river has a wide stream bed with limited shading in the main channel due to frequent high intensity floods. High summer temperatures limit recruitment during hot summers making the Kauaeranga River an intermittent fishery. There are no practical management interventions that could improve conditions as the upper catchment is already a forest park. However, the river is worth monitoring to inform anglers when fish are present and to document the impact of heat related stressors on trout.

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10. Appendix A Dive locations

River	Reach	X NZTM	Y NZTM	X NZTM	Y NZTM	Distance (km)
Waihou	Blue springs	1847743.05	5787062.24	1847056.91	5787904.84	1.7
Waitawheta	Park boundary	1845627.86	5847471.51	1845904.95	5848404.28	1.2
Mangatutu	Gravel pit	1816389.34	5768493.01	1815645.77	5769408.62	2
Awakino	Upper Gribbon	1757293.16	5734676.96	1757491.12	5734050.83	0.75
Kauaeranga	booms flat camp	1835891.64	5893007.77	1835163.54	5892258.55	1.18
Awakino	lower	1759111.69	5731201.71	1760056.4	5730186.53	1.6
Whakapapa	Owhango	1807547.03	5680065.1	1807721.4	5680880.23	1
Whakapapa	Oio Farm	1808861.12	5670461.79	1808861.12	5670461.79	1.94

Acknowledgements

This work would not have been possible without assistance from Roslyn Simmonds, Adam Daniel, Beau Jarvis-Child, David Klee, and Danielle Lelievre.