TROUT SURVEYS REPORT 2024

A summary of trout dive surveys conducted by Fish & Game West Coast Region during the 2023-2024 season.

Baylee Kersten, Fish & Game Officer, May 2024

TROUT SURVEYS REPORT 2024

A summary of trout surveys conducted by Fish & Game West Coast in the 2023/2024 season. *Baylee Kersten, Fish & Game Officer, May 2024.*

Summary

Trout dive surveys have been conducted in the West Coast Fish & Game Region since 1985. The purpose of these surveys is to quantify trout abundance in a particular stretch of river. Where dives have occurred in past years, comparisons can be made. This season the dives were conducted between December 2023 and April 2024, incorporating Fish & Game staff from the West Coast Region alongside local volunteers and West Coast Regional Council staff. The Mawheraiti River (SH7 and Mirfins Bridge), the Inangahua River (Blacks Point), the Grey River (Waipuna and Hospital Flat), the Waitahu River (Gannons Bridge), Larry's Creek (Upper), the Rough River (Upstream from Mill and Mirfin Ford), and the Haupiri River (School site and Upstream of Ahaura) were dived. In general, trout abundance was moderate, with some sites yielding strong counts while others fell short of their long-term averages. It is recommended to: Continue the trout survyes programme as a tool for gathering long term data on West Coast trout abundance. That council receives this report.

Introduction

Dive surveys are commonly used to monitor trout abundance in clear, small to medium sized rivers throughout New Zealand. The West Coast Fish & Game Region's database of trout survey results dates back to 1985 when MAF conducted a series of dives for their "100 Rivers" survey. Since then, Fish & Game staff have undertaken up to 12 dives per year when river conditions have been favourable.

There is now a large dataset that enables comparison at sites which have been dived multiple times over several years. The data provides a 'spot' count of trout abundance on a particular stretch of a river. The West Coast Region performs dives in relation to specific threats or management information needs and sites are not randomised. Therefore, results in this report should not be used to describe catchment level or regional level observations. The data and findings of the surveys are intended for internal management purposes only.

The majority of West Coast rivers are dived specifically for brown trout (Salmo trutta) and unless specifically stated, brown trout are the species referred to as 'trout' or 'fish' in this report. Dive sites are between 1 and 3 km in length. This distance is considered the longest possible to avoid fatigue whilst being long enough to give an estimate of the actual population for that stretch of river.

This season trout surveys were undertaken to build on existing long-term datasets and to assess the abundance and distribution of fish in rivers with perceived threats from development or unsustainable fishing practices. Specifically:

1) The Mawheraiti River and the Inangahua River were dived to monitor the impact of catchment development.
2) The Grey River at Hospital Flat was dived to monitor the impact of perceived high angler usage on a highly valued section of river near the Grey River Water Conservation Order.

3) The Grey River at Waipuna was dived to monitor the middle reaches of one of the West Coast's most fished river catchments.
4) The Waitahu River, Rough River and Larry's Creek were dived to monitor the impact of high angler usage observed within the Reefton Area.
5) The Haupiri River was dived in conjunction with a survey of Lake Haupiri to assess the trout population in the Haupiri catchment.

Method

A team of divers wearing wetsuits, bootees, flippers, gloves, masks, and snorkels drift downstream from a designated start point and count any trout that they pass before a designated end point is reached. To ensure accurate counts the following rules are observed:

1) A designated lead diver monitors and instructs the divers to maintain a straight line across the river.
2) Only trout that pass directly underneath, or to a predetermined side of a diver, are recorded.
3) Where large schools of fish move rapidly back upstream divers communicate to clarify the number, size class and who has counted them.

Before a dive is undertaken water clarity is measured by recording the distance in metres a 200mm black disc can be observed horizontally through the water column. Good water clarity is required for accurate counts therefore diving is not undertaken if visibility is less than 4m. More divers are required if water clarity is low to ensure adequate coverage, ideally visual contact can be maintained between divers.

Trout are divided into three size groups;

Large: Trout over 450mm in length.
Medium: Trout less than 450mm and greater than 150mm in length.
Small: Trout less than 150mm in length.

Fish numbers are recorded by each diver, with the team leader collecting the information from each diver periodically throughout the dive and/or on completion of the dive.

Results

Mawheraiti River (Mirfins Bridge)

This season the dive at Mirfin's Bridge was completed twice, on 14 December 2023 and the 23 April 2024. The first dive resulted in a count of 83 small/km, 39 medium/km and 9 large/km. An above average count, due high numbers of small fish, with both medium and large numbers slightly below average. The second count was much higher, with a count of 101 small/km, 145 medium/km, and 24 large/km. All three size classes were more than double their long-term average, with it being the second highest count completed.

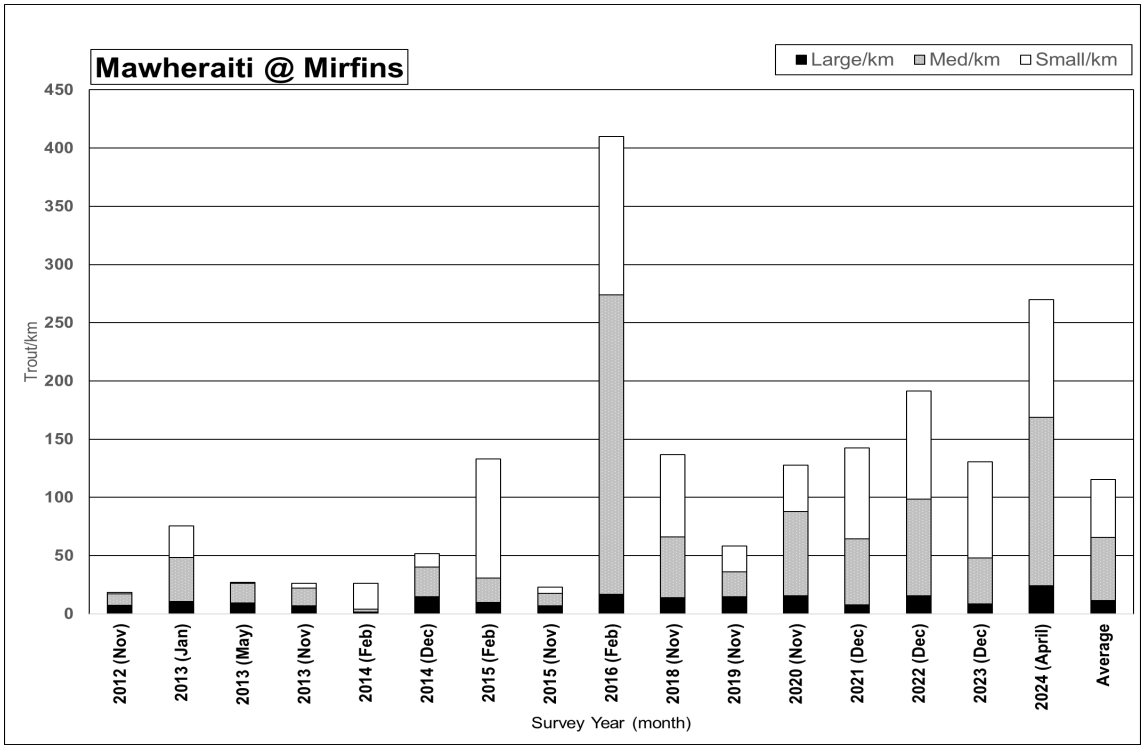

Fig 1. Number of Brown Trout recorded during trout surveys at the Mawheraiti River Mirfins Bridge site 2012-2024.

Mawheraiti River (SH7 Bridge)

This season a successful dive was competed SH7 bridge on 23 April 2024 following two previous attempts that were insufficient due to clarity issues. This dive resulted in a count of 77 small/km, 115 medium/km and 22 large/km. Numbers of small and medium were above average while large trout numbers were average.

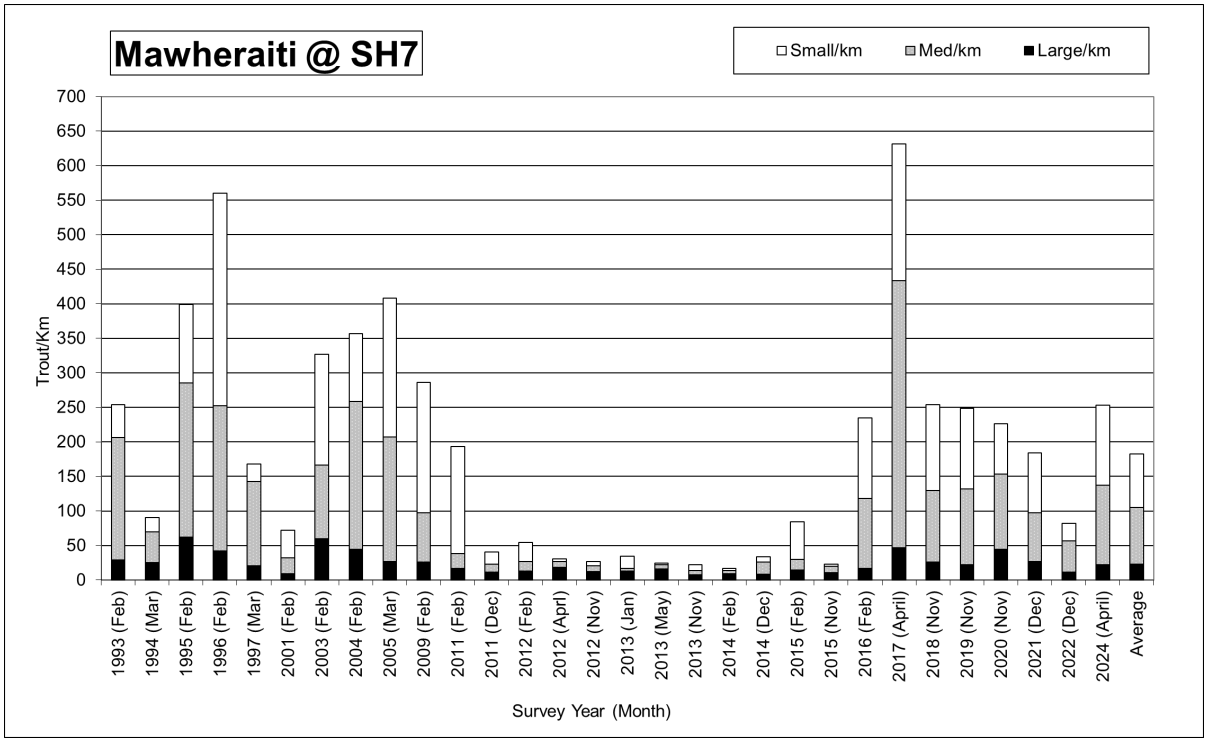

Fig 2. Number of Brown Trout recorded during trout surveys at the Mawheraiti River SH7 Bridge site 1993-2024.

Inangahua River (Blacks Point site)

This season the dive at Black's Point on 18 January 2024 resulted in a count of 145 small/km, 40 medium/km and 8 large/km. Numbers of all size classes were all below average.

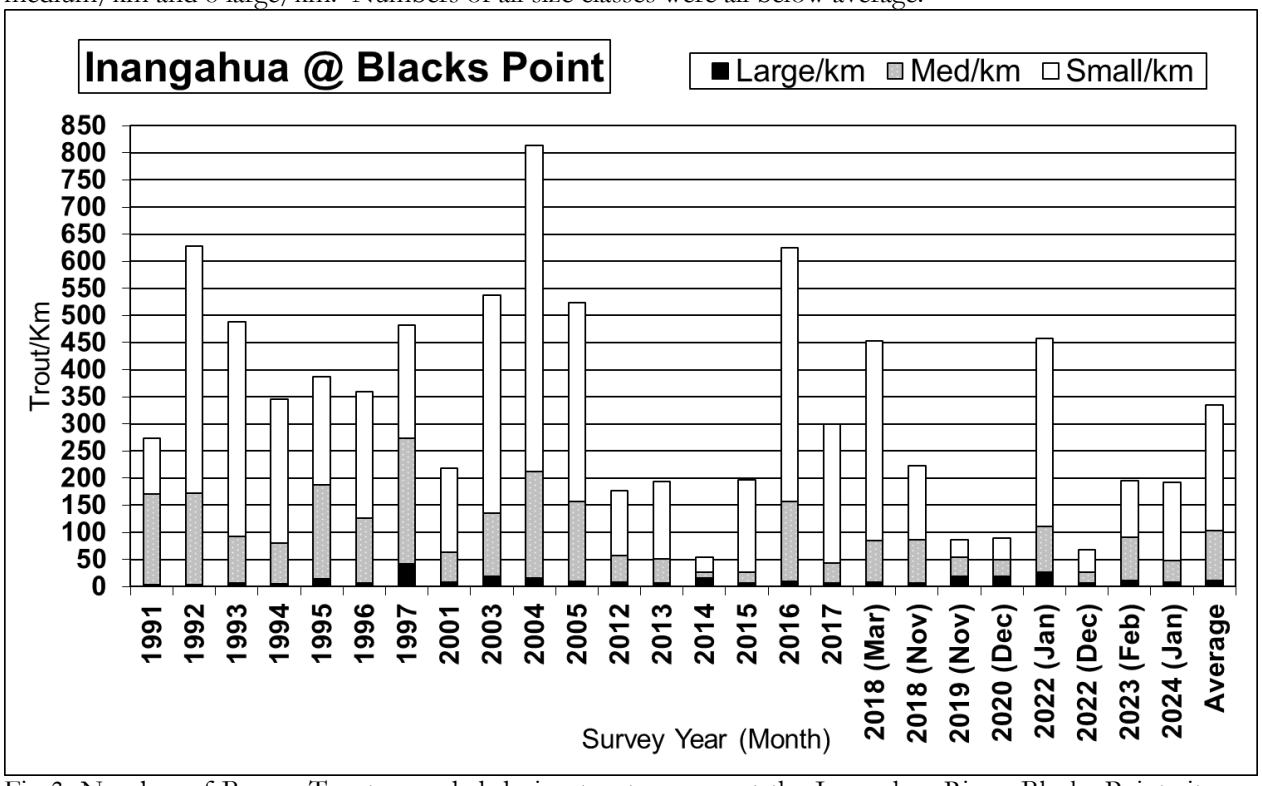

Fig 3. Number of Brown Trout recorded during trout surveys at the Inangahua River, Blacks Point site 1991-2024.

Grey River (Hospital Flat)

This season the dive at Hospital Flat on 17 January 2024 resulted in a count of 11 small trout/km, 2 medium trout/km and 8 large trout/km. Number of fish in each size class were all below average.

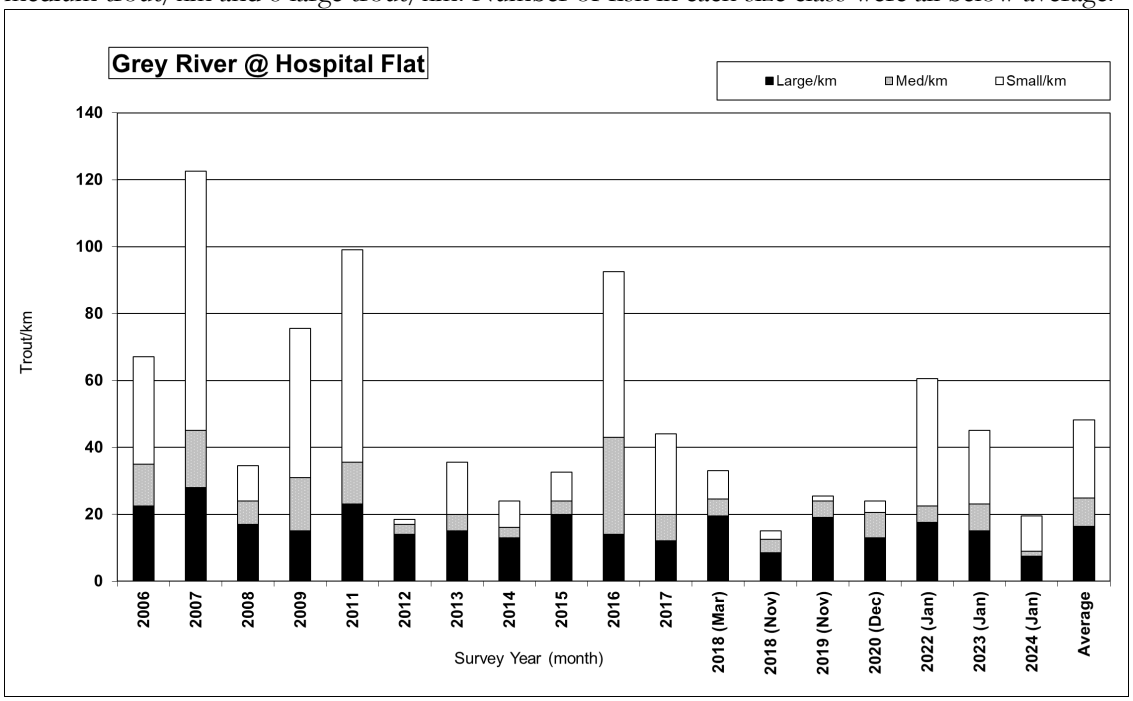

Fig 4. Number of Brown Trout recorded during trout surveys at the Upper Grey River, Hospital Flat 2006-2024.

Grey River (Waipuna site)

This season the dive at Waipuna on 23 February 2024 resulted in a count of 61 small/km, 57 medium/km and 21 large/km. Number of fish were below average and that was due to reduced numbers of small and medium fish.

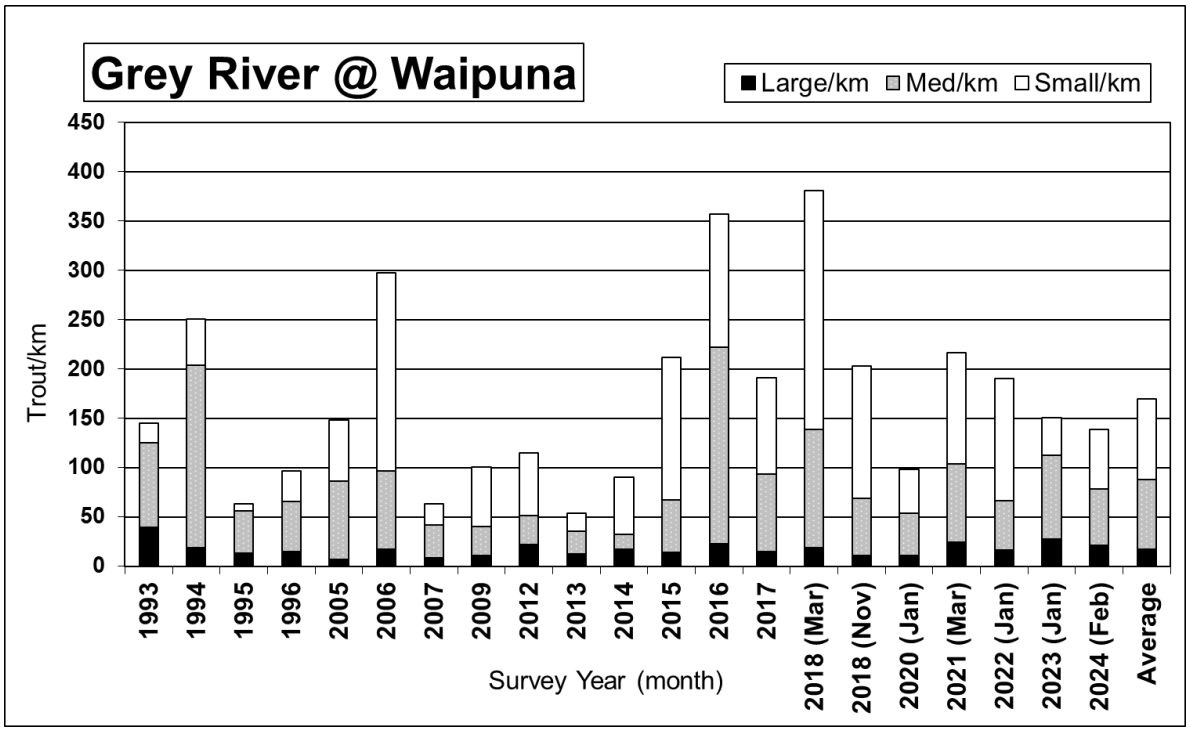

Fig 5. Number of Brown Trout recorded during trout surveys at the Grey River, Waipuna 1993-2024.

Larry's Creek

This season the dive at Upper Larry's Creek on 11 January 2024 resulted in a count of 39 small/km, 11 medium/km and 9 large/km. Numbers of small and medium fish were well above average while large fish were average.

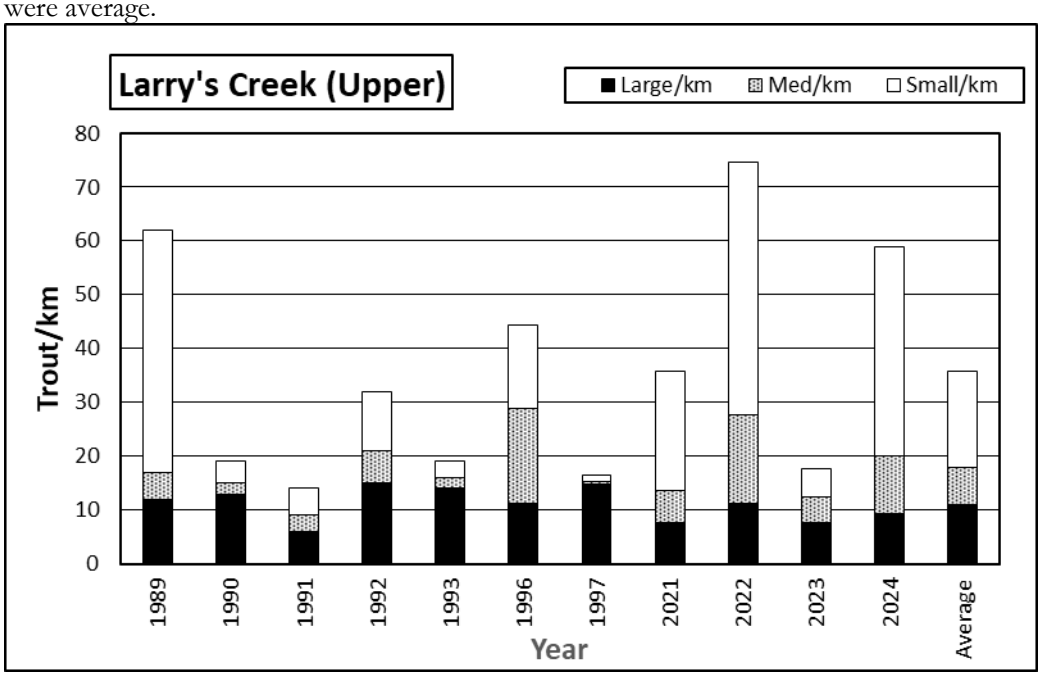

Fig 6. Number of Brown Trout recorded during trout surveys at Larry's Creek, upper site 1989 - 2024.

Waitahu River

This season the dive at the Waitahu River on 11 January 2024 resulted in a count of 56 small/km, 5 medium/km and 4 large/km. Numbers of all three size classes were below average.

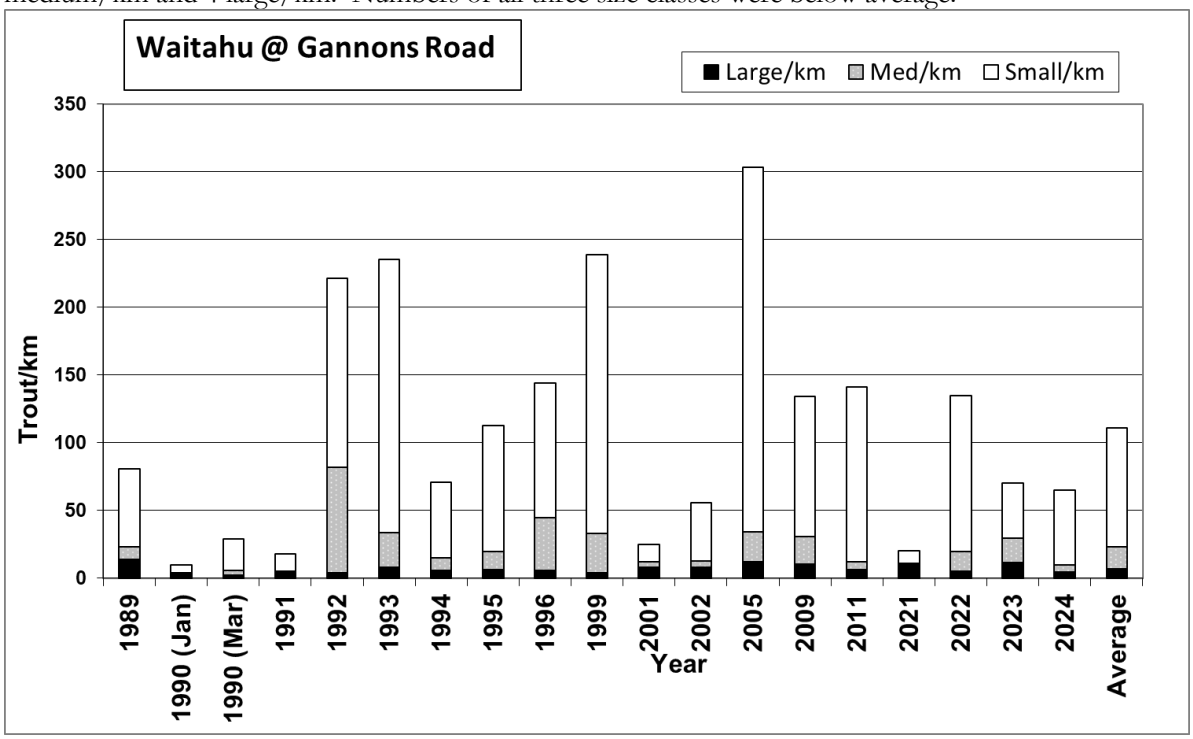

Fig 7. Number of Brown Trout recorded during trout surveys at the Waitahu River, Gannons Bridge 1989 - 2024.

Rough River (Upstream of Mill)

This season the dive at the Rough River, Upstream of the Mill site on 1 December 2023 resulted in a count of 17 small/km, 9 medium/km and 23 large/km. Numbers of large and medium fish were above average while the number of small fish were average.

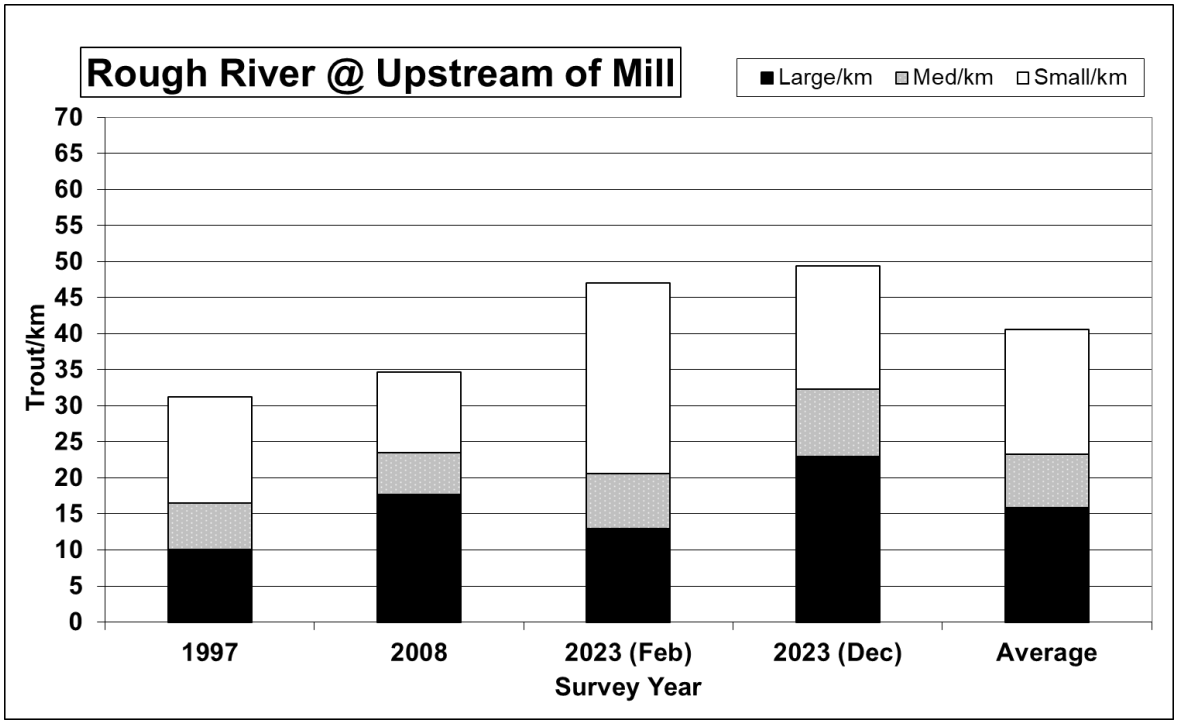

Fig 8. Number of Brown Trout recorded during trout surveys at the Rough River, upstream from the old sawmill site 1997 – 2023.

Rough River (Mirfins Ford)

This season the dive at the Rough River, Mirfin Ford site on 1 December 2023 resulted in a count of 10 small/km, 5 medium/km and 24 large/km. Numbers of all size classes were all below average.

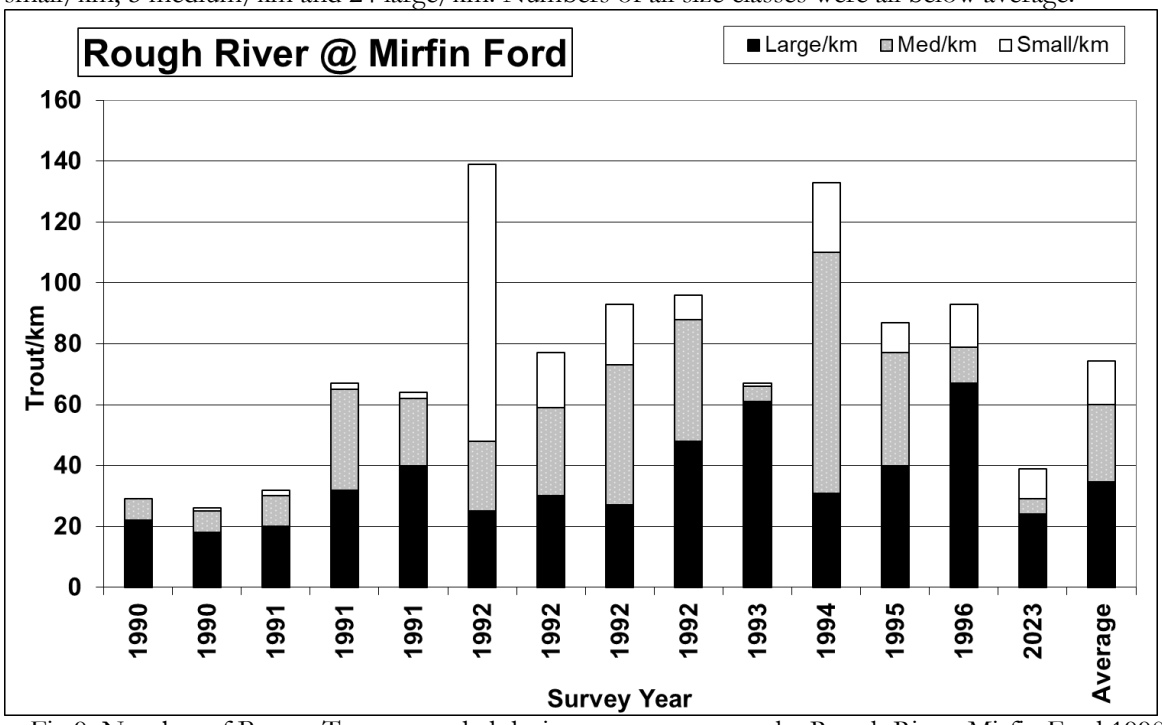

Fig 9. Number of Brown Trout recorded during trout surveys at the Rough River, Mirfin Ford 1990 – 2023.

Haupiri River

This season the dive at the Haupiri River, School site on 15 December 2023 resulted in a count of 1 small/km, 29 medium/km and 28 large/km. Numbers of large trout were above average while numbers of small and medium trout were below average. A new site was also dived, Haupiri River, Upstream of Ahaura resulting in a count of 0 small/km, 4 medium/km and 32 large/km. Being the first dive at this site there is no background data to compare it against.

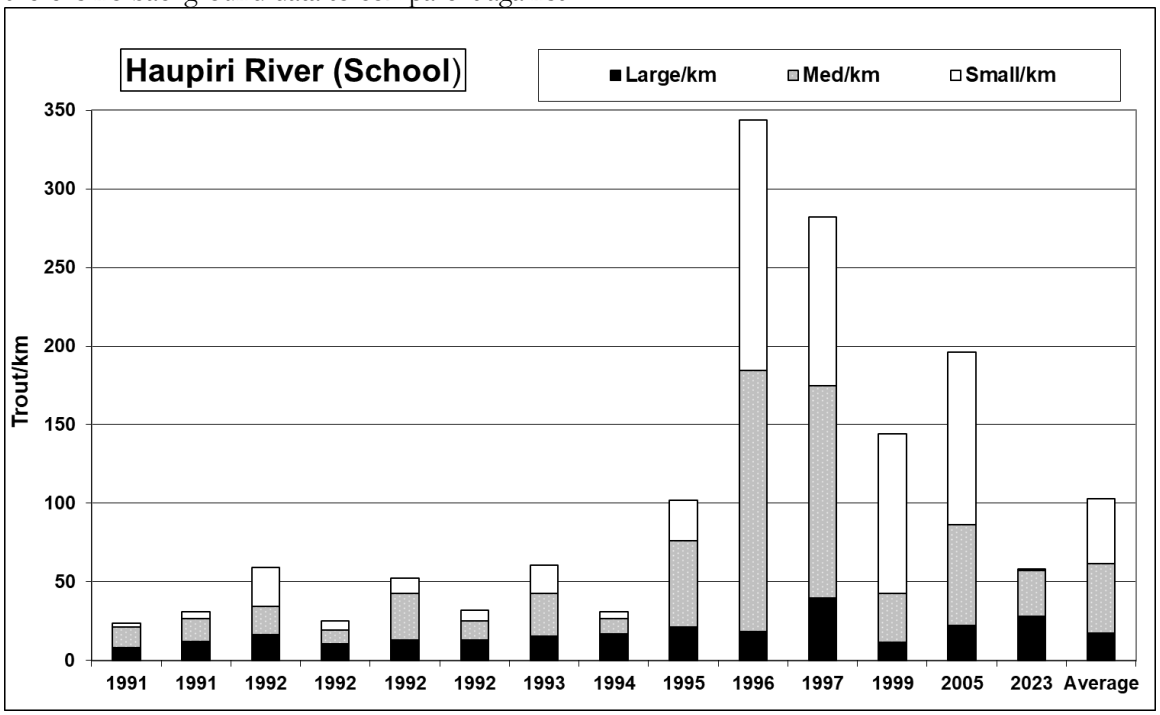

Fig 10. Number of Brown Trout recorded during trout surveys at the Haupiri River, School site 1991 – 2023.

Discussion

The dives completed on the Mawheraiti River yielded strong counts. These dives posed great difficultly this season, with low visibility resulting in delays and failed dive attempts. Despite this, all three valid counts where visibility exceeded four meters were above average. The Mirfin Bridge dive site count doubling going from December to the April, consistent with the trend of the later sites are dived, particularly in recruitment areas, the higher the count. Taking this into account, the SH7 site, would of likely have had a below average count if we had successfully dived it in December, as done in recent years. The Mirfins dive site remains steady, with all three size classes present in above average numbers. The research project in the Mawheraiti catchment indicated that 2022-23 was a good recruitment year, therefore the good numbers of small trout were expected at both sites.

The rivers in the Reefton area (Larry's, Waitahu, and Inangahua) are still recovering from the flooding experienced in February 2022. Larrys Creeks count suggests it has had some good recruitment. The Waitahu and Inangahua rivers, although below their averages, both still had reasonable numbers of small trout present. Anglers reports also suggest that there are good numbers of young fish in the Inangahua system, and its recovery is well on its way.

The Grey River at both dives resulted in counts below their long-term averages. With the upper Grey being again popular this season with non-resident anglers and guiding activity, continued focus should be given to area. The Rough was dive at two sites, the old Mill site again this year resulted in above average count while the upstream site at Mirfins Ford count fell short of its long-term average. The Mirfin Ford site is only one kilometre long and has not been dived for 27 years so there is potential that the habitat in this stretch has changed in this long time period and that is reflected in the number of trout present.

The Haupiri River dives and survey of Lake Haupiri has indicated that there is a good adult population of trout. Very few small trout were observed at both dive sites but looking at historic dive data, this is common for the Haupiri River as observed between 1991 and 1995 and particular during counts in November and December. The dives between 1996 and 2005 were completed in February or March, which will have aided in increasing their small trout counts as juveniles leave their natal streams over summer and enter the Haupiri River.

Staff Recommendations

- Continue the trout surveys programme as a tool for gathering long term data on West Coast trout abundance.
- That council receives this report.

Acknowledgements

To the following staff and volunteers who helped with the dives a big thank you: Dean Kelly, Dan Scoltock, Emily Rutherford-Jones, Koen Beets, Tim Dawe, Sam Speight, Taylor Blyth, Luken Bisley, Suze Harris, and John Hughes.

References

Unwin, M.J. (2016). Angler usage of lake and river fisheries managed by Fish & Game New Zealand: Results from the 2014/15 National Angling Survey.

Appendix 1: Raw data from trout survey dive sites dived in 2023/2024.

RIVER	LOCALITY	YEAR	DATE	GRID REF	DIST (km)	WIDTH (m)	Vis (m)	LARGE	MEDIUM	SMALL	TOTAL	# DIVERS
Grey R	Hospital Flat	2024	17/01/2024	152/529 - 152/529	2	20	9	30	15	43	88	6
Grey R	Waipuna	2024	23/02/2024	085/735 - 064/748	3	40	7.5	64	170	182	416	8
Haupiri R	School	2024	15/12/2023	045/473 - 059/479	2.1	30	4.3	59	61	2	122	6
Haupiri R	Upstream of Ahaura	2024	15/12/2023	104/516 - 110/528	1.7	30	7.3	54	6	0	60	6
Inangahua R	Blacks Point	2024	17/01/2024	179/962 - 176/973	1.7	18	6.5	13	68	246	327	6
Larry's C	Upper	2024	11/01/2024	230/075 - 214/082	1.7	12	15	16	18	66	100	4
Mawheraiti R	SH7 Bridge	2024	23/04/2024	043/892 - 033/878	1.7	20	4.2	38	195	197	430	6
Mawheraiti R	Mirfins Bridge	2023	08/12/2022	005/809 - 987/796	1.3	20	4	13	59	124	196	6
Mawheraiti R	Mirfins Bridge	2024	23/04/2024	005/809 - 987/796	1.3	20	5	36	217	152	405	6
Rough R	Mirfin Ford	2023	01/12/2023	978/878 - 984/867	1	20	6.5	24	5	10	39	6
Rough R	Upstream of Mill	2023	01/12/2023	230/075 - 214/082	1.7	20	6.5	39	16	29	84	6
Waitahu R	Gannons	2023	11/01/2024	205/023 - 192/027	1.6	18	10.4	7	8	89	104	4