

DRIFT DIVE SURVEY REPORT 2018

A summary of drift dives conducted by Fish & Game West Coast Region during the spring and summer of 2017/2018.

Lee Crosswell, Fish & Game Officer, May 2018



Mokihinui River During Drift Diving, March 2018.



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Summary

Drift dives have been conducted in the West Coast Fish & Game Region since 1985. The purpose of these surveys is to give an indication of trout abundance in a particular stretch of river. Where dives have occurred in past years, comparisons can be made. The data and findings of the surveys are intended for internal management purposes only. This season the dives were conducted in March 2018, incorporating Fish & Game staff from the Nelson Marlborough Region, The West Coast Regional Council and Volunteers. The Grey River at Waipuna and Hospital Flat, and the Inangahua River at Blacks Point were dived. Additionally, two sections on each of the Karamea and Mokihinui Rivers were dived within the backcountry designated area. Staff recommendations include; Continuation of the drift dive programme as a tool for gathering long term data on West Coast trout abundance; Continue to assist with neighbouring regions drift dive programmes on a reciprocal basis to obtain numbers where necessary; That council receives this report.

Introduction

Drift diving is now a commonly used method of monitoring trout abundance in clear, small to medium sized rivers throughout the country. The West Coast Fish & Game Region' database of drift-dive results date back to 1985 when MAF conducted a series of dives for their "100 Rivers" survey. Since then, Fish & Game staff have undertaken up to 10 dives per year when river conditions have been favourable.

There is now a large West Coast dataset that enables comparison at sites where multiple years have been dived. 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.

Method

The method involves a number of snorkelled divers drifting downstream, maintaining a line across the river and counting trout that pass under or between them on one side. 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. 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.

Water clarity is measured at the beginning of each dive with a 200mm black disc and tape measured horizontally through the water column. Good water clarity is required for an accurate count therefore diving is not generally undertaken if the visibility is less than 4m. More divers are required if water clarity is low to ensure adequate coverage.

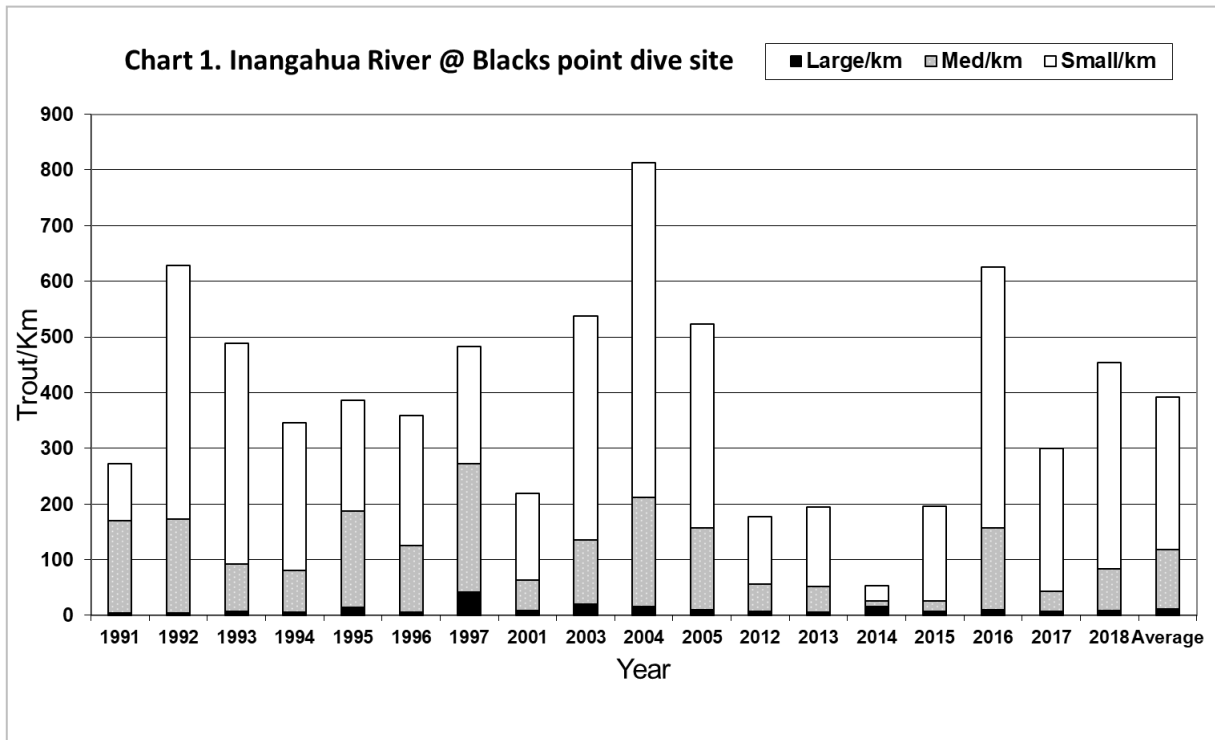
The Grey River at Hospital Flat was dived to monitor the state of a highly valued section of river near the Grey River Water Conservation Order that has a perceived high angler usage. The Grey River at Waipuna is dived to monitor the middle reaches of one of the West Coast's most fished river catchments (Unwin, 2009). The Karamea and Mokihinui Rivers were dived within the Backcountry area to align with the current backcountry angler survey in the area.

Staff from the West Coast Regional Council, Nelson Marlborough Fish & Game and volunteers assisted with the dives. Staff provided their time on a reciprocal basis, this ensures diver numbers are adequate. This season we participated in dives of the Motueka and Wairau rivers to assist the Nelson Marlborough Region.

Results

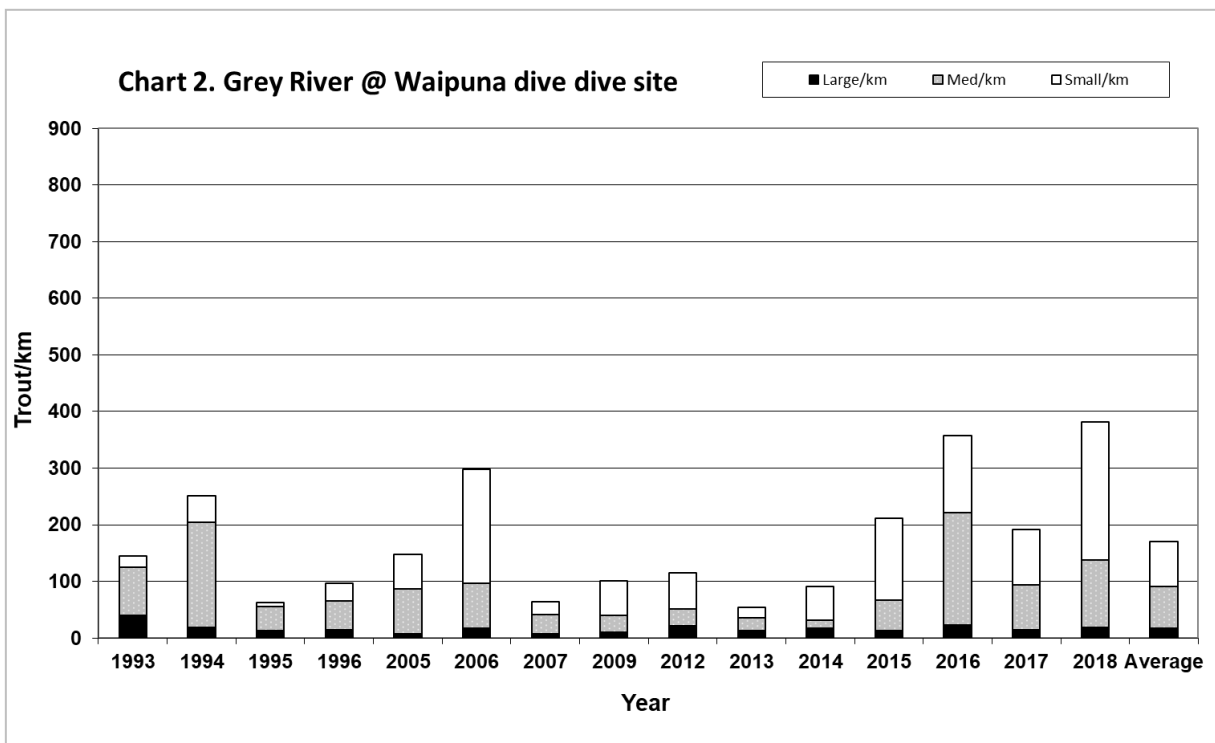
Inangahua River: (Blacks Point site)

The 2018 dive at Blacks Point revealed counts of 369 small/km, 75 medium/km and 9 large/km. A high abundance of small fish was present once more through this stretch of the Inangahua, with above average numbers present.



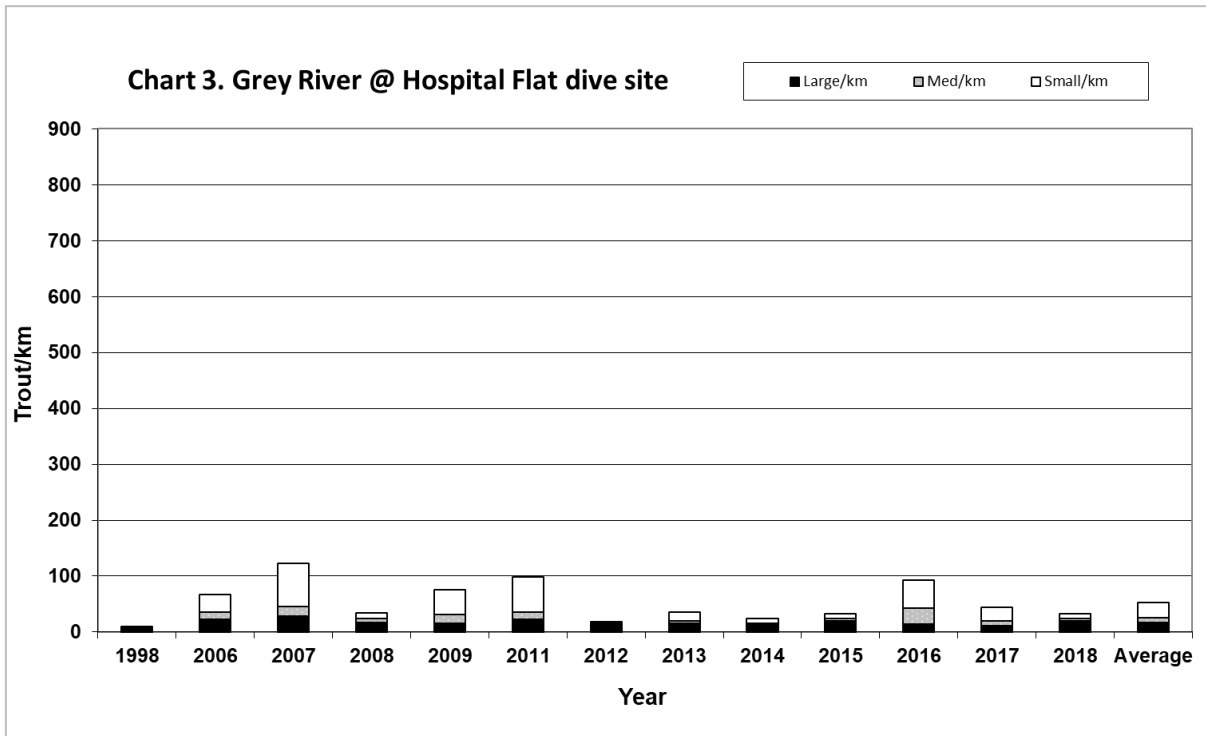
Grey River: (Waipuna site)

The 2018 Grey River dives at Waipuna provided the following results for trout abundance, 243 small/km, 119 medium/km and 19 large/km. These results showed an increase in numbers from last years dive, with positive numbers of small and medium sized trout in this section of the Grey River this year.



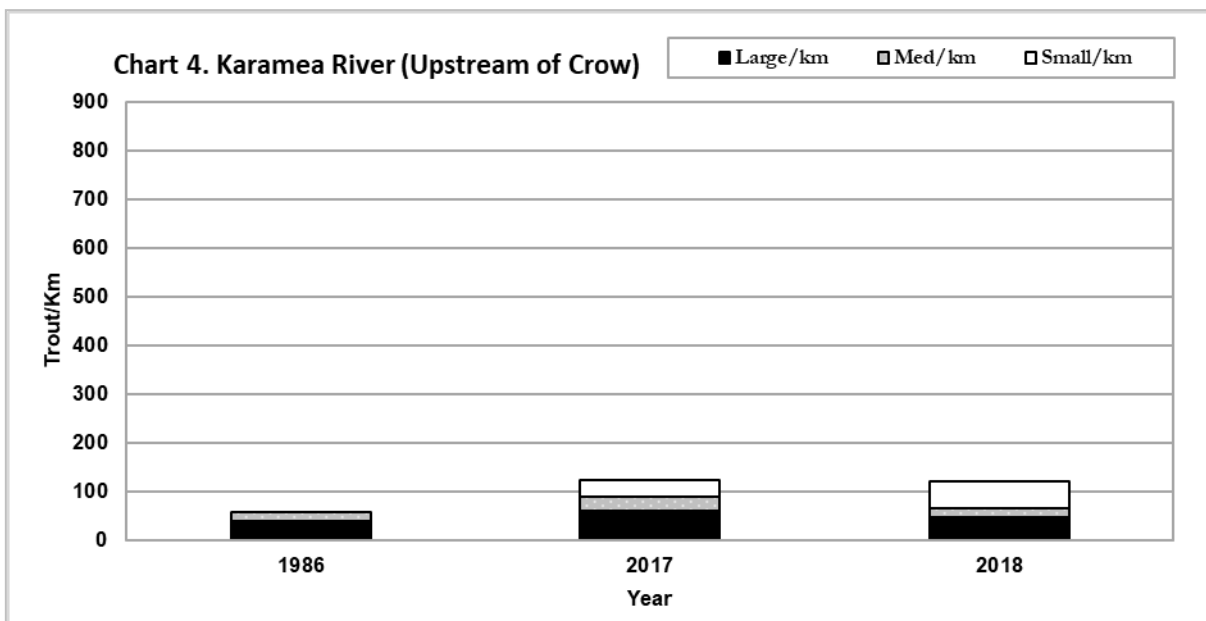
Grey River: (Hospital Flat site)

The 2017 dive at Hospital Flat revealed 8 small trout/km, 5 medium trout/km and 19 large trout/km. The number of large trout have increased from the past two seasons. This area looks to have received several large floods in recent years with little algae on the rocks and an accumulation of fine sediment in places. In general, not overly stable looking habitat.



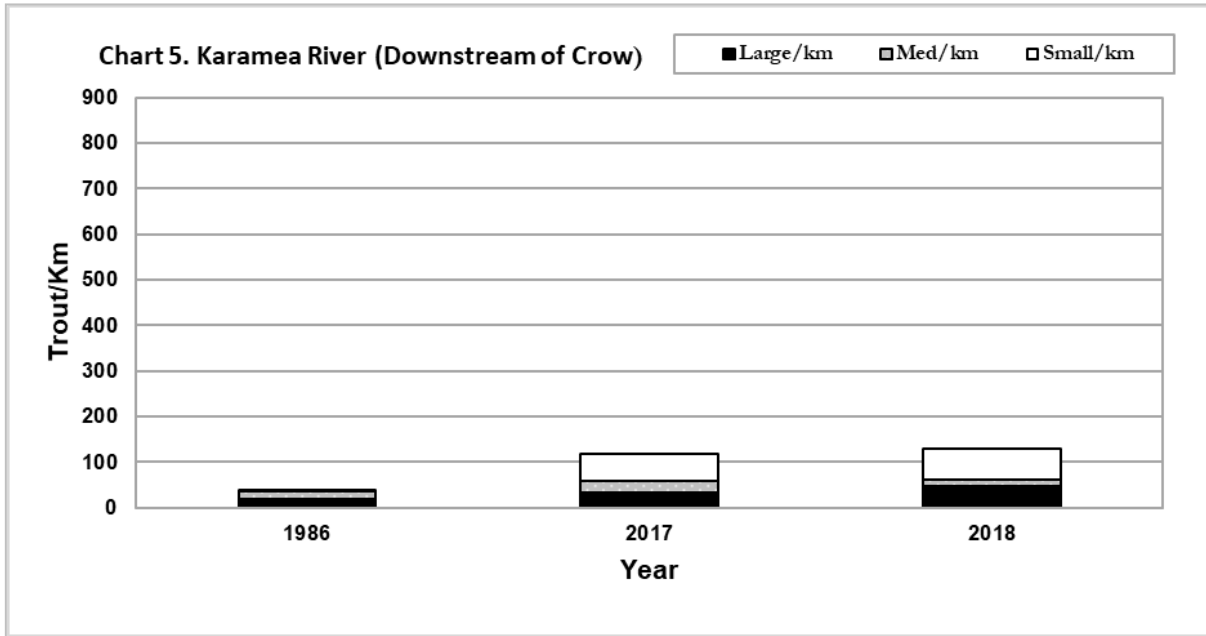
Karamea River: (Upstream of the Crow site)

The Karamea River Upstream of the Crow Confluence provided similar results to last season with 55 small trout/km, 19 medium trout/km and 47 large trout/km.



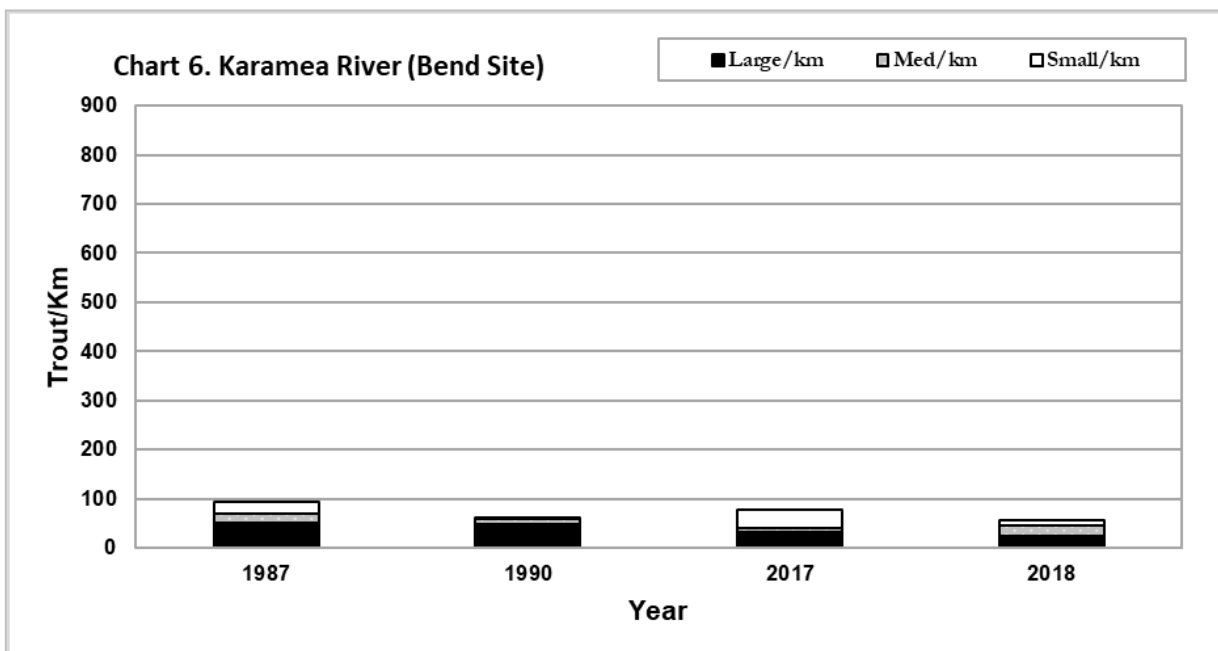
Karamea River: (Downstream of the Crow site)

Consistent with upstream of the Crow confluence, the section downstream of the Crow River confluence showed results similar to the previous year's dive, with 67 small trout/km, 15 medium trout/km and 47 large trout/km. More large trout were present through this section than last year.



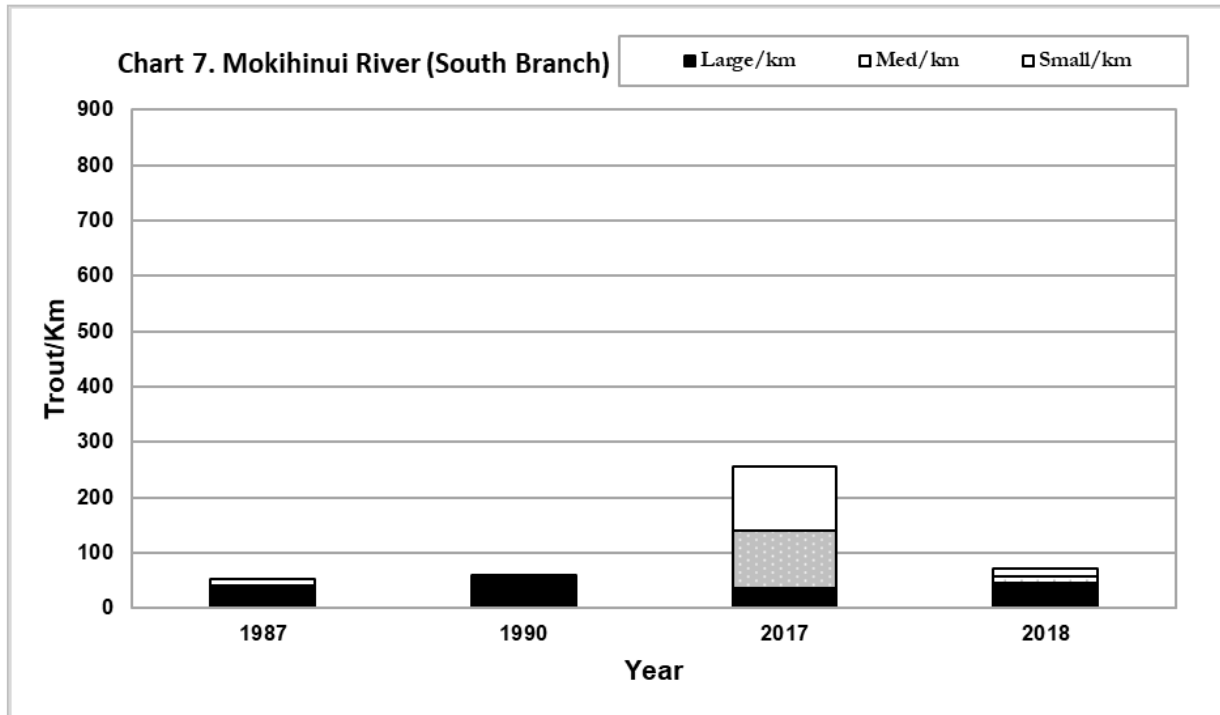
Karamea River: (Karamea Bend site)

The Karamea River upstream from the Karamea Bend showed fewer fish this year with 9 small trout/km, 22 medium trout/km and 25 large trout/km. Substrate through this section was notably different to the sites upstream, with longer slow-moving pools containing increased amounts of small shingle and silt on the riverbed.

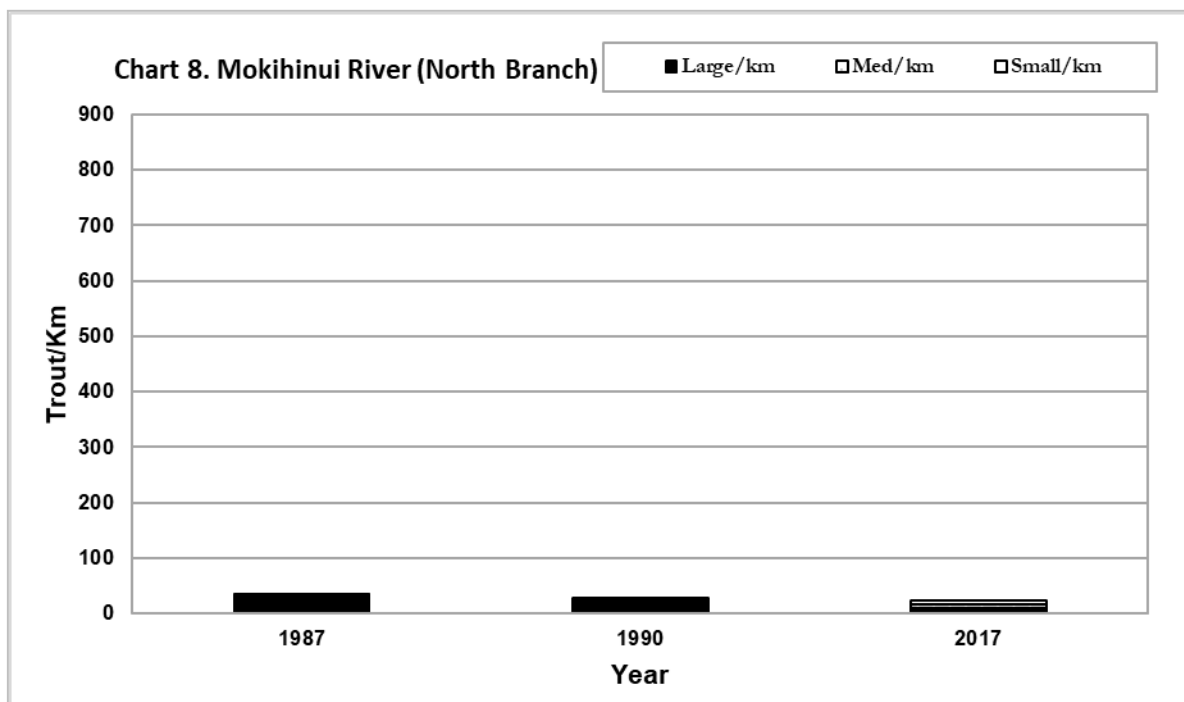


Mokihinui River: (South Branch site)

The Mokihinui South Branch showed far less small and medium trout than what was observed during last years dive, with results looking more like that of the late 1980's. Few small and medium trout and 45 large trout/km.

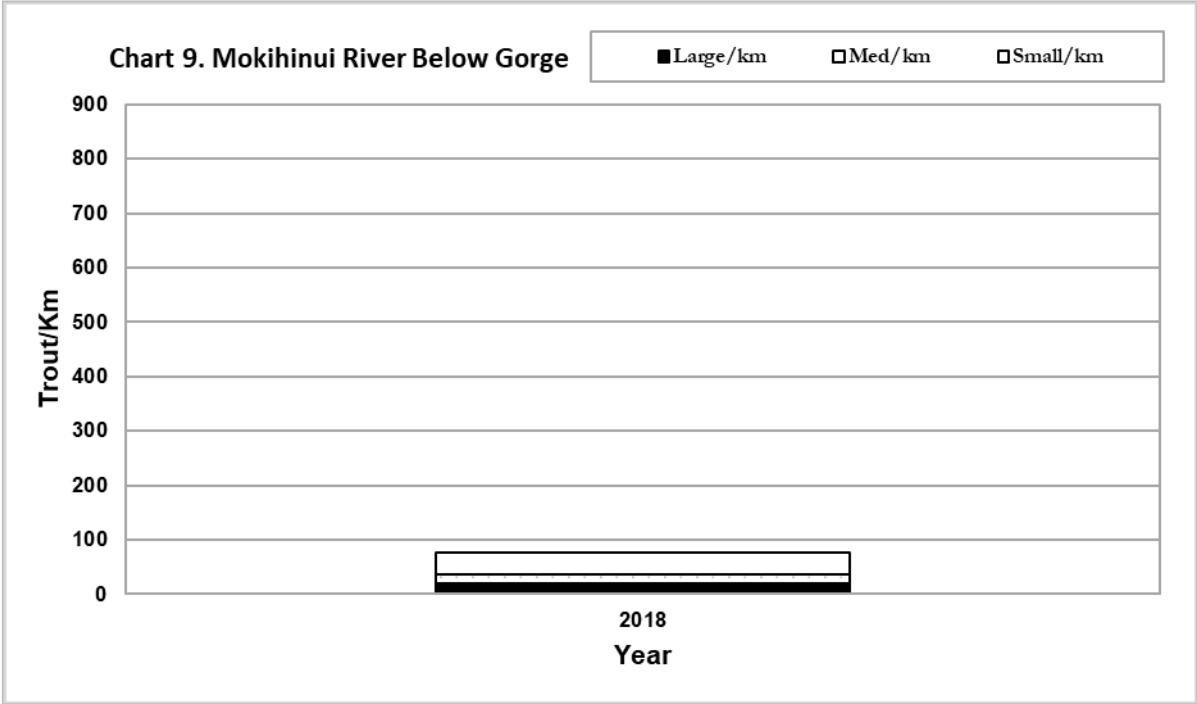


Mokihinui River: (North Branch)



Mokihinui River: (Below Gorge)

The other site dived in the Mokihinui River was just downstream of the gorge in the North Branch. This was considered better trout habitat than the usual site dived just above the Mokihinui Forks. This section provided 41 small trout/km, 16 medium trout/km and 20 large trout/km.



Discussion

This season, dives of the Inangahua at Blacks Point and the Grey River at Waipuna have shown relatively positive trout abundance in comparison with recent seasons. The Hospital Flat site of the Upper Grey River held few small and medium fish this season. This section in the upper part of the catchment looks to have received some significant flood disturbance during recent years.

Dives in the Backcountry Area of the Karamea have resulted in similar trout densities to what was observed in 2017 adjacent to the Crow River confluence. Further down at the Karamea Bend site, trout numbers continue to drop from previous dives of this section. Habitat may have changed somewhat in this area as the pools are slow moving with large areas of fine silt, and in general appear to be of low productivity in fishery terms. Angers have said that this section had fished well in the past.

The dive of the South Branch of the Mokihinui provided far fewer small and medium sized trout than last year meaning the results were more like what was observed in 1987 and 1990. Last year was a season of flooding and consistently high flows throughout much of the angling season. Perhaps more fish were pushed out of adjacent tributaries into this stretch last season from flooding.

On the north branch a new site was dived just downstream from the gorge above the Mokihinui Forks. This section held more medium and small classed trout than what have been seen at the other North Branch site and will be the section dived in future when accessing the Mokihinui North Branch trout population.

Staff Recommendations

- Continuation of the drift dive programme as a tool for gathering long term data on West Coast trout abundance.
- Continue to assist with neighbouring regions drift dive programmes on a reciprocal basis to obtain numbers where necessary.
- That council receives this report.

References

Unwin, M.J. (2009). Angler usage of lake and river fisheries managed by Fish & Game New Zealand: results from the 2007/08 National Angling Survey.

Appendix 1: Raw data from drift dive sites dived in 2017/2018

RIVER	LOCALITY	Date	GRID REF	DIST	WIDTH	B. Disk	L	M	S	TOTAL
Grey R	Hospital Flat	1998	320/621-308/614	2	20		10	5	4	19
Grey R	Hospital Flat		2431119/5861497 - 2429994/5860486	2	20	6.2	34	14	21	69
Grey R	Hospital Flat		2431119/5861497 - 2429994/5860486	2	20	8.4	30	32	89	151
Grey R	Hospital Flat		2431119/5861497 - 2429994/5860486	2	20	9.5	45	25	64	134
Grey R	Hospital Flat		2431119/5861497 - 2429994/5860486	2	20	9	56	34	155	245
Grey R	Hospital Flat		2431119/5861497 - 2429994/5860486	2	20	4.3	46	25	127	198
Grey R	Hospital Flat	16/02/2012	2431119/5861497 - 2429994/5860487	2	20	11	28	6	3	37
Grey R	Hospital Flat	30/01/2013	2431119/5861497 - 2429994/5860488	2	20	10.6	30	10	31	71
Grey R	Hospital Flat	10/02/2014	2431119/5861497 - 2429994/5860489	2	20	12.8	26	6	16	48
Grey R	Hospital Flat	19/02/2015	2431119/5861497 - 2429994/5860489	2	20	10.8	40	8	17	65
Grey R	Hospital Flat	16/02/2016	2431119/5861497 - 2429994/5860491	2	20	10	28	58	99	185
Grey R	Hospital Flat	27/02/17	2431119/5861497 - 2429994/5860491	2	20	9	24	16	48	88
Grey R	Hospital Flat	19/03/2018	2431119/5861497 - 2429994/5860491	2	20	11.2	39	10	17	66
Grey R	Waipuna	1994	085/735-064/748	3	40		55	557	140	752
Grey R	Waipuna	1995	085/735-064/748	3	40		39	129	21	189
Grey R	Waipuna	1996	085/735-064/748	3	40		43	154	92	289
Grey R	Waipuna	2005	085/735-064/748	3	40	6.7	20	239	185	444
Grey R	Waipuna		2408562/5873429 - 2406221/5874826	3	40	7.8	51	238	604	893
Grey R	Waipuna		2408562/5873429 - 2406221/5874826	3	40	7.3	24	101	65	190
Grey R	Waipuna		2408562/5873429 - 2406221/5874826	3	40	8.1	31	89	181	301
Grey R	Waipuna	15/02/2012	2408562/5873429 - 2406221/5874827	3	40	10.3	65	89	190	344
Grey R	Waipuna	31/01/2013	2408562/5873429 - 2406221/5874828	3	40	9.1	38	67	56	161
Grey R	Waipuna	11/02/2014	2408562/5873429 - 2406221/5874829	3	40	8	52	44	175	271
Grey R	Waipuna	20/02/2015	2408562/5873429 - 2406221/5874829	3	40	14	41	161	434	636
Grey R	Waipuna	16/02/2016	2408562/5873429 - 2406221/5874831	3	40	7.9	69	597	406	1072
Grey R	Waipuna	24/04/2017	2408562/5873429 - 2406221/5874831	3	40	7.2	43	238	292	573
Grey R	Waipuna	19/03/2018	2408562/5873429 - 2406221/5874831	3	40	10	57	358	728	1143
Inangahua R	Blacks Point	1991	179/962-176/973	1.7	18		7	283	174	464
Inangahua R	Blacks Point	1992	179/962-176/973	1.7	18		7	287	774	1068
Inangahua R	Blacks Point	1993	179/962-176/973	1.7	18		11	145	674	830
Inangahua R	Blacks Point	1994	179/962-176/973	1.7	18		9	127	452	588
Inangahua R	Blacks Point	1995	179/962-176/973	1.7	18		25	293	339	657
Inangahua R	Blacks Point	1996	179/962-176/973	1.7	18		10	204	396	610
Inangahua R	Blacks Point	1997	179/962-176/973	1.7	18		72	392	356	820
Inangahua R	Blacks Point	2001	179/962-176/973	1.7	18	4.5	15	93	264	372
Inangahua R	Blacks Point	2003	179/962-176/973	1.7	18	6	33	198	683	914
Inangahua R	Blacks Point	2004	179/962-176/973	1.7	18	5	26	335	1021	1382
Inangahua R	Blacks Point	2005	179/962-176/973	1.7	18	3.5	16	250	623	889
Inangahua R	Blacks Point	16/02/2012	179/962-176/974	1.7	18	5.8	13	83	205	301
Inangahua R	Blacks Point	30/01/2013	179/962-176/975	1.7	18	7.6	10	77	243	330

Inangahua R	Blacks Point	10/02/2014	179/962-176/976	1.7	18	6.5	27	18	46	91
Inangahua R	Blacks Point	19/02/2015	179/962-176/976	1.7	18	6.4	12	33	289	334
Inangahua R	Blacks Point	15/02/2016	179/962-176/973	1.7	18	8.9	17	251	795	1063
Inangahua R	Blacks Point	27/02/2017	179/962-176/973	1.7	18	9	12	61	436	509
Inangahua R	Blacks Point	19/03/2018	179/962-176/973	1.7	18	6	15	128	628	771
Karamea R	US Crow	24/03/1986	647/899-655/903	1	30		41	17		58
Karamea R	US Crow	2/03/2017	647/899-655/903	1	30	13.8	61	29	35	125
Karamea R	US Crow	12/03/2018	647/899-655/903	1	30	10.6	47	19	55	121
Karamea R	DS Crow	23/03/1986	655/904-656/908	0.4	30		8	6	1	15
Karamea R	DS Crow	2/03/2017	655/904-656/908	0.4	30	13.8	13	10	24	47
Karamea R	DS Crow	12/03/2018	655/904-656/908	0.4	30	10.6	19	6	27	52
Karamea R	Bend	7/03/1990	681/951-688/967	1.85	50		87	21	2	110
Karamea R	Bend	2/03/2017	681/951-688/967	1.85	50	13.8	61	11	71	143
Karamea R	Bend	12/03/2018	681/951-688/967	1.85	50	11.1	46	40	17	103
Mokihinui R	South Branch	26/02/1987	433/555-436/570	1.95	30		74	6	23	103
Mokihinui R	South Branch	7/03/1990	433/555-436/570	1.95	30		107	5	2	114
Mokihinui R	South Branch	23/02/2017	433/555-436/570	1.95	30	11	71	202	227	500
Mokihinui R	South Branch	9/03/2018	433/555-436/570	1.95	30	9	87	26	27	140
Mokihinui R	North Branch	26/02/1987	432/632-414/623	2.05	25		64	2	2	68
Mokihinui R	North Branch	7/03/1990	432/632-414/623	2.05	25		50	1	0	51
Mokihinui R	North Branch	23/02/2017	432/632-414/623	2.05	25		18	16	15	49
Mokihinui R	Below Gorge	9/03/2018	453/639-435/633	2.3	25	8.5	46	36	95	177