



2025-26 Sea-Run Salmon Management

Central South Island and
North Canterbury Regions

H. Sanders Garrick, N. Dellaway & E. Craig
Central South Island Fish & Game
North Canterbury Fish & Game

Document Control			
Version	Updated	Updated by	Changes
1.1	6 July 2026	H. Sanders Garrick	Original Document
1.2	18 Aug 2026	E. Craig & H. Sanders Garrick	Edits to Sections 1.0, 3.3 and 4.0
1.3	4 Sept 2026	E. Craig	Edits to Section 5.1
1.4	8 Sept 2026	N. Dellaway	Edits to Sections 3.3.21 and 7.0

Executive Summary

Anglers are required to obtain a sea-run salmon licence to be able to fish for sea-run salmon in the Central South Island and North Canterbury Fish & Game regions. This licence allowed anglers to harvest a season bag limit of one salmon, and anglers were required to record the details of harvested salmon on their season bag limit card. North Canterbury and Central South Island Fish & Game issued 8,122 sea-run salmon licence in the 2025-26 season, a decrease of 2,131 on the previous season. By the deadline, Fish & Game received 1,413 voluntary season bag card returns. The remainder of harvest by anglers that hadn't returned their information was then estimated by phone survey.

During the 2025-26 sea-run salmon season, anglers harvested an estimated 112 salmon in the North Canterbury and Central South Island Fish & Game regions. The combined live spawning estimate for the Rakaia, Rangitata and Waimakariri rivers (three indicator rivers) was 1,469 salmon and places the status of the fishery in the 'low management band (1,200 – 5,100). In accordance with the management strategy, three consecutive years of runs above the threshold for the 'severe' management band (0 – 1200) are required to increase the bag limit. This season constitutes the first of those three years.

The total salmon run for an individual river is calculated by adding the total spawning estimate for that season to the total estimated harvest for that season. The total run for the Rakaia River was 998 salmon, The total run for the Rangitata River was 239 salmon, and the total run for the Waimakariri River was estimated to be 283 salmon. The combined total wild run for the three indicator rivers in the 2024-25 season was 1,520 salmon.

Prior to the introduction of the management strategy, the proportion of the salmon run escaping anglers and reaching the spawning grounds had been low. This season, the three rivers achieved 97% (Rakaia), 93% (Rangitata) and 98%(Waimakariri) of the run reaching the spawning grounds, which is considered successful in terms of the original goal of the strategy however populations are at a level where further restrictions may need to be considered to avoid the fundamental extinction of species.

Table of Contents

Executive Summary	ii
1.0 Sea-run salmon licence.....	2
2.0 Sea-run Salmon Harvest.....	5
2.1 Introduction.....	5
2.2 Methods	5
2.3 Results	5
2.3.1 Voluntary Card Returns	5
2.3.2 Phone Surveys.....	5
2.3.3 Estimated Harvest.....	8
2.3.4 Harvest by River.....	8
2.3.5 Date of Harvest	13
2.3.6 Spatial Distribution of Catch	14
2.3.7 Size of Salmon.....	15
2.3.8 Fin Clips	16
3.0 Sea-run salmon escapement	17
3.1 Introduction.....	17
3.2 Methods	17
3.2.1 Three indicator rivers.....	17
3.2.3 Total run size and harvest/escapement proportions.....	18
3.3 Results	19
3.3.1 Rakaia River	19
3.3.2 Rangitata River	20
3.3.3 Waimakariri River.....	22
4.0 Adaptive management	23
4.1 Introduction.....	23
4.1 Methods	24
4.2 Results	25
5.0 Discussion.....	26
5.1 Future management	27
6.0 References.....	29
7.0 Appendix	31

1.0 Sea-run salmon licence

In order to fish for sea-run salmon in the Central South Island and North Canterbury Fish & Game regions, anglers must obtain a sea-run salmon licence¹ which includes a bag limit card for recording fish harvest details. The 2025-26 season was the fifth season in which a licence was required to fish for sea-run salmon. With the high proportion of licence holders that did not go fishing for sea-run salmon in the 2024-25 season (Sanders Garrick, 2025) and the change to the salmon bag limit, a decrease in licence sales was expected for the 2025-26 season.

By the conclusion of the 2025-26 season, a total of **8,122** licences had been issued, a decrease of 2,131 on the previous season (Table 1.1). Of these, 39.6% percent of licences were issued in Central South Island and 51.1% in North Canterbury. This constituted 90.7% of all licences sold in New Zealand. The remaining 9% of licences were sold predominantly to other South Island regions (Otago [3.9%], Nelson/Marlborough [2.0%], Southland [1.7%], and West Coast [0.6%]).

All North Island regions combined comprised only 1% of all licence sales. These proportions were similar to the previous season (Figure 1.1).

Table 1.1. Number of sea-run salmon licences issued each year since its introduction in the 2021-22 season across South Island regions and combined North Island regions.

Licence Region	2021-22	2022-23	2023-24	2024-25	2025-26
Nelson/Marlborough	567	437	280	200	160
West Coast	120	93	64	47	52
North Canterbury	5,081	6,385	5,899	5,222	4,148
Central South Island	2,603	4,882	4,542	4,163	3,219
Otago	655	625	512	382	316
Southland	216	257	193	135	138
All North Island regions	196	180	132	104	89
Total	9,438	12,859	11,622	10,253	8,122

¹ For the purposes of this report, from here on sea-run salmon licences will simply be referred to as 'licences'.

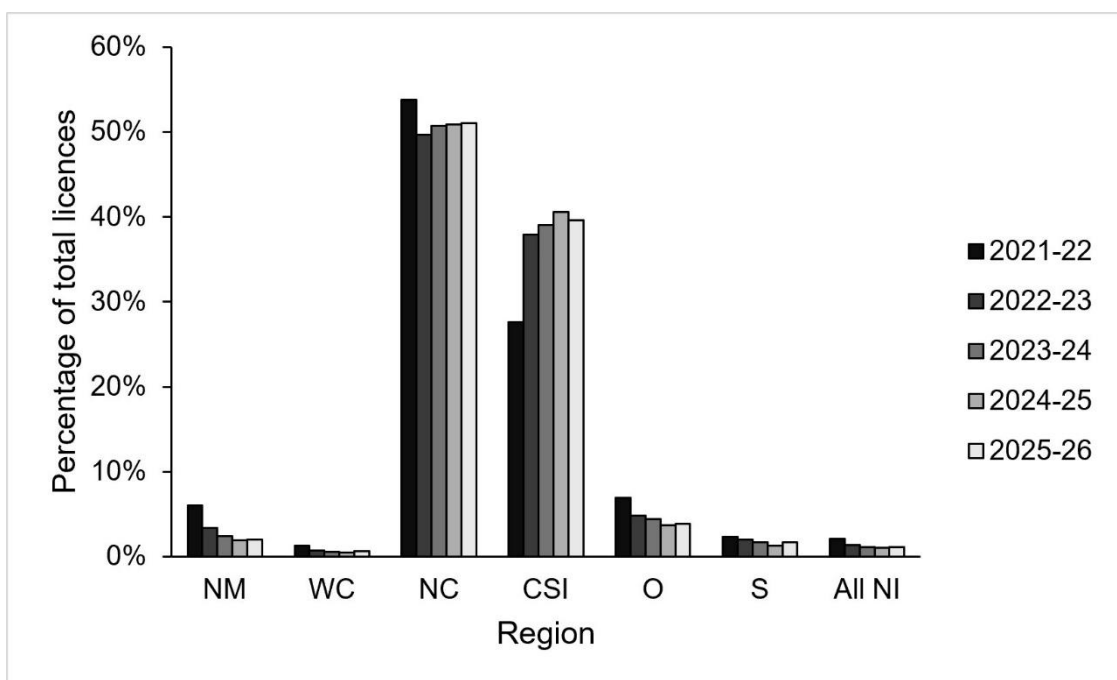


Figure 1.1. Percentage of total sea-run salmon licences issued by each South Island region (N/M=Nelson/Marlborough, WC=West Coast, NC=North Canterbury, CSI=Central South Island, O=Otago, S=Southland) and combined North Island regions (All NI).

Whole season Adults held the largest proportion of licences (47.2%), followed by Family (24.5%) and Loyal Seniors (13.4%) (Table 1.2). Compared to the 2024-25 season, there was a proportional increase in associated Whole season Adult and Loyal Senior licences and a proportional decrease in Family licences (Figure 1.2). This may have been due to the changes to the family licence eligibility criteria introduced in the 2025-26 season (Sanders Garrick 2026a).

Table 1.2. Comparison of number of sea-run salmon licences issued in the 2021-22 through 2025-26 seasons across whole season licence types.

Licence type	2021-22	2022-23	2023-24	2024-25	2025-26
Adult	4,560	6,021	5,253	4,568	3,830
Family	2,841	3,976	3,442	2,968	1,990
Loyal Senior	1,321	1,495	1,402	1,300	1,089
Junior	307	560	575	530	431
Child	165	370	347	319	234
Local Area	222	352	318	303	247
Non-Resident	22	59	285	265	301
Day (in error)	0	26	0	0	0
Total	9,438	12,859	11,622	10,253	8,122

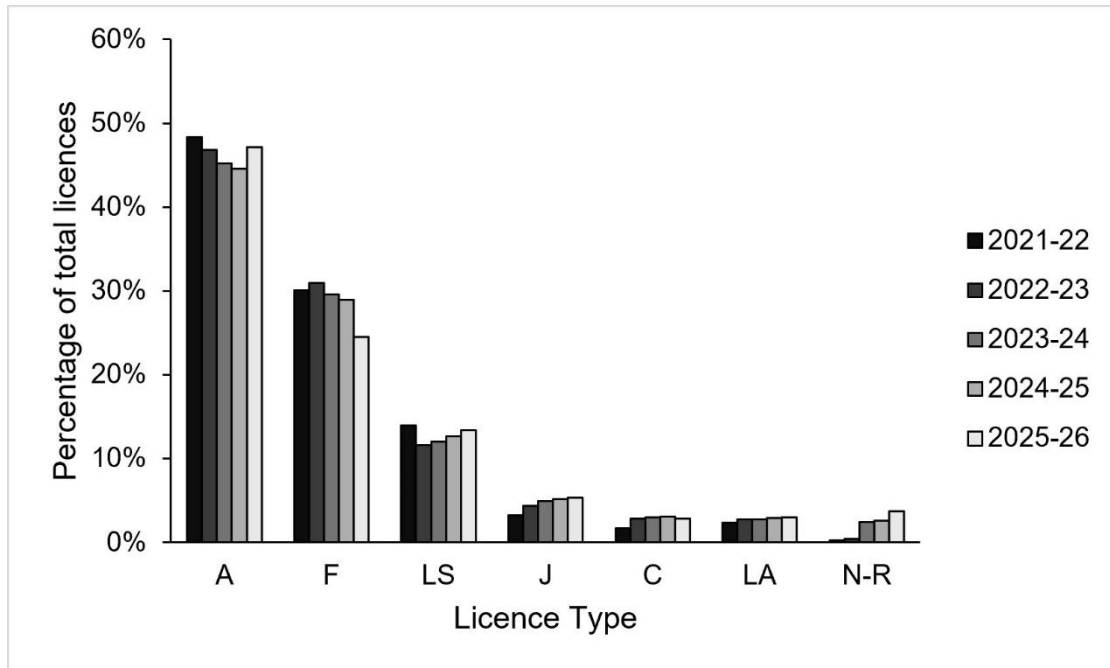


Figure 1.2. Percentage of total sea-run salmon licences issued by whole season licence type (A=Adult, F=Family, LS=Loyal Senior, J=Junior, C=Child, LA=Local Area, N-R=Non-resident). Sea-run salmon licences issued to day licence holders in error are not shown.

Fifty-three percent of anglers who purchased a 2025-26 sea-run salmon licence also purchased a sea-run salmon licence during the 2024-25 season. This constitutes just over 4,300 anglers. Of those, around 3,300 also purchased a sea-run salmon licence during the 2023-24 season. An additional 600 anglers 'reactivated' and purchased their sea-run salmon licence during the 2023-24 season and the 2025-26 season, but not during the 2024-25 season. The approximate 4,000 anglers who have consistently purchased a sea-run salmon licence each year indicates a "core" group of sea-run salmon anglers which is similar to sea-run salmon angling recorded during harvest surveys prior to the introduction of the season bag limit (NCFG & CSIFG, 2021).

2.0 Sea-run Salmon Harvest

2.1 Introduction

Anglers who purchase a licence to fish for salmon receive a bag limit card, which they are required to fill out immediately upon harvest of a salmon. Details listed on the card include the date and location of harvest and the sex and length of the fish. The information gathered during this survey is used to assess the health of the sea-run salmon fishery in the central eastern portion of the South Island of New Zealand, and help guide management actions in accordance with the adaptive management plan (Webb & Terry 2020).

2.2 Methods

Anglers are asked to return their bag cards following the close of season on 1 May. A random subset of anglers who did not return their bag cards were contacted during the months of May and June to ascertain the unreported harvest rate. Total harvest is estimated by calculating the mean harvest per angler, and extrapolating that number across the number of anglers who hold sea-run salmon licences. Because the harvest rate is substantially different between those who voluntarily return their bag cards and those who do not, harvest from voluntary bag card returns is not extrapolated to anglers who did not return their card. Additionally, the harvest rate is substantially different between anglers who have reported salmon harvest in previous years and anglers who have not previously reported harvesting salmon. As such, we used a stratified sampling scheme to produce more accurate harvest estimates. For more detailed information on the salmon harvest survey methodology, please see report by H. Sanders Garrick (2026b).

2.3 Results

2.3.1 Voluntary Card Returns

Before the 15 May cut off, we received 1,413 bag card returns. Of those, 64.0% reported that they did not fish for sea-run salmon during the 2025-26 season. Roughly 32% (458 anglers) reported that they fished for sea-run salmon but did not harvest any fish. Only 56 anglers (4.0%) reported that they harvested salmon (Figure 2.1).

2.3.2 Phone Surveys

We surveyed 982 anglers in total: 100 anglers from the known success stratum and 882 from the no known success stratum. Of the anglers surveyed, 758 (77.2%) did not go fishing, 213 (21.7%) went fishing but did not harvest salmon, and 11 (1.1%) successfully harvested salmon (Figure 1). The mean number of salmon harvested by those who went fishing was 0.05 fish/active angler (± 0.014).

Anglers who returned their bag cards voluntarily had a mean harvest rate of 0.11 fish/active angler (± 0.014), while the mean harvest of those who were surveyed during phone interviews was 0.05 fish/active angler (± 0.014). Catch rates were statistically distinct between the two

groups ($F_{1, 736} = 6.8$, $p = 0.009$; Figure 2.2). Therefore, we did not extrapolate data from voluntary returns to non-respondents.

Amongst anglers with known success, 67% of those surveyed actively participated in the 2025-26 salmon season, with an average harvest of 0.12 fish/active angler (± 0.04). Amongst anglers with no known success, 17.9% of those surveyed actively participated in the 2025-26 salmon season, with an average harvest of 0.02 fish/active angler (± 0.01). The two strata were statistically distinct ($F_{1, 222} = 10.5$, $p = 0.001$; Figure 2.3).

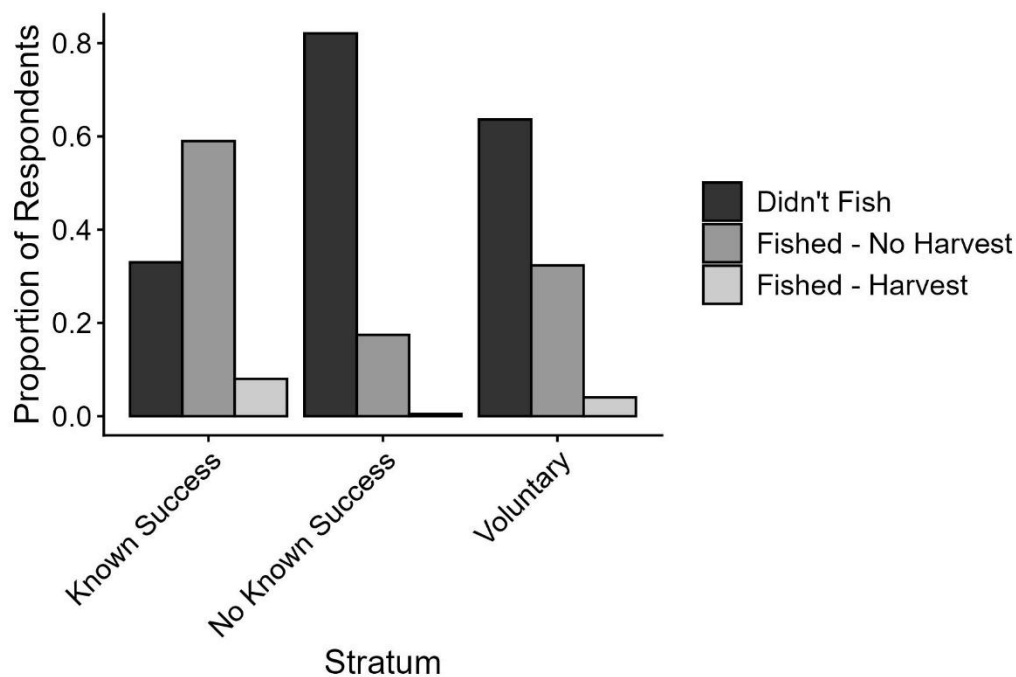


Figure 2.1. The proportion of respondents who didn't fish, fished but didn't harvest, and both fished for and harvested sea-run salmon in the North Canterbury and Central South Island regions of Fish & Game by survey stratum during the 2025-26 season.

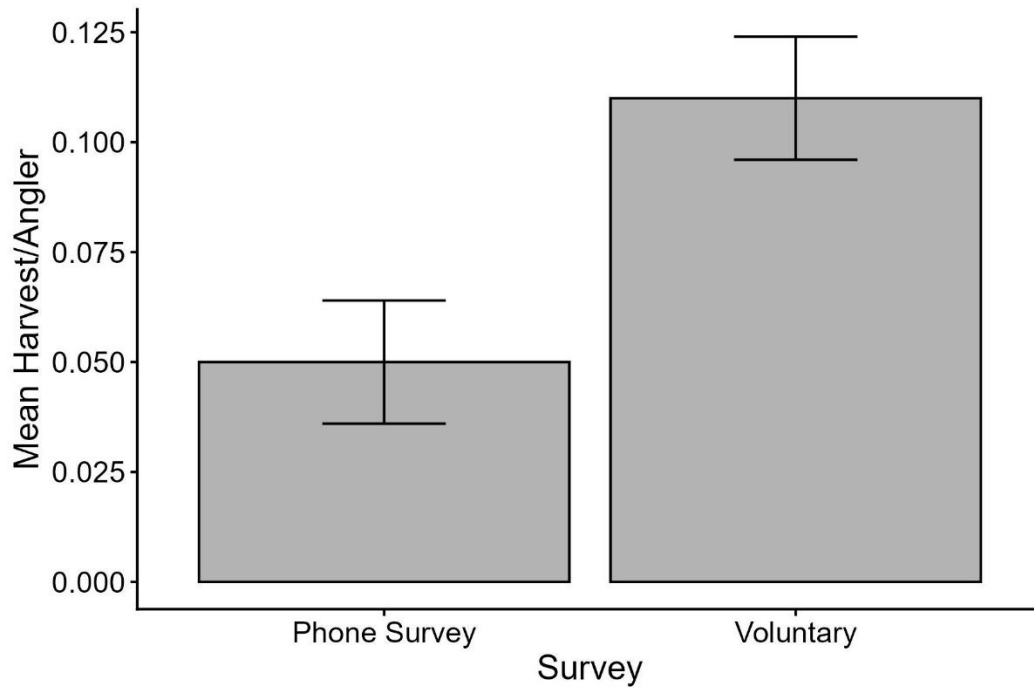


Figure 2.2. Mean harvest of sea-run salmon by survey type for active anglers in the North Canterbury and Central South Island regions of Fish & Game during the 2025-26 season. Error bars represent standard error.

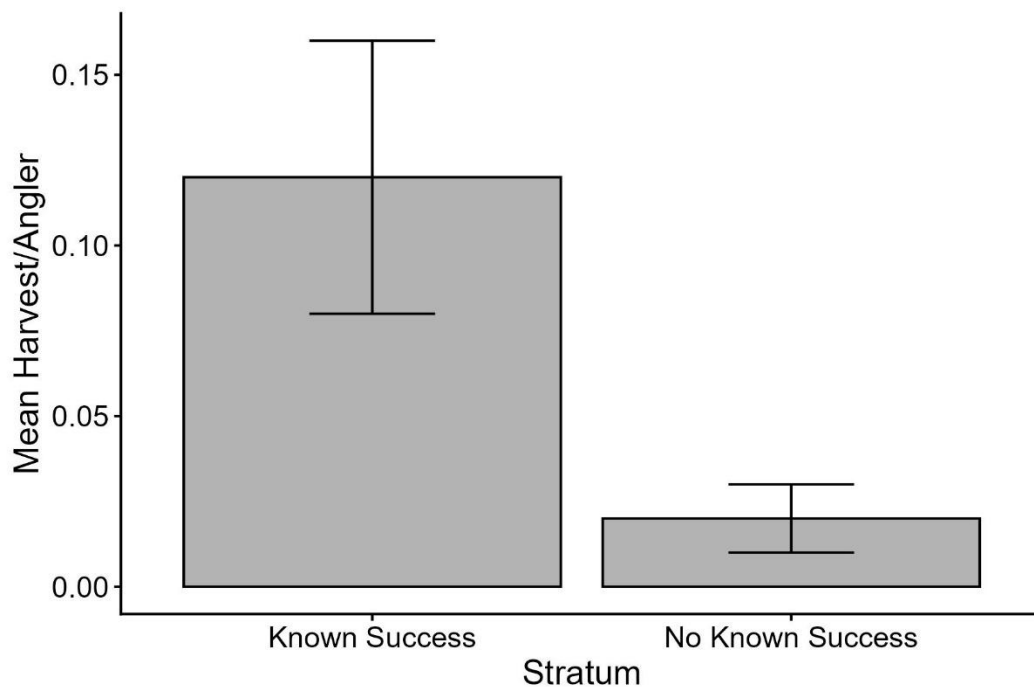


Figure 2.3. Mean harvest of sea-run salmon by phone survey stratum for active anglers in the North Canterbury and Central South Island regions of Fish & Game during the 2025-26 season. Error bars represent standard error.

2.3.3 Estimated Harvest

Voluntary respondents reported a total harvest of 56 salmon. Estimated harvest was 34.0 (± 18.2) salmon for the known harvest stratum and 21.5 (± 10.1) salmon for the no known harvest stratum. Total estimated harvest was 111.5 (± 16.3) salmon (Figure 2.4).

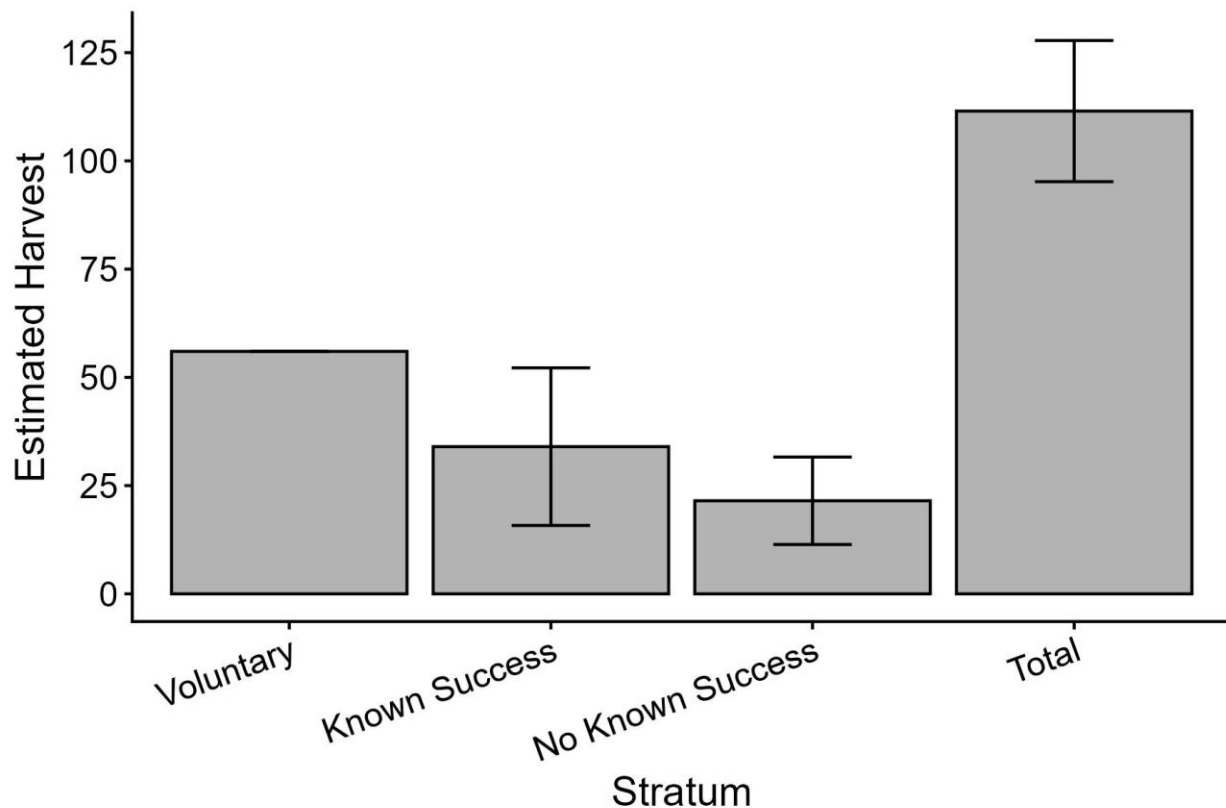


Figure 2.4. The estimated salmon harvest and 95% confidence interval on the estimate for each survey stratum, North Canterbury and Central South Island regions of Fish & Game, 2025-26 season.

2.3.4 Harvest by River

More than 80% of the reported salmon harvest occurred on the Rakaia, Rangitata, Waimakariri, and Waitaki rivers (Table 1). Angler effort was greatest on the Rakaia, followed by the Waimakariri. Anglers reported slightly more effort on the Waitaki River than the Rangitata.

Harvest varied substantially by river, both within and between survey strata (Figure 5). Total estimated harvest was greatest for the Waitaki (31.0 ± 5.5 salmon), followed by the Rakaia (29.3 ± 3.6 salmon), the Rangitata (17.4 ± 3.2 salmon), and the Waimakariri (5.0 ± 0 salmon), respectively. Estimated harvest for the Rakaia, Rangitata, and Waitaki Rivers all fell within the 95% confidence intervals for the estimates from the 2024-25 season, while estimated harvest on the Waimakariri decreased.

Table 2.1. The reported harvest, estimated harvest (with 95% confidence interval), and reported number of active anglers by survey stratum for the 2025-26 sea-run salmon season in North Canterbury and Central South Island Regions of Fish & Game, broken down by each of the four major sea-run salmon fisheries.

<i>Reported Harvest</i>					
	All Rivers	Rakaia	Rangitata	Waimakariri	Waitaki
<i>Voluntary</i>	56	25	6	5	14
<i>Known Success</i>	8	1	1	0	4
<i>No Known Success</i>	3	0	1	0	0
<i>Total</i>	67	26	8	5	18
<i>Estimated Harvest</i>					
	All Rivers	Rakaia	Rangitata	Waimakariri	Waitaki
<i>Known Success</i>	34.0 ± 18.2	4.3 ± 3.6	4.3 ± 3.0	NA	17.0 ± 5.5
<i>No Known Success</i>	21.5 ± 10.1	NA	7.1 ± 1.9	NA	NA
<i>Total</i>	111.5 ± 16.3	29.3 ± 3.6	17.4 ± 3.2	5 ± 0	31.0 ± 5.5
<i>Active Anglers Surveyed</i>					
	All Rivers	Rakaia	Rangitata	Waimakariri	Waitaki
<i>Voluntary</i>	514	196	55	211	60
<i>Known Success</i>	67	19	13	15	14
<i>No Known Success</i>	157	63	17	67	16
<i>Total</i>	738	278	85	293	90

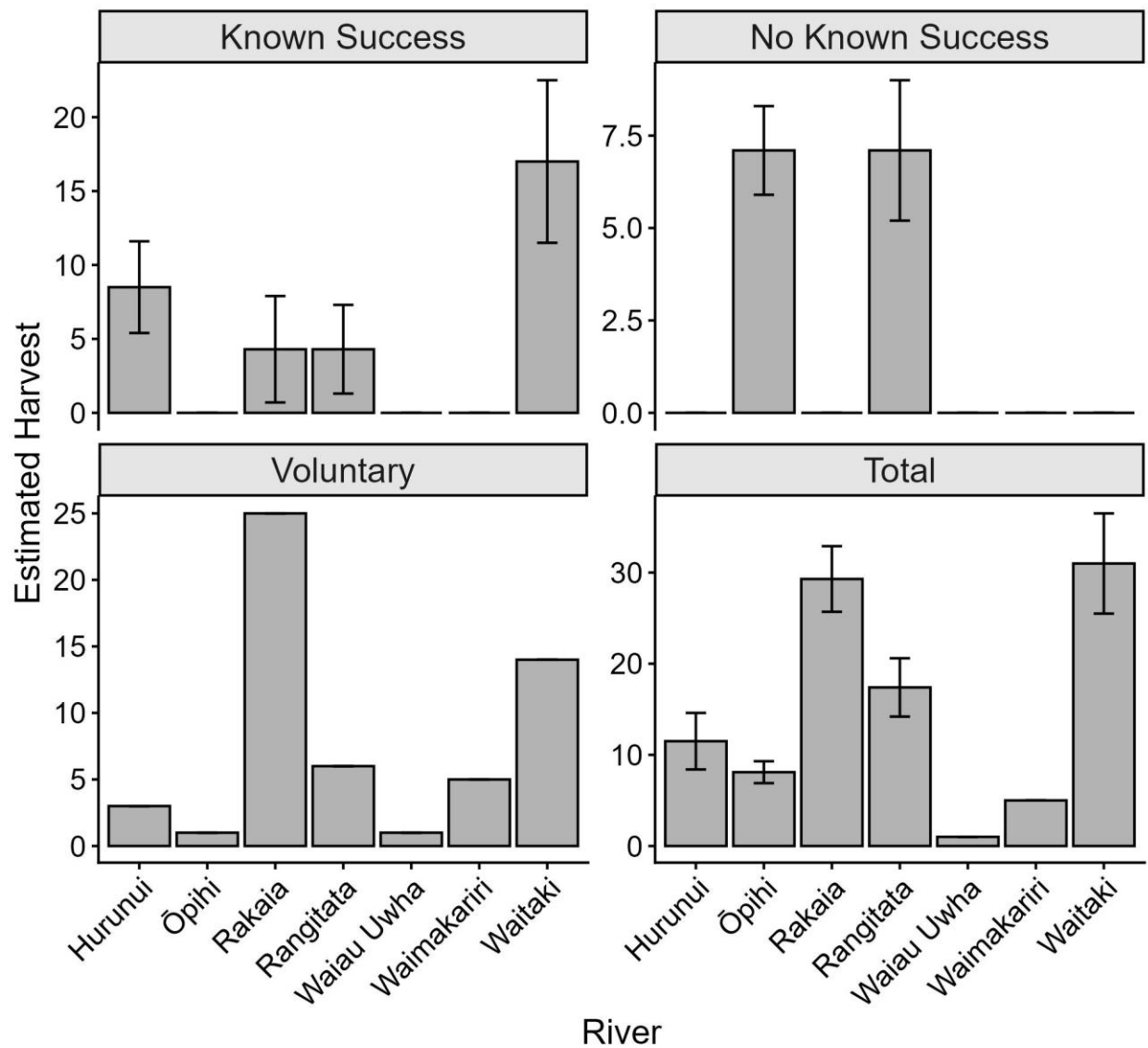


Figure 2.5. Estimated sea-run salmon harvest in the North Canterbury and Central South Island regions of Fish & Game during the 2025-26 fishing season by river for each survey stratum.

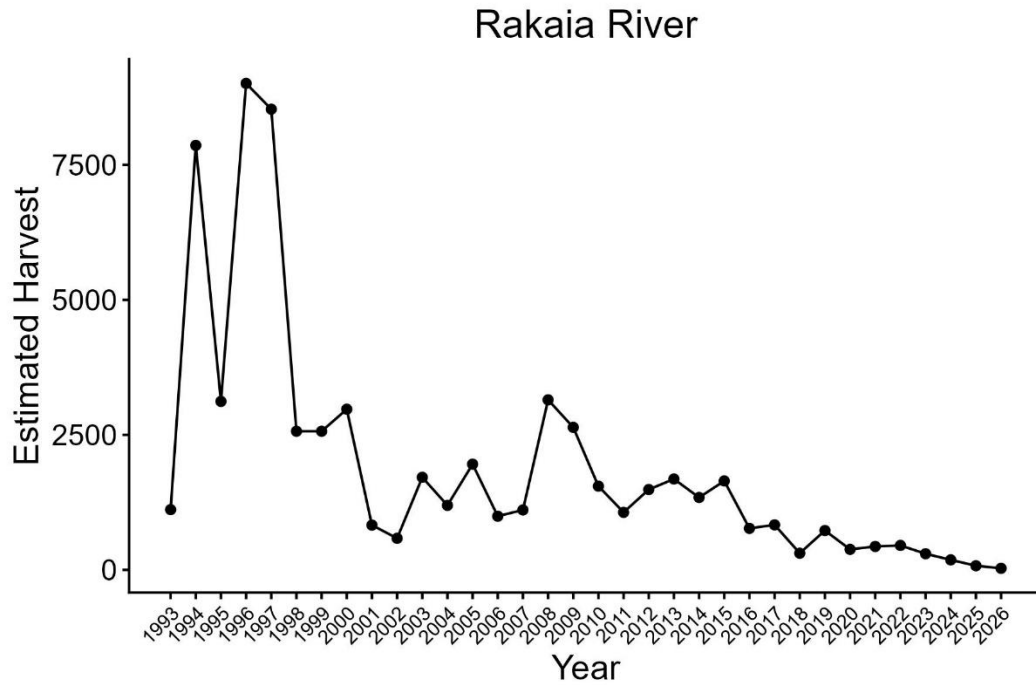


Figure 2.6. Estimated sea-run salmon harvest in the Rakaia River Catchment, 1993-2026.

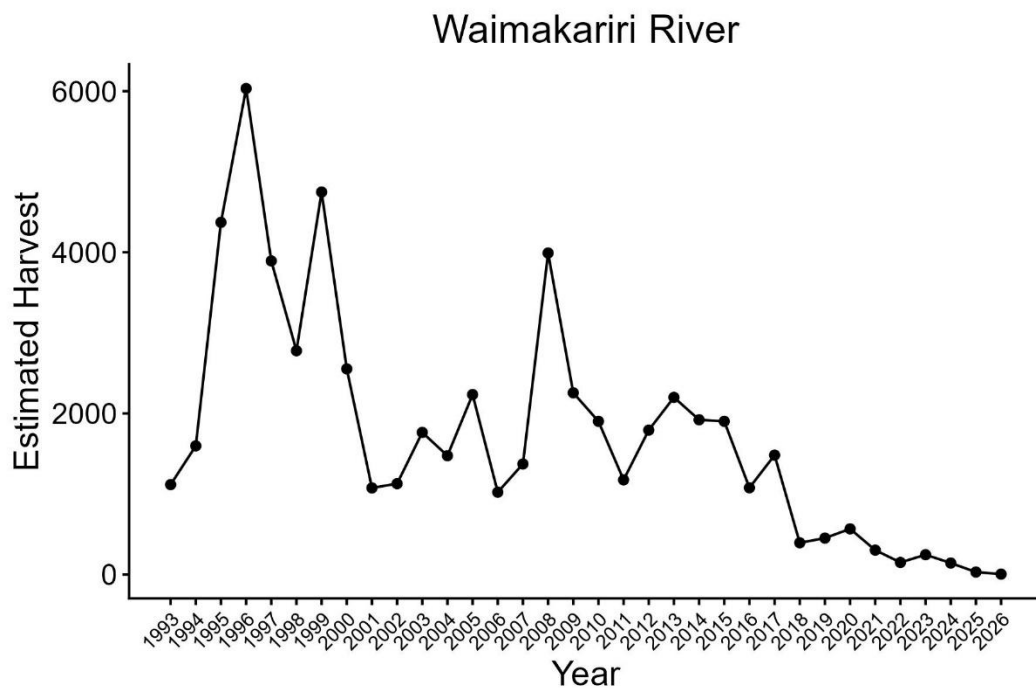


Figure 2.7. Estimated sea-run salmon harvest in the Waimakariri River Catchment, 1993-2026.

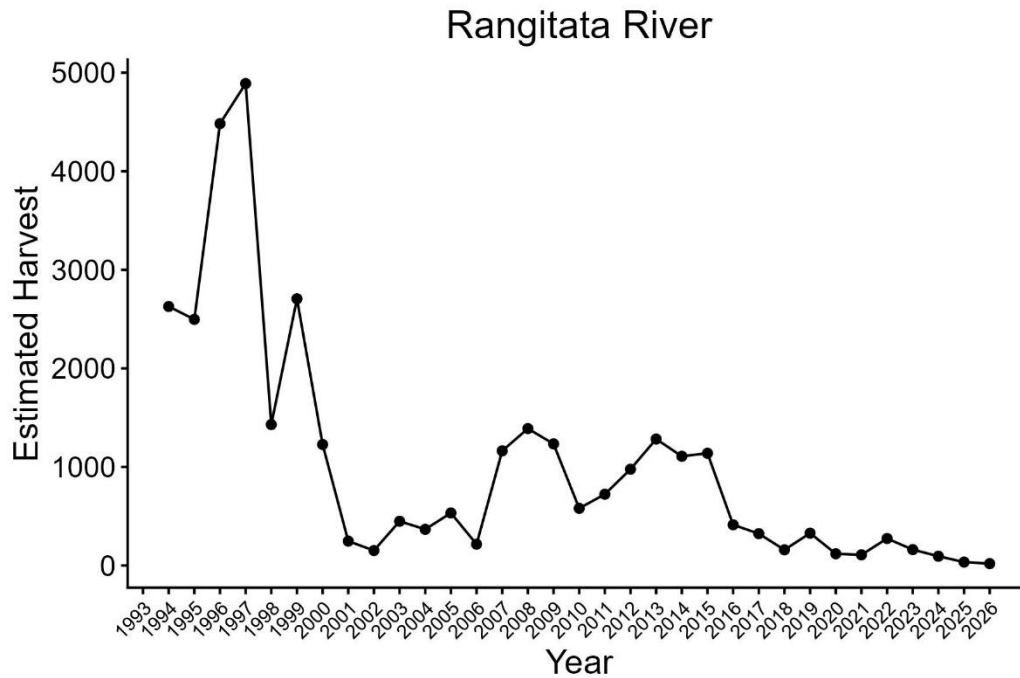


Figure 2.8. Estimated sea-run salmon harvest in the Rangitata River Catchment, 1993-2026.

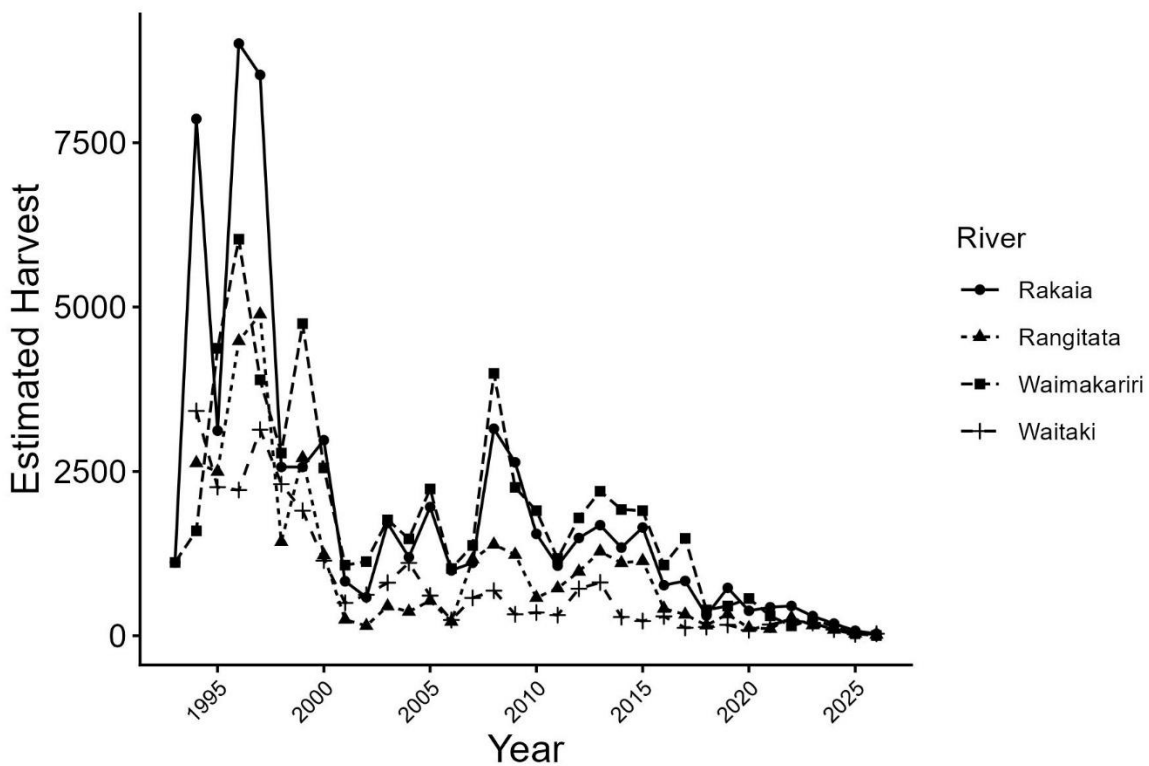


Figure 2.9. Estimated sea-run salmon harvest across the four major salmon fisheries in the North Canterbury and Central South Island regions of Fish & Game, 1993-2026.

2.3.5 Date of Harvest

The majority of salmon were harvested during February (32.8%), followed by April (31.1%), and March (28.4%). Only one fish was reported harvested before the first of the year (Figure 2.12). Timing of harvest varied by river (Figure 2.11). Harvest on the Rakaia River peaked in February, while harvest on the Waitaki peaked in April. Reported harvest on the Rangitata was spread evenly between February and March. Timing of peak harvest was similar to the 2024-25 season, but fewer fish were caught in December and January.

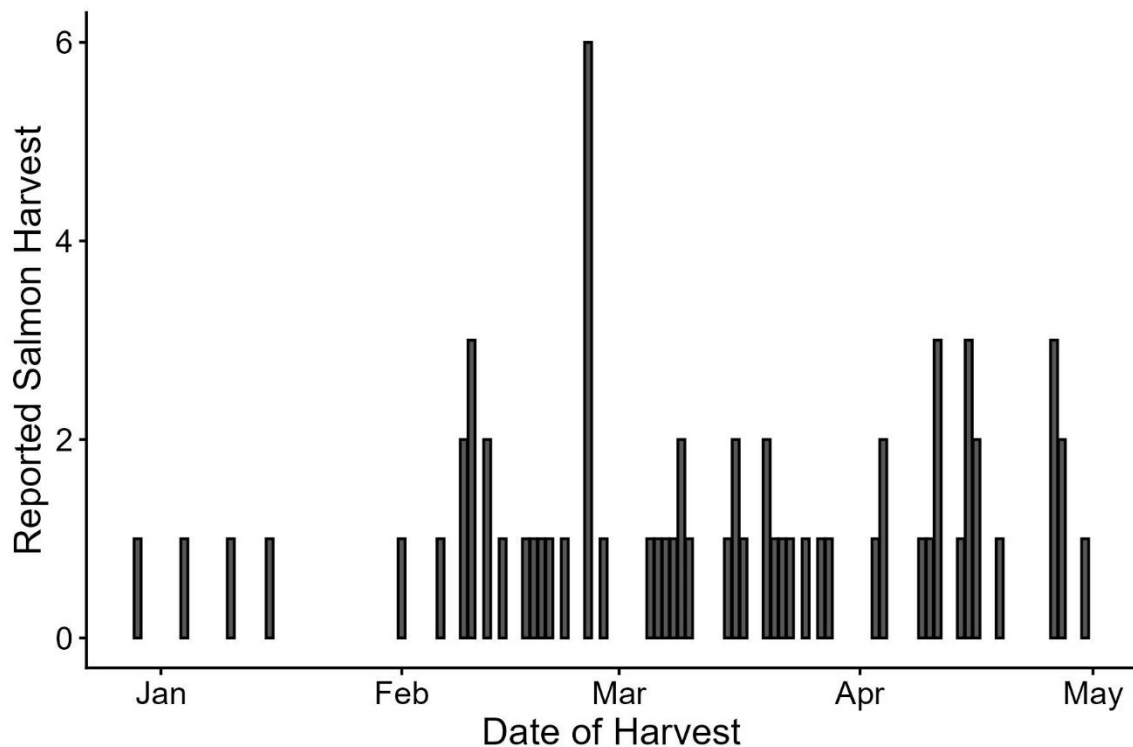


Figure 2.10. Date of harvest for all sea-run salmon harvested during the 2025-26 fishing season in North Canterbury and Central South Island Regions of Fish & Game, as reported by anglers.

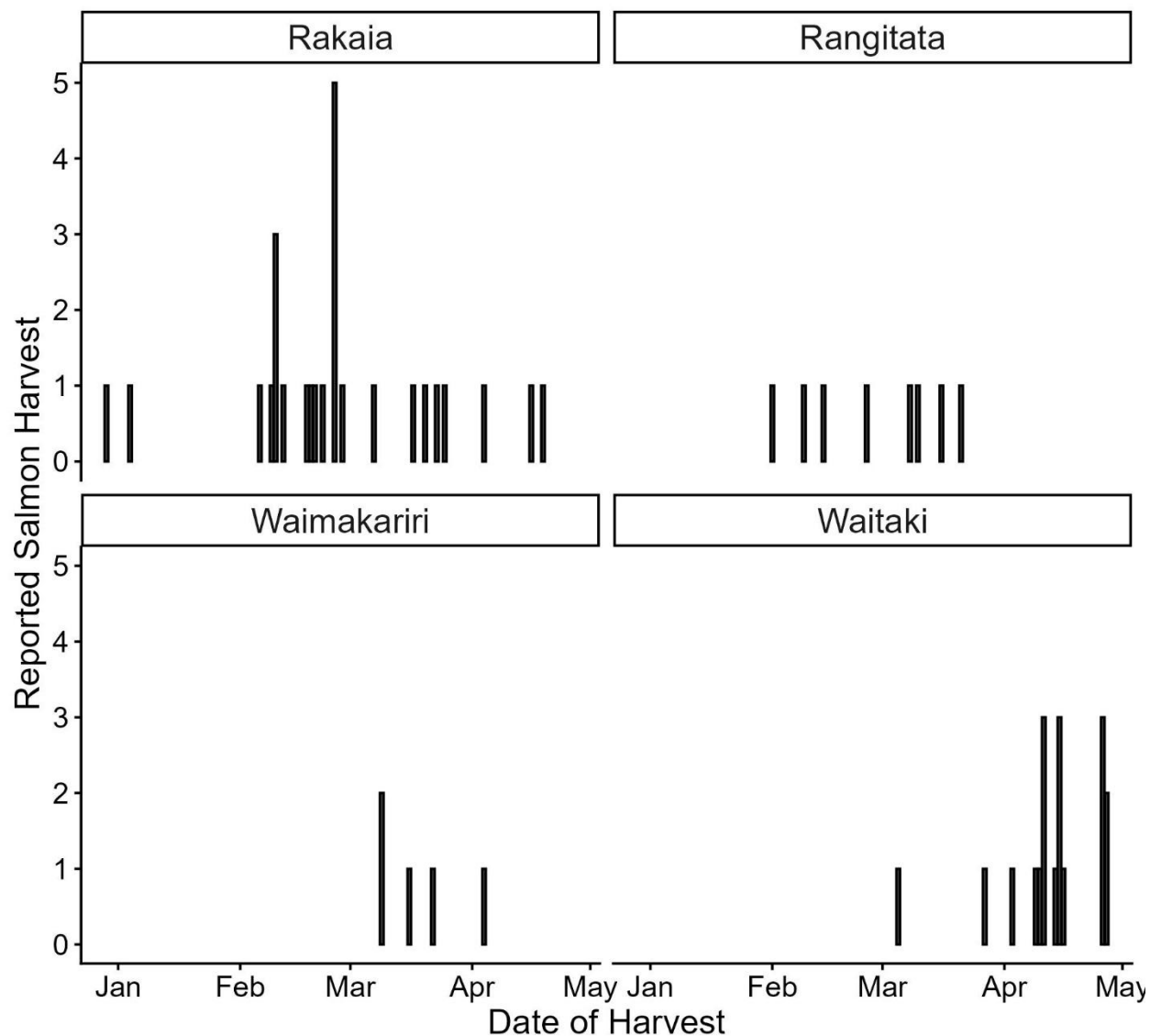


Figure 2.11. Date of harvest for sea-run salmon harvested during the 2024-25 fishing season on the four major sea-run salmon fisheries in North Canterbury and Central South Island Regions of Fish & Game, as reported by anglers.

2.3.6 Spatial Distribution of Catch

The river reach of catch was reported for 48 of the 67 harvested salmon reported during this survey. Similar to the 2024-25 season, small sample size makes it difficult to report on spatial distribution of catch with any certainty.

Table 2.2. Percent of reported sea-run salmon harvest by reach for 4 major salmon fisheries in the North Canterbury and Central South Island regions of Fish & Game during the 2025-26 season, as reported by anglers.

North Canterbury			
River	Reach	Description	Harvest (%)
<i>Rakaia</i>	1	Mouth and tidal reaches	23.1
	2	Above tidal reaches to SH1	11.5
	3	SH1 to gorge bridge	46.2
	4	Above gorge bridge	3.8
	5	Not specified by angler	15.4
<i>Waimakariri</i>	1	Mouth and tidal reaches	80.0
	2	Above tidal reaches to SH1	0
	3	SH1 to gorge bridge	0
	4	Above gorge bridge	0
	5	Not specified by angler	20.0
Central South Island			
River	Reach	Description	Harvest (%)
<i>Rangitata</i>	1	Mouth and lagoon	12.5
	2	Above lagoon to SH1	0
	3	SH1 to Arundel Bridge	12.5
	4	Arundel to bottom of gorge	12.5
	5	Gorge and above	25.0
	6	Not specified by angler	37.5
<i>Waitaki</i>	1	Mouth and lagoon	5.5
	2	Above lagoon to SH1	50.0
	3	SH1 to Stonewall	39.0
	4	Above Stonewall	0
	5	Not specified by angler	5.5

2.3.7 Size of Salmon

On average, the size of salmon harvested was similar between all four of the major sea-run salmon fisheries ($F_{3,42} = 0.8$, $p = 0.49$). The average length of harvested salmon was larger on the Waimakariri and smaller on the Rakaia than the reported average length from the 2024-25 season. Average reported lengths were similar between the two years for the Rangitata and the Waitaki Rivers.

Table 2.3. Mean, maximum, and 1st-3rd quartile length (cm) of sea-run salmon harvested during the 2025-26 fishing season in North Canterbury and Central South Island Regions of Fish & Game, as reported by anglers. Values are provided for all fish reported, and by river for the four major sea-run salmon fisheries.

Length (cm)	All Rivers	Rakaia	Rangitata	Waimakariri	Waitaki
<i>N</i>	52	26	8	5	18
<i>Mean</i>	64.5	62.7	63.8	67.8	67.1
<i>Maximum</i>	82.0	76.0	82.0	76.0	72.0
<i>Most Common</i>	60 - 71	65 - 70	52 - 71	62 - 71	68 - 70

2.3.8 Fin Clips

Out of the 67 reported fish, only 2 fin clipped fish were reported – one in the Rakaia and one in the Rangitata (Table 4). The number of fin clips reported is similar to the number reported during the 2024-25 fishing season (2 fish) and the 2023-24 season (3 fish).

Table 2.4. The number of fin-clipped sea-run salmon harvested during the 2025-26 fishing season in North Canterbury and Central South Island Regions of Fish & Game, as reported by anglers. Values are provided for all fish reported by survey stratum, and by river for the four major sea-run salmon fisheries.

	Rakaia	Rangitata	Waimakariri	Waitaki
<i>Voluntary</i>	1	0	0	0
<i>Known Success</i>	0	1	0	0
<i>No Known Success</i>	0	0	0	0
<i>Total</i>	0	0	0	0

3.0 Sea-run salmon escapement

3.1 Introduction

Central South Island and North Canterbury Fish & Game regions have been conducting monitoring of sea-run salmon returns since 1993. Salmon entering rivers to spawn are either harvested by anglers (and therefore removed from the spawning population) or avoid anglers and continue upriver to spawn (escapement). Over the decades a steady decline in escapement has been observed, particularly in the late 90s and early 00s. This information has previously been used alongside angler harvest in setting daily bag limits.

Following further declines in population the mid-late 2010s, the Adaptive Management Strategy (Webb & Terry, 2020) was developed and resulted in the adoption of a season bag limit for sea-run salmon in the Central South Island and North Canterbury regions at the start of the 2021-22 season. This system continues to be adopted by both Councils. The main aim of the season bag limit was to increase the proportion of the run that escaped to the headwaters and spawned; before the season bag limit, historic escapement proportions² reached as low as 35% in the Rakaia River, 54% in the Rangitata River, and 33% in the Waimakariri River.

The season bag limit for each season is determined using the 'Threshold Management Strategy', which depends on the previous three season's escapement estimates for the three 'indicator' rivers (Rakaia River, Rangitata River, and Waimakariri River). Following its introduction, the season bag limit in the 2021-22 to 2024-25 seasons was two salmon; in general, this resulted in a marked decline in the total proportion of the total run estimate being harvested by anglers on the Rakaia and Waimakariri rivers compared to pre-bag limit harvest rates. Harvest proportions on the Rangitata River have not dropped as dramatically but have achieved some of the lowest harvest proportions since 1993. The season bag limit for the 2025-26 season was reduced to one salmon. The expectation was that, with the bag limit decrease, the harvest proportion for this season would be lower than previous seasons with a two salmon season limit.

3.2 Methods

3.2.1 Three indicator rivers

Historically, the 'area under the curve' (AUC) has been used to calculate estimated escapement. The AUC method estimates total escapement based upon multiple periodic spawning counts and the residency time (RT) of the spawning fish (English et al., 1992). This method was used on all main sea-run salmon rivers from when counts began in 1993 through to 2013. Between 2013 and 2020, the AUC method continued to be used in Rangitata River estimates. However, financial constraints in the North Canterbury region meant multiple spawning counts could not take place on the main sea-run salmon rivers (including Rakaia and Waimakariri rivers), and the AUC method could not be used. Instead, between 2013 and 2020, the 'peak count' method was used to estimating escapement on North Canterbury rivers. This method was developed using

² The percentage of total estimated run of salmon harvested by anglers throughout the season.

previous seasons' data and, while not as accurate as AUC methodology, allowed a spawning estimate to be made based off a single count at the time of peak spawning. The resumption of multiple aerial counts in 2021 in the North Canterbury region allowed for the resumption of the AUC method for all rivers.

Five aerial counts were carried out on designated spawning streams in the Rangitata and four counts on spawning streams in the Rakaia and Waimakariri rivers in 2026 (Table 3.1). Aerial counts follow standardised methods developed by NIWA (Unwin, 1994) on the same known spawning streams each year to maintain consistency. Staff flew over each of the spawning streams, counting all visible salmon in the waterway from the designated starting point. Dead salmon are also counted in the first aerial count. Some streams (e.g., Bush Stream Inner) require staff to do foot counts as it is not possible to count from the air due to vegetation. While a tributary to the Rakaia River, Mellish Stream is counted at the same time as the Rangitata River counts as it lies within the Central South Island region. Three counts of the stream and surrounding lake edge are conducted. Due to its unique nature, Mellish Stream estimates cannot be made using AUC, and instead 'peak count' methodology is used to estimate spawning numbers (as was used for North Canterbury spawning streams mentioned above).

Table 3.1. List of designated spawning streams in the Rakaia, Rangitata and Waimakariri catchments counted via aerial survey used in escapement estimates.

<i>Catchment</i>		
<i>Rakaia River</i>	<i>Rangitata River</i>	<i>Waimakariri River</i>
Double Hill Flats	Deep Creek	Bealey Spring
Double Hill Stream	Deep Stream	Bush Stream (inner and outer)
Glenariffe Stream	Black Mountain Stream	Cass Hill Stream
Goat Hill Stream	Potts Fan	Cora Lynn Stream
Hydra Waters	Brabazon Fan	Lower Casey Stream
Manuka Point Stream	Erewhon Stream	One Tree Swamp
Mellish Stream		Sawmill Stream
Wilberforce Swamp		Thompson Stream
		Turkey Flat Stream
		Winding Creek

Once all aerial counts were completed, escapement estimates were made for each spawning stream using the Salmon AUC programme in Matlab (Version 1.0, NIWA). For each river catchment, estimates for each stream were added together to give the total escapement estimate.

3.2.3 Total run size and harvest/escapement proportions

Escapement estimates are added to harvest estimates to calculate a total estimated run size, i.e., how many salmon were estimated to be in the whole season's spawning run, regardless of

whether they were harvested by anglers or made it to the spawning streams. Expanding on this, the harvest proportion can be calculated for each river by dividing the estimated harvest by the estimated total run. Conversely, the “escapement proportion”, i.e., the proportion of the run that successfully made it to the spawning streams, can be calculated in the same way by dividing the population index by the total estimated run.

3.3 Results

3.3.1 Rakaia River

The escapement estimate for the Rakaia River in the 2025-26 season is **969** salmon. For individual stream estimates, refer to Appendix Table 7.1. This is higher than the 2024-25 season estimate (608 salmon) and the 2023-24 season estimate (878 salmon). Adding harvest, the total estimated run size for the Rakaia River is **998** salmon (Figure 3.1). The estimated escapement proportion is **97%** which is an eight percent change from the previous season, and the highest escapement proportion since recording began in 1993. (Figure 3.2).

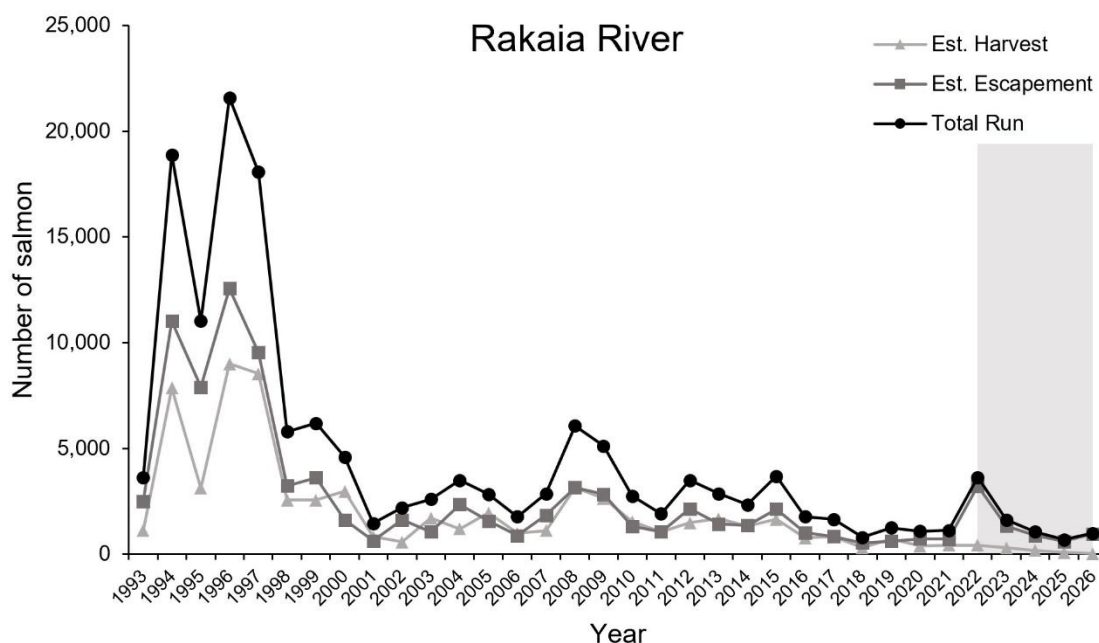


Figure 3.1. Estimated sea-run salmon escapement, angler harvest and total run on the Rakaia River, 1993-2026. Grey shaded area indicates years in which the sea-run season bag limit system was in place.

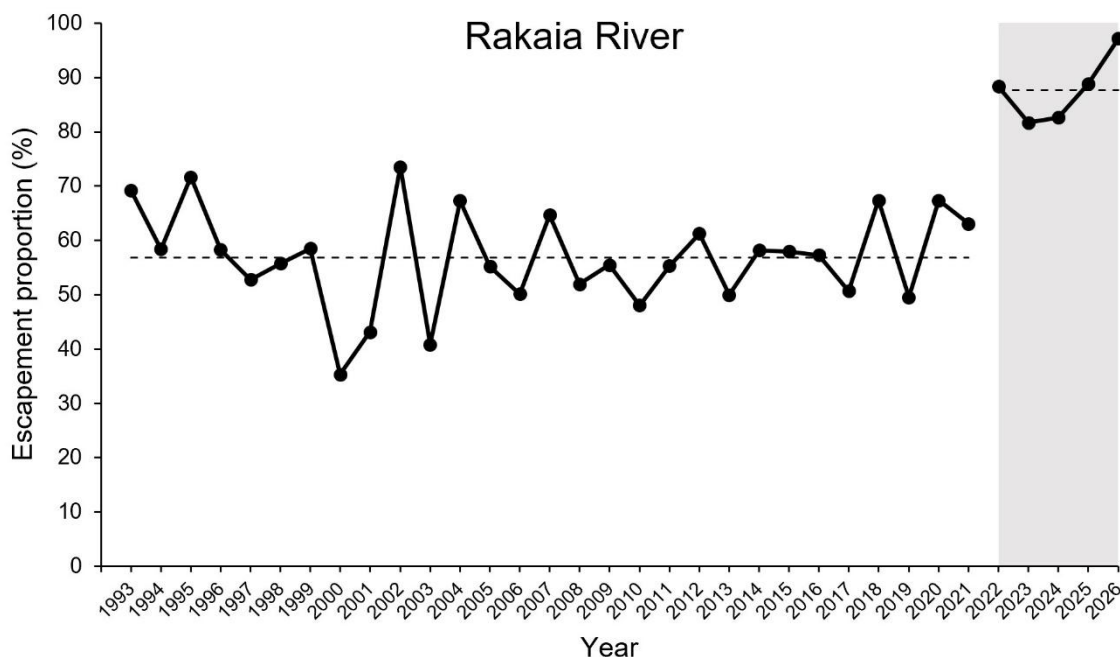


Figure 3.2. Escapement proportion of the total run on the Rakaia River, 1993-2026. Grey shaded area indicates years in which the season bag limit system was in place. Black dotted lines indicate the average escapement proportions for before and after the season bag limit introduction during the 2021-22 season.

3.3.2 Rangitata River

The escapement estimate for the Rangitata River in the 2025-26 season is **222** salmon, substantially higher than the 2024-25 season estimate (Figure 3.3). For individual stream estimates, refer to Appendix Table 7.2. Adding harvest, the total run for the Rangitata River in 2024-25 is estimated at **239** sea-run salmon. Of this run, **93%** successfully reached the spawning grounds (Figure 3.4).

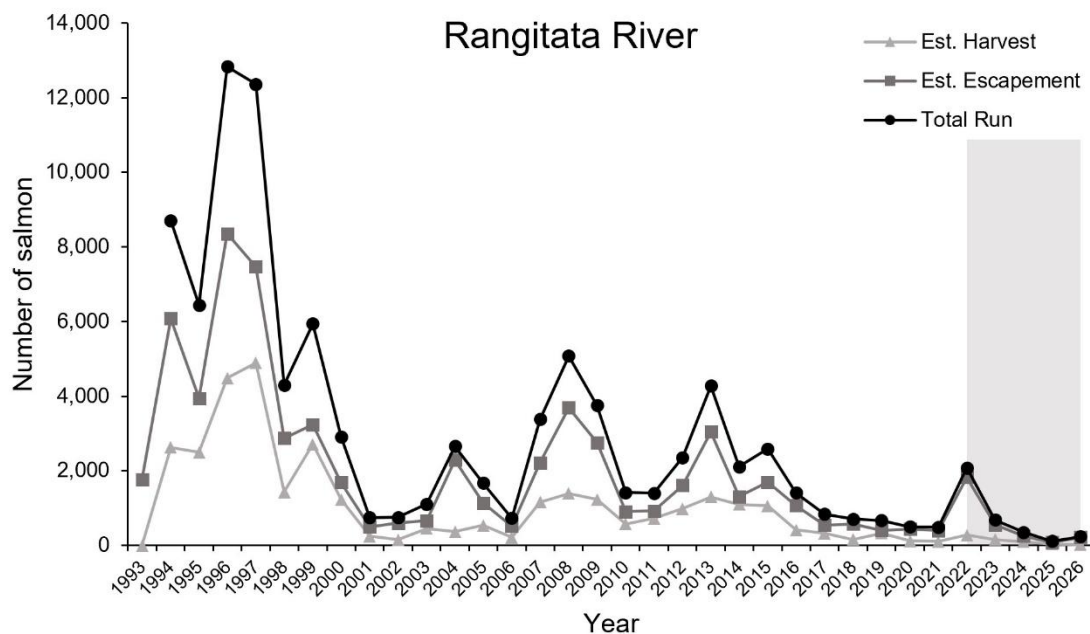


Figure 3.3. Estimated sea-run salmon escapement, angler harvest and total run on the Rangitata River, 1993-2026. Grey shaded area indicates years in which the sea-run season bag limit system was in place.

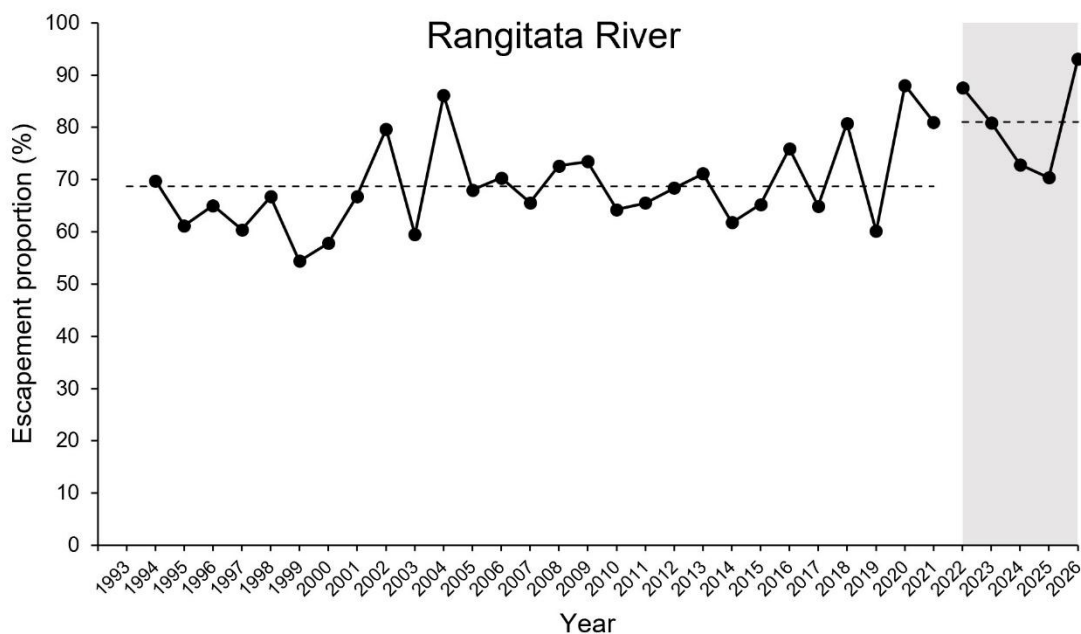


Figure 3.4. Escapement proportion of the total run on the Rangitata River, 1994-2026. Grey shaded area indicates years in which the season bag limit system was in place. Black dotted lines indicate the average escapement proportions for before and after the season bag limit introduction during the 2021-22 season.

3.3.2.1 McKinnon's Hatchery returns

In the 2025-26 season, one McKinnon's-origin fin-clipped salmon was reported to have been caught by an angler in the Rangitata River and 14 hatchery origin salmon returned to the hatchery. Surveys and salmon sampling work on the upper Rangitata River spawning grounds did not find any fin-clipped salmon in the spawning grounds. It is estimated that 13 of these returned fish are from the 2023 release of 58,350 fin clipped juveniles, a survival rate of 0.02%.

3.3.3 Waimakariri River

The escapement estimate for the Waimakariri River in the 2025-26 season is **278** salmon (see Appendix, Table 7.3 for individual stream estimates). This run is larger than the 2024-25 season estimate of 213 salmon. Adding harvest, the total estimated run size for the Waimakariri River is **283** salmon (Figure 3.5). The estimated escapement proportion is **98%**, ten percent higher than the previous season and the highest escapement proportion since recording began in 1993 (Figure 3.6).

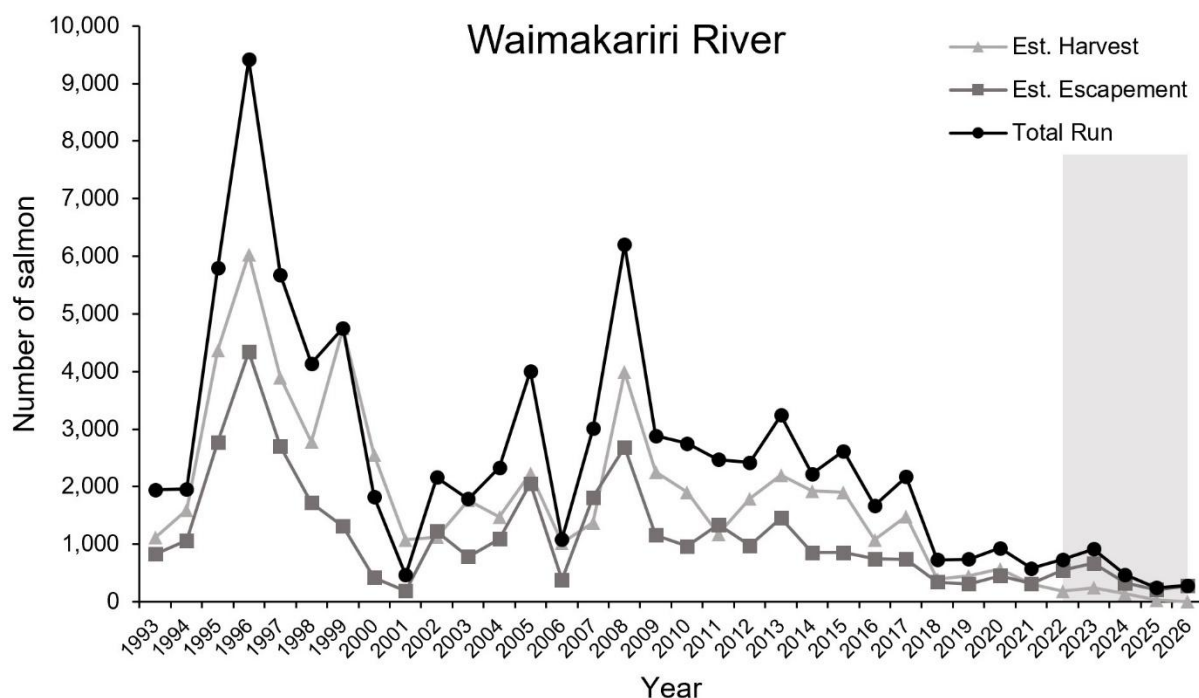


Figure 3.5. Estimated sea-run salmon escapement, angler harvest and total run on the Waimakariri River, 1993-2026. Grey shaded area indicates years in which the sea-run season bag limit system was in place.

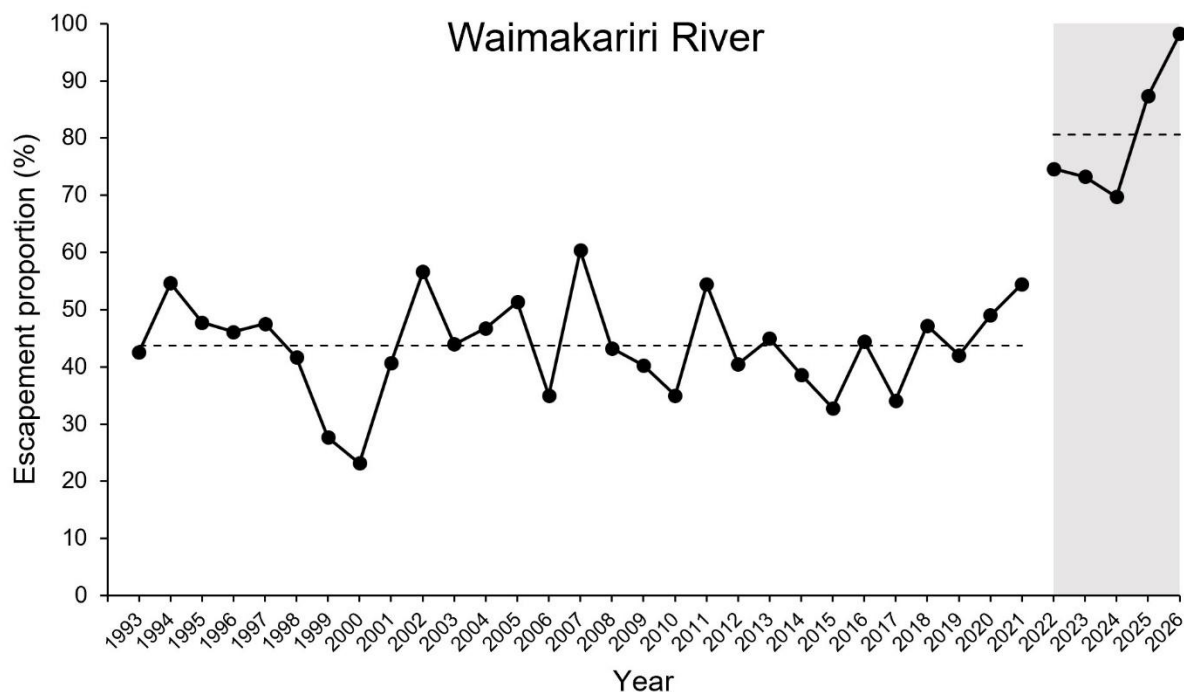


Figure 3.6. Escapement proportion of the total run on the Waimakariri River, 1993-2026. Grey shaded area indicates years in which the season bag limit system was in place. Black dotted lines indicate the average escapement proportions before and after the season bag limit introduction in the 2021-22 season.

4.0 Adaptive management

4.1 Introduction

Historically, approximately three-quarters of all South Island sea-run salmon caught by anglers are taken from the Waimakariri, Rakaia and Rangitata rivers. Based on these rivers' contributions to the South Island East Coast sea-run salmon fishery, their shared population trends, and their on-going population monitoring programmes, in 2020 the CSIFG and NCFG Councils adopted a joint Threshold Management Strategy across the three rivers for setting sea-run salmon fishing regulations in the two regions. The strategy aimed to manage angler catch to ensure adequate sea-run salmon spawn each year and to work towards providing a healthier wild recreational sports fishery.

If practicable in the future, monitoring to the required standard in other CSIFG and NCFG salmon fisheries (in particular the Waitaki River), will enable further salmon runs to be added to the sea-run salmon management strategy.

The strategy targets the spawning population size of wild salmon since it is from the spawning population in any year that the next generation of adult returns are generated. Annual spawning population monitoring results are also the earliest available measure of the salmon population.

Using spawning population size as the guide for harvest management ensures decisions are made on the most up-to-date information.

4.1 Methods

When CSIFG and NCFG Councils were considering how to rebuild the sea-run salmon fishery, priority was assigned to identifying a minimum acceptable spawning population size for the combined annual spawning estimates for the Waimakariri, Rakaia and Rangitata fisheries.

Four spawning population bands were identified that would characterise the health of the spawning populations with the upper band being the level at which the fishery would be considered 'healthy' and where minimum harvest conditions would apply. The second and third bands would be subject to increasing restrictions on harvest to help prevent the fishery falling below the third band. The fourth band would have maximum harvest restrictions without closing the fishery and this level has been determined to be just below the sum of the lowest recorded spawning population sizes in each of the rivers over the long-term monitoring record.

Following identification of spawning population targets CSI and NC regions considered how angler harvest would be managed to achieve spawning targets. At that time both regions had a one fish daily bag limit and a range of detailed season length and area conditions. Introduction of a season bag limit was recommended by scientific advisors as the favoured method to reduce harvest and rebuild spawning numbers. A season bag limit offered a simple and consistent method to achieve staged population targets. The simplicity came from the need to change only the size of the bag limit to reach a target rather than a range of different season, area and timing conditions. Consistency would be achieved from its equal application to all salmon anglers fishing all rivers.

Using the 26-year record of harvest and spawning population sizes that existed in 2020, significant modelling of the impact of different season bag limits on population sizes was completed. Overall, the scenario that assigned a 5% reduction in harvest to the healthy band, 20% reduction to the moderate band and 40% reduction to the low band had the least impact on anglers of the scenarios modelled and generated significant long-term increases in spawning, angling, and total run population sizes. Reductions in harvest of 5%, 20% and 40% could be achieved with season bag limits of 10, 4 and 2 fish respectively (Table 4.1). In the severe band (less than 1,200 spawning salmon), while the fishery may not be closed, restrictions would be more severe e.g., a one-fish season bag limit, and possible introductions of a shorter season length and closed area restrictions.

Table 4.1. Current Threshold Management Strategy combined escapement bands for the Rakaia, Rangitata and Waimakariri rivers and the season bag conditions triggered from these.

<i>Management band</i>	<i>Combined escapement</i>	<i>Season bag applied</i>
<i>Healthy</i>	Greater than 7,800	10
<i>Moderate</i>	5,101 to 7,800	4
<i>Low</i>	1,200 to 5,100	2
<i>Severe</i>	Less than 1,200	1

In the situation where the spawning population declined through a threshold from a stronger population band to a lower population band, the management strategy provided for immediate increase in restriction in harvest by reduction of the season bag limit for the following fishing season. This enables Fish & Game to cautiously manage harvest ahead of a possible multi-year declining population trend.

In the opposite situation, where the spawning population rises above a threshold and into a healthier population band, the management strategy requires the spawning population to remain in a higher band for a minimum of three years before the season bag is changed to allow for increased harvest. The delay in relaxing the season bag limit is to ensure that the spawning population increase is a true reflection of a stronger population trend that is able to sustain higher harvest and not a single-year anomaly where allowing increased harvest would be detrimental. Increasing harvest on the strength of a single year's increase in the spawning population could lead to yoyoing of the population in reaction to annual changes in harvest conditions.

4.2 Results

The 2025-26 combined Waimakariri, Rakaia and Rangitata rivers wild salmon spawning count was **1,469** salmon, placing the status of the fishery in the low management band (Figure 4.1). This is slightly lower but still somewhat consistent with estimates made at both regions' May 2026 Council meetings for setting the season bag limit in the 2026 Angler's Notice.

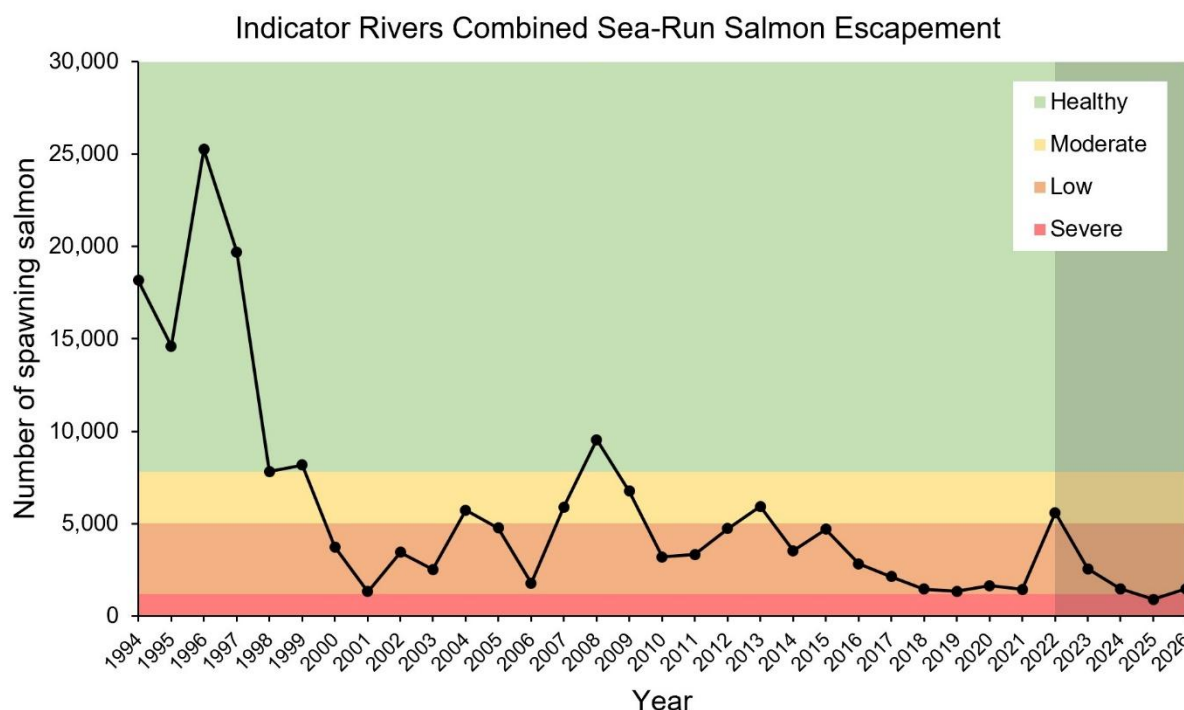


Figure 4.1. Combined estimated escapement across the three indicator rivers (Rakaia, Rangitata, Waimakariri) used for threshold management in comparison to the management band thresholds, 1993-2026. Grey shaded area indicates years where season bag limit system was in place.

5.0 Discussion

Monitoring of wild salmon in the Waimakariri, Rakaia and Rangitata rivers provides a record of annual angler catch, spawning population size, total run size and trends across the last 30 years. These fisheries, plus the Waitaki River across its shorter period of record, show very similar population trends, either increasing or decreasing together on an annual basis and they all share the current critically low state. Similar trends can also be seen in salmon spawning rivers of the other Fish & Game regions; salmon spawning counts in 2026 on the tributaries of the Wairau and Clarence rivers in Nelson/Marlborough region remained low, though were marginally better than the 2024-25 season (Nelson/Marlborough Fish & Game, 2026).

The similarity in trends across the four main east coast rivers (and particularly for the Waimakariri, Rakaia, and Rangitata rivers for their longer periods of record) indicate the significance of the reduction in salmon numbers that occurred around 1998 to 2001. The trends also show the absence of improvement since that time and strongly suggest that salmon survival in these rivers is very likely controlled by common influences when salmon are in a common environment. This provides strong support for continuing consistent management and consideration of them as one harvest management unit.

The observed escapement proportions over the last several years suggest that implementation of the season bag limit (SBL) has contributed to higher escapement proportions than the historical average on both the Rakaia and Waimakariri rivers. Average escapement proportions on the Rakaia River increased from 57% pre-SBL to 88% post-SBL, while on the Waimakariri River increased from 44% pre-SBL to 81% post SBL. Prior to introduction of the SBL, escapement proportions had only reached above 70% on two occasions for the Rakaia River (1995 and 2002) and had never reached above 60% of the total run on the Waimakariri River since recording began in 1993. While, for the Rangitata River, escapement proportions have historically been higher than the Rakaia and Waimakariri rivers, the very high escapement proportion this year has raised the post-SBL average to 81%, 12 percentage points higher than the pre-SBL average. More years of data will be required to draw meaningful conclusions; however, this year's increase suggests the reduction of the bag limit to one fish has improved the effectiveness of the SBL on escapement proportions in the Rangitata River. Overall, the higher escapement proportions seen again this season on all three rivers suggest that the season bag limit for sea-run salmon is a valuable management tool that Fish & Game can utilise when other environmental and non-environmental factors fall outside of Fish & Game's statutory management capabilities.

Estimated harvest has declined relative to the 2024-25 season; however, angler success has not changed. The observed decline in harvest is instead driven by reduced angler participation. This season only 36% of voluntary returns and 23% of phone surveys reported having gone fishing for sea-run salmon, compared to 44% and 31% during the 2024-25 season – a decline in participation of roughly 10%. Additionally, approximately 2,000 fewer anglers purchased a sea-run salmon licence in 2025-26 than during the 2024-25 season. Participation may have been influenced by the change in sea-run salmon regulations between the two seasons and by inclement weather during the early 2025-26 season resulting in unsuitable fishing conditions.

Fewer aerial counts were carried out on spawning streams in the Rakaia and Waimakariri catchments than during previous years. After the fourth count, AUC calculations indicated the spawning estimate for the two rivers would be sufficient to exceed the threshold for the severe

management band. Due to budgetary constraints, and because additional flights would not change the management outcome, the decision was made not to proceed with the fifth aerial count. While this decision does not affect any management outcomes, it will be important to note that the 2025-26 spawning estimates for the Rakaia and Waimakariri rivers are conservative estimates – the estimated run size if the fifth flight had been conducted would likely have been slightly higher.

The Threshold Management Strategy requires the spawning population to remain in a higher band for a minimum of three years before the season bag is increased. The move to the severe band at the end of the 2024-25 season means three consecutive seasons in the low, moderate or healthy population bands are required before an increase would be made to the season bag limit. The 2025-26 season constitutes the first of these three seasons. If the combined estimated escapement remains similarly high or increases during the next two seasons, the Management Strategy would call for an SBL increase to two fish for the 2028-29 fishing season.

5.1 Future management

The 2024-25 season represented the completion of a full three-year salmon life cycle following the introduction of the sea-run salmon season bag limit. It was anticipated that, following this period of time, Central South Island and North Canterbury regions would consider additional harvest restrictions if sea-run salmon populations continued to remain at critically low levels. Given the move of the population into the severe management band and subsequent reduction of the season bag limit to one fish in the 2025-26 season, this consideration became increasingly important. In light of this further decline, North Canterbury and Central South Island regions undertook a consultation process with anglers and the wider public between December 2025 and January 2026 to examine angler preference for different management options. Consultation feedback, alongside data, was provided to both Councils, who made decisions on what, if any management options be integrated into severe band of the adaptive management strategy. Both councils voted to implement closure limits within the severe band; Central South Island sea-run salmon waters will close to salmon fishing if the Rangitata River spawning estimates are fewer than 200 salmon. Likewise, North Canterbury sea-run salmon waters will close to salmon fishing if the combined Rakaia and Waimakariri rivers' spawning estimates are fewer than 200 salmon. Additional restrictions (season length or area restrictions) were deferred for both regions and will be considered once further harvest data has been collected under a one-salmon season bag limit, potentially operating under a "tier" system within the severe band.

Similar to the declines seen in Central South Island and North Canterbury regions, other South Island Fish & Game regions with historic runs of Chinook salmon (West Coast, Nelson/Marlborough and Otago regions) that do not utilise a season bag limit are seeing similar patterns of decline, and have come to similar conclusions about the potential causes of these declines (J. Couper, B. Kersten, & J. Lucas, personal communication, 18 August 2026). While there are likely a number of contributing factors behind the decline in the sea-run salmon population, changing marine environmental conditions could be a key factor and would explain the similar trends seen across the wider South Island Chinook salmon populations. This can also be seen in the very low (0.02%) smolt-to-adult survival rates of salmon released from McKinnon's Creek hatchery that returned for their spawning run in 2026. Across the Pacific,

decreasing population declines and salmon size has also been seen in Alaskan Chinook salmon populations (Siegel, McPhee & Adkinson, 2017). A Northern USA study modelling future survival in relation to SSTs also showed “populations rapidly declined in response to increasing sea surface temperatures and other factors across diverse model assumptions and climate scenarios” (Crozier & *et al*, 2021). Long term trends in sea surface temperature (SST) have seen higher rates of increase in SSTs on the east coast compared to other areas of the South Island, most notably south of Banks Peninsula immediately off the coast of the Rakaia and Rangitata rivers, between 1981 and 2017 (Sutton & Bowen, 2019). Assuming these trends have continued, it is likely the declines in the east coast salmon population seen in recent years could be a consequence of these environmental changes. Central South Island and North Canterbury Fish & Game regions therefore contracted Earth Sciences New Zealand (formerly NIWA), to explore relationships between ocean conditions and declining sea-run salmon numbers. Primary points of interest for Fish & Game for this report include:

- Population estimates and trends (where available) of marine species that comprise the bulk of the salmon diet (based on previous NZ Chinook salmon diet studies).
- Reports on marine temperature changes and how they compare to salmon temperature thresholds related to growth and survival
- Analysis of marine primary productivity and determine if that has changed, and if so, consider what influence it might have.
- Comparison of biophysical factors (including temperature and chlorophyll a) to salmon run estimates for key salmon rivers and determine if the relationships are significant.
- Identifying other structural changes in marine populations that may be influencing run size, e.g., predator and prey abundance, and how these changes may impact salmon populations.

Findings from this report may aid in future management of the fisheries and help the regional Fish & Game Councils make management decisions for the future of this species.

6.0 References

- Arnold, R., A. Gray., and unlisted colleagues. 2023. STAT392: Sample Surveys. Victoria University of Wellington. Wellington, New Zealand.
<https://homepages.ecs.vuw.ac.nz/~rarnold/STAT392/SampleSurveysBook/book/index.html#introductory-remarks>.
- Crozier, L.G., Burke, B.J., Chasco, B.E., Widener, D.L. and Zabel, R.W., 2021. Climate change threatens Chinook salmon throughout their life cycle. *Communications biology*, 4(1), p.222.
- English, K. K., Bocking, R. C., & Irvine, J. R. 1992. A robust procedure for estimating salmon escapement based on the area-under-the-curve method. *Canadian Journal of Fisheries and Aquatic Sciences*, 49(10), 1982-1989.
- Nelson/Marlborough Fish & Game. 2026. Annual Fisheries Report 2025-26. Nelson Marlborough Fish & Game. Pp 12.
- North Canterbury Fish & Game and Central South Island Fish & Game. 2021. Salmon Harvest Survey Report 2020-21. North Canterbury Fish & Game and Central South Island Fish & Game. Pp 1.
- Raby, G. D., Donaldson, M. R., Hinch, S. G., Clark, T. D., Eliason, E. J., Jeffries, K. M., ... & Cooke, S. J. (2015). Fishing for effective conservation: context and biotic variation are keys to understanding the survival of Pacific salmon after catch-and-release. *Integrative and Comparative Biology*, 55(4), 554-576.
- R Core Team. 2022. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Sanders Garrick, H. 2025. 2024-25 Sea-run salmon harvest report. North Canterbury Fish & Game.
- Sanders Garrick, H. 2026a. Impact of changes to the family licence on licence sales. North Canterbury Fish & Game.

Sanders Garrick, H. 2026b. 2025-26 Sea-run salmon harvest report. North Canterbury Fish & Game.

Siegel, J. E., McPhee, M. V. and Adkison, M. D. 2017. 'Evidence that Marine Temperatures Influence Growth and Maturation of Western Alaskan Chinook Salmon', *Marine and Coastal Fisheries*, 9(1), pp. 441–456

Sutton, P.J. and Bowen, M., 2019. Ocean temperature change around New Zealand over the last 36 years. *New Zealand Journal of Marine and Freshwater Research*, 53(3), pp.305-326.

Webb, M., S. Terry. 2020. Adaptive management strategy for setting North Canterbury and Central South Island sea-run salmon fishing regulations. New Zealand Fish & Game. Pp. 10.

7.0 Appendix

*Table 7.1 Total population indices of the Rakaia River tributaries calculated using AUC. *Mellish Stream estimates made using Peak Count method.*

<i>Rakaia River</i>	
<i>Spawning stream</i>	<i>Spawning estimate</i>
<i>Double Hill Flats</i>	27
<i>Double Hill Stream</i>	147
<i>Glenariffe Stream</i>	43
<i>Goat Hill Stream</i>	10
<i>Hydra Waters</i>	300
<i>Manuka Point Stream</i>	81
<i>Mellish Stream*</i>	360
<i>Wilberforce Swamp</i>	1
<i>Total</i>	969

*Table 7.2. Total spawning populations/escapement in the Rangitata River as estimated using AUC method. *Other includes Black Mountain Stream, Potts Fan, Brabazon Fan & Erewhon Stream*

<i>Rangitata River</i>	
<i>Spawning stream</i>	<i>Spawning estimate</i>
<i>Deep Stream</i>	104
<i>Deep Creek</i>	102
<i>Other*</i>	16
<i>Total</i>	222

*Table 7.3. Total population indices of the Waimakariri River tributaries calculated using AUC. *Poulter streams include Lower Casey Stream, Bush Stream (inner and outer) and Thompson Stream. **Upper Waimakariri streams include Bealey Spring, Sawmill Stream and Turkey Flat Stream.*

<i>Waimakariri River</i>	
<i>Spawning stream</i>	<i>Spawning estimate</i>
<i>Cass Hill Stream</i>	125
<i>Cora Lynn Stream</i>	15
<i>One Tree Swamp</i>	29
<i>Poulter River*</i>	68
<i>Upper Waimakariri**</i>	5
<i>Winding Creek</i>	36
<i>Total</i>	278