



Fisheries New Zealand

Tini a Tangaroa

Recreational harvest of southern bluefin tuna in New Zealand, 2023–24

New Zealand Fisheries Assessment Report 2025/04

J.C. Holdsworth,

ISSN 1179-5352 (online)

ISBN 978-1-991330-80-2 (online)

January 2025



Te Kāwanatanga o Aotearoa
New Zealand Government

Disclaimer

This document is published by Fisheries New Zealand, a business unit of the Ministry for Primary Industries (MPI). The information in this publication is not government policy. While every effort has been made to ensure the information is accurate, the Ministry for Primary Industries does not accept any responsibility or liability for error of fact, omission, interpretation, or opinion that may be present, nor for the consequence of any decisions based on this information. Any view or opinion expressed does not necessarily represent the view of Fisheries New Zealand or the Ministry for Primary Industries.

Requests for further copies should be directed to:

Fisheries Science Editor
Fisheries New Zealand
Ministry for Primary Industries
PO Box 2526
Wellington 6140
NEW ZEALAND

Email: Fisheries-Science.Editor@mpi.govt.nz
Telephone: 0800 00 83 33

This publication is also available on the Ministry for Primary Industries websites at:
<http://www.mpi.govt.nz/news-and-resources/publications>
<http://fs.fish.govt.nz> go to Document library/Research reports

© Crown Copyright – Fisheries New Zealand

Please cite this report as:

Holdsworth, J.C. (2025). Recreational harvest of southern bluefin tuna in New Zealand, 2023–24
New Zealand Fisheries Assessment Report 2025/04. 22 p.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	3
1.1 Description of the commercial fishery	3
1.2 Description of the recreational fishery for southern bluefin tuna	3
1.3 Objectives	4
2. DATA SOURCES AND METHODS	5
2.1 North Island survey	5
2.2 Expanded survey catch at Waihou Bay	6
2.3 Sport fishing club records	6
2.4 South Island survey	6
2.5 Amateur fishing charter boat records	7
2.6 Section 111 landings	7
2.7 Allowance for unaccounted catch	8
2.8 Biological data	8
3. RESULTS	8
3.1 Landed catch from the 2024 Waihou Bay survey	8
3.2 Sport fishing club records	14
3.3 Survey of South Island fishers	14
3.4 Amateur fishing charter boat records	15
3.5 Section 111 landings	16
3.6 Recreational harvest estimate for southern bluefin tuna in 2023–24	17
3.7 Biological data	17
4. DISCUSSION.	18
5. ACKNOWLEDGEMENTS	19
6. REFERENCES	20
7. APPENDIX 1	21
8. APPENDIX 2	22

PLAIN LANGUAGE SUMMARY

We estimate the annual recreational catch of southern bluefin tuna in New Zealand for the 2023–24 October fishing year. This information helps meet the obligation to report all of New Zealand’s catch of this species to the Commission for Conservation of Southern Bluefin Tuna each year.

Tuna numbers and weights are collected from a number of sources including:

- sportfishing club weigh station records;
- a monthly telephone survey of South Island fishers;
- catch records from online reporting on the fishcatch.co.nz web page;
- catch records from recreational charter boats;
- records of recreational catch taken from commercial vessels for personal use; and
- boat ramp interviews at Waihou Bay in the eastern Bay of Plenty (where most of the recreational catch is landed).

The estimated 2024 recreational harvest of southern bluefin tuna is 992 individual fish, which is fewer than in 2023 (1241 fish).

The estimated total landed weight for the recreational fishery is between 65 and 73 tonnes with a mid-point of 69.5 tonnes.

EXECUTIVE SUMMARY

Holdsworth, J.C.¹ (2025). Recreational harvest of southern bluefin tuna in New Zealand, 2023–24.

New Zealand Fisheries Assessment Report 2025/04. 22 p.

This report describes the New Zealand recreational catch of southern bluefin tuna in the 2023–24 October fishing year. The species code for southern bluefin tuna (*Thunnus maccoyii*) used for catch reporting in the New Zealand commercial fishery is STN. However, in this report, the code SBT is used for consistency with the international organisation Commission for the Conservation of Southern Bluefin Tuna.

There have been two distinct recreational fisheries for southern bluefin tuna in New Zealand. One off the west coast of the South Island from January to August and a target fishery that started in 2017 off the east coast of the North Island, mainly in June to August. In 2024 targeted fishing resulted in some SBT catch off the east coast of the South Island.

The North Island recreational catch is predominantly taken by trailer boats launching from the Waihou Bay boat ramp in the eastern Bay of Plenty. Trailer counts for all days during the season are used as a measure of fishing effort. An adaptive sampling strategy has been used since 2018 to initiate Waihou Bay survey days when ten or more trailers for offshore capable boats are present at 11:00 am. An on-site (creel) survey collected detailed catch and effort information from returning fishers. The Waihou Bay Sport Fishing Club weigh station weighs and records individual fish mainly for members of sport fishing clubs. Catch records were obtained from 12 other North Island sport fishing clubs.

In 2024 a record number of 1801 trailers were counted over the 85 day fishing season and 777 boat crews were interviewed. The total survey estimate of landed catch at Waihou Bay was 701 SBT (with a CV of 0.057). The average weight was 54.5 kg and the survey harvest estimate was 38.2 t.

There were 235 individual boat names recorded from the Waihou Bay survey interviews. Some fishers also donated SBT heads and 15 otolith pairs were extracted for ageing. SBT fork lengths were collected along with the length from the same fish from the anal fin to the tip of the lower jaw to help determine a conversion factor for processed fish where tail fork length cannot be measured.

A further 55 SBT were recorded by other North Island sport fishing clubs with an average weight of 61.1 kg (s.d. 22.07) and harvest weight of 3.36 t. North Island catch rates were lower than in 2023, but average fish size increased.

A respondent-driven off-site telephone survey estimated SBT harvest from private vessels off the South Island. The contact list of fishers included 68 boat owners in 2024; this list is still expanding. There were 118 SBT reported landed from December to August with an overall average weight of 48.8 kg (s.d. 37.33) and a total harvest estimate of 5.8 t.

In 2024 there were 63 SBT (3.1 t) retained by Amateur Fishing Charter Vessels. The number of days fished and the retained weight of SBT in 2024 was significantly less than in the previous four years. The harvest reported from commercial vessels under section 111 of the Fisheries Act 1996 as recreational catch for personal use in 2024 totalled 1.65 t, which is included in recreational harvest estimates.

¹ Blue Water Marine Research, New Zealand.

The total landed recreational harvest estimate for 2023–24 is 992 SBT weighing 57.6 t. Allowing an additional 15% to 30% for unaccounted landed catch by private vessels gives a range of 65.5 t to 73.5 t and a central point estimate of 69.5 t.

1. INTRODUCTION

Southern bluefin tuna (SBT, *Thunnus maccoyii*) is a single stock, primarily distributed between 30° S and 45° S, with one confirmed spawning area in the Indian Ocean between Java and Western Australia (Farley & Davis 1998, Patterson et al. 2008). Initial growth is rapid, with juveniles reaching 50 cm at one year old. Southern bluefin tuna up to 5 years old undertake annual cyclical migrations in which they generally spend austral summers in the Great Australian Bight and move east as far as New Zealand or west into the Indian Ocean as far as South Africa during the winter (Bestley et al. 2010, Basson & Farley 2014). Fish older than five years disperse widely across the southern oceans from the western Atlantic across the Indian Ocean to the Tasman Sea. SBT can live to 30 years old, reaching maturity at 10 to 12 years of age and a maximum size of around 190 cm fork length and 140 kg by 20 years old (Gunn et al. 2008).

1.1 Description of the commercial fishery

Japanese surface longline vessels began fishing in the New Zealand region in the late 1950s targeting southern bluefin tuna. Following the declaration of New Zealand's EEZ in 1979, some of the fleet, along with vessels from Korea, took up licences to fish part of the year in New Zealand waters. The New Zealand domestic surface longline fishery expanded rapidly during the 1990s, targeting swordfish (*Xiphias gladius*), bigeye tuna (*Thunnus obesus*), and southern bluefin tuna (Fisheries New Zealand 2024).

New Zealand is a founding member of the Commission for Conservation of Southern Bluefin Tuna (CCSBT), an intergovernmental organisation responsible for the conservation and management of SBT. Member countries receive an allocation from the global total allowable catch and must report all sources of SBT fishing mortality each year, including recreational catch.

The SBT catch limit for New Zealand was 420 tonnes (t) in the early 1990s. On introduction to the Quota Management System (QMS) in 2004, the Total Allowable Commercial Catch (TACC) was set at 413 t, with a recreational allowance of 4 t, a customary allowance at 1 t, and other sources of fishing-related mortality at 2 t. The Total Allowable Catch (TAC) in subsequent fishing years was raised several times in line with international allocation decisions by the CCSBT.

Most recently the 2023 CCSBT scientific committee meeting found that the stock status had improved (compared with the 2020 stock assessment) and that the results of the management procedure allowed an increase of 3000 tonnes in the 2024–2026 global TAC. As a result of this, New Zealand's national allocation increased to 1288 t. A subsequent review of sustainability measures in 2024 set the TACC at 1197 t for the fishing year beginning 1 October 2024.

1.2 Description of the recreational fishery for southern bluefin tuna

There has been a recreational fishery off the South Island west coast, mainly from Fiordland over summer, since the 1970s. The Fiordland Game Fishing Club was formed and was a member of the New Zealand Sport Fishing Council (NZSFC) until the late 1980s. Modest numbers of SBT were caught with most being less than 30 kg and caught on 10 kg line (Marquand 1978). The highest catch recorded by the club was 33 SBT in 1979. A recreational fishery for Pacific bluefin tuna (*Thunnus orientalis*) developed in 2005 off the west coast of the South Island with charter boats fishing from Greymouth and Hokitika. Occasionally southern bluefin tuna were caught in this fishery during August and September.

A North Island recreational SBT fishery rapidly emerged in June and July 2017 off Cape Runaway and eastern Bay of Plenty. Social media posts by commercial fishers, along with good catch rates and favourable weather, attracted hundreds of anglers to the eastern Bay of Plenty at short notice. Most fishing was from trailer boats launched at Waihou Bay. Fish were caught by trolling lures using the same tackle as the summer billfish fishery. Members of the Waihou Bay Sport Fishing Club operated

a weigh station adjacent to the boat ramp, weighing and recording most of the catch that year. In addition, some fish were taken back to home clubs and weighed there.

NZSFC clubs recorded 266 landed SBT in 2017, mostly during late June and July. These North Island tuna were often over 60 kg, and the average weight was 72 kg. The total landed weight of SBT recorded by clubs in 2017 was 19.4 tonnes. Over 90% of the North Island catch was landed at the Waihou Bay boat ramp that year.

Six charter vessels in the South Island fishery recorded a recreational landed catch in 2017 of 47 SBT with an estimated weight of 1.9 t. Therefore, the average weight of these fish was 40.6 kg. South Island sport fishing clubs recorded a further eight landed SBT in 2017. It is not known if these fish were taken from charter boats, but a number of private boats were active in this fishery at the time.

Fisheries New Zealand have contracted annual research projects since 2018 to estimate the national amateur harvest of SBT. The on-site boat ramp surveys at Waihou Bay covered the main access point for the east coast fishery. Sport fishing club weigh station records provided additional information on catch and the weight of individual fish. Charter boats are required to register and report fishing activity and weights for each SBT caught. Since 2020 a telephone survey has been conducted to improve estimates of recreational landed catch from private boats in the South Island.

Recreational and commercial fishers encountered a run of small SBT off the west coast of the North Island (from Manukau to Cook Strait) from January to March 2022. They were caught from inshore boats fishing with baits and boats trolling for albacore (*Thunnus alalunga*). This was the first time that SBT were seen and caught in numbers from this area and it was uncertain whether this would be a one-off or rare event. Some North Island west coast fishing clubs had prizes for SBT caught in the area in 2023 and 2024, but none were recorded.

The national recreational harvest for 2022–23 from available data was 1241 SBT. Allowing an additional 15% to 30% for unaccounted landed catch by private vessels gives a range of 65.4 t to 73.2 t and a central point estimate of 69.3 t (Holdsworth 2024). The allowance for recreational fishing interests was increased from 34 t to 69 t in 2024.

1.3 Objectives

This report summarises the results for the third year of the Fisheries New Zealand project STN2021-02 for the 2023–24 New Zealand fishing year (1 October 2023 to 30 September 2024), which has the following Objective:

1. To improve the estimates of the recreational catch and size composition of southern bluefin tuna (*Thunnus maccoyii*) in New Zealand fisheries waters.

The Specific Objectives are:

1. To update and undertake an on-site survey to estimate amateur harvest of southern bluefin tuna in the eastern Bay of Plenty.
2. To design and undertake a survey to estimate the amateur harvest of southern bluefin tuna off the west coast South Island.
3. To estimate the amateur southern bluefin tuna harvest for the 2024 southern bluefin tuna fishing season using the method developed in Specific Objectives 1 and 2, data from the amateur charter vessels, section 111 landings, sport fishing club records, and any other appropriate reporting methods.
4. To characterise the biological and temporal nature of the marine amateur harvest of southern bluefin tuna.
5. To collect otoliths from southern bluefin tuna caught by recreational fishing vessels fishing in the eastern Bay of Plenty.

2. DATA SOURCES AND METHODS

2.1 North Island survey

A primary component of this survey was to collect information from fishers at the Waihou Bay boat ramp using on-site interviews. An adaptive survey approach used daily trailer counts at Waihou Bay during the SBT season to target survey effort on days when the fishing effort was above a pre-determined level (Moore et al. 2015). The boat ramp surveys have been undertaken since 2018, with support from the Waihou Bay community and Waihou Bay Sport Fishing Club. A large component of the annual recreational SBT harvest is still caught from trailer boats fishing off Cape Runaway when the SBT are within range from June to August. The remote location, weather conditions, and fishing success influences fisher interest and peak fishing periods.

The 2024 Waihou Bay on-site survey design was based around the following elements.

1. A survey period from 1 June to 24 August 2024 when SBT were most likely to be in the area.
2. Daily trailer counts at Waihou Bay at 11:00 am to estimate daily fishing effort for 85 days.
3. An adaptive survey approach with a decision rule that a survey is initiated if 10 or more boat trailers (for boats over 5 m long) are counted at 11:00 am. The threshold was raised to 20 boats during the 2024 survey to help spread survey effort across the main part of the season.
4. The interviewer intercepts crews returning to the boat ramp during daylight hours.
5. Vessel and angler names are collected to match with club records and website entries to avoid double counting.
6. Interviews record the number of fishers per boat, fishing method(s), hours fished, individual catch retained or released.
7. All interview weights (weighed or estimated) to calculate average SBT weight.
8. SBT fork length and where possible length measurements from anterior of the anal fin to tip of the lower jaw (straight line as well as curved lengths), were recorded for potential use in the calculation of a conversion factor.
9. Collection of heads, primarily from large SBT, and extraction of otoliths.

Data were collected on paper forms developed in 2018 (Holdsworth 2019). The boat ramp was busy at times, and most of the interviews were initiated while the boat was being loaded onto the trailer. Where possible, SBT were measured (fork length) and accurate weights were recorded when available from the club weigh station located next to the boat ramp. Fish that were gilled and gutted when weighed were not included in average weight calculations. Estimated weights were recorded for fish landed but not weighed as well as those reported as released. Since 2020, interview sessions have been extended to include boats that returned in the morning and early afternoon because a number of fishers were returning to the ramp as soon as one SBT was caught. Boat ramp interview sessions ended before dark, in line with the health and safety policy.

The Waihou Bay Sport Fishing Club also provided collection bins for fish heads. To use this system of otolith collection, fish were measured by the boat ramp interviewer, and a numbered cattle ear tag with the fish length written on it was attached to the head. The fish could then be processed, and the head with a label attached left in the bin. Heads were collected from the bin and taken to a private property for otolith removal.

2.2 Expanded survey catch at Waihou Bay

The observed total catch includes the number of SBT intercepted by the on-site survey plus the number of non-survey SBT weighed by the Waihou Bay Sport Fishing Club. On busy days some boats are hauled out after dark. Interviewers do not work on the boat ramps after dark, although the club can weigh fish on request into the evening. Some boats with fish return after the weigh station closes. The catch observed during the survey will therefore be an incomplete record of all Waihou Bay landed catch.

Trailer counts at 11:00 every day during the survey period provided an estimate of the total number of fishing trips on that day. The creel survey collected information on the number of boats intercepted and the number of SBT landed on days when there were ten or more trailers for boats capable of fishing offshore. As the season progressed the threshold for initiating a survey day was increased due to increased fishing effort. Boat trip was used as the unit of fishing effort because it could be applied to both interview data and trailer counts. The availability of SBT within the range of recreational vessels can vary daily. For survey days, the mean landed catch per trip from survey interviews was multiplied by the trailer count for that day. For non-survey days with trailers, the overall survey catch-per-unit-effort (CPUE, ratio of means) was multiplied by the trailer count for those days.

The variance associated with the landed catch was estimated by resampling catch per boat trip with replacement on each survey day for all vessels based on the trailer count for that day. For days not surveyed, CPUE from all survey days was resampled with replacement for the number of trailers counted for all non-survey days.

The variance associated with total landed catch was estimated by adding the bootstrap estimates from survey days and non-survey days to give 1000 estimates of total landed catch at Waihou Bay and generate the standard error and coefficient of variation (CV).

2.3 Sport fishing club records

New Zealand Sport Fishing Council clubs from the Bay of Plenty, Gisborne, Hawke's Bay, Auckland, and Northland provided detailed catch records from weigh stations with certified scales. Clubs weigh and record fish caught by affiliated club members and generally for non-members on request. Club records include the date, species, boat and angler names, fish weight, and usually the location of capture. If the fish is weighed on behalf of another club, this is identified as a 'courtesy weigh'. Sport fishing clubs traditionally target yellowfin tuna (*Thunnus albacares*) and billfish over the summer months (December to May). The recreational SBT fishery usually starts in Fiordland in January and finishes in the North and South Island in September.

All available club catch records are compiled into a spreadsheet and sorted by date, vessel, weight, and angler so that fish that have been entered by two clubs — the club that weighs the fish and the club that the angler belongs to — are not double counted. Landed fish recorded in the ramp survey are also matched with club records using date, vessel, and angler to ensure that these fish are not double counted.

2.4 South Island survey

The South Island fishery has operated out of Fiordland since the 1970s. The Fiordland Sport Fishing Club recorded 18 to 36 SBT per year in the late 1970s. Most of these SBT were small and caught during the NZSFC Nationals tournament in February. The club disbanded around 1990. Reports from members of other South Island fishing clubs in 2019 indicate that a few dedicated fishers target SBT out of the fiords and occasionally Jackson Bay.

Prior to 2020, recreational harvest estimates for SBT for the South Island comprised data from the amateur fishing charter vessel reporting system, reports on commercial fishing catch and effort returns

of SBT catch by recreational methods for personal use under section 111 of the Fisheries Act 1996, as well as anecdotal reports from well-connected people on the catch by private fishers.

In 2019–20, a survey was initiated to estimate the amateur harvest of southern bluefin tuna off the west coast of the South Island. The focus of the design was to estimate the number and weight of SBT caught by amateur fishers on private boats. The primary platform in this fishery is trailer boats launched from a limited number of access points in Fiordland and Jackson Bay. Some good contacts were made, but fishing was hampered by a road closure to Milford Sound after a February storm and then by Covid-19 restrictions. Recreational fishers were not allowed on the water between 25 March and 12 May 2020. In April 2021, Blue Water Marine Research created a catch-reporting web page www.fishcatch.co.nz for fishers to self-report SBT and other gamefish catch.

One advantage of contacting a group of committed SBT fishers is that they tend to know who else has been fishing because they share information amongst themselves. A register of South Island boat owners who target SBT was therefore generated from sport fishing clubs and known contacts. This kind of Respondent Driven Sampling (i.e., ‘Snowballing’) is a survey technique used to recruit hard-to-reach components of populations. Studies in Australia and New Zealand have investigated the potential of this approach for assessing recreational catch and found problems with its ability to determine the harvest of particular species (Heinemann & Gray 2010, Griffiths 2012). Most of these relate to potential biases coming from the individuals used in the initial sample and the non-random selection of survey respondents from their network of contacts.

In the South Island SBT fishery, we have assumed that there is a limited number of boats actively engaged in the fishery and we have recruited the more active fishers to respond to a monthly SMS and phone survey during the fishing season, similar to the national panel survey (e.g., Wynne-Jones et al. 2014). This provides data to characterise the fishery and estimate unscaled catch and effort for the core fleet. Southern bluefin tuna are suitable for this approach because the species is easily identified, catches are memorable, and management restrictions are not likely to cause anglers to under-report catch (Pollock et al. 1994). The bycatch of SBT by fishers targeting inshore species is likely to be small.

2.5 Amateur fishing charter boat records

An extract of the amateur fishing charter vessel (AFCV) records from events where southern bluefin and Pacific bluefin tuna were targeted or caught was obtained from Fisheries New Zealand (replot 16233). A review of the AFCV database undertaken in 2019 identified a range of potential errors to check for (Hartill et al. 2020). The extract received was checked for missing or out-of-range entries.

The AFCV records were matched with fishing club records, and duplicate entries were removed from the club records used in the harvest estimates. Catch by trailered charter boats fishing out of Waihou Bay during the survey period were removed from the charter records to avoid double counting catch when calculating national harvest estimates. This is because trailer counts on non-survey days, and boats that return after dark, will include charter boat trailers. Individual SBT estimated weights were used to calculate the average weight and standard deviation of retained SBT.

2.6 Section 111 landings

Southern bluefin tuna caught by commercial fishers using recreational fishing gear may be retained for personal use under section 111 of the Fisheries Act 1996. The weight of these fish must be reported with the destination code ‘F’. Fisheries New Zealand provided the number of records and sum of estimated weights for section 111 landings.

2.7 Allowance for unaccounted catch

Fishers can process SBT onboard, and these fish are not included in club records. Most fishers targeting SBT use trailer boats and travel to where they want to fish so are less likely to belong to a formal sport fishing club. There are now a number of informal clubs and social media groups where fishers can pass on information and share their experiences so unaccounted catch may be increasing. The coverage of South Island fishers in the telephone survey is not complete. In 2018, a factor of 15% to 30% was added to the national SBT catch recorded by recreational fishers as an estimate of unaccounted catch.

For the 2023–24 project, the Highly Migratory Species Working Group accepted adding 15% to 30% to landed catch by private fishers to cover the likely range of unaccounted catch. The midpoint of this range was used as the point estimate. The amateur fishing charter vessel retained catch and section 111 catch reporting was assumed to be reasonably complete, and no adjustment for the unaccounted charter catch for these components was made.

2.8 Biological data

Sport fishing club weigh stations maintain catch records, including weights from certified scales, date, and location data. Fishers are asked during the survey interview or at the weigh station whether they would donate the head of their tuna for otolith extraction and ageing.

In New Zealand otoliths are also collected from SBT landed to commercial fishing companies. This year our interviewers collected SBT fork lengths plus straight line and curved lengths from the anterior of the anal fin to the tip of the lower jaw to help determine a reliable conversion factor for processed fish without a tail or fork length.

3. RESULTS

3.1 Landed catch from the 2024 Waihou Bay survey

Blue Water Marine Research discussed and coordinated the lead-up to the on-site survey with Waihou Bay Sport Fishing Club members. Trailer counts started on Saturday, 1 June 2024 and fishers commented that it was a relatively early start to the season with increasing fishing effort in the first week of June (Figure 1). The first surveys were undertaken on 4 and 5 June. The main fishing effort in 2024 was between 28 June and 28 July (Figure 1).

A survey total of 1801 boat trailers were counted over 85 days (Table 1). Eighteen survey days were completed with 777 boat crews interviewed on the boat ramp (Table A1 in Appendix 1). On survey days 65% of the trailer count were interviewed. Overall, 43% of the total trailer count from all days in the survey period were interviewed. Fishing crews were cooperative during the survey, even when they were tired, and the ramp was busy. No interview refusals were recorded. The decision to spread the 18 planned survey days over the season was the main reason that the proportion of trips intercepted was lower than in previous years. A few high effort days in July were not surveyed to allow the allocated survey days to cover a longer than usual fishing season, extending into August as it did in 2023.

A total of 341 landed SBT were reported to the interviewer at the ramp. Of these, 255 SBT were processed at sea or not weighed at Waihou Bay. The average weight of landed SBT, weighed or estimated, was 54.5 kg, which was higher than in 2023 but lower than earlier surveys (Table 1). A further 57 SBT were in the Waihou Bay Sport Fishing Club weigh station records only. These fish were caught on days without surveys or landed after dark on survey days.

The number of SBT caught per survey day was highest on fishable days during July, with three days during this period when more than 30 SBT were landed at Waihou Bay (Figure 2).

An average of 0.47 SBT (SD 0.893) were caught per boat day from surveys in 2024 (Figure 3). The highest daily catch rate in 2024 was 0.97 SBT per trip on 5 July.

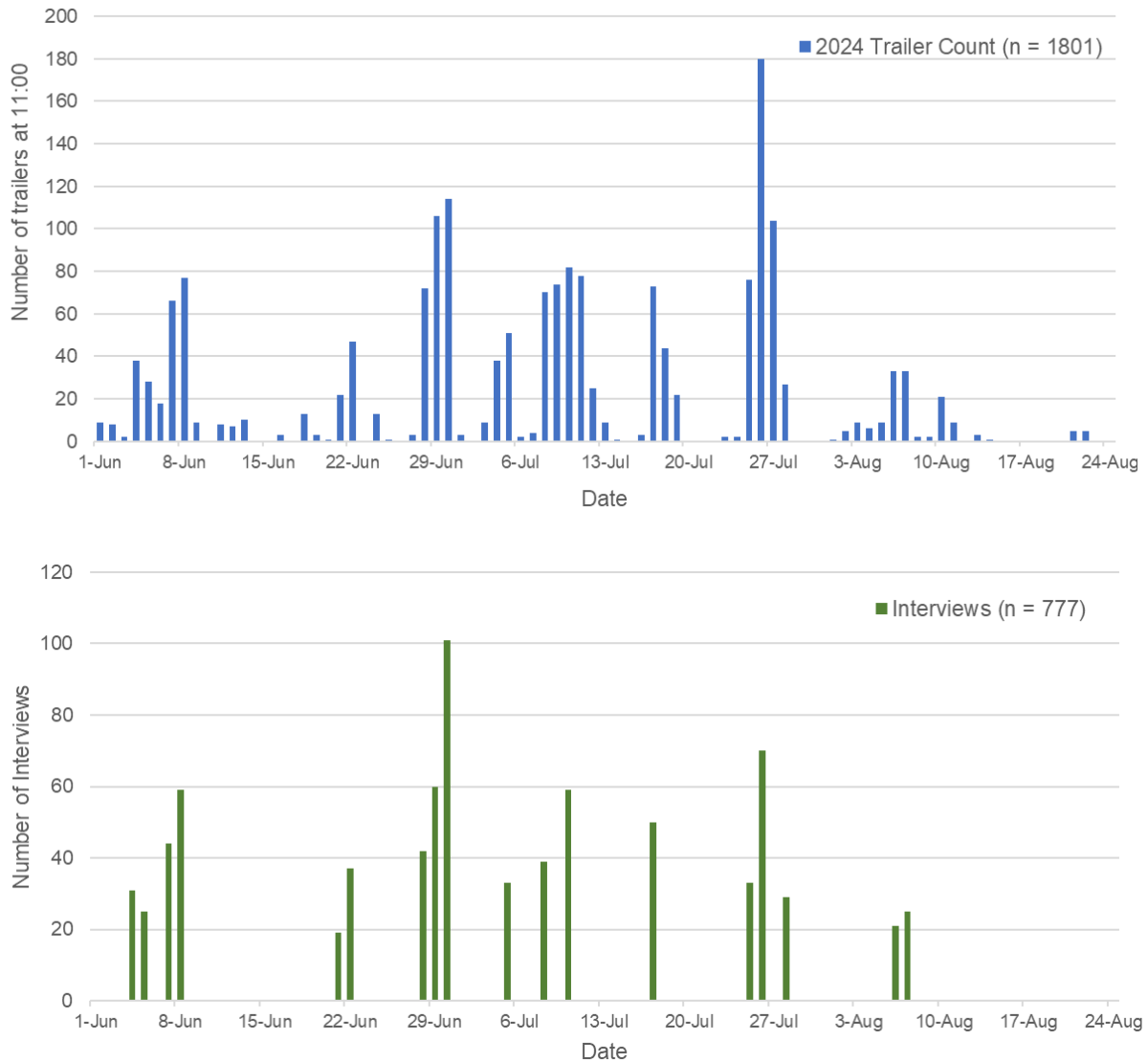


Figure 1: Waihou Bay trailer counts in 2024 by day (top) and number of interviews on survey days and non-survey days at Waihou Bay (bottom).

Table 1: Waihou Bay survey trailer counts, number of interviews, the number and average weight of SBT landed, and the number of otoliths collected, by year.

Year	Trailer count	Survey interviews	Landed SBT survey	Mean weight from interviews (kg)	Otolith samples collected
2018	678	336	34	78.3	32
2019	852	537	118	72.3	80
2020	891	715	267	71.2	90
2021	1 037	699	305	76.1	45
2022	896	595	313	70.2	91
2023	1 204	815	653	46.9	49
2024	1 801	777	341	54.5	15

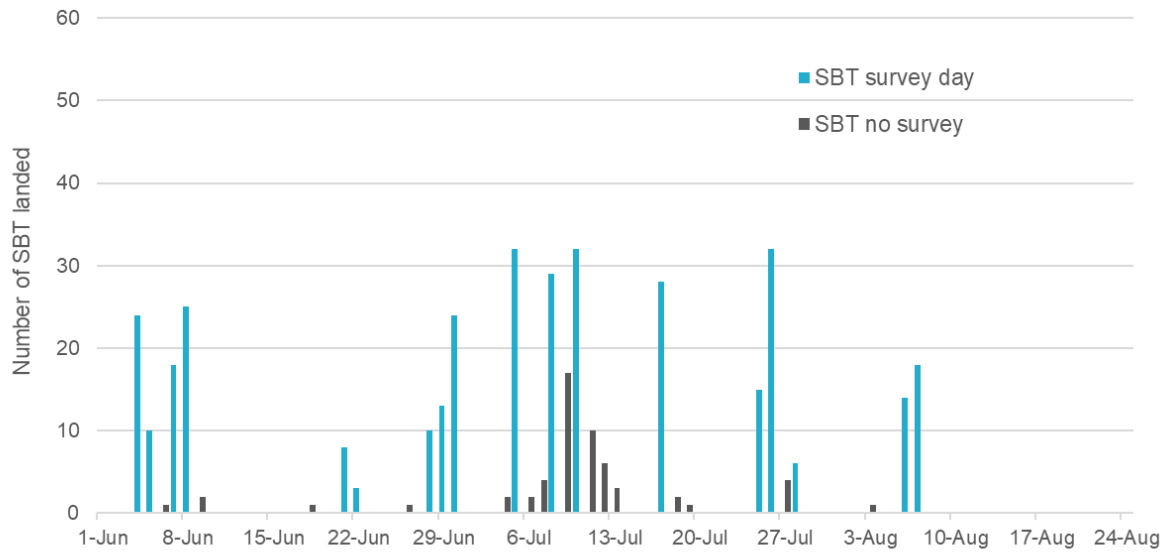


Figure 2: The daily number of landed SBT from survey interviews plus club weigh station observations on non-survey days at Waihou Bay in 2024.

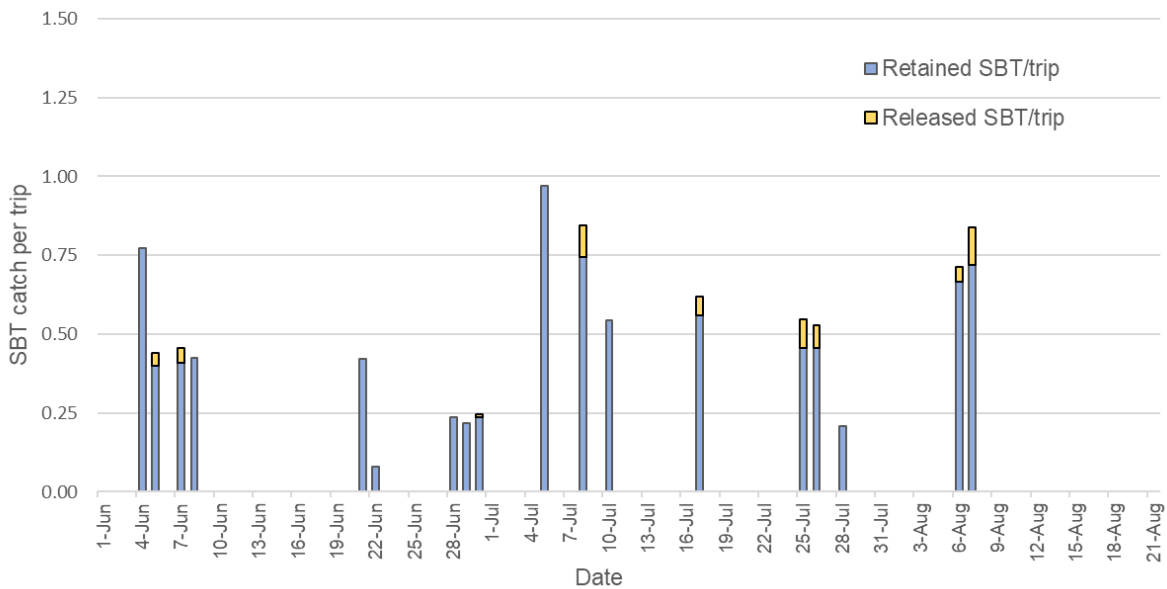


Figure 3: The daily catch rate of landed SBT per trip from the Waihou Bay survey interviews in 2024.

The weight distribution in the 2024 survey shifted to the right compared to 2023, with a lower proportion of SBT in the 20 kg to 40 kg weight bins and more in the 50 kg to 100 kg weight range (Figure 4). The cumulative proportion of weights over the last four years has a higher proportion of landed catch over 60 kg in 2021 and 2022 compared to 2023 and 2024 (Figure 5). A high proportion of SBT landed (83%) had fisher estimated weights that were rounded to 5 kg or 10 kg increments, particularly for smaller SBT. There were few fish over 120 kg (Figure 6).

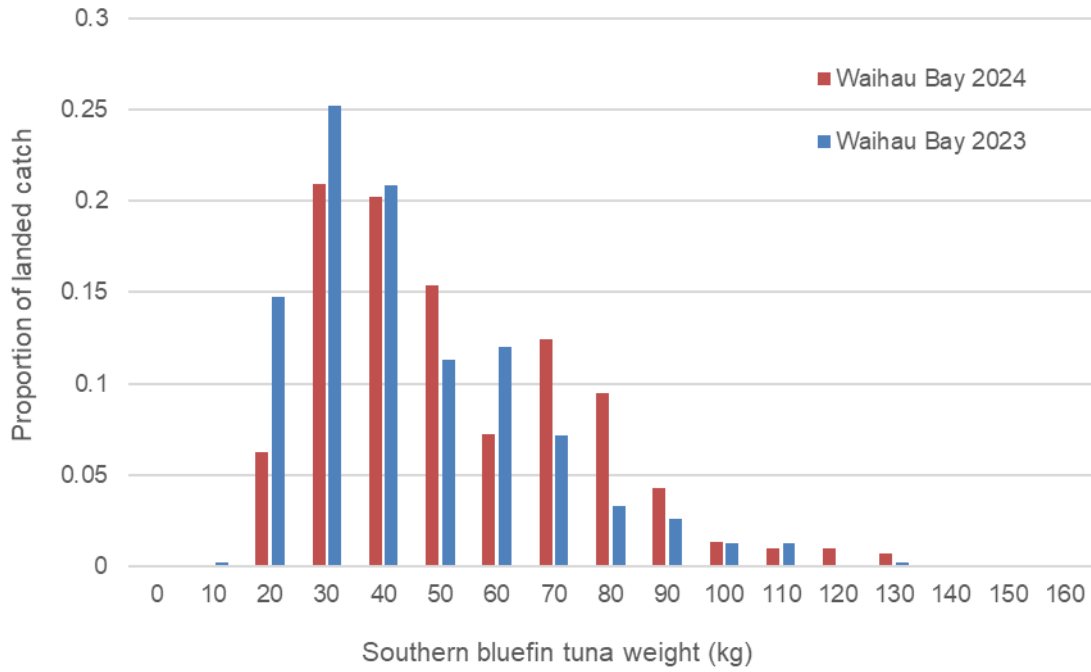


Figure 4: The weight distribution of landed SBT in 2023 and 2024 from Waihou Bay survey interviews.

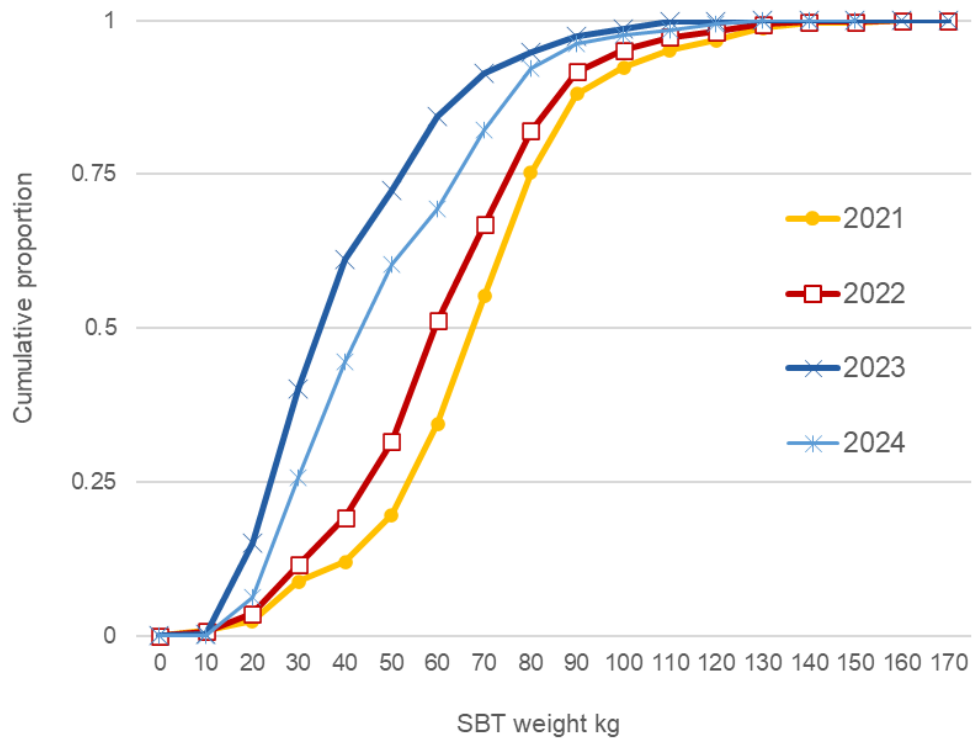


Figure 5: The cumulative proportion of landed SBT weights from Waihou Bay survey interviews by year.

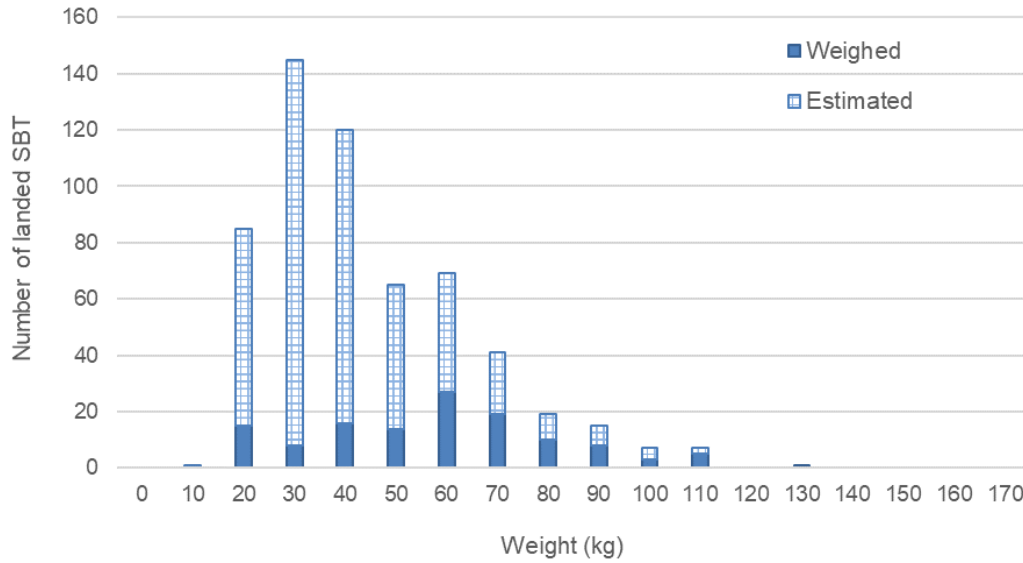


Figure 6: The number of landed SBT by weight estimated and weighed from Waihou Bay survey interviews in 2024.

The on-site survey collected information on the number of SBT landed per trip and the number of unsuccessful trips. In 2024, 71% of crews interviewed at Waihou Bay landed no SBT (Figure 7). This is about the average from previous surveys. The trend in the proportion of unsuccessful trips and average weight from surveyed trips were decreasing prior to 2024 (Table 2). There were 235 individual boat names recorded from the Waihou Bay survey interviews.

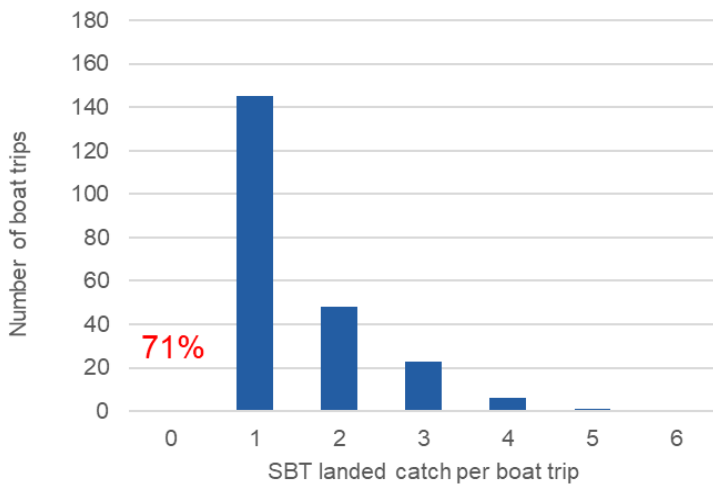


Figure 7: The number of SBT landed per private boat trip (day) in 2024 from on-site survey data and the proportion of trips with zero catch (red).

The total number of SBT landed at Waihou Bay was estimated using survey CPUE and trailer counts to expand the survey data. This assumes that all fishers accurately reported their landed catch when interviewed and that boats returning after dark or on non-survey days had the same average CPUE as surveyed boats. The expanded survey estimate of the landed catch from Waihou Bay in 2024 is 701 SBT (CV 0.057), with an average weight of 54.5 kg (s.d. 24.32). The highest survey number landed was in 2023 as many more small fish were caught than in previous years (Figure 5, Table 2).

Table 2: Waihou Bay fishing success, average catch from all survey interviews, the expanded number of SBT landed at Waihou Bay, and their mean weight by year.

Year	Percentage of trips with no SBT	Average landed SBT per trip	Expanded number of landed SBT	CV	Mean weight	SD
2018	90%	0.10	69	0.106	78.3	19.13
2019	74%	0.22	192	0.075	72.3	20.49
2020	71%	0.37	304	0.015	71.2	23.26
2021	68%	0.44	445	0.023	76.1	24.19
2022	63%	0.53	486	0.045	70.2	21.17
2023	55%	0.80	940	0.031	46.9	20.87
2024	71%	0.44	701	0.057	54.5	24.32
Average	70%	0.41	406		62.2	

3.2 Sport fishing club records

In 2023–24 a total of 55 SBT were recorded landed by sport fishing clubs other than those in the Waihou Bay survey or were reported in online catch reports on the fishcatch.co.nz webpage. Most of these fish were caught in June off Hawkes Bay and Gisborne or in July and August in the Bay of Plenty. The average weight for these fish was 61.1 kg (s.d. 27.07). When fishers first started catching SBT most people wanted to weigh and record their catch. In recent years there has been an increased focus on processing and icing the fish and only the largest fish are weighed whole. The number of SBT weighed by clubs, excluding Waihou Bay, has ranged from 22 to 122 per year. The number recorded in 2024 is below the average from previous survey years of 64 SBT per year. Where there is an overlap between club records and charter vessel records, the number of fish is counted for charter vessels only.

3.3 Survey of South Island fishers

The South Island off-site telephone survey database expanded from 17 boat owners in 2020 to 68 active SBT fishers in 2024 using a variety of sources, including referrals from other fishers. The SBT fishery started in December, earlier than usual, and finished in August with some large fish caught off Hokitika. There were 118 SBT reported landed, with a weight range of 20 to 145 kg and an average of 48.797 kg (s.d. 37.334).

A fishing weekend out of Greymouth was organised for bluefin tuna fishers at the beginning of August 2024. A member of the survey phone panel for this project set up a weigh station using certified scales borrowed from the Pegasus Bay Game Fishing Club in Christchurch. Ten fish weights were recorded averaging 107.8 kg (s.d. 13.44). Over the weekend the organiser estimated that 70 SBT were caught including some fish tagged or just released. Seven landed and two released SBT were reported in phone interviews from eight boats on the Hokitika Trench with an average of estimated weights of 100 kg (s.d. 17.32) for landed fish. This matches the organisers estimated average weight of 100 kg for the fish landed that weekend. Allowing for released fish and overlap with the phone survey, an estimate of 55 SBT at 100 kg was added to the table of South Island landed catch.

3.4 Amateur fishing charter boat records

An extract of SBT catch from amateur fishing charter vessel records from events where southern bluefin tuna or Pacific bluefin tuna were targeted or caught was provided by Fisheries New Zealand (Table 3).

The South Island charter vessels reported retaining 25 SBT in 2024, which is significantly less than the previous 3 years, and the average weight of retained SBT was 32.63 kg (s.d. 31.747). Catch of SBT was spread from January to June, with the largest fish caught at the end of June.

The charter fishing effort off the North Island is mainly off Cape Runaway in the eastern Bay of Plenty. In 2024, fishing started at the end of June and finished in August (Figure 8). In total, 45 SBT were caught off the North Island, with a broad distribution of weights from 25 to 120 kg (Figure 9). The average weight was 59.9 kg (s.d. 27.611), and 7 SBT were released (16% of catch).

The average duration of North Island charter fishing events targeting SBT in 2024 was 10.1 hours (s.d. 1.04), which is longer than in previous years. The retained catch for successful days was mostly 1 to 3 SBT (92%), with just two days with four or more fish retained. The average duration of South Island charter events was 1.3 hours (s.d. 0.99), which is the same as in 2023.

Table 3: Southern bluefin tuna effort and catch from amateur fishing charter vessel logbooks by year (including trailer boats fishing from Waihou Bay).

	Days with SBT target	Number of SBT caught	Number of SBT retained	Estimated landed weight (kg)
2010–11	1	6	4	397
2011–12	4	6	4	131
2012–13	7	12	12	550
2013–14	0	0	–	–
2014–15	16	6	2	95
2015–16	33	38	37	1 267
2016–17	53	54	52	2 274
2017–18	37	12	12	597
2018–19	63	47	42	1 821
2019–20	125	225	153	10 884
2020–21	102	208	149	9 079
2021–22	150	331	249	5 917
2022–23	70	146	108	4 361
2023–24	43	70	63	3 093

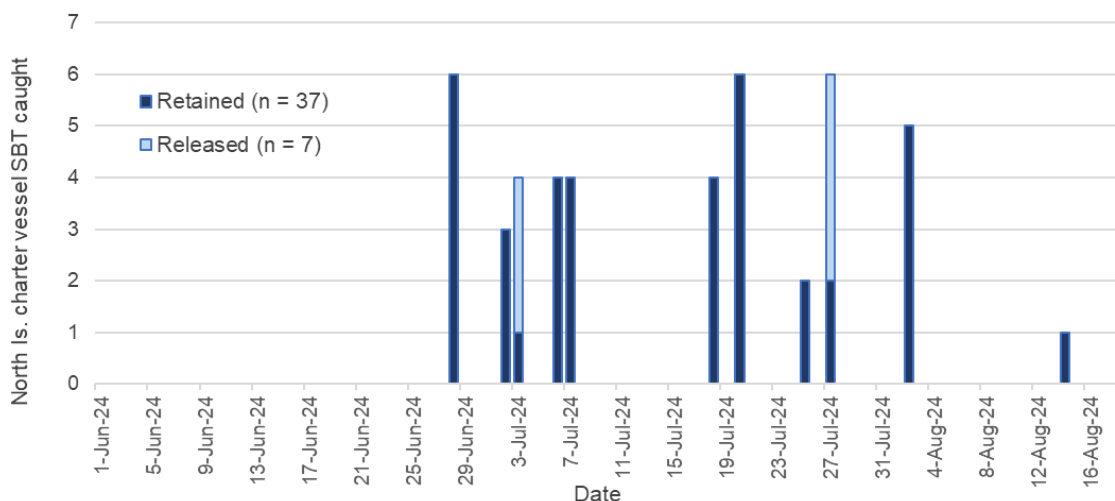


Figure 8: The number of SBT retained or released from charter vessels by day in the North.

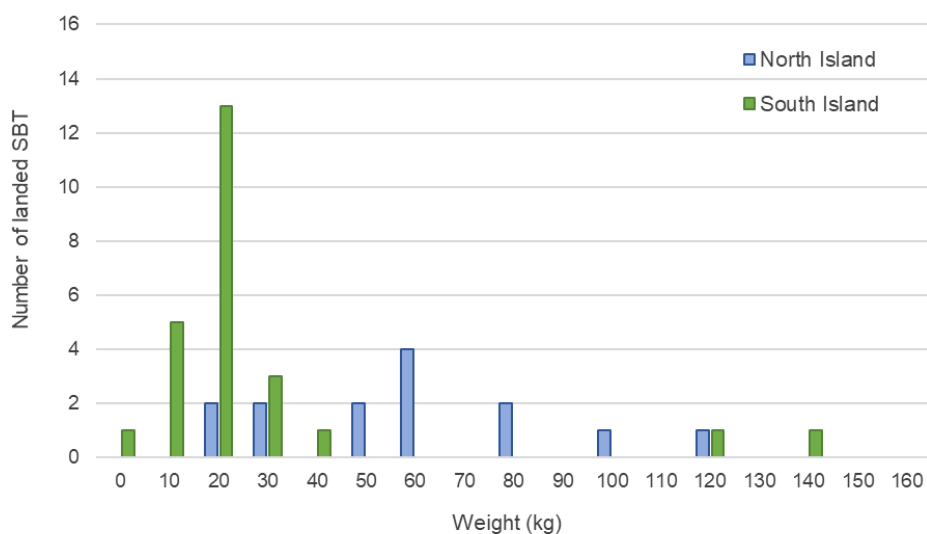


Figure 9: The number of retained SBT with weights by amateur fishing charter vessels from the North Island and the South Island in 2024.

3.5 Section 111 landings

Southern bluefin tuna caught by commercial fishers and retained as recreational catch under section 111 of the Fisheries Act are recorded on statutory reporting forms. In the 2023–24 October fishing year, the reported section 111 landings totalled 1.65 t (Table 4).

Table 4: Recreational catch retained by fishers on commercial vessels under a section 111 approval.

Fishing year	Greenweight kg	Fishing year	Greenweight kg
2014–15	672	2019–20	671
2015–16	661	2020–21	879
2016–17	1 038	2021–22	2 709
2017–18	507	2022–23	1 099
2018–19	454	2023–24	1 646

3.6 Recreational harvest estimate for southern bluefin tuna in 2023–24

The total landed catch from the on-site survey at Waihou Bay, the sum of actual weights recorded by other North Island clubs, the number and average estimated weight from charter vessel logbooks, the sum of the weights from the South Island survey, plus the non-commercial catch on commercial vessels sum to a national estimate of recreational SBT catch in 2023–24 of 57.6 t (Table 5).

In addition, an allowance is made for unaccounted landed catch, which is mostly fish not landed at Waihou Bay and not weighed at a club on return to port. As was the case in previous years, an estimate of 15% to 30% for unaccounted landed catch has been made; this gives a range of 65.5 t to 73.5 t of SBT and a point estimate recreational SBT harvest in 2023–24 of 69.5 t (Table 5).

Typically, no recreational SBT catch is reported between 1 October and 31 December each year. Information in this report is therefore effectively the same as for the 2024 calendar year.

Table 5: Recreational harvest estimates for 2023–24 from available sources with an allowance for estimated unaccounted catch of 22.5% and range of 15% to 30%.

Source	Harvest #	Mean wt (kg)	Harvest wt (t)
North Island			
Waihou Bay Survey	701 (CV 0.057)	54.546	38.24
Other club catch	55	61.107	3.36
Charter vessel	38	59.929	2.28
South Island			
Phone survey	118	48.797	5.76
Charter vessel	25	32.625	0.82
Greymouth data	55	100.0	5.50
National			
section 111	?		1.65
Total	992		57.60
Plus unaccounted catch			
Low estimate 15%	1343		65.5
High estimate 30%	1510		73.5
Point estimate	1426		69.5

3.7 Biological data

A total of 15 usable otolith pairs were extracted from southern bluefin tuna intercepted during the Waihou Bay survey in 2024. The weight range of these fish was 20 kg to 119.2 kg with fork lengths ranging from 95 to 178 cm. Measurements were made with the fish on top of a measuring mat or with the fish hanging at the club weigh station.

Interviewers collected 44 paired measurements of tail fork to the end of the lower jaw (fork length) and anal fin to end of the lower jaw (anal length, straight line and curved). The resulting linear

regressions will be used to update the current conversion factor for SBT that are landed without a tail by commercial fishers (Figure 10, Appendix 2), once more data are available.

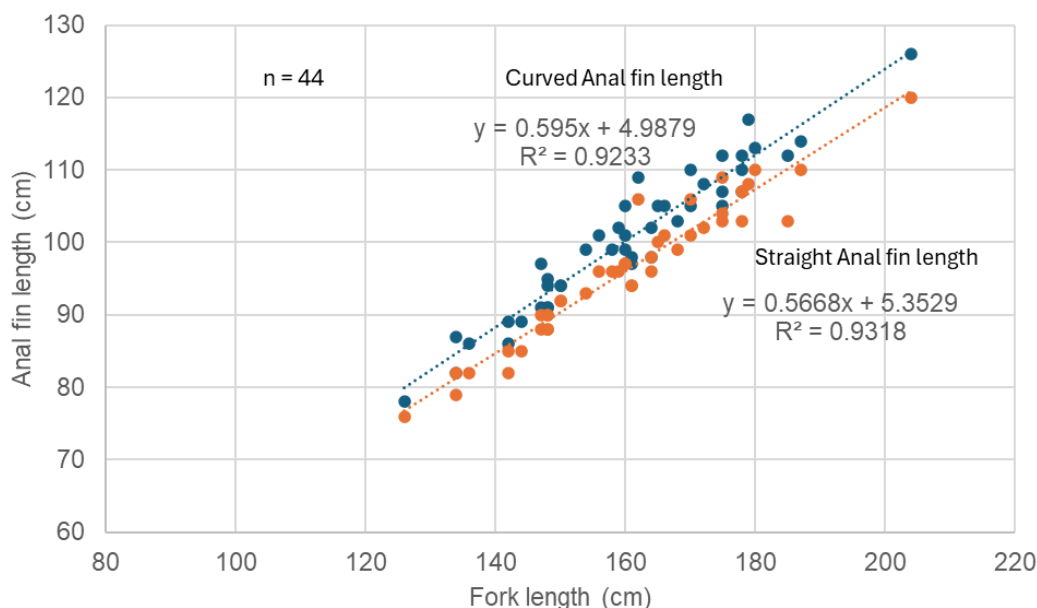


Figure 10: Southern bluefin tuna anal fin to end of the lower jaw length by fork length measurements.

4. DISCUSSION.

This is the seventh dedicated project to estimate the annual recreational harvest of southern bluefin tuna in New Zealand. From the 1970s until 2016, the recreational catch was almost all from the South Island’s west coast, and total landings were assumed to be relatively small. Charter vessels taking recreational fishers on fishing trips have been required to report the number and individual weights of retained SBT caught since 2010. However, prior to 2015–16, the annual charter boat reported catch was fewer than 15 fish per year and NZSFC catch recorded by clubs was fewer than 10 fish per year.

The North Island recreational fishery developed rapidly in June and July of 2017 after reports of high catch rates of large SBT within range of recreational fishers off Cape Runaway. In 2018 the Waihou Bay survey recorded 34 landed SBT with an average catch rate of 0.10 per trip. Since then surveyed catch rates have increased. The 2023 survey recorded high catch rates and more SBT landed than previous years, while the average weight was 33% less than in 2022 (Table 1) (Holdsworth 2024). The 2024 Waihou Bay survey recorded increased fishing effort with the trailer count for all days during the fishing season 33% higher than in 2023. This was in part due to a regular series of fishable weather windows from late June to August. The average weight of 54.5 kg was heavier than in 2023 but remained low compared with the average weight from the first five survey years of 73.6 kg.

Catch per boat trip is used as the measure of effort in this survey as it aligns with the daily trailer count. The average SBT catch rate per trip per year increased each year from 2018 to 2023. The 2024 catch rate of landed SBT per interviewed boat (0.44 SBT per boat day) was lower than in 2023, which had a much higher catch rate and proportion of successful trips than average (Table 2).

The recreational fishery out of Waihou Bay mainly operates off the edge of the continental shelf, within 30 nautical miles of the coast. Some surface longline vessels fish in this area but the commercial fishery extends out to the Rumble Seamounts 100 nautical miles or more offshore. The availability of SBT within range of recreational fishers in trailer boats varies from year to year.

In July 2024 there were reports of higher catch rates of SBT off Cape Runaway by fishers dropping knife jigs down to depths where fish were feeding at night. This resulted in a new phenomenon of more crews fishing at night and returning after dark or the next morning towards the end of the 2024 season. On some days, multiple catches per boat were reported with many of the fish released. Boats returning late at night or early the next morning were included in the survey if their trailer was present during the 11:00 am count. It is unknown how many boats launch in the afternoon and return before 11:00 am. Given the high overall trailer count in 2024 the proportion of trips missed is unlikely to be high. An adjustment to the survey method could be trialed in 2025 to collect data on night fishing trip duration and catch rates using a combination of coast guard radio reports and online reporting.

As in 2023, sport fishers were catching a few SBT off Hawkes Bay and Gisborne in May and June 2024 and fishers in the western Bay of Plenty occasionally found and landed SBT. Previously, there had been small numbers of SBT caught off the east coast of the South Island. The South Island phone survey and social media posts recorded SBT catches off Otago, Kaikōura and Greymouth in 2024. Information on the increased fishing effort and good catch rates of SBT on the Hokitika Trench in August has been included in this year's harvest estimate. Options for increasing survey coverage in the South Island will be explored for 2025.

The off-site telephone survey continues to have a good response from participants and is worth continuing and expanding. In April 2021 a catch reporting web page was added to the gamefish tagging site www.fishcatch.co.nz. The availability of this option for reporting landed or released SBT was included in a number of posts online, but uptake remains modest, with 4 reports received in 2023 and 12 in 2024 that were not included in other data sources.

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) funds the stock assessments for SBT and sets management targets, an international TAC, and annual country allocations for much of the international catch. In 2023, the CCSBT increased the international TAC for 2024 based on the results of their management procedure. Overall, SBT abundance is predicted to increase to 30% of Total Reproductive Output by 2035 (Anon 2023). The increase in the numbers of juvenile SBT caught in New Zealand in the last two years could indicate a period of good recruitment and the availability of SBT to recreational fishers is likely to continue to increase.

5. ACKNOWLEDGEMENTS

Many thanks to Christine Elmiger and the Waihau Bay Sport Fishing Club for their assistance in the planning and implementation of this project. Thanks to the New Zealand Sport Fishing Council and affiliated clubs for their cooperation and for providing weigh station records. Particular thanks to survey interviewers Nicola Hayes and Bill Beckett for their commitment to this project. Many thanks to Harriet and Sally Kemp for collecting and cataloguing the otoliths and Sandra Gaskell for reviewing this report. The design and results for this project were reviewed by the Fisheries New Zealand Highly Migratory Species Working Group chaired by Leyla Knittweis. Fisheries New Zealand provided funding for this work under project STN2021-02.

6. REFERENCES

- Anon. (2023). Report of the Twenty-Eighth Meeting of the Scientific Committee, 1 September 2023. ccsbt.org/en/content/latest-stock-assessment
- Basson, M.; Farley, J.H. (2014). A standardised abundance index from commercial spotting data of southern bluefin tuna (*Thunnus maccoyii*): random effects to the rescue. *PLoS ONE* 9(12): e116245. doi.org/10.1371/journal.pone.0116245
- Bestley, S.; Patterson, T.A.; Hindell, M.A.; Gunn, J.S. (2010). Predicting feeding success in a migratory predator: integrating telemetry, environment, and modelling techniques. *Ecology* 91: 2373–2384.
- Farley, J.H.; Davis, T.L.O. (1998). Reproductive dynamics of southern bluefin tuna, *Thunnus maccoyii*. *Fisheries Bulletin* 96: 223–236.
- Fisheries New Zealand (2024). *Fisheries Assessment Plenary, November 2024: stock assessments and stock status*. Compiled by the Fisheries Science Team, Fisheries New Zealand, Wellington, New Zealand. 697 p.
- Griffiths, S.P. (2012). Recreational catch composition, catch rates, effort and expenditure in a specialised land-based pelagic game fish fishery. *Fisheries Research* 127–128: 40–44.
- Gunn, J.S.; Clear, N.P.; Carter, T.I.; Rees, A.J.; Stanley, C.A.; Farley, J.H.; Kalish, J.M. (2008). Age and growth in southern bluefin tuna, *Thunnus maccoyii* (Castelnau): direct estimation from otoliths, scales and vertebrae. *Fisheries Research* 92: 207–220.
- Hartill, B.; Holdsworth, J.C.; Bian, R. (2020). Review of Amateur Fishing Charter Vessel reporting and characterisation. *New Zealand Fisheries Assessment Report 2020/15*. 41 p.
- Heinemann, A.; Gray, A. (2010). Using Snowball Survey techniques to capture amateur harvest estimate data in niche fisheries. Project MAF/2009/02. (Unpublished report held by Fisheries New Zealand, Wellington.)
- Holdsworth, J.C. (2019). Recreational harvest of southern bluefin tuna in New Zealand, 2017–18. *New Zealand Fisheries Assessment Report 2019/08*. 17 p.
- Holdsworth, J.C. (2024). Recreational harvest of southern bluefin tuna in New Zealand, 2022–23. *New Zealand Fisheries Assessment Report 2024/21*. 18 p.
- Marquand, D. (1978). Kiwis discover Fiordland game fish. *Modern Fishing*. September 1978 issue.
- Moore, A.; Hall, K.; Khageswor, G.; Tracey, S.; Hansen, S.; Stobutzki, I.; Ward, P.; Andrews, J.; Nicol, S.; Brown, P. (2015). Developing robust and cost-effective methods for estimating the national recreational catch of Southern Bluefin Tuna in Australia. *FRDC Project No. 2012/022.20*. 123 p.
- Patterson, T.A.; Evans, K.; Carter, T.I.; Gunn, J.S. (2008). Movement and behaviour of large southern bluefin tuna (*Thunnus maccoyii*) in the Australian region determined using pop-up satellite archival tags. *Fisheries Oceanography* 17: 352–367.
- Pollock, K.H.; Jones, C.M.; Brown, T.L. (1994). Angler survey methods and their implications in fisheries management. *American Fisheries Society Special Publication* 25. 371 p.
- Wynne-Jones, J.; Gray, A.; Hill, L.; Heinemann, A. (2014). National Panel Survey of Marine Recreational Fishers 2011–12: Harvest Estimates. *New Zealand Fisheries Assessment Report 2014/67*. 139 p.

7. APPENDIX 1

Table A1: Waihou Bay creel survey trailer counts, number of interviews, and SBT landed by day. Total landed SBT including Waihou Bay Sport Fishing Club weigh station records by fishers using Waihou Bay boat ramp. Survey days in bold.

Date	Trailer count	Survey interviews	Landed SBT survey	Date	Trailer count	Survey interviews	Landed SBT survey
1/06/2024	9		0	14/07/2024	1		0
2/06/2024	8		0	15/07/2024	0		0
3/06/2024	2		0	16/07/2024	3		0
4/06/2024	38	31	24	17/07/2024	73	50	28
5/06/2024	28	25	10	18/07/2024	44		0
6/06/2024	18		0	19/07/2024	22		0
7/06/2024	66	44	18	20/07/2024	0		0
8/06/2024	77	59	25	21/07/2024	0		0
9/06/2024	9		0	22/07/2024	0		0
10/06/2024	0		0	23/07/2024	2		0
11/06/2024	8		0	24/07/2024	2		0
12/06/2024	7		0	25/07/2024	76	33	15
13/06/2024	10		0	26/07/2024	180	70	32
14/06/2024	0		0	27/07/2024	104		0
15/06/2024	0		0	28/07/2024	27	29	6
16/06/2024	3		0	29/07/2024	0		0
17/06/2024	0		0	30/07/2024	0		0
18/06/2024	13		0	31/07/2024	0		0
19/06/2024	3		0	1/08/2024	1		0
20/06/2024	1		0	2/08/2024	5		0
21/06/2024	22	19	8	3/08/2024	9		0
22/06/2024	47	37	3	4/08/2024	6		0
23/06/2024	0		0	5/08/2024	9		0
24/06/2024	13		0	6/08/2024	33	21	14
25/06/2024	1		0	7/08/2024	33	25	18
26/06/2024	0		0	8/08/2024	2		0
27/06/2024	3		0	9/08/2024	2		0
28/06/2024	72	42	10	10/08/2024	21		0
29/06/2024	106	60	13	11/08/2024	9		0
30/06/2024	114	101	24	12/08/2024	0		0
1/07/2024	3		0	13/08/2024	3		0
2/07/2024	0		0	14/08/2024	1		0
3/07/2024	9		0	15/08/2024	0		0
4/07/2024	38		0	16/08/2024	0		0
5/07/2024	51	33	32	17/08/2024	0		0
6/07/2024	2		0	18/08/2024	0		0
7/07/2024	4		0	19/08/2024	0		0
8/07/2024	70	39	29	20/08/2024	0		0
9/07/2024	74		0	21/08/2024	5		0
10/07/2024	82	59	32	22/08/2024	5		0
11/07/2024	78		0	23/08/2024	0		0
12/07/2024	25		0	24/08/2024	0		0
13/07/2024	9		0	25/08/2024	0		0
				Total	1 792	777	341

8. APPENDIX 2

Table A2: Southern Bluefin tuna length and weight data including anal fin to lower jaw measurements.

Fork length (cm)	Curved anal fin length (cm)	Straight anal fin length (cm)	Weight (kg)
126	78	76	30.2
134	87	82	44
134	82	79	46.6
136	86	82	45.2
142	86	82	50
142	89	85	49.8
144	89	85	54
147	91	88	55.6
147	97	90	
148	91	88	64
148	95	90	
148	94	90	58.2
148	91	88	64
150	94	92	54.6
150	94	92	54.4
154	99	93	59.8
156	101	96	61
158	99	96	59.8
159	102	96	78.4
160	101	97	60.4
160	105	97	80.4
160	99	97	80.6
161	97	94	71.6
161	98	94	84.6
162	109	106	75.4
164	102	98	80
164	98	96	77.6
165	105	100	80.8
166	105	101	93
168	103	99	90.6
170	110	106	87.6
170	105	101	81.2
172	108	102	
175	105	103	96.2
175	112	109	81.2
175	107	104	103
178	112	107	97
178	107	103	87.4
178	110	107	119.2
179	117	108	
180	113	110	79.6
185	112	103	115.2
187	114	110	104.4
204	126	120	138