



Fisheries New Zealand

Tini a Tangaroa

Annual Review Report

For Highly Migratory Species Fisheries 2018/19

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Overview

The Annual Review Report for Highly Migratory Species Fisheries 2018/19 (Annual Review Report) reviews the delivery of management initiatives specified in the Annual Operational Plan for Highly Migratory Species Fisheries 2018/19 (Annual Operational Plan). The Annual Review Report also reviews overall performance of highly migratory species (HMS) fisheries in relation to some of the wider highly migratory species management objectives.

The Annual Operational Plan for 2018/19 ran from 1 July 2018 to 30 June 2019. This Annual Review Report will review the delivery of tasks during the timeframe of the Annual Operational Plan, and over the 2017/18 fishing year, or earlier years if the data is not yet available.

The Annual Operational Plan for 2018/19 identified tasks under Key Focus Areas and Business as Usual items, which were designed to contribute towards the 12 Management Objectives defined in the National Fisheries Plan for Highly Migratory Species 2010:

Use outcome	1	Promote a viable and profitable tuna fishery in New Zealand
	2	Maintain / enhance world class game fisheries in New Zealand fisheries waters
	3	Deliver fair opportunities for access to HMS fisheries
	4	Minimise wastage and promote humane treatment
	5	Maori interests (including customary, commercial, recreational, and environmental) are enhanced
Environmental outcome	6	Maintain a sustainable fishery for HMS within environmental standards
	7	Implement an ecosystem approach to fisheries management, taking into account associated and dependent species
	8	Protect, maintain and enhance fisheries habitat
	9	Allow for HMS aquaculture development, while ensuring the ecosystem and wild fisheries are protected
Governance conditions	10	Recognise and provide for Deed of Settlement obligations
	11	Influence international fora and ensure New Zealand interests are taken into account
	12	Maintain an effective fisheries management regime

The National Fisheries Plan for Highly Migratory Species 2010 was updated in May 2019. The National Fisheries Plan for Highly Migratory Species 2019 and its Management Objectives will drive future Annual Operational Plans.

Key Focus Areas (KFAs)

KFA 1: MANAGE INTERACTIONS OF HMS FISHERIES WITH SEABIRDS

New Zealand's *National Plan of Action to reduce the incidental catch of seabirds in New Zealand fisheries 2013*¹ (National Plan of Action for Seabirds) sets out goals and objectives for the conservation and management of seabirds. The long-term objective of the plan is:

New Zealand seabirds thrive without pressure from fishing related mortalities, New Zealand fishers avoid or mitigate against seabird captures, and New Zealand fisheries are globally recognised as seabird friendly.

The Annual Operational Plan 2018/19 contained a number of management initiatives and tasks to meet objectives contained in the National Plan of Action for Seabirds. These included monitoring of seabird captures and fleet behavior, supporting science related to seabird captures, and advocating for improvements internationally.

Seabird captures

During the 2017/18 fishing year, there were 114 observed captures of seabirds in the surface longline fishery (12.9% observed effort). This figure comprises 104 dead and 10 live releases. This is an increase compared with the 2016/17 fishing year, when 51 seabirds were observed captured (16.5% observed effort). There remains a considerable risk to the high risk species which are captured in the surface longline fishery (**Table 8**). For further information on seabird captures, refer to Seabirds – surface longline fishery (page 32).

Seabird proxy measures

In lieu of capture rates, seabird proxy measures are used to provide an indication of incidental seabird captures in the surface longline fishery. Three proxy measures are used: the level of observed compliance with mitigation measures; the level of self-reporting of non-fish bycatch on observed trips compared with non-observed trips; and vessel adherence to risk management plans.

Observed compliance with mitigation measures

Tori line, line weighing, and night setting use rates on observed sets.

The Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2018 requires that commercial fishers use two out of three prescribed mitigation measures when setting surface longlines:

1. Use tori lines; and
2. *Either:*
 - a. Set lines at night (night setting); or
 - b. Use weighted lines in accordance with prescribed specifications

The following table provides the seabird mitigation use rates in the southern bluefin tuna surface longline fishery, swordfish surface longline fishery, and 'all tunas' surface longline fisheries combined (southern bluefin, bigeye, pacific bluefin, and yellowfin)².

Previously, the information captured as part of observer reporting of line weighing has not been sufficient to report if the snoods were being weighted according to the required specifications, resulting in 0% compliance reporting. The information in **Table 1** implies a level of non-compliance that is likely overstated. The observer reporting was amended, and since July 2018, captures sufficient information to report the use of line weighing.

¹ The review of the National Plan of Action for Seabirds commenced in April 2017, and there is significant input from the multi-stakeholder Seabird Advisory Group, which was established under the last National Plan of Action for Seabirds. A new National Plan of Action for Seabirds is expected to be released in 2019. The current National Plan of Action for Seabirds will remain in effect until the new National Plan of Action for Seabirds is completed.

² The surface longline fishery has been divided into these three groups because different target species can result in different mitigation set-up. For example, surface longline operations targeting swordfish may prefer to day set and use line weighing, compared with surface longline operations targeting southern bluefin tuna, which may prefer to set at night.

Table 1. Observed mitigation use rates (proportion of observed effort with specific mitigation measures) per year and area for the southern bluefin tuna fishery (for effort where southern bluefin tuna was targeted or caught).

Fishing year	Area (CCSBT stratum)	Tori line and night setting	Tori line and line weighting	Tori line, night setting, and line weighting	Tori line only	Night setting only
2016/17	5	90			7	4
	6	99			1	
2017/18	5	69	1	25	1	4
	6	69		31		

Table 2. Observed mitigation use rates (proportion of observed effort with specific mitigation measures) per year and area for swordfish (target effort only).

Fishing year	Area (CCSBT stratum)	Tori line and night setting	Tori line and line weighting	Tori line, night setting, and line weighting	Tori line only	Night setting only
2016/17	5	29			67	
	6	100				
2017/18	5	82			14	4
	6	100				

Table 3. Observed mitigation use rates (proportion of observed effort with specific mitigation measures) per year and area for tuna species (southern bluefin, bigeye, pacific bluefin, and yellowfin) (target only).

Fishing year	Area (CCSBT stratum)	Tori line and night setting	Tori line and line weighting	Tori line, night setting, and line weighting	Tori line only	Night setting only
2016/17	5	93			4	3
	6	99			1	
2017/18	5	73	1	19	4	3
	6	63		37		

Level of self-reporting

Levels of self-reporting of bycatch will be measured using the percentage of trips (observed and unobserved) where non-fish bycatch forms have been filed.

During the 2017/18 fishing year, non-fish bycatch forms were submitted for 4% of non-observed commercial trips³, compared with 37% for observed commercial trips. The low percentage of forms submitted for non-observed trips compared with the high percentage submitted for observed trips suggests a level of underreporting for non-observed trips. Similar differences in reporting have been seen over the last four fishing years, as provided in **Table 4**.

Table 4. Self-reporting of seabird captures on non-fish bycatch forms.

Fishing year	Percentage of observed trips for which non-fish bycatch forms were submitted	Percentage of non-observed trips for which non-fish bycatch forms were submitted
2014/15	35%	6%
2015/16	56%	9%
2016/17 ⁴	32%	3%
2017/18	37%	4%

The difference in observed and non-observed reporting has been raised at the Fish Plan Advisory Group meeting in November 2018, and at the Longline Workshops in November 2018 and May 2019. It was highlighted that reporting seabird captures is a legal requirement and fishers were encouraged to be more diligent in this area.

Vessel adherence to risk management plans

The Protected Species Liaison Officer Programme continues to work with the surface longline fishery. A key output from the programme is assisting vessels in developing risk management plans specific to their operations. From late 2017/18, vessels were audited against their risk management plans when they were observed. The Programme Report contains a table summarising the information documented in the risk management plans and the audit forms. This table is available [here](#) due to its size. The table indicates most adherence with the use of tori lines, night setting, and avoiding using frozen bait. There was less adherence reported with managing fish waste and used bait discharge.

Other management initiatives

During 2018/19, the Seabird Advisory Group began reviewing the National Plan of Action for Seabirds. Members of the HMS Team and the Fish Plan Advisory Group regularly attended and contributed to meetings.

At the Western and Central Pacific Fisheries Commission (WCPFC) meeting in December 2017, the seabird conservation and management measure⁵ was amended. The changes relevant to the New Zealand surface longline fleet were updates to the tori line specifications, which included removing the requirement that swivels be used to attach streamers to the tori line. The HMS Team and the International Fisheries Policy Team worked together on incorporating the changes into New Zealand's domestic legislation. The Fisheries (Seabird Mitigation Measures—Surface Longlines) Circular 2018 came into force on 5 December 2018.

³ There can be multiple commercial trips within an observer trip.

⁴ During the 2016/17 fishing year, there were 60 commercial trips that were observed and 420 commercial trips that were not observed. Of those 60 observed trips, there were 19 non-fish bycatch forms that were submitted, whilst there was 13 non-fish bycatch submitted for the non-observed commercial trips.

⁵ Conservation and management measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds (Conservation and management measures 2015-03)

At the WCPFC meeting in December 2018, New Zealand put forward a proposal to include hook shielding devices⁶ as a standalone seabird mitigation measure, and to require the use of at least one form of mitigation on the high seas between 30 and 25 degrees South. The proposed changes were agreed. Therefore, the HMS Team and the International Fisheries Policy team are again working together on incorporating the changes that will allow hook shielding devices to be used into New Zealand's domestic legislation.

At the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) meeting in October 2018, New Zealand and the European Union jointly prepared a measure for ecologically related species for consideration by members, which was adopted. The adoption of the measure is a milestone for the Commission as it is binding, requiring members and cooperating non-members to ensure their vessels comply with the ecologically related species measures of other tuna regional fisheries management organisations when fishing for southern bluefin tuna. It was also agreed that a meeting of the Ecologically Related Species Working Group would be held in 2019.

During the 2017/18 fishing year, the Department of Conservation's Protected Species Liaison Officer Programme visited vessels operating in the surface longline fleet and helped operators develop and put in place risk management plans. During late 2018, the Programme, with input from the HMS Team, developed audit forms for observers to complete, which assess vessel adherence to their risk management plans.

Fisheries New Zealand led and contributed to the Antipodean Albatross Working Group⁷. During the 2018/19 fishing year, the group continued to develop and use a list of domestic and international actions to guide efforts. Completed domestic actions include the Protected Species Liaison Officer Programme putting in place risk management plans on vessels operating in the surface longline fleet. Completed international actions include antipodean albatross messaging as part of the bilateral meeting with China in September 2018.

At the HMS Longline Workshops in November 2018 and May 2019, Fisheries New Zealand presented information to fishers on seabird capture rates, compliance with seabird mitigation measures, and the update to the seabird mitigation measures. The Protected Species Liaison Officer Programme also presented an update on activities in the surface longline fleet.

The National Plan of Action for Seabirds is based on a risk assessment approach to identify and manage seabird interactions with commercial fisheries. As many of New Zealand's endemic seabird species migrate widely and interact with a wide range of fisheries internationally, the Southern Hemisphere Risk Assessment has been developed to extend across the southern hemisphere. The second iteration of the risk assessment has been completed, with collaboration from Japan, South Africa, and Australia. An update was presented to the CCSBT ecologically related species working group in May 2019.

Through its Pacific Memorandum of Understanding team, the Ministry for Primary Industries engages with Pacific Island Countries and territories providing support to ensure international obligations are met. This support includes developing national governance approaches such as National Plan of Action for Seabirds and amendments to licensing conditions.

During 2018/19 financial year, Fisheries New Zealand engaged with recreational fishers through the Wellington Boat Show, the Hutchwilco New Zealand Boat Show, and the Auckland On-water Boat Show. At the last two events, Fisheries New Zealand shared a stand with the Southern Seabirds Solutions Trust. At each event Fisheries New Zealand provided copies of the Responsible Fishing Guide that details safe methods to deal with seabirds that have been caught on hooks and on line.

The National Institute of Water and Atmospheric Research continues to undertake boat ramp surveys in and around the Auckland area in which, information on seabird captures is requested. The National Panel Survey 2017-2018 will have an exit survey that incorporates questions on seabird captures. We expect this information to be reported back by mid-2019.

⁶ During July 2017, hook shielding devices were trialled as a seabird mitigation device in the surface longline fishery. The trial used hookpod-minis, which encase the hook until a certain depth when the hook is then released. The conclusions of the trial suggested that the use of hookpod-minis is operationally feasible and an effective seabird bycatch mitigation measure.

⁷ The Antipodean Albatross Working Group was set up in 2017 to address concerns that, based on recent research, the antipodean albatross will be functionally extinct within 20 years. The objective of the group is to investigate the declining population and determine what actions are needed to remedy it. Members of the group include HMS team members, DOC, the Ministry of Foreign Affairs and Trade (MFAT), industry representatives, environmental non-governmental organisations (eNGOs), and National Institute of Water and Atmospheric Research (NIWA).

KFA 2: CONTRIBUTE TO INTERNATIONAL PROCESSES THROUGH REGIONAL FISHERIES MANAGEMENT ORGANISATIONS

New Zealand is a member of the CCSBT and the WCPFC. As a member of these regional fisheries management organisations, the HMS Team and the International Fisheries Policy team have a number of commitments, including preparing for annual meetings, ensuring obligations are upheld, and proposing changes.

Over the course of the 2018/19 financial year, officials from the HMS team, International Fisheries Policy team, Fisheries Compliance team, and Fisheries Science team attended several meetings for these regional fisheries management organisations.

Prior to these meetings, consultations took place to inform domestic stakeholders on international management issues and to allow for input into New Zealand's negotiation positions.

The Commission for the Conservation of Southern Bluefin Tuna

Fisheries New Zealand administers the CCSBT Catch Documentation Scheme and authorised vessel list, prepares and submits fisheries data, and prepares for and attends annual meetings.

CCSBT meetings that were attended by New Zealand officials during the 2018/19 fishing year were:

- Twenty Third Meeting of the Scientific Committee, 3-8 September, 2018
- Thirteenth Meeting of the Compliance Committee, 11-13 October, 2018
- Twenty Fifth Annual Meeting of the Commission, 15-18 October, 2018
- The meetings of the Ecologically Related Species Working Group, 28-31 May, 2019

The main focus of the Scientific Committee was on the development of a new management procedure, which is the mechanism that guides the setting of the global total allowable catch. Key recommendations from the Scientific Committee meeting included the recommendation that the global total allowable catch for 2019 remain at 17,647 tonnes. There were no exceptional circumstances that required the 2019 total allowable catch to be revised.

Key recommendations from the Compliance Committee included the establishment of a Technical Compliance Working Group based on the proposal put forward by New Zealand. The Working Group will provide advice to the Compliance Committee on compliance issues of a technical nature, and meet immediately prior to next year's Compliance Committee meeting.

A revised annual report template was also adopted, which captures information on all sources of southern bluefin tuna mortality. Further changes to reporting will also be considered in the year ahead and New Zealand has offered to lead a small e-working group to progress this work.

At the Commission meeting, there was agreement to fund independent experts in tuna farm analysis and tuna market analysis to support the Scientific Committee meeting in 2019 in order to address the issues surrounding potential underreporting by Australia and Japan. Progress on this work will influence New Zealand's position at next year's Commission meeting and its willingness to support a revised Management Procedure for the stock.

Also at the Commission meeting, the joint New Zealand and European Union proposed measure for ecologically related species was adopted, and it was agreed that a meeting of the Ecologically Related Species Working Group would be held in 2019.

Key advice from the Ecologically Related Species Working Group meeting included the agreement on the method for evaluating risk to seabirds from longline fishing, which will include analysis to identify high risk areas for seabirds. New Zealand, with collaboration from other members, had lead the update of the risk assessment, and the analysis for identifying high risk areas.

The Western and Central Pacific Fisheries Commission

WCPFC meetings that were attended by New Zealand officials during the 2018/19 fishing year were:

- Intersessional Electronic Reporting and Electronic Monitoring working group, 6-7 August 2018
- Regular Session of the Scientific Committee, 8-16 August 2018
- Compliance Monitoring Scheme Intersessional Working Group, 25 September 2018
- Technical and Compliance Committee, 26 September-2 October 2018
- WCPFC Fish Aggregation Device Management Options Intersessional Working Group, 3 October 2018
- Annual WCPFC Commission Meeting, 9-14 December 2018
- A number of Pacific Islands Forum Fisheries Agency meetings throughout the year.

Work at WCPFC this year primarily focused on labour standards for crew on fishing vessels, the compliance monitoring scheme, seabird bycatch mitigation, a target reference point for south Pacific albacore, and the tropical tuna measure.

The adoption of a resolution to improve labour conditions on fishing vessels at the Commission was of global significance. The WCPFC is now the first regional fisheries management organisation to adopt guiding standards to improve crewing conditions on fishing vessels. A proposal initiated by New Zealand was submitted to the WCPFC as a Forum Fisheries Agency (FFA) proposal.

Consensus was reached on a new compliance monitoring scheme, which retained parts of the existing scheme, with the condition that new processes and technology could be developed intersessionally before WCPFC in 2019.

At the Commission, New Zealand's proposal to amend the existing measure on seabirds was adopted. The amendments included provisions for the use of hook-shielding devices as an alternative, stand-alone seabird mitigation measure, and a requirement to use at least one form of mitigation on the high seas between 30°S and 25°S.

Negotiations at the Commission meeting also resulted in a consensus target reference point for south Pacific albacore. Members settled on the objective of achieving an eight percent increase in longline catch per unit effort in no more than 20 years.

This year, consensus was reached on minor amendments to the conservation and management measure on tropical tuna species (bigeye, yellowfin, and skipjack). The amendment included delaying decisions on limits and allocations for the high seas purse seine fishery to the 2020 Commission meeting; requiring use of non-entangling FADs from 1 January; and the application of a new definition of Fish Aggregating Devices (FADs) for 2019⁸.

Another ongoing issue was a 2018 intersessional working group, which consolidated the existing five conservation and management measures on shark management into one measure. At Commission, members discussed the draft (produced following extensive intersessional work) and consensus was reached on the draft with the exception of the amended provisions relating to "full utilisation" (i.e. how the ban on shark finning is implemented). Further work on this measure continues throughout 2019 to finalise a new conservation and management measure for sharks, using the draft consolidated measure and a Japanese proposal as a starting point for this discussion.

There was a new measure around sea turtle protection, applying to 'shallow set' surface longline fisheries.

⁸ Any set where small amounts of plastic or small garbage that do not have a tracking buoy attached are detected shall not be considered to be a FAD set for the purposes of the FAD closure. This shall apply in 2019 only and will be reviewed to determine whether it resulted in increased catch of bigeye and small yellowfin tuna.

KFA 3: STRENGTHEN MANAGEMENT OF NON-COMMERCIAL HMS FISHERIES

Customary Fishing

Providing for input and participation of tangata whenua in fisheries management is an important component of the work of the Highly Migratory Species team.

A member of the HMS Team attended the Mai i nga Kuri a Whareki Tihirau Iwi Fisheries Forum (Bay of Plenty) in June 2018 to discuss the 1 October sustainability round implications for southern bluefin tuna and potential recreational management measures for southern bluefin tuna. One Kaitiaki had indicated that members of their iwi had caught southern bluefin tuna recreationally during the 2017 season and were not aware that there was a customary allowance for the species, otherwise they would have used it.

Fisheries New Zealand also invited input and participation from Te Whānau-ā-Apanui, the iwi of the Waihou Bay area, where the majority of effort for southern bluefin tuna recreational fishing occurs. Information to support input and participation was also provided at the Te Waka a Māui me Ōna Toka Iwi Forum (Top of the South Island), the Te Hiku o te Ika Fisheries Forum (FMA 1 & 9), and the Nga Hapu o te Uru Fisheries Forum (Waikato).

Concerns raised at the forums were around the recent allowance and allocation decisions for the stock, primarily that if the recreational allowance was to increase then so too should the customary allowance. There was no recorded take of southern bluefin tuna through customary permits in 2018.

A member of the HMS team supported the customary fisheries team on the MPI/Fisheries New Zealand stall at Te Matatini. Te Matatini is a significant cultural festival and the pinnacle event for Māori performing arts. The purpose of the MPI/Fisheries New Zealand stall was to; allow for kanohi ki kanohi (face-to-face) engagement, promote Fisheries New Zealand activities and functions and showcase Fisheries New Zealand as a career for Māori.

A member of the HMS team attended a wānanga at Omaka Marae, which was hosted by the Customary Fisheries Team. This wānanga was designed to upskill Fisheries Managers. This included workshops on topics such as; treaty settlement obligations, Kaitiakitanga, Kawanatanga and Rangatiratanga, treaty settlement protocols, regional fishing forums, iwi fisheries plans, and Fisheries management strategies for supporting regional fisheries forums.

A member of the HMS team also designed an evaluation questionnaire for the wānanga which was provided to the Customary Fisheries team to use as feedback for future workshops.

An HMS fisheries official attended the Te Hiku o te Ika Fisheries Forum to speak to the group about HMS fisheries.

Throughout the year, the HMS team meets with representatives from Te Ohu Kaimoana to build a positive working relationship and to discuss various matters in HMS fisheries. Te Ohu Kaimoana hosted a workshop which Fisheries New Zealand attended to discuss the 1 October sustainability round 2019.

Recreational Fishing

Recreational catch for southern bluefin tuna has typically been low, no catch was reported in 2014, 1.1 tonne in 2015 and 1.4 tonne in 2016. In 2017, there was a substantial increase in the recreational catch of southern bluefin tuna when a North Island fishery developed around East Cape. Social media posts by commercial fishers, good catch rates, and favourable weather conditions attracted hundreds of anglers to the eastern Bay of Plenty. The estimate for recreational catch was 24.3 tonnes in 2017. An in-season increase saw the recreational allowance increase from 8 tonnes to 20 tonnes, until the end of the 2017/18 fishing year.

Following this substantial increase, Fisheries New Zealand funded a research project in 2018 aimed at estimating the southern bluefin tuna recreational catch. This included a boat ramp survey at Waihou Bay, with other information collected from a variety of sources including; sport fishing club records, authorised recreational take from commercial vessels, amateur charter vessel reporting, and anecdotal

evidence. The project resulted in an estimate of 15 tonnes of southern bluefin tuna landed by recreational fishers in 2018.

Fisheries New Zealand held a pre engagement meeting with representatives from the New Zealand Sports Fishing Council, the New Zealand Recreational Fishing Council, the International Game Fish Association, Te Ohu Kaimoana, Fisheries Inshore New Zealand, and commercial fishers on 10 May 2018. This was to discuss recreational management measures for the southern bluefin tuna fishery, as well as the 1 October 2018 sustainability round, which included a review of the southern bluefin tuna recreational allowance.

Fisheries New Zealand held public consultation on recreational management measures for the southern bluefin tuna fishery and the sustainability round where the southern bluefin tuna total allowable catch, recreational and customary allowances and commercial allocation were being reviewed. This ran from 2 July until 27 July 2018. Two emails were sent to Fisheries New Zealand's recreational mailing list informing them of the consultation. Fisheries New Zealand also consulted using a simple online survey that was shared on various New Zealand Facebook fishing groups, including New Zealand Fishing Community and The Big Game Fishing group.

Fisheries New Zealand held a meeting with representatives from Te Ohu Kaimoana, the New Zealand Sport Fishing Council, and Fisheries Inshore New Zealand on 22 November 2018 to discuss outcomes from the public consultation, the research project and longer term management measures for the recreational fishery.

Following public consultation on the 1 October sustainability round, the Minister of Fisheries increased the recreational allowance from 8 tonnes to 20 tonnes to reflect a likely level of recreational catch given the variability in this fishery.

More recently, the Minister of Fisheries has implemented a recreational bag limit of one southern bluefin tuna per person per day for the recreational fishery by way of Gazette notice under Section 11 of the Fisheries Act 1996. Minister Nash has instructed Fisheries New Zealand to continue to engage stakeholders on longer term management measures for the recreational southern bluefin tuna fishery.

Over the years, there have been some negative interactions between recreational fishers and commercial purse seine fishers fishing in the same areas, particularly during summer months when recreational game fishing effort is at its peak. The HMS team facilitated two meetings between the commercial purse seine sector and the New Zealand Sport Fishing Council, following a request from the New Zealand Sport Fishing Council. A call for better cooperation, communication and regular meetings between the two groups was supported by both parties, with a long term objective of working towards a memorandum of understanding.

Fisheries New Zealand continued to support the monitoring of recreational fisheries for HMS through amateur charter vessel reporting for southern bluefin tuna and voluntary reporting, including through the long-standing gamefish tagging programme and through targeted diary and logbook schemes.

Business As Usual (BAU) tasks

BAU 1: MANAGE INTERACTIONS OF HMS FISHERIES WITH SHARKS

New Zealand's *National Plan of Action for the conservation and management of sharks 2013* (National Plan of Action for Sharks)⁹ sets out goals and objectives for the conservation and management of sharks. The long-term objective of the plan is:

To maintain the biodiversity and the long-term viability of all New Zealand shark populations by recognising their role in marine ecosystems, ensuring that any utilisation of sharks is sustainable, and that New Zealand receives positive recognition internationally for its efforts in shark conservation and management.

Fisheries New Zealand is focused on understanding and managing the interaction of HMS fisheries with sharks. All shark related actions are aligned with the goals of National Plan of Action for Sharks in the following key areas:

- Biodiversity and long-term viability
- Utilisation, waste reduction, and elimination of shark finning
- Domestic engagement and partnership
- Non-fishing threats
- International engagement
- Research and information

Monitoring HMS sharks

Blue sharks

In 2017/18, blue shark total allowable commercial catch remained at 1,860 tonnes. Commercial catch was 143 tonnes, which is a similar level to what has been caught over the last five fishing years (see **Figure 12**).

Porbeagle shark

In 2017/18, porbeagle shark total allowable commercial catch remained at 110 tonnes. Commercial catch reversed the downward trend that had been experienced over the last three fishing years, and increased to 57 tonnes during 2017/18 (see **Figure 14**).

An estimate of the current customary catch is not available. The Maori customary catch of porbeagle shark is probably negligible, because, as mentioned above, they usually occur over the outer continental shelf or beyond.

Mako shark

Historically there was a recreational target fishery for mako shark and they were highly prized as a sport fish. Most mako sharks are now taken as a bycatch while targeting other species. Reported catch has declined since the mid 1990s with many recreational fishers choosing to tag and release.

In 2017/18, mako shark total allowable commercial catch remained at 200 tonnes. Commercial catch was a similar level to the previous fishing years, at 38 tonnes, a new low over the five most recent fishing years (see **Figure 13**).

⁹Available here: <https://fs.fish.govt.nz/Page.aspx?pk=165>

Shark Finning Ban Review

Shark finning, defined as the removal of the fins from a shark and the disposal of the remainder of the shark at sea, was made illegal for commercial fishers in New Zealand from 1 October 2014. Under the ban, fishers are still able to land shark fins, however conditions apply depending on the species concerned. Fins landed must be either:

- 1) Naturally attached, where a portion of the fins must remain uncut from the body (this applies to all non-QMS species and spiny dogfish);
- 2) Artificially attached, where the fins may be removed but must remain with the body of the shark of origin (blue sharks); or
- 3) Subject to a fin ratio, where fins may be landed as a secondary product in a ratio to the green weight of the primary product landed (this applies to elephant fish, ghost shark, pale ghost shark, mako, porbeagle, rig and school sharks).

A further management measure that changed on 1 October 2014 was the ability for fishers to return dead pelagic sharks (mako, porbeagle and blue sharks) to the sea. Fisheries New Zealand is currently reviewing the shark finning ban. Fisheries New Zealand will present the initial outcomes to the Shark Advisory Group in mid-2019.

National Plan of Action for Sharks Review

The National Plan of Action for Sharks 2013 will be reviewed in 2019/20. The review will be led by Fisheries New Zealand with input from the Shark Advisory Group.

International Actions

HMS sharks spend only part of their lives in New Zealand waters and may migrate over considerable distances. New Zealand cooperates with other countries to manage these species via regional fisheries management organisations, including WCPFC and CCSBT and treaties including the Convention on the Conservation of Migratory Species of Wild Animals.

WCPFC

WCPFC continues to work towards the development of a comprehensive approach to shark and ray conservation and management. At the 14th meeting of the WCPFC Commission in December 2017, it was agreed that an Intersessional Working Group be formed to compile the existing conservation and management measures for sharks and develop a single, comprehensive measure for discussion and potential adoption at WCPFC15 in 2018.

The consolidated shark measure developed by the 2018 intersessional working group was not able to be adopted by WCPFC15 due to disagreements on some key issues, including: CCMs' rights to enact compatible or alternative measures within their EEZs; annual reporting requirements relating to the measure; and, most substantially, amended provisions relating to "full utilisation" (i.e. banning the practice of shark finning). Further work on a comprehensive measure for shark management, based on the consolidated measure, should continue intersessionally in 2019. Members will be submitting proposals to be considered at the Technical and Compliance Committee meeting in 2019. New Zealand will participate in discussions at Technical and Compliance Committee meeting and WCPFC in the hope of finalising the measure this year.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS)

CMS is an environmental treaty that provides a global platform for sustainable use and conservation of migratory species and their habitats. New Zealand is also a signatory to the subsidiary agreement to the CMS that is focused on migratory sharks. New Zealand became a Signatory to the Memorandum of Understanding on the Conservation of Migratory Sharks in 2015. The third Meeting of the Signatories took place in December 2018. The primary topic of interest for HMS was a proposed listing of blue shark on the MOU. The blue shark was not listed as a number of members opposed the listing based on the favourable conservation status of blue shark and the range of agreements in place to manage the species.

BAU 2: ENGAGE WITH FISHERY STAKEHOLDERS

Engaging with HMS fisheries stakeholders is an important aspect of business as usual for the HMS team. Engagement with HMS fisheries stakeholders occurs in a variety of ways, through various fora. In 2018/19, the HMS Team engaged with stakeholders via the following:

- Hosted two HMS Fish Plan Advisory Group meetings
- Hosted two Longline Workshops
- Hosted two meetings of the Southern Bluefin Tuna Recreational Management Advisory group
- Lead the Antipodean Albatross Working Group
- Facilitated two meetings between the NZSFC and purse seine representatives
- Attended the Annual General Meeting of the Tuna Management Association
- Attended Iwi fisheries forums, providing early opportunities for tangata whenua to input and participate in fisheries management.
- Held stakeholder pre-meeting consultations prior to attendance at CCSBT and WCPFC regular meetings
- Liaised with the Protected Species Liaison Programme
- Maintained communications with FINZ HMS representative
- Maintained communications with Te Ohu Kaimoana representatives
- Increased reach and engagement with the recreational sector through the recreational mailing list and targeted Facebook posts.
- Held public consultation for four weeks on proposals on southern bluefin tuna total allowable catch and recreational management measures as part of the 1 October sustainability round, where the consultation document was made available on the Fisheries New Zealand website and circulated via email to the HMS stakeholders contact list, the recreational mailing list and Facebook.
- Attended the Marine Amateur Fisheries Working Group meeting

BAU 3: MONITOR COMMERCIAL FISHERIES

Information on HMS fisheries is collected from a variety of sources, including commercial reporting, non-commercial reporting, observer monitoring, and scientific research. Observer data provides the most detailed quantification of catch on a set-by-set basis, and is used for a variety of purposes including as inputs into characterisations and stock assessments. New Zealand also has obligations to WCPFC and CCSBT to provide observer coverage as follows:

- CCSBT: a target of 10% of catch and effort
- WCPFC: 100% coverage for purse seine vessels operating on the high seas between 20° North and 20° South (observers are sourced from the WCPFC regional observer programme); for other methods operating on the high seas, a minimum target of 5% coverage sourced from either the regional observer programme or, if fishing is immediately adjacent to a member's exclusive economic zone (EEZ), the national observer programme.

Fisheries Management works with Observer Services to plan observer coverage. Observer coverage is planned in terms of days required to achieve coverage, for example, of 10% catch and effort. Additional days are allocated for the likes of high risk areas and to take account of shore days. Observer coverage is planned for the financial year due to recovering costs, however this report provides observer coverage information in both financial and fishing years.

During the 2017/18 financial year, domestic observer coverage for HMS fisheries totalled 598 days from 845 planned days. For the surface longline fishery, 526 days were achieved from 745 planned days (Table 15). Representation of this coverage in terms of effort observed by fisheries management area is illustrated in Figure 34 and Figure 35 for the southern bluefin tuna target fishery and the bigeye and swordfish target fishery.

During the 2017/18 fishing year, 17% of effort was observed in the southern bluefin tuna fishery (17% in area 5 (the north island), and 17% in area 6 (the south island)) (Table 16).

Observer coverage in the bigeye and swordfish fishery tends to be constrained by observer availability, given the demand on observers elsewhere (such as the squid fishery) at the start of the calendar year.

Further information on monitoring fisheries is provided in 'Monitoring commercial and non-commercial fisheries' (page 42).

BAU 4: ENSURE HMS COMPLIANCE WITH MANAGEMENT MEASURES

During the 2017/18 fishing year, there were 48 inspections in port of 21 surface longline vessels. There were six HMS related offenses detected. All the offenses were reporting offenses (for example, late submissions or failures to provide records), which resulted in warning and one infringement.

During the 2017/18 fishing year, there were four cases for alleged non-compliance with seabird mitigation measures. All cases resulted in prosecutions.

The seabird proxy measure, level of self-reporting of non-fish bycatch, indicates a significant level of underreporting of seabird captures over the last three fishing years. As mentioned previously, this was raised at the Fish Plan Advisory Group meeting in November 2018, and again at the Longline Workshop in April 2019. It was highlighted that reporting seabird captures is a legal requirement and fishers were encouraged to be more diligent in this area.

CCSBT Catch Documentation Scheme

The CCSBT Secretariat reports country Catch Documentation Scheme compliance statistics to the annual meeting of the CCSBT Compliance Committee. New Zealand's report for the 2017 calendar year¹⁰ is shown in Table 5.

New Zealand's level of compliance with the Catch Documentation Scheme continues to be high, with the main area for improvement being the reduction of duplicate tag numbers submitted. Although there was a considerable decrease from 732 duplicate tags submitted in 2016, to 184 in 2017, New Zealand is still performing well below other members. As of 1 January 2018, the Catch Tagging Form has been electronic. A function of the electronic form is that if a tag number has been used previously, a duplicate input will be highlighted. Although not yet formally reported on, provisional analysis of 2018 data indicate the number of duplicate tags submitted has been reduced.

¹⁰ CCSBT uses calendar year for reporting and given this report was to the Compliance Committee during 2017, 2016 is the latest data on offer.

Table 5. CCSBT Catch Documentation Scheme compliance statistics for the 2017 calendar year

Category	Compliance
% of CMFs for Domestic Landings that contain complete and accurate information	100%
% of CMFs for Exports that contain complete and accurate information	100%
% of CMFs for Domestic Landings where the catch/harvest weight differs from the landed weight by <=5%	100%
% of CMFs for Exports where the catch/harvest weights are the same on both exporter and importer copies	96%
% of CMF for Exports where SBT catch/harvest numbers are the same on both exporter and importer copies	97.5%
% of CMFs with all correctly corresponding CTFs (where required)	100%
% of CTFs where fish numbers exactly match CMF	100%
% of CTFs where fish weights match CMF within 5%	100%
Number of duplicate tag numbers submitting in tagging data	184

Note: 'CMF' is Catch Monitoring Form; 'CTF' is Catch Tagging Form; 'SBT' is southern bluefin tuna.

BAU 5: DEVELOP AND IMPLEMENT HMS RESEARCH PLAN

Research provides important information for input into fisheries management. Planning and implementing research related to HMS fisheries is achieved jointly by the HMS team and the Fisheries Science team at Fisheries New Zealand. This is done with input from the Department of Conservation and stakeholders. See **Table 13 and 14** of this review for a list of proposed and ongoing research projects.

BAU 6: CONTRIBUTE TO THE IMPLEMENTATION OF THE MINISTRY FOR PRIMARY INDUSTRIES' MOU ON PACIFIC CAPACITY DEVELOPMENT

The Ministry for Primary Industries' MoU Programme on Pacific capacity development has re-branded to Te Pātuitanga Ahu Moana a Kiwa (Te Pātui). This new name reflects the importance of partnerships in our work to build capability in Pacific fisheries institutions. Through the Te Pātui programme, New Zealand is uniquely positioned to contribute significantly to securing the long term prosperity of Pacific Island Countries and territories (PICTs). We support PICTs through technical assistance, which develops capacity within their fisheries management and monitoring, control, and surveillance (MCS) frameworks.

In 2018/2019, as in other years, Te Pātui has worked with key resource providers in the Pacific region including, the Pacific Community (SPC) and the Pacific Islands Forum Fisheries Agency (FFA). Maintaining these strategic relationships has ensured coordinated and targeted provision of capacity building assistance to countries with which New Zealand has bilateral arrangements.

In 2018/2019, Te Pātui worked across nine PICTs, with focussed activities in Fiji, Kiribati, Tonga, Tuvalu, and Vanuatu. The Te Pātui team delivered a number of capacity building workshops to PICTs Fisheries Administrations. These workshops focussed on strengthening management systems and frameworks, and were carried out both in-country and as attachments to Fisheries New Zealand.

In Fiji, Te Pātui supported the Fiji Ministry of Fisheries review inshore and offshore fisheries management plans. The team was involved in consultations, analysis of fisheries data, discussing Fiji's development goals for the tuna fishery, as well as paths to implementation. The team provided assistance to Tonga to implement and review management plans for deep-water and marine aquarium fisheries. For the deep-water fisheries, the team is working with Tongan policy staff on key amendments which include a specific Total Allowable Catch (TAC) for flametail snapper, as well as a procedure for monitoring the overall deepwater TAC during the fishing year.

Te Pātui hosted contingents from the Pacific in New Zealand. In December 2018, Tuvalu fisheries officers travelled to Auckland to observe how we manage our coastal fisheries. This group met various teams within MPI and were able to observe fisheries officers on patrol. In September 2018, the team hosted a four fisheries managers from Vanuatu. This visit was to study New Zealand’s approaches to customary fisheries management and monitoring, control, and surveillance. The ni-Vanuatu group travelled to Nelson and Dunedin and observed how Fisheries New Zealand works with Māori communities. This experience was salient for the fisheries managers, especially on how to strengthen customary management in areas where their tradition is weakened.

A contingent from Kiribati (five officers from the Ministry of Fisheries and Marine Resources Development and two fishing industry representatives) were hosted in Wellington to learn about the New Zealand fisheries Quota Management System (QMS). The study tour was part of New Zealand’s support for the Kiribati Government to investigate Catch-based Management for Kiribati fisheries. Participants learned about New Zealand’s 30-year experience with the QMS from Fisheries New Zealand, the wider MPI, Industry, and external consultants, and what is needed for successful implementation.

Additionally, the Ministry for Primary Industries and Fisheries New Zealand focused on ongoing work as advice provider to the Administrator of Tokelau in the establishment of their Fisheries Management Agency; assistance is continuing with the implementation of the new Agency across both fisheries management and MCS activities.

Stock status for HMS species

Table 6. Summary of stock status information for HMS fisheries.

Fishing year	Last assessment	Overfishing occurring	Stock overfished
Albacore tuna	2018	No	No
Bigeye tuna	2018	No	No
Pacific bluefin tuna	2018	Yes	Yes
Skipjack tuna	2016	No	No
Southern bluefin tuna	2017	No	Yes
Striped marlin	2011	No	Maybe
Swordfish	2017	No	No
Yellowfin tuna	2017	No	No

HISTORICAL STOCK STATUS TRAJECTORY AND TUNA STOCKS

Stock assessment updates

All assessments, except southern bluefin tuna, are presented to the Scientific Committee of WCPFC; the dates of the most recent assessment for each key species is shown in **Table 6**. In 2018, stock assessments for bigeye, albacore, Pacific bluefin tuna and silky sharks were updated. Parts of the information below are taken from “The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Fourteenth Regular Session of the Scientific Committee, Busan, South Korea, 8–16 August 2018, SUMMARY REPORT.”

Albacore tuna (assessed 2015)

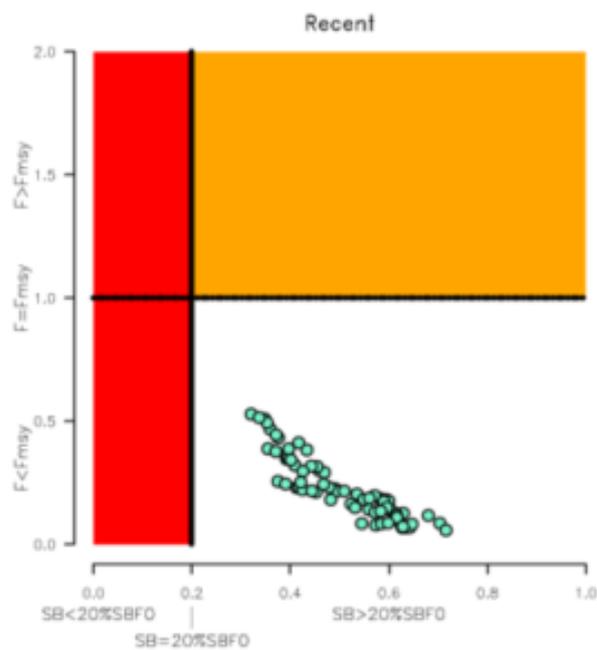


Figure 1. Estimated time-series (or “dynamic”) Majuro plot from the albacore ‘diagnostic case’ model run.

The latest stock assessment for South Pacific albacore tuna (*Thunnus alalunga*) was conducted in 2018. The stock assessment indicates that South Pacific Albacore tuna is not overfished (100% probability) and overfishing is not occurring (100% probability).

The WCPFC Scientific Committee recommended that longline fishing mortality and longline catch be reduced to avoid further decline in the vulnerable biomass, so that economically viable catch rates can be maintained. Total catch in 2017 was 75,707mt, which was a 33% increase from 2016 and a 13% increase over 2012-2016. This was comprised mainly of longline catch of 72,785mt, and troll catch of 2,896 mt.

Bigeye tuna (assessed 2017)

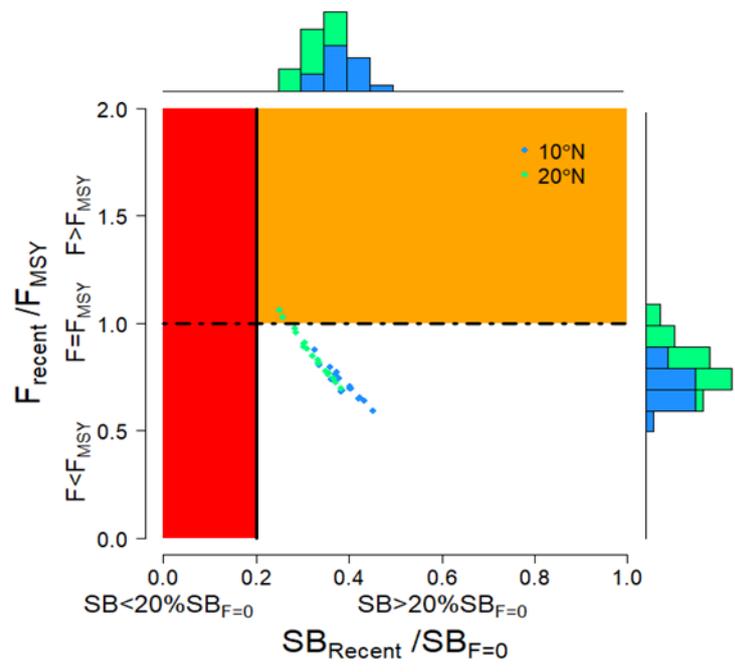


Figure 2. Estimated time-series (or “dynamic”) Majuro plot from the bigeye ‘diagnostic case’ model run.

The latest stock assessment for bigeye tuna (*Thunnus obesus*) was conducted in 2018. The stock assessment indicates that Bigeye tuna is not experiencing overfishing (94% probability) and it appears it is not in an overfished condition (0% probability).

The Scientific Committee noted that levels of fishing mortality and depletion differ among regions, and the fishery impact was higher in the tropical region (Regions 3, 4, 7 and 8 in the stock assessment model), with particularly high fishing mortality on juvenile bigeye tuna in these regions. SC14 therefore recommends that WCPFC15 could continue to consider measures to reduce fishing mortality from fisheries that take juveniles, with the goal to increase bigeye fishery yields and reduce any further impacts on the spawning biomass for this stock in the tropical regions.

Total catch for bigeye tuna in the Western and Central Pacific Ocean in 2017 was 126,929 mt, a 17% decrease from 2016 and a 19% decrease from the average between 2012-2016. Purse seine catch comprised of 56,194 mt and longline catch comprised of 58,164 mt of the total catch.

Yellowfin tuna (Assessed 2017)

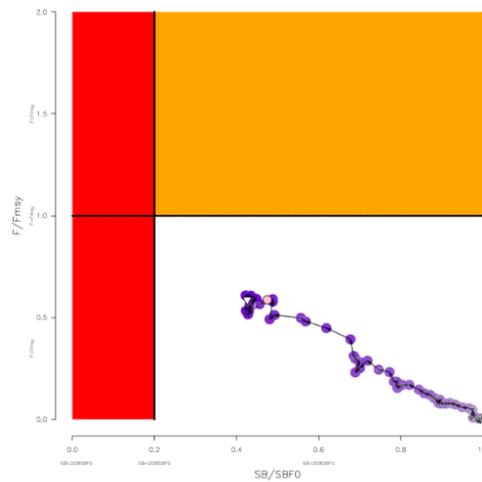


Figure 3. Estimated time-series (or “dynamic”) Majuro plot from the yellowfin ‘diagnostic case’ model run.

The latest stock assessment for yellowfin tuna (*Thunnus albacares*) was conducted in 2017. The stock assessment indicates that the yellowfin tuna stock is not experiencing overfishing (96% probability) and it appears that the stock is not in an overfished condition (92% probability).

WCPFC Scientific Committee reiterated that measures should be implemented to maintain current spawning biomass levels until the Commission can agree on an appropriate target reference point. The total catch of yellowfin tuna in the Western and Central Pacific Ocean in 2017 was 670,890 mt, a 4% increase from 2016 and a 12% increase from the average 2012-2016.

Purse seine catch in 2017 (472,279 mt) was a 22% increase from 2016 and a 33% increase from the 2012-2016 average. Longline catch in 2017 (83,399 mt) was a 6% decrease from 2016 and a 9% decrease from the 2012-2016 average. Pole and line catch (12,219 mt) was a 48% decrease from 2016 and a 56% decrease from the average 2012-2016 catch. Catch by other gear (102,993 mt) was a 28% decrease from 2016 and 17% decrease from the average catch in 2012-2016.

SC14 noted that under recent fishery conditions, the yellowfin stock was initially projected to increase as recent estimated relatively high recruitments support adult stock biomass, and then decline slightly.

Skipjack tuna (assessed 2016)

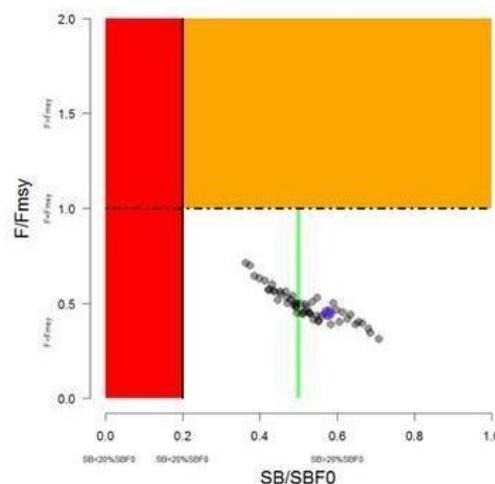


Figure 4. Estimated time-series (or “dynamic”) Majuro plot from the skipjack ‘diagnostic case’ model run (green line represents the target reference point).

The latest stock assessment for skipjack tuna (*Katsuwonus pelamis*) was conducted in 2016. The stock assessment indicates that skipjack tuna stocks are not in an overfished state, nor is it experiencing overfishing.

It has been noted that skipjack spawning biomass is now around the adopted target reference point and the WCPFC Scientific Committee recommends that action is taken to keep the spawning biomass near the target reference point and avoid further increase in fishing mortality.

Total catch of skipjack tuna in the Western and Central Pacific Ocean in 2017 was 1,624,162 mt, a 9% decrease from 2016 and comparable to the average from 2012-2016.

Purse seine catch in 2017 (1,280,311 mt) was a 7% decrease from 2016 and a 12% decrease from the 2012-2016 average. Pole and line catch (123,132 mt) was a 21% decrease from 2016 and a 23% decrease from the average 2012-2016 catch. Catch by other gear (218,175 mt) was a 13% decrease from 2016 and 1% decrease from the average catch in 2012-2016.

SC14 noted that under recent fishery conditions (2017 catch level for longline and other fisheries and effort level for purse seine), the skipjack stock was initially projected to decrease for a short period as recent relatively high recruitments move out of the stock. In the longer term, assuming long term average recruitment, modest increases in the stock were projected.

Southwest Pacific Striped marlin (Assessed 2012)

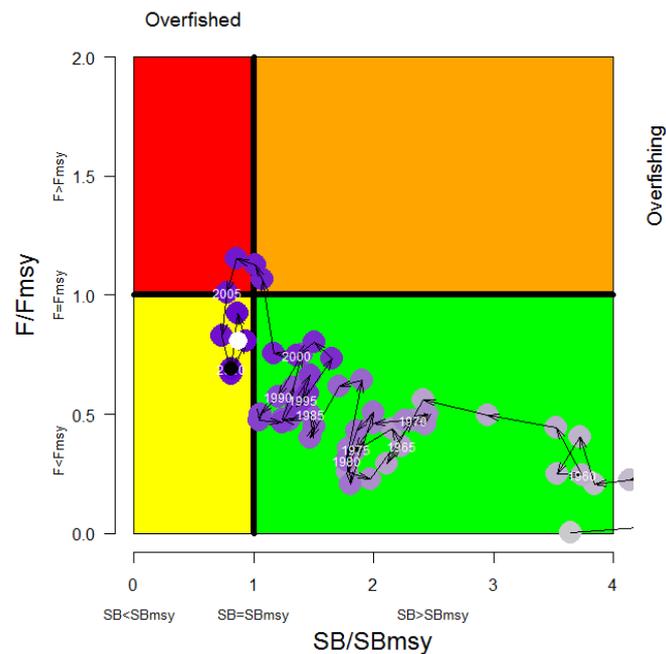


Figure 5. Temporal trend in annual stock status, relative to SB_{MSY} (x-axis) and F_{MSY} (y-axis) reference points for the Ref.case.

The latest stock assessment for southwest pacific striped marlin (*Kajikia audax*) was conducted in 2012. The stock assessment indicates that southwest pacific striped marlin stock was fully exploited, was not experiencing overfishing, but may have been overfished.

As there was no stock assessment for 2018, the 2012 Scientific Committee meeting recommendations are still relevant. These recommended measures to reduce the overall catch of this stock, through the expansion of the geographical scope of Conservation and Management Measure 2006-04 (to the northern area), in order to cover the distribution range of the stock.

South Pacific Swordfish (Assessed 2017)

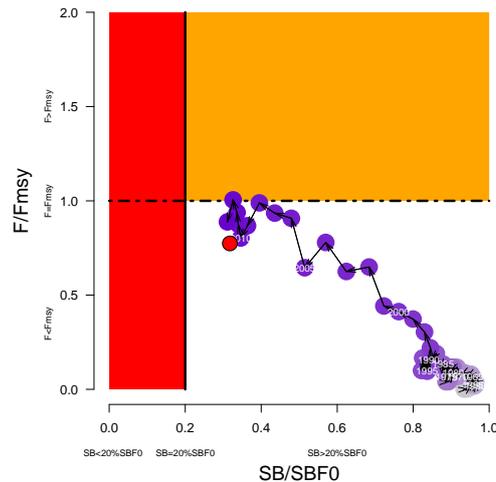


Figure 6. Estimated time-series (or “dynamic”) Majuro plot from the South Pacific swordfish ‘diagnostic case’ model run.

The latest stock assessment for south pacific swordfish (*Xiphias gladius*) was conducted in 2017. The stock assessment indicated that it is highly likely that south pacific swordfish stocks are not in an overfished condition (0% probability of being overfished), and the stock is not experiencing overfishing (32% probability of overfishing).

WCPFC Scientific Committee recommends that the Commission consider developing appropriate management measures for the area north of 20°S to the equator and that current restrictions on catches south of 20°S also be maintained.

WCPFC Scientific Committee noted that there has been an increase in fishing mortality notably from the mid-1990s, and that the biomass relative to unfished levels is estimated to have declined rapidly during the period late-1990s to 2010 followed by a more gradual but continued decline after 2010, across the uncertainty grid.

Pacific bluefin (assessed 2016)

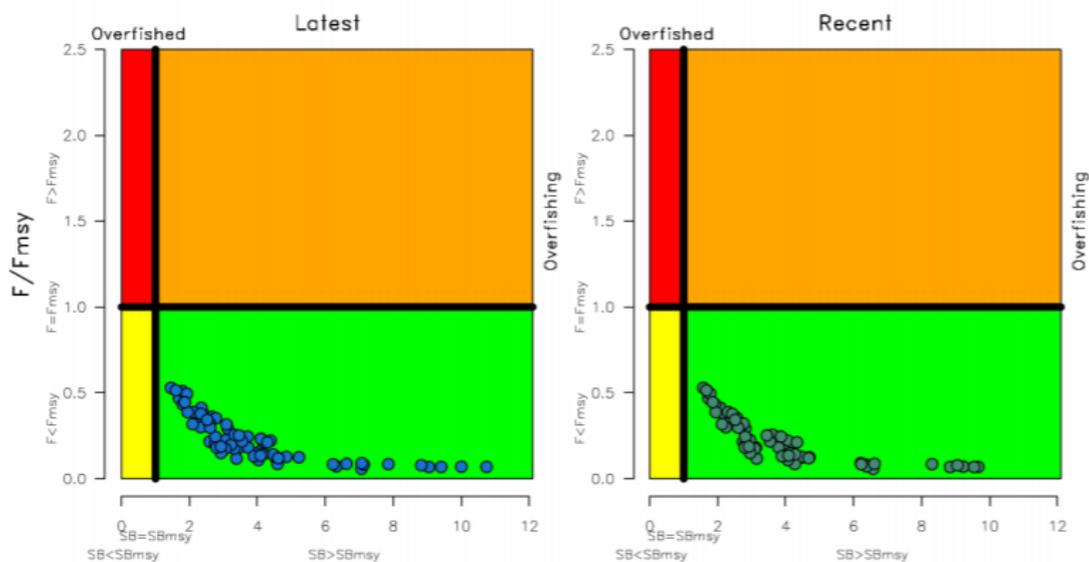


Figure 7. Kobe plots for PBF summarising the results for each of the models in the structural uncertainty grid under the SBlatest/SBF=0 and the SBrecent/SBF=0 reference points.

The last stock assessment for Pacific bluefin tuna (*Thunnus orientalis*) was assessed by the International Science Committee in 2018. The stock assessment indicated that the Pacific bluefin tuna stock is in an overfished state, and overfishing is occurring. The Scientific Committee noted that the Pacific bluefin tuna spawning stock biomass is depleted to 3.3% of the estimated unfished spawning stock biomass.

Total PBF catch in 2017 was 14,707 mt, 11% increase from 2016 and 9% increase from the average 2012-2016. PBF is caught by various fishing gears including purse 3 seine, longline, set net, troll, pole-and-line, handline and recreational fisheries

Southern bluefin tuna (assessed 2017)

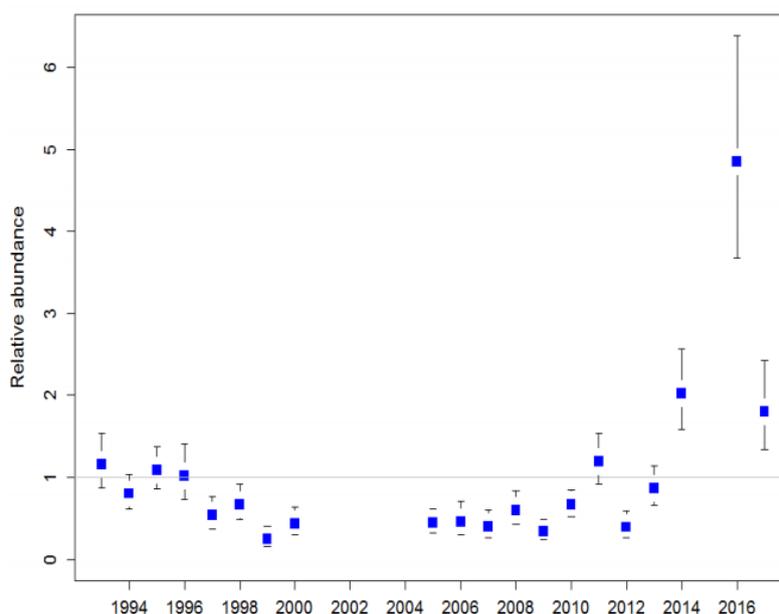


Figure 8. Time series of relative abundance estimates for juvenile southern bluefin tuna from Australian Aerial Survey conducted over the Great Australian Bight (with 90% confidence intervals).

The latest stock assessment for southern bluefin tuna (*Thunnus maccoyii*) was conducted in 2017. The stock assessment indicates that southern bluefin tuna stock remained at a low state, estimated to be 13% of the unfished biomass, and below the level to produce maximum sustainable yield (MSY). There has been improvement since previous stock assessments that indicated the stock was at 5.5% of unfished biomass in 2011 and 9% in 2014. The 10+ age class was estimated to be 11% of unfished biomass, which is an increase from the estimate of 5% in 2011 and 7% in 2014. The current fishing mortality rate is below the level associated with MSY.

CATCH AGAINST TOTAL ALLOWABLE COMMERCIAL CATCH

Unless otherwise stated, all amounts are shown in tonnes. All figures are for the fishing year (1 October-30 September). Unless otherwise stated, all data from Fisheries New Zealand’s BI Hub database.

The main surface longline target species are bigeye tuna, southern bluefin tuna, and swordfish. For these three species, information on total catch, effort, and catch per unit effort has been provided. For the other species that are also caught in the surface longline fishery, information on total catch has been provided.

Bigeye tuna

In 2017/18, bigeye tuna total allowable commercial catch remained at 714 tonnes. Commercial catch was 137 tonnes. Over the last five fishing years, commercial catch has been between 83 and 173 tonnes (see Figure 9).

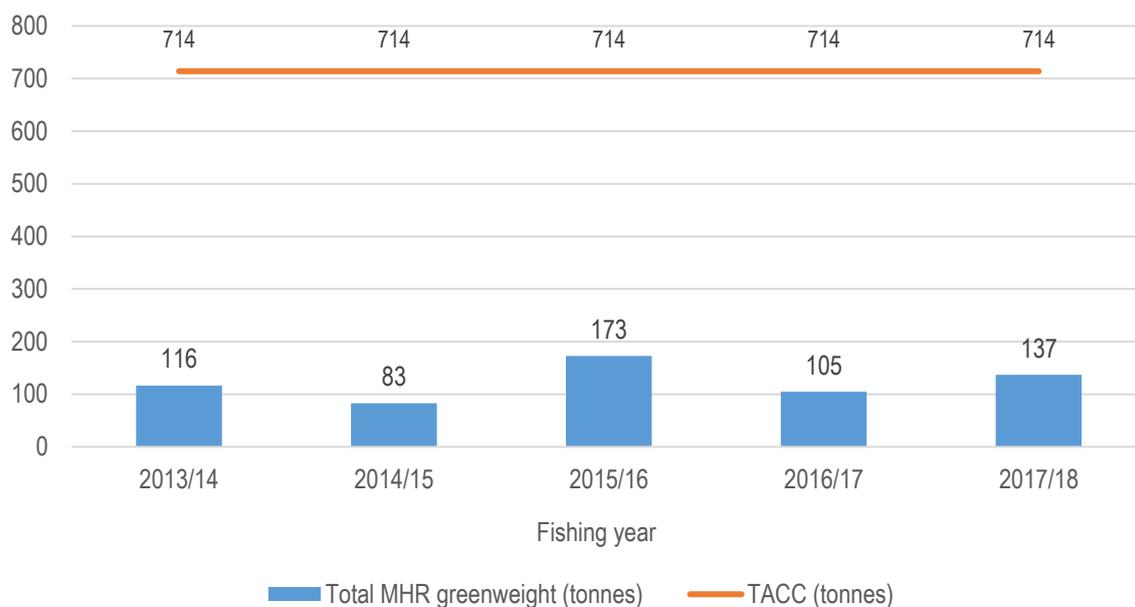


Figure 9. Bigeye tuna (BIG1) total allowable commercial catch and catch for the five most recent fishing years.

Bigeye tuna is targeted and caught as bycatch in the surface longline fishery, and occasionally caught as bycatch in the troll fishery, bottom longline fishery, and purse seine fishery. The number of surface longline vessels targeting bigeye tuna in the last five fishing years has ranged between 17 in 2014/15 and 27 in 2017/18. Targeted effort increased in 2017/18 compared with the previous year to over half a million hooks, but was still not as high as effort seen in 2013/14, which was over 700,000 hooks (see **Figure 10**).

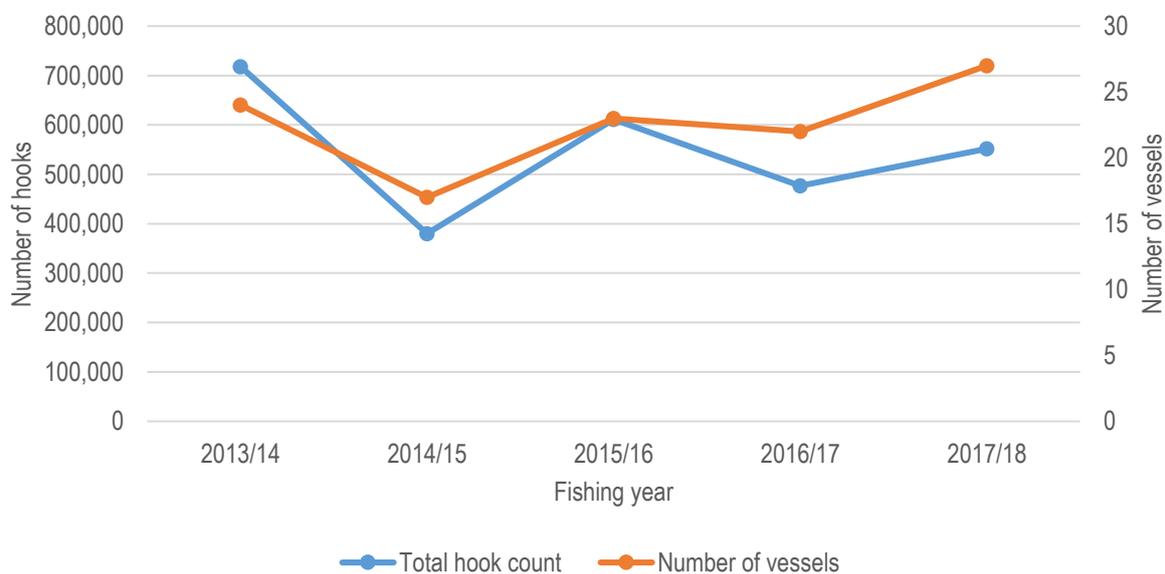


Figure 10. Number of surface longline vessels and number of hooks set targeting bigeye tuna over the last five fishing years.

For bigeye tuna, catch per unit effort over the last ten fishing years remains relatively constant, ranging between 1.6 and 3.9 fish per 1,000 hooks. 1.6 occurred in 2012/13, and the peak of 3.9 was reached in 2015/16, which has then been followed by two consecutive years of decline, to 2.3 in 2017/18. Adding a trend line indicates a slight increasing trend in catch per unit effort over the last ten fishing years, from around two to around 2.8 fish per 1,000 hooks (see **Figure 11**).

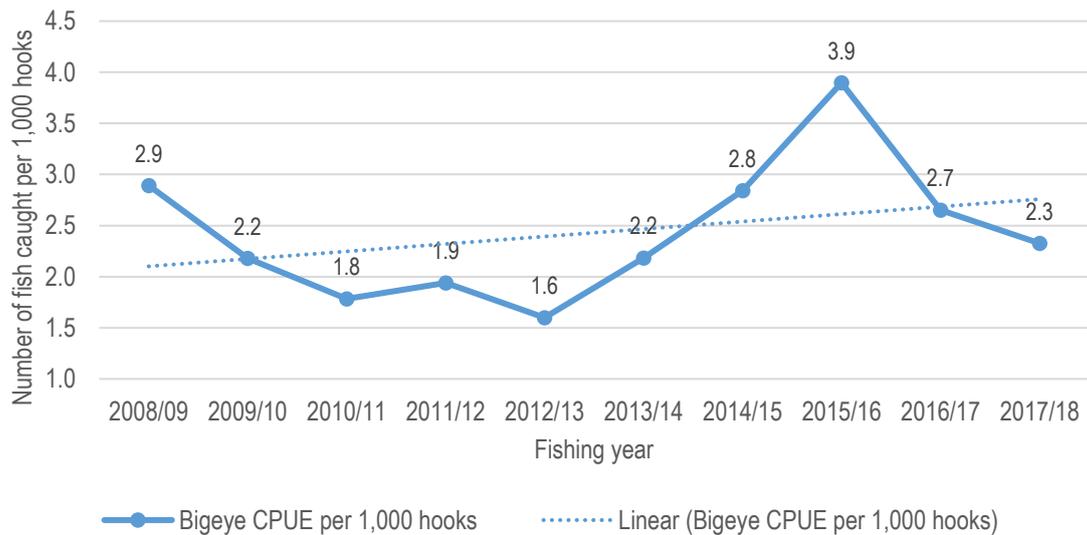


Figure 11. Catch per unit effort¹¹ of bigeye tuna when targeted in the surface longline fishery over the last ten fishing years.

Blue shark

In 2017/18, blue shark total allowable commercial catch remained at 1,860 tonnes. Commercial catch was 143 tonnes, which is around a similar level to what has been caught over the last five fishing years (see Figure 12).

Blue sharks are caught as bycatch mainly in the surface longline fishery, but also in a number of other fisheries, such as the bottom longline fishery, midwater trawl fishery, and the set net fishery.

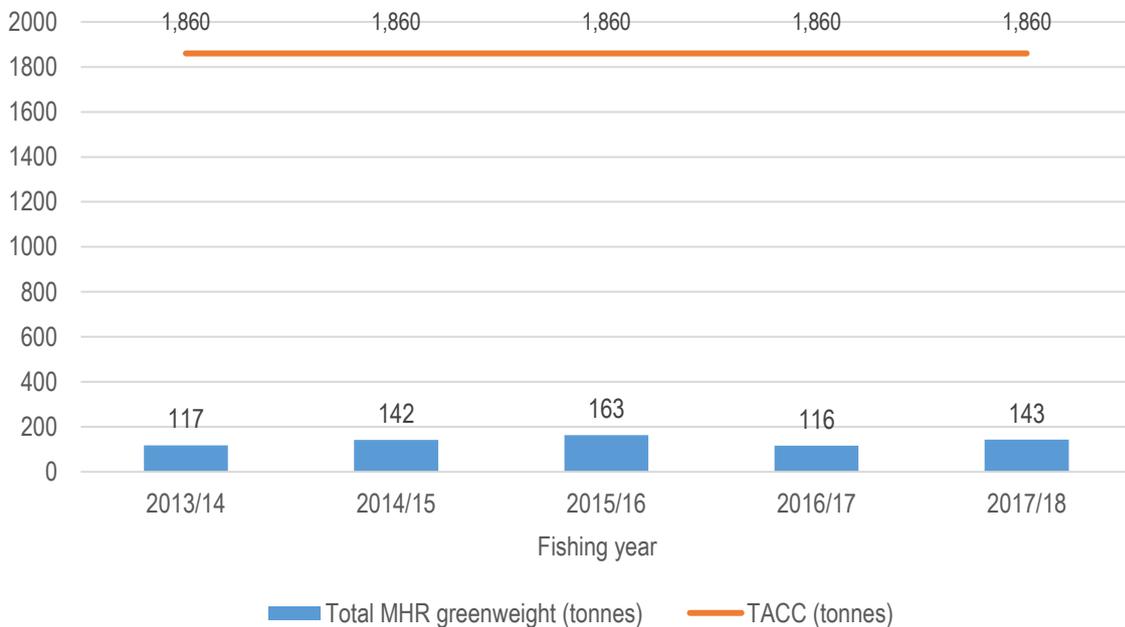


Figure 12. Blue shark (BWS1) total allowable commercial catch and catch¹² for the five most recent fishing years.

¹¹ The catch per unit effort was calculated by using the estimated targeted commercial effort (in terms of number of hooks) and the estimated commercial catch from that targeted effort (in terms of number of fish caught). The catch per unit effort is not standardised. The information is aggregated over all New Zealand fisheries waters (excluding effort and catch from outside New Zealand fisheries waters), and is provided for the last ten fishing years.

¹² This catch does not include those sharks that are returned under Schedule 6.

Mako shark

In 2017/18, mako shark total allowable commercial catch remained at 200 tonnes. Commercial catch was a similar level to the previous fishing years, at 38 tonnes, a new low over the five most recent fishing years (see Figure 13).

Mako sharks are caught as bycatch mainly in the surface longline fishery, but also in a number of other fisheries, such as the bottom longline fishery, the set net fishery, and the midwater trawl fishery.

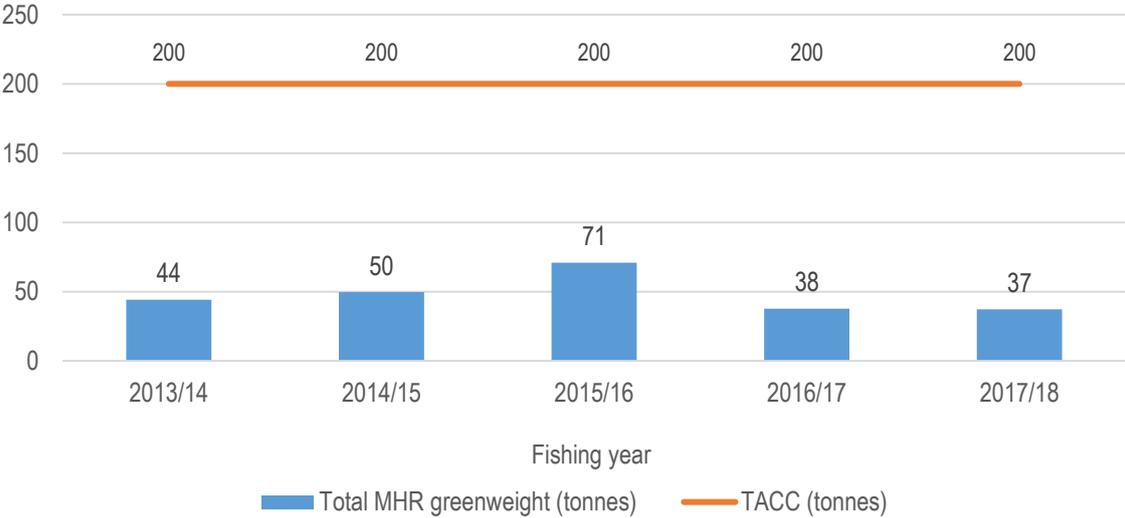
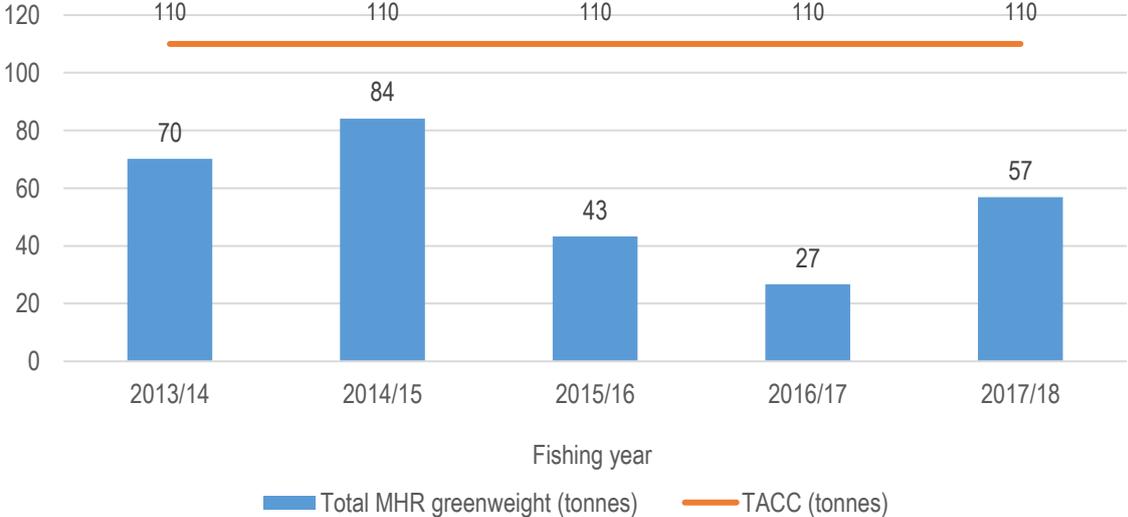


Figure 13. Mako shark (MAK1) total allowable commercial catch and catch¹³ for the five most recent fishing years.

Porbeagle shark

In 2017/18, porbeagle shark total allowable commercial catch remained at 110 tonnes. Commercial catch upturned the downward trend that had been experienced over the last three fishing years, and increased to 57 tonnes during 2017/18 (see Figure 14).

Porbeagle sharks are caught as bycatch mainly in the surface longline fishery, but also in a number of other fisheries, such as the midwater trawl fishery, the set fishery, and the bottom longline fishery.



¹³ This catch does not include those sharks that are returned under Schedule 6.

Figure 14. Porbeagle shark (POS1) total allowable commercial catch and catch¹⁴ for the five most recent fishing years.

Southern bluefin tuna

In 2017/18, southern bluefin tuna and in-season change to the total allowable catch increased the total allowable commercial catch from 971 tonnes to 1,047 tonnes. Commercial catch increased to 1,008 tonnes, the highest catch of southern bluefin tuna experienced in this fishery (see **Figure 15**).

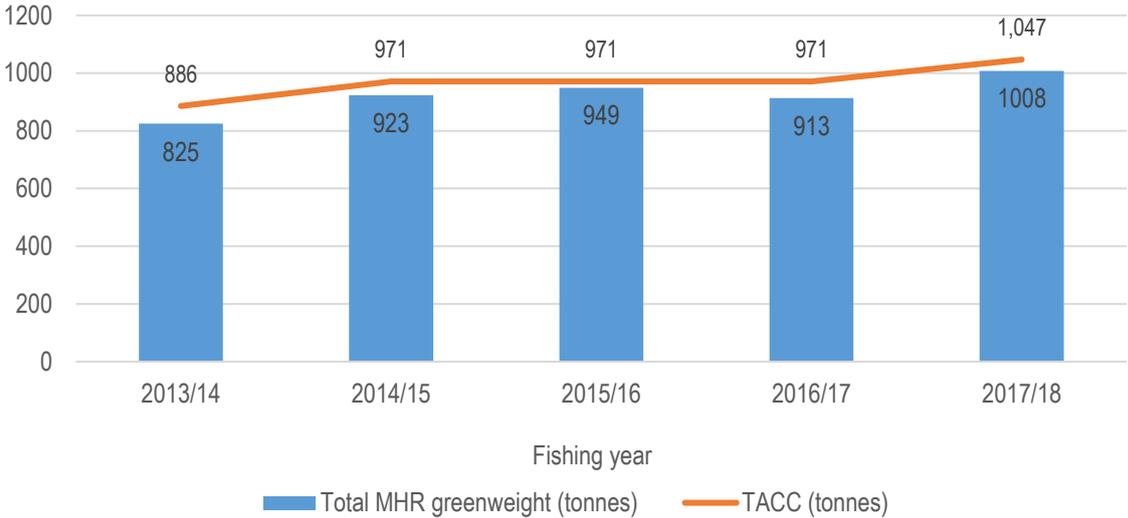


Figure 15. Southern bluefin tuna (STN1) total allowable commercial catch and catch for the five most recent fishing years.

Southern bluefin tuna is targeted and caught as bycatch mainly in the surface longline fishery, and also caught as bycatch in a number of other fisheries, such as the midwater trawl fishery, the set net fishery, and the troll fishery. The number of surface longline vessels targeting southern bluefin tuna in the last five fishing years has ranged between 30 in 2014/15 and 32 in 2013/14 and 2017/18. Targeted effort has ranged between 1.2 and 1.6 million hooks over the last five fishing years, remaining under 1.3 million hooks for the last three fishing years (see **Figure 16**).

¹⁴ This catch does not include those sharks that are returned under Schedule 6.

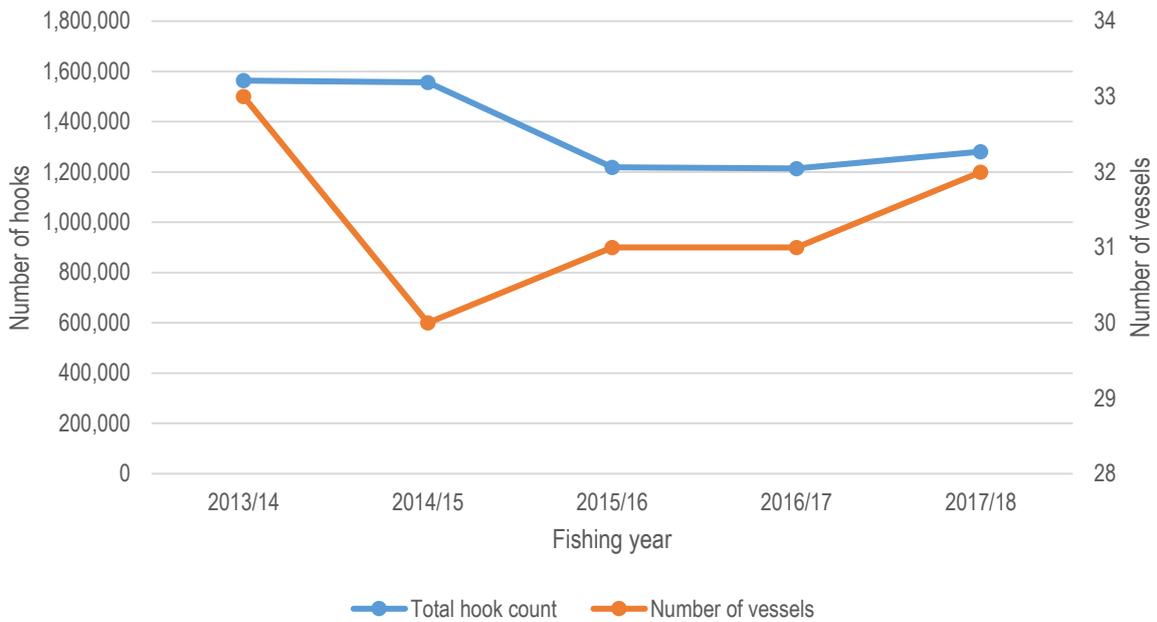


Figure 16. Number of surface longline vessels and number of hooks set targeting southern bluefin tuna over the last five fishing years.

Southern bluefin tuna is mainly caught between May and September, with smaller amounts being caught between October and February. For the last three recent fishing years, catch peaked in July (see **Figure 17**).

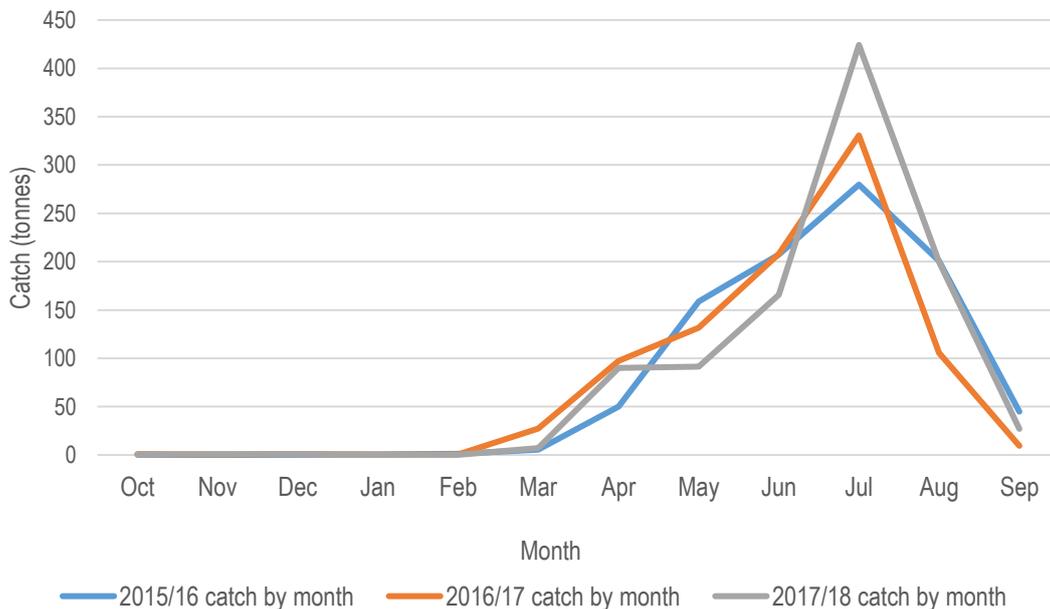


Figure 17. Southern bluefin tuna catch by month over the last three fishing years.

For southern bluefin tuna, catch per unit effort over the last ten fishing years ranges between 4.2 and 16.7 fish per 1,000 hooks. 4.2 occurred in 2008/09, and the peak of 16.7 was reached in 2015/16 (after the large vessels had left the fishery). Catch per unit has levelled off since then over the last two fishing years. Adding a trend line indicates a definite increasing trend in catch per unit effort over the last ten fishing years, from around four to over 15 fish per 1,000 hooks (see **Figure 18**).

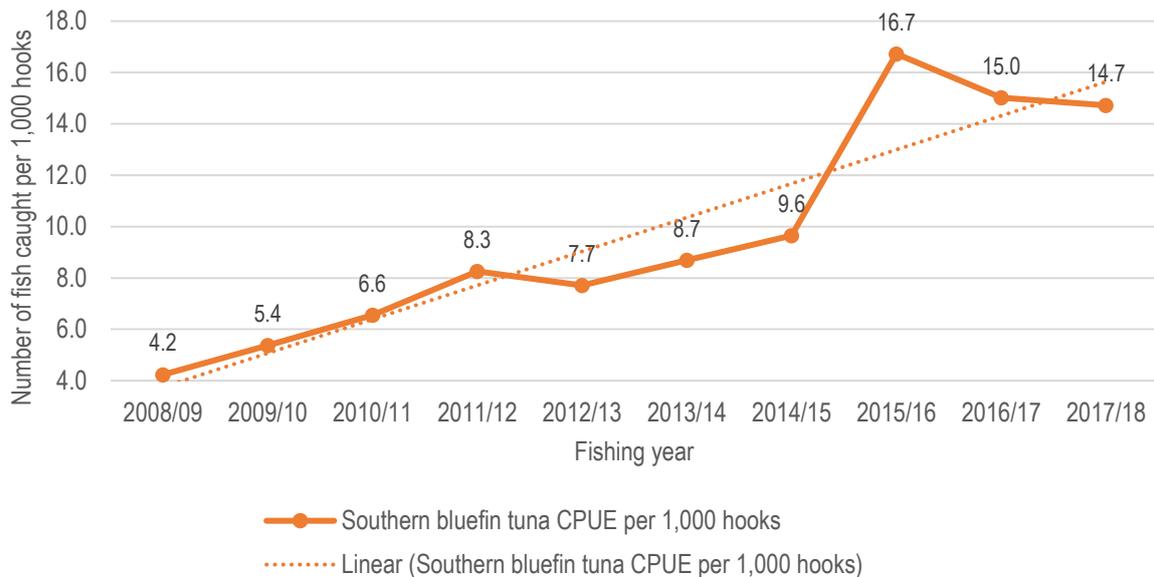


Figure 18. Catch per unit effort¹⁵ of southern bluefin tuna when targeted in the surface longline fishery over the last ten fishing years.

Swordfish

In 2017/18, swordfish total allowable commercial catch remained at 885 tonnes. Commercial catch continued to fall to a new low of 475 tonnes over the five most recent fishing years (see **Figure 19**).

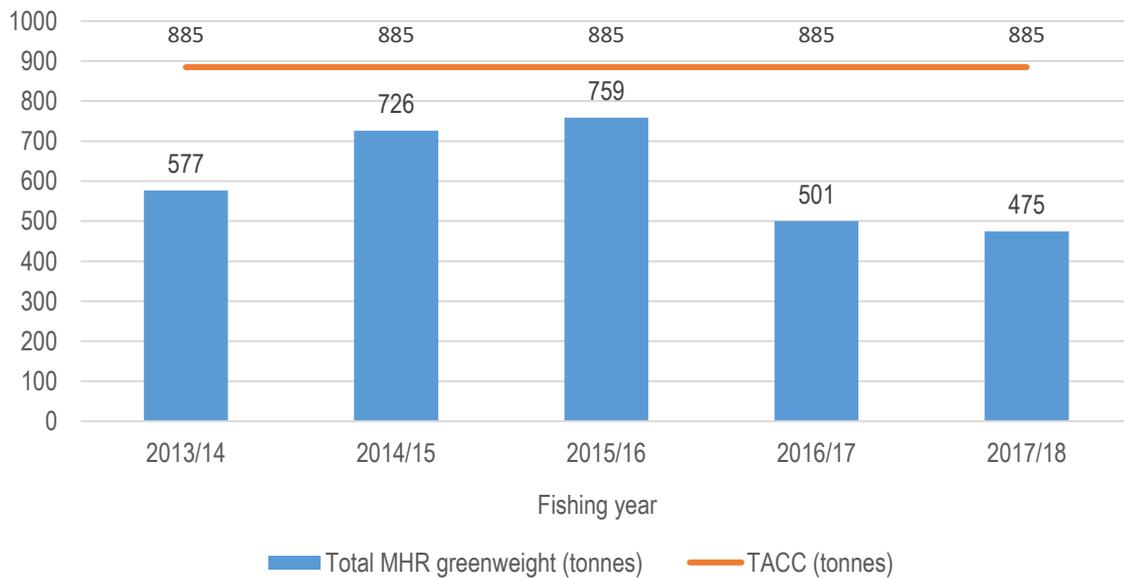


Figure 19. Swordfish total allowable commercial catch total allowable commercial catch and catch for the five most recent fishing years.

¹⁵ The catch per unit effort was calculated by using the estimated targeted commercial effort (in terms of number of hooks) and the estimated commercial catch from that targeted effort (in terms of number of fish caught). The catch per unit effort is not standardised. The information is aggregated over all New Zealand fisheries waters (excluding effort and catch from outside New Zealand fisheries waters), and is provided for the last ten fishing years.

Swordfish is mainly targeted and caught as bycatch in the surface longline fishery, but has also been targeted and caught as bycatch in the bottom longline fishery (during 2016/17 and 2017/18 fishing years), and caught as bycatch in a number of other fisheries, such as the midwater trawl fishery. The number of surface longline vessels targeting swordfish in the last five fishing years has ranged between 16 in 2013/14 and 22 in 2017/18. Targeted effort has ranged from under 200,000 hooks in 2013/14 to nearly 450,000 in 2014/15 and 2015/16, to finding a middle ground at over 380,000 hooks in 2017/18 (see Figure 19).

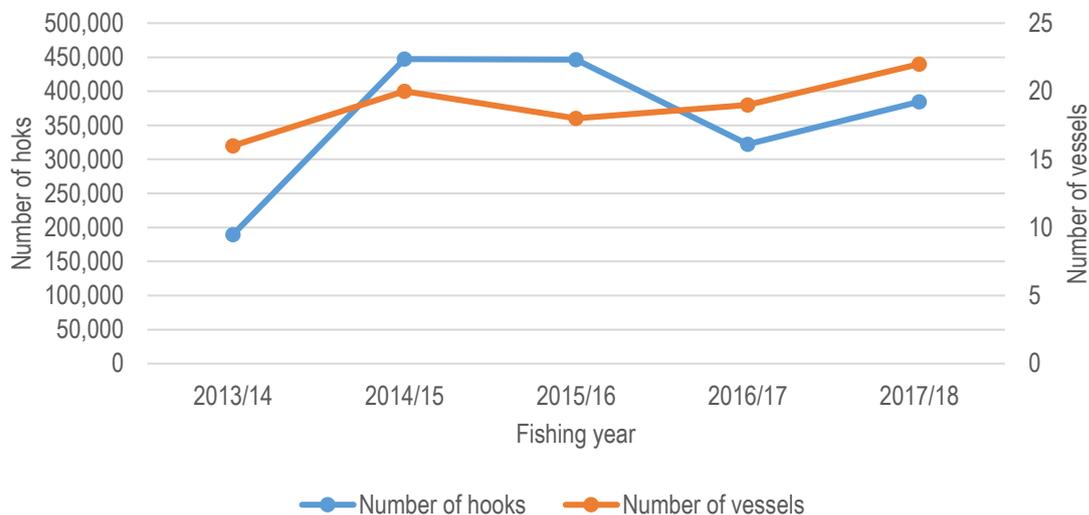


Figure 20. Number of surface longline vessels and number of hooks set targeting swordfish over the last five fishing years.

For swordfish, catch per unit effort ranges between 6.6 and 15 fish per 1,000 hooks. The peak of 15 was reached in 2011/12, and the lowest level of 6.6 was reached last year, which was the fourth consecutive year of decline, from a peak of 14.2 fish in 2014/15. In general, the catch per unit effort is not constant, with large increases and decreases between years. Adding a trend line indicates a downward trend over the last ten fishing years, from around 13.1 to around nine fish per 1,000 hooks (see Figure 21).

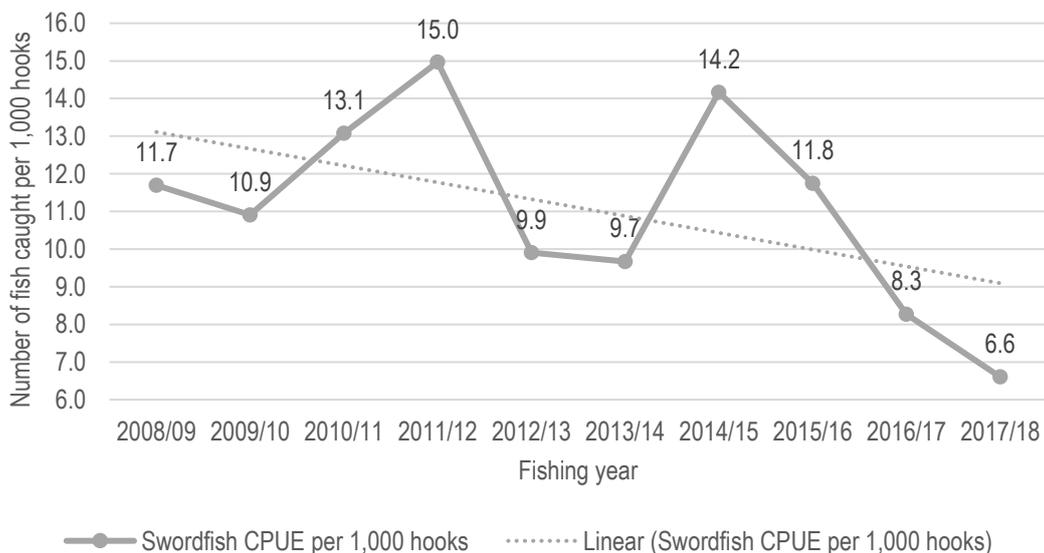


Figure 21. Catch per unit effort¹⁶ of swordfish when targeted in the surface longline fishery over the last ten fishing years.

¹⁶ The catch per unit effort was calculated by using the estimated targeted commercial effort (in terms of number of hooks) and the estimated commercial catch from that targeted effort (in terms of number of fish caught). The catch per unit effort is not standardised. The information is aggregated over all New Zealand fisheries waters (excluding effort and catch from outside New Zealand fisheries waters), and is provided for the last ten fishing years.

Pacific bluefin tuna

In 2017/18, Pacific bluefin tuna total allowable commercial catch remained at 116 tonnes. Commercial catch was the highest that it has been over the last five fishing years, at 21 tonnes, however remained at a low level (see Figure 22).

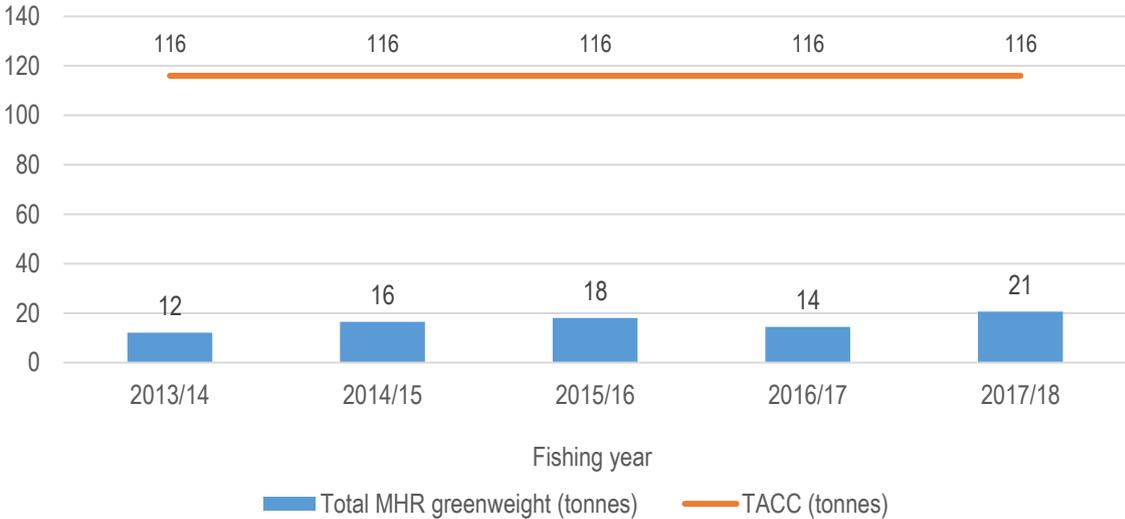


Figure 22. Pacific bluefin tuna (TOR1) total allowable commercial catch and catch for the five most recent fishing years.

Pacific bluefin tuna is occasionally targeted but mainly caught as bycatch in the surface longline fishery, and small quantities are also caught as bycatch in the midwater trawl fishery and the bottom trawl fishery.

Yellowfin tuna

In 2017/18, yellowfin tuna total allowable commercial catch remained at 263 tonnes. Commercial catch increased compared with the eight tonnes taken in 2016/17, however remained at a low level (see Figure 23).

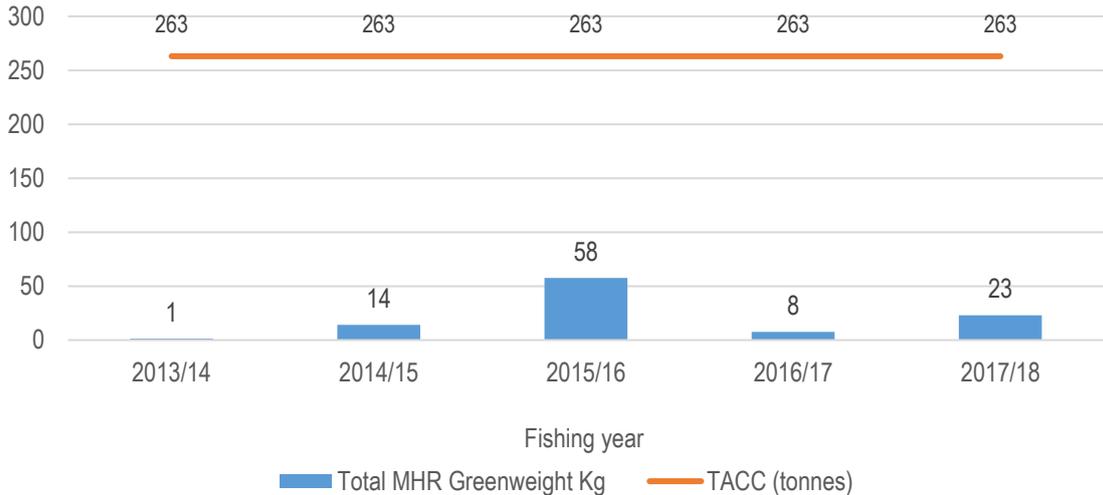


Figure 23. Yellowfin (YFN1) total allowable commercial catch and catch for the five most recent fishing years.

Yellowfin tuna is occasionally targeted but mainly caught as bycatch in the surface longline fishery, and is also caught as bycatch in a number of other fisheries, such as the purse seine fishery, bottom longline fishery, and troll fishery.

CATCHES OF NON-QUOTA SPECIES

Albacore tuna

Catches of albacore tuna have been on a steady decline until 2017/18, when catches increased to the highest level over the last five fishing years, at over 2.6 thousand tonnes (see Figure 24).

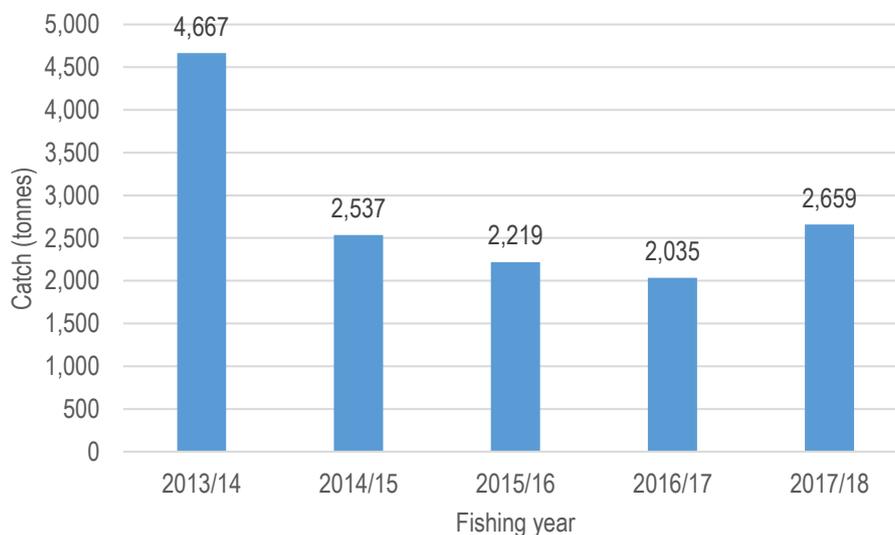


Figure 24. Total Monthly Harvest Returns for albacore tuna catch (ALB1) for the five most recent fishing years.

Albacore tuna is targeted in the troll fishery, and caught as bycatch in a number of other fisheries, such as the surface longline, the purse seine fishery, and the midwater trawl fishery. Having reduced to under 100 vessels during 2016/17 fishing year, in 2017/18, the number of troll vessels targeting albacore increased back to around 2014/15 and 2015/16 levels, at just over 130 vessels. The number of vessel days targeting albacore reflected the increase in the number of vessels, also increasing back to 2014/15 and 2015/16 levels (see Figure 25). The increase in effort is reflected in the increase in catch seen in 2017/18 (see Figure 24).

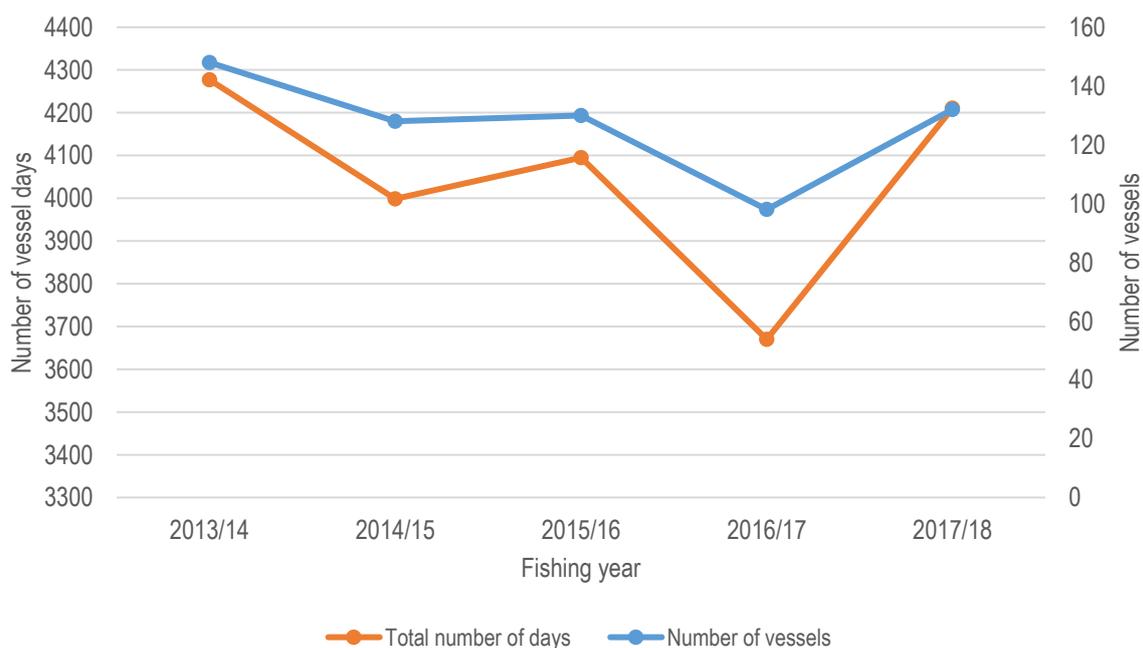


Figure 25. Number of troll vessels and vessel days targeting albacore tuna over the last five fishing years.

Skipjack tuna

Skipjack catches fell for the third consecutive level during 2017/18 and to the lowest level over the last five fishing years (see Figure 26).

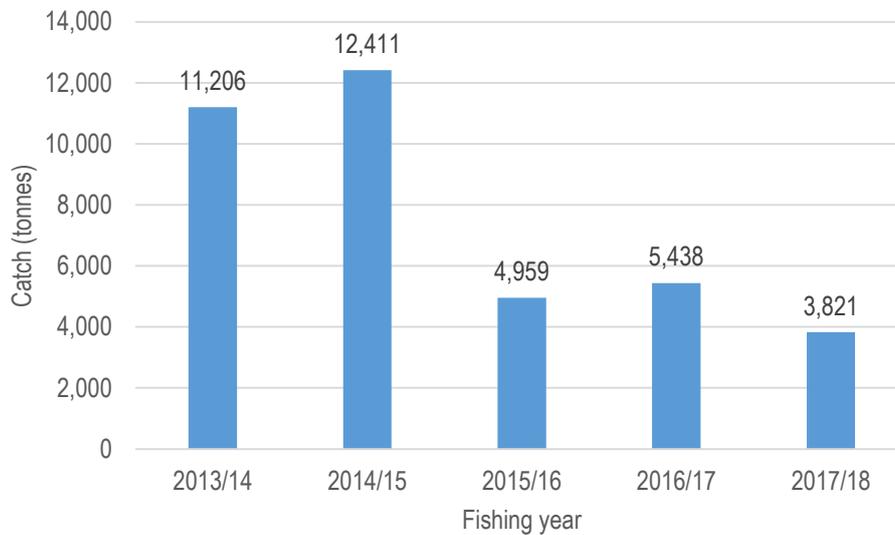


Figure 26. Total Monthly Harvest Returns for skipjack tuna (SKJ1) over the five most recent fishing years.

Skipjack tuna is targeted by the purse seine fishery, and caught as bycatch mainly in the troll and the surface longline fisheries. The number of purse seine vessels targeting skipjack tuna has declined from eight in 2013/14 to five in 2017/18. Effort has reflected this decrease, reducing from around 680 shots in 2013/14 to around 270 shots in 2017/18 (see Figure 27).

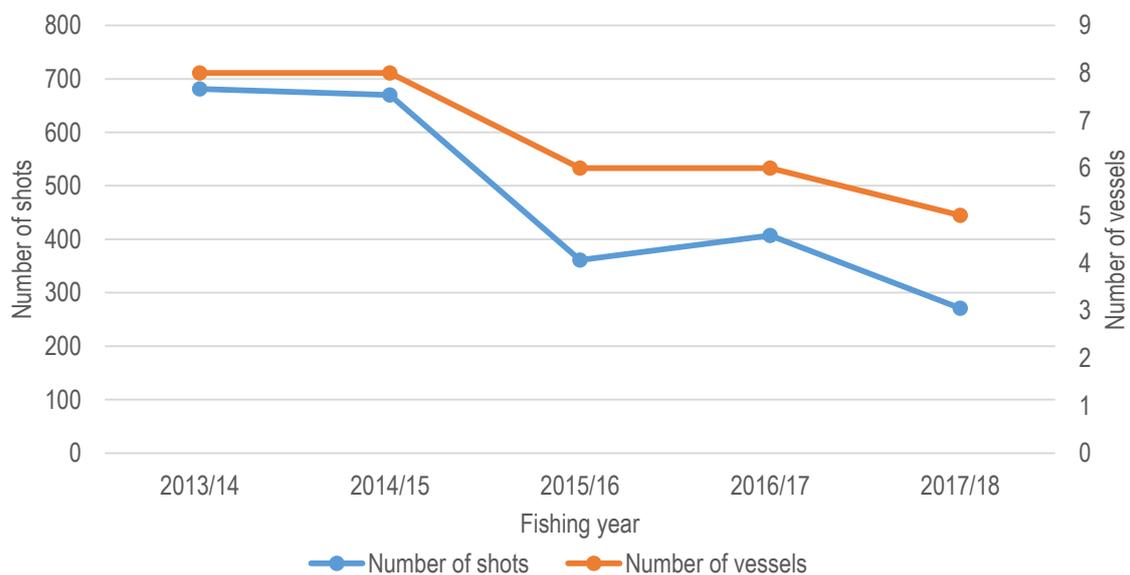


Figure 27. Number of purse seine vessels and shots targeting skipjack tuna over the last five fishing years.

Environmental reporting

SEABIRDS – SURFACE LONGLINE FISHERY

Unless otherwise specified, the source of the information is the database of protected species bycatch compiled by Dragonfly Ltd, see <https://data.dragonfly.co.nz/psc-dev/>. Please note, figures provided for 2017/18 fishing year are yet to be finalised.

New Zealand is a centre of seabird diversity, with over 80 species breeding in the New Zealand region. Seabirds are frequently reported as bycatch in fisheries, with most reported captures being either of albatrosses (family Diomedeidae), or petrels (family Procellariidae). Coastal seabirds (such as shags, penguins, and gulls) have also been reported as bycatch in commercial fisheries.

In the 2017/18 fishing year, there were 114 observed captures of all birds in surface longline fisheries. Observed captures were of New Zealand white-capped albatross (61), southern Buller's albatross (19), Westland petrel (11), black petrel (10), southern royal albatross (3), flesh-footed shearwater (3), white-chinned petrel (2), storm petrels (1), royal albatrosses (1), northern royal albatross (1), grey-faced petrel (1), and Antipodean and Gibson's albatrosses (1). No estimates of total captures were made.

Table 7. Summary of observed captures by surface longline vessels in the 2017/18 fishing year by species and if the captures were dead or released alive.

Species or species group	Dead	Alive
New Zealand white-capped albatross	58	3
Southern Buller's albatross	17	1
Westland petrel	11	
Black petrel	10	
Flesh-footed shearwater	2	1
White-chinned petrel	2	
Southern royal albatross	2	1
Storm petrel		1
Royal albatross		1
Northern royal albatross	1	
Grey petrel		1
Grey-face petrel	1	
Antipodean and Gibson's albatross		1

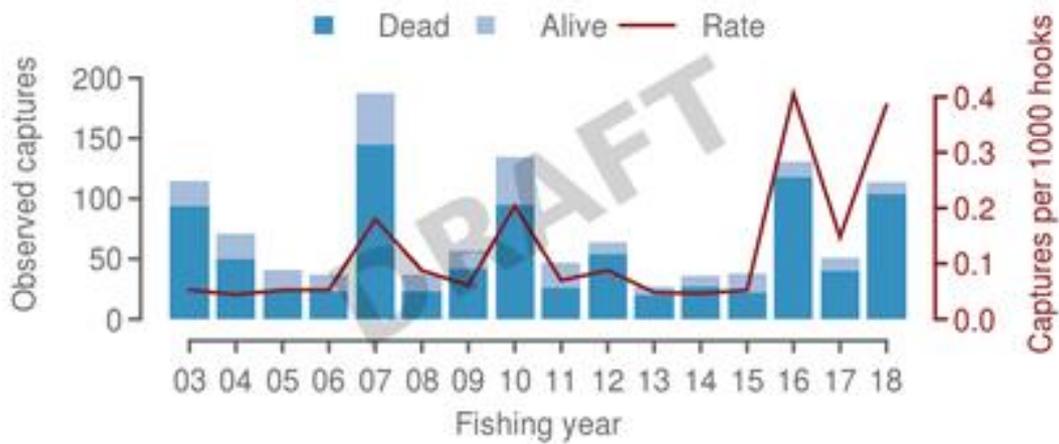


Figure 28. Observed seabird captures in the surface longline fishery in the 2017/18 fishing year.

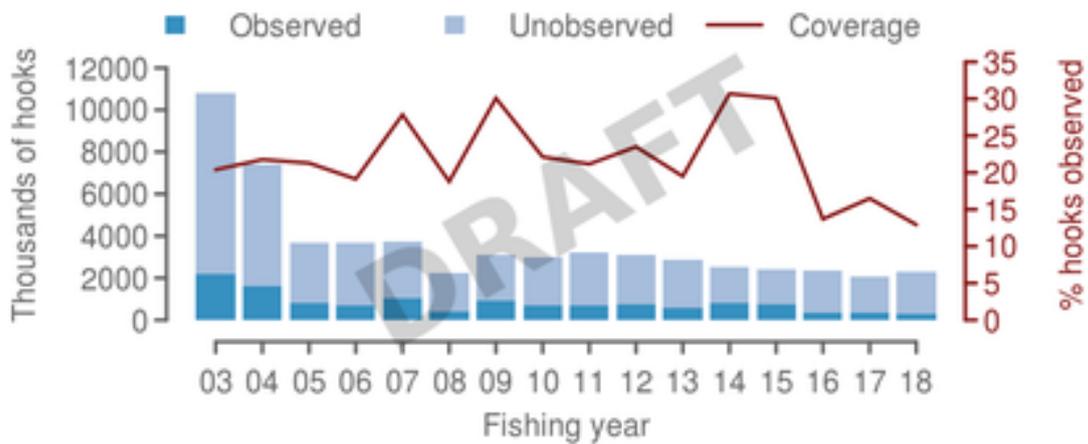


Figure 29. Fishing effort and observer coverage, observed and unobserved seabird captures in the surface longline fishery in the 2017/18 fishing year.

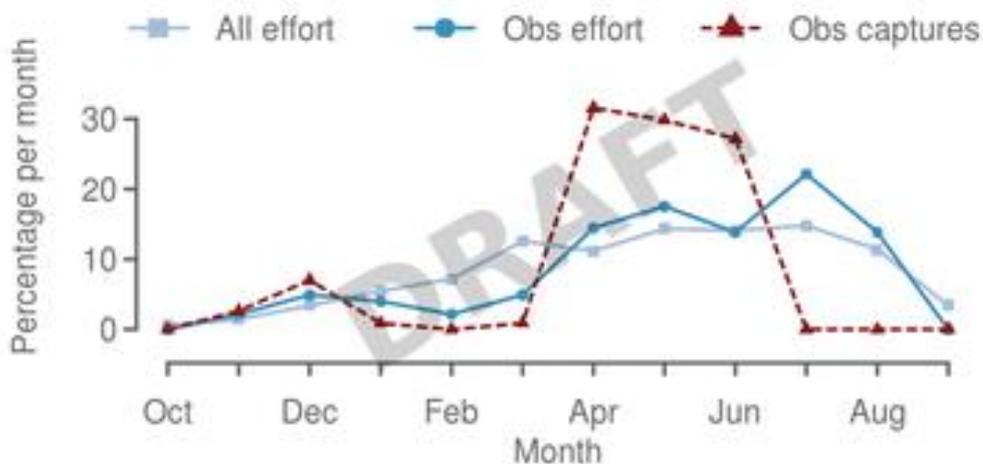


Figure 30. Fishing effort and observed captures of all seabirds by months in the surface longline fishery in the 2017/18 fishing year.

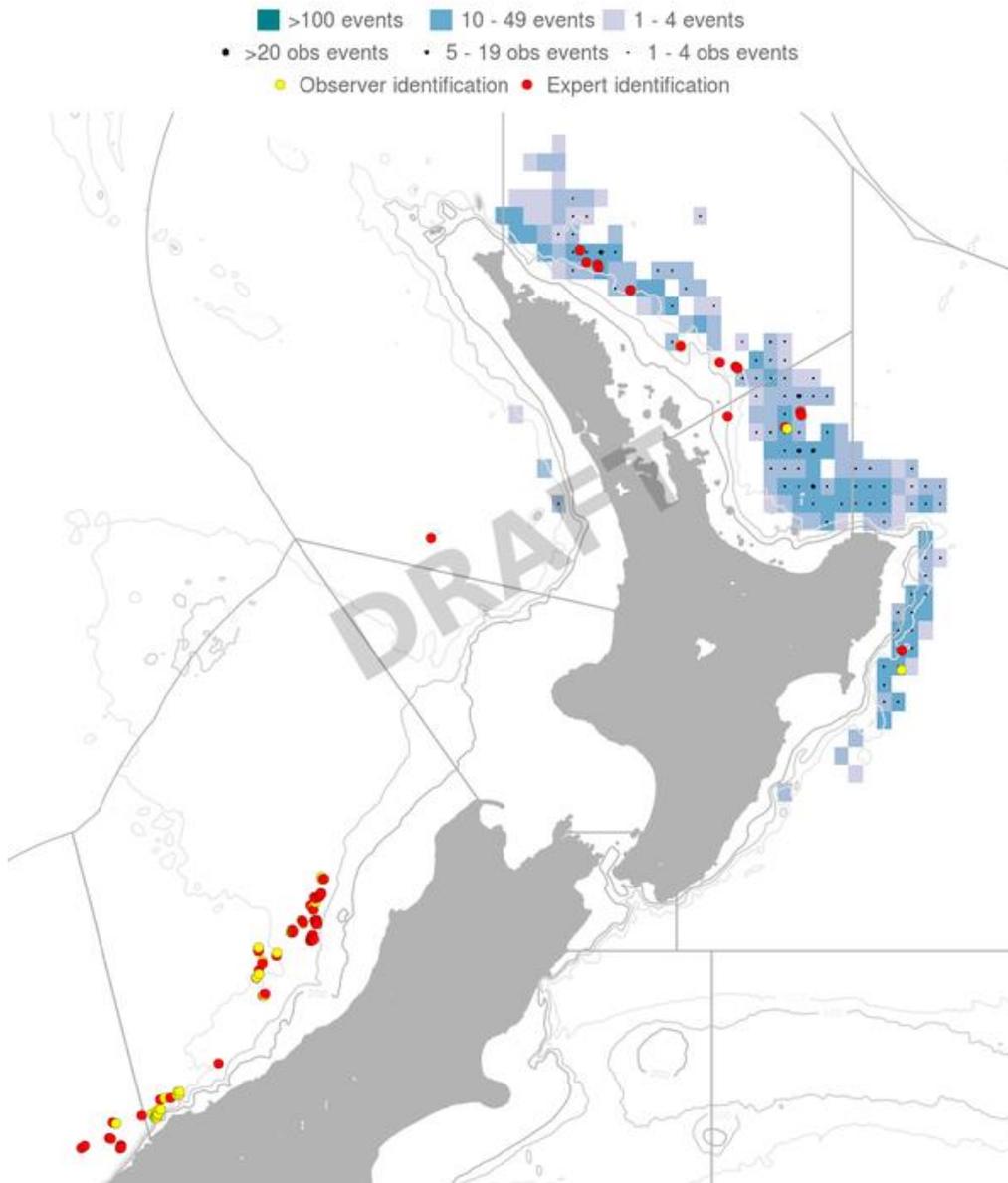


Figure 31. Fishing effort and observed seabird captures in the 2017/18 fishing year, 59.3% of fishing effort displayed.

Note: fishing effort is mapped into 0.2-degree cells, with the colour of each cell being related to the amount of effort. Observed fishing events are indicated by black dots. Fishing is only shown if the effort could be assigned a latitude and longitude, and if there were three or more vessels and three or more companies or persons fishing within a cell. In this case, 59.3% of the effort is shown.

Table 8. Fishing effort, observed effort, and observed seabird captures in the surface longline fishery from 2002/03 to 2017/18 fishing year.

Fishing year	All hooks	Observed hooks	Percentage observed	Number of observed captures	Observed capture rate
2002/03	10,771,038	2,195,152	20.4	115	0.052
2003/04	7,386,339	1,607,304	21.8	71	0.044
2004/05	3,679,965	783,812	21.3	41	0.052
2005/06	3,691,809	705,945	19.1	37	0.052
2006/07	3,740,012	1,040,948	27.8	187	0.180
2007/08	2,246,689	421,900	18.8	37	0.088
2008/09	3,114,733	937,496	30.1	57	0.061
2009/10	2,996,544	673,333	22.5	145	0.215
2010/11	3,186,899	674,572	21.2	47	0.070
2011/12	3,100,277	728,190	23.5	66	0.091
2012/13	2,876,932	560,333	19.5	27	0.048
2013/14	2,549,764	782,541	30.7	36	0.046
2014/15	2,412,336	725,370	30.1	38	0.052
2015/16	2,359,891	322,960	13.7	131	0.406
2016/17	2,092,486	345,366	16.5	51	0.148
2017/18	2,288,801	295,698	12.9	114	0.386

TURTLES – SURFACE LONGLINE FISHERY

Unless otherwise specified, the source of the information is the database of protected species bycatch compiled by Dragonfly Ltd, see <https://data.dragonfly.co.nz/psc-dev/>.

In the 2017–18 fishing year, there were four observed captures of turtles in surface longline fisheries. Observed captures were of Leatherback turtle (2), Loggerhead turtle (1), and Green turtle (1). These captures all took place on the East Coast North Island whilst targeting bigeye tuna or broadbill swordfish. No estimates of total captures were made.

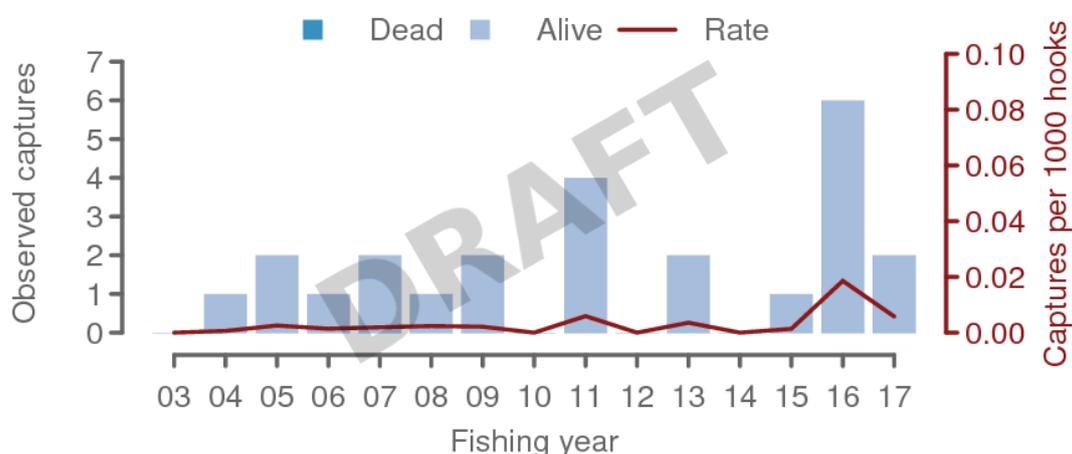


Figure 32. Observed turtle captures in the surface longline fishery in the 2017/18 fishing year.

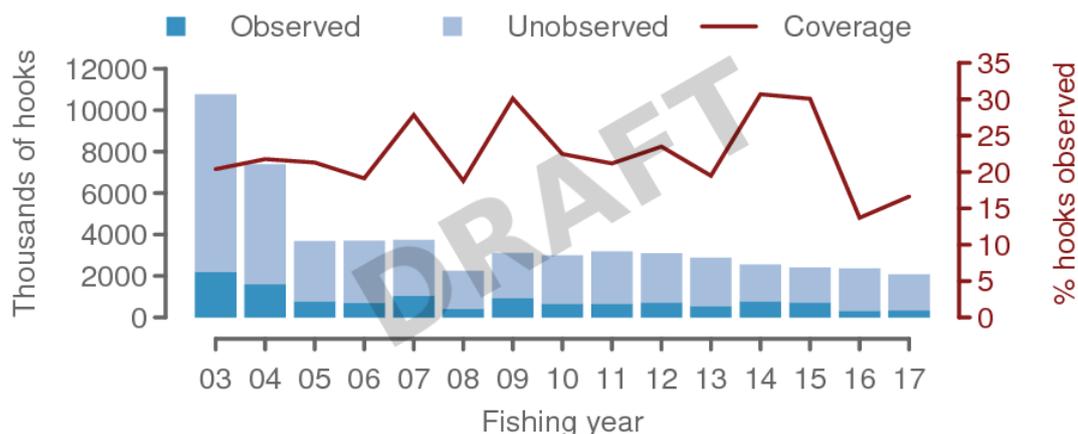


Figure 33. Fishing effort and observer coverage, observed and unobserved turtle captures in the surface longline fishery in the 2017/18 fishing year.

Table 9. Fishing effort, observed effort, and observed turtle captures in the surface longline fishery from 2002/03 to 2016/17 fishing year.

Fishing year	All hooks	Observed hooks	Percentage observed	Number of observed captures	Observed capture rate
2002/03	10,771,038	2,195,152	20.4	0	0.000
2003/04	7,386,339	1,607,304	21.8	1	0.001
2004/05	3,679,965	783,812	21.3	2	0.003
2005/06	3,691,809	705,945	19.1	1	0.001
2006/07	3,740,012	1,040,948	27.8	2	0.002
2007/08	2,246,689	421,900	18.8	1	0.002
2008/09	3,114,733	937,496	30.1	2	0.002
2009/10	2,996,544	673,333	22.5	0	0.000
2010/11	3,186,899	674,572	21.2	4	0.006
2011/12	3,100,277	728,190	23.5	0	0.000
2012/13	2,876,932	560,333	19.5	2	0.004
2013/14	2,549,764	782,541	30.7	0	0.000
2014/15	2,412,336	725,370	30.1	1	0.001
2015/16	2,359,891	322,960	13.7	6	0.019
2016/17	2,092,486	345,366	16.5	2	0.006
2017/18	2,288,801	295,698	12.9	4	0.014

Note: due to anonymity requirements, fishing effort is only shown if there were three or more vessels and three or more companies or persons fishing in that year.

OTHER NON-TARGET ASSOCIATED AND DEPENDENT SPECIES

Unless otherwise specified, the source of the information is the [New Zealand Annual Report to the \[Western and Central Pacific Fisheries\] Commission](#).

For bycatch species of commercial interest, good estimates of landings are obtained from fisher records, while for less valuable species, observer data provides the best source of information. Here we provide data on major bycatch species including “key shark species” and species of special interest for the longline and purse seine fisheries within, and adjacent to, New Zealand fisheries waters.

The major bycatch species in the surface longline fishery have been brought into the New Zealand Quota Management System (QMS). Through 2017, blue shark was the most common bycatch species retained followed by Ray’s bream (). The large reduction in blue shark landed catch in 2014 was due to a lack of markets for HMS shark products. The large increase for Ray’s bream in 2013 and 2014 came from fisheries other than the surface longline fisheries for tuna. In recent years the overall bycatch levels for all other species have been relatively consistent between years.

Table 10. Landed catch (tonnes) of non-target species currently managed within the QMS that are taken in tuna fisheries within New Zealand fisheries waters. Data is provided by calendar year for 2013 – 2017, and for some species may include catches from non-tuna target fisheries.

Species	Scientific name	2013	2014	2015	2016	2017
Blue shark	<i>Prionace glauca</i>	661	106	148	172	126
Mako shark	<i>Isurus oxyrinchus</i>	79	49	47	72	39
Moonfish	<i>Lampris guttatus</i>	65	51	37	64	50
Porbeagle shark	<i>Lamna nasus</i>	85	74	83	42	26
Rays bream	<i>Brama brama</i>	847	658	169	125	110

The species listed in this last group are subject to the QMS and dead releases of these sharks count against a fisher’s ACE. While there is a general rule prohibiting the discarding of quota species, in the case of these highly migratory sharks, specific provision has been made within the QMS to allow for the discarding of these species either alive or dead¹⁷.

¹⁷ On 1 October 2014, the regulations were changed to include that HMS shark species could be returned to sea under certain circumstances: [Schedule 6 Stocks which may be returned to the sea or other waters in accordance with stated requirements](#)

Table 11. Total estimated catch (numbers of fish) of common bycatch species in the New Zealand surface longline fishery as estimated from observer data from 2014 to 2017. Also provided is the percentage of these species retained (2017 data only) and the percentage of fish that were alive when discarded, N/A (none discarded).

Species	2014	2015	2016	2017	% retained (2016)	% discarded alive (2016)
Blue shark	80 118	72 480	57 210	49 924	0.0	88.7
Lancet fish	21 002	12 962	17 442	13 274	0.0	33.5
Rays bream	4 591	17 555	7 758	2421	99.0	26.7
Porbeagle shark	5 061	4 058	6 566	3101	1.0	51.1
Sunfish	1 981	770	4 849	1648	0.0	99.81
Mako shark	4 506	2 667	4 417	1391	4.0	65.6
Moonfish	1 655	3 060	3 036	2022	98.0	50.0
Pelagic stingray	684	979	1 414	1798	0.0	100.00
Butterfly tuna	699	1 309	768	406	89.2	31.3
Escolar	656	653	669	300	67.0	67.9
Thresher shark	261	177	601	260	0.0	76.0
Striped marlin	151	120	550	290	0.0	66.7
Oilfish	518	584	281	227	42.0	85.4
Rudderfish	327	373	237	680	45.0	89.4
Skipjack tuna	90	150	185	57	86.0	100.0
Dealfish	910	842	63	72	0.0	31.8
School shark	119	88	24	59	84	100.0
Big scale pomfret	164	59	16	17	100.0	n/a
Deepwater dogfish	600	545	0	32	0.0	83.3

Cost recovery levies

Overall, total costs recovered over HMS for 2018/19 financial year increased compared with costs recovered for the previous years (Table 12). The reasons for this change included:

- The 2017/18 costs recovered were largely subsidised by reductions due to over-recovery during 2016/17, which reduced the overall levies significantly.
- Fisheries New Zealand research costs increased by around \$145,000, which was due to increases in research costs across many of the stocks compared with 2016/17.

Table 12. Cost recovery levies for HMS stocks for the 2018/19 financial year.

2018/19 Plan Stock	MPI Departmental		Observers		Research		Under/Over Recovery		2014/15 Total	2015/16 Total	2016/17 Total	2017/18 Total	2018/19 Total	Change
	Compliance	Registry	Fisheries New Zealand	DoC	Fisheries New Zealand	DoC	MPI	DoC						
ALB	95,262	25,711	420	0	160,700	18,199	39,165	-402	89,142	115,804	166,701	153,552	339,055	185,503
BIG1	101,674	27,442	87,712	21,899	54,296	67,942	-50,007	-5,829	279,176	427,519	266,706	199,552	305,129	105,576
BWS1	3,324	897	15	0	45,367	82	-7,646	4	12,846	0	1	0	42,043	42,044
MAK1	834	225	4	0	11,379	21	-107	1	37,188	43,682	1,277	8,946	12,357	3,411
MOO1	15,310	4,132	67	0	651	379	-1,230	16	14,376	15,479	15,966	2,729	19,325	16,596
POS1	639	172	3	0	8,723	16	-56	1	419	1	1	6,659	9,498	2,838
RBM1	10,797	2,914	48	0	459	267	-1,307	17	16,542	18,161	16,877	4,057	13,195	9,139
SKJ	41,003	11,067	84,714	16,620	20,168	16,963	-14,758	176	0	0	0	11,548	175,952	164,404
STN1	115,711	31,230	186,014	28,547	71,734	54,946	-205,303	-2,933	353,452	515,374	617,621	347,773	279,946	-67,827
SWO1	67,631	18,253	58,348	14,567	37,821	31,767	-21,906	-4,057	104,012	138,140	116,300	143,033	202,423	59,390
TOR1	51,849	13,994	228	0	16,588	1,282	-4,559	61	51,970	56,287	65,942	68,780	79,443	10,663
YFN1	24,254	6,546	107	0	1,899	0	-2,128	0	21,429	27,557	26,973	26,241	30,678	4,437
TOTAL	528,288	142,583	417,680	81,632	429,785	191,863	-269,842	-12,945	980,552	1,358,004	1,294,364	972,871	1,509,044	536,174
2017/18 Comparatives	519,253	153,485	395,982	91,763	283,816	110,686								
Change	9,035	-10,902	21,698	-10,131	145,969	81,177								

List of HMS research projects as of March 2018

Table 13. Proposed new projects.

Code	Title	Rationale
HMS2019-01	Data reports for NZ HMS fisheries	Annual data reports to the two relevant tuna RFMOs – CCSBT and WCPFC (<i>ongoing, annual</i>).
STM2019-01	Monitoring of STM including logbook programme	Ongoing, annual implementation of STM recreational monitoring programme including the implementation of the logbook programme (<i>ongoing, annual</i>).
STM2019-02	Characterisation of New Zealand commercial fisheries that catch striped marlin	Results will be used To improve the understanding of bycatch of striped marlin in the commercial surface longline fishery.and contribute to the regional stock assessment (<i>once every 3-5 years</i>).
STN019-01	Estimation of recreational harvest of Southern Bluefin Tuna in New Zealand	New Zealand is required to account for all sources of fishing mortality of southern bluefin, including recreational catches, when managing its allocation of the TAC (<i>ongoing, annual</i>).
SWO2019-01	Characterisation of the fishery for and analysis of CPUE for swordfish from the commercial longline fishery in NZ waters	Concerns have arisen over the recent decline in commercial landings as well as the increased retention of small swordfish by the commercial fleet and information from NZ will contribute to the next regional stock assessment in 2022. (<i>once every 3-5 years</i>).
TAG2019-01	Data management from gamefish tagging programme	Ongoing, annual programme that has been running for more than 40 years (<i>ongoing, annual</i>).

Table 14. Continuation of ongoing projects.

Code	Title	Rationale
ALB2018-01	Albacore catch sampling	Results will be used in 2021 assessment update (ongoing, annual).
HMS2016-01	Data reports for NZ HMS fisheries	Annual data reports to the two relevant tuna RFMOs – CCSBT and WCPFC (ongoing, annual).
HMS2017-01	Catch sampling of BIG, YFN, SWO, TOR	Catch sampling results are inputs to the stock assessments of these species by WCPFC. These species assessments will be updated over the next 3 years (ongoing, annual).
SHA2017-01	Shark fishery characterisation and indicators analysis	The most recent shark fishery characterisation and indicators analysis was conducted in 2012/13 and used as inputs to WCPFC analyses. The results of this proposed project will be used in the WCPFC update in 2019 (as determined by WCPFC schedule).
SKJ2018-01	Characterisation of NZ skipjack fisheries	The skipjack fishery was last characterised in 2011. Information obtained from this characterisation is necessary to better inform management decisions based on the current status of the WCPO skipjack stock. (as determined by WCPFC schedule)
STM2016-01	Monitoring of STM including logbook programme	Ongoing, annual implementation of STM recreational monitoring programme including the implementation of the logbook programme (ongoing, annual).
STM2017-01	CPUE analysis for STM recreational fishery	Catch and effort data for STM are one of the main data inputs for its assessment. This project will determine if data from the NZ recreational fishery are useful in the next assessment update in 2019 (short-term, focused project).
STN2018-01	Annual catch-at-age of STN	Data used as inputs to stock assessments; the next update scheduled for 2020 (ongoing, annual).
TAG2016-01	Data management from gamefish tagging programme	Ongoing, annual programme that has been running for more than 40 years (ongoing, annual).

Monitoring of commercial and non-commercial fisheries

MONITORING OF COMMERCIAL FISHERIES

Observer Services provide coverage in terms of days. Fisheries Management works with Observer Services to plan and achieve observer coverage.

Observer coverage for the 2017/18 financial year for HMS fisheries achieved 598 days from 845 planned days. For the surface longline fisheries, 526 days were achieved from 745 planned days. For the skipjack purse seine fisheries, 72 days were achieved from a target of 100 (Table 15).

Table 15. Planned and achieved observer coverage during 2017/18 financial year- days per fishery.

		2017/18 financial year												
Area		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
BIG/SWO EC	Planned	5	13	9	9	13	13	15	25	33	30	20	5	190
	Achieved			4		9	21	19	10	9	30			102
BIG/SWO WC	Planned	10	10					10	10	10	10	10		70
	Achieved	2								14	12			28
STN ECNI	Planned	117	37								9	38	89	290
	Achieved	81	67	10								20	51	229
STN WCSI	Planned	30	30							33	34	34	34	195
	Achieved	16									45	70	36	167
SKJ purse seine (domestic)	Planned							25	25	20				70
	Achieved							8	14	15				37
SKJ super seine (domestic)	Planned									30				30
	Achieved								23	12				35

Note: BIG/SWO EC and WC is the bigeye and swordfish surface longline fisheries combined on the east coast and west coast. STN ECNI and WCSI is the southern bluefin tuna surface longline fishery on the east coast and the west coast.

Table 16. Observer coverage in the southern bluefin tuna surface longline fishery during the 2017/18 fishing year in areas 5 and 6.

CCSBT Statistical Area	Total Effort	Total Observed Effort	Observer Coverage (percentage)
5	910651	156373	17.17
6	445185	76580	17.20

Disclaimer: This map and all information accompanying it (the "Map") is intended to be used as a guide only, in conjunction with other data sources and methods, and should only be used for the purpose for which it was developed. The information shown in this Map is based on a summary of data obtained from various sources. While all reasonable measures have been taken to ensure the accuracy of the Map, MPI does not warrant or represent in relation to the accuracy, completeness, reliability or timeliness of the information shown on the Map. The user of the Map is advised to verify any information shown on the Map with other sources. The user of the Map is also advised to verify any information shown on the Map with other sources. This map is subject to Crown copyright administered by Ministry for Primary Industries (MPI).

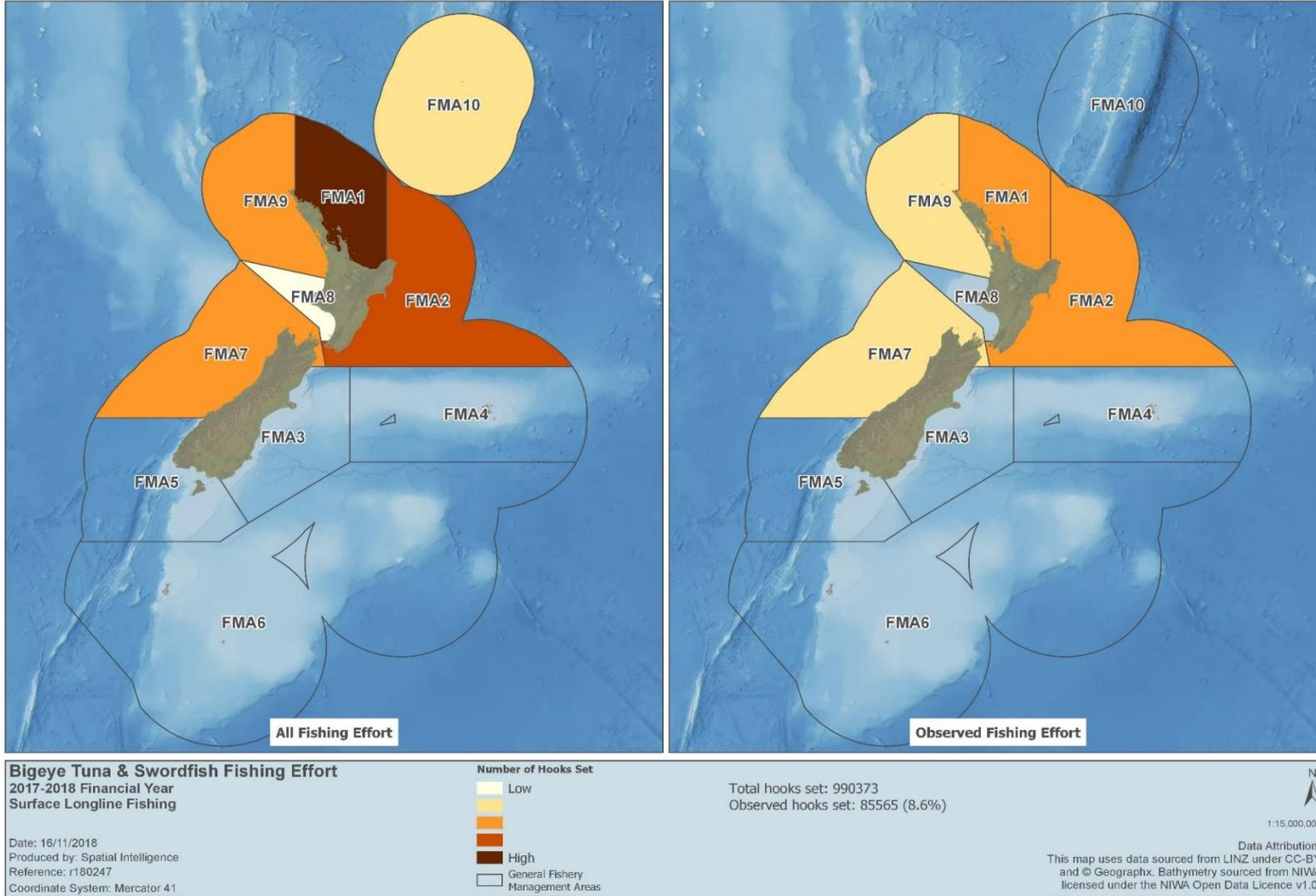


Figure 34. The bigeye and swordfish surface longline fishery: all fishing effort (number of hooks) and observed fishing effort (number of hooks observed) for the 2017/18 financial year.

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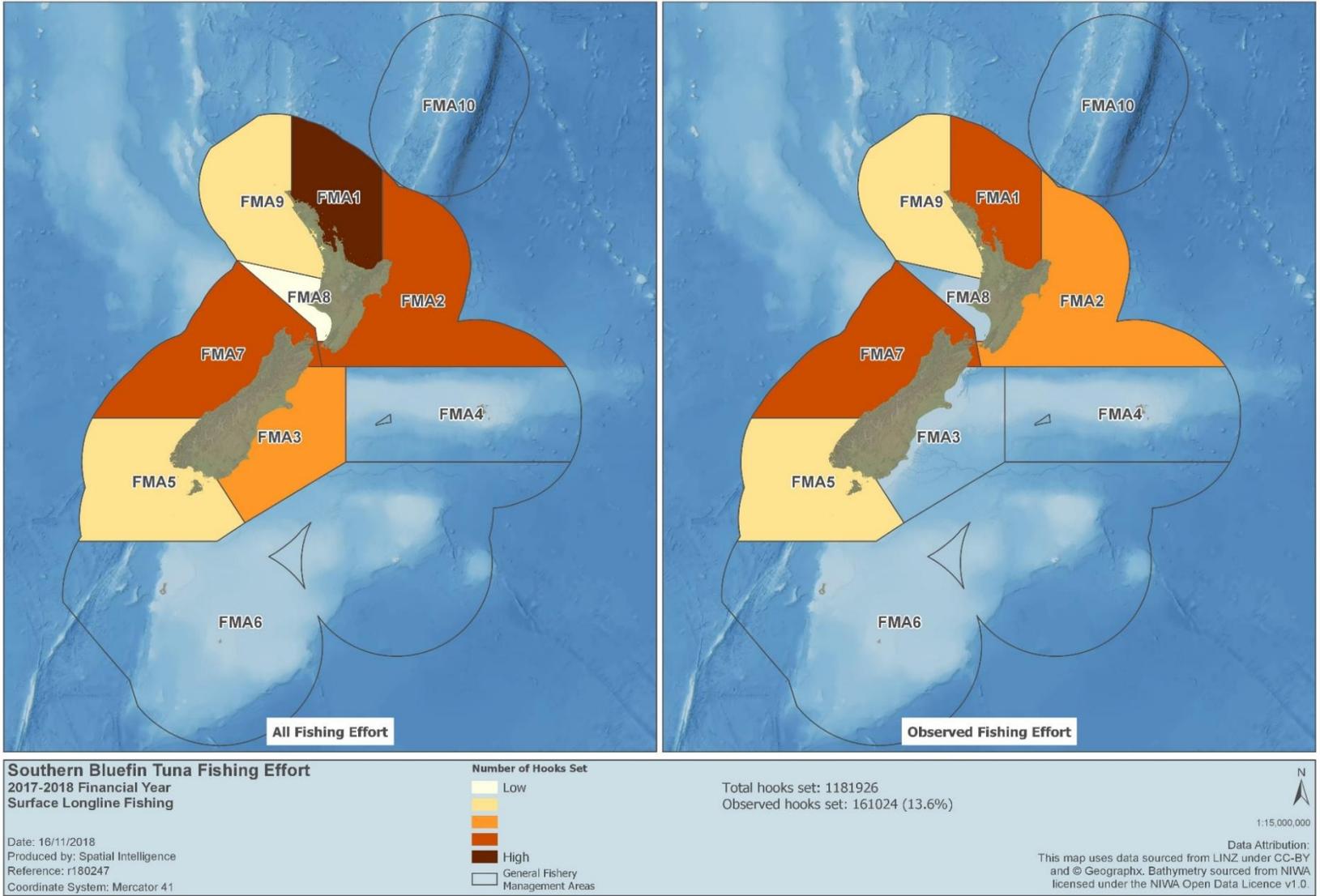


Figure 35. The southern bluefin tuna surface longline fishery: all fishing effort (number of hooks) and observed fishing effort (number of hooks observed) for the 2017/18 financial year.

MONITORING OF NON-COMMERCIAL FISHERIES

The information in this section is provided by the New Zealand Sport Fish Council (NZSFC).

New Zealand Gamefish Tagging Programme

The following tables (**Table 17,18 and 19**) show the number of sharks and billfish tagged in the New Zealand Gamefish Tagging Programme in the EEZ by sport fishing year (July to June). The percent tagged is taken from NZSFC tallies of landed fish and tagged fish as recorded by member clubs. The recaptures are for fish with recapture dates within each year.

The decrease in the number of tagged mako and blue sharks in the 2016/17 and 2017/18 sport fishing year compared with previous years was the result of lower fishing effort during poor summer seasons.

The 2015/16 sport fishing year was a particularly good year for the striped marlin recreational fishery due to good weather conditions and warmer water. This was followed by a cold fishing season in 2017 that resulted in lower fishing effort and lower catch rates and a slightly better season in 2018.

Table 17. Number of mako sharks tagged and released by year and recaptures.

Mako sharks	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	2018/ 18	Average 2008-2018
NZ EEZ tagged	285	494	609	488	524	367	439	583	330	272	439
% tagged	87	90	92	92	94	93	97	96	98	98	94
Recapture	5	7	7	8	11	6	0	2	3	4	5

Table 18. Number of blue sharks tagged and released by year and recaptures.

Blue sharks	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	2018/ 18	Average 2008-2018
NZ EEZ tagged	101	73	128	142	150	124	110	170	54	30	108
% tagged	89	85	88	90	92	95	90	96	95	94	91
Recapture	4	3	3	4	3	3	0	0	1	1	2

Table 19. Number of billfish tagged and released by year and total billfish recaptures.

Billfish	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	2018/ 18	Average 2008-2018
Striped marlin	1058	858	733	663	858	520	1088	1658	513	617	857
Blue marlin	24	32	78	50	18	9	37	35	34	68	39
Shortbill spearfish	5	15	21	5	0	6	12	26	12	22	12
Swordfish	24	18	37	51	47	38	34	29	31	50	36
Black marlin	2	3	1	3	3	4	7	5	4	5	4
Billfish recaptures	3	2	1	1	4	4	2	7	3	4	3

Recreational catch of striped marlin

The recreational catch of striped marlin returned to average levels in 2017/18 after a poor season in 2016/17 (Figure 36).

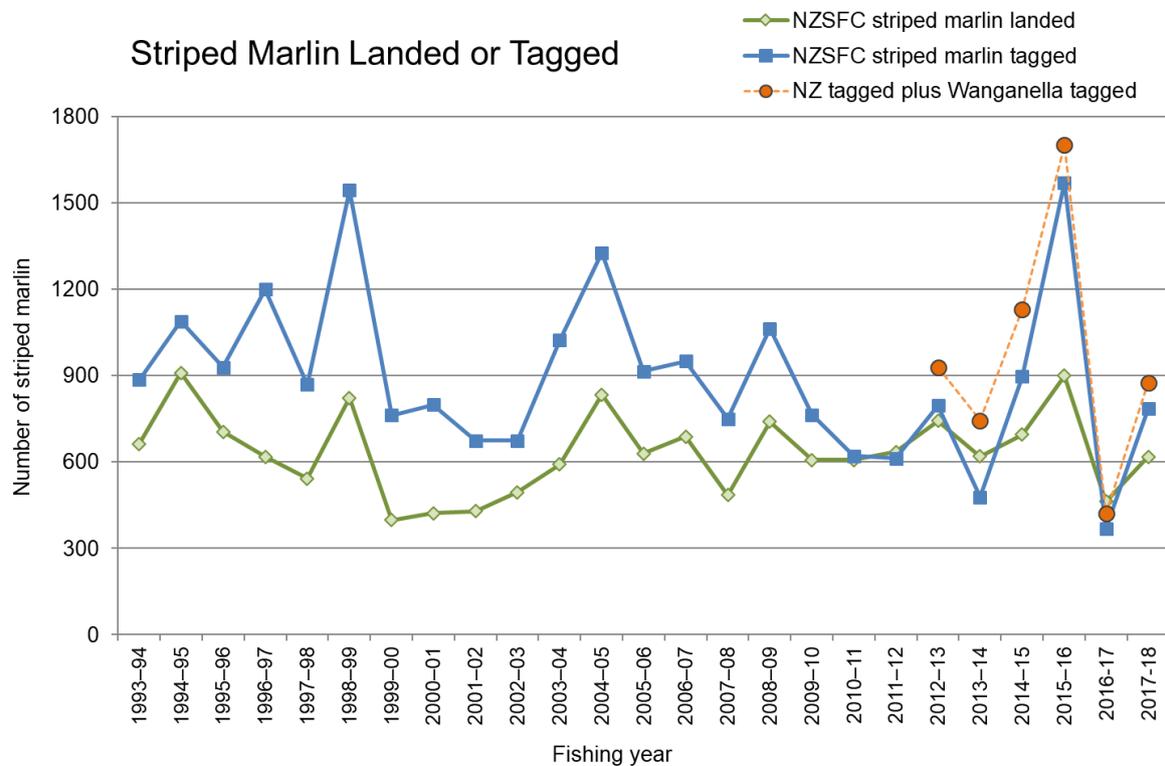


Figure 36. Recreational catch of striped marlin that were landed, tagged and Wanganella tagged from 1993/04 sport fishing year to 2017/18.

Note: Wanganella Banks is outside the New Zealand EEZ and has experienced high catch rates of striped marlin (at times over 20 fish per day). As this is outside the EEZ, NZSFCs do not include these fish in club or national statistics and therefore this data is provided as an additional data set in Figure 36.

Recreational and commercial catch combined of striped marlin

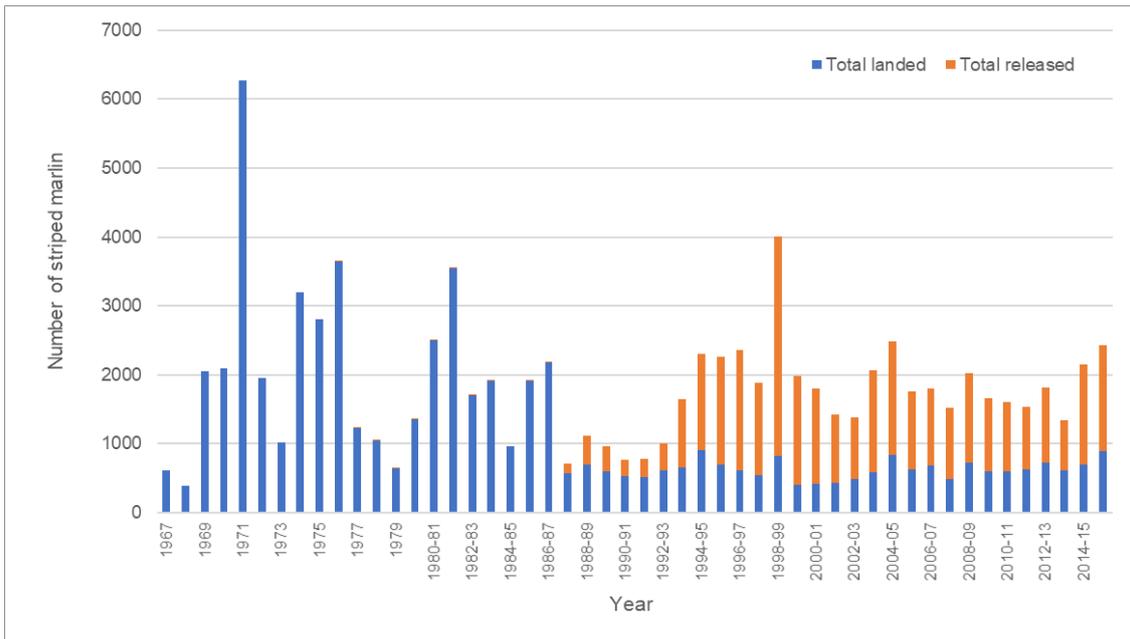


Figure 37. Total catch by all recreational and commercial fleets and methods, landed and released.

Note: data prior 1980 for catch from foreign licence fleet records is only for Japanese vessels with a southern licence not Japanese and Korean vessels with a northern licence.

Landed recreational catch of sharks for NZSFC records

The general declining trend of landed recreational catch of sharks (in particular mako sharks and blue sharks) from the late 1990s the mid-2000s was due to the recreational sector removing shark competitions and discouraging the landing of pelagic sharks in light of concerns of declining populations. These changes have maintained landings at a low level despite populations recovering. These days, sharks (mainly blue sharks) are targeted off Otago Heads in February, but they are tagged and released and very few are landed.

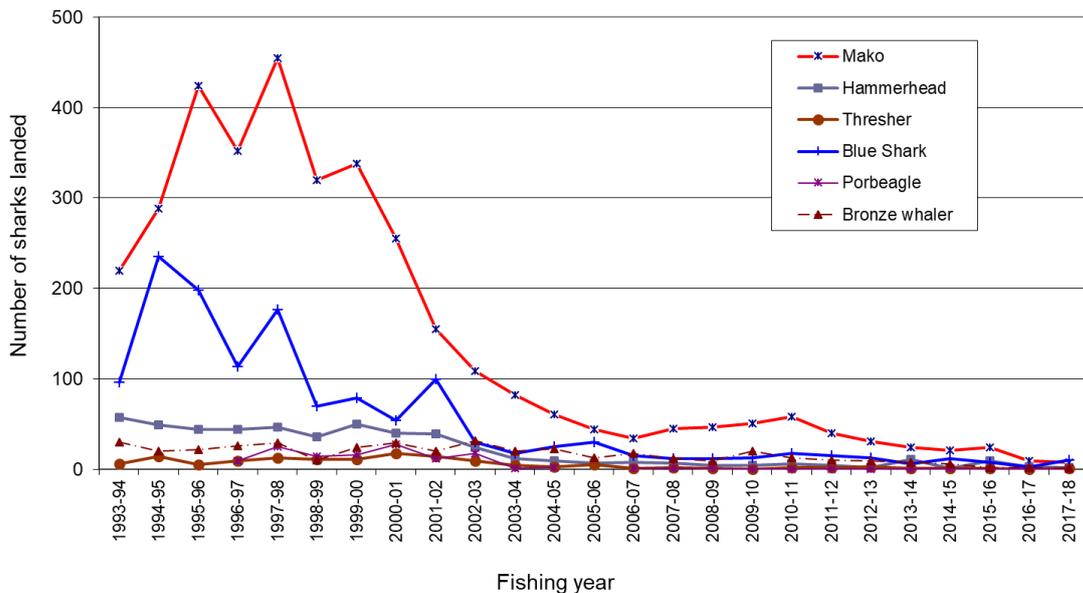


Figure 38. Recreational catch of shark species that were landed for NZSFC records from 1993/94 to 2016/17 sport fishing year.

Recreational catch of southern bluefin tuna

Prior to 2007, recreational catches of southern bluefin tuna were likely rare. This may have been due to the locations and seasons which the fish were found in New Zealand fisheries waters (generally winter months, in areas with little recreational fishing). After 2007, the Pacific bluefin tuna recreational fishery developed and there were reports of bycatch of southern bluefin tuna. Over the last decade, recreational catches of southern bluefin tuna have been recorded in the months from February to September and is becoming a more targeted species for recreational fishers on both coasts.

Table 20. Reported catch and effort for southern bluefin tuna (SBT) from amateur fishing charter vessel logbooks by October fishing year.

Year	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				
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
Total	151	134	123	5 311

Compulsory reporting for recreational charter vessel operators was introduced in November 2010. In 2012, four recreational charter vessel operators reported catching southern bluefin tuna in New Zealand fisheries waters. Reported catches since then are illustrated in **Table 20** above.

In 2017, a mixture of factors, including favourable weather conditions, proximity of fish, and increased recreational interest in southern bluefin tuna, resulted in much higher levels of catch than previously seen in this fishery. Records gathered from gamefish clubs show 266 fish were landed with an estimated total weight of 19.4 tonnes, and 13 were released alive. Additionally, there were 52 fish reported by charter vessel logbooks, an allowance of 15% was made for unaccounted catch, which increased the total estimate to 24.3 tonnes.

The 266 landed and 13 released alive fish in 2017 were from the eastern Bay of Plenty fishery, and the majority of those catches were late June and July. **Figure 22** below, shows that over forty trips caught two fish, with some trips catching four or five in 2017. The on-site survey in 2018 recorded 90% of trips landed no southern bluefin tuna and of those that did, 91% landed one fish per trip and the other 9% two fish per trip.

In 2018, the on-site survey at Waihou Bay intercepted 336 boats with 34 landed southern bluefin tuna. The total landed catch, estimated using average catch from surveyed boats and trailer counts of non-surveyed boats, was 69 southern bluefin tuna (with a CV of 0.068). A further 22 southern bluefin tuna were recorded by other sport fishing clubs. In addition, there is logbook data of recreational catch from charter boats of 12 southern bluefin tuna and anecdotal information of the South Island fishery estimates the landed catch by private fishers to be in the range 60 to 100 southern bluefin tuna. An allowance of 15 to 30% was made for unaccounted catch. The recreational harvest estimate for southern bluefin tuna in 2017/18 is therefore 15 tonnes and the estimated range is 13.4 tonnes to 17.0 tonnes.

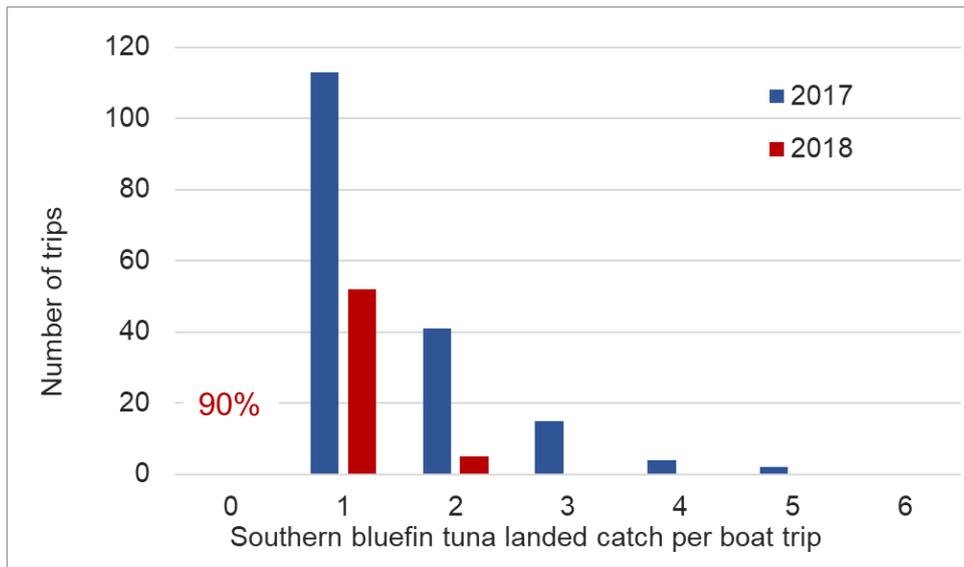


Figure 22. The number of southern bluefin tuna landed per boat trip in 2017 and 2018. 90% of surveyed boat trips from Waihou Bay did not land southern bluefin tuna in 2018

Most of southern bluefin tuna that were caught in the eastern Bay of Plenty fishery were over 60 kilograms, with the average weight in 2017 at 72 kilograms (**Figure 23**). Weigh station records show that 26 southern bluefin tuna were over 100 kilograms, with the heaviest being weighed at 143.2 kilograms.

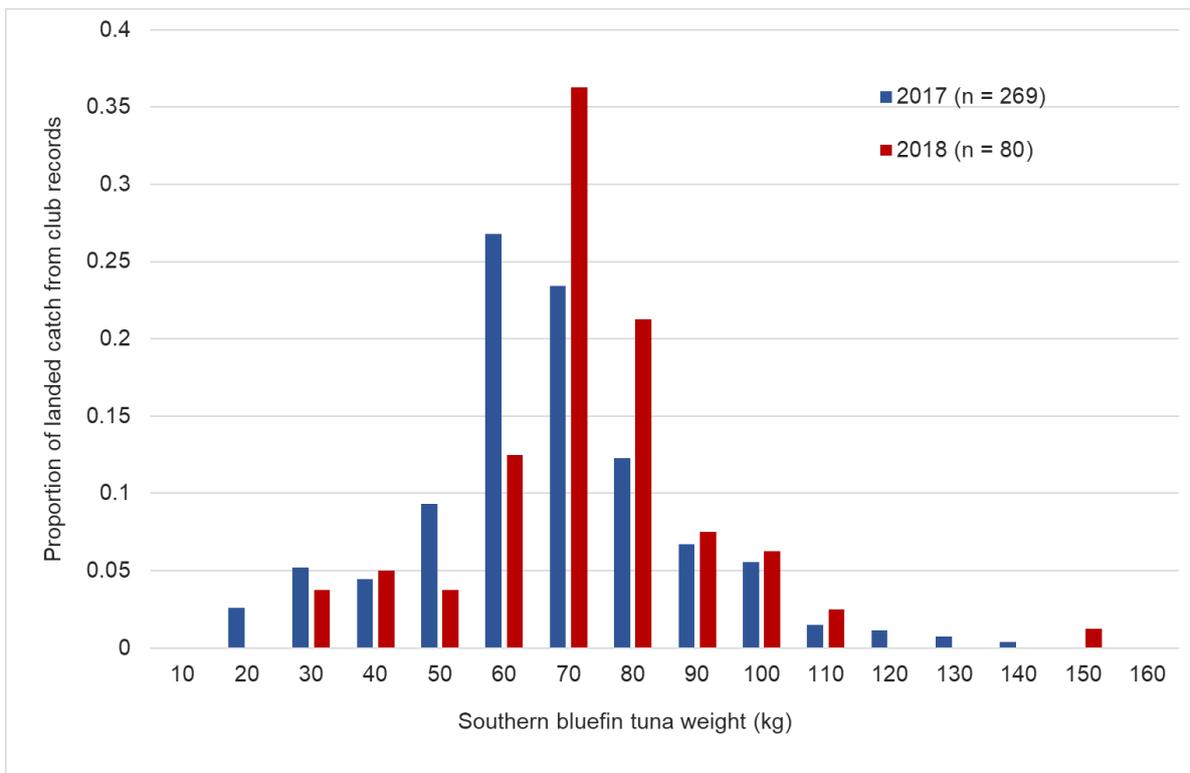


Figure 23. The number of southern bluefin that were weighed at 10 kilogram intervals.