



Fisheries New Zealand

Tini a Tangaroa

Annual Review Report

For Highly Migratory Species Fisheries 2017/18



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1 Overview

The Annual Review Report for Highly Migratory Species Fisheries 2017/18 (ARR) reviews the delivery of tasks identified in the Annual Operational Plan for Highly Migratory Species Fisheries 2017/18 (AOP), as well as overall performance of highly migratory species (HMS) fisheries in relation to some of the wider HMS management objectives. The AOP 2017/18 ran from 1 July 2017 to 1 June 2018 and this ARR will review the delivery of tasks during this timeframe and over the 2016/17 fishing year, or earlier years if the data is not yet available.

Tasks identified in the AOP include Key Focus Areas (KFAs) and Business as Usual tasks (BAUs) that were designed to contribute towards the 12 Management Objectives defined in the National Fisheries Plan for Highly Migratory Species 2010 (HMS Fisheries Plan):

Use outcome	1	Promote a viable and profitable tuna fishery in New Zealand
	2	Maintain / enhance world class gamefisheries 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

3 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 (NPOA-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 2017/18 contained a number of management initiatives and tasks to meet objectives contained in the NPOA-Seabirds. These included monitoring of seabird captures and fleet behavior, supporting science related to seabird captures, and advocating for improvements internationally.

For the 2016/17 fishing year, there were 51 observed captures of seabirds in the surface longline fishery (16.5% observed effort). This figure comprises 40 dead and 11 live releases. Although this is a dramatic decrease on the previous year's 131 captures (14% observed effort), there remained a considerable risk to the high risk species which are captured in the surface longline fishery (**Table 8**).

In lieu of sufficient observer coverage levels to use capture rates², seabird proxy measures are used to provide an indication of incidental seabird capture in the surface longline fishery. Three proxy measures are used: the level of observed compliance with mitigation measures; the number of vessels with seabird management plans in place; and the level of self-reporting of non-fish bycatch on observed trips compared with non-observed trips.

3.1.1 Mitigation use rates

Tori line, line weighing, and nightsetting use rates on observed sets.

The *Fisheries (Seabird Mitigation Measures – Surface Longlines) Circular 2014* requires that commercial fishers use two out of three prescribed mitigation measures when setting surface longlines:

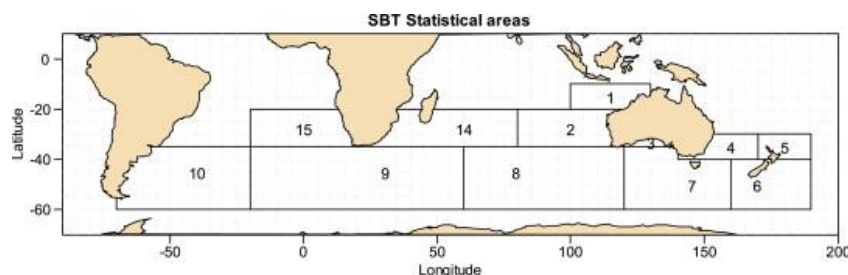
1. Use tori lines; and
2. *Either:*
 - a. Set lines at night (nightsetting); or
 - b. Use weighted lines in accordance with prescribed specifications

The following table provides the seabird mitigation use rates in the swordfish fishery and tuna fisheries (southern bluefin, bigeye, pacific bluefin, and yellowfin) in stratum areas 5 and 6³.

¹ The review of the NPOA-Seabirds commenced in April 2017, and there is significant input from the multi-stakeholder Seabird Advisory Group, which was established under the last NPOA-Seabirds. The review is examining the extent to which the five year objectives of the NPOA-seabirds have been achieved and identifies key actions as priority for the next revision. The long term objectives are also being considered for modification, as well as the effectiveness of the implementation processes. A new NPOA-Seabirds is expected to be released in 2018. The current NPOA-seabirds will remain in effect until the new NPOA-seabirds is completed.

² 20% observer coverage of fishing effort at is required to produce sufficiently reliable estimates of seabird bycatch in fisheries.

³ CCSBT reporting has been used as a template, and hence the CCSBT stratum areas are used. Strata 5 and 6 basically divide up the two surface longline fisheries in New Zealand to the North Island fishery and South Island fishery by the 40 degree south line.



Observer reporting of line weighting has previously not been sufficient to indicate if the snoods are being weighted according to the required specifications, resulting in the 0% figures in the following two tables. Observer forms are currently under review in order to capture this information in the future. In particular, those fishers targeting swordfish tend to set earlier and use line weighting, therefore Table 1 implies a level of non-compliance that is likely overstated.

Table 1. Observed mitigation use rates per year and area for swordfish that was targeted only.

Calendar year	Area (CCSBT stratum)	Tori line only	Tori line and nightsetting	Nightsetting only	Tori line and line weighting	Tori line, nightsetting, and line weighting
2016	5	27.6	72.4	-	-	-
	6	-	100	-	-	-
2017	5	66.7	29.2	-	-	-
	6	-	100	-	-	-

Table 2. Observed mitigation use rates per year and area for tuna species (southern bluefin, bigeye, pacific bluefin, and yellowfin) that were targeted only.

Calendar year	Area (CCSBT stratum)	Tori line only	Tori line and nightsetting	Nightsetting only	Tori line and line weighting	Tori line, nightsetting, and line weighting
2016	5	6.1	67.0	25.9	-	-
	6	0.8	83.6	15.6	-	-
2017	5	3.0	93.9	3.0	-	-
	6	0.8	99.2	-	-	-

3.1.2 Risk management plans in place

Number of vessels with Protected Species Liaison Officer Programme risk management plans in place (to be coordinated by the Liaison Officers).

Vessel-specific risk management plans have been a part of the surface longline fishery since the end of the 2015/16 fishing year. They have been revised each year, and are placed on vessels as Liaison Officers conduct vessel visits. The programme was most recently revised in early 2018, and 26 plans have been put in place on vessels in the surface longline fleet since then.

Although observer reporting is currently not collecting sufficient information to adequately report on the use of line weighting, the risk management plan which the Protected Species Liaison Officer Programme placed on each vessel in the fleet records the vessel's specific non-fish protected species mitigation practices, including if the vessel intends to use line weighting. A summary of this information is provided in Table 3, and indicates that the use of line weighting has increased since the 2015/16 fishing year, with around 40% of the fleet including the practice in their risk management plan as a seabird mitigation plan.

Table 3. The number of vessels in the surface longline fleet with risk management plans in place.

Fishing year	Number of vessels operating in the fleet	Vessels previously active, but inactive this year	Vessel visits	Risk management plans prepared or updated	Line weighting indicated as a seabird mitigation measure in the plan
2015/16	38	-	27	18 (+ 3 draft)	4
2016/17	30	9	39,30	39	12
2017/18	33	5	33	33	14

Note: the figures for 2017/18 fishing year were as of the end of April 2018.

Note: Each year the Liaison Officer Programme has updated the vessels specific management plans. Last year's seabird management plans have been updated to include all protected species and are now termed risk management plans.

Note: 39 vessels were visited and a seabird management plan completed. Nine of those were not active in the fishery subsequently, and therefore only 30 vessels were covered during the second round of vessel visits.

3.1.3 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 2016/17 fishing year, the percentage of commercial trips that were not observed and for which a non-fish bycatch form was submitted fell to the lowest level since this proxy began in 2014/15, to 3.1% (Table 4). This low percentage of non-observed commercial trips compared with the high percentage of observed commercial trips⁴ for which a non-fish bycatch form was submitted suggests a level of underreporting of non-fish bycatch over the last three fishing years.

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

Use rate	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	34.5%	6.2%
2015/16	55.7%	9.4%
2016/17 ⁵	31.7%	3.1%

Note: Observer reporting was compared with fisher reporting for nine observer trips. It was found that observer reporting was around 15% higher than fisher reporting, and applying this to the non-observed reporting increases the rate marginally.

The low level of self-reporting on non-observed trips was raised at the Fish Plan Advisory Group meeting in November 2017 and again at the Longline Workshop in April 2018. It was highlighted that reporting seabird captures is a legal requirement and fishers were encouraged to be more diligent in this area.

3.1.4 Other management initiatives

As part of the response to high seabird capture events in the 2015/16 fishing year, MPI consulted on strengthening the seabird mitigation requirements in the surface longline fishery. The proposal was, that as well as tori lines, line weighting also become a requirement at all times when setting surface longlines, with night setting remaining an additional voluntary measure. A key issue raised during consultation was the health and safety risk associated with line weighting. Fisheries New Zealand is conscious of the risks associated with the use of line weighting and is encouraging measures aimed at improving voluntary uptake. Since consultation, there has been a significant increase in the uptake of line weighting in the surface longline fishery, with around 40% of risk management plans in place (as of April 2018) including the use of line weighting as a seabird mitigation measure (Table 3).

During July 2017, hook shielding devices were trialled as an alternative 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.

MPI later put forward a proposal to the Western and Central Pacific Fisheries Commission (WCPFC) to include hook shielding devices as a standalone seabird mitigation measure. Although the proposal was not agreed at the time, hook shielding devices have been included for consideration by the subsidiary bodies of the WCPFC during 2018, and therefore MPI will continue to investigate this option as an alternative seabird mitigation device.

During 2017/18, the Department of Conservation (DOC) Protected Species Liaison Officer Programme appointed a new coordinator and a new liaison officer, and updated a number of documents for inclusion in vessel management plans, such as the risk management plan (described in section 2.1.2). For the 2017/18 fishing year, the programme visited each vessel in the surface longline fleet. During this visit,

⁴ There can be multiple commercial trips within an observer trip.

⁵ 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.

the vessel's risk management plan was updated to include measures to manage the risk of seabird capture *and* the risk of other non-fish protected species capture, e.g. turtles.

During 2017/18, the Seabird Advisory Group began reviewing the NPOA-Seabirds. Members of the HMS team attend and contribute to regular meetings held by the Seabird Advisory Group to progress the review.

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).

Since the inaugural meeting of the Antipodean Albatross Working Group, there have been three meetings, the latest of which was held in April 2018. Outputs from the Working Group include a high level brief providing an overview of the issue and a list of action items.

The issue of the declining antipodean albatross population was raised at the HMS Longline Workshop held on 19 April 2018 in order to raise fisher awareness of this serious issue.

The NPOA-Seabirds is based on a risk assessment approach to identifying and managing 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 is intended to extend the domestic risk assessment across the southern hemisphere. Recent progress has been in estimating mortalities of *Diomedea* species (great albatross) in each international fleet, which should be completed by June 2018. The assessment will then be extended across all species protected under the Agreement on the Conservation of Albatrosses and Petrels (ACAP), with the final report being discussed in February 2019. A key component in 2018 has been the collaboration with Japan, who have made available the data required to examine the overlap between *Diomedea* species and fisheries.

Through its Pacific Memorandum of Understanding (MOU) team, MPI engages with Pacific Island Countries and territories providing support to ensure international obligations are met. This support includes developing national governance approaches such as NPOA-Seabirds and amendments to licensing conditions.

Although there are no actions specifically targeting HMS recreational fishers with regard to potential impact on seabird populations, there are wider initiatives going on.

In the last financial year, MPI has spoken with recreational fishers through the Southland Boat Show, the Wellington Boat Show, the Auckland on Water Boat Show, and the Beach and Boat Fishing Competition. At the last two events, MPI shared a stand with the Southern Seabirds Solutions Trust. At each event MPI have provided copies of the Responsible Fishing Guide that details safe methods to deal with seabirds that have been caught on hooks and in line.

NIWA is continuing boat ramp surveys in and around the Auckland area in which, among many other items, survey respondents are questioned about seabird captures. The National Panel Survey 2017-2018 will have an exit survey at the end of 2018 that will also incorporate seabird questions.

KFA 2: CONTRIBUTE TO INTERNATIONAL PROCESSES THROUGH RFMOS

An important aspect of BAU operations for the HMS team at MPI is contributing to international processes, including the work of CCSBT and WCPFC. Over the course of the 2017/18 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 (RFMOs).

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

3.1.5 CCSBT

CCSBT meetings that were attended by New Zealand officials during the 2017/18 fishing year were:

- Twenty Second Meeting of the Scientific Committee, 28 August-2 September, 2017
- Twelfth Meeting of the Compliance Committee, 5-7 October, 2017
- Twenty Fourth Annual Meeting of the Commission, 9-12 October, 2017

As part of BAU, MPI administers the CCSBT Catch Documentation Scheme and authorised vessel list, prepares and submits fisheries data, and prepares for annual subsidiary meetings.

Key recommendations from the Scientific Committee meeting included the increase in global TAC to 17,647 tonnes for the 2018-20 quota block. There has been an improvement in the southern bluefin tuna stock status, along with other positive indicators for the stock. A new stock assessment indicates that the stock remains at a low biomass level, estimated to be 13% of the initial spawning stock biomass, and below an optimal level (Maximum Sustainable Yield, which is around 27%). However, the Management Procedure predicted further improvement even with an increase in global catch limit at the maximum level.

At the Compliance Committee, New Zealand's large number of duplicate tag numbers was highlighted, however the implementation of the electronic Catch Tagging Forms as of 1 January 2018 should help address this problem. There were also discussions on electronic monitoring and how it may be integrated into fleets. It was noted that Australia has 100% electronic monitoring in its longline fishery, and other Members (including New Zealand) showed progress towards integrating an electronic system.

From the Compliance Committee meeting, key recommendations included writing to China seeking greater cooperation in the operation of CCSBT's Catch Documentation Scheme, participation at CCSBT meetings, and improved control of their vessels likely to catch southern bluefin tuna.

Key outcomes of the Annual Meeting included:

1. The agreement to increase the Global TAC by 3,000 tonnes to 17,647 tonnes per annum for the 2018-2020 quota block based on the outcome at the Scientific Committee. As a consequence of the 3,000 tonne increase, New Zealand's national allocation increased by 88 tonnes to 1,088 tonnes per year.
2. Positive outcomes with regard to accounting for all sources of mortality as part of national allocations (which will be required in 2018) with all Members committing to allocations. This included a preliminary commitment from Australia to assign 250 tonnes to its recreational fishery.
3. New Zealand's proposed changes to the carry-forward resolution were adopted. This revised resolution better mirrors New Zealand's own domestic application of carry-forward rules, in that carry-forward can be used over multiple years.

There was an additional meeting of the CCSBT Strategy and Fisheries Management Working Group in 2018 that was primarily aimed at starting discussions on management objectives for the new management procedure in light of the improved stock status estimate. The Commissioners chose a number of scenarios for scientists to explore ahead of the next Commission meeting. New Zealand proposed to develop a new allocation model for potential new members but there was no consensus amongst members and the work will not proceed.

3.1.6 WCPFC

WCPFC meetings during the 2017/18 fishing year were:

- Regular Session of the Scientific Committee, 9-17 August, 2017
- Technical and Compliance Committee, 27 September-3 October, 2017
- Working group on south Pacific albacore, 4 October, 2017
- Annual WCPFC Meeting, 3-7, December, 2017
- New Zealand delegations also attended various Pacific Islands Forum Fisheries Agency (FFA) and Te Vaka Moana meetings throughout the year.

Work at WCPFC this year primarily focused on seabirds, compliance monitoring, harvest strategies, marine pollution, and the tropical tuna measure⁶.

At the Commission meeting, the New Zealand delegation proposed to amend WCPFC's seabird mitigation measure to allow for the use of hook shielding devices, changes to tori line requirements, and amendments to make current reporting requirements clearer. The hook shielding device changes were not agreed to and instead were referred to the Scientific Committee (SC) and subsequent to discussion at the next Commission meeting, the remaining changes were adopted. New Zealand will continue to lead on further refinements to the seabird mitigation measure in 2018.

A number of components for harvest strategies were also addressed, with an acknowledgement that the Commission and its subsidiary bodies have not committed adequate time and resources to progressing harvest strategies. The Commission agreed to increase the time SC spent on harvest strategies. There will be a dedicated discussion in 2018 by SC and the Commission on management objectives in terms of candidate target reference points for bigeye and yellowfin, which needed to be reframed given the recent scientific advice that the bigeye status change from rebuilding to the development of a target reference point. The harvest strategy workplan was also amended to address delays in agreeing to components under the previous workplan.

The expiry of the Compliance Monitoring Scheme was another major focus. The Commission agreed to establish an Interessional Working Group on the Independent Review of the Compliance Monitoring Scheme. The Commission also agreed to adopt a one year Compliance Monitoring Scheme while a new measure is developed in 2018.

Albacore remained a focus for FFA members at WCPFC. A proposal was put forward for a South Pacific albacore Target Reference Point which was not agreed to, but is now scheduled for adoption at WCPFC15. FFA (led by New Zealand) also put forward a plan to establish an interessional virtual working group to address the comprehensive sustainable management of the South Pacific albacore fishery by developing plans to address harvest strategy, allocations and limits, monitoring and reporting gaps.

Another focus for the Commission was the issue of marine pollution. New Zealand supported the adoption of an FFA-led conservation measure to address marine pollution from fishing vessels. This conservation measure focuses on activities associated with fishing that may affect the marine environment, as well as those that play a role in minimising incidental mortality of non-target species and impacts on the marine ecosystem.

Finally, the Commission adopted a bridging measure on the tropical tuna fisheries. This measure covers purse seine and longline fisheries for bigeye, skipjack, and yellowfin tunas. Under this measure New Zealand retained its allocation of high seas purse seine days (160) for another three years and elected to apply the 2018 fish aggregating device (FAD) prohibition on the high seas for the months of April – May, in addition to the July – September prohibition. The Commission also agreed that the FAD Management Options group would meet in 2018 to provide the WCPFC with advice on the implementation of non-entangling and/or biodegradable material on FADs and the appropriateness of the current FAD set limits.

Ongoing areas of interest for New Zealand at WCPFC include seabird mitigation technology, compliance monitoring, management of high seas areas, harvest strategies, and the development of the south Pacific albacore roadmap.

KFA 3: ENSURE HMS COMPLIANCE WITH MANAGEMENT MEASURES

During the 2016/17 fishing year, there were 58 inspections of HMS vessels in port, with eight breaches found. Non-compliance with seabird mitigation requirements was not detected. Most of the breaches were in relation to reporting issues and for which warnings and infringements were issued.

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 (**Table 4**). As mentioned previously, this was raised at the Fish Plan Advisory Group meeting in November 2017 and again at the Longline

⁶ <https://www.wcpfc.int/meetings/wcpfc14>

Workshop in April 2018. It was highlighted that reporting seabird captures is a legal requirement and fishers were encouraged to be more diligent in this area.

3.1.7 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 2016⁷ 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. In this regard, New Zealand is performing well below other Catch Documentation Scheme participants. However, as of 1 January 2018, the Catch Tagging Form is electronic, and includes a feature that highlights the tag number if it has been used previously, and should therefore help address this issue.

Table 5. CCSBT Catch Documentation Scheme compliance statistics for the 2016 calendar year

Category	Compliance
% of CMFs for Domestic Landings that contain complete and accurate information	98%
% of CMFs for Exports that contain complete and accurate information	99.6%
% of CMFs for Domestic Landings where the catch/harvest weight differs from the landed weight by <=2.5%	100%
% of CMFs for Exports where the catch/harvest weights are the same on both exporter and importer copies	96.9%
% of CMF for Exports where SBT catch/harvest numbers are the same on both exporter and importer copies	97.3%
% of CMFs with all correctly corresponding CTFs (where required)	100%
% of CTFs where fish numbers exactly match CMF	99.4%
% of CTFs where fish weights exactly match CMF	99.1%
Number of duplicate tag numbers submitting in tagging data	732

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

4 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* (NPOA Sharks)⁸ 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.

MPI is focused on understanding and managing the interaction of HMS fisheries with sharks. All shark related actions are aligned with the goals of NPOA-Sharks in the following key areas:

⁷ CCSBT uses calendar year for reporting and given this report was to the Compliance Committee during 2017, 2016 is the latest data on offer.

⁸Available here: <https://fs.fish.govt.nz/Page.aspx?pk=165>

- 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

4.1.1 Monitoring HMS sharks

Generally, there has been a downward trend of total catch of HMS sharks (blue, mako, and porbeagle sharks) over the last five years.

Total catch of blue shark reported on monthly harvest returns was 122 tonnes for the 2016/17 fishing year (the TACC is 1,880 tonnes). Over 99% of blue sharks are caught as bycatch in the surface longline fishery.

Total catch of mako shark reported on monthly harvest returns was 38 tonnes for the 2016/2017 fishing year, (the TACC is 200 tonnes). Around 90-95% of mako sharks are caught as bycatch in the surface longline fishery. This catch was lower than the previous 2015/16 fishing year, and the lowest catch of mako shark in the last five fishing years (**Figure 11**).

Total catch of porbeagle shark reported on monthly harvest returns was 27 tonnes for the 2016/2017 fishing year (the TACC is 110 tonnes). Around 80-90% of porbeagle sharks are caught as bycatch in the surface longline fishery. This follows a consistent downward trend since the 2014/15 fishing year, and was the lowest catch of porbeagle sharks for the last five fishing years (**Figure 12**).

4.1.2 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 (ratio approach, 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. MPI is currently reviewing the shark finning ban. MPI will present the initial outcomes to the Shark Advisory Group in mid-2018.

The review will include compliance with landing, discarding, and reporting requirements, the effects of the ban on catch levels, and compliance with Schedule 6 release conditions. The review will incorporate data and feedback from Fisheries Officers, Fisheries Observers, and fishers. The review will contribute to the upcoming NPOA Sharks review.

4.1.3 NPOA Sharks Review

The NPOA Sharks-2013 will be reviewed in 2018/19. The review will be led by the Deepwater Team with input from the Shark Advisory Group.

4.1.4 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 RFMOs, including WCPFC and CCSBT and treaties including the Convention on the Conservation of Migratory Species of Wild Animals (CMS)

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 Working Group, chaired by Japan, is taking a multi-phased approach towards the development of the measure. Phase 1 is compiling the current shark Conservation and Management Measures into a single measure. This will be followed by Phase 2 where potential improvements or changes will be considered for the measure. It is intended that the final measure will be presented to the Scientific Committee and Technical and Compliance Committee prior to consideration at the Commission meeting in December 2018.

CMS

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) is an environmental treaty that provides a global platform for sustainable use and conservation of migratory species and their habitats. Species listed in Appendix II of the CMS are migratory species that have an unfavourable conservation status and require international agreements for their conservation and management, as well as those that have a conservation status which would significantly benefit from the international cooperation that could be achieved by an international agreement. The Convention encourages the Range States to species listed on Appendix II to conclude global or regional Agreements for the conservation and management of individual species or groups of related species⁹. Most relevant to New Zealand and HMS, the dusky shark (*Carcharhinus obscurus*) and the blue shark (*Prionace glauca*) were recently added onto Appendix II of the CMS.

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 2017/18, MPI engaged with stakeholders via the following:

Hosted HMS Fish Plan Advisory Group meetings

- Hosted Longline Workshops
- Attended the Annual General Meeting of the Tuna Management Association
- Held stakeholder pre-meeting consultations prior to attendance at CCSBT and WCPFC regular meetings
- Hosted HMS Working Group meetings
- Liaised with the Protected Species Liaison Programme officers to ensure up to date information is communicated and to develop documents
- Consulted publically for four weeks on proposals for an in-season increase to the TAC for southern bluefin tuna, where the consultation document was made available on the MPI website and circulated via email to the HMS stakeholders contact list
- Attended the Marine Amateur Fisheries Working Group meeting
- Increased reach and engagement with the recreational sector through the recreational mailing list
- Hosted Antipodean Albatross Working Group meetings

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:

⁹ <http://www.cms.int/en/page/appendix-i-ii-cms>

- 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.

Over the 2016/17 financial year, domestic observer coverage for HMS fisheries totalled 748 days from a target of 930. See section 8 of this plan for planned and achieved observer coverage (**Table 15**) and effort versus observed effort (**Figure 25** and **Figure 26**).

For the southern bluefin tuna fishery, there was no observer coverage planned for the large vessel surface longliners, who have not returned to the fishery since leaving in 2015. Instead, more days were allocated to the small vessel surface longline fleet in order to achieve the 10% observer coverage target set by CCSBT. This increased the days allocated to the domestic fleet from 300 in 2015/16 to 560 in 2016/17.

Overall, for the 2016/17 financial year, the southern bluefin tuna surface longline fishery achieved 15% observer coverage (13% on the east coast and 18% on the west coast), the bigeye and swordfish fishery achieved 4% observer coverage (4% on the east coast and 4% on the west coast), and the skipjack purse seine fishery achieved 17% observer coverage (**Table 16**).

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.

BAU 4: STRENGTHEN MANAGEMENT OF NON-COMMERCIAL HMS FISHERIES

In 2017 there was a significant increase in recreational catch of southern bluefin tuna off East Cape. The total estimated recreational catch for southern bluefin tuna in 2016/17 fishing year was 24.3 tonnes (up from 1.4 tonnes in 2015/16 fishing year).

A proposal for an in-season increase for southern bluefin tuna was emailed to the recreational mailing list by the MPI Recreational Fisheries team. This email reached 1,424 recreational fishers inviting their participation in the public consultation.

The in-season increase saw the recreational allowance increase from 4 tonnes to 20 tonnes, until the end of the fishing year.

During the in-season increase consultation, issues were raised around the need for stronger management measures for the recreational sector. The 1 October sustainability round for 2018 will review the TAC, including the recreational allowance, and will also include discussion around new management measures for the recreational sector.

MPI 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.

There was no recorded take of southern bluefin tuna through customary permits in 2017.

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 MPI. This is done with input from the DOC and stakeholders. See Section 8 of this review for a list of proposed and ongoing research projects.

BAU 6: CONTRIBUTE TO THE IMPLEMENTATION OF MPI'S MOU ON PACIFIC CAPACITY DEVELOPMENT

MPI has a supporting role providing technical assistance to develop Pacific Island countries and territories' capacity in fisheries administration, specifically through improvements in their fisheries management and monitoring, control and surveillance capacity.

In 2017/18, as in other years, work was done to continue building and maintaining strategic relationships with key resource providers in the Pacific region including the Pacific Community (SPC) and the Pacific Islands Forum Fisheries Agency (FFA); this ensured coordinated and targeted provision of capacity building assistance to countries with which New Zealand has bilateral arrangements.

Additionally, MPI focused on ongoing work as advice provider to the Administrator of Tokelau in the implementation of their EEZ Fishing Regulations 2012. MPI provided input into the FFA process to develop the Tokelau Arrangement Catch Management Scheme for managing South Pacific albacore, and worked on New Zealand's position to further negotiations on an agreed Target Reference Point for South Pacific Albacore at WCPFC14 in December 2017. MPI delivered a number of capacity building workshops to Pacific Fisheries Administrations throughout 2016/17, both in-country and as attachments to MPI.

5 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	2015	No	No
Bigeye tuna	2017	No	No
Pacific bluefin tuna	2016	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

5.1.1 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 5**. In 2017, stock assessments for bigeye, yellowfin, southern bluefin tuna and swordfish 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, Thirteenth Regular Session of the Scientific Committee, Rarotonga, Cook Islands, 9 - 17 August 2017 SUMMARY REPORT".

i) **Albacore (assessed 2015)**

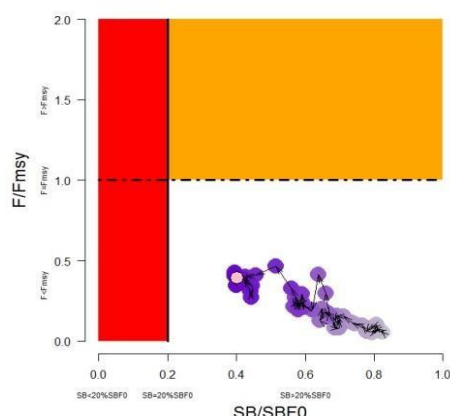


Figure 1. Estimated time-series (or “dynamic”) Majuro plot from the albacore ‘diagnostic case’ model run.

The latest stock assessment for South Pacific albacore tuna (*Thunnus alalunga*) was conducted in 2015. The stock assessment indicates that South Pacific Albacore tuna is not overfished and overfishing is not occurring, with spawning stock currently above both the level that will support the Maximum Sustainable Yield, and the adopted spawning biomass limit reference point.

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 2016 for South Pacific albacore (south of equator) was 58,033 metric tonnes (mt), which was comprised of longline catch of 55,635 mt and troll catch of 2,372 mt.

ii) **Bigeye (assessed 2017)**

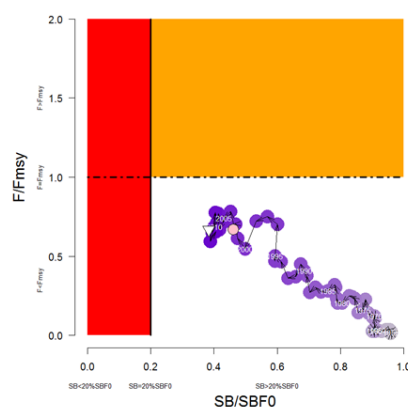


Figure 2. Estimated time-series (or “dynamic”) Majuro plot from the bigeye ‘diagnostic case’ model run.

The latest stock assessment for bigeye tuna (*Thunnus obesus*) was conducted in 2017. The stock assessment indicates that Bigeye tuna is not experiencing overfishing (77% probability) and it appears it is not in an overfished condition (84% probability).

The WCPFC Scientific Committee recommends, as a precautionary approach, that the fishing mortality on the bigeye tuna stock should not be increased from current level to maintain current or increased spawning biomass until the Commission can agree on an appropriate target reference point. Total catch for bigeye tuna in the Western and Central Pacific Ocean in 2016 was 152,806 mt with purse seine catch comprising 63,304 mt of the total catch.

iii) Yellowfin (Assessed 2017)

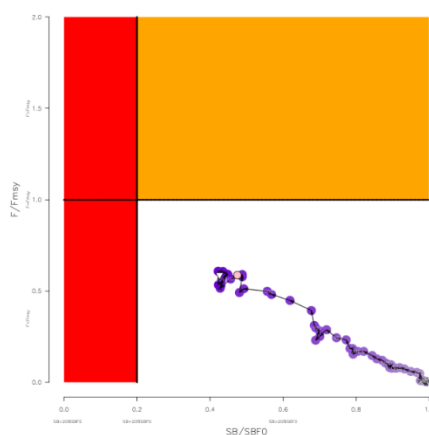


Figure 3. Estimated time-series (or “dynamic”) Majuro plot from the yellowfin ‘diagnostic case’ model run.

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 2016 was 650,491 mt, with purse seine catch comprising 394,756 mt of the total catch.

iv) Skipjack (assessed 2016)

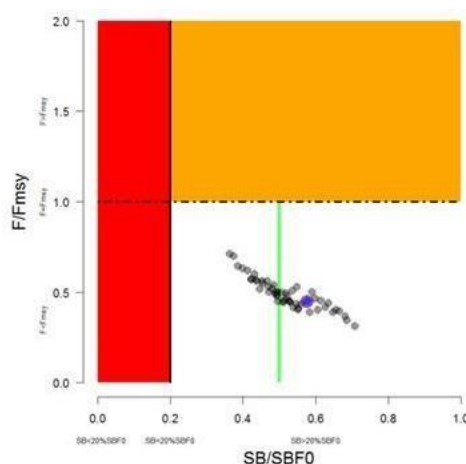


Figure 4. Estimated time-series (or “dynamic”) Majuro plot from the skipjack ‘diagnostic case’ model run (green line represents the target reference point).

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 2016 was 1,816,762 mt, with purse seine catch comprising 1,408,110 mt of the total catch.

v) Southwest Pacific Striped marlin (Assessed 2012)

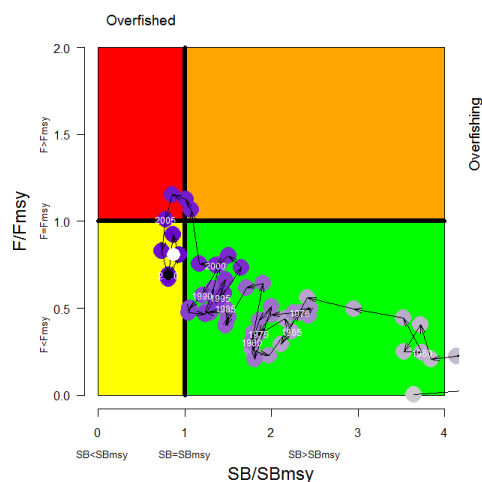


Figure 5. Temporal trend in annual stock status, relative to SB_{MSY} (x-axis) and F_{MSY} (y-axis) reference points for the Ref.case.

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 is fully exploited, is not experiencing overfishing, but may be 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.

5.1.2 South Pacific Swordfish (Assessed 2017)

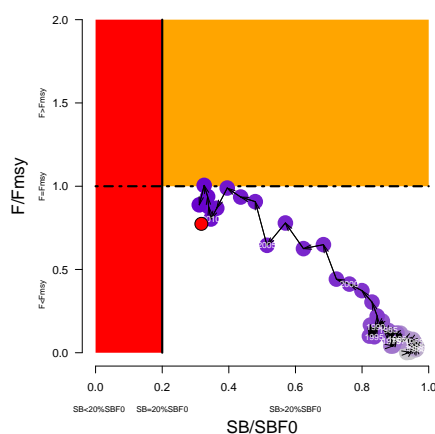


Figure 6. Estimated time-series (or "dynamic") Majuro plot from the South Pacific swordfish 'diagnostic case' model run.

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.

vi) Pacific bluefin (assessed 2016)

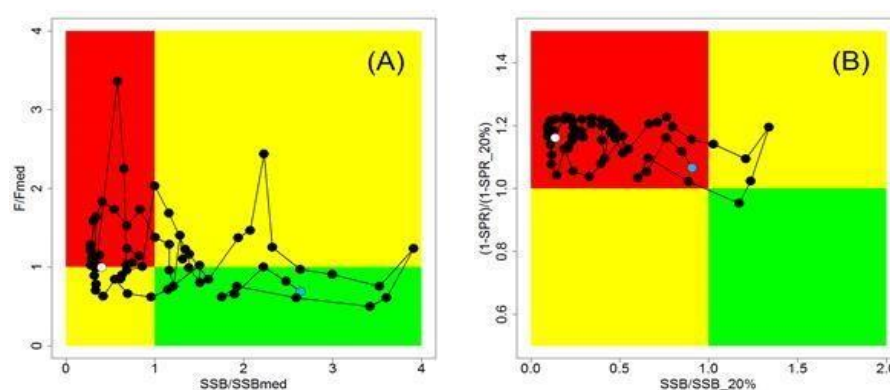


Figure 7. Kobe plots for PBF. (A) SSB_{MED} and F_{MED} ; (B) $SSB_{20\%}$ and $SPR_{20\%}$ based.

Note: that spawning stock biomass median (SSB_{MED}) is estimated as the median of estimated spawning stock biomass (SSB) over whole assessment period (40,944 t) and harvest level (F_{MED}) is calculated as an F to provide SSB_{MED} in long-term, while the plots are points of estimates. The blue and white points on the plot show the start (1952) and end (2014) year of the period modelled in the stock assessment, respectively.

The last stock assessment for Pacific bluefin tuna (*Thunnus orientalis*) was assessed by the International Science Committee in 2016. 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 2.6% of the estimated unfished spawning stock biomass. The provisional catch for 2015 was: 11,020 mts.

The International Science Committee's conservation advice was that projection results indicate that a 10% reduction in the catch of smaller fish (<30kg) would have a larger effect on recovery than a 10% reduction of larger fish.

vii) Southern bluefin tuna (assessed 2017)

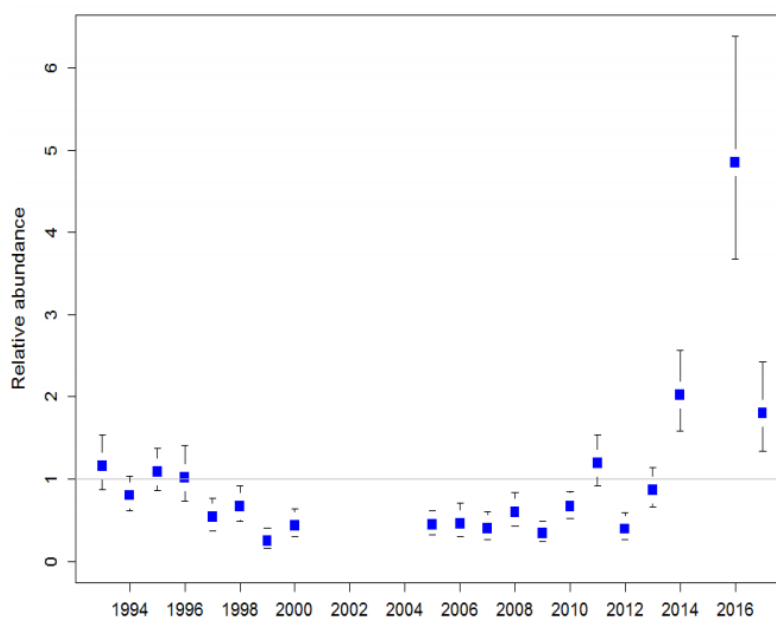


Figure 8. Time series of relative abundance estimates for southern bluefin tuna from Australian Aerial Survey (with 90% confidence intervals).

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.

5.2 CATCH AGAINST TOTAL ALLOWABLE COMMERCIAL CATCH (TACC)

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 MPI's BI Hub database.

5.2.1 Bigeye tuna

In 2016/17, bigeye tuna TACC was unchanged and catch was lower than in the previous fishing year but similar to that in the 2014/15 fishing year (see **Figure 9**). Bigeye tuna is targeted and caught as bycatch in the surface longline fishery, and caught as bycatch mainly in the troll fishery and occasionally in the bottom longline fishery. The number of surface longline vessels targeting bigeye tuna in the last five fishing years has ranged between 17 in 2014/15 and 28 in 2012/13, levelling off over the last two years at 23 in 2015/16 and 22 in 2016/17. Targeted effort has mostly been on a steady decline over the last five years, from around 1 million hooks in 2012/13 to around half a million hooks in 2016/17.

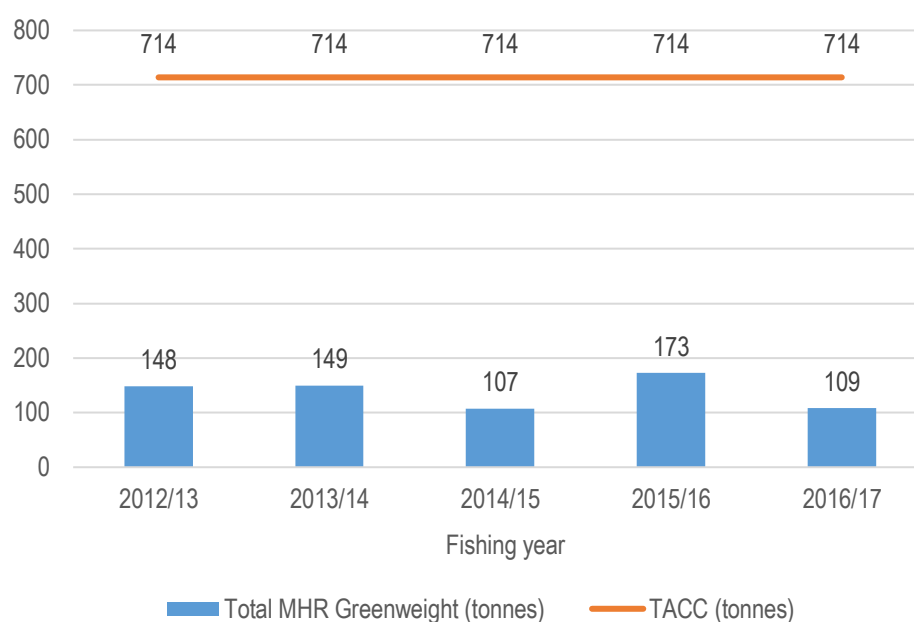


Figure 9. Bigeye tuna TACC and catch for the five most recent fishing years.

5.2.2 Blue shark

In 2016/17, blue shark TACC was unchanged, and catch was similar to the past three fishing years, which is a considerable drop compared with the 2012/13 fishing year (see **Figure 10**). Over 99% of blue sharks are caught as bycatch in the surface longline fishery.

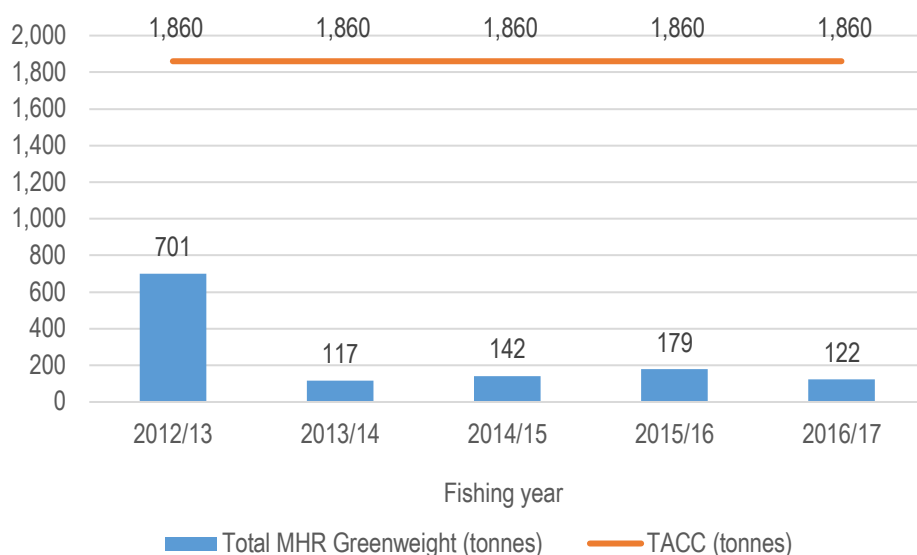


Figure 10. Blue shark TACC and catch¹⁰ for the five most recent fishing years.

5.2.3 Mako shark

In 2016/17, mako shark TACC was unchanged, and catch was lower than the 2015/16 fishing year, and the lowest over the five most recent fishing years (see Figure 11). Around 90-95% of mako sharks are caught as bycatch in the surface longline fishery, with small catches in other fisheries, including the bottom longline, midwater trawl, and set net fisheries.

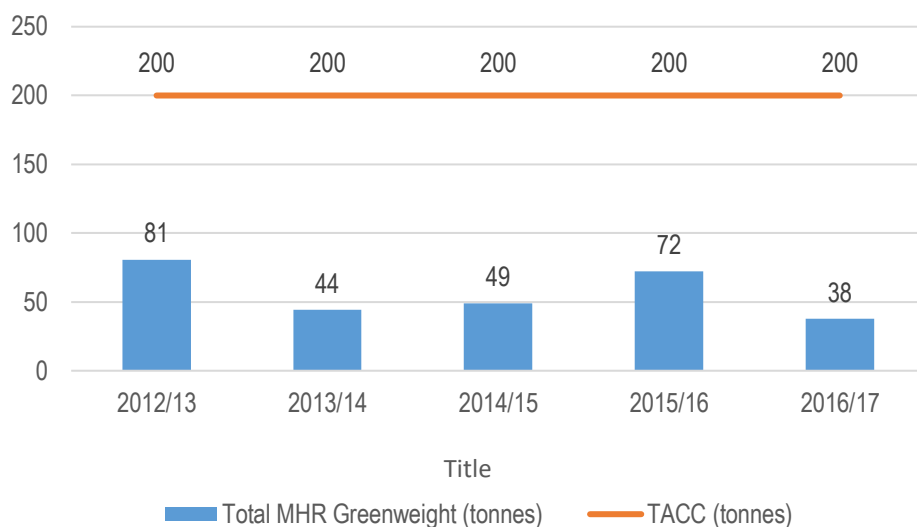


Figure 11. Mako shark TACC and catch¹¹ for the five most recent fishing years.

5.2.4 Porbeagle shark

In 2016/17, porbeagle shark TACC was unchanged, and catch maintained the downward trend since 2014/15 and was the lowest over the five most recent fishing years (see Figure 12). Around 80-90% of porbeagle sharks are caught as bycatch in the surface longline fishery, with small catches in other fisheries, including the bottom longline, midwater trawl, and set net fisheries.

¹⁰ This catch does not include those sharks that are returned under Schedule 6.

¹¹ This catch does not include those sharks that are returned under Schedule 6.

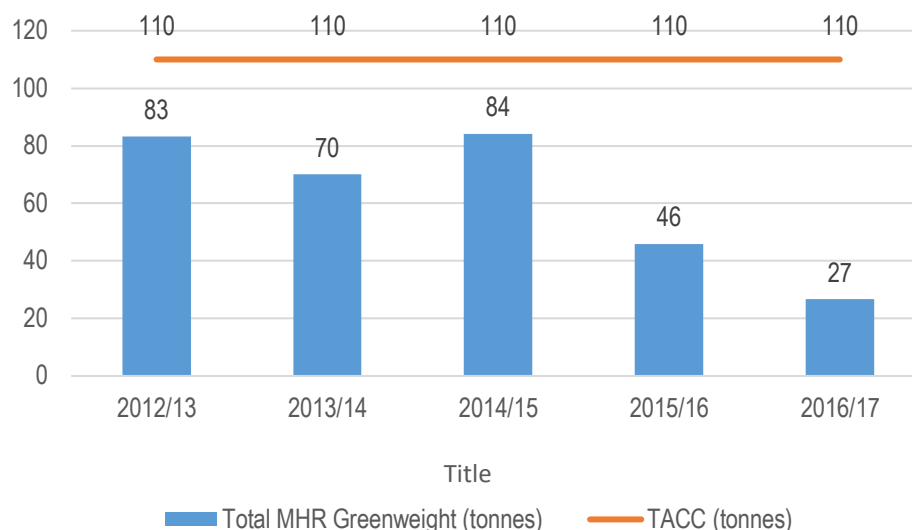


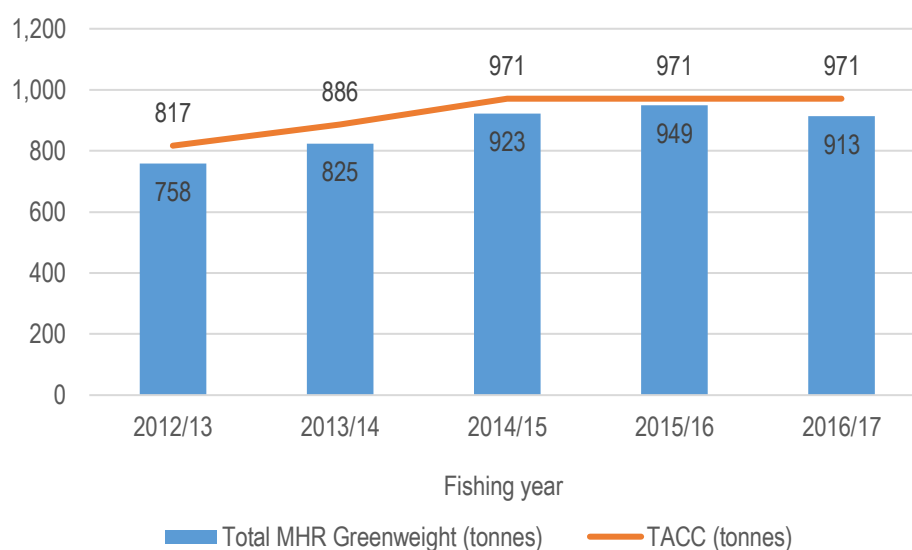
Figure 12. Porbeagle shark TACC and catch¹² for the five most recent fishing years.

5.2.5 Southern bluefin tuna

In 2016/17, southern bluefin tuna TACC was unchanged from the previous two fishing years, and catch was slightly lower than the previous two fishing years (see Figure 13). Southern bluefin tuna is targeted and caught as bycatch mainly in the surface longline 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 37 in 2012/13, levelling off over the last two fishing years at 31. Targeted effort has mostly been on declining over the last five years, from around 1.5 million hooks in 2012/13 to around 1.2 million hooks in 2016/17.

In 2015, the four Japanese charter vessels left New Zealand's southern bluefin tuna surface longline fishery. Without these vessels, total effort dropped to around 75% of previous years, however catch reached a record high of 949 tonnes (Figure 13).

The main bulk of the catch is caught between May and September, with smaller amounts being caught between October and February. For the two most recent fishing years, catch peaked in July, which was later than the year prior, when catch peaked in June (see Figure 14).



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

Figure 13. Southern bluefin tuna TACC and catch for the five most recent fishing years.

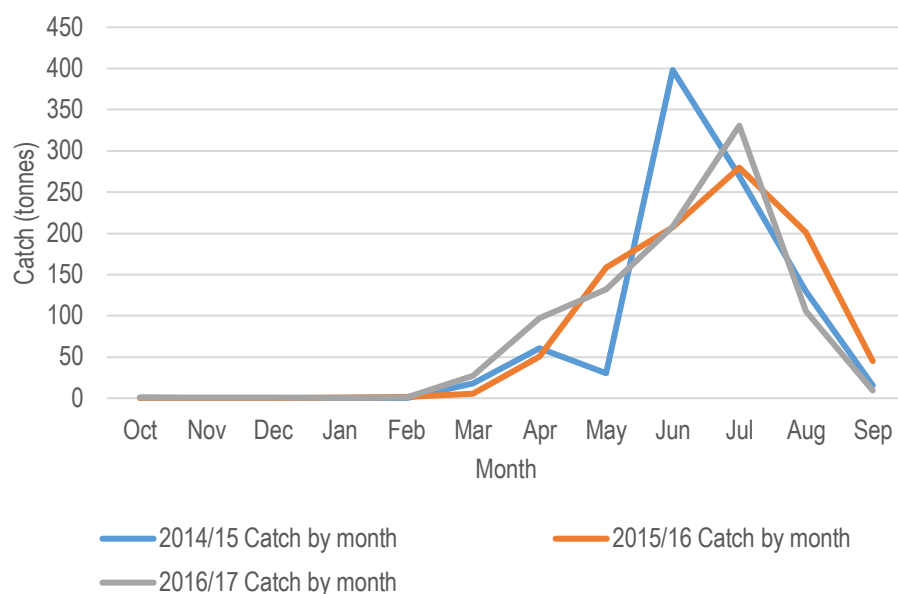


Figure 14. Southern bluefin tuna catch by month over the last three fishing years, when TACC has been 971 tonnes.

5.2.6 Swordfish

In 2016/17, swordfish TACC was unchanged, and catch was the lowest over the five most recent fishing years (see **Figure 15**). Swordfish is targeted and caught as bycatch in the surface longline fishery, and caught as bycatch in fisheries such as the midwater trawl and bottom longline fisheries. The number of surface longline vessels targeting swordfish in the last five fishing years has ranged between 16 in 2013/14 and 20 in 2014/15, levelling off over the last two years at 18 in 2015/16 and 19 in 2016/17. Targeted effort has ranged between around 200,000 hooks in 2013/14 and 450,000 in 2014/15 and 2015/16, declining to around 330,000 hooks in 2016/17.

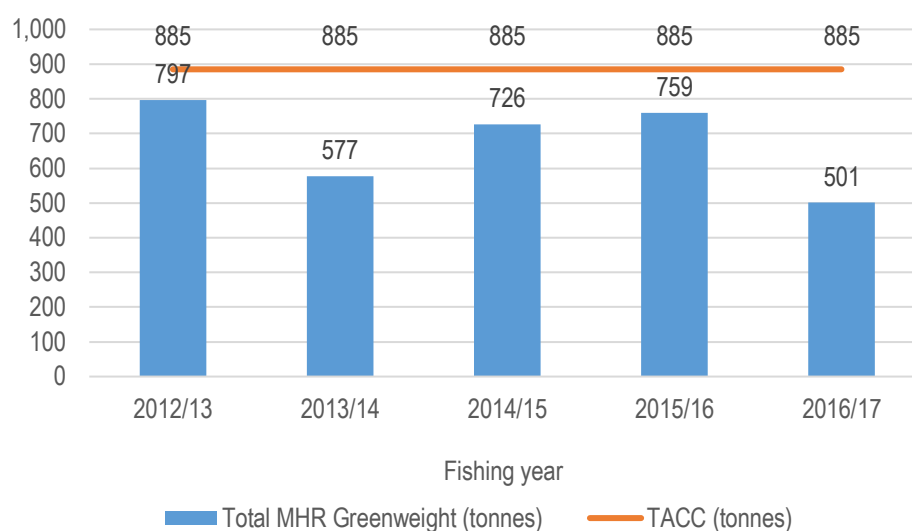


Figure 15. Swordfish TACC and catch for the five most recent fishing years.

5.2.7 Pacific bluefin tuna

In 2016/17, pacific bluefin tuna TACC was unchanged, and catch remained at a low level and similar to the previous five fishing years (see **Figure 16**). Pacific bluefin is caught as bycatch mainly in the bigeye, southern bluefin tuna, and swordfish surface longline fisheries.

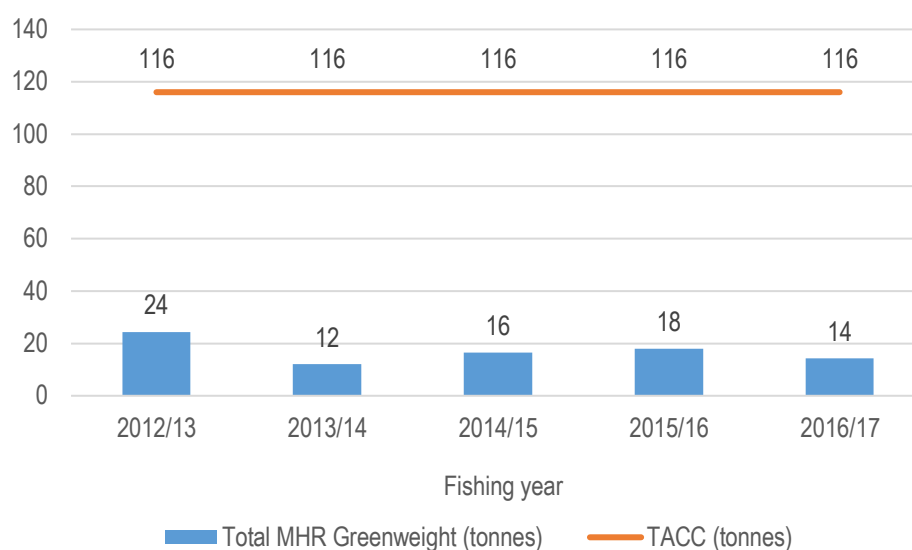


Figure 16. Pacific bluefin tuna TACC and catch for the five most recent fishing years.

5.2.8 Yellowfin tuna

In 2016/17, yellowfin tuna TACC was unchanged, and catch continued on the downward trend, reaching the lowest point over the five most recent fishing years (see **Figure 17**). Yellowfin tuna is caught as bycatch mainly in the bigeye, southern bluefin tuna, and swordfish surface longline fisheries.

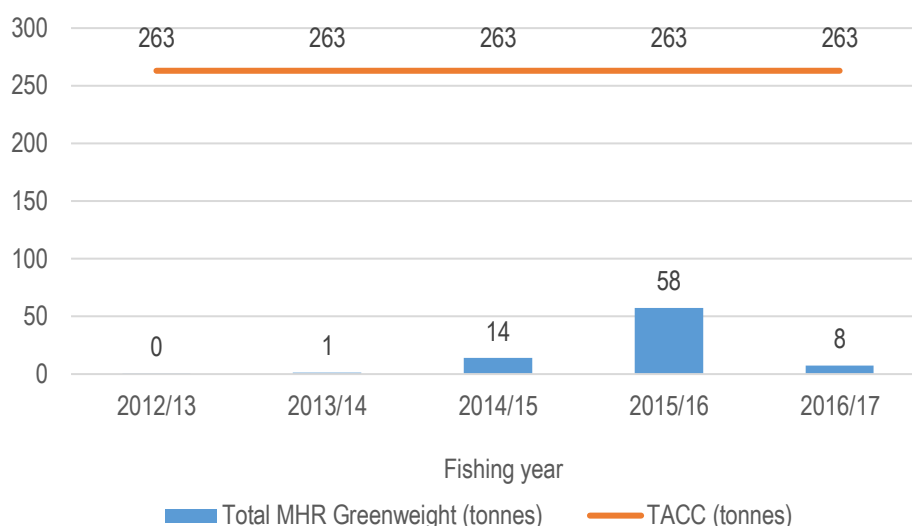


Figure 17. Yellowfin TACC and catch for the five most recent fishing years.

5.3 CATCHES OF NON-QUOTA SPECIES

5.3.1 Albacore tuna

Catches of albacore tuna have been on a steady decline over the last five fishing years, coming a decade low last fishing year (see **Figure 18**). Albacore tuna is targeted in the troll fishery, and caught as bycatch in the likes of the surface longline and bottom longline fisheries. The number of troll vessels targeting albacore tuna has been on a steady decline over the last decade, reducing from over 150 in 2012/13 to around 100 in 2016/17, and this is reflected in the catches.

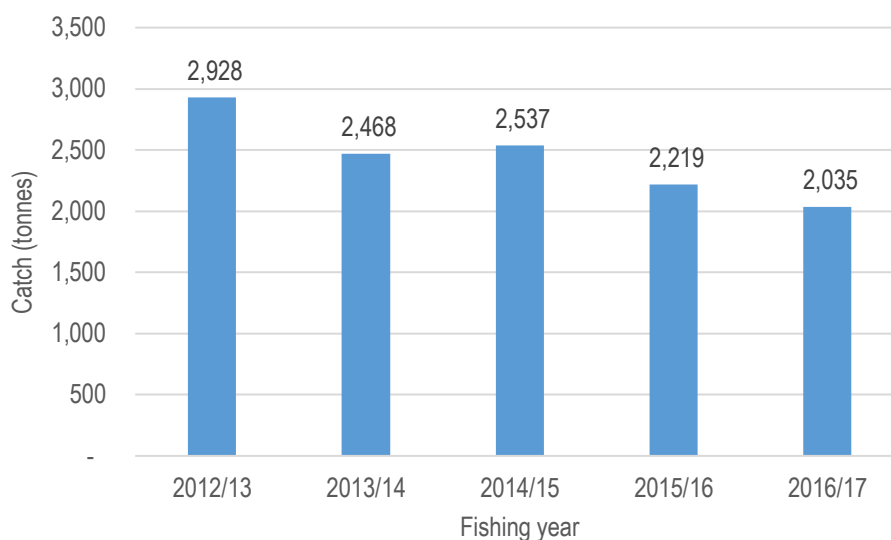


Figure 18. Total Monthly Harvest Returns for albacore tuna catch for the five most recent fishing years.

5.3.2 Skipjack tuna

The last two fishing year's catches of skipjack tuna are similar, but have more than halved compared with the three years before then (see **Figure 19**). 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 nine in 2013/14, to eight in 2014/15, to six in 2015/16 and 2016/17.

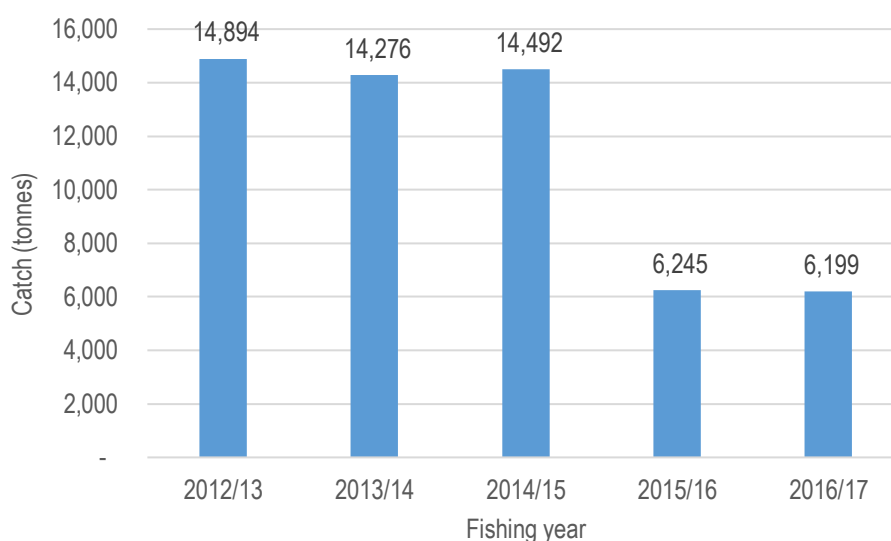


Figure 19. Total Monthly Harvest Returns for skipjack tuna catch for the five most recent fishing years.

6 Environmental reporting

6.1 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/>.

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 *Diomedidae*), or petrels (family *Procellariidae*). Coastal seabirds (such as shags, penguins, and gulls) have also been reported as bycatch in commercial fisheries.

In the 2016/17 fishing year, there were 51 observed captures of all birds in surface longline fisheries. Observed captures were of New Zealand white-capped albatross (17), southern Buller's albatross (13), black petrel (8), Westland petrel (8), southern royal albatross (2), grey petrel (1), Gibson's albatross (1), and Campbell black-browed albatross (1). No estimates of total captures were made.

Table 7. Summary of observed captures by surface longline vessels in the 2016/17 fishing year by species and if the captures were dead or released alive.

Species or species group	Dead	Alive
New Zealand white-capped albatross	11	6
Southern Buller's albatross	9	4
Black petrel	8	
Westland petrel	8	
Grey petrel	1	
Campbell black-browed albatross	1	
Southern royal albatross	1	1
Gibson's albatross	1	

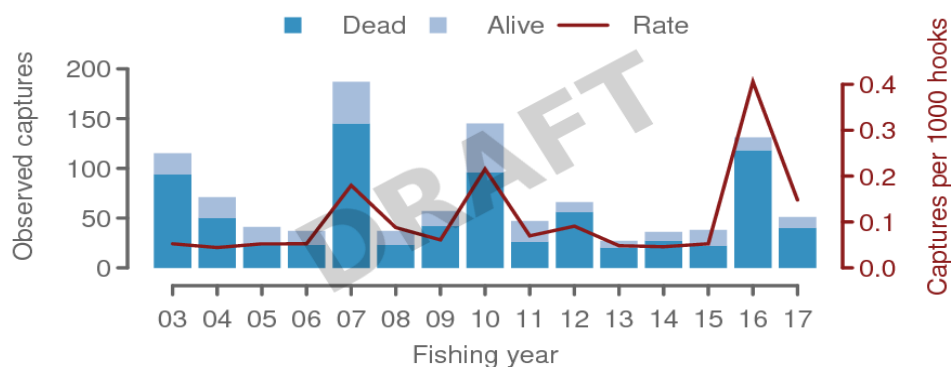


Figure 20. Observed seabird captures in the surface longline fishery in the 2016/17 fishing year.

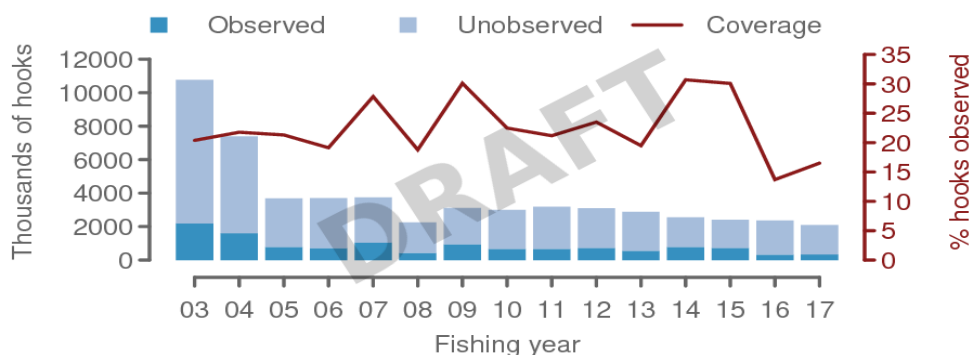


Figure 21. Fishing effort and observer coverage, observed and unobserved seabird captures in the surface longline fishery in the 2016/17 fishing year.

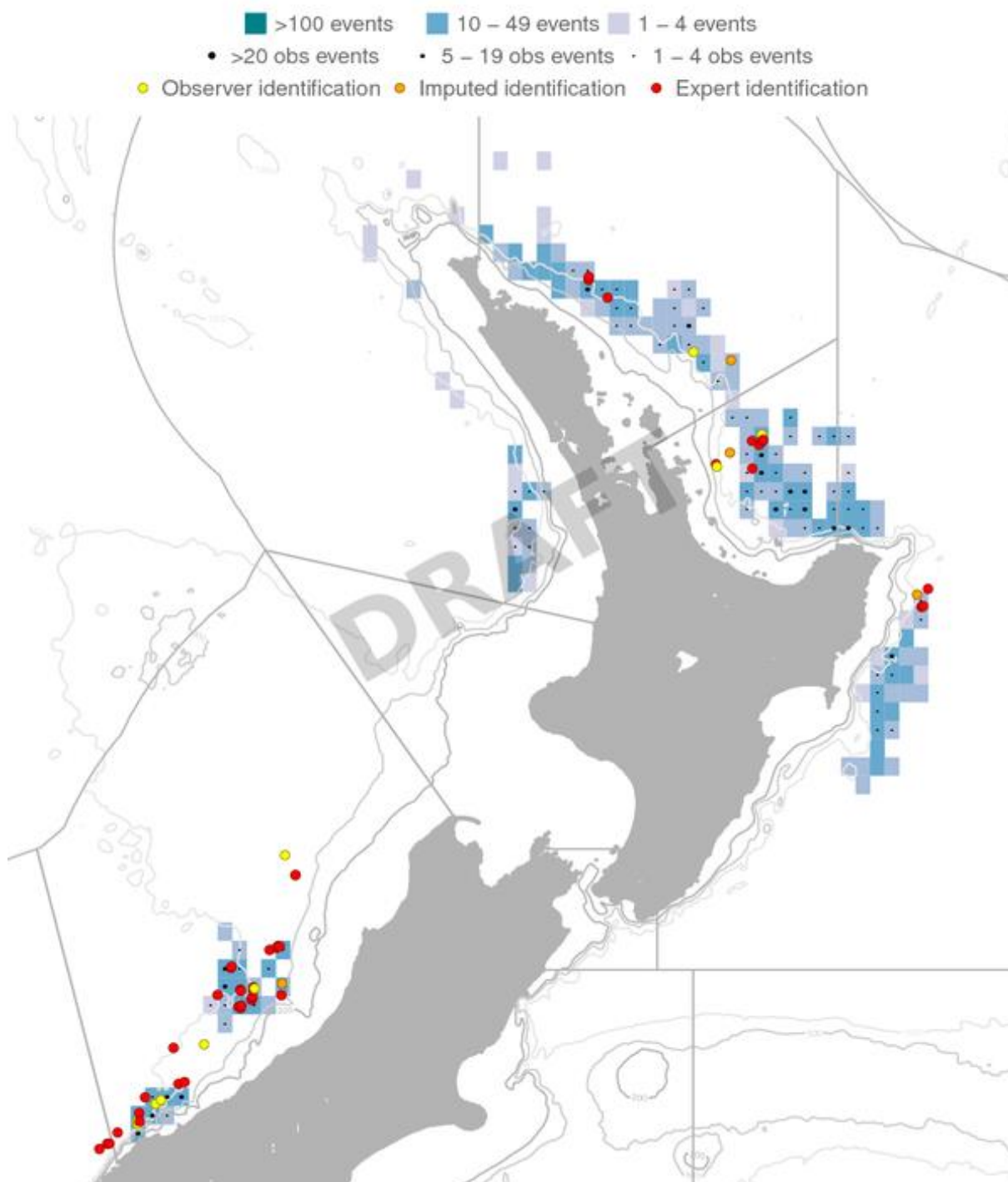


Figure 22. Fishing effort and observed seabird captures in the 2016/17 fishing year, 69.1% of fishing effort displayed.

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, 69.1% of the effort is shown.

Table 8. Fishing effort, observed effort, and observed seabird 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	Estimated captures
2002/03	10,771,038	2,195,152	20.4	115	0.052	2,542
2003/04	7,386,339	1,607,304	21.8	71	0.044	1,876
2004/05	3,679,965	783,812	21.3	41	0.052	927
2005/06	3,691,809	705,945	19.1	37	0.052	932
2006/07	3,740,012	1,040,948	27.8	187	0.180	860
2007/08	2,246,689	421,900	18.8	37	0.088	564
2008/09	3,114,733	937,496	30.1	57	0.061	703
2009/10	2,996,544	673,333	22.5	145	0.215	857
2010/11	3,186,899	674,572	21.2	47	0.070	833
2011/12	3,100,277	728,190	23.5	66	0.091	856
2012/13	2,876,932	560,333	19.5	27	0.048	807
2013/14	2,549,764	782,541	30.7	36	0.046	682
2014/15	2,412,336	725,370	30.1	38	0.052	589
2015/16	2,359,891	322,960	13.7	131	0.406	840
2016/17	2,092,486	345,366	16.5	51	0.148	TBC

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.

Note: Dragonfly have not yet confirmed the figures for 2016/17 fishing year for total estimated captures, and it has therefore been reported as to be confirmed, 'TBC'.

The following tables provide a breakdown of the effort, observed effort, and capture information by CCSBT areas 5 and 6, and by two fishery groupings (the swordfish fishery and the tuna fisheries).

6.2 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 2016/17 fishing year, there were two observed captures of turtles in surface longline fisheries. Observed captures were of leatherback turtles in the west coast North Island area.

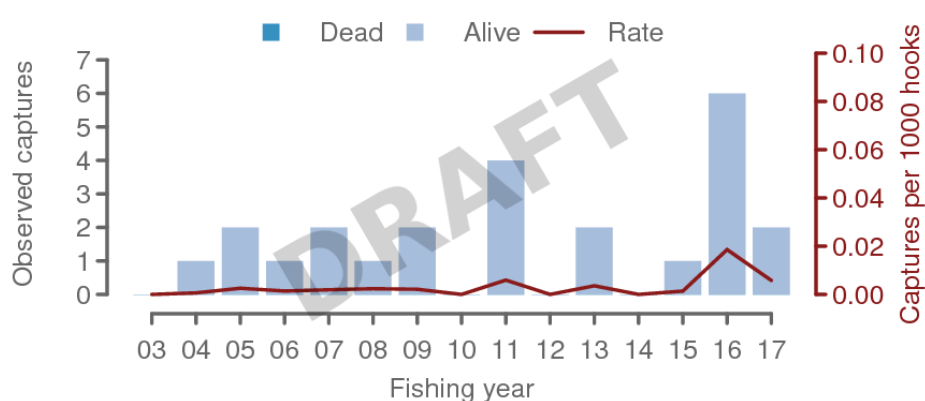


Figure 23. Observed turtle captures in the surface longline fishery in the 2016/17 fishing year.

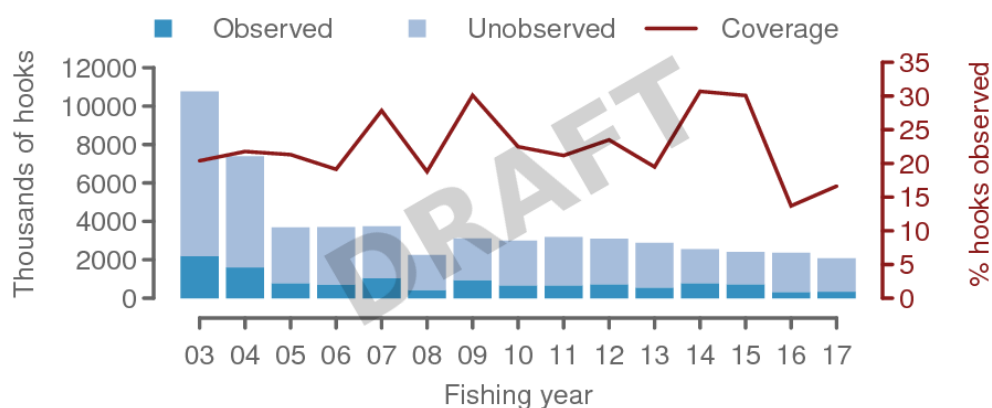


Figure 24. Fishing effort and observer coverage, observed and unobserved turtle captures in the surface longline fishery in the 2016/17 fishing year.

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

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.

6.3 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](#).

The major bycatch species in the surface longline fishery have been brought into the New Zealand Quota Management System (QMS). Through 2016, blue shark was the most common bycatch species retained followed by Ray's bream (Table 10). 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 2012 – 2016, and for some species may include catches from non-tuna target fisheries.

Species	Scientific name	2012	2013	2014	2015	2016
Blue shark	<i>Prionace glauca</i>	985	661	106	148	172
Mako shark	<i>Isurus oxyrinchus</i>	95	79	49	47	72
Moonfish	<i>Lampris guttatus</i>	91	65	51	37	64
Porbeagle shark	<i>Lamna nasus</i>	52	85	74	83	42
Rays bream	<i>Brama brama</i>	150	847	658	169	125

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 dead¹³.

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 2013 to 2016. Also provided is the percentage of these species retained (2016 data only) and the percentage of fish that were alive when discarded, N/A (none discarded).

Species	2013	2014	2015	2016	% retained (2016)	% discarded alive (2016)
Blue shark	158 736	80 118	72 480	57 210	0.0	87.6
Lancet fish	19 172	21 002	12 962	17 442	0.0	37.6
Rays bream	13 568	4 591	17 555	7 758	99.0	30.0
Porbeagle shark	9 805	5 061	4 058	6 566	1.5	57.8
Sunfish	1 937	1 981	770	4 849	0.0	99.7
Mako shark	3 981	4 506	2 667	4 417	2.4	63.8
Moonfish	2 470	1 655	3 060	3 036	99.1	66.7
Pelagic stingray	1 199	684	979	1 414	0.0	81.1
Butterfly tuna	1 030	699	1 309	768	89.2	31.3
Escolar	2 088	656	653	669	74.6	87.5
Thresher shark	256	261	177	601	0.0	82.8
Striped marlin	182	151	120	550	0.0	64.1
Oilfish	386	518	584	281	52.6	83.3
Rudderfish	362	327	373	237	84.2	66.7
Skipjack tuna	240	90	150	185	93.3	100.0
Dealfish	237	910	842	63	0.0	21.4
School shark	21	119	88	24	83.3	100.0
Big scale pomfret	67	164	59	16	100.0	n/a
Deepwater dogfish	743	600	545	0	n/a	n/a

¹³ 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](#)

7 Cost recovery levies

Overall, total costs recovered over HMS have decreased on the previous year, and are well below 2013/14 level (**Table 12**). The main reason for the reduction in levies this year is MPI refunding industry from previous over collection. The largest refunds include:

- Around \$128,000 is being refunded across a number of stocks for a project on the characterisation of New Zealand longline fisheries for HMS.
- Around \$120,000 is being refunded to the STN1 stock after being levied for observer days under the 'charter tuna' category in 2015/16. The lack of foreign charter vessels meant that no days were delivered under this category.

Table 12. Cost recovery levies for HMS stocks for the 2017/18 financial year.

2017/18 Plan	MPI Departmental		Observers		Research		Under/Over Recovery								
Stock	Compliance	Registry	MPI	DoC	MPI	DoC	MPI	DoC	2012/13 Total	2013/14 Total	2014/15 Total	2015/16 Total	2016/17 Total	2017/18 Total	Change
ALB	92,462	27,331	460	0	102,575	17,979	-85,855	-1,399	219,661	246,303	89,142	115,804	166,701	153,552	-13,149
BIG1	98,007	28,970	72,517	17,801	37,956	42,671	-92,140	-6,230	295,847	304,996	279,176	427,519	266,706	199,552	-67,154
BWS1	3,204	947	16	0	39,243	66	-43,410	-66	31,680	126,292	12,846	0	-1	-0	1
MAK1	804	238	4	0	9,843	16	-1,959	0	4,084	2,712	37,188	43,682	1,277	8,946	7,669
MOO1	14,757	4,362	73	0	549	303	-17,318	3	15,838	16,510	14,376	15,479	15,966	2,729	-13,237
POS1	616	182	3	0	7,546	13	-1,701	0	3,778	100,406	419	1	1	6,659	6,658
RBM1	10,408	3,077	52	0	348	213	-10,045	3	17,269	19,206	16,542	18,161	16,877	4,057	-12,821
SKJ	40,384	11,937	49,926	9,915	0	0	-99,473	-1,141	360,702	217,231	0	0	0	11,548	11,548
STN1	120,061	35,489	224,330	469	42,605	32,253	-164,819	9,765	405,719	779,006	353,452	515,374	617,621	300,153	-317,468
SWO1	65,192	19,270	48,235	7,979	25,247	16,146	-36,572	-2,463	42,527	149,527	104,012	138,140	116,300	143,033	26,733
TOR1	49,979	14,773	249	0	15,382	1,024	-12,638	11	38,301	49,081	51,970	56,287	65,942	68,780	2,838
YFN1	23,379	6,911	116	0	2,522	0	-6,687	0	7,079	19,620	21,429	27,557	26,973	26,241	-732
TOTAL	519,253	153,485	395,982	36,163	283,816	110,684	-572,616	-1,517	1,442,485	2,030,890	980,552	1,358,004	1,294,364	925,250	-369,114
2016/17 Comparatives	494,128	181,688	435,626	92,223	156,972	166,347									
Change	25,125	-28,203	-39,644	-56,060	126,844	-55,663									

8 List of HMS research projects as of March 2018

Table 13. Proposed new projects.

Code	Title	Rationale
ALB2018-01	Albacore catch sampling	Results will be used to monitor the status of the South Pacific albacore stock on an annual basis and as an input to the next albacore assessment update scheduled for 2021 (ongoing, annual).
HMS2018-01	Characterisation of New Zealand longline fisheries for highly migratory species	Results will be used to characterise spatial and temporal trends in catch and effort for target and bycatch species in the New Zealand fisheries for highly migratory species due to changes in fishing gear and practices (once every 3-5 years).
SKJ2018-01	Characterisation of New Zealand fisheries for skipjack tuna	Results will be used to characterise the fisheries for skipjack tuna in New Zealand fisheries waters, for New Zealand vessels fishing in other EEZ's and for New Zealand vessels fishing on the high seas (once every 3-5 years).
STN2018-01	Annual catch-at-age of STN	Data used as inputs to stock assessments; the next update scheduled in 2020 (ongoing, annual).

Table 14. Continuation of ongoing projects.

Code	Title	Rationale
ALB2015-01	Albacore catch sampling	Results will be used in 2018 assessment update (ongoing, annual).
ALB2017-01	ALB CPUE analysis	The NZ target albacore troll fishery is the only fishery catching small albacore in the SW Pacific. This project will determine if data from the NZ troll fishery are useful in the next assessment update in 2018 (short-term, focused project).
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);
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).
STN2016-01	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).

9 Monitoring of commercial and non-commercial fisheries

9.1 MONITORING OF COMMERCIAL FISHERIES

Observer coverage for the 2016/17 financial year achieved 748 observer days had been achieved from a target of 930. For the surface longline fisheries, 647 days were achieved from a target of 830, with over 31 observer trips covering 61 commercial trips and 21 out of the 32 vessels that were operating in the fleet (Table 15).

Table 15. Planned and achieved observer coverage during 2016/17 financial year- days per fishery.

2016/17 financial year														
Area		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
BIG/SWO EC	Planned	5	15	10	10	15	15	20	30	40	35	25	5	225
	Achieved	6				12	60	21	11				4	114
BIG/SWO WC	Planned	5	10	5				5	5	5	5	5		45
	Achieved										20	16		36
STN ECNI	Planned	112	53	10							16	54	85	330
	Achieved	88	117	8								11	73	297
STN WCSI	Planned	28	28						10	41	41	41	41	230
	Achieved	8	6								78	72	36	200
SKJ purse seine (domestic)	Planned							25	25	20				70
	Achieved							18	17	15				50
SKJ super seine (domestic)	Planned									30				30
	Achieved								19	32				51

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. Achieved observer coverage during 2016/17 financial year in terms of effort (number of hooks).

2016/17 financial year	Total hooks / sets	Observed hooks / sets	% effort observed
BIG/SWO East Coast SLL	1,499,021	58,024	4
BIG/SWO West Coast SLL	615,520	22,124	4
STN East Coast SLL	928,714	121,525	13
STN West Coast SLL	704,940	125,498	18
SKJ Purse Seine	398	69	17

Note: 22,650 hooks are not included in the total hooks as they were recorded as 'null' for position.

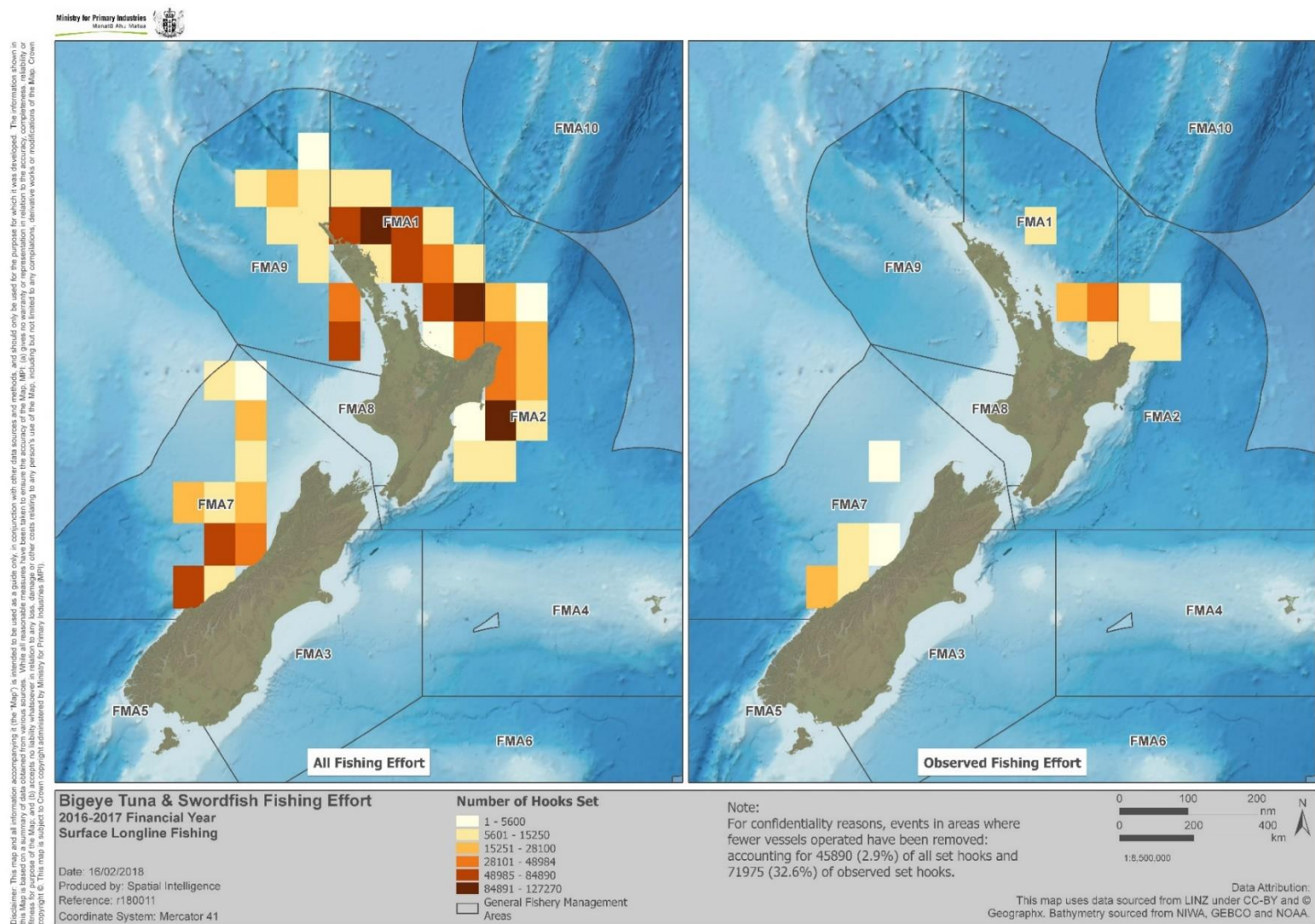


Figure 25. The bigeye and swordfish surface longline fishery: all fishing effort (number of hooks) and observed fishing effort (number of hooks observed) for the 2016/17 financial year.

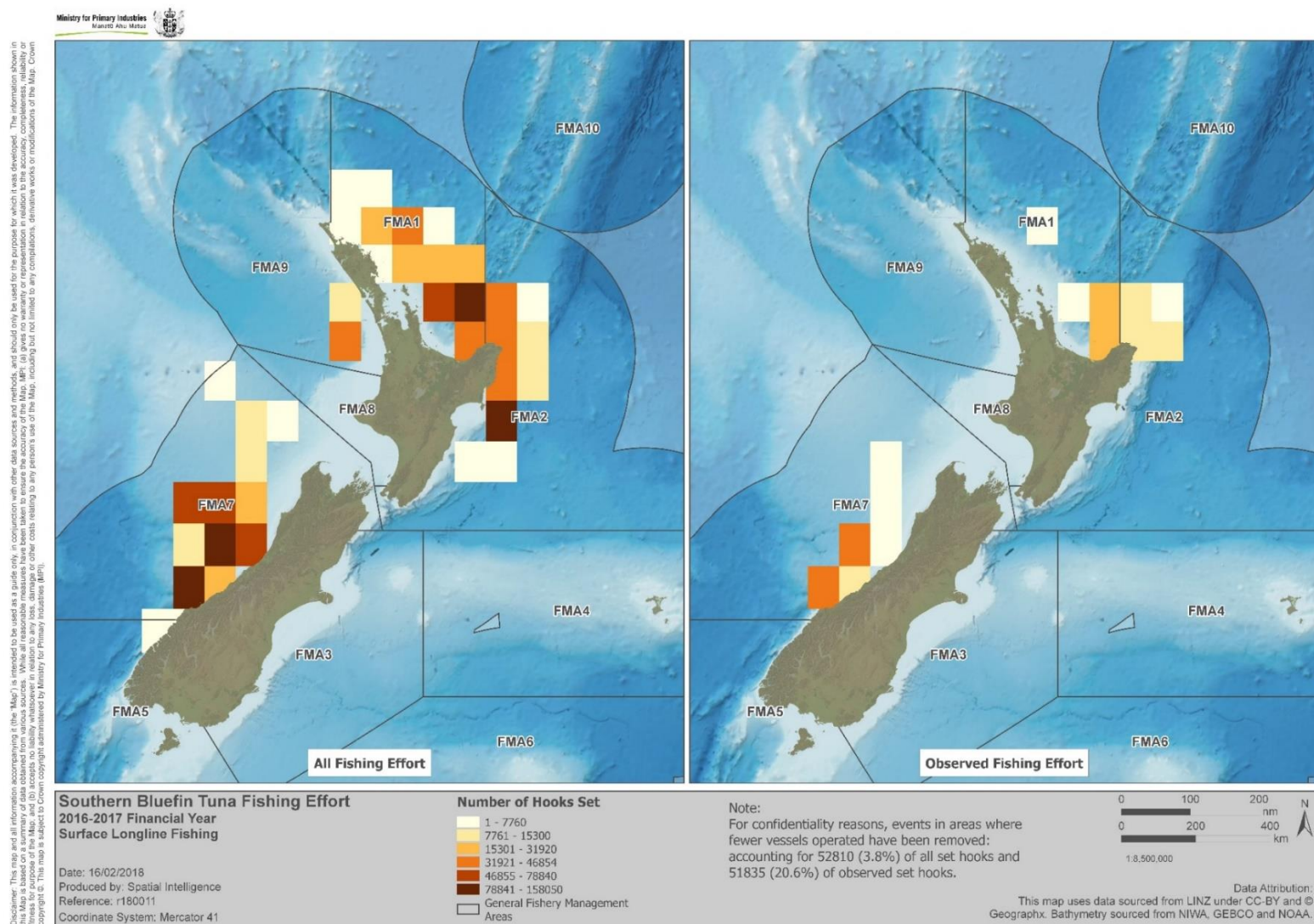


Figure 26. The southern bluefin tuna surface longline fishery: all fishing effort (number of hooks) and observed fishing effort (number of hooks observed) for the 2016/17 financial year.

9.2 MONITORING OF NON-COMMERCIAL FISHERIES

The information in this section is provided by the New Zealand Sport Fish Council (NZSFC) and the New Zealand Gamefish Tagging Programme (MPI project TAG2016/01).

9.2.1 New Zealand Gamefish Tagging Programme

The following tables (Table 17, Table 18, Table 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 sport fishing year compared with previous years was the result of lower fishing effort, which was due to poor weather conditions and low catch rates for billfish target species (Table 17 and Table 18).

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 billfish catch (Table 19).

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

Mako sharks	2007 /08	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	Average 2008-2017
NZ EEZ tagged	297	285	494	609	488	524	367	439	582	288	437
% tagged	87	87	90	92	92	94	93	97	96	98	93
Recapture	2	5	7	7	8	11	6	0	2	3	5

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

Blue sharks	2007 /08	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	Average 2008-2017
NZ EEZ tagged	108	101	73	128	142	150	124	110	170	54	116
% tagged	90	89	85	88	90	92	95	90	96	95	91
Recapture	3	4	3	3	4	3	3	0	0	1	2

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

	2007 /08	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	Average 2008-2017
Striped marlin	806	1058	858	733	663	858	520	1 088	1 644	444	867
Blue marlin	29	24	32	78	50	18	9	37	35	33	35
Shortbill spearfish	8	5	15	21	5	0	6	12	22	11	11
Swordfish	25	24	18	37	51	47	38	34	29	27	33
Black marlin		2	3	1	3	3	4	7	5	2	3
Billfish recaptures	4	3	2	1	1	4	4	2	7	2	3

9.2.2 Recreational catch of striped marlin

As previously mentioned, the low catch rates of striped marlin in 2016/17 was due to a cold fishing season that resulted in lower fishing effort and lower catch rates (Figure 27).

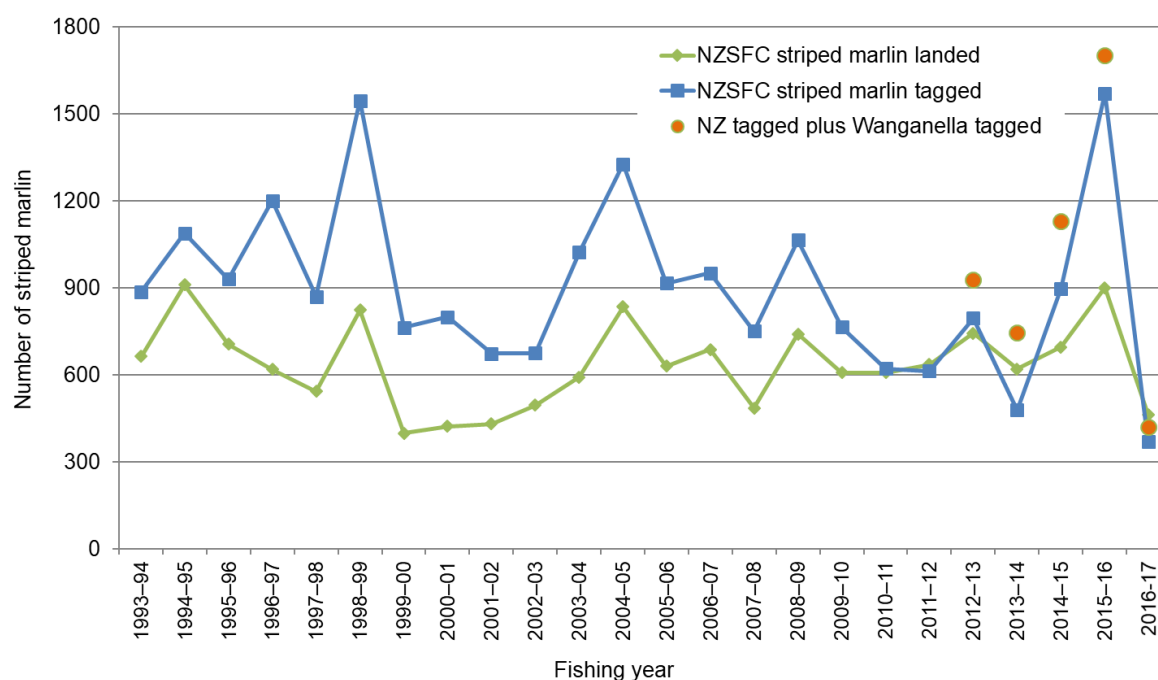


Figure 27. Recreational catch of striped marlin that were landed, tagged and Wanganella tagged since 1993/94 from NZSFC records.

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 is provided as additional data in Figure 27.

9.2.3 Recreational and commercial catch of striped marlin combined.

The total number of striped marlin caught in New Zealand waters has remained within a similar range (1400 to 2500 per year) since 1980. Two high catch years were in the summer of 1982 and 1999. Lower catches were reported in the late 1980s and early 1990s following the introduction of the billfish moratorium and the seasonal closure of the northern fishery to foreign licenced vessels.

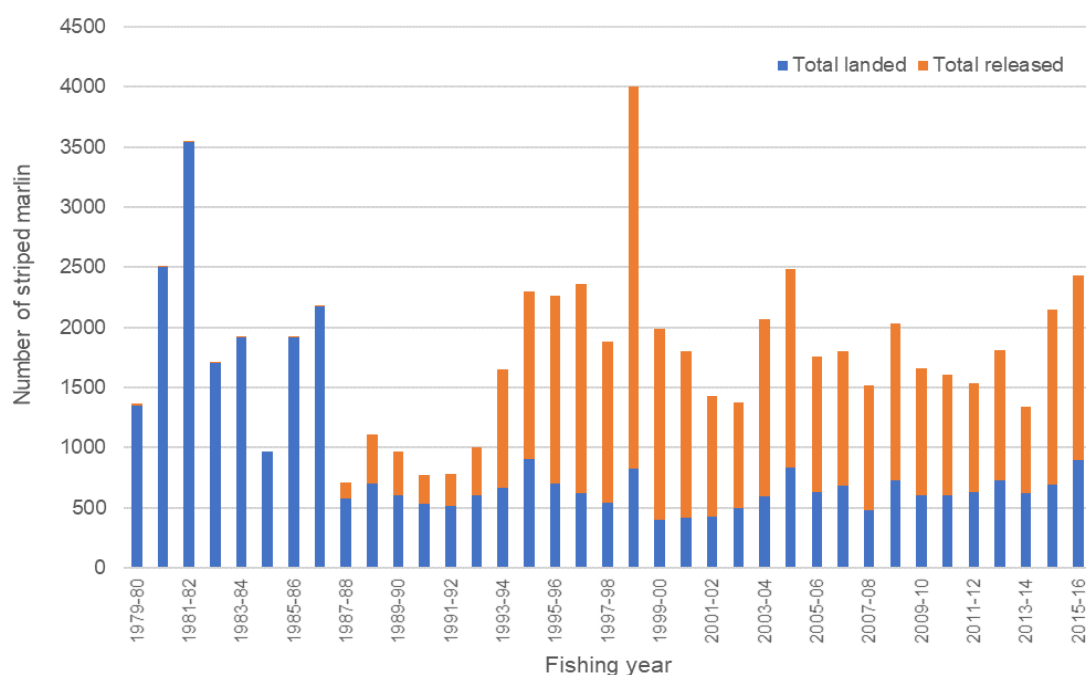


Figure 28. Total catch by all recreational and commercial fleets and methods, landed and released.

Note: data for catch by foreign licence fleets prior to 1980 is not available.

9.2.4 Striped marlin catch per unit effort

An annual postal survey of professional skippers on amateur charter vessels in collected striped marlin CPUE for the East Northland fishery from 1975 to 2006. Since then, many charter and private boat skippers have completed a daily billfish logbook to help monitor the fishery.

Overall there is an increasing trend in standardised CPUE from 1987 to the mid-1990s and a decreasing trend since then **Figure 21**. The 2014/15 and 2016/17 seasons were relatively poor years for the East Northland striped marlin fishery. The record high striped marlin catch tally recorded by all NZSFC clubs in 2015–16 is not reflected in the East Northland charter vessel CPUE.

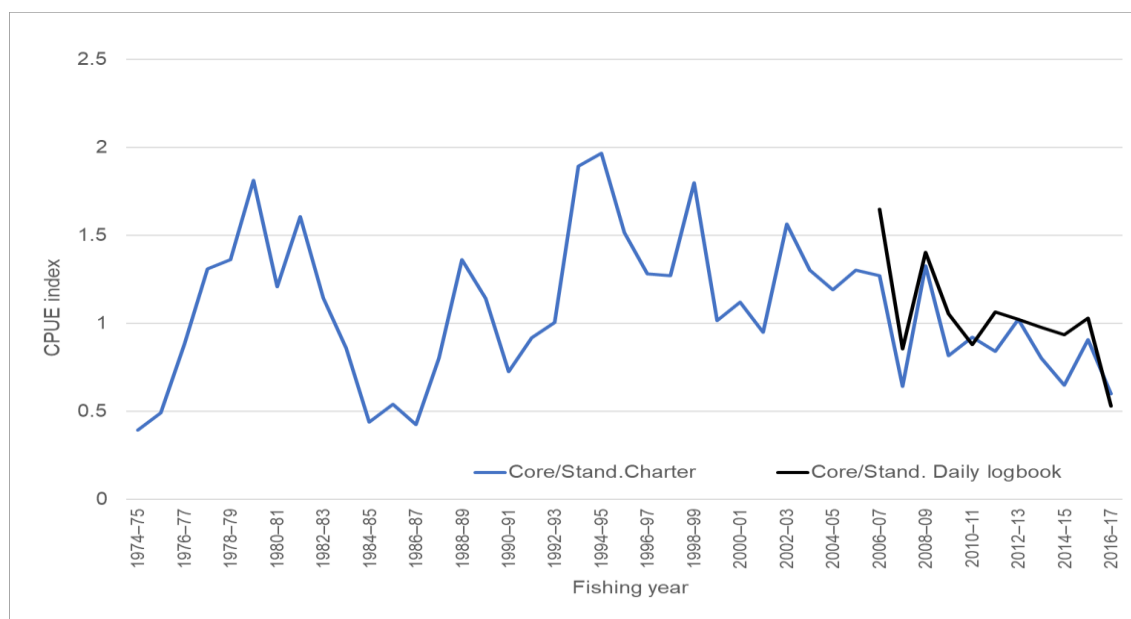


Figure 29. Striped marlin standardised CPUE for East Northland charter boats since 1974/75 and boats using the billfish logbook since 2006/07.

9.2.5 Landed recreational catch of sharks recorded by NZSFC

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. Attitudes have changed about killing sharks and landings have remained low 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.

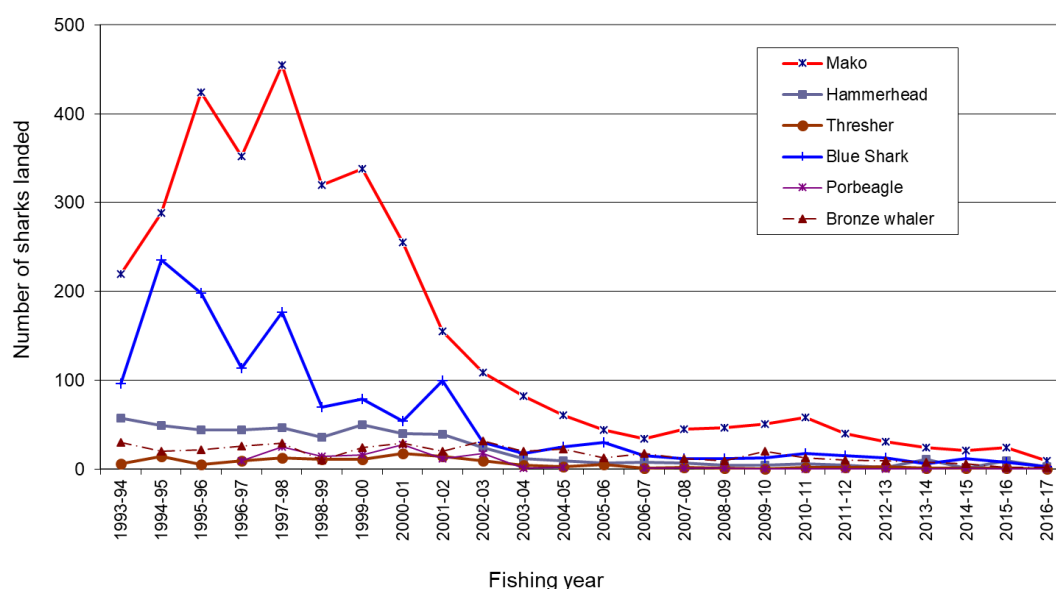


Figure 30. Recreational catch of shark species that were landed and recorded by NZSFC from 1993/94 to 2016/17 sport fishing year (1 July to 30 June).

9.2.6 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.

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 (**Table 20**).

Table 20. Reported catch of southern bluefin tuna in the recreational fishery by calendar year

	2012	2013	2014	2015	2016	2017
NZSFC fish landed (number)	0	0	2	1	7	266
Amateur Charter Vessel reporting of fish landed (number)	4	12	0	5	36	47
Estimated total weight (kilograms)	196	550	-	1,100	1,440	24,300

In 2017, a mixture of factors, including favourable weather conditions, proximity of fish off eastern Bay of Plenty, 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 individuals were released alive. Additionally, there were 47 fish reported by charter vessel logbooks, unweighed catch, and the additional catch in August and September, which increased the total estimate to 24.3 tonnes. Given that private recreational vessels are not required to report catches, this figure could be an underestimate. However, anecdotal information from recreational fishing club records indicate that the majority of fish caught were landed and weighed and therefore reported.

The 266 landed and 13 released alive fish were from the east coast fishery, and the majority of those catches were late June and July. **Figure 31** shows that over forty trips caught two fish, with some trips catching four or five. There are no records for unsuccessful trips.

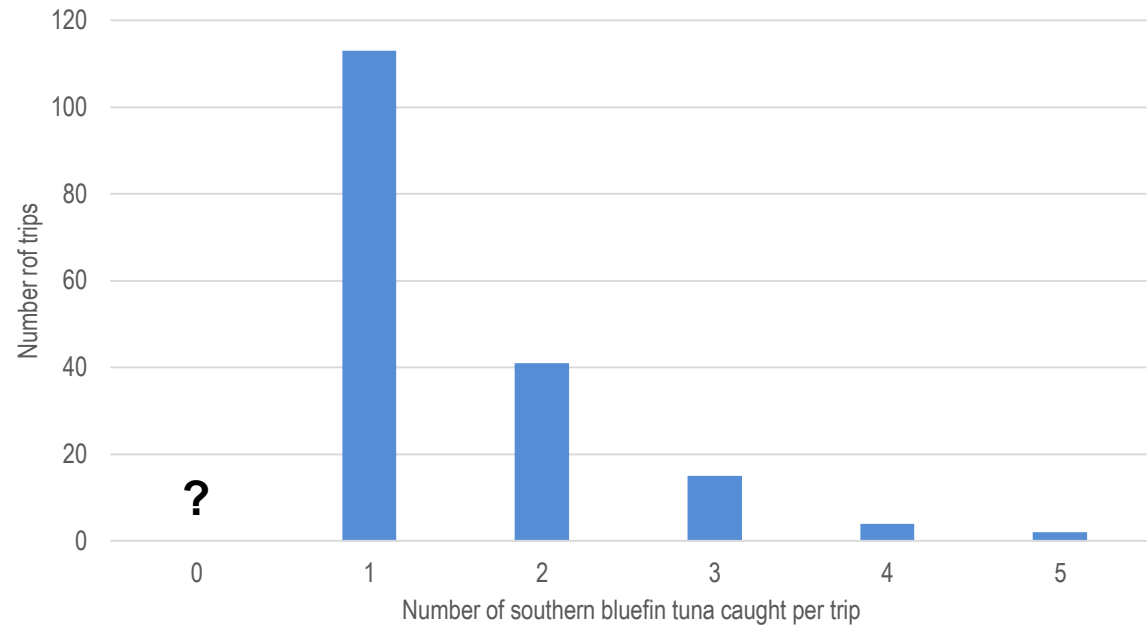


Figure 31. The number of southern bluefin tuna caught per fishing trip in 2017 in the east coast fishery.

Most of southern bluefin tuna that were caught were over 60 kilograms, with the average weight at 72 kilograms

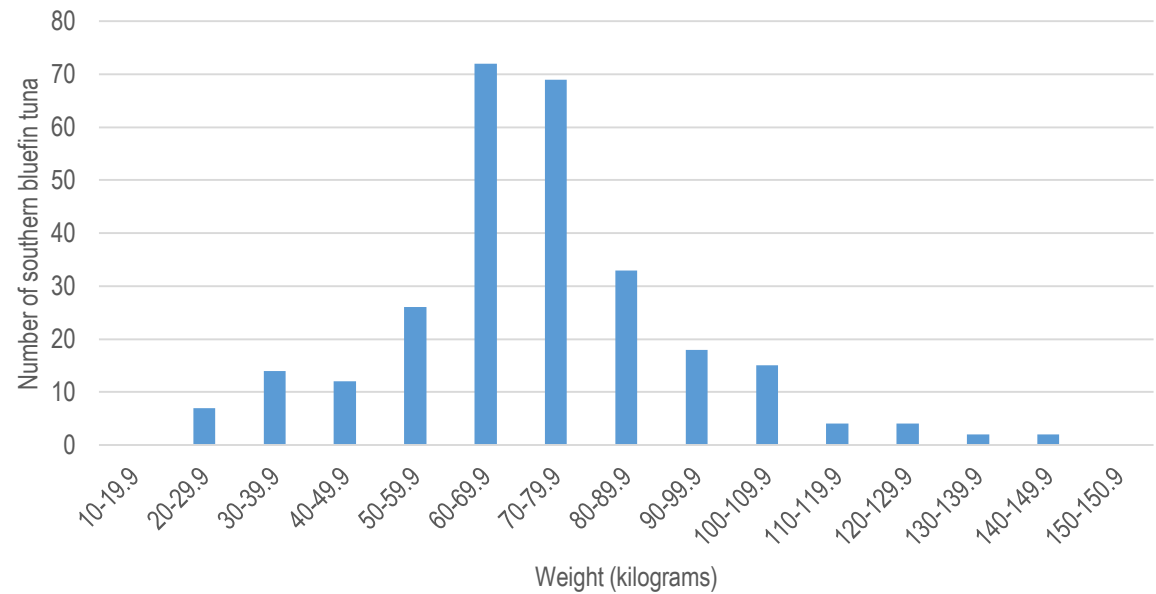


Figure 32). Weigh station records show that 26 southern bluefin tuna were over 100 kilograms, with the heaviest being weighed at 143.2 kilograms.

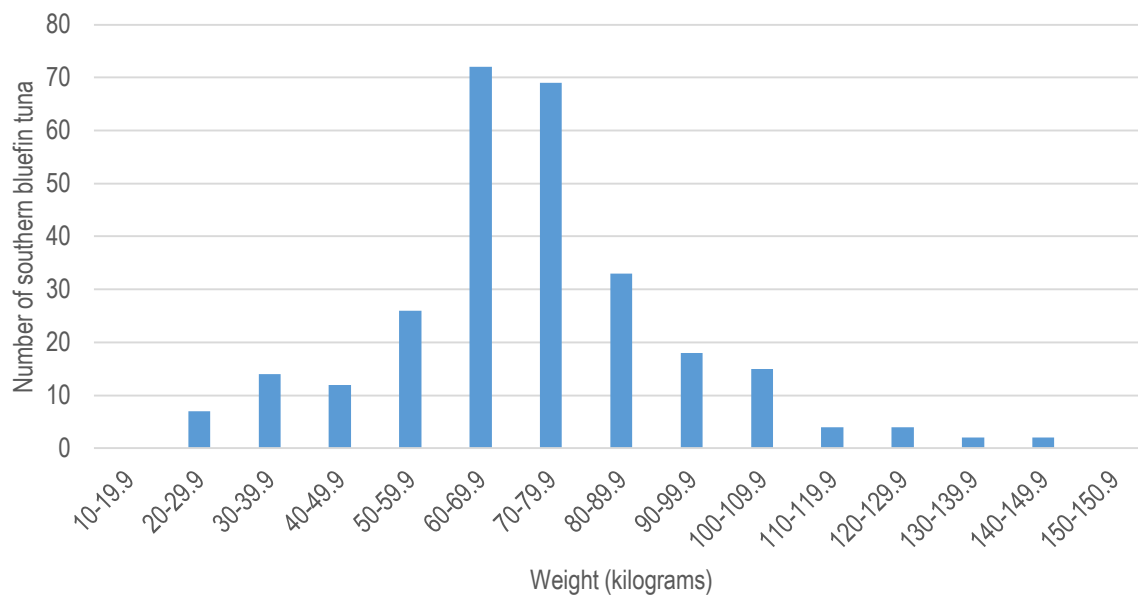


Figure 32. The number of southern bluefin that were weighed at each 10 kilogram interval in the east coast fishery.