Annual Review of National SBT Fisheries

New Zealand

2012

Annual Review of SBT Fisheries for the Annual Meeting of the Extended Commission

1. Introduction

Handline, trolling, and longline have traditionally been used to target southern bluefin tuna (SBT) in New Zealand's Exclusive Economic Zone (EEZ). In recent years, nearly all of the SBT catch has been by surface longline, with occasional small catches by trolling and a small bycatch in the mid-water trawl fishery for hoki. The domestic fishery is largely small owner-operated boats, with a few large, low temperature longliners on charter.

SBT was introduced into the Quota Management System (QMS) on 1 October 2004. The introduction to the QMS has stopped the "Olympic" race for fish seen in previous years. QMS introduction has also been associated with a consolidation of the SBT longline fleet.

New Zealand set a Total Allowable Catch (TAC) of 532t for the 2009/10 fishing year, in reflection of the allocation decisions made at CCSBT16 in 2009. New Zealand subsequently advised CCSBT that its catches in 2010 and 2011 would average 570t.

For the 2010/11 season, the fishery had a Total Allowable Commercial Catch (TACC) equivalent to 558t, the remainder of New Zealand's TAC being allocated to recreational (eight tonnes) and customary non-commercial fishers (one tonne), and other sources of fishing-related mortality (three tonnes).

In 2010/11 fishing year, commercial removals were 547.2 tonnes. This is an increase from previous seasons and particularly from lows of less than 300 t in 2005 and 2006. The increase is attributed to both an increase in effort and increased abundance of small fish (seen in catch per unit effort – CPUE – and size composition data).

The estimate of non-commercial SBT catch as bycatch from the recently developed Pacific bluefin tuna fishery was less than one tonne in 2010. From scaled observer data, it is estimated that 84 dead SBT were discarded from the domestic fleet and none from the charter fleet during the 2010/11 season. The weight of individual SBT that are returned to sea is estimated since many of the returns are due to predation and the total weight of releases was likely to be within the 2 to 4 tonne range.[1]

2. Operational Constraints on Effort

Legislative / regulatory measures

All New Zealand fishers operating within New Zealand's SBT fishery or on the high seas must hold the relevant domestic or high seas fishing permit and operate from registered fishing vessels. All New Zealand-flagged vessels registered in New Zealand are technically authorised to take SBT, although only a small proportion do so. Conditions are attached to the high seas fishing permit to regulate the activity of the vessels, including catch reporting and transhipment requirements.

[1] This number has been revised from the 2 tonne estimate which was provided in the NZ country report to the Extended Science Committee.

Since 1 October 2004, the commercial share of the national allocation has been allocated as individual transferable quota. Key elements of the New Zealand quota management system as applied to SBT are:

- Four forms of catch reporting are required for the commercial fishery (catch and effort, landings, monthly harvests, and reports by receivers of fish). Reports of catch are balanced against quota on a monthly basis to improve the monitoring of catches. A fifth form of reporting – through CCSBT's Catch Documentation Scheme – is also in place.
- Significant financial penalties apply to fishers who do not cover their annual catch of SBT with quota, thereby limiting the potential for over-catch.
- Rationalisation of fishing effort to focus on periods when SBT are in the best possible condition for capture.

3. Catch and Effort

Total catches

New Zealand's catch against its allocation was between 550.2 and 552.2 t for the 2010/11 fishing season. This figure includes 547.2 t of commercial catches, less than 1 tonne of non-commercial catches, and approximately 2-4 t of discarded fish.

Commercial catches

Table 1 shows total SBT catches by both calendar and fishing year (1 October to 30 September).

The New Zealand SBT fishery was initially a handline and troll fishery. Since domestic longline fishing began in 1990, longline effort has almost completely replaced trolling and handline fishing effort, although there is still occasional bycatch in the troll and mid-water trawl fisheries (<1 t each in 2011).

It is important to separate the domestic and charter data out to better understand the New Zealand SBT fishery. Figure 1 shows effort for the charter fleet by calendar year and CCSBT region. Most catch and effort occurs in region 6, which covers fishing grounds on the west coast of the South Island. Over the period 2001–2004 there was no targeting of SBT (and no catches of SBT) by the charter fleet in region 5, which covers the east coast North Island fishing grounds. During 2005/06 and most subsequent seasons, some charter vessels operated in Region 5 in the later part of the season.

Figure 2 shows longline effort for the domestic fleet by calendar year and region. A significant longline fishery targeting bigeye tuna operates outside the SBT fishing season, with some bycatch of SBT.

The relative importance of the east coast North Island and west coast South Island for catches of SBT has varied since 1995. Target effort increased in both regions from 1995 to 2003, but has generally decreased since then, particularly in the west coast of the South Island (region 6).

Nominal CPUE by fleet across all regions (based on targeted longline effort) is provided in Figure 3. Charter CPUE averaged around 3 SBT per 1000 hooks from 1997-2002 before dramatically declining in 2003. CPUE stayed at these historically low levels until a marked increase in 2008 for the charter fleet and a further increase in 2010 (to around 8 SBT per 1000 hooks). This increase occurred in the

core area of the charter fishery (region 6). The most recent year brought a slight decrease in the charter fleet CPUE but it remains above recent levels. The domestic fleet operating on the east coast of the North Island also experienced an increase in CPUE in 2007, with similar catch rates in 2008 and further increases in 2009, 2010 and 2011. In general, the domestic CPUE has followed a similar pattern over time to the charter CPUE, although it is traditionally not as high.

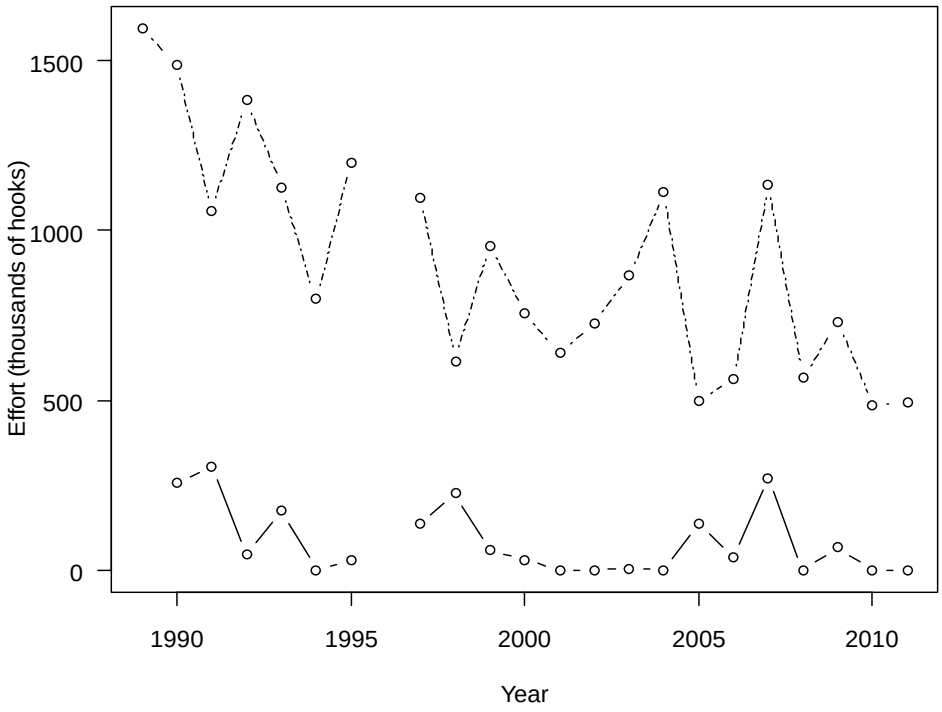

Figure 1: Effort (thousands of hooks) for the charter fleet in Region 5 (solid line – east coast North Island) and Region 6 (dashed line – west coast South Island). Note that this includes some non-SBT target effort in Region 5 and that no charter vessels fished in 1996.

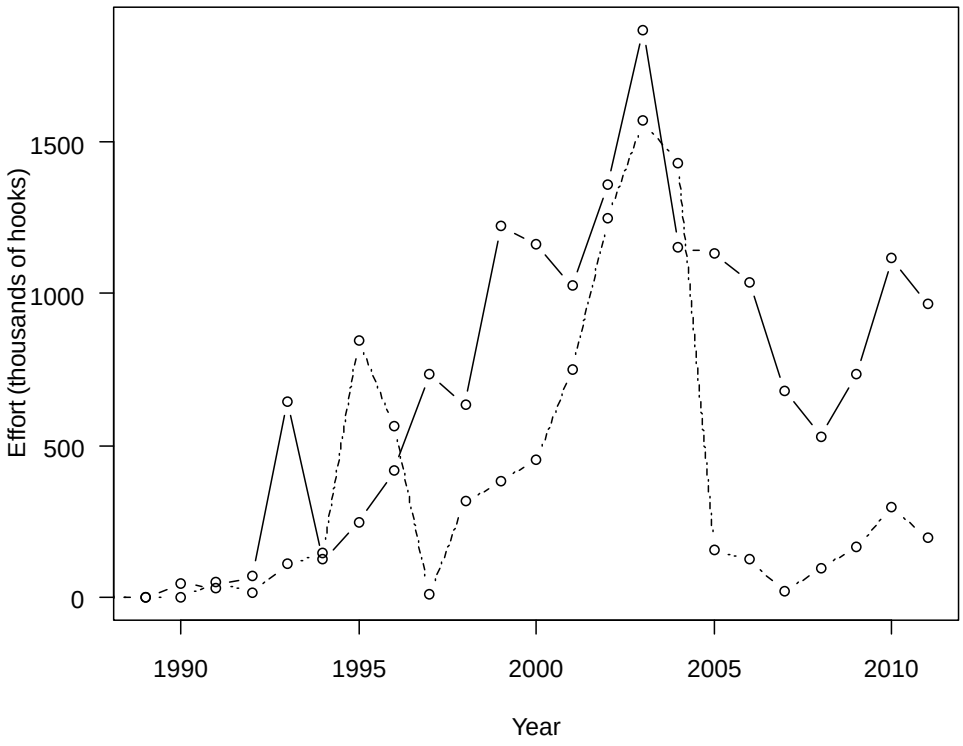

Figure 2: Target effort (hooks from sets that either targeted or caught SBT – thousands of hooks) by the domestic fleet for Region 5 (solid line – east coast North Island) and Region 6 (dashed line – west coast South Island).

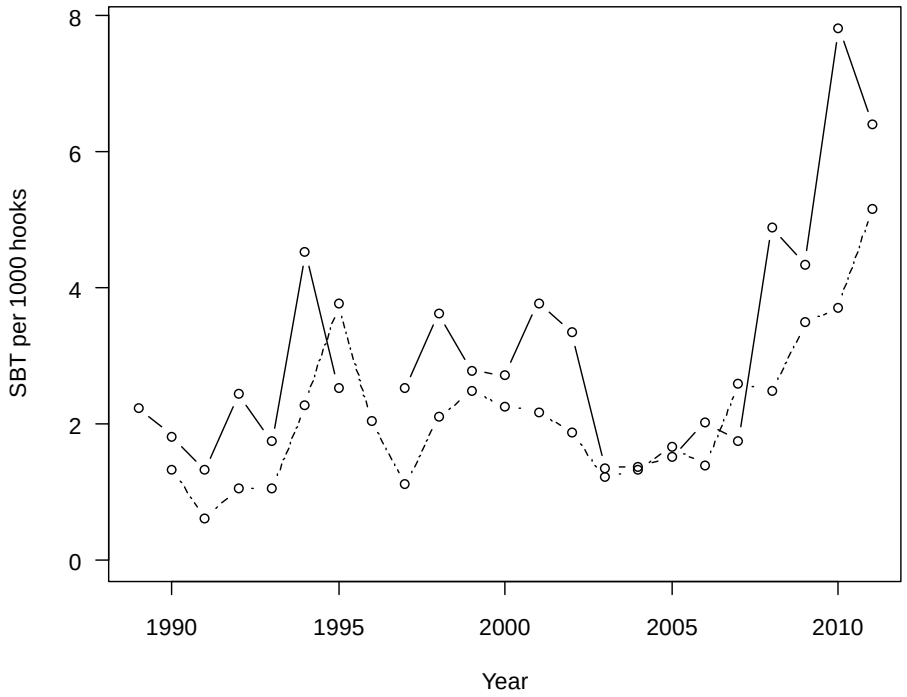

Figure 3: Catch per unit effort (number of SBT per thousand hooks) by calendar year for the charter (solid line) and domestic (dashed line) longline fleets based only on effort from sets that either targeted or caught southern bluefin tuna.

Discards

From scaled observer data, it is estimated that 84 dead SBT were discarded during the 2010/11 season. Though no size data on the discards is available, the total weight was likely around 2 tonnes. This is less than the allowance made in the total allowable catch for other sources of fishing mortality (3 t).

Recreational and Customary Catches of SBT

Since 1 October 2004, New Zealand has made allowance within its national allocation for non-commercial catches. In 2010/11 the allowance was 9 t.

SBT is caught from time to time as bycatch in a recently developed sport fishery for Pacific bluefin tuna (Thunnus orientalis) off the west coast of the South Island. Generally, SBT are only taken early in the season (July), with the catch being almost entirely Pacific bluefin during August – September, when most of the effort occurs. A proportion of the catch is tagged and released, so does not contribute to estimates of recreational mortality.

In order to better estimate the level of recreational catch in relation to the allowance made under our national allocation, New Zealand has monitored the bluefin fishery since the 2007 season. Estimated catches reached the allowance made for recreational catch in 2007, but catches have been lower since then (table 2). Since November 2010, more detailed monitoring has occurred through compulsory charter boat reporting for specified fisheries (including Pacific and southern bluefin).

Only an estimated two fish were landed by recreational sport fishers in 2010, for an estimated catch weight of 250kg. No data is available on releases. It is not known why reported recreational landings of southern bluefin have decreased since their apparent peak in 2007, but economic and social factors are likely to play a part.

Compulsory reporting for recreational charter vessel operators[2] was introduced in November 2010, and one fish was reported caught in 2011.

There are no estimates of SBT catches by Maori non-commercial fishing. Although one tonne of the non-commercial allowance is for customary catches, actual take is believed to be negligible.

4. Annual Fleet Size and Distribution

The number of vessels catching SBT peaked in 2002 at 151, but had declined to 35 vessels by 2008. The number of vessels catching SBT in 2011 remained unchanged from the previous year at 42. The historical decline in vessel numbers is linked to a number of factors, including economic conditions and rationalisation of the fleet following introduction of individual transferable quotas. The number of foreign-flagged vessels that fish in the SBT fishery under charter to a New Zealand company can vary somewhat from year to year; since 2007 four vessels have been chartered each year.

The spatial distribution of fishing effort and SBT catches from the charter and domestic fleets is provided in figures 3 & 4 and 5 & 6 respectively. Most of the charter catch and effort occurs off the west coast of the South Island, though there has been some effort off the east coast of the North Island in most years since 2005.

[2] A recreational charter vessel is a vessel that takes paying recreational fishing customers on fishing trips. The fish caught on the fishing trips are retained by the customers, and are not entitled to be sold or traded, so the catch is regarded as recreational catch.

New Zealand's fishing year starts 1 October and finishes 30 September of the following year. SBT is seasonally present from March/April to August/September. SBT catches are taken mainly from March/April to July.

Longlining off the west coast South Island is almost entirely targeted at SBT. The fleet operating off the southwest coast is primarily composed of the larger –60º freezer vessels of the charter fleet. Few of the smaller domestically owned and operated vessels operate in the generally heavier weather conditions off the South Island, although domestic effort and catches in this area has increased since 2008 to take advantage of the earlier season in this region.

More domestic effort occurs off the east coast of the North Island. The longline fishery in this area is dominated by smaller domestically owned and operated "ice boats" that are typically at sea for only a few days. This fishery includes landings of SBT both as a target and as a bycatch of bigeye target sets in the Bay of Plenty.

Smaller numbers of SBT are also caught as bycatch in a domestic longline fishery that operates outside of the main SBT season. This fishery is more northern in its distribution.

The distribution of SBT catches is similar to that of target effort, though prior to 2005 proportionally more catch (compared to effort) was taken in the west coast South Island fishery compared to the east coast North Island fishery.

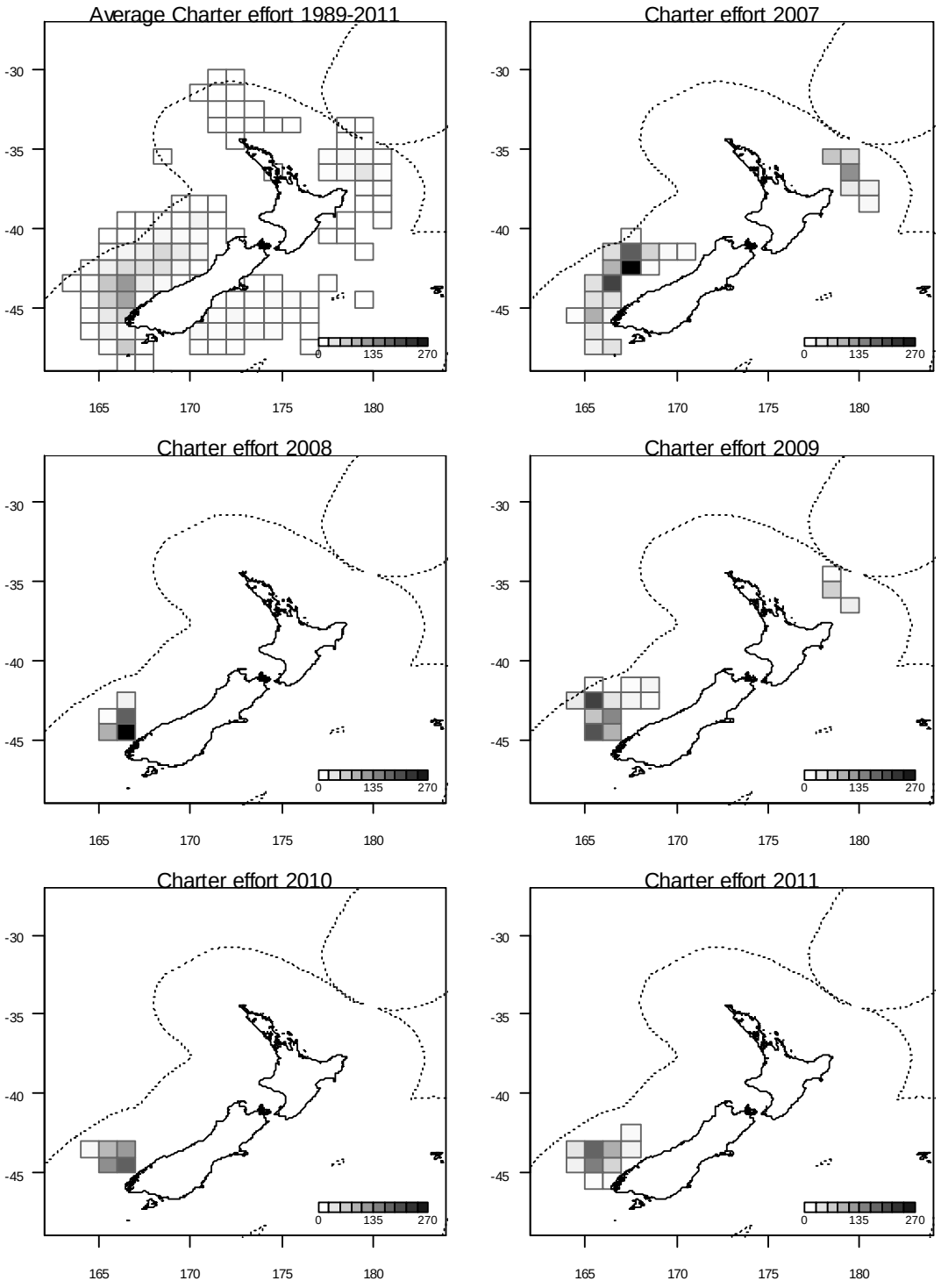

Figure 4: Distribution of longline effort (thousands of hooks per 1 degree square) for the charter fleet: average for the time series (1989-2011), and annually for 2007 to 2011.

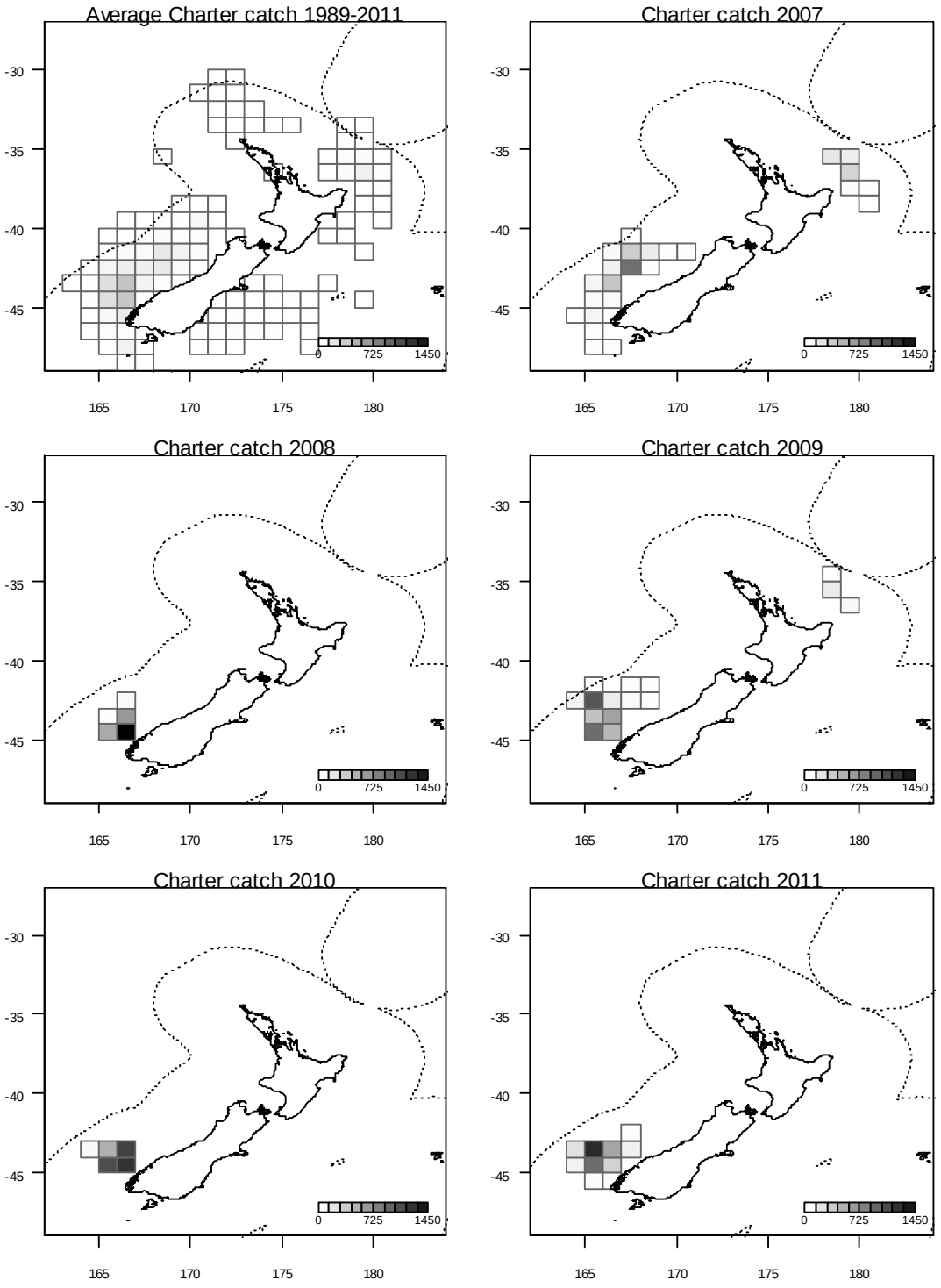

Figure 5: Distribution of longline catches (number of fish per 1 degree square) for the charter fleet: average for the time series (1989-2011), and annually for 2007 to 2011.

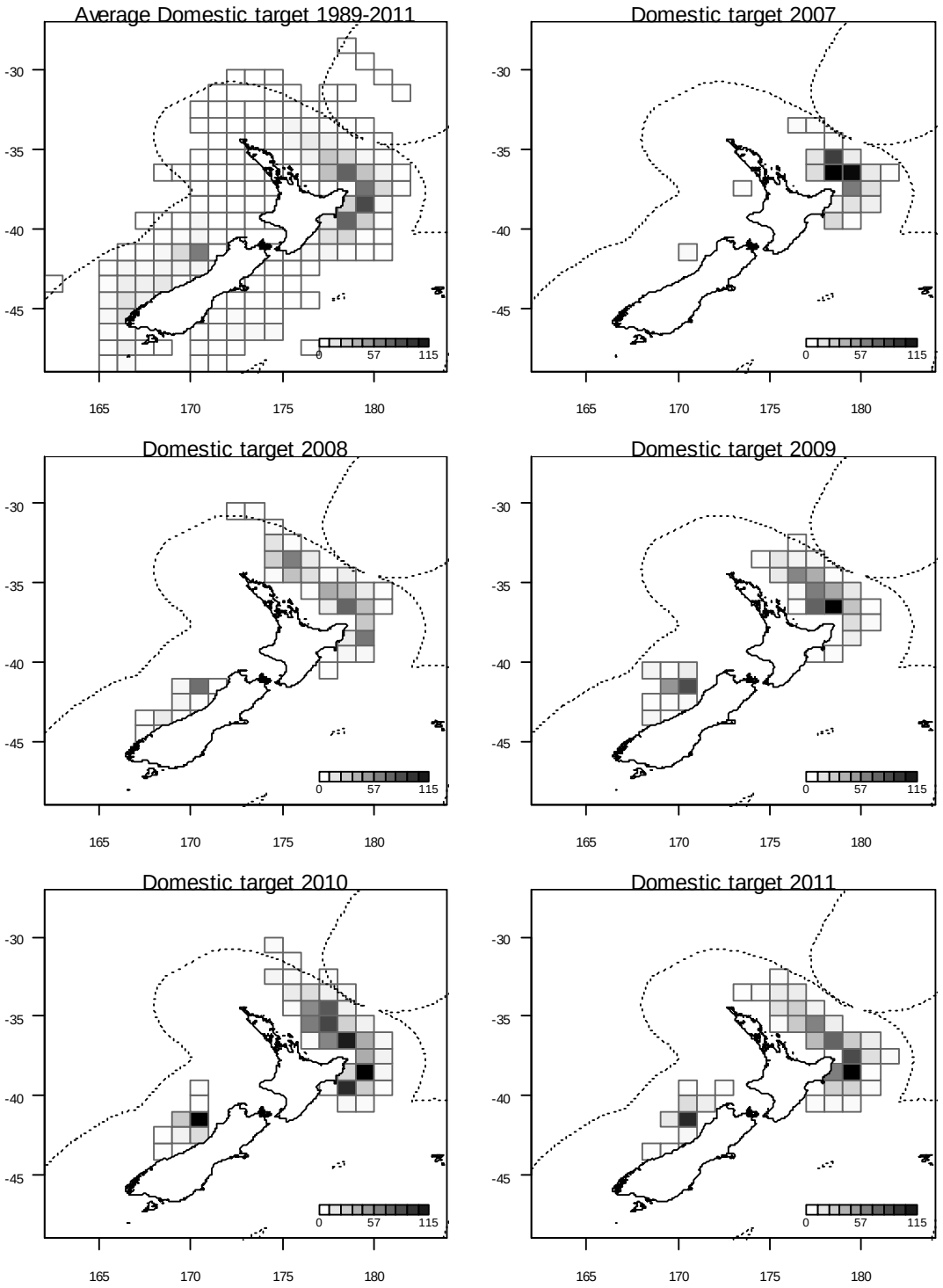

Figure 6: Distribution of longline effort (thousands of hooks per 1 degree square) for the domestic fleet that was targeted at southern bluefin tuna: average for the time series (1989-2011), and annually for 2007 to 2011.

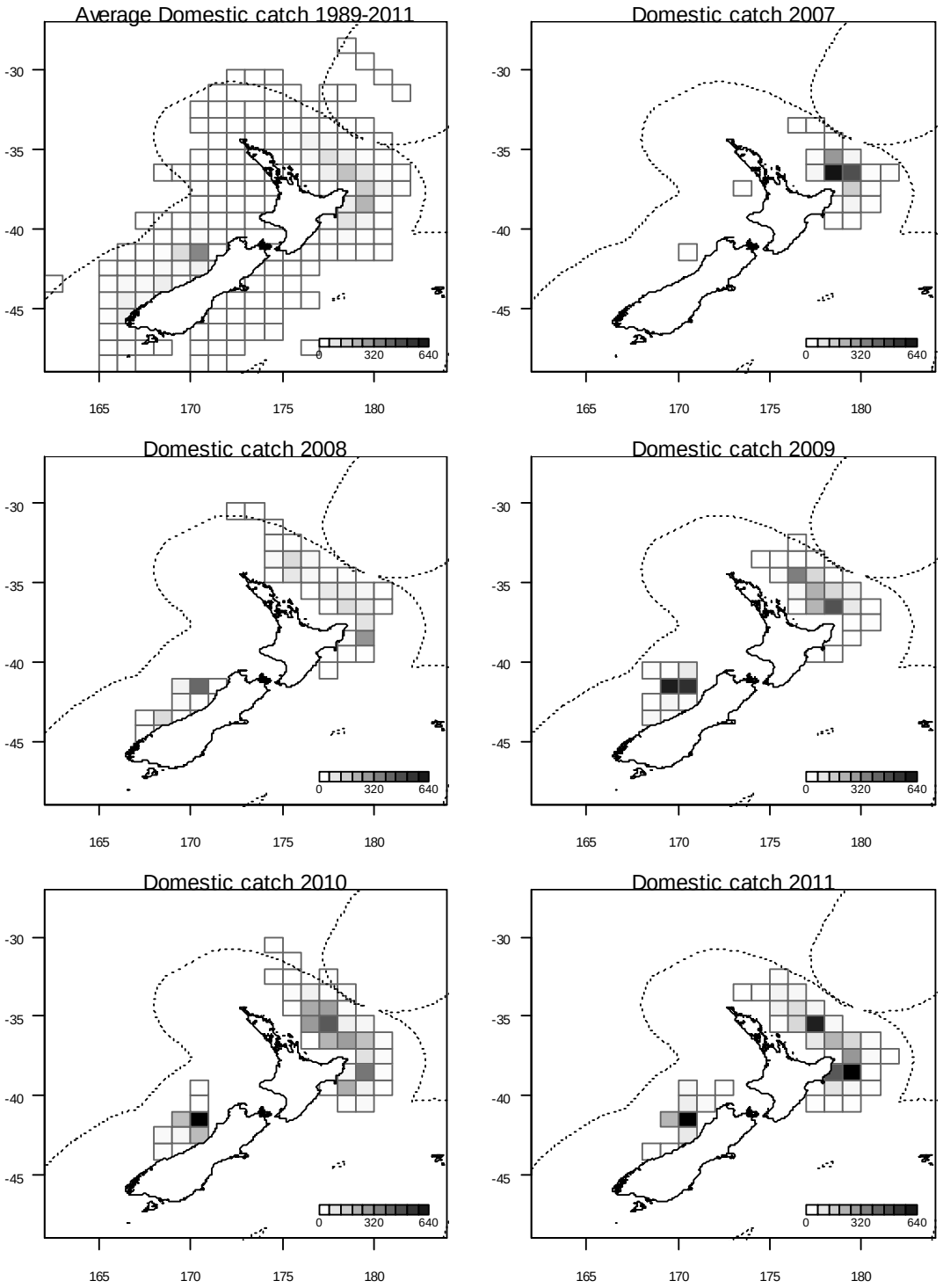

Figure 7: Distribution of longline catches (number of fish per 1 degree square) for the domestic fleet: average for the time series (1989-2011), and annually for 2007 to 2011.

5. Historical Fleet Size and Distribution

The New Zealand SBT fishery began in the early 1980s as a winter fishery, with small handline and troll vessels. Most fishing by these vessels was in July and August. Since 1990, these methods have been only a minor component of the fishery, because SBT quota had generally been caught by

longline vessels by the time the handline fishery started. During the 1980s to mid–1990s, most longlining was conducted by foreign licensed longliners from Japan. Declining catch rates, shortened seasons of availability, and reports of increased operating costs in the EEZ resulted in the foreign licensed fleet ceasing operations in 1995. Domestic longlining began in 1991 and steadily increased to over 150 vessels in 2002 before declining to a low of 35 vessels in 2008, with some upturn in 2009 (40 vessels) and 2010 (42 vessels).

While most target effort for the domestic fishery now occurs off the east coast North Island (figure 6), a substantial domestic fishery previously operated off the west coast South Island – mostly due to one large domestic vessel that has not fished in recent years. Historically, most of the North Island effort has been south of East Cape, but now that SBT is managed in the QMS, the effort has been more distributed around the East Cape region and occurs slightly later (by a month or so).

6. Fisheries Monitoring

Catch monitoring

A comprehensive catch monitoring and catch balancing system applies to southern bluefin tuna, as it does for all New Zealand quota species. All fishers are required to furnish monthly returns of catch (catch effort logbooks, catch landing returns, and monthly harvest returns). These returns are then matched to individual holdings of quota entitlement. Financial penalties apply (on a monthly basis) to fishers who catch SBT other than under the authority of quota. Fishers have the opportunity to reconcile their catch and quota entitlements up until the end of the fishing year; if they do not do so, the financial penalties substantially increase.

Fish taken commercially may only be sold to licensed receivers of fish. Fish receivers are required to furnish monthly returns of their purchases by species and fisher. These reports are used to verify individual fishers' catch returns.

To further ensure the integrity of the Quota Management System and catch monitoring, all catch returns, permits, vessels, licensed receivers and dealers in fish are subject to inspections and audit at any time by Fishery Officers. Any discrepancies identified in these inspections and audits may result in penalties being applied.

From 1 January 2010 the Catch Documentation Scheme has replaced the Trade Information Scheme. The Ministry for Primary Industries[3] collates CDS documents and forwards them (or the data therein in the case of catch tagging forms) to the Secretariat for reconciliation.

Observer coverage

New Zealand's Observer Programme covers both domestic and charter longline vessels. All four charter vessels were covered by observers in 2011. The target coverage level for the domestic fleet is 10% of the effort to reflect 10% of the catch.

Around 82% of the catch was observed (and measured) in the charter fleet in 2011. This equated to 74% of hooks being observed on the charter vessels in 2011. For the domestic fleet, 9% of the catch and 8% of the hooks were observed in 2011.

[3] The Ministry for Primary Industries was created in 2012 and incorporates the former Ministry of Fisheries and Ministry of Agriculture and Forestry.

Now all catch is measured to comply with the requirements of the catch documentation system. Figure 8 shows the length distribution of SBT reported on CDS forms in 2011 while Figure 9 shows the distribution for fish measured by Observers in the same year. The Observer data is a subset of the total catch but shows a very similar length distribution.

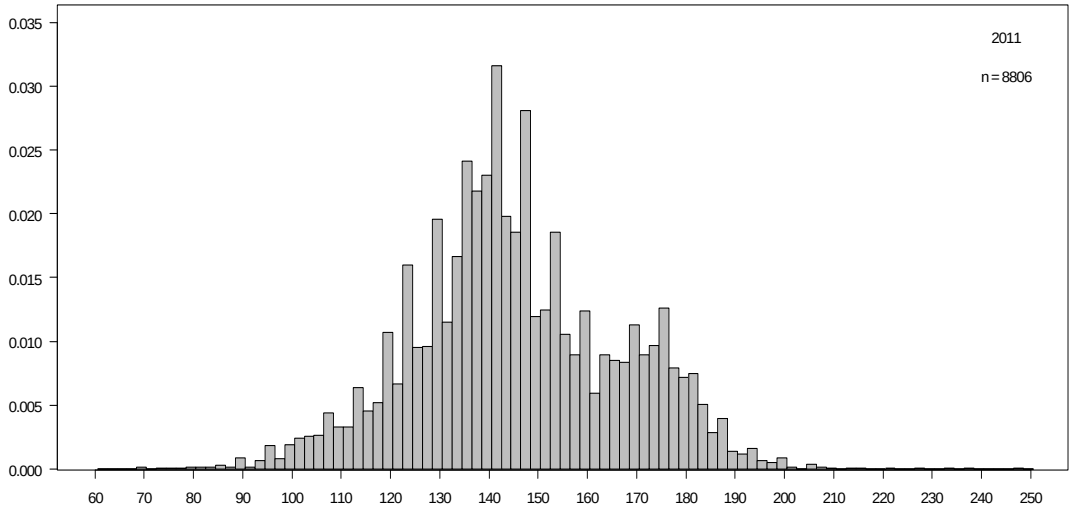

Figure 8: Proportion-at-length for the SBT catches from 2011 reported on CDS forms.

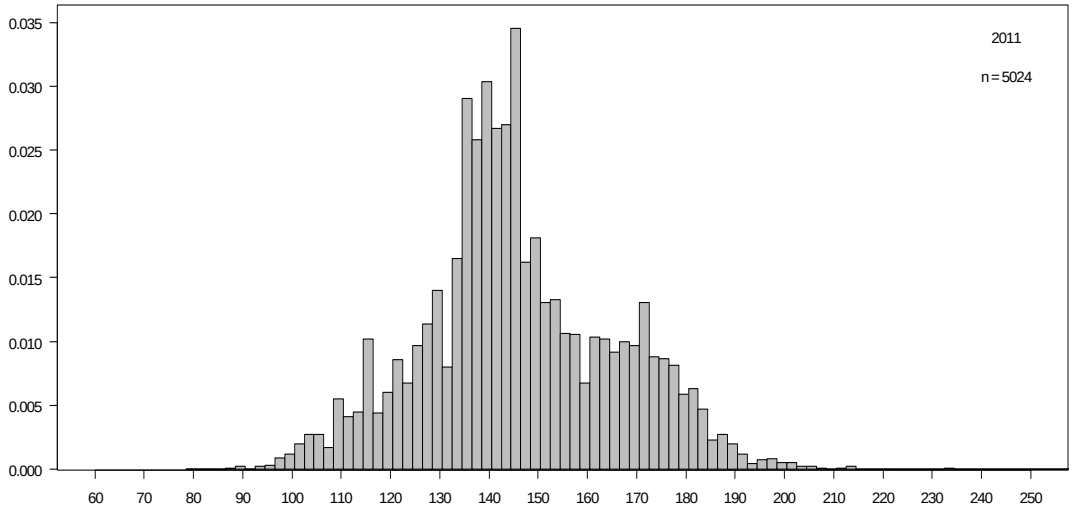

Figure 9: Proportion-at-length for SBT catches from 2011 measured by Observers.

Biological information

Observers from the Scientific Observer Programme collect biological data on SBT, and bycatch data for catch characterisation. Length, weight (both processed and whole weights) and sex are recorded regularly for SBT and all major fish bycatch species.

Observers onboard the charter vessels also collect otoliths from as many SBT caught as possible. In 2010, 258 otoliths were aged from the otoliths collected by observers from the charter vessels. Due to the smaller size of the domestic vessels and the different processing practices, it is not feasible to collect otoliths from the domestic fleet at this time.

Transhipments

Transhipments by New Zealand flagged vessels, either on the high seas or within New Zealand waters, are subject to specific prior approval by the Ministry for Primary Industries. Such transhipments must be monitored by an observer or Fishery Officer and are to be conducted in accordance with a stringent set of conditions to ensure robust verification of quantities transhipped. Transhipments are not a common occurrence, and no authorisations have been issued for SBT. New Zealand currently has no carrier vessels to notify to the Secretariat.

Vessel Monitoring System (VMS)

New Zealand legislation requires:

- all New Zealand vessels over 28m in length;
- all foreign charter vessels registered to fish in New Zealand waters;
- all New Zealand flagged and registered vessels operating outside of New Zealand waters;
- all vessels issued with a foreign licence to fish in New Zealand waters; and
- vessels in some specific fisheries

to fit and continuously operate an Automatic Location Communicator that report to the New Zealand VMS.

New Zealand–flagged vessels that catch highly migratory species on the high seas or in other jurisdictions in the Western and Central Pacific Ocean region are required to report to the Western and Central Pacific Fisheries Commission VMS. In this reporting period, 7 vessels were subject to this requirement.

Resolution on IUU fishing and establishment of CCSBT Vessel record

New Zealand provides a list of authorised vessels to the CCSBT Secretariat and has put in place routine systems to update the record as required. All New Zealand–flagged and registered fishing vessels are technically authorised to fish for SBT in New Zealand fisheries waters, so the list of New Zealand authorised vessels includes many vessels that do not actively fish for SBT. Applications for vessel registration include a tick box that allows applicants to indicate whether or not SBT is likely to be caught by the vessel (either as target or bycatch). This tick box has allowed the list of authorised vessels to be refined, although this will be an on-going process.

Any catch of SBT is recorded and monitored by routine systems established as part of the New Zealand quota management system. New Zealand has no information to suggest any of its registered fishing vessels have an involvement in IUU fishing. Procedures have been put in place to ensure foreign-owned vessels fishing under charter to New Zealand companies may only fish for SBT if they are from a member state of the Extended CCSBT. Individual assessments of the compliance history of foreign-owned vessels are required prior to the approval of their registration as New Zealand fishing vessels.

7. Ecologically related species

Fish and non-fish bycatch

From 1 October 2008, reporting requirements for commercial fishers allow for more effective reporting of non-fish bycatch (including turtles, seabirds and marine mammals). For more information, see paper CCSBT- ERS/0909/Info05. Changes have also been made to the regulations that cover any interactions with sea turtles (although sea turtle bycatch in New Zealand's pelagic longline fisheries is a very rare occurrence). Surface longline vessels have been provided with turtle mitigation equipment, in line with the WCPFC conservation and management measure.

Table 4 provides further information on incidental catches of seabirds and turtles, along with bycatch of shark species.

Seabird mitigation measures

New Zealand regulations require surface longline vessels to:

- use seabird-scaring devices ("tori lines") when setting surface longlines; and
- not set surface longlines between the hours of 0.5 hours before nautical dawn and 0.5 hours after nautical dusk[4] *unless* an approved line weighting configuration is in place.

The minimum standard for tori lines is based on international best practice drawn from CCAMLR, CCSBT, and WCPFC recommendations. The approved line weighting configuration is as specified in the WCPFC conservation and management measure for seabirds.

A variety of voluntary practices are employed in the fishery to assist with seabird bycatch mitigation, including the use of dyed bait and offal management strategies. The charter fleet of large tuna longline vessels sets a voluntary limit on total incidental mortality of "at risk" seabirds as part of their code of practice. The domestic fleet also operates under a code of practice which covers incidental catches of seabirds, turtles, sharks, and marine mammals.

Implementation of Recommendation to Mitigate the Impact on Ecologically Related Species of Fishing for Southern Bluefin Tuna

New Zealand has implemented the Recommendation on ERS. For details, see New Zealand's Compliance Action Plan.

8. Other matters

Import/export statistics

CCSBT–CDS documents were required for all SBT exports in 2010. Statistics on the export of SBT are compiled by New Zealand Customs and summarized by the Department of Statistics. Export statistics are further summarized by the New Zealand Seafood Industry Council and maintained as a database for economic evaluations of New Zealand fisheries.

Markets

The principal market for New Zealand's SBT fishery is the Japanese sashimi market. Some SBT is exported to other countries including Australia and the United States. Domestic consumption is small.

[4] "nautical dawn" means the time at sunrise when the centre of the sun is at a depression angle of 12 degrees below the ideal horizon for the place.
"nautical dusk" means the time at sunset when the centre of the sun is at a depression angle of 12 degrees below the ideal horizon for the place.

Historical management

Prior to the 2004/05 fishing season, the SBT catch limit was a competitive limit among all license holders. Regulations specified the annual catch limit and made it an offence to take SBT once the catch limit had been reached. The catch limit applied within and outside New Zealand fisheries waters for the "fishing year" which extends from 1 October to 30 September. In the few years when the catch limit was exceeded, it was reduced in the following year by an equivalent amount.

Until midway through the 2000/01 fishing season, the SBT quota applied to the catch of both SBT (Thunnus maccoyii) and Pacific bluefin tunas (formerly Thunnus thynnus, now recognized as Thunnus orientalis). The quota restriction on Pacific bluefin tuna was removed late in the 2000/01 SBT season, when Pacific bluefin tuna was identified as a separate species. It was demonstrated that morphological characteristics and DNA analysis could be used to readily distinguish Pacific bluefin from SBT in catches. SBT landings reported prior to June 2001 distinguished between northern and southern bluefin even though catches of both were counted against the SBT quota. Catches reported as northern bluefin were most likely Pacific bluefin. The quota restriction on northern bluefin tuna (Thunnus thynnus) was removed in 2002.

Pacific bluefin tuna was also introduced into the QMS on 1 October 2004, with a total allowable commercial catch of 116 t.

Table 1: Recent catches of southern bluefin tuna in New Zealand fisheries waters (tonnes whole weight) by Calendar year and New Zealand fishing year (1 October to 30 September).

Year	Calendar year	Fishing year
1980	130.0	130.0
1981	173.0	173.0
1982	305.0	305.0
1983	132.0	132.0
1984	93.0	93.0
1985	94.0	94.0
1986	82.0	82.0
1987	59.0	59.0
1988	94.0	94.0
1989	437.2	437.1
1990	529.2	529.3
1991	164.5	164.5
1992	279.2	279.2
1993	216.6	216.3
1994	277.0	277.2
1995	436.4	434.7
1996	139.3	140.4
1997	333.7	333.4
1998	337.1	333.0
1999	460.6	457.5
2000	380.3	381.7
2001	358.5	359.2
2002	450.3	453.6
2003	389.6	391.7
2004	393.3	394.0
2005	264.4	264.0
2006	238.2	238.2
2007	382.6	383.1
2008	319.0	318.8
2009	418.5	417.3
2010	500.7	499.5
2011	547.1	547.2

Table 2: Estimated recreational catches of southern bluefin tuna, 2007-2010. Landings data from voluntary reporting forms; release data from provisional Gamefish Tag Reports.

	Number	Kilograms
2007		
Landed	35	4,025
Released	20	2,171
2008		
Landed	3	400
Released	0	0
2009		
Landed	1	130
Released	0	0
2010		
Landed	2	250
Released	0	0

Table 3. Number of commercial vessels catching SBT in New Zealand fisheries waters by calendar year and New Zealand fishing year (1 October to 30 September).

Year	Calendar year	Fishing year
2001	132	132
2002	151	155
2003	132	132
2004	99	101
2005	57	58
2006	56	57
2007	44	45
2008	35	36
2009	40	39
2010	44	42
2011	56	55

Table 4: Summary of observed ERS captures (mortalities) for New Zealand surface longline fisheries for SBT for the 2011 calendar year

Total number of hooks	1,657,400
Number of hooks observed	459,886
% hooks observed	27.7%
Total number observed seabird interactions (mortality)	29 (13)[5]
Total number of observed shark interactions (mortality)	7,138 (4,296)
Total number of observed sea turtle interactions (mortality)	3 (0)

[5] Preliminary data only covering the period from 1 January to 24 June.