

**CCSBT-CC/0910/SBT Fisheries-New Zealand**

**Annual Review of National SBT Fisheries**

**New Zealand**

**2009**

## 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 Total Allowable Commercial Catch (TACC) was set at 413 t. The remainder of New Zealand's catch limit of 420 t is allocated to other sources of fishing-related mortality (two tonnes) and recreational (four tonnes) and customary fishers (one tonne). 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.

The 2005/06 season had the lowest catches of SBT in ten years. After two years when commercial catches were well below 300 t, commercial landings of SBT were around 379 t for the 2006/07 season, and 318 t for the 2007/08 season.

## 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 may be attached to the high seas fishing permit to regulate the activity of the vessels, including catch reporting and transshipment requirements.

New Zealand continues to impose the previously agreed national catch limit for SBT of 420 t (whole weight). Since 1 October 2004, the commercial share of the national allocation has been allocated as individual transferable quota. Key elements of the New Zealand QMS as applied to SBT are:

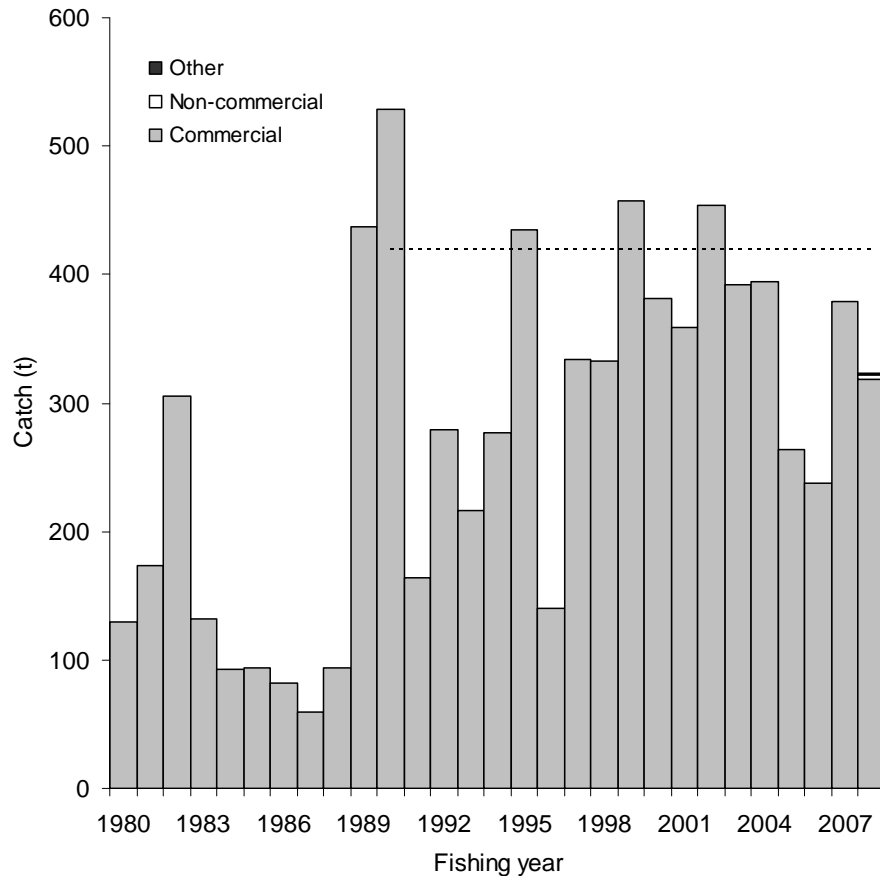
- Significant financial penalties apply to fishers who do not cover their annual catch of SBT with quota, thereby limiting the potential for over catch.
- Three forms of catch reporting are required for the commercial fishery (catch and effort, landings, and reports by receivers of fish). Reports of catch are balanced against quota on a monthly basis to improve the monitoring of catches.
- Rationalisation of fishing effort to focus on periods when SBT are in the best possible condition for capture.

The domestic catch reporting requirements are in addition to CCSBT's current requirements (the Trade Information Scheme — TIS), and future implementation of the Catch Documentation Scheme (CDS).

## 3. Catch and Effort

### *Total catches*

New Zealand's catch against its allocation was around 319.5 t for the 2007/08 fishing season. This figure includes 318 t of commercial catches, less than 1 tonne of non-commercial catches, and approximately 1 tonne of discarded fish (see figure 1).



**Figure 1: Commercial catches of southern bluefin tuna (tonnes whole weight) by New Zealand fishing year (1 October to 30 September). Annual total catch is from Licensed Fish Receiver returns for 1998/99 to 2000/01, and from Monthly Harvest Returns from permit holders since 2001/02. The dashed horizontal line refers to the limit of 420 t that has been in place since 1989. For the 2007/08 fishing year, estimates of non-commercial catch, and discard mortality are included.**

### *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. There is also occasional SBT bycatch in the mid-water trawl fishery.

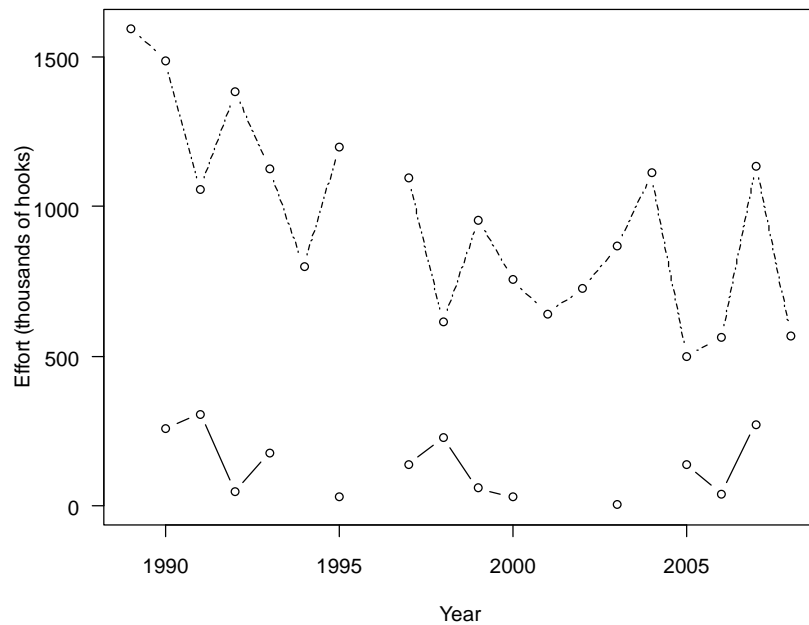
It is important to separate the domestic and charter data out to better understand the New Zealand SBT fishery.

Figure 2 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.

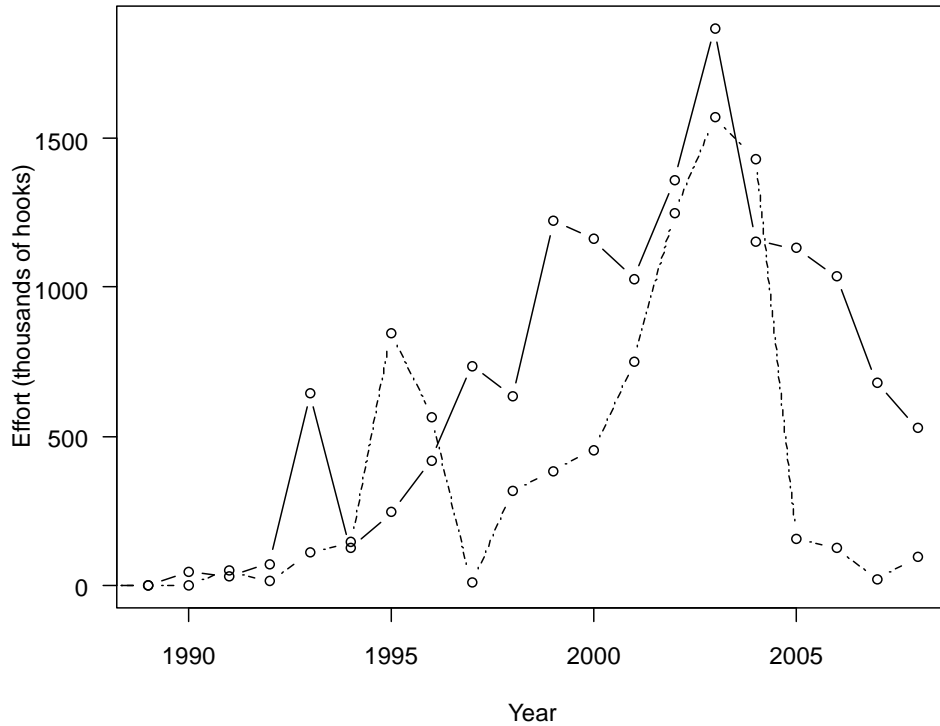
Figure 3 shows longline effort for the domestic fleet by calendar year and region. A significant longline fishery targeting bigeye tuna operates outside the SBT fishing season, with some bycatch of SBT.

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 dramatically in both regions from 1995 to 2003, but has decreased since then, particularly in the west coast of the South Island (region 6).

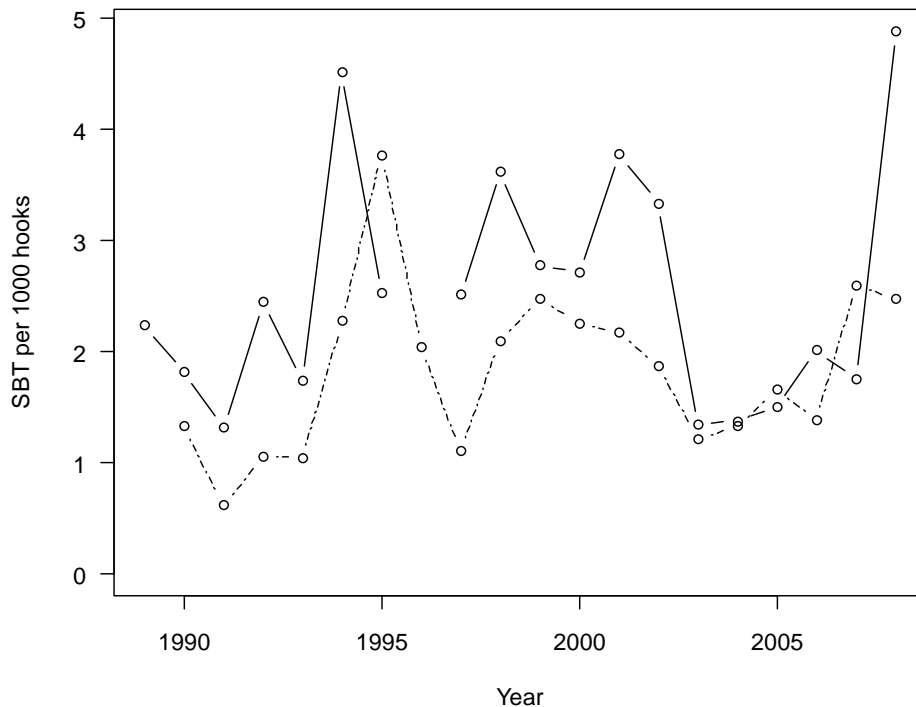
Nominal CPUE by fleet across all regions (based on targeted longline effort) is provided in Figure 4. Charter CPUE averaged around 3 SBT per 1000 hooks from 1997-2002. CPUE declined dramatically in 2003. CPUE has stayed at these historically low levels until a marked increase in 2008 for the charter fleet. This increase occurred in the core area of the charter fishery (region 6). The domestic fleet operating on the east coast of the North Island experienced a same increase in CPUE in 2007, with similar catch rates in 2008. In general, the domestic CPUE has followed a similar pattern over time to the charter CPUE, although it is traditionally not as high.



**Figure 2: 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 3: 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 4: 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 observer data, it is estimated that thirteen dead SBT were discarded during the 2007/08 season. Though no size data on the discards is available, the total weight was likely around one tonne.

### *Recreational and Customary Catches of SBT*

Since 1 October 2004, New Zealand has allowed five tonnes of its national allocation for non-commercial catches. Due to the locations and seasons during which SBT are now found in New Zealand waters (generally winter months, in areas with little recreational fishing), it is unlikely this allowance has been approached in the past.

However, there have been some reports of bycatch of SBT in the recently developed sport fishery for Pacific bluefin (*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 during the 2007 and 2008 seasons. Provisional figures indicate the allocation was likely to have been fully caught in 2007 (35 fish landed; 4,025kg), but that catches were lower in 2008 (around 3 fish were reported as landed; approximately 400kg). In the future, more detailed monitoring may occur through compulsory charter boat reporting for specified fisheries (including Pacific and southern bluefin).

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. Fleet Size and Distribution**

The number of vessels catching SBT peaked in 2002 and has since declined to 35 vessels in 2008 (Table 2). In 2005 and 2006 only two charter vessels fished for SBT in New Zealand fisheries waters, but in 2007 and 2008 this increased again to four.

The spatial distribution of fishing effort and SBT catches from the charter and domestic fleets are provided in Figures 5 and 6. 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 each year since 2005.

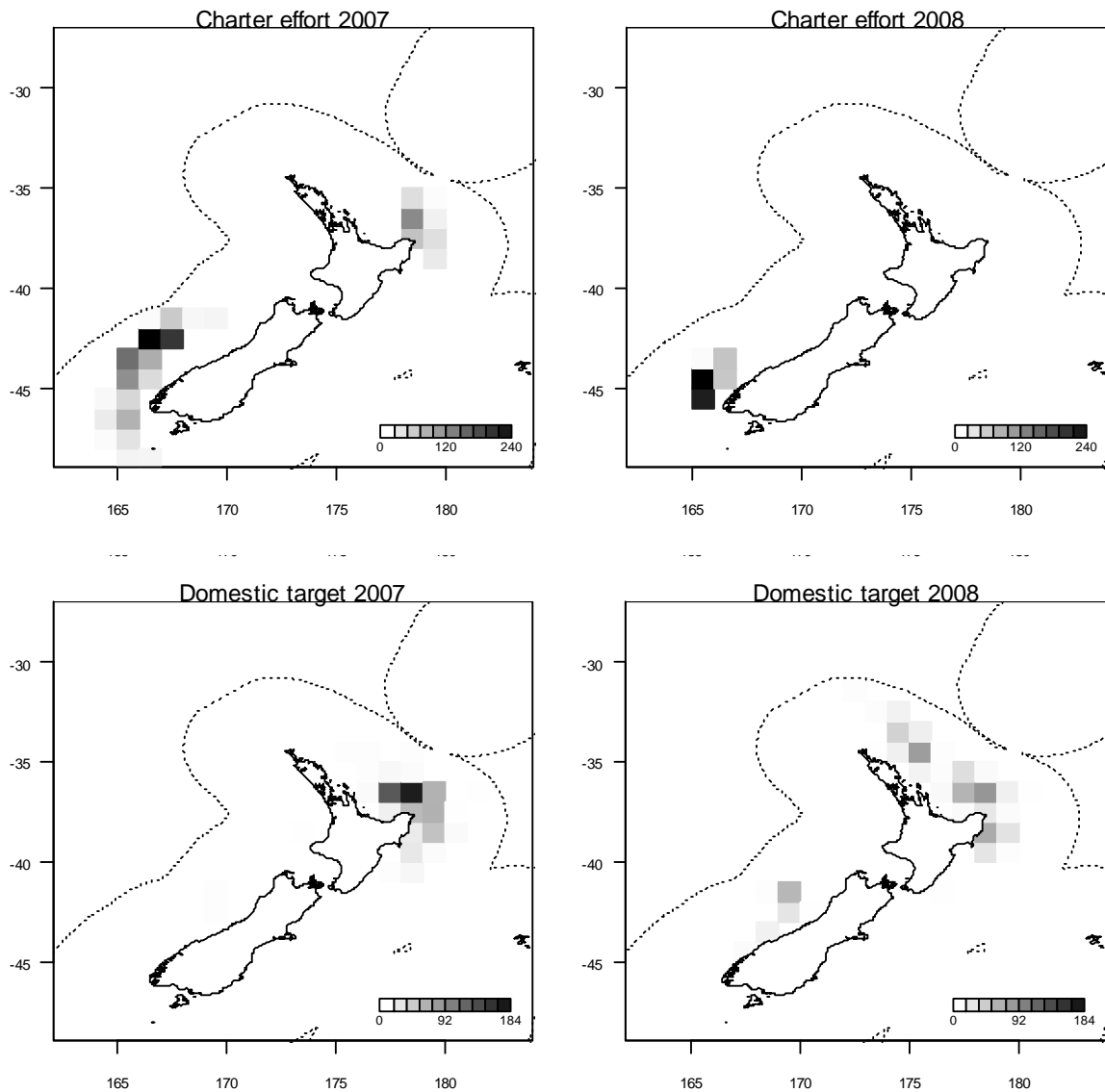
New Zealand's fishing year starts 1 October and finishes 30 September of the following year. SBT is seasonally present from March/April to August/September. SBT catches are taken mainly from March/April to July.

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 –60° 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.

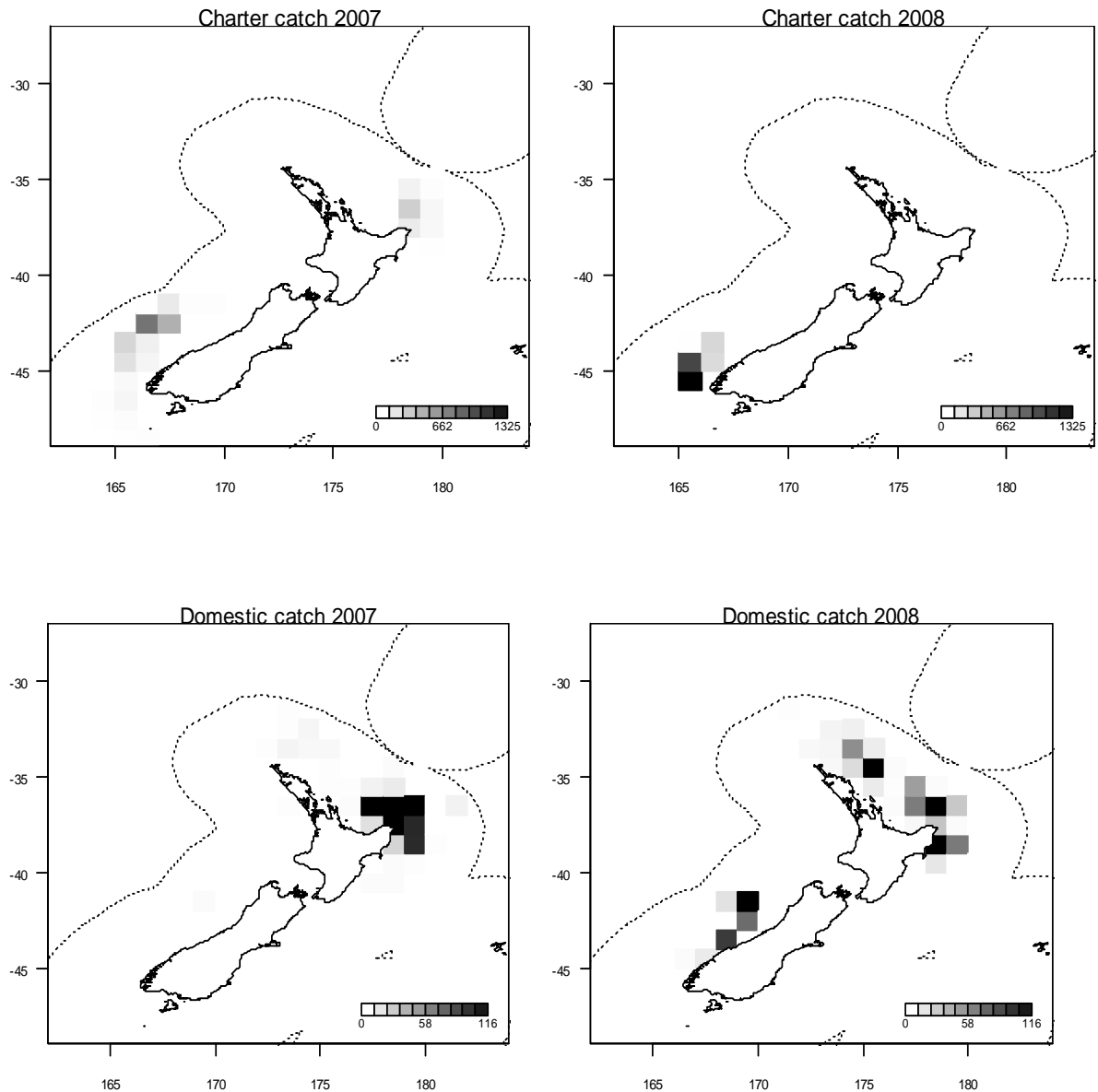
Instead, these vessels fish off the east coast North Island. The longline fishery in this area is dominated by smaller domestically owned and operated “ice boats” that are typically at sea for only a few days. This fishery includes landings of SBT both as a target and as a bycatch of bigeye target sets in the Bay of Plenty.

The domestic longline fishery in which small numbers of SBT are caught as bycatch is more northern in its distribution. This fishery operates outside of the SBT season.

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 5: Distribution of longline effort (thousands of hooks per 1 degree square) for the charter fleet (top) and domestic fleet (bottom) for 2007 and 2008. Note the different scales for the domestic and charter fishery.**



**Figure 6: Distribution of longline catches (number of fish per 1 degree square) for the charter fleet (top) and domestic fleet (bottom) for 2007 and 2008. Note the different scales for the domestic and charter fishery.**

## 5. Historical Fleet Size and Distribution

The New Zealand SBT fishery began as a winter fishery in the early 1980s, 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 the current low of 35 vessels.

While most target effort for the domestic fishery now occurs off the east coast North Island, 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 and Compliance**

### *Catch monitoring*

From 1 October 2004, the catch monitoring and catch balancing systems in place for all NZ quota species applied to SBT. All fishers are required to furnish monthly returns of catch. 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, and 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.

All exported SBT must currently be accompanied by a CCSBT-TIS form. MFish collates all CCSBT Statistical documents recording all exports of SBT from New Zealand. These reports are forwarded to CCSBT for subsequent reconciliation with import documentation. Arrangements are underway for all commercial catches of SBT to instead be covered by the CCSBT's Catch Documentation Scheme by 1 January 2010.

### *Observer coverage*

New Zealand's Observer Programme covers both domestic and charter longline vessels. Most trips on charter vessels are covered by at least one observer. The target coverage level for the domestic fleet is 10% of the effort to reflect 10% of the catch.

Coverage is measured in two ways: proportion of catch (in numbers of fish) observed and proportion of hooks observed.

In 2007/08 two of the four charter vessels were observed. This coverage provided 46% of catch (numbers of fish) and 45% of effort (hooks). For the domestic fishery, coverage was 9% of catch and 15% of effort.

### *Biological information*

Observers from the MFish 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 2008, 745 otoliths were collected by observers from the two charter boats. 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.

### *Transshipments*

Transshipments by New Zealand flagged vessels, either on the high seas or within New Zealand waters, are subject to specific prior approval by the Ministry of Fisheries. Such transshipments must be monitored by an observer or Fishery Officer. Transshipments 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 Automatic Location Communicators. These vessels report to the New Zealand VMS.

### *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. The list includes all New Zealand flagged and registered fishing vessels, all of which are technically authorised to fish for SBT in New Zealand fisheries waters. As of February 2007, applications for vessel registration include a tick box that allows applicants to indicate whether or not SBT will be caught by the vessel (either as target or bycatch). Over time, this will allow a specific SBT fleet to be identified (such vessels can currently be identified by analysing their previous catch reporting, but this does not allow for new vessels entering the fleet to be identified immediately).

Any catch of SBT is recorded and monitored by routine systems established as part of the New Zealand QMS. 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.

Monitoring and activities undertaken to implement other measures being considered by the Compliance Committee will be incorporated in this report in future years once the measures are agreed by the Commission.

## **7. Ecologically related 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<sup>1</sup> *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

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<sup>1</sup> “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

configuration is as specified in the WCPFC conservation and management measure for seabirds.

Fishers must also provide notice of departure on a fishing trip to the Ministry of Fisheries Observer Programme at least five days prior to sailing. This provision is to aid in placing observers on surface longline vessels.

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.

#### *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). 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).

#### *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 Appendix 1.

## **8. Other matters**

#### *Import/export statistics*

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. CCSBT–TIS documents are required for all SBT exports.

#### *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.

#### *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).**

<b>Year</b>	<b>Calendar year catches</b>	<b>Fishing year catches</b>
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	378.5	379.0
2008	318.6	318.2

**Table 2. Number of vessels catching SBT in New Zealand fisheries waters by calendar year and New Zealand fishing year (1 October to 30 September).**

<b>Year</b>	<b>Calendar year vessel numbers</b>	<b>Fishing year vessel numbers</b>
2001	132	132
2002	151	155
2003	132	132
2004	99	101
2005	57	58
2006	56	57
2007	44	45
2008	35	36

**Appendix 1: New Zealand's implementation of the Recommendation to Mitigate the Impact on Ecologically Related Species of Fishing for Southern Bluefin Tuna**

<b>Paragraph 1</b>		
<b>NPOA–Seabirds</b>		
NPOA–Seabirds implemented: Y	Date implemented: 2004	Date/s reviewed: Currently underway
<b>NPOA–Sharks</b>		
NPOA–Sharks implemented: Y	Date implemented: 2008	Date/s reviewed: N/A
<b>FAO–sea turtles</b>		
FAO–Sea turtles implemented: Y (as applicable)	Date implemented: on-going	Date/s reviewed: N/A
<b>Paragraph 2a</b>		
<b>IOTC – not applicable (New Zealand vessels do not fish in IOTC waters)</b>		
<b>Paragraph 2b</b>		
<b>WCPFC</b>		
<b>Seabirds</b> (Source: Conservation and Management Measure 2007-04: Conservation and Management Measure to Mitigate the Impact of Fishing For Highly Migratory Fish Stocks on Seabirds)		
Implement the NPOA–Seabirds and report to WCPFC on its implementation		Y
Use at least 2 mitigation measures in the Convention Area south of 30°S and north of 23°N (in relation to vessels >24m)		Y
Mitigation measures in place:		Meets agreed specifications
1. Tori lines		Y
2a. Night setting OR		Y
2b. Line weighting		Y
In all other areas, encouraged to use at least one mitigation measure		N/A
Report to WCPFC on implementation of the measure and all available information on interactions with seabirds.		Y
Means by which measure is monitored: Observer coverage		
<b>Sharks</b> (Source: Conservation and Management Measure 2008-06: Conservation and Management of Sharks)		
Implement the IPOA–Sharks and report to WCPFC on its implementation		Y
Require vessels to not have onboard fins that total more than 5 % of the weight of sharks onboard, up to the first point of landing. * Applies to New Zealand vessels on fishing on the high seas. For vessels fishing within New Zealand waters, catch limits apply (as per para. 11)		Y*
Means by which measure applied (e.g. fins must be attached to trunk upon landing; weight ratio of fins to trunks etc): Fins must be attached to trunk upon landing*		
Annually report catch and effort data for key shark species		Y
Encourage the release of live sharks		Y
Means by which measure is monitored: Observer coverage and fisher reporting. For catch limits, extensive monitoring as part of Quota Management System.		
<b>Turtles</b> (Source: Conservation and Management Measure 2008-03: Conservation and Management of Sea Turtles)		
Implement, as appropriate, the FAO Guidelines and report on progress to the WCPFC.		Y
Collect and provide to the Scientific Committee data on interactions with marine turtles		Y
Require all incidents involving marine turtles during fishing operations to		Y

be recorded in logbooks and reported to the appropriate authorities of the CCM, and report on this to WCPFC	
Ensure fishers are aware of and use approved mitigation and handling techniques	Y
<i>Longline vessels</i>	
Ensure that the operators of all longline vessels carry line cutters and de-hookers and carry and use, where appropriate, dip-nets	Y
For longline vessels that fish for swordfish in a shallow-set manner, apply an approved mitigation method. New Zealand fisheries were determined to have a minimal interaction with sea turtles (see para 7b of the measure)	N/A
<i>Purse seine vessels</i>	
Measures to prevent entanglement and encourage safe release of turtles	Y
Carry and employ dip nets, when appropriate, to handle turtles	Y
Means by which measure is monitored: Observer coverage	
<b>Paragraph 3</b>	
Collect and report data on ERS to the Extended Commission and/or its subsidiary bodies as appropriate, including the Ecologically Related Species Working Group	Y (see CCSBT-ERS/0909/14 and CCSBT-ERS/0909/SBT Fisheries - New Zealand)
Comply with the measures adopted by the IOTC and WCPFC on the collection and reporting of data in relation to ERS	Y