

**CCSBT-CC/0810/SBT Fisheries-New Zealand**  
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## **Annual Review of National SBT Fisheries**

**New Zealand**

**2008**

## 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. Commercial catches in the most recent fishing season (2006/07) showed some recovery, to 379 t. The low catches in the last several years were attributed to two main factors: decreased vulnerable biomass because of the lack of new recruitment into the NZ longline fishery (as illustrated in the continued period of low CPUE in the charter fleet); and the decline in longline effort from the domestic and charter fleets.

## 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). SBT was introduced into the New Zealand QMS effective 1 October 2004. QMS management has advantages including:

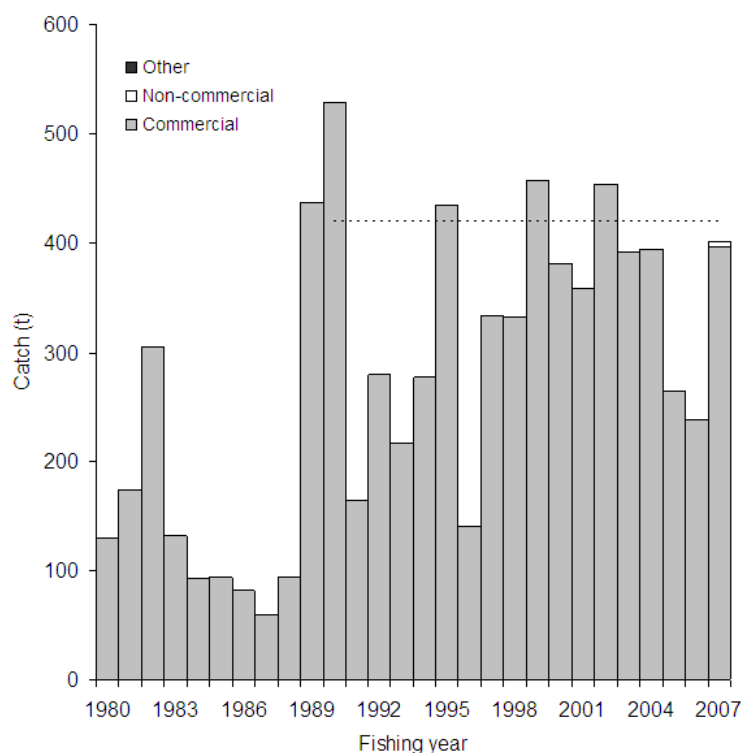
- Significant financial penalties apply to fishers who do not cover their annual catch of SBT with quota, thereby limiting the potential for over catch.
- Three forms of catch reporting are required for the commercial fishery (catch and effort, landings, and reports by receivers of fish). Reports of 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 Trade Information Scheme (TIS).

### 3. Catch and Effort

#### *Total catches*

New Zealand's catch against its allocation was around 384 t for the 2006/07 fishing season. This figure includes 379 t of commercial catches, around 4 tonnes 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 2006/07 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. Small amounts of SBT are still taken by trolling. There is also a small SBT bycatch in the mid-water trawl fishery.

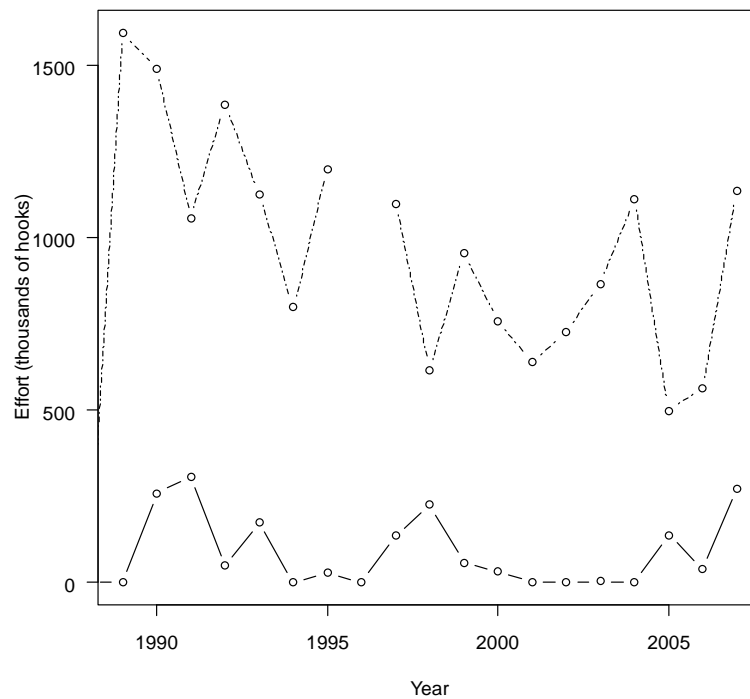
It is important to separate the domestic and charter data out to better understand the New Zealand SBT fishery.

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 2006/07, some charter vessels operated in Region 5 in the later part of the season.

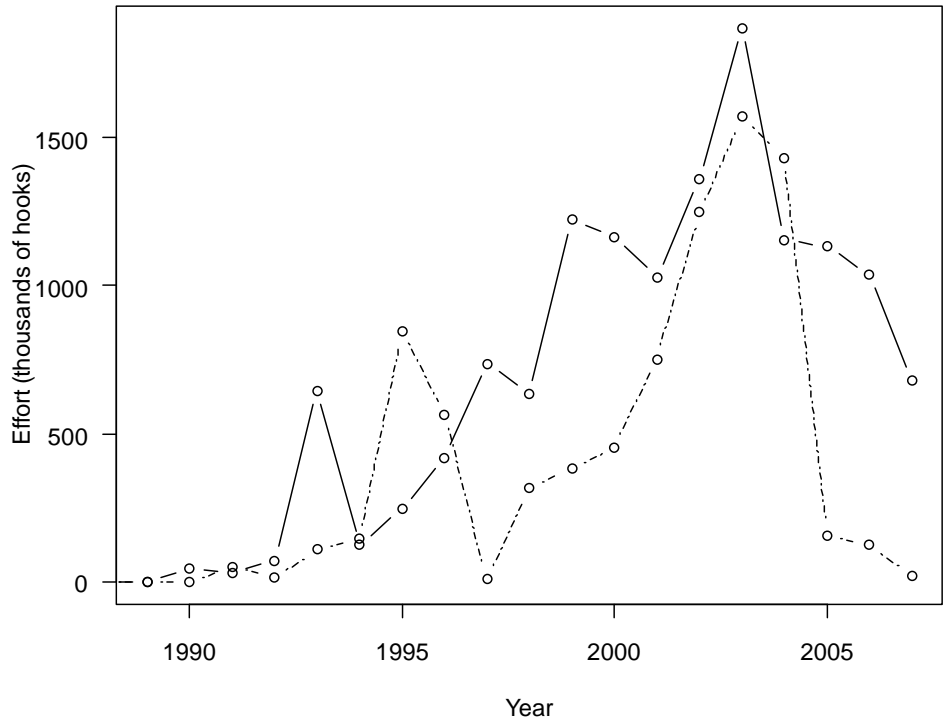
Figure 3 shows longline effort for the domestic fleet by calendar year and region. A significant longline fishery targeting bigeye tuna operates outside the SBT fishing season, with some bycatch of SBT.

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).

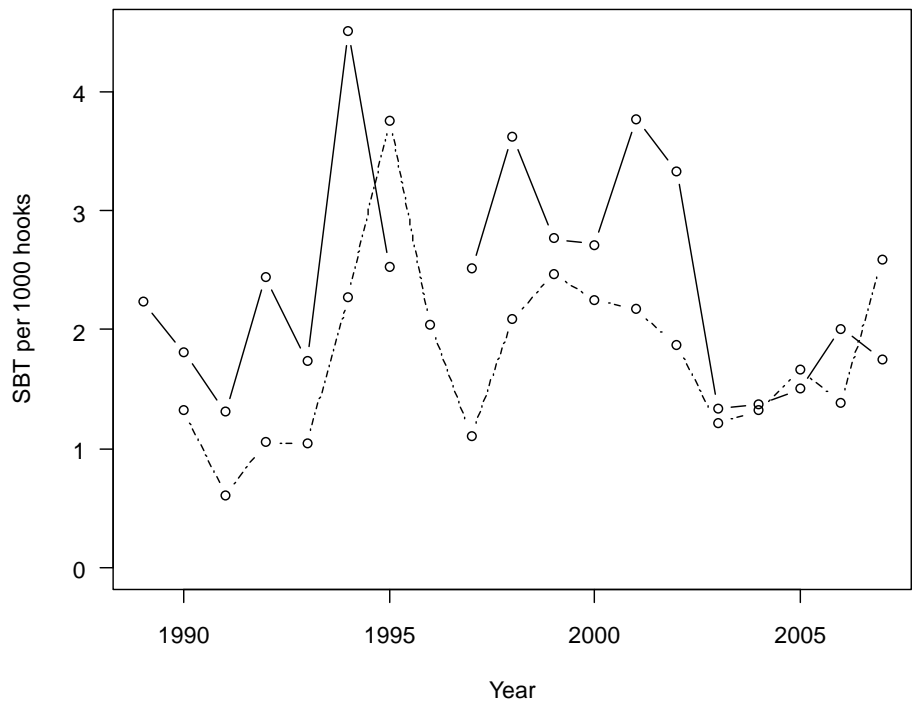
Nominal CPUE by fleet across all regions (based on targeted longline effort) is provided in Figure 4. Charter CPUE averaged around 3 SBT per 1000 hooks from 1997-2002. Associated with the lack of new recruitment, CPUE declined dramatically in 2003. CPUE has stayed at these historically low levels until a slight increase in 2006 for the charter fleet. This increase occurred in the core area of the charter fishery (region 6), and may be due to the appearance of some small recruits. The domestic fleet operating on the east coast of the North Island experienced a similar increase in CPUE in 2007. 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. 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 ten dead SBT were discarded during the 2006/07 season. Though no size data on the discards is available, the total weight was likely less than one ton.

### *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. The overall tonnage of SBT taken is thought to be lessened by a proportion of the catch being tagged and released. Provisional figures indicate the allocation was likely to have been fully caught in 2007.

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. 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 only 44 vessels in 2007 (Table 2). In 2005 and 2006 only two charter vessels fished for SBT in New Zealand fisheries waters, but in 2007 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.

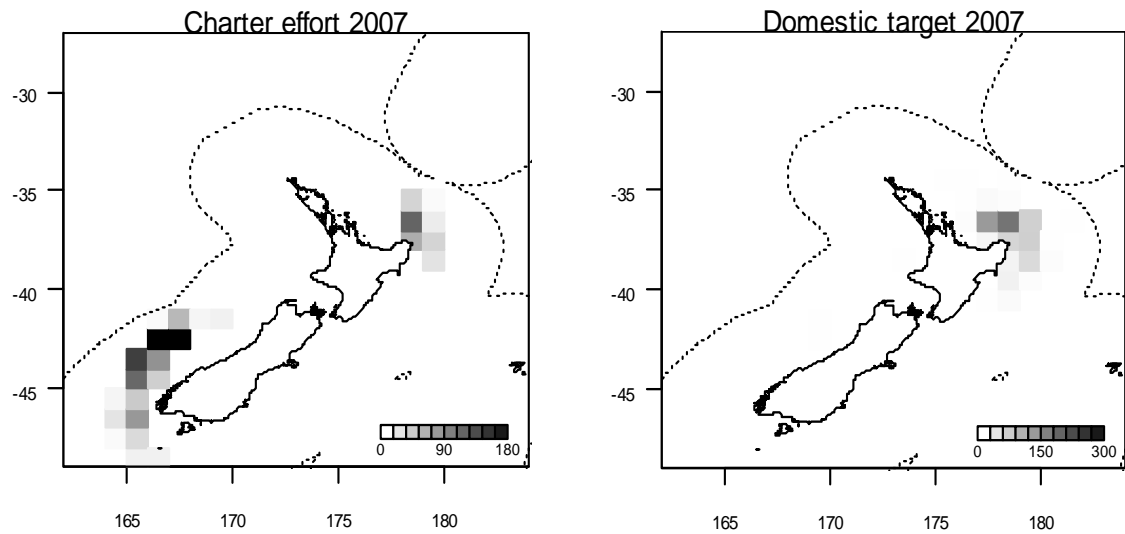
New Zealand's fishing year starts 1 October and finishes 30 September of the following year. SBT is seasonally present from March/April to August/September. SBT catches are taken mainly from March/April to July.

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.

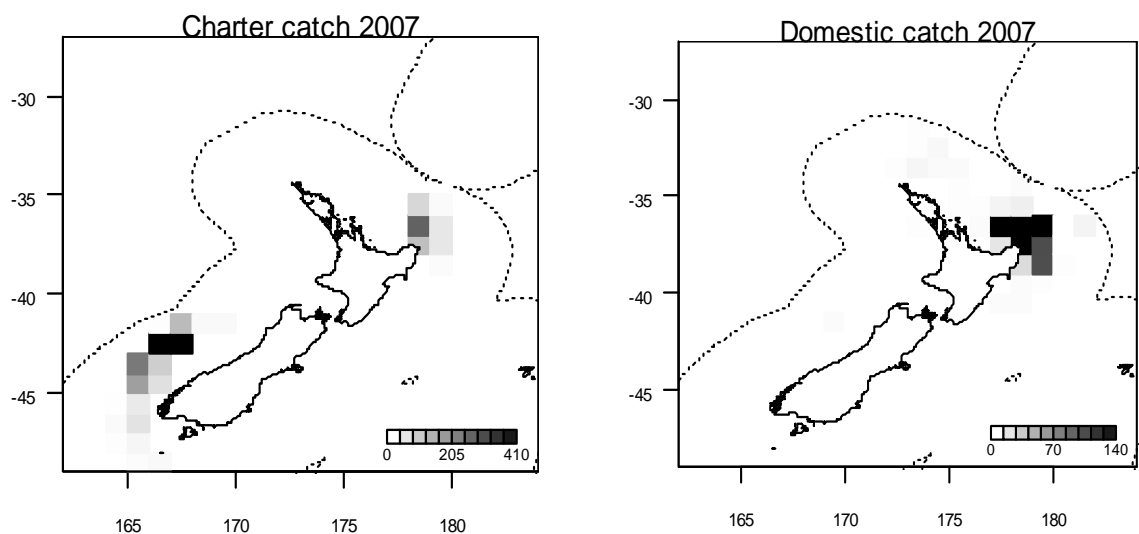
Instead, these vessels fish off the east coast North Island. The longline fishery in this area is dominated by smaller domestically owned and operated “ice boats” that are typically at sea for only a few days. This fishery includes landings of SBT both as a target and as a bycatch of bigeye target sets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

The domestic longline fishery in which small numbers of SBT is 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 (left) and domestic fleet (right) for 2007.**



**Figure 6: Distribution of longline catches (number of fish per 1 degree square) for the charter fleet (left) and domestic fleet (right) for 2007.**

## 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 44 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 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.

In 2008, New Zealand also began trials of tagging as part of a potential catch tracking system.

### *Observer coverage*

New Zealand has a Scientific Observer Programme that 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.

The 10% observer catch and effort coverage levels were exceeded for both the charter and domestic fleets in 2006/07. Two of the four charter vessels were covered. This coverage provided 60% of catch (numbers of fish) and 55% of effort (hooks). For the domestic fishery, coverage was 16% of catch and 13% of effort.

The cost of the Observer Programme was approximately NZ\$307,813 in total (NZ\$157,630 for the charter coverage, and NZ\$150,183 for the domestic coverage).

### *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. 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.

In 2007, 714 otoliths were collected by observers from the two charter boats. This is higher than the previous two years due to observers sampling a higher proportion of the



catch. A sub-sample of the otoliths from 2001 to 2007 have been aged. The information is described in New Zealand's country report to the Scientific Committee.

#### *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 of Fisheries. Such transhipments must be monitored by an observer or Fishery Officer. Specific requirements include labelling and the transfer of cartons. 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 Automatic Location Communicators. These vessels report to the New Zealand VMS.

The Ministry of Fisheries has recently reviewed the application of VMS to all domestic vessels. There are significant practical problems that hinder adoption of VMS for smaller vessels at present. In 2007, the New Zealand Minister of Fisheries determined that technological solutions would be developed over the next two years so that VMS can be applied to all New Zealand vessels fishing for SBT. Since all New Zealand flagged registered vessels are authorised to fish for SBT, the aforementioned group of vessels that fish for SBT will be a subset of all New Zealand vessels authorised to do so.

#### *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.

Implementation of an IUU vessel register and any further consequential changes to the list of New Zealand authorised vessels awaits the Commission's decisions on IUU vessel registers.

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.

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.

The minimum standard for tori lines is based on international best practice drawn from CCAMLR, CCSBT, and WCPFC recommendations.

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 will 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).

## **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.

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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

### *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 (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

**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