

## Review of New Zealand SBT Fisheries

### 1. Introduction

Since the start of the domestic southern bluefin tuna (SBT) fishery handline, trolling and longline have been used to target SBT in the 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 composed of a wide range of vessel types including many small owner-operated boats, a few large low temperature longliners purchased overseas and 4–5 large low temperature Japanese operated distant water longliners chartered by a New Zealand company. Both the chartered vessels and the New Zealand owner-operated vessels fish competitively against New Zealand's SBT catch allocation.

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. Fishing takes place in two areas, off the east coast of the North Island north of 42 S and off the west coast of the South Island south of 42 S. The distribution of SBT catches by month and latitude in 2003/04 is shown in Figure 1. Figure 1 indicates that the season was somewhat earlier and larger catches were taken off the west coast than off the east coast in 2003/04.

In 2003/04 the New Zealand southern bluefin tuna season was closed 12 July 2004 (midnight) in anticipation of realising the national catch limit. Only 397 tonnes was taken by the time the season closed.

### 2. Operational Constraints on Effort

#### *Voluntary measures*

Since 1994 the New Zealand fishing industry has implemented voluntary measures with respect to longline fishing that are detailed in a "Code of Practice". Specific measures include gear specifications, environmental standards, operational practices and closed areas. The intent of the measures is to minimize:

- bycatch (eg of seabirds and marine mammals);
- catch of SBT smaller than 20 kg;
- impacts on other domestic tuna fisheries, and
- gear conflict among SBT longline vessels.

Other voluntary measures that are used but not part of the "Code of Practice" include catch limits by area, changing areas when bird bycatch reaches a specific level, using multiple "tori" lines and longer lines than specified in regulations, night-setting, and the use of pneumatic "bird-scaring" cannons.

#### *Regulatory measures*

New Zealand continues to impose the previously agreed national catch limit of 420 t (whole weight). This catch limit has been 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 had been exceeded, it was reduced in the following year by an equivalent amount.

Until midway through the 2000/01 fishing season the SBT quota has applied to the catch of both southern bluefin tuna (*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 and it was demonstrated that Pacific bluefin could be readily distinguished from SBT in catches based on morphological characteristics and DNA analysis. SBT landings reported prior to June 2001 distinguished between northern and southern bluefin despite the fact the 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.

Southern bluefin tuna was introduced into the New Zealand Quota Management System (QMS) effective 1 October 2004. The combination of a small national allocation and the large number of longline vessels operating in the EEZ had resulted in the traditional New Zealand SBT fishery becoming an “Olympic” fishery. The entry of SBT into the QMS provides a framework where recognised SBT quota holders can maximise the economic efficiency of their longline operations. New Zealand’s allocation applies to all fishing and fishing related mortality caused by New Zealand nationals and for the 2004/05 fishing year has been allocated as follows:

	<b>Tonnes (whole weight)</b>
Recreational take	4
Customary take	1
Other fisheries related sources of mortality	2
Total allowable commercial catch	<u>413</u>
Total	420

NZ anticipates a number of improvements in the management of its southern bluefin tuna fishery as a result of a move to QMS management. Three forms of catch reporting are required (catch, effort and landing, catch against quota and reports by receivers of fish) to improve the monitoring of catches. Significant financial penalties will apply to fishers who do not cover catch of SBT with quota thereby limiting the potential for over catch. Further, a rationalisation of fishing effort for SBT is anticipated in conjunction with an extension of the fishing season to focus on periods when SBT are in the best possible condition for capture. Pacific bluefin tuna were also introduced into the QMS on 1 October 2004 with a total allowable commercial catch of 116 t.

### **3. Historical Catch and Effort**

Table 1 gives the total estimated SBT catch by gear type since 1999 and shows that the New Zealand SBT fishery, initially a handline and troll fishery, has essentially become a longline fishery. With the advent of domestic longline fishing (starting in 1990) longline effort has almost completely replaced fishing effort by trolling and handline. However, small amounts of SBT continue to be caught by trolling, with a small SBT bycatch in the mid-water trawl fishery (1.1 to 5.8 t per year). Total SBT catches are summarised by calendar year and fishing year (1 October to 30 September) in Table 2.

The charter fleet primarily operates off the west coast of the South Island while smaller domestic owned and operated vessels primarily operate off the east coast of the North Island. The fishing season for SBT is essentially the same for both areas and begins in March/April and finishes when the quota is reached usually in June/July. Figure 2 shows the effort trend (in thousands of hooks) for the longline fishery from 1999 to 2004 for the two primary fishing areas for SBT target sets. Longline effort in the northeast area (mostly domestic owned and operated vessels) dramatically increasing since 1999, declined by about 35% in 2004. In contrast SBT fishing effort in the southwest area (chiefly by the charter fleet) has been relatively constant but increased by nearly the same amount in 2004. Total longline effort (charter and domestic combined) targeting SBT between 1999 and 2003 increased from 1.9 to 3.5 million hooks targeting SBT before declining slightly (about 8% overall) in 2004. Despite generally increasing longline effort since 1999, CPUE has declined in the core fishing areas and months by about 50%.

#### **4. Annual Fleet Size and Distribution**

Longline fishing targeting SBT primarily occurs off the west coast of the South Island south of 42° S and along the east coast of the North Island north of 42° S. SBT also comprises a bycatch in the bigeye target fishery in the Bay of Plenty. Figure 3 shows the position of all longline sets targeting SBT in 2003/04 (charter and owner-operator vessels combined). In 2003/04 longline fishing was generally more broadly spread than in most years with target fishing spread south along the Wairarapa coast, north into the Bay of Plenty, and the North Taranaki Bight off the west coast of the North Island.

The total number of longliners fishing in 2004 was 82 vessels, most of which were small longliners (< 50 GRT). Figure 4 shows the catch of SBT by vessel size. The five large longliners caught nearly half of the total SBT catch in 2004 with the remaining domestic owned and operated vessels catching the remainder.

#### **5. Historical Fleet Size and Distribution**

The New Zealand SBT fishery began off the west coast of the South Island as a winter small boat handline and troll fishery in the early 1980s. Most fishing by these vessels was in July and August. Since 1990, however, these methods have comprised only a minor component of the fishery as the SBT quota has 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. However, 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 again in 2003 (132 vessels) and again in 2004 (82 vessels).

#### **6. Fisheries Monitoring**

##### *Observer coverage*

Observer coverage has been nearly 100% in the charter fleet for several years. However, the small size of domestic owned and operated vessels and short trips has made it difficult for the Ministry of Fisheries (MFish) to realise the 10% target for observer coverage in this fleet. Observer deployments during the 2003/04 fishing year resulted in 20% of all longline hooks targeting SBT being observed (97% of hooks in the Charter fleet and 6% of hooks on domestic owner-operator vessels). This level of observer coverage resulted in 100% of the charter catch and 16% of the domestic catch (in number) being observed. Realignment of MFish observer allocation is expected to result in continued improvements in coverage of domestic owned and operated longline vessels. Observer coverage on vessels using handline or trolling is not done because the contribution of these methods to the total catch is negligible.

##### *RTMP coverage*

To date MFish has operated an in-season catch monitoring system for SBT. This system required that on-shore processing companies and freezer vessels (including all of the chartered fleet) report their catch by e-mail or fax during the season to MFish. Weekly reporting was required once 25% of the catch allocation was reached and daily reporting required when 50% of the catch allocation had been reached. Reports were collated and analysed by MFish with the season being closed as close as possible to reaching our national allocation. All SBT permit holders were then notified that the season was closed and that it would be an offence to take southern bluefin tuna for the remainder of the fishing year.

From 1 October 2004 the catch monitoring and catch balancing systems in place for all other NZ quota species will apply to southern bluefin tuna. All fishers are required to furnish monthly returns of catch and these are then matched to individual holdings of quota entitlement. Financial penalties will apply to fishers (on a monthly basis) who catch southern bluefin tuna 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

increase. The total fishery catches will be assessed annually and any adjustment made to future years to balance the catch from the fishery and the NZ national allocation as required.

#### *Biological information*

Observers from the MFish Scientific Observer Programme are responsible for collecting biological data on SBT and bycatch data for catch characterisation. In 2003/04, 2007 SBT were measured for length (out of 2063 observed), otoliths were collected from 1140 SBT and observers recovered 5 tags (3 CSIRO dart tags, 1 CSIRO archival tag, and 1 CCSBT dart tag). In addition, observers tagged six SBT with Mk9 archival tags. Tag recovery data was provided to each tagging agency. Otoliths are stored at NIWA and this year nearly 200 SBT otoliths collected in 2001 through 2004 were aged. Length, weight (both processed and whole weights) and sex are recorded regularly for SBT and all major fish bycatch species.

## **7. Other Factors**

#### *Import/export statistics*

Statistics on the export of SBT are compiled by 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 only market for SBT caught in the EEZ is the Japanese sashimi market and domestic consumption is negligible.

#### *Mitigation*

New Zealand regulations specify that all tuna longline vessels shall use seabird-scaring devices (“tori-lines”). The minimum standard for “tori lines” is the same as initially specified by CCAMLR. The domestic fishing industry has a voluntary code of practice advocating night setting for all tuna longlining and for the large tuna longline vessels a limit on total incidental mortality of “at risk” seabirds has been set. New Zealand is currently implementing an approved National Plan of Action for Seabirds in response to the FAO International Plan of Action for Seabirds.

#### *Recreational and Customary Catches of SBT*

Recreational fishing for SBT in New Zealand waters is limited. There are records of recreational catch from both the North and South Islands. There are no estimates of SBT catches by Maori non-commercial fishing. However, a nominal allowance is made that is expected to be sufficient to cover both recreational and customary catches within New Zealand’s national allocation.

#### *Resolution on IUU fishing and establishment of CCSBT Vessel record*

New Zealand has provided 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 southern bluefin tuna in New Zealand fisheries waters. Any catch of southern bluefin tuna is recorded and monitored by routine systems established as part of the New Zealand Quota Management System and New Zealand has no information to suggest that any of its registered fishing vessels have an involvement in IUU fishing. Procedures have been put in place to ensure that foreign owned vessels fishing under charter to New Zealand companies may only fish for southern bluefin tuna 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.

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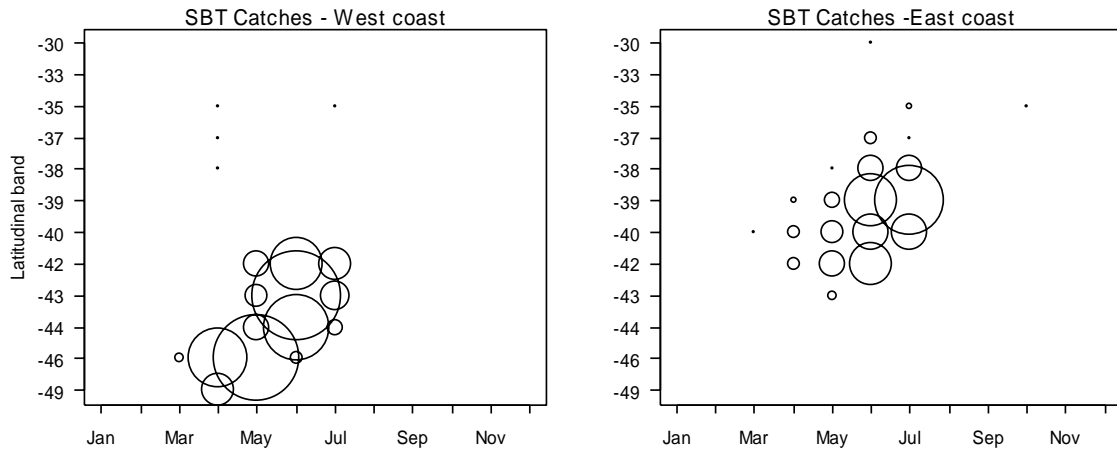
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**Table 1. The annual southern bluefin tuna catch (tonnes whole weight) for calendar years 1999 to 2004, by fishing method. Annual total catch estimates are scaled to Licensed Fish Receiver returns for 1999 to 2001, and to Monthly Harvest Returns since 2002, 0.0 = less than 100 kg.**

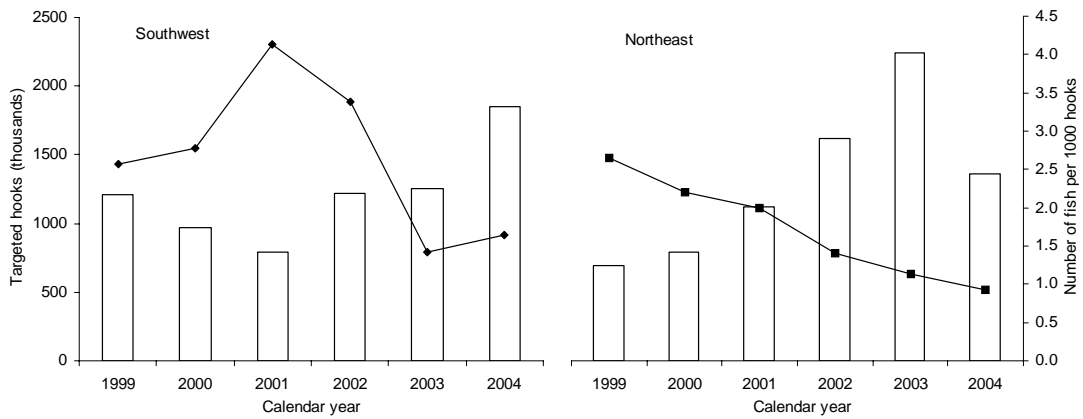
<b>Fishing method</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Longline	453.3	375.6	355.8	460.0	387.2	384.4
Troll	4.3	2.2	0.1	0.5	0.1	1.7
Handline	2.0	0.3	0.0	0.0	0.0	1.3
Other	1.1	2.3	2.5	2.1	1.4	5.8
<b>Total (t)</b>	<b>460.6</b>	<b>380.3</b>	<b>358.5</b>	<b>462.6</b>	<b>388.7</b>	<b>393.3</b>

**Table 2. New Zealand southern bluefin tuna catches by calendar year and fishing year (1 October to 30 September).**

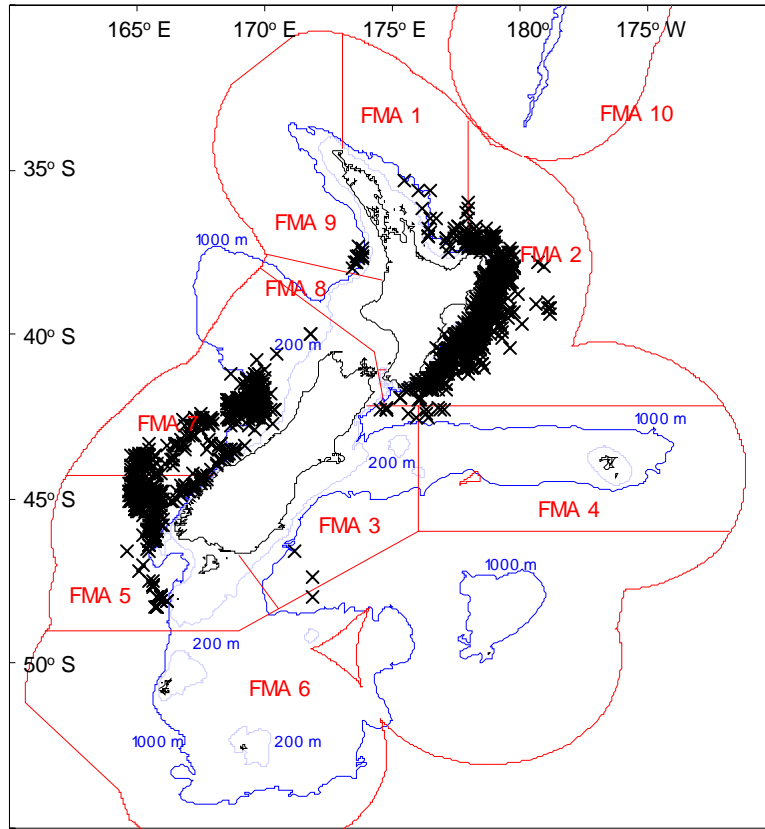
<b>Calendar year</b>	<b>t.</b>	<b>Fishing year</b>	<b>t.</b>
1980	130		
1981	173		
1982	305		
1983	132		
1984	93		
1985	94		
1986	82		
1987	59	1986/87	60
1988	94	1987/88	94
1989	437	1988/89	437
1990	529	1989/90	529
1991	164	1990/91	165
1992	279	1991/92	279
1993	217	1992/93	216
1994	277	1993/94	277
1995	436	1994/95	435
1996	139	1995/96	140
1997	334	1996/97	333
1998	337	1997/98	331
1999	461	1998/99	458
2000	380	1999/00	381
2001	358	2000/01	362
2002	463	2001/02	452
2003	389	2002/03	388
2004	393	2003/04	397



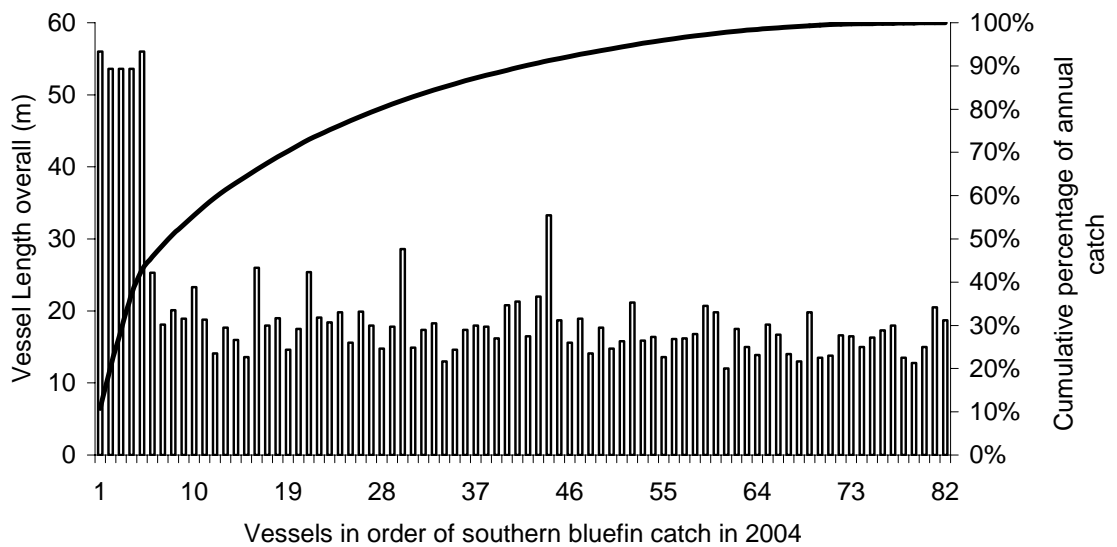
**Figure 1: The spatial and seasonal distribution of southern bluefin tuna catches (whole weight) in 2003/04, off the west coast of the South Island and off the east coast of the North Island, New Zealand. The largest circle, (west coast in June) represents 64 t of SBT.**



**Figure 2. Longline effort (number of hooks set) (vertical bars) and nominal CPUE (number of SBT per 1000 hooks) (solid line) when targeting southern bluefin tuna for calendar years 1999 to 2004.**



**Figure 3. Distribution of longline sets targeting SBT in fishing year 2003/04 (Charter and owner-operated vessels combined).**



**Figure 4. Longline fleet composition (LOA of each vessel) catching southern bluefin tuna in 2004 in order of SBT catch (by weight), together with the cumulative percentage of the total catch.**