

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 small catches by trolling. 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 July. Fishing takes place primarily 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 2002/03 is shown in Figure 1. The 2002/03 SBT season was closed early when the reduced quota (388 t) was reached.

In 2003/04 the New Zealand southern bluefin tuna season was closed 12 July 2004 (midnight) in anticipation of realising the national catch limit. The final catch (as of 13 September 2004) was 397.3 t.

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 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 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 Quota Management System (QMS) effective 1 October 2004. The combination of small national allocation and 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:

	Tonnes (whole weight)
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. There are a number of flexible provisions within that system which if fully implemented will see NZ catch continue to vary from year to year. The ability to balance any over catch from one year to the next will also be affected however NZ will ensure that on average the catch from the fishery does not exceed the national allocation.

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 estimated SBT catch by gear type since 1999 and clearly shows that the New Zealand SBT 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 and handline and together with a small SBT bycatch in the mid-water trawl fishery (1.1 to 2.5 t per year) comprises the SBT fishery in New Zealand waters. 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 the 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 2003 for the two primary fishing areas for SBT for both SBT target and all tuna target sets. This figure also shows the nominal CPUE (number per 1000 hooks) for each area and also for longline sets that target SBT compared to those where it is a bycatch. It is clear from this figure that longline effort in the northeast area (mostly domestic owned and operated vessels) has dramatically increased since 1999, continuing a trend begun in the early 1990s, while the fishing effort in the southwest area by the charter fleet has been relatively constant. It is also clear from this figure that while total effort (charter and domestic combined) targeting SBT has increased during this period, CPUE has declined in the core fishing areas and months by about 50%.

4. Annual Fleet Size and Distribution

Longline fishing targeting SBT longline 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

significant bycatch in the bigeye target fishery in the Bay of Plenty. Figure 3 shows the position of all longline sets targeting SBT in 2002/03 (charter and owner-operator vessels combined).

The total number of longliners fishing in 2003 was 132 vessels, 58% of which were small longliners (< 50 GRT). This represents a 15% reduction in number of longliners fishing in 2003 relative to 2002, due to a decrease in longliners < 50 GRT. The changes in vessel size composition since 1990 are shown in Figure 4.

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. Since 1990, however, these methods have comprised only a minor component of the fishery. 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 up to a maximum number of vessels in 2002 before declining again in 2003.

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. As a consequence, observer coverage in this fleet has typically been low. Observer deployments during the 2002/03 fishing year resulted in 15% of all longline operations targeting SBT being covered (77% of sets in the Charter fleet and 4% of sets on domestic owner-operator vessels). This level of observer coverage resulted in 39% of the New Zealand catch (in number) being observed. Realignment of MFish observer allocation should result in continued improvements in coverage of domestic owned and operated longline vessels. Observer coverage on vessels using handline or trolling was 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 2002/03, otoliths were collected from 845 SBT and observers recovered 5 tags (4 CSIRO tags and 1 Japanese tag). Otoliths are stored at NIWA and a proposal for reading SBT otoliths is being prepared; tag

recovery data were provided to the tagging agency. Length, weight (both processed and whole weights) and sex are recorded regularly for SBT and all major fish bycatch species. In total stomach contents were collected from over 1521 SBT and 1647 SBT were measured in 2002/03.

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.

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Table 1. The annual catch (tonnes whole weight) for calendar years 1999 to 2003, by fishing method. Annual total catch adjusted to Licensed Fish Receiver returns for 1999 to 2001, and to Monthly Harvest Returns for 2002 and 2003. 0.0 = less than 100 kg.

Fishing method	Calendar year				
	1999	2000	2001	2002	2003
Longline	453.3	375.6	355.8	460.0	387.2
Troll	4.3	2.2	0.1	0.5	0.1
Handline	2.0	0.3	0.0	0.0	0.0
Other	1.1	2.3	2.5	2.1	1.4
Total (t)	460.6	380.3	358.5	462.6	388.7

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

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

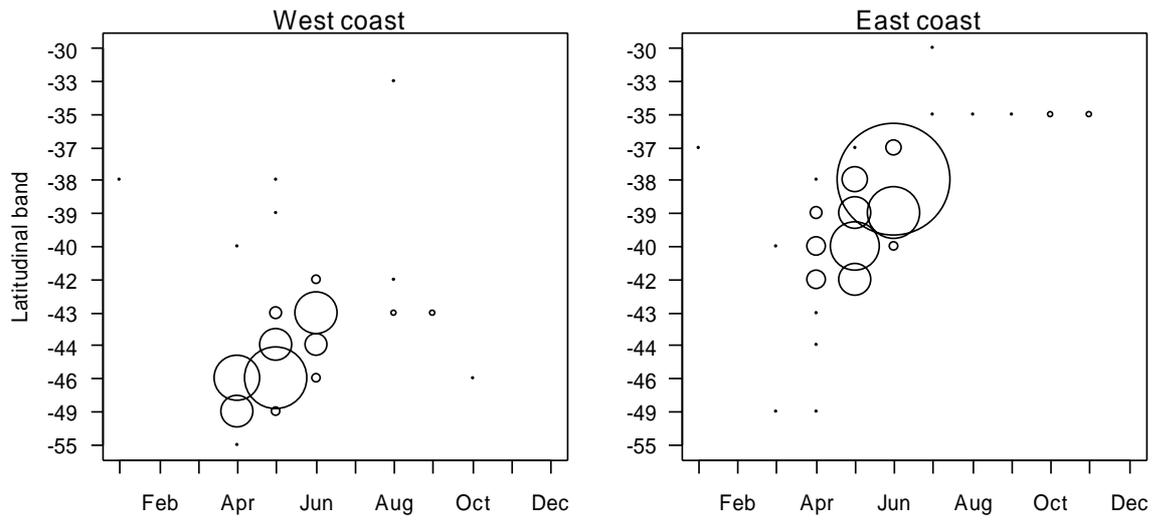


Figure 1: The spatial and seasonal distribution of southern bluefin catches (whole weight) in 2002/03, off the west coast of the South Island and off the east coast of the North Island, New Zealand. The largest circle, (east coast in June) represents 146.8 t of SBT.

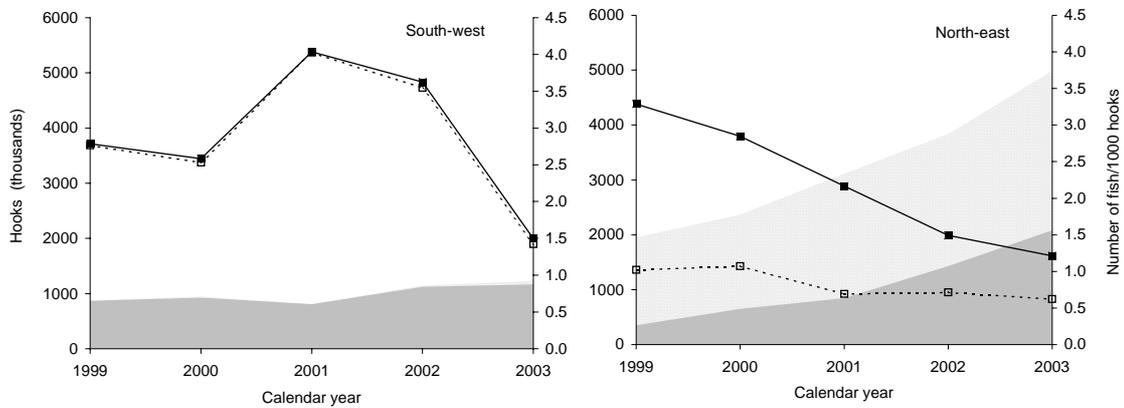


Figure 2. Total longline effort (number of hooks set) in each year 1999 to 2003 (grey hatched area) and number of hooks targeting southern bluefin tuna (solid grey area) plotted with the CPUE (number per 1000 hooks) of SBT in targeted sets (solid line) and in all tuna longline sets (dashed line).

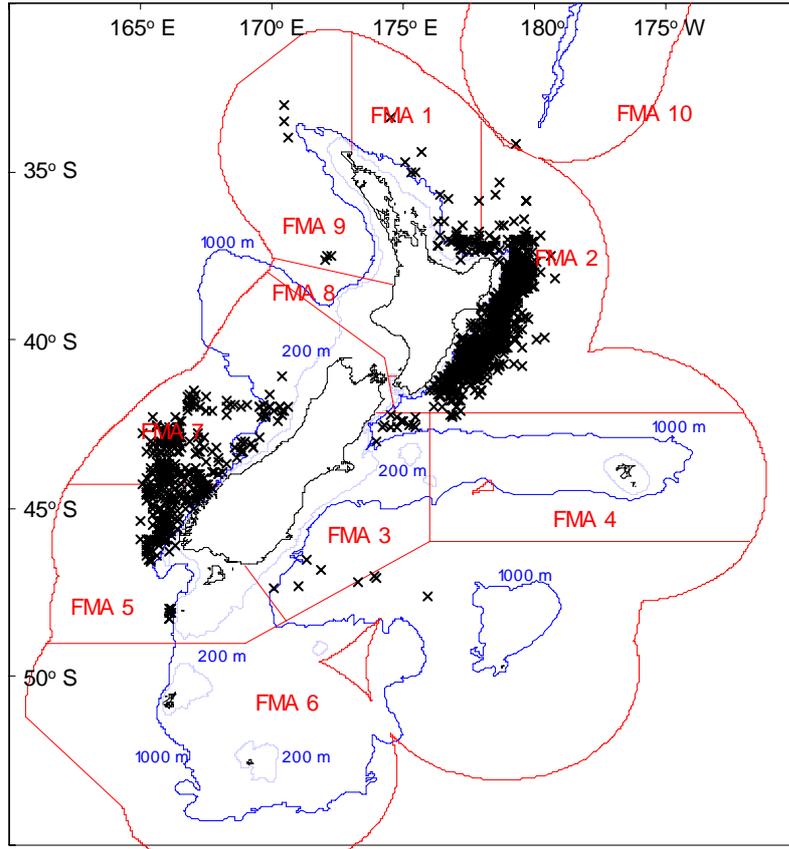


Figure 3. Distribution of longline sets targeting SBT in fishing year 2022/03 (Charter and owner-operated vessels combined).

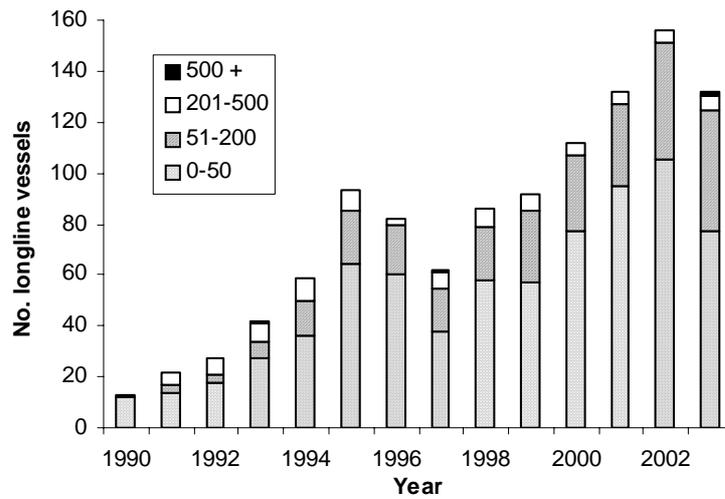


Figure 4. Changes in the New Zealand longline fleet size composition (GRT), 1990 to 2003.