



Australian Government
Bureau of Rural Sciences

**AUSTRALIA'S ANNUAL REVIEW OF THE
SOUTHERN BLUEFIN TUNA FISHERY**

by

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*Working Paper CCSBT-EC/0610/SBT Fisheries-Australia
presented at the Extended Commission of the Thirteenth Meeting of the
Commission for the Conservation of Southern Bluefin Tuna*

Miyazaki,
October 2006

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1. Introduction

This report summarises catches and fishing activities in the 2003–04 and 2004–05 quota years¹ of the Australian Southern Bluefin Tuna (*Thunnus maccoyii*; SBT) Fishery. It also provides preliminary data on the 2005–06 surface fishery.

The Australian domestic SBT catches for the 2003, 2004 and 2005 calendar years were 5827 t, 5062 t and 5244 t, respectively. The 2003 calendar year catch is larger than the previously agreed national allocation to Australia of 5265 t because it represents the aggregation of catches from periods in two quota years. The 2002–03 quota year catch was 5391 t; for the 2003–04 quota year was 5120 t; and for the 2004–05 quota year was 5248 t. The 2003–04 figure is under the previously agreed national allocation to Australia because in the 2002–03 season two quota holders caught over their allocation. This was dealt with by deducting the over catch from their 2003–04 allocation. In August 2005 there was a prosecution for the illegal take of 5764 kg of SBT in the 2003–04 season. Adding the over catch of 128 t and the illegal catch of 6 t to the 2003–04 quota year catch gives a figure of 5254 t, which is under the agreed national allocation to Australia.

Table 1: Total domestic catch of SBT for calendar years and quota years

Calendar Year	Catch (t)	Quota Year	Catch (t)
1990	4586	1989–90	4849
1991	4489	1990–91	4316
1992	5248	1991–92	4894
1993	5373	1992–93	5212
1994	4700	1993–94	4937
1995	4508	1994–95	5080
1996	5128	1995–96	5188
1997	5316	1996–97	4978
1998	4897	1997–98	5097
1999	5552	1998–99	5232
2000	5257	1999–00	5257
2001	4853	2000–01	5247
2002	4711	2001–02	5262
2003	5827	2002–03	5391
2004	5062	2003–04	5120
2005	5244	2004–05	5248

¹ Various time periods, such as ‘calendar years’, ‘fishing seasons’ and ‘quota years’, can be used when describing Australia’s SBT fishery. Unless otherwise indicated, we have used quota years in this report, but note that fishing seasons of the various fishery components often span quota years. The start and end dates of Australian quota years have varied and are presented in Appendix 1.

2. Operational Constraints on Effort

Regulatory Measures

Domestic operations are managed through individual transferable quotas (ITQs) granted as Statutory Fishing Rights (SFRs) under the *Southern Bluefin Tuna Management Plan 1995*.

The Australian Fisheries Management Authority (AFMA) uses a risk based compliance strategy in the SBT purse seine and longline fisheries. This includes targeted compliance operations to check fishing vessels at sea, and at landing ports; a comprehensive audit trail from the time SBT are caught to the time they are exported, including random audits of fishing companies and export establishments; and then an annual review of compliance risks leading to refined strategies for the following season.

Australia has continued to use a combination of area restrictions, minimum quota holdings, fishery observers, and mandatory Vessel Monitoring Systems (VMS) to reduce the incidental catch and mortality of SBT caught in the domestic longline fishery. A SBT habitat model incorporating archival tag and observer data with sea surface and sub-surface temperatures, is used to predict likely areas of high SBT abundance and hence the location of restricted access zones. In the Eastern Tuna and Billfish Fishery (ETBF), areas with a high probability of SBT interactions have been determined and are referred to as the Core Zone and Buffer Zone. For the 2004–05 season, access to the Core Zone during the months of May to October was subject to 100% observer coverage, and mandatory minimum quota requirements. Access to the Buffer Zone was subject to 25% observer coverage, and mandatory minimum quota requirements. These requirements were modified for the 2005–06 season so that the level of observer coverage depended on the amount of quota carried, as per Table 2.

Table 2: SBT Quota Holdings and Related Levels of Observer Coverage

Quota holding required to access zone	Level of observer coverage required (%)
0 – 500 kg (core and buffer)	100
> 500 kg (buffer)	25
500kg – 2 tonnes (core)	100
2 tonnes – 5 tonnes (core)	75
5 tonnes – 10 tonnes (core)	50
10 tonnes – 20 tonnes (core)	25
>20 tonnes (core)	10

To improve compliance and management outcomes for its domestic fishery, and to better meet international management obligations, Australia implemented a range of amendments to its *Southern Bluefin Tuna Management Plan 1995* on 1 December 2004. These included:

- revised objectives, management measures, and performance criteria;
- incorporation of the Commission's current stock-specific reference point;
- the development of a by-catch action plan and strategies to reduce broader environmental impacts;
- amendments to enhance the accountability of SBT Statutory Fishing Right holders against their allocated quota; and,

- daily at sea reporting of SBT taken and transferred into tow cages, provisional deduction of SBT quota based on at sea estimates of catch, and daily VMS or manual reporting of catch and tow vessel locations.

3. Catch and Effort

In 2004–05, 99.3% of the Australian catch of SBT was taken by purse seine with the remainder taken by longline. Australian catch by gear and State for the quota years 1988–89 to 2004–05 is shown in Table 5. Catch by season with vessel number and search hours is shown in Table 4. The Australian catch of SBT for the calendar years 2004 and 2005 is mapped in Figure 1 and Figure 2 respectively.

Table 3: Catch of SBT by fishing method in 2002–03, 2003–04 and 2004–05 Seasons

2002–03		
Purse seine	South Australia	5375 t
Longline	Western Australia and New South Wales	17 t
2003–04		
Purse seine	South Australia	4874 t (small percentage for direct export, remainder for farms)
Longline	Western Australia, South Australia, New South Wales and Queensland	247 t
2004–05		
Purse seine	South Australia	5214 t
Longline	New South Wales	35 t

Insufficient data were available to provide an estimate of the recreational catch in 2003, 2004 and 2005.

Discards

During the 2004–05 and 2005–06 seasons, no discarding of SBT was observed or reported in logbooks collected in the purse seine fishery in the Great Australian Bight.

In 2004, AFMA observers monitored longline operations in the ETBF during the months and areas in which SBT are most likely to be taken incidentally (i.e. south of 30°S from May to September). Observer data showed that 61% of longlined SBT were discarded during the observed operations. In contrast, the level of SBT discards recorded in logbooks from other vessels fishing during the same period south of 30°S was only 10%. In response to this information the AFMA implemented tighter access controls and implemented 100% observer coverage for the 2005 and 2006 season in areas and at times where there is a high risk of SBT being caught (Core and Buffer Zones). Note that this definition is more restricted than the definition outlined here for when and where SBT are most likely to be taken.

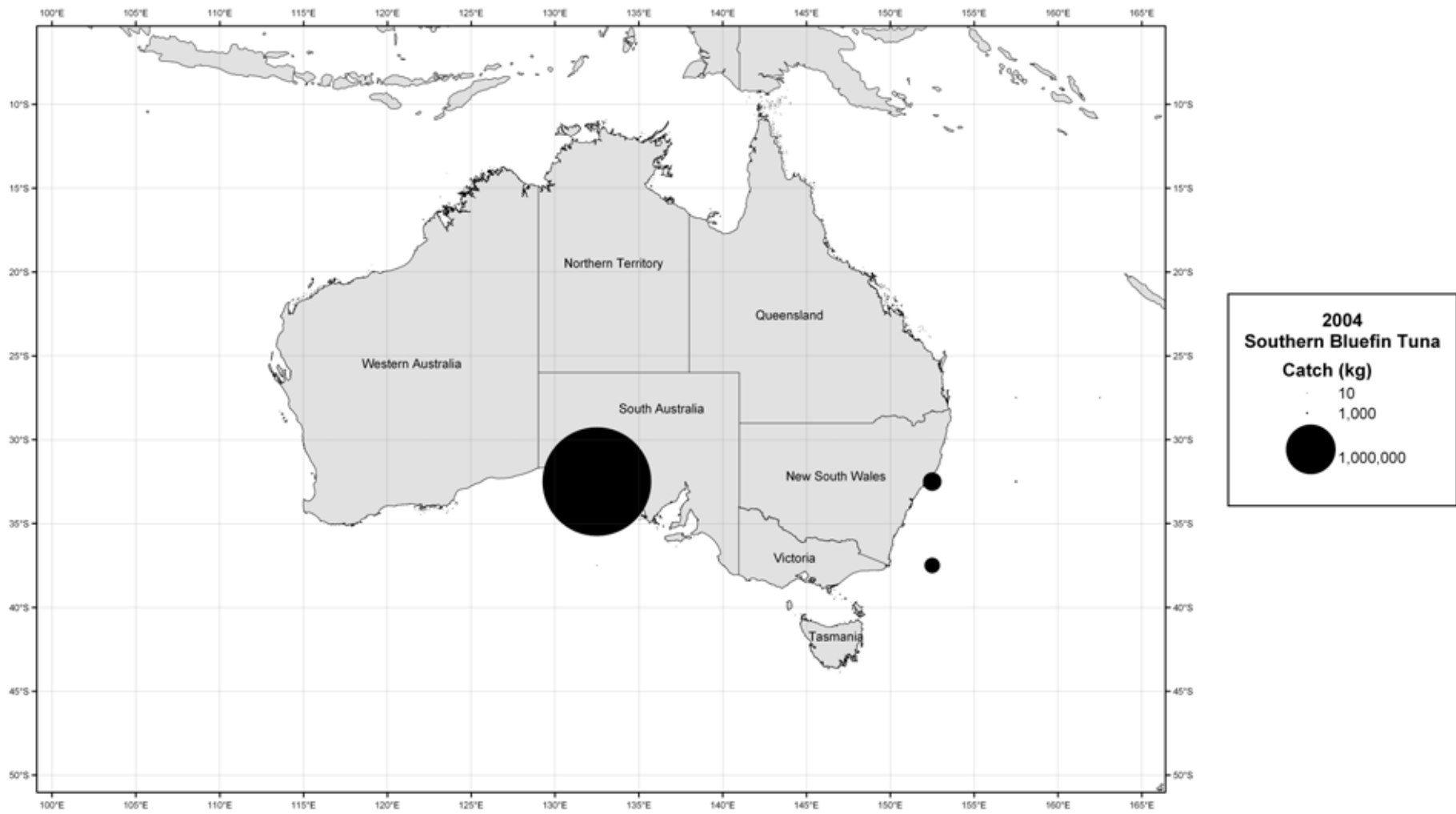


Figure 1: Australian SBT catch in 2004

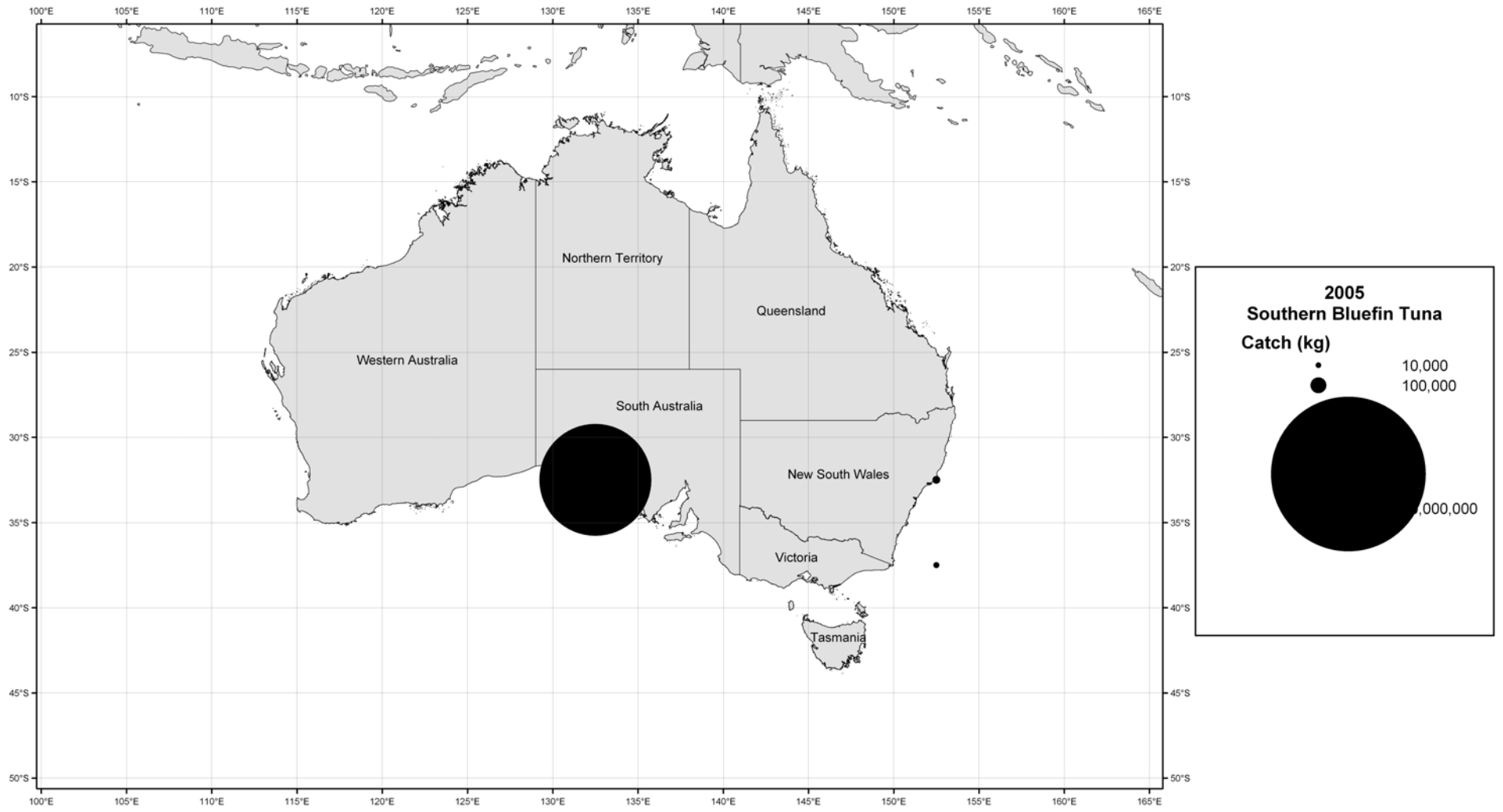


Figure 2: Australian SBT catch in 2005

In 2005 in the ETBF, south of 30° S and during the months of May to September (the months in which SBT are usually caught), 14 observers monitored 254 thousand hooks of a season total of 678 thousand, representing 37.5% observer coverage of longline effort. The total catch number of SBT caught while observers were on board was 327 of which 240 were retained, 65 were discarded (60 of which were released alive), 3 escaped and 19 were tagged. Note that tagged fish have not been included as discarded fish. ETBF logbooks for 2005 showed 36 tonnes (382 fish) of SBT were retained in the ETBF fishery and only 34 (8%) were discarded.

Over 2005 and 2006, Bureau of Rural Sciences (BRS) observers monitored longline operations in the Southern and Western Tuna and Billfish Fishery (SWTBF). One SBT was landed in 2005 with twenty two discarded during observed operations. It should be noted that levels of effort in this fishery are very low at present (i.e. only 1 or 2 vessels are operating).

4. Historical Catch and Effort

Australian catch by gear and State for the quota years 1988–89 to 2004–05 is shown in Table 5. Catch and effort (number of search hours and number of vessels) by season, for seasons 1994–95 to 2005–06, in the purse seine fishery are shown in Table 4.

Table 4: Purse seine catch and effort for seasons 1994–95 to 2005–06

Season	Estimated Catch (t)	Actual Catch (t)	No. Boats	Vessel Search Hours	No. Sets	1° Squares Fished
1994–95	2179	2009	5	526	104	5
1995–96	2859	3442	6	631	89	11
1996–97	3134	2505	7	769	118	13
1997–98	3916	3629	7	671	143	8
1998–99	4418	4991	7	972	129	3
1999–00	4746	5131	8	764	107	5
2000–01	5100	5162	8	799	129	2
2001–02	5400	5234	7	1309	159	3
2002–03	5188	5375	7	1276	150	5
2003–04	5299	4874	6	1202	160	4
2004–05	5225	5215	8	1168	139	4
2005–06	5372	5189	7	1281	148	6

Overall the data available on recreational catch of SBT is limited but an initial review revealed high year-to-year variability in catches and the locations in which SBT were taken. For the past ten years, indicative estimates of annual recreational catches ranged between 3 and 85 tonnes with the highest catches occurring around Tasmania (Table 6). These data are indicative estimates only and are based on a range of different data sources.

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Table 5: Australian catch by gear and State for quota years 1988–89 to 2004–05

Quota Year	Western Australia				South Australia			New South Wales			Tasmania			Large Longliners			Australia Total				Total All Gears	
	Albany Pole	Esperance Pole	Long-line	Total	Pole & Purse Seine	Farm Cages	Long-line	Total	Pole & Purse Seine	Long-line	Total	Troll	Long-line	Total	Aust. Charter	Joint-venture	Total	Domestic Surface	Domestic Long-line	Total Long-line		RTMP
1988–89	204	221	0	425	4872	0	0	4872	0	1	1	2	0	2	0	684	684	5299	1	685	0	5984
1989–90	133	97	0	230	4199	0	0	4199	0	6	6	14	0	14	0	400	400	4443	6	406	0	4849
1990–91	175	45	0	220	2588	0	0	2588	0	15	15	57	0	57	255	881	1136	2865	15	1151	#300	4316
1991–92	17	0	0	17	1629	138	14	1781	34	90	124	36	20	56	59	2057	2116	1854	124	2240	800	4894
1992–93	0	0	0	0	716	722	68	1506	16	238	254	23	44	67	0	2735	2735	1477	350	3085	650	5212
1993–94	0	0	0	0	621	1294	55	1970	0	286	286	7	105	112	0	2299	2299	1922	446	2745	270	4937
1994–95	0	0	0	0	908	1954	2	2864	0	157	157	4	109	113	0	1295	1295	2866	268	1563	650	5080
1995–96	0	0	0	0	1447	3362	0	4809	28	89	117	0	262	262	0	0	0	4837	351	351	0	5188
1996–97	0	0	0	0	2000	2498	0	4497	7	229	236	2	242	244	0	0	0	4507	472	472	0	4978
1997–98	0	0	^0	0	916	3488	^0	4403	~0	475	475	!0	219	219	0	0	0	4433	664	664	0	5097
1998–99	0	0	^0	0	28	4991	^0	5018	~0	97	97	!0	116	116	0	0	0	5016	216	216	0	5232
1999–00	0	0	^0	0	0	5130	13	5143	0	114	114	0	!0	0	0	0	0	5130	127	127	0	5257
2000–01	0	0	^0	0	0	5162	6	5168	0	32	32	0	!0	0	0	0	0	5162	38	38	0	5247
2001–02	0	0	7	7	0	5234	0	5234	0	*22	*22	0	!0	0	0	0	0	5234	29	29	0	5262
2002–03	0	0	≈0	0	0	5375	0	5375	0	17	17	0	0	0	0	0	0	5375	17	17	0	5391
2003–04	0	0	≈0	0	‡0	4874	†0	4874	0	*226	*226	0	20	0	0	0	0	4874	247	247	0	5120
2004–05	0	0	0	0	0	5214	0	5214	0	35	35	0	0	0	0	0	0	5214	35	35	0	5248

Note that a further 700t of Australian quota was ‘frozen’ (not allocated) in 1990–91.

^ 1997-98 and 1998-99 WA and SA non-farm catches are included in SA pole and purse seine catch, and in 1999–00 and 2000–01 WA longline catch is included in SA longline due to confidentiality guidelines.

~ 1997-98 to 1998-99 NSW pole and purse seine catches are included in NSW longline catch due to confidentiality guidelines.

! 1997-98 and 1998-99 Tas troll catches are included in Tas longline, and in 1999–00, 2000-01 and 2001-02 Tas longline catch is included in NSW longline due to confidentiality guidelines.

* 2001-02 and 2003-04 NSW longline catch also includes QLD longline catch due to confidentiality guidelines.

≈ 2002-03 and 2003-04 WA longline catch is included in NSW longline due to confidentiality guidelines.

† 2003-04 SA longline catch is included in NSW longline due to confidentiality guidelines.

‡ 2003-04 additional SA purse seine catch that did not go into farm cages is included in SA farm cages catch due to confidentiality guidelines.

While there are insufficient data at present to quantify the total recreational catches of SBT for 2004–05 and 2005–06, high spatial catch variability was evident from anecdotal reports. 2004–05 was a good season in South Australia but poor elsewhere, especially in Tasmania where the annual southern bluefin tuna tournament produced very disappointing catches of SBT (i.e. no SBT were caught). In 2005–06, South Australia, Victoria and Tasmania experienced a good season for recreational SBT catches.

Table 6: Indicative estimates of recreational catch (tonnes) by Australian recreational fishers, 1994 to 2005 (Source: NSW Fisheries).

Year	Recreational Catch (t)
1994	16
1995	insufficient data
1996	insufficient data
1997	insufficient data
1998	38
1999	3
2000	10
2001	60
2002	85
2003	insufficient data
2004	insufficient data
2005	insufficient data

5. Annual Fleet Size and Distribution

In 2004–05, a total of 23 commercial fishing vessels landed SBT in Australian waters.

South Australia

The one- to five-year-old SBT, which school from late spring to autumn in surface waters of the eastern Great Australian Bight, South Australia, were fished by seven purse seiners during the 2004–05 quota year, but various live bait, pontoon-towing and feeding vessels were also involved. Fishing commenced in early December 2004 and finished in mid April 2005.

Western Australia

Twenty three SBT were observed caught during 2005 in the SWTBF. Fish ranged in length from 167 to 182 cm. One SBT was retained during observed longline operations and observers reported about 60% were alive when the longlines were retrieved.

New South Wales

During 2004–05, 16 domestic longliners participated at some time in the area of the fishery for older juveniles and adults in deeper waters off NSW. Longline fishing off NSW commenced in early June 2005 and finished in mid October 2005.

Tasmania

There was limited fishing for SBT off Tasmania in the 2004–05 quota year.

Queensland

There was no fishing for SBT off Queensland in the 2004–05 quota year.

6. Historical Fleet Size and Distribution

Troll catches of SBT were reported as early as the 1920s off the east coast of Australia but significant commercial fishing for SBT commenced in the early 1950s with the establishment of a pole-and-live-bait fishery off New South Wales, South Australia and, later (1970), Western Australia. Purse seine gear overtook pole as the predominant method and catches peaked at 21 500 t in 1982. The bulk of this early Australian catch of SBT was canned. Following quota reductions in 1983–84, the Western Australian pole fishery for very small juveniles closed down and the south-eastern fishery began to target larger juveniles to supply the Japanese sashimi market. Surface catches were further reduced between 1989 and 1995 when about half of the Australian total allowable catch (TAC) was taken by Australia–Japan joint venture longliners in the Australian Fishing Zone (AFZ). The joint venture ceased in late 1995. From 1992 to 1998, domestic longliners operating off Tasmania and New South Wales also took around 5–10% of the total Australian catch.

In 1990–91 about 20 t of SBT tuna were transferred to fattening cages in Port Lincoln, South Australia, to enhance their value. Utilisation of the Australian SBT TAC in ‘farming’ operations increased from 3% of the TAC in 1991–92 to 98% in 1999–00 and it has remained at similar high levels since.

Following declaration of the Australian Fishing Zone (AFZ) in 1979, Japanese longliners fished under a range of bilateral conditions, real time monitoring program and joint-venture arrangements until 1997 when Japanese longliners were excluded from all AFZ fishing operations following failure to reach agreement on global TAC within the CCSBT. Caton and Ward (1996) provide copies of annual subsidiary agreements for the operations of bilateral-licensed longliners in the AFZ from 1979–80 to 1994–95.

7. Fisheries Monitoring

There are a series of logbooks and associated catch records that are required by law to be completed by fishers and fish receivers and sent to AFMA for the purposes of monitoring, compliance and research. The type of form used is dependent on the type of method used to catch SBT in the fishery. All of the data provided from Logbooks and Catch Disposal Records must be supplied to AFMA within specified time periods specific to each record.

Catch Disposal Records

Catch disposal records for SBT are for recording SBT taken by fishers for the purposes other than farming and are signed by the fishing concession holder and the first receiver immediately after unloading the catch. Catch disposal records provide a means to verify logbook data.

Australian Daily Fishing Log and Farm Transit Log

A logbook form is required to be completed by fishers when using pelagic longlining or when fishing with minor line methods. The Australian Pelagic Longline Daily Fishing Log is required to be completed for longline fishing. In the purse seine fishery the Master of the catcher vessel (with quota assigned) is required to complete the Australian Purse Seine and Pole Daily Fishing Log – for farmed SBT only. A specific permit called the Farm Transit Log is completed by the holder of the SBT carrier boat permit or representative, and provided to the monitoring company which undertakes the fish count when fish are transferred from tow cages to farm cages.

Farm Disposal Record

A specific process has been designed to obtain data to allow for research and monitoring from farming operations. An independent company is contracted annually by AFMA to monitor the farming operations. All mortalities that occur during the capture and towing operations must be recorded on the appropriate form and must be available for inspection if requested by an AFMA officer.

When SBT are transferred from tow cages to the fish farms, a video record must be carried out by the AFMA contracted monitoring company. The video recording is then used to undertake a count of the fish that are transferred into the fish farm. This count of captured fish will be multiplied by the average fish weight (derived from a 40 fish sample) and decremented from quota using the Farm Disposal Record. AFMA Compliance Officers observed at sea operations during both the 2003–04 and the 2004–05 seasons.

Observer Program

Observer programmes for the purse seine fishery have been in place since the 2002–03 season, and for the longline fishery (south-eastern part of the ETBF) since the middle of 2002.

The monitoring arrangements in the SBT fishery continue to be reviewed and refined in order to improve monitoring and compliance. To minimise the risk of non-quota take of SBT by longliners off New South Wales, since 2000, access to the waters through which SBT migrate has been restricted to vessels holding SBT quota.

8. Other Factors

Import/Export Statistics

The Trade Information Scheme that records all exported Australian fish has been implemented and refined. A Trade Information Scheme (TIS) form is completed by an authorised signatory from the export-registered establishment that is the last to handle the consignment before the product leaves Australia and validated by a Government officer. The form is used for both farmed and non-farmed SBT. This program provides a complete record of SBT exports that can be compared with the Japanese Import Statistics.

Markets

In 2004–05, in the order of 56 t of SBT were retained for the domestic market; approximately 82 t (processed weight) were exported to the USA; and the remainder of the Australian catch was exported to Japan. In July 2005, 232kg of SBT were imported from New Zealand.

Observer Coverage

The purse seine observer programme for the 2005–06 Australian SBT fishing season monitored fishing and tow operations between 33 and 35°S and 132 and 133°E in February and March 2006. One Australian and one South African observer monitored 14 purse seine sets representing 9.5% of the total sets in which fish were taken in 2005–06. From these observations an estimated 550 tonnes of SBT were caught during observed sets representing 10.2% of the estimated tonnage caught for the 2005–06 season. Observers also monitored and recorded SBT mortalities on two towing operations. Observer coverage on purse seine vessels was limited to February and March hence the data is not necessarily representative of the entire fleet over the December to March purse seine fishing season.

In 2005 in the ETBF, south of 30° S and during the months of May to September (the months in which SBT are usually caught), 14 observers monitored 254 thousand hooks of a season total of 678 thousand, representing 37.5% observer coverage of longline effort. The total catch number of SBT caught while observers were on board was 327 of which 240 were retained, 65 were discarded (60 of which were released alive), 3 escaped and 19 were tagged. Note that tagged fish have not been included as discarded fish. Individual retained fish ranged from 63–206 cm in length. The size distribution of the discarded ETBF longline catch of SBT from 2002 to 2005 is shown in Figure 1. ETBF logbooks for 2005 showed 36 tonnes (382 fish) of SBT were retained in the ETBF fishery and only 34 SBT (8%) were discarded.

In 2005, in the SWTBF, three voyages and 47 sets out of a season total of 544 were observed for a total catch of 23 SBT, with a length range of 167–182 cm. Observer coverage of hook sets for the whole year was 9%. One SBT was retained during observed longline operations in the SWTBF and observers reported about 60% were alive when the longlines were retrieved. According to logbook data, 31 SBT were retained during the 2004–05 season, with a total weight of 1195 kg.

Appendix 1: SBT Season Dates 1988–89 to 2005–06

Quota Year	Start Date	End Date
1988–89	1 October 1988	30 September 1989
1989–90	1 October 1989	30 September 1990
1990–91	1 October 1990	30 September 1991
1991–92	1 October 1991	31 October 1992
1992–93	1 November 1992	31 October 1993
1993–94	1 November 1993	31 October 1994
1994–95	1 November 1994	15 December 1995
1995–96	16 December 1995	15 December 1996
1996–97	16 December 1996	30 November 1997
1997–98	1 December 1997	30 November 1998
1998–99	1 December 1998	30 November 1999
1999–00	1 December 1999	30 November 2000
2000–01	1 December 2000	30 November 2001
2001–02	1 December 2001	30 November 2002
2002–03	1 December 2002	30 November 2003
2003–04	1 December 2003	30 November 2004
2004–05	1 December 2004	30 November 2005
2005–06	1 December 2005	30 November 2006