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Australia's annual review of the Southern Bluefin Tuna Fishery

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1. Introduction

This report summarises catches and fishing activities in the 2006–07 quota year¹ of the Australian Southern Bluefin Tuna (*Thunnus maccoyii*; SBT) Fishery. It also provides preliminary data on the 2007–08 surface fishery and a summary of the history of the Australian SBT Fishery. Caton *et al.* (1995) provides a more detailed historical description of the fishery.

The Australian domestic SBT catches for the 2006 and 2007 calendar years were 5635 t and 4813 t, respectively. The 2006 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 2005–06 quota year catch was 5308 t and the 2006–07 quota year catch was 5234 t.

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
2006	5635	2005–06	5308
2007	4813	2006–07	5234

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 fishing 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 in the longline fishery, 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. Requirements applicable to 2007 longline catches of SBT are given in Table 2.

Table 2: SBT quota holdings and related levels of observer coverage, 2007

Quota holding required to access zone	Level of observer coverage required (%)
<20 tonnes (buffer)	25
0 tonnes–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 and buffer)	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* in February 2008. These included:

- multi-year national catch allocations for the Australian SBT Fishery to be set by AFMA in line with decisions made by CCSBT;
- an amendment to allow AFMA to use any decision made under Article 8(3) of the Convention for the Conservation of Southern Bluefin Tuna for the purposes of determining the national catch allocation;
- a mechanism for any excess take of fish to be repaid in subsequent years by fishers and to broaden the basis for fishers to legally release live fish;

- the frequency of reviewing the monitoring arrangements to be changed from annually to no more than every five years; and
- AFMA’s contact details and the economic efficiency objective to be updated.

3. Catch and Effort

In the 2006–07 quota year, 99.9% of the Australian catch of SBT was taken by purse seine with the remainder taken by longline (Table 3). Purse-seine catch by fishing season with number of vessels and vessel search hours is given in Table 4. Australian catch by gear and State for the quota years 1988–89 to 2006–07 is shown in Table 5. The Australian catch of SBT for the calendar years 2006 and 2007 is shown in Figure 1 and Figure 2, respectively.

Table 3: Catch of SBT by fishing method in 2005–06 and 2006–07 seasons

2005–06		
Purse seine	South Australia	5302 t
Longline	New South Wales	6 t
2006–07		
Purse seine	South Australia	5230 t
Longline	New South Wales	4 t

Insufficient data were available to provide an estimate of the recreational catch.

Discards

During the 2006–07 quota year, no discarding of SBT was observed or reported in logbooks collected in the purse seine fishery in the Great Australian Bight.

In 2004, the Australian Fisheries Management Authority (AFMA) observers monitored longline operations in the Eastern Tuna and Billfish Fishery (ETBF) during the months and areas in which SBT were most likely to be taken incidentally (i.e. south of 30 °S from May to September). Observer data showed that 61% of longline caught 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 new information AFMA implemented tighter access controls, as well as 100% observer coverage for the 2005–06, 2006–07 and 2007–08 quota years in areas and at times where there is a high risk of SBT being caught. Note that this definition is more restricted than the definition outlined above for when and where SBT are most likely to be taken.

Figure 1: Australian SBT catch in the 2006 calendar year

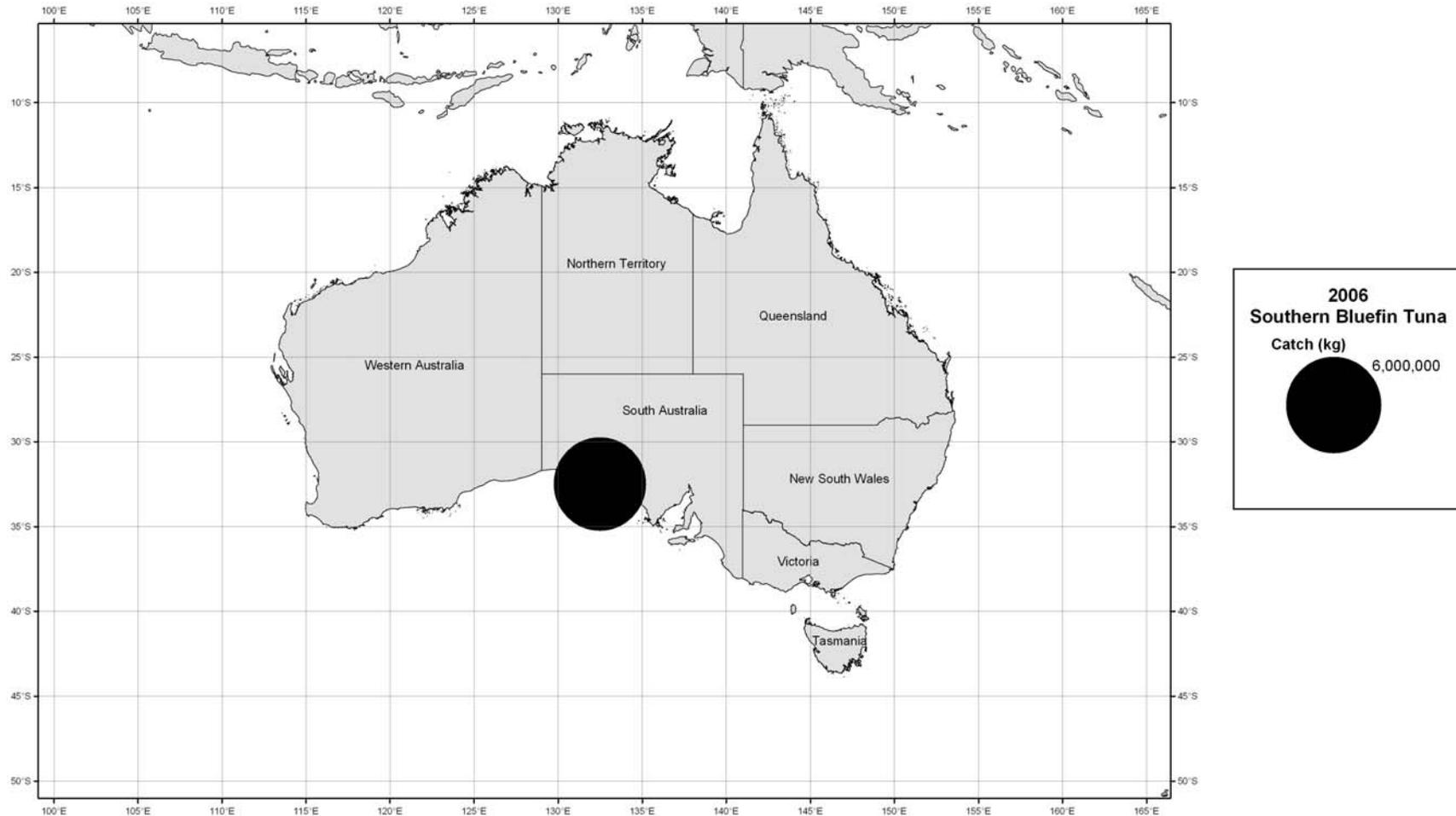
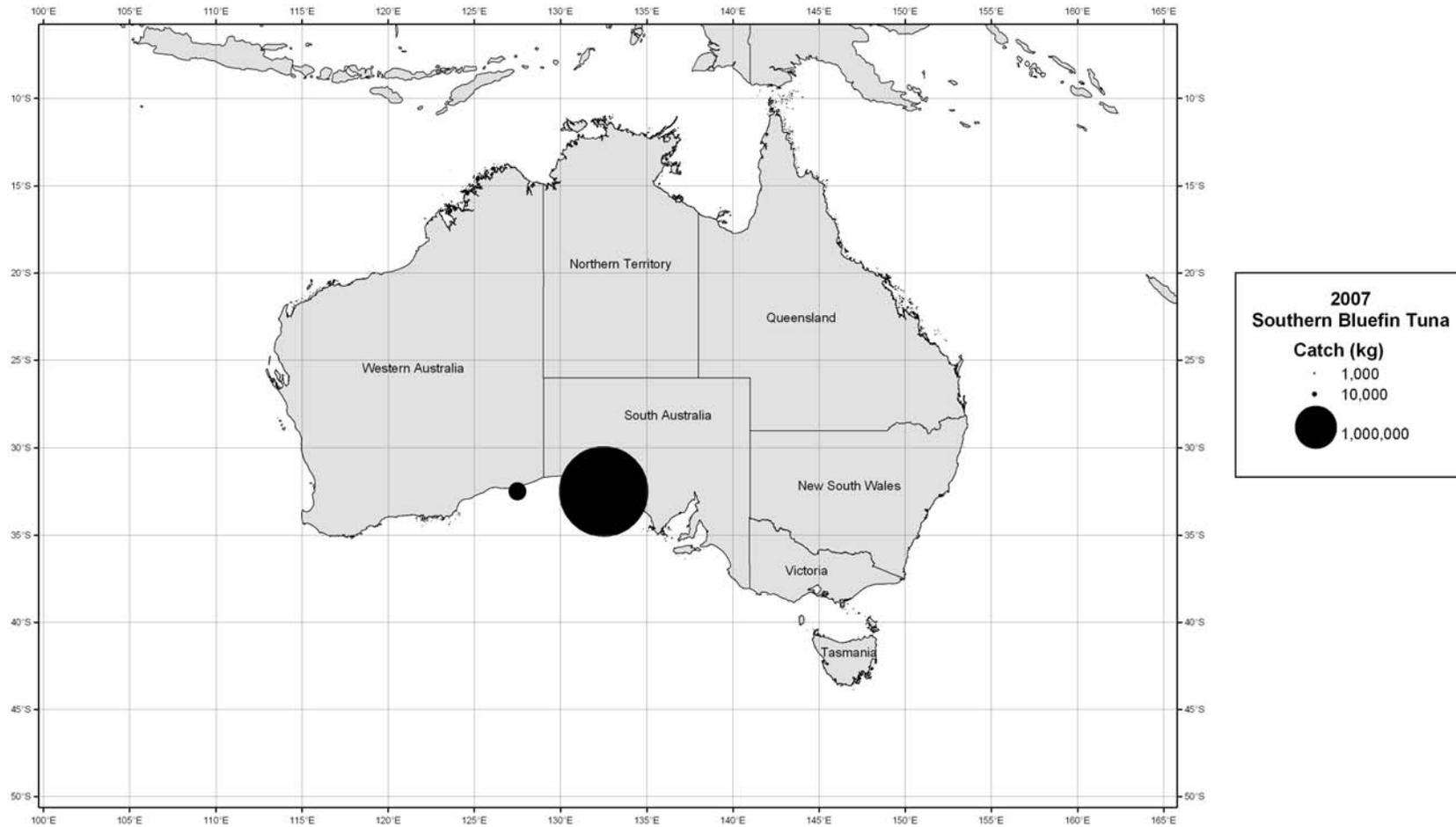


Figure 2: Australian SBT catch in the 2007 calendar year



In 2007, in the ETBF, south of 30°S and during the months of May to September, 20 observers monitored 123,000 hooks of a season total of 559,000, representing 22.1% observer coverage of longline effort during the SBT migration. The total catch number of SBT caught while observers were on board was 94 of which 40 were retained, 54 were discarded (all of which were released alive) and none were tagged. Individual retained fish ranged from 102 to 222 cm in length. ETBF logbooks for 2007 showed 3.5 t (45 fish) of SBT were retained in the ETBF fishery and 26 SBT (36.6%) were discarded.

During 2007, AFMA observers monitored 17.4% of longline operations in the Western Tuna and Billfish Fishery. There were no SBT observed caught in the fishery in the 2006–07 quota year.

4. Historical Catch and Effort

Australian catch and effort (number of search hours and number of vessels) by season in the purse seine fishery, for seasons 1994–95 to 2006–07, are shown in Table 4. Catch by gear and State for the quota years 1988–89 to 2006–07 is shown in Table 5.

Table 4: Purse seine catch and effort for seasons 1994–95 to 2007–08

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	5463	5302	7	1304	156	6
2006–07	5091	5230	6	1459	160	8
2007–08	4530	5211	7	1217	134	2

Note that the 2007–08 figures provided are preliminary because the fishing season does not finish until November 2008.

Overall the data available on recreational catch of SBT is extremely limited, but an initial review revealed high year-to-year variability in catches and the locations in which SBT were taken. Between 1998 and 2002, 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. No estimates of recreational catches of SBT have been available since 2003.

Table 5: Australian catch by gear and State for Quota Years 1988–89 to 2006–07

Quota Year	Western Australia			South Australia			New South Wales			Tasmania		Large Longliners			Australia Total			RTMP	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	Domestic Surface			Domestic Long- line	Total Long- line	
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	5130	127	127	0	5257	
2000–01	0	0	^0	0	0	5162	6	5168	0	32	32	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	5234	29	29	0	5262	
2002–03	0	0	≈0	0	0	5375	0	5375	0	17	17	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	4874	247	247	0	5120	
2004–05	0	0	0	0	0	5214	0	5214	0	35	35	0	0	0	0	0	5214	35	35	0	5248	
2005–06	0	0	0	0	0	5302	0	5302	0	6	6	0	0	0	0	0	5302	6	6	0	5308	
2006–07	0	0	0	0	0	5230	0	5230	0	4	4	0	0	0	0	0	5230	4	4	0	5234	

Note that a further 700 t 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.

Table 6: Indicative estimates of recreational catch (t) by Australian recreational fishers, 1994 to 2007.

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
2006	insufficient data
2007	insufficient data

5. Annual fleet size and distribution

In the 2006–07 quota year, a total of 14 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 six purse seiners during the 2006–07 quota year, but various live bait, pontoon-towing and feeding vessels were also involved. Fishing commenced in early December 2006 and finished in early April 2007 for the season.

Western Australia

There was no SBT caught off Western Australia in the 2006–07 quota year.

New South Wales

During the 2006–07 quota year, eight domestic longliners reported landing SBT from the area of the fishery for older juveniles and adults in deeper waters off NSW.

Tasmania

There was no SBT caught off Tasmania in the 2006–07 quota year.

Queensland

There was no SBT caught off Queensland in the 2006–07 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 (1970s), 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 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 logbook and farm transit logbook

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 Logbook 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 Logbook 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 is 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 2005–06 and 2006–07 seasons.

Observer program

Observer programs 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 2002.

The monitoring arrangements in the SBT fishery continue to be reviewed and refined in order to improve monitoring and compliance. Since 2000, in order to minimise the risk of non-quota take of SBT by longliners off New South Wales, 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 (TIS) that records all exported Australian fish has been implemented and refined. A 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 the 2007 calendar year, the great majority (>99%) of Australian exports were received by Japan. A further 22 t were exported to the USA, and small amounts (<1%) to Korea and Indonesia. Australia imported 143 kg from New Zealand in 2007.

Observer coverage

Purse Seine Fishery: Great Australian Bight 2007–08

The purse seine fishery observer program for the 2007–08 Australian SBT fishing season monitored fishing and tow operations between 33–34°S and 131–133°E in December, January, February and March 2008. One Australian and one South African observer monitored 16 purse seine sets where fish were retained and one set that was aborted and fish were released. This

represents 11.8% of the total sets in which fish were taken in 2007–08. From these observations an estimated 546 t of SBT were caught during observed sets, representing 12.1% of the estimated tonnage caught for the 2007–08 season.

Observers monitored and recorded SBT mortalities (n = 21) on two towing operations.

Longline Fishery

In the ETBF in 2007, south of 30°S and during the months of May to September (the months in which SBT are usually caught), 20 observers monitored 123,000 hooks of a season total of 559,000, representing 22.1% observer coverage of longline effort. The total catch number of SBT caught while observers were on board was 94 of which 40 were retained, 54 were discarded (all of which were released alive) and none were tagged. Individual retained fish ranged from 102–222 cm in length. ETBF logbooks for 2007 showed 3.5 t (45 fish) of SBT were retained in the ETBF fishery and 26 SBT (36.6%) were discarded.

In 2007, 17.4% of operations were observed in the Western Tuna and Billfish Fishery. There were no SBT observed caught in the fishery in 2007.

Fish release trials

In response to the operational characteristics of the SBT fishery, AFMA and the fishing industry agreed to undertake a two-year trial commencing in the 2007–08 quota year to investigate a mechanism to allow a single release of live fish to avoid exceeding Australia's national allocation of SBT. The first release of the trial was conducted on 6 April 2008.

Approximately 2000 SBT (approximately 39 t) were released at 35°14.5'S, 135°36.5'E. To select the release site, an aerial survey of three preferred release locations was conducted on 4 April 2008. These sites were selected because they were known as locations where wild SBT can be found. The final release site was selected because it had a strong presence of wild SBT indicating that the area was suitable habitat for SBT.

The infrastructure to undertake the release and aerial spotting was provided by industry and observed by two government officials. No mortalities were recorded during the tow and release of fish.

Based on the good outcomes in 2008, Australia intends to continue the trial release of fish if there are circumstances that may result in Australia exceeding its national allocation. Nonetheless, Australia's default approach is to avoid catching over the national allocation.

Appendix 1: SBT fishing season dates 1988–89 to 2007–08

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
2006–07	1 December 2006	30 November 2007
2007–08	1 December 2007	30 November 2008