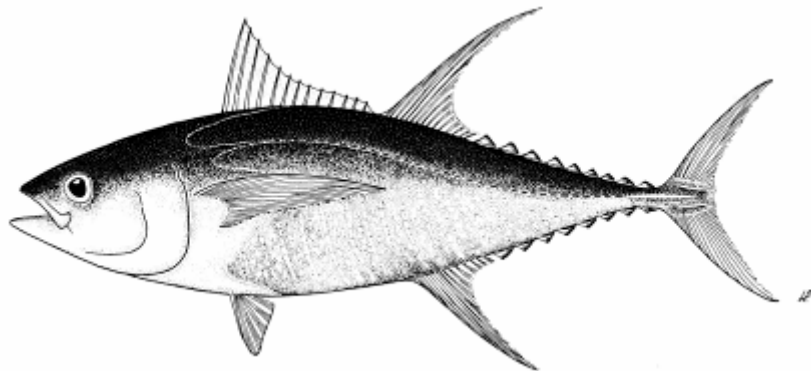




Australia Tuna Fishery Report



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Fisheries and Marine Sciences. Bureau of Rural Sciences. Dept. of Agriculture, Fisheries & Forestry. Australia

August 2005



Australian Government
Bureau of Rural Sciences

National Tuna Fishery Report
AUSTRALIA

by

Peter Ward and Don Bromhead

*Fishery Report presented at the first meeting of the Scientific Committee of the Western and Central Pacific
Fisheries Commission
(8–19 August 2005, Nouméa, New Caledonia)*

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August 2005

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SUMMARY

Domestic longline activity off eastern Australia declined in 2004, with the number of active vessels falling from 134 (2003) to 121 (2004). Longline fishing effort also declined, from a peak of 12.5 million hooks in 2003 to 9.8 million hooks in 2004. The decreased activity is attributed to high operating costs (driven mainly by high oil prices and the high cost of squid baits), the strength of the Australian dollar and reduced catch rates of swordfish in inshore areas, around seamounts.

The catch of yellowfin tuna reported in logbooks by domestic longliners in 2004 was 1982 t, which was a substantial decline from the 2003 peak catch of 3110 t. The 2004 catch of bigeye tuna (786 t) was also less than the peak catch (1050 t) reported in 2001; and the 448 t of striped marlin was down on the 2001 level (527 t). The 2004 broadbill swordfish catch (1699 t) was similar to levels reported since targeting of this species commenced in the late 1990s. There is renewed interest in albacore tuna, with at least one longliner targeting the species for the canning market.

The proportion of swordfish taken from outside the AFZ has progressively increased with the expansion of the fleet and the depletion of swordfish in inshore areas. The proportion taken from outside the zone increased to 38% of the total weight of swordfish in 2004. Smaller proportions of the striped marlin (21%), bigeye tuna (12%) and yellowfin tuna (9%) are taken outside the AFZ because those species are also the target of smaller longliners operating closer to ports.

Few purse seiners and pole-and-line vessels operated off southern NSW in 2004. Catches levels were low but cannot be reported because of confidentiality restrictions.

Striped marlin continued to feature in recreational and charter gamefish catches in 2004, but in fewer numbers than in the late 1990s. Recent years have been excellent for the heavy tackle fishery for large black marlin off Cairns. Good numbers of blue marlin were also reported by east coast gamefishing tournaments.

The Eastern Tuna and Billfish Fishery Statutory Management Plan (including individual allocation of fishing rights in the form of hook-days) is being implemented. Mandatory measures have been introduced to mitigate seabird bycatch, including weighted swivels, tori lines and/or night setting in certain areas.

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INTRODUCTION

This report describes Australia's tuna and billfish fisheries in the eastern Australian Fishing Zone (AFZ) and adjacent international waters. It was prepared by Mr Peter Ward and Dr Don Bromhead for the August 2005 meeting of the Western and Central Pacific Fisheries Commission's Scientific Committee. Peter and Don are fishery scientists employed by the Australian Government's Bureau of Rural Sciences (BRS) where they are responsible for providing policy makers and government agencies with scientific advice for the management of Australia's pelagic resources. Peter heads Australia's scientific delegation to the Western and Central Pacific Fisheries Commission (WCPFC).

FLEET STRUCTURE AND FISHING METHODS

Domestic longline

Domestic longline activity occurred sporadically in what is now the eastern Australian Fishing Zone (AFZ) during 1954–82, with the catch sold to canneries and local fish markets. The successful airfreighting of fresh-chilled tuna to Japan in the early 1980s was followed by a marked increase in the longline activity. However, many vessels left the fishery in 1988 because yellowfin catch rates off central and southern New South Wales (the centre of activity) had become too variable. There was a rapid expansion in the 1990s in northern Queensland waters, where catch rates of yellowfin and bigeye were high. In the mid 1990s, improved access to swordfish markets in the United States prompted many fishers to move to southern Queensland ports such as Mooloolaba to target swordfish.

Domestic longliners are generally 15–25 m long, although several larger vessels joined the fleet in 2000–03. The longliners use monofilament gear and, on average, set 969 hooks each day on 86 days per year. Trip length ranges up to about 20 days, but most are 3–14 days. The catch is stored on ice, in ice slurry or in refrigerated brine. Most longliners range 40–300 nm from port, although some swordfish longliners range up to 1000 nm from port. In 2004 14% of longline effort was reported from international waters adjacent to the AFZ.

The expansion of the swordfish sector in the late 1990s resulted in a trebling of annual longline fishing effort. The total number of hooks set in the fishery peaked at 12.2 million hooks in 2003, then fell to 9.8 million in 2004. The number of active longline vessels also declined, from 142 in 2002, to 134 in 2003 and 121 in 2004. The declines are attributed to increased operating costs (driven mainly by high oil prices and the high cost of squid baits), the strength of the Australian dollar in relation to the Japanese Yen and US Dollar, and reduced catch rates of bigeye tuna and especially swordfish. Many operators continue to fish for tuna and billfish as part of diversified operations targeting a range of species. This is especially true in the more southerly areas of the fishery.

In the eastern AFZ and adjacent high seas areas, longline techniques vary considerably with season and target species. The use of live bait is common among fishers targeting tuna, particularly in more southern latitudes (e.g. 30–40°S). Catches are stored on ice or chilled brine, and trips are usually one week in duration, although longer trips (e.g. 10–20 days) are common among longliners targeting swordfish. Most of the bigeye and yellowfin tuna are airfreighted to Japan, with the remainder sold at sashimi markets in Australia. About 70% of the swordfish are airfreighted to the US west coast, although sales into Japan are increasing. Most of

the striped marlin is exported to Japan, whereas several byproduct species, such as mahi mahi and rudderfish, are exported to Japan and the USA.

Foreign longline

There are currently no foreign longliners operating in the AFZ. Japan's longliners have operated in the eastern AFZ since the late 1950s. These large (40–55 m), freezer longliners remained at sea for 2–3 months, setting 2500–3500 hooks each day. Annual fishing effort in the eastern AFZ ranged up to 16 million hooks with up to 100 longliners operating in any one season. After the AFZ became operational in 1979, Japanese activity in the AFZ was licensed under bilateral agreements. As domestic recreational and commercial fisheries for pelagic species grew, Australia progressively restricted areas of access. In November 1997, the bilateral agreement lapsed after agreement could not be reached on the global Total Allowable Catch for southern bluefin tuna.

Pole-and-line and purse seine

With the introduction of live-bait-and-pole techniques for southern bluefin tuna (*Thunnus maccoyii*) and sporadic catches of skipjack (*Katsuwonus pelamis*) and yellowfin, the pole-and-line fishery expanded rapidly in the 1950s. The introduction of purse seining in the 1970s boosted catches further.

In the eastern AFZ, skipjack are fished from southern New South Wales to north-eastern Tasmania from November to June, when sea surface temperatures are above 17°C. The skipjack fishery is now managed separately from the Eastern Tuna and Billfish Fishery (ETBF), and includes catches of skipjack off southern and western Australia that originate in warmer areas of the Indian Ocean.

Purse seine and pole-and-line fishers often use satellite thermal imagery and spotters in aircraft to locate schools. Most poling vessels are 15–20 m long. Most purse-seiners are 20–25 m long, but several vessels are 40–45 m. In 2004 there was only one pole-and-line vessel and three purse seiners active in the WCPFC area of the skipjack tuna fishery.

Other commercial fishing activities

Small troll catches of pelagic species have been reported from New South Wales since first settlement. There are currently no dedicated trolling vessels; the troll catches are reported by vessels involved in other fisheries (e.g., longline) on their way to and from fishing grounds. Twenty vessels reported trolling catches in 2004. Rod-and-reel and handlines are also used occasionally.

Recreational fishing

Recreational and charter anglers have taken tuna and billfish off eastern Australia since the early 1900s. During the 1970s boats capable of ranging beyond 20 nm became available at reasonable prices and angling for tuna and billfish grew in popularity. The continental shelf is less than 8 nm wide in some places along the southeast coast, and anglers catch tuna and billfish from the shore at several locations. The Game Fishing Association of Australia was formed in 1938. By 2000 it boasted a membership of more than 10 000 anglers, most based on the east coast of Australia. Many gamefishers tag and release much of their catch, especially marlins.

There are several hundred charter boats operating off eastern Australia, and many of these take customers fishing for pelagic species from time-to-time. Over 200 charter boats in NSW have gamefishing endorsement, and a charter boat logbook has operated there since 2000. Tournament monitoring was initiated in 1994. A logbook program is also in place for charter boats that target black marlin off north Queensland.

RECENT CATCHES

Domestic longline

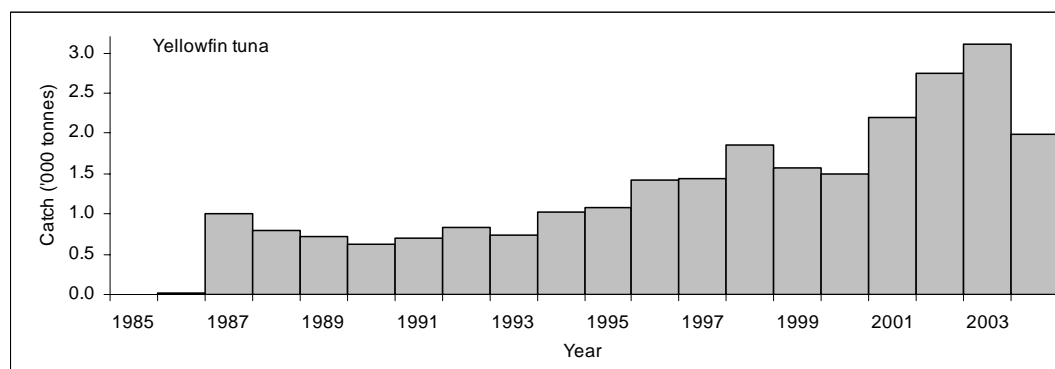
The catch of yellowfin tuna reported in logbooks by domestic longliners in 2004 was 1982 t, which was a substantial decline from the 2003 peak of 3110 t (Figure 1, Table 1). Nominal catch rates (200 kg per 1000 hooks) were also lower than in recent years and well below those recorded in the early 1990s when yellowfin tuna were the primary target of most longliners. Comparison of nominal catch rates is of limited value due to constant shifts in targeting by longliners in this region.

The 2004 catch of bigeye tuna (786 t) was also less than the peak catch (1050 t) reported in 2001; and the 448 t of striped marlin was down on the 2001 (527 t). The 2004 broadbill swordfish catch (1699 t) was similar to levels reported since targeting of this species commenced in the late 1990s. There is renewed interest in albacore tuna, with 658 t reported by longliners in 2004. At least one longliner has commenced targeting the species for the canning market.

The offshore expansion of the longline fleet continues in pursuit of 'new' grounds, while there is a strong possibility of localised depletion of more inshore grounds. Reasonable catch rates continue to be reported in offshore waters. A large proportion of the swordfish (38%) is reported from outside the AFZ, whereas 21% of the striped marlin, 12% of the bigeye tuna and 9% of the yellowfin tuna are from outside the AFZ.

At 274 t, the reported catches of mahi mahi were the highest on record. Annual catches of wahoo fluctuated between 9 and 21 t since 1996, with the highest catch recorded in 2003. Annual catch rates are comparatively low, varying between 0.06 (2001) and 0.26 (1996). The 2004 catch was 9 t. Logbooks also show catches of blue shark (22 t), bronze whaler (30 t) and shortfin mako (74 t) in 2004.

With reduced fishing effort and landings, the Gross Value of Production fell to AUD47 million in 2003–04 from AUD79 million in 2001–02 (ABARE, 2005). The Eastern Tuna MAC 61 Chairman's Summary provides the following overview of the fishery's status. A combination of high fuel prices, relatively high exchange rates, a soft Japanese market and greater competition in both the export and domestic markets is creating financial difficulties in the fishery. Recent good catches of yellowfin tuna off northern NSW – southern Queensland have improved the situation. Swordfish catches have improved with record prices being paid, although these have decreased recently with the recommencement of fishing by the Hawaiian fleet. Improved catches and fish quality are being offset by increases in bait and fuel prices and a strong improvement in the bottom line will be needed before operators can recommence payments on their loan principal.



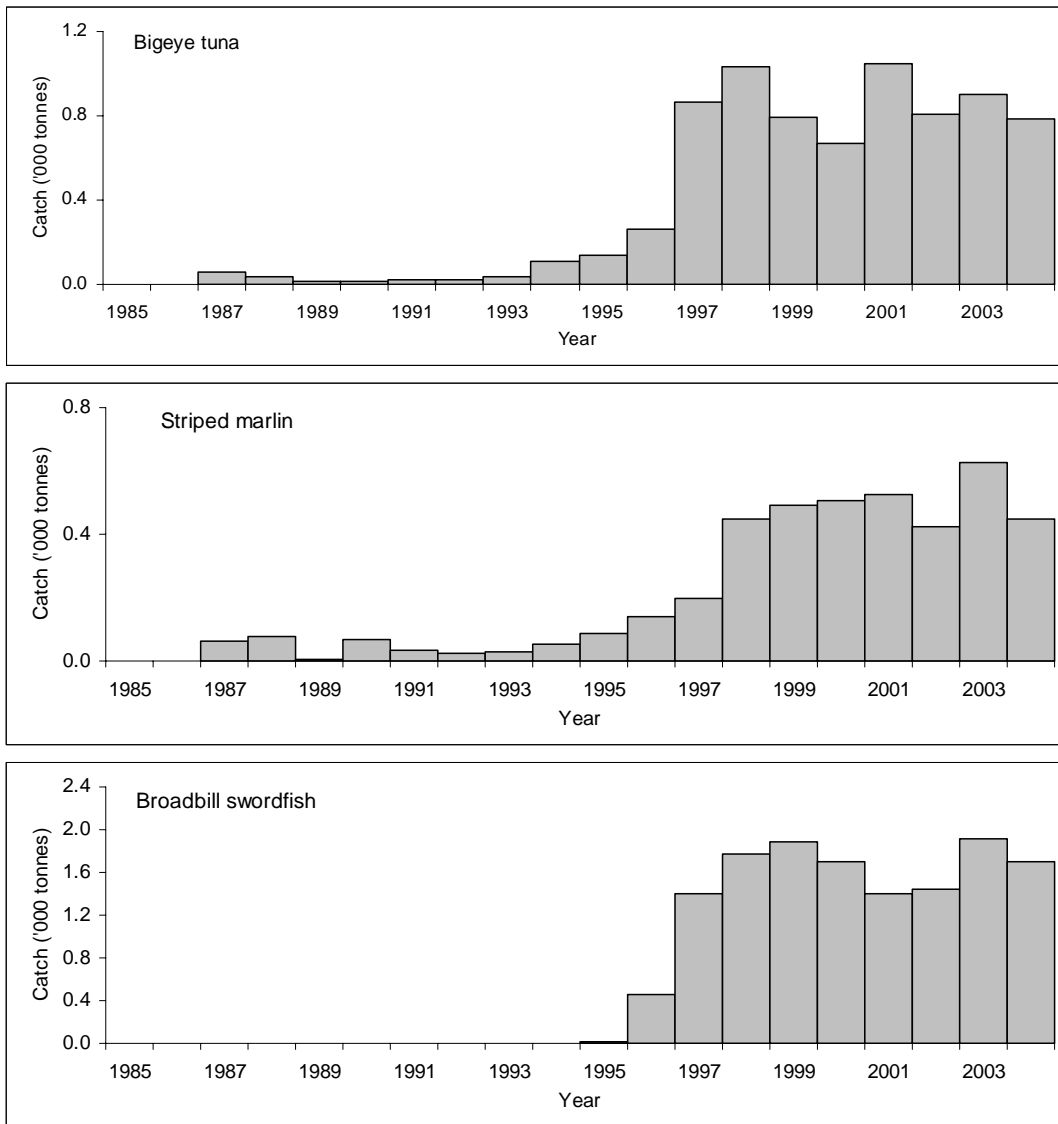


Figure 1. Annual catches (whole weight) of target species reported in logbooks by domestic longliners fishing in the eastern Australian Fishing Zone and adjacent high seas region.

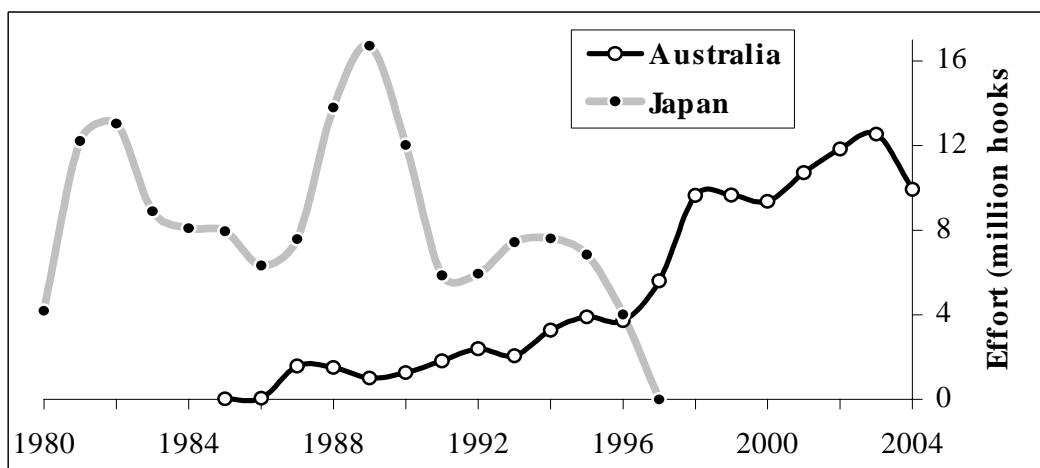


Figure 2 Annual longline effort reported by Australia's longliners (black line) in the eastern AFZ and adjacent high seas and Japan's longliners (grey line) in the eastern AFZ.

Pole-and-line and purse seine

Pole-and-line and purse seine catches for 2004 cannot be disclosed because fewer than five vessels operated in 2004. This fishery had taken significant catches of skipjack tuna in the past, peaking at over 6000 t in 1992, before declining to 1000 t in 1998 and increasing again to about 4000 t in 2000. However, the Eden cannery closed in 1999., total catch Subsequently fell to about 500 t in 2001 and only 84 t in 2002. Catches of skipjack tuna in the eastern AFZ had declined to 584 t in 2003. These vessels do not operate outside the AFZ.

Pole-and-line and purse seine vessels fish for skipjack tuna off the far south coast of New South Wales (35-38°S). Skipjack tuna are poled and purse seined in late spring and summer. The fishery expanded in the late 1980s, with a peak catch of over 6 158 t in 1992¹ (Figure 3). Yellowfin tuna are a bycatch of the pole-and-line and purse seine fishery. Regulations restrict their yellowfin tuna bycatch to less than 50% of the total catch in any trip and less than 2% of each vessel's annual catch. The bycatch of yellowfin tuna is usually quite small, amounting to less than 1% in most years.

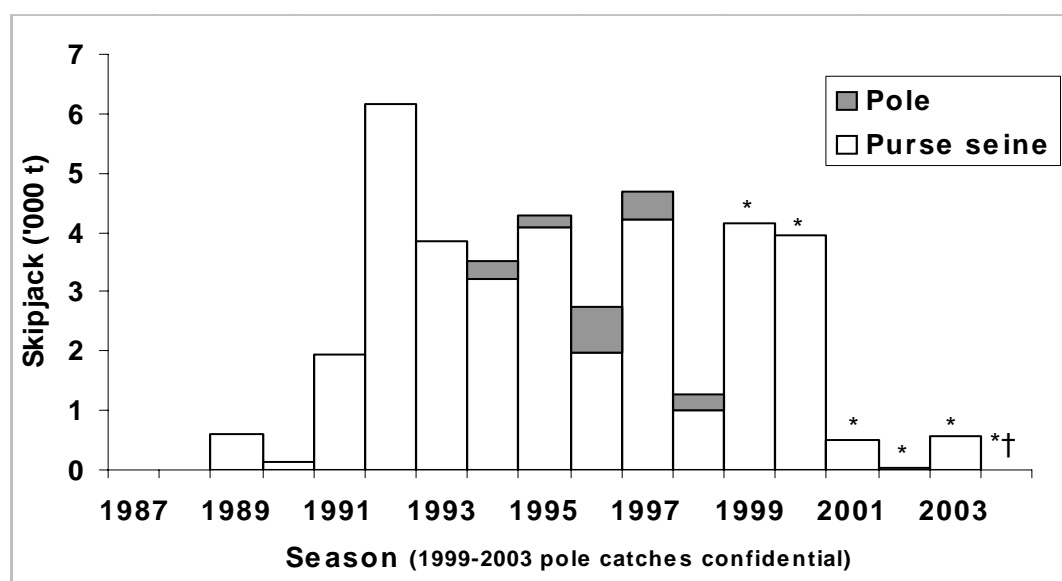


Figure 3 Eastern Tuna and Billfish Fishery annual skipjack tuna catch reported by Australian purse seine and pole-and-line vessels (*confidential pole-and-line data; †confidential purse seine data).

Other commercial catches

Catches in these 'minor line' fisheries vary markedly according to the inshore availability of yellowfin tuna in particular but catches are generally a small proportion of the longline catch. In 2003, less than 2 t of tunas and billfishes were reported by minor line and trolling. The performance of the minor line fishery is closely aligned with the experiences of the recreational sector as the two groups use similar methods and often fish in close association.

Recreational angling

Striped marlin continued to feature in recreational and charter gamefish reports in 2004, but in fewer numbers than in the late 1990s. Recent years have been excellent for the heavy tackle fishery for large black marlin off Cairns. Increased numbers of

¹Catches reported in logbooks were a poor estimate of catches in the pole-and-line and purse seine fishery during 1986-92. Consequently, annual landings reported by canneries for that period were substituted.

blue marlin were also a feature of east coast gamefishing tournaments. There have been patches of small black marlin and striped marlin and blue marlin have made an early appearance off Cape Moreton (south-eastern Queensland).

There was a strong pulse of small yellowfin tuna off southern NSW in the first half of 2004. Good catches of small – medium yellowfin tuna continued off NSW and southern Queensland into 2005. However, the near absence of larger fish on the ‘traditional’ fishing areas on the continental shelf along the southeast Australian coast persists.

The interaction between recreational and commercial fleets taking striped marlin by longliners and direct conflicts on inshore live bait collection grounds, has resulted in considerable animosity between the recreational and commercial fishers. This animosity has resulted in calls for striped marlin to join black and blue marlin as marlin species that may not be retained by commercial fishers. Closures of inshore bait grounds to longliners have also been considered.

RESEARCH AND MONITORING

The Commonwealth Government introduced a logbook for Japanese longliners in 1979, and Australian observers were placed on Japan’s longliners in the AFZ to verify catch reporting and collect biological and fisheries data. The longline logbook, radio and observer data from Japanese vessels continues to provide a valuable source of information for fishery assessments and management decision making.

The Commonwealth introduced a logbook for domestic longliners in 1986. The logbook has been revised on several occasions. The latest (AL05), which is designed to also collect information required for a seabird threat abatement plan (TAP), was distributed in 2000. Return of logbooks by Australian longliners improved when it became a condition of fishing permits and has been virtually 100% in recent years.

Until recently, there had been no ‘routine’ at-sea observer program, nor independent verification, of logbook catch and effort data. Independent observers have been deployed on domestic longliners since 2001 as part of a program to test the effectiveness of seabird mitigation devices. Since July 2003, observers have been deployed more broadly across the fishery with more general duties, such as the collection of size data on fishing gear and the size- and species composition of catches.

The Australian Government and fishing industry allocate considerable funds to fishery research and monitoring each year. In addition to the logbook program, key areas of recent and or ongoing research and monitoring include:

Current projects

- Stock assessment of striped marlin in the south-western Pacific Ocean (BRS)
- Determination of the ecological impacts of longline fishing in the ETBF (CSIRO)
- Analysis of seabird mitigation trials (BRS)
- Development of a robust suite of stock status indicators for the Southern and Western and Eastern Tuna and Billfish fisheries (CSIRO)
- Determination of effective longline effort in the ETBF (CSIRO)
- Reduction of interactions by marine mammals with longline and gillnet gears: development and assessment of predation and by-catch mitigation devices (QDPI)

- Archival hard parts collection, a basis for routine ageing of tuna and billfish (CSIRO)
- An analysis of interactions between domestic longline and recreational gamefish fisheries taking or targeting striped marlin off NSW (BRS and NSW DPI)
- Mitigation measures to reduce longline interaction with seabirds (AAD, Seanet)
- Integrated assessment and the development and evaluation of an assessment framework for the ETBF (CSIRO)

Recent projects

- A review of byproduct interactions and economics in Australia's tuna and billfish fisheries (BRS, in press)
- Integrated analysis and assessment of the ETBF (CSIRO, in press)
- Migration and habitat preferences of bigeye tuna on the east coast of Australia (CSIRO, May 2005)
- Crossing the line: sea turtle handling guidelines for the longline fishing industry (Belldi Consultancy, Feb 2005)
- Age and growth of broadbill swordfish from Australian waters (CSIRO, Sep 2004)
- New deep setting longline technique for bycatch mitigation (SPC, Seanet, Aug 2004)
- Assessment of blue shark population status in the western south Pacific (CSIRO, 2004)
- Age and growth of bigeye tuna from the eastern and western AFZ (CSIRO, Dec 2003)
- Development of an operating model and evaluation of harvest strategies for the ETBF (CSIRO, Nov 2003)
- Swordfish-environment-seamount-fishery interactions off eastern Australia (CSIRO, Oct 2003)
- Striped marlin: biology and fisheries (BRS, 2003)
- Investigation of the origin of yellowfin tuna recruits to the eastern AFZ (CSIRO, Nov 2002)
- Reproductive dynamics of broadbill swordfish in the domestic longline fishery off eastern Australia (Aug 2002)

Many anglers who target tuna and billfish voluntarily tag and release under the New South Wales Cooperative Gamefish Tagging Program, which was established in 1973. The data indicate the general distribution of recreational angling activities and trends in catches, masked by changes in effort levels, targeting, reporting of releases and the popularity of tagging. The number of tuna and billfish tagged under Gamefish Tagging Program varies year-to-year particularly within a given species² (Table 2). Tag-releases reported for all three marlin species were lower in 2002/03

²Most of the tuna and billfish tagged under the New South Wales Gamefish Tagging Program are released in NSW or Queensland. However, the numbers quoted here are based on data provided by Dr Mike Lowry (NSW Fisheries) that includes small numbers of fish released with NSW Gamefish Program tags in other States and in other countries, such as Papua New Guinea and Fiji.

than in the previous season, while sailfish showed substantial increases (Table 2). The number of yellowfin tuna tagged also declined.

Catch and effort logbooks have been introduced for charter operators in both Queensland and New South Wales. These logbooks may provide a valuable data series in the future. NSW DPI has also monitored catch and effort data from gamefishing tournaments over the past ten years and a report summarising their observations was released in 2002. Black marlin catch rates were higher in 1996/97 and 1998/9 seasons when large numbers of small blacks occurred closer to the coast. Blue marlin catch rates increased in 1997-1999 seasons, possibly due to increased directed effort towards this species (Murphy et al 2002). Striped marlin catch rates in tournaments were relatively steady during 1993–2000, although catch rates in southern latitudes were reported to be exceptionally high in the summer and autumn of the 1998/9 and 1999/2000 seasons (Murphy et al 2002). Recent analyses of charter boat catch rates for striped marlin off the south east coast support this anecdotal evidence (Bromhead et al. 2004).

Bromhead et al (2004) analysed charter boat catch rates for striped marlin off the south east coast of Australia. Their analyses indicate that catch rates increased through the 1990s to peak in 1999 and 2000, particularly in the far south. The trends over time in charter boat catch rates has mimicked that of commercial catch rates to a large degree. Tournament yellowfin tuna catch rates appear to have declined since peaking in 1995/6. Yellowfin tuna make up the majority of tournament caught tuna (70.5%), followed by albacore (26.8%) and skipjack tuna (2.1%) (Murphy et al 2002).

MANAGEMENT

Commercial Fishery

The Eastern Tuna and Billfish Fishery (ETBF) is managed by the Commonwealth Government of Australia under an Offshore Constitutional Settlement between the Commonwealth and relevant States/Territories. The Australian Fisheries Management Authority (AFMA) manages Australian vessels engaged in commercial operations taking tuna and billfish in the 200–nautical mile Australian Fishing Zone (AFZ) and high seas. Key management arrangements in the ETBF at present include limited entry by zones, limits on byproduct and bycatch, VMS and seabird mitigation.

Management arrangements to reduce the incidental take of seabirds by longliners were introduced including night setting requirements and regulations on offal discharge south of 30°S. Trials are continuing into the effectiveness of underwater chutes and line weighting to reduce seabird interactions during line setting. Mandatory measures for seabirds mitigation now include weighted swivels, tori lines and/or night setting in certain areas.

The Eastern Tuna and Billfish Fishery Statutory Management Plan (including individual allocation of fishing rights in the form of hook-days) is being implemented. Under the management plan the number of longline hooks able to be set in the fishery will be regulated. Key elements of ensuring the integrity of the statutory fishing right and the broader management arrangements will include the use of integrated computer vessel monitoring systems (ICVMS). Fishing rights will be fully transferable.

Recreational Fishery

The recreational and charter fisheries for tuna and billfish are principally managed by the States and Territories. In addition to limited entry arrangements for charter boats in some States, bag limits apply in most States limiting the daily landing of

some tuna and most billfish to between two and five fish dependant on State, species and size.

The question of resource sharing between these sectors is an issue being raised by both stakeholder groups and will be the subject of considerable attention over the next year.

ENVIRONMENTAL ISSUES

In response to bycatch issues, the Australian Fisheries Management Authority (AFMA) has formulated Bycatch Action Plans for Commonwealth tuna fisheries. Over 100 marine species have been recorded from the ETBF longline catch, including tuna and tuna-like fish, billfish, sharks, rays, various other fish, seabirds and (rarely) sea turtles and marine mammals.

In 2000, a BRS draft report highlighted high levels of shark bycatch and the widespread practice of 'shark finning' in Australia's tuna fisheries, particularly in the ETBF and the Southern and Western Tuna and Billfish Fishery. Fishery-specific arrangements are required to increase knowledge about shark catches and ensure their sustainability. In the interim, AFMA has banned the practice of finning sharks at sea. This prohibits the possession or landing of fins separate from carcasses. AFMA has also enforced the existing landing limit of 20 sharks per vessel per fishing trip.

In the ETBF the expansion of shallow line-sets targeting swordfish has increased the likelihood of catching sea turtles. A BRS project has examined the extent of ETBF turtle bycatch and possible mitigation measures that the fishery might adopt. The results of the project suggest that turtle-interaction rates in the ETBF are low compared to longline fisheries in other countries and that the vast majority of turtles are released alive. Despite this finding, the project also highlighted the need for improved data collection on turtle-interaction rates.

Longliners and pole-and-line vessels catch their live bait in inshore waters. The impact of the removal of these bait fish on the ecology of those areas is not known.

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Table 1. Summary of catch and effort reported by Australia's longliners operating the eastern Australian fishing and adjacent high seas aggregated by calendar year. All catches are metric tonnes (t) processed weight. Pre-1997 data have been raised for logbook coverage. 'Vessels' shows the number of longliners returning logbooks.

Year	No. of vessels	Hooks ('000s)	Yellowfin tuna (t)	SBT (t)	Albacore (t)	Bigeye tuna (t)	Swordfish (t)	Black marlin (t)	Striped marlin (t)	Blue marlin (t)	Sailfish (t)	Spearfish (t)	Other (t)	Total (t)
1986	32	61	11	10	0	1	0	0	0	0	0	0	21	43
1987	133	1 588	998	12	129	57	21	9	42	27	3	3	1 223	2 524
1988	134	1 514	791	23	107	38	19	7	39	18	3	6	83	1 134
1989	124	1 008	714	3	93	17	13	2	7	0	0	0	49	899
1990	117	1 274	674	7	124	21	18	11	55	16	2	2	52	982
1991	111	1 822	692	103	158	24	44	10	28	1	1	1	71	1 133
1992	124	2 393	872	152	214	30	37	6	20	2	2	1	104	1 441
1993	109	2 065	670	245	186	22	25	0	27	0	0	1	59	1 235
1994	110	3 274	1 047	346	357	109	32	2	49	4	4	4	117	2 071
1995	109	3 898	1 126	244	438	152	49	2	84	4	3	4	174	2 280
1996	119	4 220	1 424	161	408	259	456	<1	135	9	<1	<1	246	3 098
1997	137	5 606	1 441	318	302	869	1 394	<1	194	<1	<1	2	561	4 779
1998	156	8 776	1 846	427	460	1 031	1 770	^a <1	447	^a <1	2	<1	492	6 476
1999	145	9 661	1 577	86	359	791	1 884	^a 0	490	^a 0	<1	<1	588	5 776
2000	140	9 355	1 492	90	381	666	1 699	^a 0	506	^a 0	<1	<1	504	5 337
2001	159	10 711	2 193	62	570	1 050	1 396	^a 0	527	^a 0	3	7	683	6 491
2002	144	11 838	2 751	29	538	810	1 444	^a 0	426	^a 0	6	15	1 830	7 849
2003	134	12 540	2 802	34	481	841	1 286	^a 0	421	^a 0	3	14	661	6 542
2004	121	9 815	1 948	–	658	784	1 686	^a 0	438	^a 0	–	–	–	–

^aLegislation introduced in 1997 requires longliners to release all blue and black marlin, thus restricting the weight data available for those species

Table 2. Summary of the number of tunas and billfishes tagged and released and reported by anglers to the NSW Gamefish Tagging Program.

Common name	1973-80	1980-90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	Total
Black Marlin	1 927	10 700	2 838	1 671	2 417	1 179	583	1 290	4 268	1 838	3304	1373	582	1045	1009	36024
Blue Marlin	2	379	117	126	92	140	168	145	172	252	421	337	206	255	189	3001
Striped Marlin	5	461	190	180	220	345	427	1 017	1 172	1 116	1551	1846	674	973	810	10987
Sailfish	240	4 837	878	1 252	950	1 188	937	845	1 007	1 984	1519	1097	422	318	921	18395
Spearfish, Shortbill	0	9	2	8	16	12	32	10	1	17	17	9	7	45	19	204
Swordfish, Broadbill	0	11	4	2	12	3	4	9	1	5	-	-	6	1	0	58
Total billfishes	2 174	16 397	4 029	3 239	3 707	2 867	2 151	3 316	6 621	5 212	6812	4662	1897	2637	2948	57195
Albacore	26	1 911	555	1 179	319	1 486	453	2 732	1 125	992	-	-	402	236	231	11647
Bonito, Australian	128	7 308	839	971	944	510	581	509	94	60	-	-	117	69	23	12153
Bonito, Leaping	2	619	133	79	140	151	244	37	0	0	-	-	-	-	-	1405
Tuna, Bigeye	1	37	0	1	7	0	15	4	1	1	-	-	0	0	0	67
Tuna, Dogtooth	6	195	47	13	46	17	6	8	22	7	-	-	10	2	1	380
Tuna, Longtail	462	1 358	321	155	303	140	223	144	83	98	-	-	122	90	65	3564
Tuna, Mackerel (KawaKawa)	313	6 627	546	761	931	662	498	610	366	514	-	-	570	671	655	13724
Tuna, Skipjack tuna	1 939	7 952	839	380	508	518	731	379	239	245	-	-	237	290	400	14657
Tuna, Southern Bluefin	20	385	161	184	218	73	18	137	73	336	-	-	65	77	24	1771
Tuna, Yellowfin	521	7 043	1 104	1 761	2 011	1 261	1 825	3 717	1 659	513	-	-	480	1146	651	23692
Total tunas	3 418	33 435	4 545	5 484	5 427	4 818	4 594	8 277	3 662	2 766	-	-	2003	2581	2050	83060
Total tunas & billfishes	5 592	49 832	8 574	8 723	9 134	7 685	6 745	11 593	10 283	7 978	-	-	3900	5218	4998	145253