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**Timeline of fleet and management changes in Australia's tropical tuna longline fishery**

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# **Timeline of fleet and management changes in Australia's tropical tuna longline fishery**

## **Abstract**

The report of SC11 noted that the Scientific Committee repeatedly discusses the reliability of data for various fleets and their suitability for constructing indices of stock abundance. To help facilitate these discussions it was also noted that it would be useful to compile reports (which could be updated as required) on all fleets detailing the history of management measures, fishing strategies, gears and sampling regimes. Unless this information is available the SC is likely to continue to debate what changes have occurred in these fisheries and whether they are adequately accounted for in the development of related indicators. It was proposed that the SC recommend that each CCM develop reports for each of their fleets detailing this history and changes these fleets have undergone. Towards this end, this paper provides a brief description of the changes and management measures which have impacted on Australia's domestic tropical tuna longline fishery which fishes off the east coast of Australia. Several measures which impacted on Japanese longliners fishing within the Australian EEZ up until 1998 are also noted.

# Timeline of fleet and management changes in Australia's tropical tuna longline fishery

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## Introduction

The report of SC11 noted that the Scientific Committee (SC) repeatedly discusses the reliability of data for various fleets and their suitability for constructing indices of stock abundance. To help facilitate these discussions it was also noted that it would be useful to compile reports (which could be updated as required) on all fleets detailing the history of management measures, fishing strategies, gears and sampling regimes. Unless this information is available the SC is likely to continue to debate what changes have occurred in these fisheries, how they may have impacted on the catch and catch-rates of specific species, and whether they are adequately accounted for in the development of related CPUE-based abundance indicators for any given species. It was proposed that the SC recommend that each CCM develop reports for each of their fleets detailing this history and changes these fleets have undergone. Towards this end, this paper provides a brief description of the changes in management measures and fishing practices within Australia's domestic tropical tuna longline fishery which fishes off the east coast of Australia. Several measures which impacted on Japanese longliners fishing within the Australian EEZ up until 1998 are also noted.

It is hoped that this initial report will encourage other CCMs to compile similar reports of the changes within their own fleets. Once produced these reports could be routinely updated as required. The SC may like to discuss what other information would be useful to compile in such report and how these reports can best be managed and made available. For example, a dossier of such reports for all CCMs could be managed by the Secretariat and made available via the Commission's website.

## Timeline of Changes

The following timeline provides a summary of significant events which have occurred and management measures which have been introduced into longline fishing operating for tunas and billfish off eastern Australia. Japanese longline vessels commenced fishing in the Coral Sea off north-eastern Australia in 1952 and ceased fishing within the Australian EEZ in 1998. Full details of access arrangements during this period are provided in Caton and Ward (2006). The domestic Australian longline fishery developed in the mid-1980s and is known as the Eastern Tuna and Billfish Fishery (ETBF). This fishery primarily targets yellowfin tuna, bigeye tuna, albacore tuna, broadbill swordfish and striped marlin but a number of other species are considered important by-product (e.g. mahi mahi, wahoo). A summary of the annual longline effort in the ETBF and the related catch is shown in Figure 1 while a detailed summary of data pertaining to this fishery is provided in Campbell (2016a).

Several of the management measures outlined below have influenced fishing operations and associated catches for the fleets operating off eastern Australia and should be taken into account when interpreting catch rates associated with these fisheries.

- 1952 Japanese longliners first fish within the Coral Sea off north-eastern Australia.
- 1960s Exploratory longline fishing undertaken by Australian vessels off NSW east coast.
- 1965 Japanese vessels first catch large quantities of surface schooling YFT and BET using hand lines in the north-western Coral Sea (14-18°S and 145-148°E) between Cooktown and Townsville (Hisada, 1973).
- 1968 Before 30 January 1968, Australian sovereignty over fisheries resources was limited to its territorial seas (within 3 nm of the coast). After this time until the declaration of the AFZ in November 1979 sovereignty extended to 12 nm. States retained responsibility for regulating fishing within 3 nm whereas the Commonwealth was responsible beyond this limit.
- 1975 The Great Barrier Reef Marine Park came into force in 1975 though regulation of fishing activities in the Marine Park did not commence until later, e.g. the Cairns section in 1983.
- 1979 Declaration of the 200 nm exclusive Australian Fishing Zone (AFZ) on 1 November 1979. UNCLOS supported the continued access of distant fishing fleets to traditional fishing grounds where there was a sustainable surplus to the host nation's exploitation capacity. Progressive restrictions placed on foreign fishing.
- 1980 Area off Cairns (coincident with Queensland Trough) closed to Japanese longline fishing but remained open for handline fishing (Figure 2). The restriction was intended to reduce the interaction between Japanese longliners and the northern Queensland recreational and charter boat fisheries which target billfish species within this region.
- 1985 Australian tuna longline fishery develops off NSW in the mid-1980s, aimed at the Japanese sashimi market. First logbook (AL01) introduced to ETBF in 1985.
- 1986 Access to Japanese 'Handline Area' was granted to domestic commercial operators in September 1986, following expressions of interest by the commercial tuna sector in establishing an exploratory fishery in the region. Thirteen permits were ultimately granted with sets limited to a maximum of 500 hooks. Now known as Coral Sea Permits (10).
- 1990 Southern extension to 'Handline Area' by closing Townsville Trough region (Figure 2). The closed region become known as Area E (and now referred to as the Coral Sea Zone) and has an area of approximately 172,000 square kilometres. Note: the Great Barrier Reef Marine Park, in which all longlining is presently prohibited, occurs inshore of Area E.
- 1996 Targeted fishery for broadbill swordfish develops with vessels operating out of Mooloolaba. Since the mid-1990s the port of Mooloolaba just north of Brisbane has been the main port for the ETBF.  
Light-sticks first used by Australian longliners.
- 1997 New logbook (AL04) introduced to the ETBF which records multiple features associated with gear setting practices.  
Size monitoring program (consisting of the collection of individual fish weights recorded by processors) commences in the ETBF from July (Campbell 2016b).
- 1998 Japanese access to the Australian EEZ ceases in May. Since that time only Australian vessels have had access to the Australian EEZ.  
Commonwealth legislation bans the retention of blue and black marlin (dead or alive) by Australian commercial fishing operations due to increased fishing by Australia's longliners near Cairns and the potential for interaction with the

- recreational sector. Most domestic longliners operating in this region also cease the retention of striped marlin.
- Introduction of Threat-Abatement-Plan (TAP) to mitigate seabird bycatch. Becomes effective 2 August and requires all ETBF vessels operating south of 30°S to adopt one of three options i) use of weighted line, ii) baits to be deployed between one hour after sunset and one hour before dawn, or iii) use a technique which can be demonstrated to not make hooks/bait available to seabirds.
- 2000 A limit of 20 sharks per trip was introduced. Any sharks caught in excess of 20 must be discarded whether dead or alive.
- Restricted management zones off New South Wales for catching southern Bluefin tuna (SBT) announced on 9 March. Closures applied from May to late September each year unless the operator holds SBT quota and operates VMS. Zones reviewed each fortnight based on CSIRO SBT habitat preference model (AFMA 2016a).
- 2003 On-board observer program commences on Australian longline fleet with the aim of monitoring 5.1% of effort (e.g. hooks deployed) in the fishery. Following a Ministerial Directive in December 2005 (as part of the Commonwealth government's *Securing our Fishing Future* policy) this was increased to 8.5%.
- Annual longline effort in the ETBF peaks at around 12.7 million hooks.
- Longline effort in the ETBF reaches a maximum (~ 12.7 million hooks)
- 2005 Ban on the use of wire leaders or traces on longline branchlines introduced to reduce capture of sharks.
- 2006 In response to declining catch rates in recent years a competitive Total-Allowable-Catch (TAC) of 1400 tonnes for swordfish is introduced.
- Introduction of a Catch-Disposal-Record scheme to collect verified number and total weight of target species landed after each trip and to coincide with introduction of swordfish TAC.
- Revised Threat-Abatement-Plan (TAP) adopted to mitigate seabird bycatch. Requires all pelagic longline tuna vessels operating south of latitude 25°S to adopt one of two options i) a line-weighting strategy that enables the bait to be rapidly taken below the reach of most seabirds; or ii) set all hooks during the night. In both options vessels shall also employ at least one birdscaring (tori) line constructed to a specified standard, not use bait that is still frozen and retain all offal during line setting.
- Ban on shark-finning introduced.
- Commencement of major fleet reduction due to buy back of ETBF fishing licences (99 of 218 longline permits) included in the structural adjustment package announced by the Commonwealth government as part of the *Securing our Fishing Future* policy.
- Development of deep-sets (using more than 25 hooks-per-float; Figure 3a) to target albacore in response to decline in swordfish availability and increasing costs. Associated changes in the number of hooks deployed per kilometre and distance between floats.
- 2008 Use of circle-hooks increases significantly and becomes dominant across fleet. Observer data indicates use increases from around 20% to over 70% across observed sets (Figure 3b).
- Ban implemented on day-light setting to mitigate seabird bycatch: applied between 30-35°S periodically between July 2008 and August 2009.

- 2009 Transitional management arrangement for the ETBF commences where ETBF operates under a total allowable effort (TAE) of 12 million hooks for an initial 16 month fishing season (1 November 2009–28 February 2011).
- 2010 Sea-turtle mitigation plan comes into effect which requires management measures to be implemented if specified interaction rates are exceeded. Ban on the retention of mako sharks and pobeagle sharks introduced on 29 January. Mid-year this was replaced with a ongoing ban only on the retention of live mako sharks.
- 2011 New management plan adopted for the ETBF based on Individually-Transferrable-Catch Quotas (ITQs). Quota season runs from 1-March to end of February the following year.  
First vessel adopts E-log reporting, increasing to 7 vessels (of 39) in 2016.
- 2013 Use of circle hooks made mandatory for shallow sets (i.e. sets using less than 8 hooks-per-float) from start of the fishing season (1 March).  
Ban on the take of oceanic whitetip sharks and silky sharks.
- 2014 Revised Threat-Abatement-Plan (TAP) adopted to mitigate seabird bycatch. Mitigation requirements listed in AFMA (2016b).
- 2015 Mandatory E-monitoring of all longlines vessels fishing in the ETBF commences on 1-July.

Figure 4 provides a summary of those events and management measures which have impacted on the operations of the Eastern Tuna and Billfish Fishery since 1995. A description of present management arrangements in the ETBF is provided in AFMA (2016b).

## References

- AFMA. 2016a. SBT Zones. <http://www.afma.gov.au/fisheries-services/sbt-zones/>
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Figure 1a. Annual time-series of the number of longline hooks deployed in the ETBF together with the number of vessels which operated in the fishery (i.e. returned a logbook).

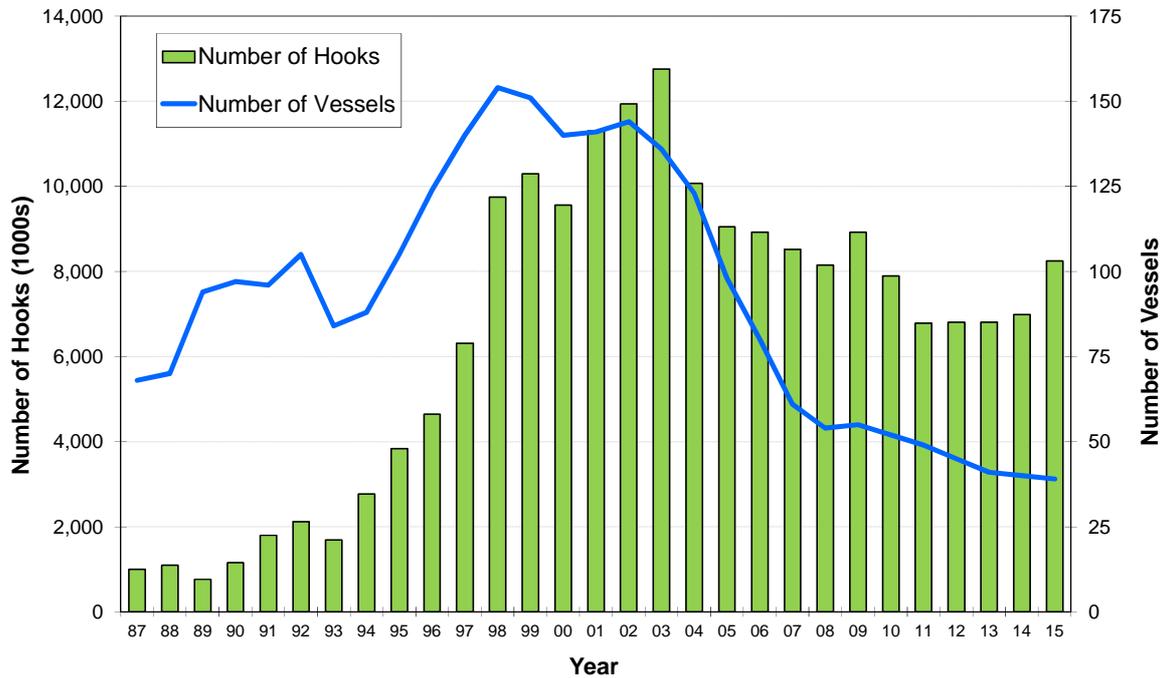


Figure 1b. Annual time-series of the retained catch (whole weight) of the main target species caught in the ETBF.

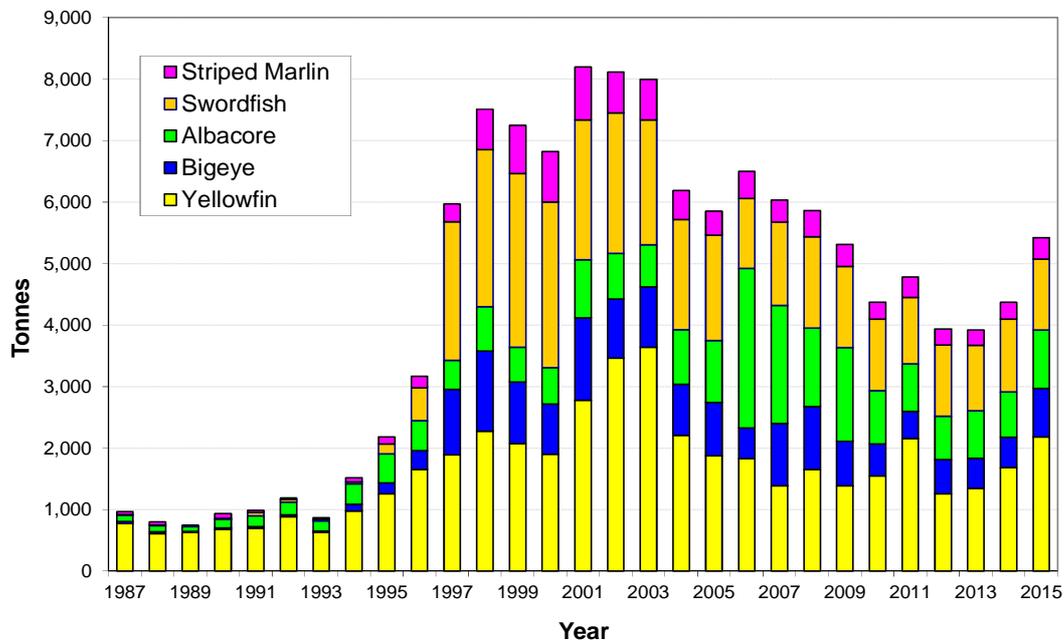


Figure 2. Location of the two regions in the Coral Sea closed to Japanese longline vessels but which remained open for handline fishing.

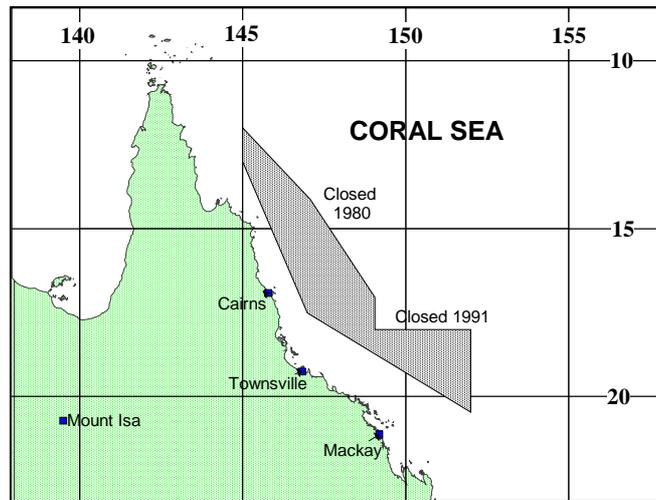


Figure 3. (a) Percent of longline sets deployed in the ETBF each year deploying different categories of hooks-per-float. Information based on logbook data. (b) Percent of observed longline sets deployed in the ETBF each year deploying different types of hooks. Information based on observer data. (NR = not reported).

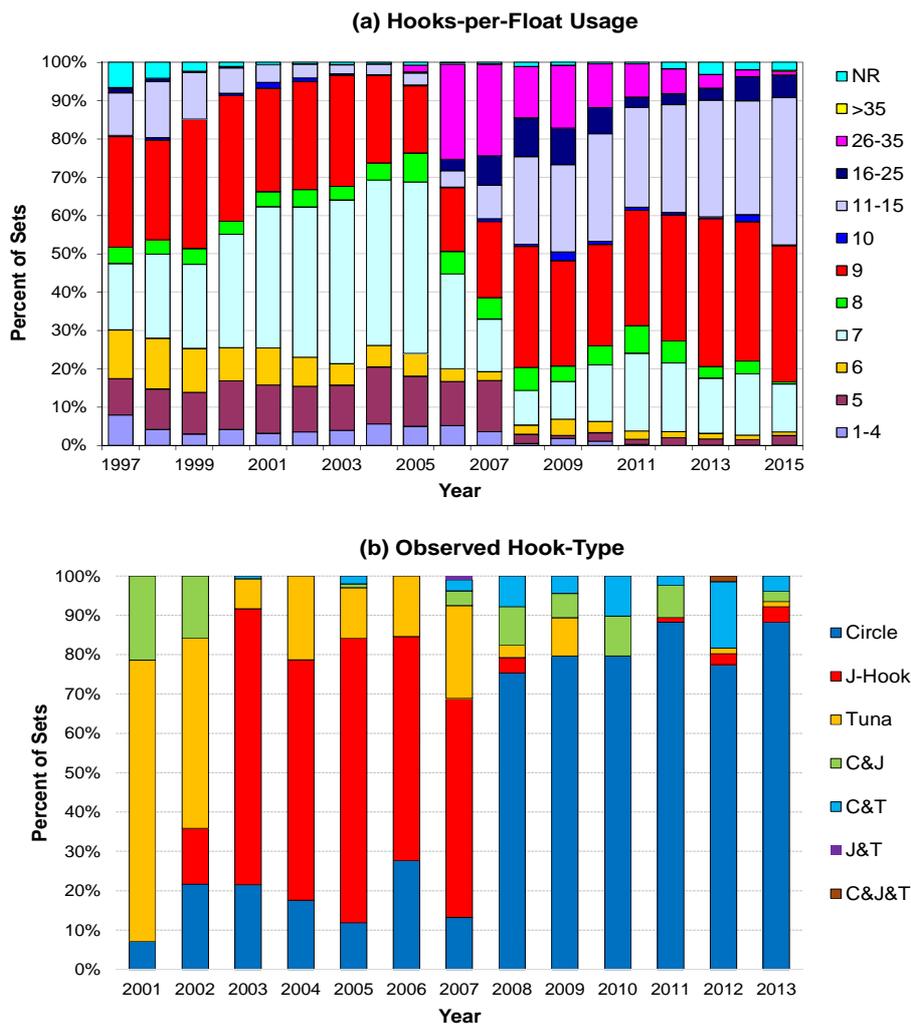


Figure 4. Schematic summary of events and management measures which have impacted on the operations of the Eastern Tuna and Billfish Fishery since 1995 (refer to accompanying text for fuller description of these events and measures).

Event or Management Measure	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
500 hook limit in Area E	[Blue bar]																					
Targeted fishing for swordfish commences	[Light Green bar]																					
Introduction of light stick usage	[Yellow bar]																					
New logbook to record gear setting practices	[Light Yellow bar]																					
Commencement of size monitoring program (Jul 97)	[Light Green bar]																					
Ban on retention of Blue and Black Marlin	[Orange bar]																					
Japanese access to Australian EEZ ends (May 98)	[Light Blue bar]																					
Introduction of seabird Threat Abatement Plan (Aug 98)	[Purple bar]																					
Introduction of 20 sharks per trip limit	[Yellow bar]																					
Introduction of seasonal SBT management zones	[Light Green bar]																					
Observer program implemented	[Light Orange bar]																					
Fleet reduction due to poor economic conditions	[Light Green bar]																					
Ban on use of wire traces	[Grey bar]																					
Development of deep-sets to target albacore	[Light Green bar]																					
Fleet reduction due to Government buy-back	[Light Blue bar]																					
Catch-Disposal Records implemented	[Yellow bar]																					
Second seabird Threat-Abatement Plan implemented	[Purple bar]																					
Ban on shark finning	[Light Yellow bar]																					
Introduction of 1400 tonne swordfish TAC	[Orange bar]																					
Significant increase in use of circle hooks	[Light Green bar]																					
Ban on day-light setting between 30-35S (Jul 08-Aug 09)	[Light Blue bar]																					
Introduction of total hook limit management (Nov 09)	[Light Orange bar]																					
Sea turtle mitigation plan in effect	[Light Green bar]																					
Ban on retention of mako & porbeagle sharks (Jan-Jun)	[Light Blue bar]																					
Introduction of ITQ catch management (Mar 11)	[Grey bar]																					
Mandatory use of circle hooks for shallow sets (Mar 13)	[Light Green bar]																					
Ban on retention of silky & oceanic whitetip sharks	[Orange bar]																					
Third seabird Threat-Abatement Plan implemented	[Purple bar]																					
Mandatory E-monitoring commences (Jul 15)	[Light Green bar]																					