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**AUSTRALIA – REVISED DRAFT EASTERN TUNA AND BILLFISH FISHERY SEA
TURTLE MITIGATION PLAN (TMP)**

WCPFC-TCC5-2009/DP-14

2 October 2009

Eastern Tuna and Billfish Fishery Sea Turtle Mitigation Plan (TMP)

Purpose of document

The purpose of this document is to fulfil Australia's obligations under the Western and Central Pacific Fisheries Commission (WCPFC) Conservation and Management Measure (CMM) CMM-2008-03 with regards to the need to implement a plan designed to reduce the interaction rate of turtles in pelagic longline fisheries which target broadbill swordfish. In an Australian context, the fishery to which this measure has the most relevance is the Eastern Tuna and Billfish Fishery.

This document will be reviewed in 5 years or at such times as:

- The criterion stipulated in this document is exceeded;
- The WCPFC review the CMM relevant to sea turtles; or
- The characteristics of the fishery change and warrant a review;

The Eastern Tuna and Billfish Fishery

The Eastern Tuna and Billfish Fishery (ETBF) extends from the tip of Cape York to the South Australia/Victoria borders and includes waters around Lord Howe and Norfolk Island and the area of the high seas under the region of concern of the WCPFC (See Figure 1 below).

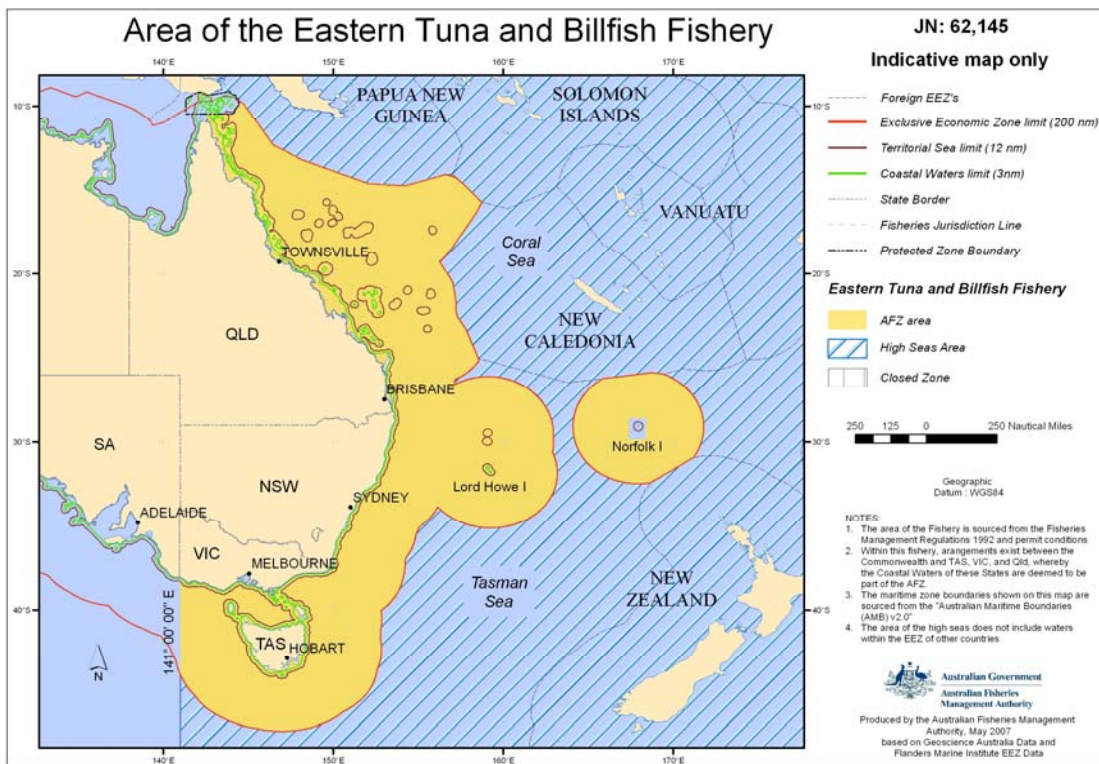


Figure 1 Indicative map of the area of the Eastern Tuna and Billfish Fishery.

The ETBF predominantly employs the pelagic longline fishing method to target yellowfin tuna, albacore tuna, bigeye tuna, broadbill swordfish and striped marlin with vessels changing their targeting practices to take advantage of periods when the highest catch rates can be achieved for each species, and also to take advantage of high market value for particular species. A sector of the fishery also employs the 'minor line' fishing methods (trolling, hand lining and rod and reel) to target these species however this sector is responsible for a very small proportion of the total catch taken ($\approx 1\%$).

In recent years the pelagic longline sector of the ETBF has set between 8 and 9 million hooks per year, with a historical high of 12.4 million hooks in 2003. Figure 2 (below) displays the effort of the pelagic longline sector and catches of the ETBFs five primary species for the period 2000-2007.

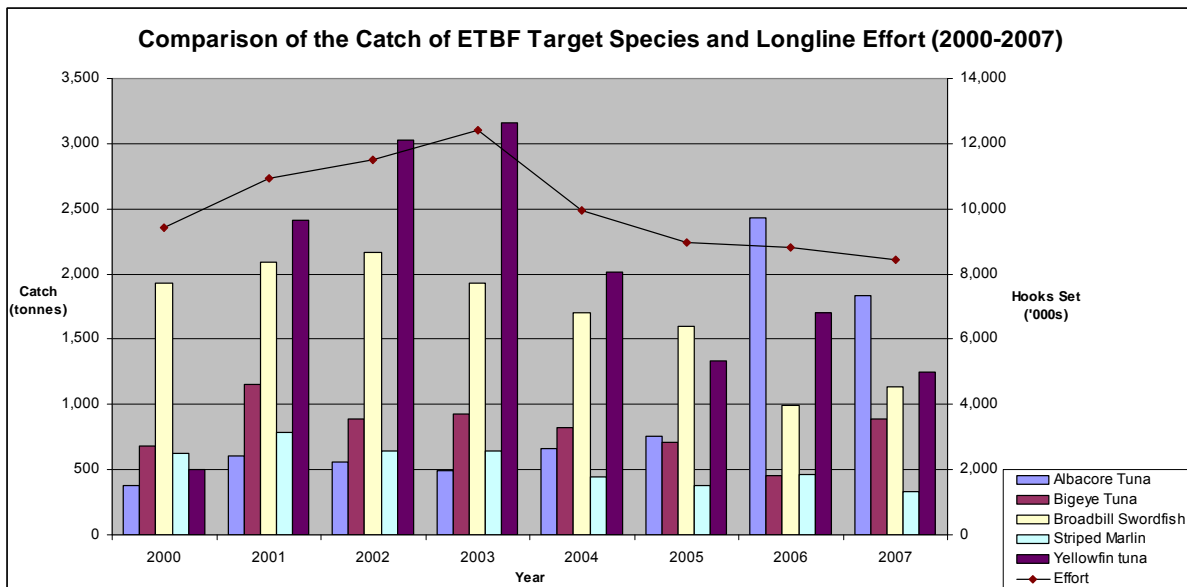


Figure 2 Comparison of ETBF primary species catch and longline effort (2000-2007) (Data sourced from AFMA Logbooks).

Management of the ETBF

The ETBF is currently managed by the Australian Fisheries Management Authority (AFMA) according to transitional arrangements provided for in the Eastern Tuna and Billfish Fishery Management Plan 2005 until hook Statutory Fishing Rights (SFRs) are granted (expected during 2009). Under the transitional arrangements, commercial fishing is managed through a system of input controls based upon fishing permits which limit entry to the fishery, the area of operations, and impose limits on the take of bycatch species and the fishing gear which may be employed in the fishery.

In 2006, AFMA introduced a competitive total allowable catch of 1,400 tonnes on broadbill swordfish in the ETBF in response to concerns over the stock. This resulted in an operational change in the fishery, with a number of operators changing their fishing practices to target albacore and bigeye tuna by utilizing the 'deep set' pelagic longline technique which involved setting lines consisting of a greater number of hooks deeper in the water column. The effect of this change in operational behaviour can most notably be observed in the change in catch composition in the fishery (see Figure 2 above),

where catches of broadbill swordfish in the fishery substantially decreased while catches of albacore tuna substantially increased.

The ETBF Observer Program

In 2003 the AFMA Board agreed to a 5 year observer program for the ETBF with an aim of 5.1% coverage across the ETBF per year. The 5-year program was designed to get a good estimate of the level of incidental catches of protected species such as turtles and seabirds as well as collecting information about the catch of target and byproduct species. The data collected is also used to validate the accuracy of logbook data across the fishery and will be used as a source of information in setting the total allowable effort (TAE) and sub-area factors under the Plan. Observers provide reliable data on catch composition, fate of target and non-target species, fishing effort and fishing practices. One of their main tasks in the ETBF is to report on the use and effectiveness of mitigation measures under the Threat Abatement Plan (TAP) and to monitor interactions with Threatened, Endangered and Protected (TEP) species, particular seabirds and turtles and record them on detailed wildlife interaction sheets.

Since 2003, observers have been deployed in the ETBF to monitor 5.1% of all the effort in the fishery. With the implementation of the TAP in the ETBF this level of coverage was required in each 5 degree latitudinal band in the fishery. To achieve 5% in all areas AFMA decided to increase observer coverage to 8.5% of all fishing effort. In addition to this and to comply with CCSBT requirements AFMA has implemented an increased level of observer coverage (of up to 100%) for vessels operating in the identified SBT zones of the fishery.

Table 1 ETBF Observer Coverage Rates 2003-2008

	2003	2004	2005	2006	2007	2008
Observed Hooks	338534	422257	540876	302046	837104	735189
Total Hooks	12,652,293	9,936,730	8,931,271	8,788,291	8,443,782	8,044,267
% Coverage	2.68	4.25	6.06	3.44	9.91	9.14

Since its inception, the ETBF Observer Program has become an essential component of the fishery's management strategy and forms a primary component of a number of the fisheries management arrangements and contributes substantially to a number of the research programs undertaken in the fishery.

Sea turtle interactions in the ETBF

Of the seven species of marine turtle, six are found in Australian waters: the Loggerhead turtle *Caretta caretta*, Green sea turtle *Chelonia mydas*, Hawksbill sea turtle *Eretmochelys imbricata*, Olive Ridley sea turtle *Lepidochelys olivacea*, Flatback sea turtle *Natator depressus* and Leatherback sea turtle *Dermochelys coriacea*. All of these species nest on islands off Australia or parts of the Australian mainland. However, the Leatherback turtle nests in low densities. All of these sea turtles spend part of their life cycle; or are thought to have the potential to spend part of their life cycle in the pelagic environment which is where they come into contact with the ETBF.

Historically the majority of interactions that have occurred in ETBF have been with green and leatherback turtles. In 2007 there were a total of 17 turtle interactions reported through AFMA observers and logbooks, with 15 released alive. This was similar to 2006 where a reported 16 turtle interactions occurred, with 13 released alive.

Table 2 ETBF Observed Interaction Rates 2003-2008

		2003	2004	2005	2006	2007	2008
Leatherback	NI*	0	2	1	1	3	3
	Effort	338534	422257	540876	302046	837104	735189
	RATE**	0	0.004736	0.00185	0.003311	0.003584	0.004081
Loggerhead	NI*	0	0	0	0	1	2
	Effort	338534	422257	540876	302046	837104	735189
	RATE**	0	0	0	0	0.001195	0.002720
Green	NI*	1	0	0	0	6	1
	Effort	338534	422257	540876	302046	837104	735189
	RATE**	0.002954	0	0	0	0.007168	0.001360
Other	NI*	0	3	1	0	1	2
	Effort	338534	422257	540876	302046	837104	735189
	RATE	0	0.007105	0.001849	0	0.001195	0.002720

* *Number of Interactions*

** *Rate per 1,000 observed hooks*

Shallow setting versus deep setting interactions

As stipulated in paragraph 7(a) iii of WCPFC CMM 2008-03 in the implementation of a mitigation plan for the capture of turtles, it must be applied to shallow set swordfish fisheries. The ETBF in Australia, as with Australia's other pelagic longline fisheries, is not divided into deep and shallow set for management purposes, it is simply a pelagic longline fishery for tuna and tuna-like species. For this reason data has not historically been divided into deep and shallow set.

Shallow setting within Australian pelagic longline fisheries will be defined as any shot set to target fish at a depth of less than 100m; generally this could be defined as a set with less than or equal to 10 hooks per basket. As data has not been collected or organised to date with a deep and shallow set stratification the analysis of this data is a complex task which could not be conducted for the purposes of this mitigation plan. In the future Australia will ensure data is collected and organised in a way which enables the stratification of observed data into deep and shallow setting for the purposes of turtle interactions. This will ensure that observed hooks from deep setting shots do not dilute the turtle interaction rate observed.

Keeping this in mind, looking at data from 2008 of the 8 observed turtle interactions in the ETBF just over 60% of these were observed on what would be regarded as shallow set shots using the above definition.

Management actions to address sea turtles in the ETBF

In attempting to address the issue of sea turtle interactions in the ETBF, AFMA in 2005 provided all vessels operating in the ETBF with 'line cutters' and 'de-hookers' to assist in the safe release of sea turtles which have interacted with pelagic longline fishing gear. This was also accompanied by several education programs designed to inform skippers

and crews on the appropriate way to handle and treat sea turtles encountered while fishing.

Recently AFMA introduced the '*Australian Tuna and Billfish Fisheries Bycatch and Discard Work Plan*' (B&D Work Plan) which outlines a series of management actions to address bycatch in Australia's pelagic longline fisheries. In relation to the issue of turtle bycatch, AFMA will be making the carriage and use of line cutters and de-hookers by all AFMA managed pelagic longline vessels compulsory. AFMA also completed an education program for skippers and crews in 2009 which will contain components on safe handling and resuscitation techniques to employ should sea turtle interactions occur. It is planned that these education programs will be an ongoing commitment to re-educate skippers of their obligations.

There is scientific evidence of some sea turtle species foraging in areas in close proximity to nesting beaches during internesting periods (Hays et al. 1999). Thus at these times there may be large concentrations of turtles in these areas. For this reason Australia will implement 10 nm longline exclusion zones around known rookery sites.

Indicative maps of known breeding sites showing longline exclusion zones can be found at **Attachment A**.

Trigger

The ETBF Turtle Mitigation Strategy requires that the fishery maintains an observed sea turtle interaction rate at or below the following values:

Table 3 Trigger interaction rates for sea turtles species and the ETBF.

	Interaction rate (per 1,000 observed hooks set)
Green	0.0048
Leatherback	0.0040
Loggerhead	0.0040
Other: combination of Hawksbill, Flatback, Pacific (olive) Ridley	0.0040
TOTAL	0.0168

In the absence of full population model data, interaction levels are based on historical interaction rates, and will be redefined to an interaction level which is sustainable when this information is available.

If a limit for any species is exceeded in one year then management action will take place. The action taken after the limit has been exceeded in one year will be to encourage industry to adopt best practice to minimise the interaction rate, with AFMA providing guidance through consultative mechanisms such as Management Advisory Committees and Resource Assessment Groups, and the development of a working group. Exceeding the limit in subsequent years will attract more strict AFMA defined management measures to reduce interactions.

Exceeding the limits in one year will result in:

AFMA establishing a Sea Turtle Mitigation Working Group to establish what measures, between AFMA and industry, can be implemented in the fishery to achieve an interaction rate less than that specified in the aforementioned criteria, by species.

Should the limits be exceeded in the following year:

AFMA will initiate management action to ensure that the ETBF is fully compliant with the requirements of CMM-2008-03. By requiring vessels operating in the ETBF which use the 'shallow set' pelagic longline fishing method to target broadbill swordfish to:

A) use only whole finfish baits and large circle hooks;

Should the limit be exceeded in the subsequent year:

AFMA will enforce all operators to comply with a swordfish trip limit of 20, unless the fisher applies to AFMA for an exemption under which they will be required to use whole finfish baits and large circle hooks.

Reporting

Australia will report on its compliance with CMM2008-03 to the WCPFC as part of its Part Two Report to the Technical and Compliance Committee on an annual basis. Observed sea turtle interaction rates in the ETBF will be reported as part of Australia's Annual Part 1 Report to the Scientific Committee.