



Australian Government

Australian Fisheries Management Authority



Tropical Tuna Management Advisory Committee (TTMAC)

MINUTES
TTMAC 15
3 NOVEMBER 2016
AFMA OFFICE
CANBERRA



**FIFTEENTH MEETING OF THE TROPICAL TUNA MANAGEMENT ADVISORY
COMMITTEE (TTMAC)**

**3 November 2016
AFMA CANBERRA**

Agenda Item 1: Preliminaries/matters arising

1.1: Welcome and apologies

1. The TTMAC Chair, Ms Catherine Sayer, opened the meeting at 8:30am and welcomed members, invited participants and observers to the 15th meeting of TTMAC.

Apologies

2. Apologies were received from; Mr Peter Trott, environment/conservation member.

3. Participants at TTMAC 15 were:

Chair

Ms Catherine Sayer

Members

Mr Trent Timmiss (AFMA)
Mr Terry Romaro OAM (industry)
Mr Paul Lavalle (industry)
Mr Cathal Farrell (industry)
Mr Pavo Walker (industry)
Dr Robert Campbell (scientific)
Mr Grahame Williams OAM (recreational/charter fishing)

Invited Participants

Mr Gary Heilmann (industry)
Mr Paul Williams (industry)
Mr Brian Jeffriess AM (industry)
Mr Ian Bladin (recreational/charter fishing)
Mr Phil Bolton (NSW State Government)

Executive Officer

Ms Stephanie Martin

Observers

Dr Don Bromhead (AFMA)
Mr David Ellis (industry)
Mr Adam Whan (industry)
Ms Susie Howell (DAWR)
Mr Stuart Curran (DAWR)

1.2: Adoption of agenda

4. The agenda was adopted by TTMAC (Attachment A).



1.3: Pecuniary interest declarations

5. The Chair stated that as outlined in the *Fisheries Administrations Act 1991* and Fisheries Management Paper No. 1, all members of TTMAC must declare any pecuniary interest in the Fishery and any specific agenda items at the commencement of the meeting (Table 1). The Committee noted that if a member discloses an interest in an item, the member must absent themselves from the meeting before the item is considered. The MAC must make a decision as to whether the member can participate in the discussion and in the making of a recommendation, or remain absent from the meeting for the item.
6. Further to the MAC and RAG chairs meeting held in October, TTMAC noted the requirement to declare any interest in any agenda item at the beginning of the meeting, not at each agenda item.

Table 1: TTMAC members/invited participants' declarations of interest

Member	Declared interests	Agenda items with interest
Catherine Sayer	CEO Food SA, Chair, Gulf St Vincent management Plan steering committee. No pecuniary interest in tropical tuna fisheries.	-
Trent Timmiss	Employee of AFMA, no pecuniary interest in tropical tuna fisheries.	-
Terry Romaro OAM	Director of a company that owns ETBF boat SFR's, minor line SFR's, ETBF longline SFR's, WTBF boat SFR's, WTBF longline SFR's, Coral Sea Trawl permit, Western Skipjack purse seine permit, SPF purse seine, mid-water trawl SFR's, and SPF quota SFR's. Shareholder of a company that owns shares in a proposal to fish with foreign long liners in the WTBF. Invited participant on SBTMAC and industry representative at the Commission for the Conservation of Southern Bluefin Tuna.	3.1, 3.2, 3.3, 3.6
Paul Lavallo	Director of a company that owns ETBF boat SFR's, minor line SFR's and ETBF quota SFR's for all five species. Director and member of fish receiving co-operative.	3.1, 3.2, 3.3, 3.6, 4.1
Cathal Farrell	Manager of fish receiving business and holder of an ETBF boat SFR. Director of fishing company that holds boat and quota SFRs.	3.1, 3.2, 3.3, 3.6, 4.1
Pavo Walker	Owner of several ETBF boat SFRs, and ETBF quota SFRs for all species. Holds a Coral Sea permit and minorline permit. Member of TTRAG.	3.1, 3.2, 3.3, 3.6, 4.1

Grahame Williams OAM	Past President of the Game Fishing Association of Australia, Treasurer & Records Officer, NSW Game Fishing Association and Game Fishing Association Australia Executive Officer (NSW). No pecuniary interest in tropical tuna fisheries.	-
Robert Campbell	Employee of CSIRO, no pecuniary interest in Australian tropical tuna fisheries. Is actively engaged in research on the Eastern and Western Tuna and Billfish Fisheries. PI of the following research projects: " <i>Data management, provision of fishery indicators and implementation of the harvest strategies for Australia's tropical tuna fisheries</i> ", and " <i>Developing innovative approaches to improve CPUE standardisation for Australia's multi-species pelagic longline fisheries</i> ". Scientific member of TTRAG.	-
Stephanie Martin	Employee of AFMA, no pecuniary interest in Tropical Tuna fisheries.	-
Invited participant	Declared interests	Agenda items with interest
Paul Williams	Director of a company that holds an ETBF boat SFR and ETBF longline SFR's, minor line SFR's and a Commonwealth fish receiver permit. Member of TTRAG.	3.1, 3.2, 3.3, 3.6, 4.1
Gary Heilmann	Director of companies that hold; an ETBF boat SFR, a fish receiver permit and a Coral Sea Fishery permit. Member of TTRAG.	3.1, 3.2, 3.3, 3.6, 4.1
Ian Bladin	Game Fishing Association of Australia executive, Queensland game fishing Association and charter boat owner, no pecuniary interest in tropical tuna fisheries.	-
Brian Jeffriess AM	CEO of Australian Southern Bluefin Tuna Industry Association. No pecuniary interests in the tropical tuna fisheries.	-
Phil Bolton	Recreational Fisheries Manager at the NSW Department of Primary Industries (DPI), no pecuniary interest in tropical tuna fisheries.	-

The following members and invited participants declared interests under Agenda Items 3 and 4:

Members

Mr Terry Romaro OAM: agenda item 3.1, 3.2, 3.3, 3.6 & 4.1

Mr Paul Lavalley: agenda items 3.1, 3.2, 3.3, 3.6 & 4.1

Mr Cathal Farrell: agenda items 3.1, 3.2, 3.3, 3.6 & 4.1

Mr Pavo Walker: agenda items 3.1, 3.2, 3.3, 3.6 & 4.1

In line with the requirements as a MAC industry member who has declared interests under an agenda item, Mr Romaro left the room. The remaining members of TTMAC agreed that Mr Romaro should be allowed to return for all discussions and recommendations made under Agenda items 3 and 4.

In line with the requirements as a MAC industry member who has declared interests under an agenda item, Mr Lavalley left the room. The remaining members of TTMAC agreed that Mr Lavalley should be allowed to return for all discussions and recommendations made under Agenda items 3 and 4.

In line with the requirements as a MAC invited participant who has declared interests under an agenda item, Mr Farrell left the room. The remaining members of TTMAC agreed that Mr Farrell should be allowed to return for all discussions and recommendations made under Agenda items 3 and 4.

In line with the requirements as a MAC invited participant who has declared interests under an agenda item, Mr Walker left the room. The remaining members of TTMAC agreed that Mr Walker should be allowed to return for all discussions and recommendations made under Agenda items 3 and 4.

Invited Participants

Mr Paul Williams: agenda items 3.1, 3.2, 3.3, 3.6 & 4.1

Mr Gary Heilmann: agenda items 3.1, 3.2, 3.3, 3.6 & 4.1

In line with the requirements as the MAC industry member who has declared an interest under an agenda item, Mr Williams left the room. The remaining members of TTMAC agreed that Mr Williams should be allowed to return for all discussions and recommendations made under Agenda items 3 and 4.

In line with the requirements as the MAC industry member who has declared an interest under an agenda item, Mr Heilmann left the room. The remaining members of TTMAC agreed that Mr Heilmann should be allowed to return for all discussions and recommendations made under Agenda items 3 and 4.

1.4: Acceptance of minutes from TTMAC 14

7. TTMAC adopted the minutes from TTMAC 14 with a small number of minor adjustments.

1.5: Status of actions arising from TTMAC 14

8. The AFMA member outlined progress on the 7 action items identified at TTMAC 14 (Table 2).

Table 2: Status of actions arising since TTMAC 14

#	ISSUE	ACTION REQUIRED	RESPONSIBILITY	STATUS
1	Review of NSW baitfishing arrangements.	Inform ETBF fishers of NSW review of baitfishing arrangements	State government member	Ongoing. Members were informed that this issue has been raised by Nick Rayns, Executive Manager, Fisheries, with NSW Fisheries, but they indicated that it was not a high priority for them at this time. There is however, in-principle agreement to give all ETBF operators NSW bait access and the permits may be in place in mid-2017. (TTMAC 14 – Action arising 1)
2	ETBF levy arrangements	An explanation of levy allocation to be included in the ETBF management arrangements for the 2017/18 season.	AFMA	Ongoing – to be implemented at the beginning of 2017. (TTMAC 14 – Action arising 2).
3	WTBF shark trip limits	A change to the WTBF shark trip limits from per trip to per day to be investigated and discussed with the Western Australian Government.	AFMA	Ongoing. AFMA has recently gained agreement from the WA Government to increase the trip limit for Mahi Mahi. This condition has now been implemented so AFMA can now investigate this possibility. TTMAC noted that it may take some time to gain agreement with WA Fisheries however, as their shark management is currently under review. (TTMAC 14 – Action arising 3)
4	Seabird mitigation	The removal of the requirement to deploy tori lines at night to be discussed formally with the Threat Abatement Plan team at the Australian Antarctic Division (AAD).	AFMA	Completed. Outcomes to be discussed under Agenda Item 3.6.

#	ISSUE	ACTION REQUIRED	RESPONSIBILITY	STATUS
5	Swordfish quota zones	TTRAG to investigate the potential sustainability issues involved with having two separate quota zones for Swordfish and AFMA to discuss this potential arrangement with the AFMA senior executive and Commission.	TTRAG & AFMA	Completed. TTRAG discussed this at their July and August meetings. AFMA will continue to work with Tuna Australia to develop a research proposal. (TTMAC 14 – action arising 5).
6	Yellowfin tuna research	Research to be undertaken to investigate the availability of Yellowfin tuna on and off the shelf relating to recreational catch.	AFMA	Completed. A recreational research priority has been included in the Australian Tuna and Billfish Fisheries Annual Research Statement for 2017/18. A proposal to undertake an analysis of recreational catch of all ETBF quota species has been submitted by Dr Julian Pepperell to the NSW Recreational Fishing Trust for funding. Consideration for funding will occur in February 2017. (TTMAC 14 – Action arising 6)
7	Productivity Commission Review	A copy of AFMA's submission to the Productivity Commission to be circulated to TTMAC when publicly available.	AFMA	Completed. All public submissions can be found at http://www.pc.gov.au/inquiries/current/fisheries-aquaculture/submissions (TTMAC 14 – Action arising 7)

1.6: Correspondence/intersessional work arising between TTMAC 14 and TTMAC 15

9. TTMAC noted that the following issues were addressed out-of-session since the previous meeting in November 2015:

- a) 17 May 2016 – the draft 2016/17 cost recovered budgets for the ETBF, WTBF and Skipjack Tuna Fishery were sent out for TTMAC comment;
- b) 31 May 2016 – a TTMAC budget sub-committee teleconference was held and the minutes are attached below;
- c) 6 June 2016 – the TTMAC EO circulated the TTMAC 14 draft minutes for comment;
- d) 11 August 2016 – an email regarding the new Govdex system where MAC and RAG papers will be posted was sent to TTMAC;

- e) 16 August 2016 – a Govdex email with further information regarding access to content was circulated to TTMAC members and invited participants;
 - f) 6 September 2016 – TTMAC comment was sought on the draft Ecological Risk Management Guide;
 - g) 8 September 2016 – the updated Australian Tuna and Billfish Fisheries Annual Research Statement was distributed to TTMAC for comment;
 - h) 15 September 2016 – a letter regarding the collection of gear and quota SFR price information was circulated to TTMAC for information;
 - i) 19 September 2016 – the draft agenda for TTMAC 15 was circulated to members for comment;
 - j) 22 September 2016 – supplementary information relating to the Ecological Risk Management Guide was provided to TTMAC.
10. TTMAC noted that a letter to the TTMAC Chair from the AFMA CEO, Dr James Findlay, was sent to the Chair just prior to the TTMAC meeting, regarding the AFMA Commission decision on the increase to the overcatch allowance for Yellowfin Tuna. A summary of the letter was provided by the AFMA member and he stated that the AFMA Commission did not agree to allow an increase in the overcatch allowance of yellowfin tuna to 20%. Their reasoning was that:
- Yellowfin tuna catch has returned to more normal levels; and
 - A change to change management rules mid-season would affect the quota market as owners would have already leased or held on to quota and made business plans and decisions accordingly.
11. There was extensive discussion from members in relation to this outcome, with industry members expressing their disappointment with the AFMA Commission's decision to not allow the increase. The major concerns raised were largely around process and the inflexibility of AFMA's management systems. Many MAC members also expressed concern that the TTMAC and TTRAG advice on the sustainability of Yellowfin tuna and the reasoning for an increase were not adequately considered by the Commission.
12. The AFMA member reminded members that in previous years (when Yellowfin tuna catches have been low), TTMAC advised the AFMA Commission to not consider the indicators for the species, as the outside catches of Yellowfin tuna by other countries were too high. At that time the Commission agreed with the MAC advice and did not change the TACC. The current situation is very similar and the precautionary approach has been taken. It was also highlighted to members that in 2015, a consensus was not reached among TTMAC members for an increase in the Yellowfin Tuna TACC.
13. The MAC specifically raised the issue of process, stating that it seems to be particularly arduous and inflexible. It seems that any change to management arrangements would not effectively manage these types of situations as industry end up running out of time or quota in the season. Industry members stated that they require more clarity and a defined process from AFMA on how to address

- inter-annual variations and episodic events when unusual fishing situations such as this arise and that the current timeframe to make any adjustments is too long.
14. The AFMA member clarified that for potential TACC changes to be considered, the RAG must first investigate any sustainability implications for that species and provide their recommendations to the MAC. The MAC then makes a formal recommendation to the AFMA Commission along with AFMA management. In making a decision, the AFMA Commission must also consider any relevant changes or developments that may arise from WCPFC. TACC changes cannot be made mid-season.
 15. It was recognised by TTMAC that Yellowfin tuna, and possibly other ETBF target species, displays inter-annual variations and large, episodic events in relation to availability. Reflecting this, TTMAC highlighted the urgent need to consider how this species, and the other tuna species and billfish may be managed more effectively over a longer term.
 16. In light of these issues raised, TTMAC agreed to write a response letter to the AFMA Commission, which will be circulated to members for approval out-of-session before being submitted (**TTMAC 15, Actions arising 1**).
 17. From a recreational fishing perspective, the State Government invited participant highlighted to the MAC that the recreational sector has witnessed a steady decline in Yellowfin availability over recent years. The trend appears to be the opposite of that reported by the commercial industry. The TTMAC recreational fishing representatives echoed these statements and expressed their ongoing concern for the species regarding what other factors may be influencing these trends.

Agenda Item 2: Background Information/Discussion Items

2.1: AFMA Management report on the ETBF and WTBF fisheries

18. The AFMA member began discussions under this agenda item. TTMAC noted that the Department of Environment are currently considering extending the 5-year List of Exempt Native Species (LENS) exemptions relating to wildlife trade for some fisheries, to 10-year exemptions. The ETBF and WTBF are both being considered for this extension and it is likely that they will receive it. The Skipjack tuna and Antarctic fisheries were granted extensions in recent weeks.
19. TTMAC further noted that the recreational fishing tournaments calendar for 2017 has been provided to AFMA and a letter will be sent out to industry in the next few weeks reminding operators of the code of conduct and their obligations when fishing around areas where tournaments are being held.
20. It was highlighted to TTMAC that while the WTBF TACCs have been set for a 3-year period, they need to be re-determined at the end of 2017, in preparation for the season commencing 1 February 2018.
21. The AFMA member also provided an update on the Indian Ocean Tuna Commission (IOTC) meeting held in May 2016. It was noted by members that the piracy that was occurring off the coast of Somalia has reduced, increasing fishing pressure on tuna stocks in that area. However, Yellowfin tuna in the Indian Ocean is not currently in good shape, and there has been a conservation and management measure agreed that limits the catch of distant water vessels such

as those from Spain and China. Unfortunately, monitoring in the Indian Ocean is not as stringent as that conducted in the Western and Central Pacific Ocean (WCPO) so it is uncertain as to the effect that this measure will have.

22. TTMAC further noted that a harvest control rule for Skipjack tuna was also agreed at IOTC and this may lead to a catch allocation between countries should the stock reach 40% biomass (it is current at ~60%). Australia did not agree to this measure, but it was adopted on a two thirds majority. Australia has lodged a formal objection to this measure so it does not apply to Australia. Unfortunately, it will be increasingly difficult to defend this position at next year's meeting. The AFMA member urged industry to get involved in the IOTC process now if there is serious interest in developing the Western Skipjack Tuna Fishery.
23. Regarding Southern Bluefin Tuna (SBT), TTMAC noted that this season has been the biggest for SBT catches by longline boats. There was 700-800 tonnes of SBT quota available to longline operators this year, which is much higher than in previous years, and there is still SBT being caught off southern NSW. It was further noted by members that due to the increased availability of SBT quota and therefore longline effort on SBT, there may be a need to review the ETBF levy structure and improve the allocation of costs, particularly those greatly influenced by SBT such as e-monitoring and VMS. The AFMA member stated that AFMA will work with both Tuna Australia and the Australian Southern Bluefin Tuna Association over the next year to determine a fair allocation of costs between ETBF quota species and SBT quota.
24. Lastly, it was noted by TTMAC that 2017 will be a busy year in the international forum, but also relating to ETBF scientific assessments and management processes. Members should be aware that their consideration and comment will be required on a number of key issues, such as the ETBF Ecological Risk Assessment (ERA) and ETBF Fishery Management Strategy (FMS), in the coming months.

2.2: WCPFC update

25. TTMAC noted that the Western and Central Pacific Fisheries Commission annual meeting is coming up in December 2016. The Tropical Tuna measure for the management of Bigeye, Yellowfin and Skipjack tuna is the main item for discussion that directly affects the ETBF. This measure will require review and re-agreement at the WCPFC meeting in December 2017. It is possible that if this measure does not obtain re-agreement at WCPFC in 2017, it may be rolled over for another year. However, it is likely that the largest change to the measure will be through the management of Fish Aggregating Device (FAD) "days" for purse seine fishing, in addition to seasonal bans on FAD-setting included in the current measure.
26. This year, the WCPO purse seine effort has increased more south and east than in previous years, some of which is occurring just outside the Australian Exclusive Economic Zone (EEZ). This may be due to the El Nino effects, but there may be other environmental factors influencing this shift also.
27. Members should also be aware that the South Pacific Albacore measure will be discussed in an attempt to reduce catches of the species and potentially lead to catch allocations. However, at this year's meeting it is unlikely that any agreements will be made that directly impact Australia.
28. The AFMA member indicated again to industry members that their influence in the international forum would be greatly beneficial, particularly in the defence of

the 2000 tonne catch limit for Bigeye Tuna. Due to the abuse of this limit by the US, the 2000 tonnes for Australia will become much more difficult to defend internationally without industry input, particularly as the current Bigeye tuna TACC (1056 t) is usually undercaught each season.

29. TTMAC lastly noted that most members of the WCPFC are currently implementing or trialling e-monitoring systems on their longline vessels or in their waters. It is also possible that purse seine fleets will begin using the sensor technology of e-monitoring to monitor FAD-setting as these are currently monitored by human observers, but records are unreliable due to a high level of corruption.

2.3: FFA annual meeting update

30. The AFMA observer, Dr Don Bromhead, provided an update on the recent Tokelau Arrangement (TKA) meeting for South Pacific Albacore Tuna held by the Forum Fishing Agency (FFA) in the Solomon Islands during October. The main purpose of the meeting was to discuss zone-based management of Albacore Tuna, particularly in the form of a Catch Management Scheme (CMS).
31. TTMAC noted that Australia's general allowance for Albacore is 2526 tonnes and that is based on our average catch from 2001-2004. A Limit Reference Point (LRP) of 20% biomass (B_{20}) has already been agreed by WCPFC and the FFA will be again proposing a Target Reference Point (TRP) of 45% biomass (B_{45}) at this year's Commission meeting.
32. Much of the discussion at the TKA was in relation to the draft CMS that has been developed by the FFA. The FFA is strongly pushing for the CMS to be agreed by members, but it is currently gaining little support, including from Australia. The CMS involves a "use it or lose it" scenario and attempts to remove latent effort on Albacore tuna. This has serious implications for Australia as our current TACC on Albacore (2500t) is significantly undercaught every season.
33. There are also significant impacts upon the Albacore stock outside of the FFA membership by China and Chinese Taipei. China is heavily subsidising their fishing fleet, which will allow them to fish at lower biomass and CPUE levels than are economically sustainable for Chinese Taipei and other fishing nations targeting Albacore Tuna, including Small Island Developing States (SIDS).

2.4: Tuna Australia/Industry update

34. The Tuna Australia CEO, Mr David Ellis, informed TTMAC that the association is now fully formed and operational. A formal Board meeting was held prior to the MAC meeting and 95% of ETBF quota owners and approximately 85% of ETBF boat owners are represented. He expressed his appreciation at the help received from everyone involved, including AFMA. Tuna Australia now plan to set strategic targets for the fishery and focus on areas that will most benefit the association over the coming years.
35. TTMAC industry members added their reports on fishing for this season. They informed the MAC that the Yellowfin tuna and Mahi Mahi catches have slowed down significantly in the last month or two. It was also noted that the quality of Swordfish caught off Mooloolaba has declined and the meat is currently very poor from fish caught in that area. In contrast Swordfish, and the other quota

species (especially yellowfin), caught off Ulladulla are of a very high quality and it was speculated that water temperature is a substantial driver of product quality.

36. From the WTBF, TTMAC noted that there are only two boats currently operating in the fishery, but they are taking good catches and are particularly happy with the recent increase to the Mahi Mahi trip limit (to 200 fish). It was stated however that a review of the shark trip limits in the WTBF is an important issue to those operators.
37. In relation to SBT, it was noted by TTMAC that the SBT fishery is expecting to be MSC accredited during 2017. The ASBTIA CEO also indicated that there will also be an increase to Australia's SBT quota allocation from CCSBT for the coming season. Accounting for recreational catch of SBT is also a significant issue for the fishery and how this will happen is currently unknown. The recreational catch must be accounted for in some way by December 2017. The increase in Chinese longline vessels on the high seas is also a concern. An industry member noted that similar resource sharing arrangements are needed for striped marlin.

2.5: General update from members, invited participant and observers

38. The recreational member and NSW Fisheries member provided an update on the recreational fishery, informing TTMAC that the current season has been unusual for the marlin species, with less of the larger fish being caught, and juvenile marlin occurring further south than previously. It has however been a very good year for Blue Marlin but a poor one for those targeting Albacore Tuna. Yellowfin Tuna has also been scarce in the recreational sector and it's possible that there may have been a shift south in species availability, which would reflect the commercial sector's observations. The declining trend in Yellowfin tuna over the past two years has created significant concern among recreational fishers and east coast tournament results have gone from 280 yellowfin tagged and 28 taken in 2014 to only 2 tagged and 24 taken in 2016. The scientific member stated that this trend being seen by the recreational sector is strange as the commercial yellowfin catches across the WCPO have been good this year. It was noted that TTRAG had agreed that the environmental drivers of fish abundance was a high priority.
39. TTMAC noted that recreational swordfish and marlin catches have been positive, particularly off Merimbula and swordfish are increasing in popularity among recreational fishers.
40. The scientific member noted that commercial Yellowfin tuna catches have been higher in the WCPO overall, not just the ETBF in recent years and that climate change models have suggested Yellowfin tuna will move further south.

Agenda Item 3: Consideration/Decision Items

3.1: ETBF Total Allowable Commercial Catch

41. The TTMAC scientific member summarised the TTRAG advice (Attachment B) on the Recommended Biological Commercial Catches and stock indicators for the five ETBF quota species. The AFMA member then provided the AFMA management advice on the recommended TACCs for the five quota species.

Broadbill Swordfish

42. The swordfish stock is currently well above the limit reference point, however the harvest strategy recommended a decrease in the current TACC (1373t) of 6.4% due to the consistent decline in the CPUE of small fish over recent years. The RAG expressed concern in their advice that there is low recruitment occurring for swordfish, but they also noted that effort in the ETBF has contracted significantly and may be contributing to the decline. The stock status in the WCPO is not overfished, but may be subject to overfishing. A revised south west Pacific Ocean stock assessment is due in 2017.
43. The AFMA member advised TTMAC, that due to the RAG's high confidence in the use of the harvest strategy for swordfish (Australia's current catch share is 69.6% of the total Region 5 catch), the RBCC should be set as the TACC for the 2017/18 season. It was noted however that there is proposed research to understand environmental influences on ETBF target species and this research will address concerns relating to effort contraction and oceanographic conditions for swordfish. TTRAG will further consider these issues at their meeting in March 2017.
44. TTMAC agreed to recommend a swordfish TACC of 1285 tonnes for the 2017/18 fishing season.

Striped Marlin

45. The harvest strategy recommended a small decrease in the current TACC (351t) of 5.4%, however TTRAG had low confidence in the effectiveness of the harvest strategy for Striped Marlin. This low confidence was largely due to the low percentage of Australian catch within the southwest Pacific region and the unknown level of outside (international) and recreational catch of the species. Striped Marlin is a separate stock in the south-west Pacific Ocean, but the CPUE has displayed a slight upward trend over the last two years. While the small sized fish CPUE indicates there is very strong recruitment occurring in the fishery, the stock continues to be below the target level, which caused the harvest strategy to recommend a reduction in the TACC. The stock status for Striped Marlin is currently possibly overfished, but not subject to overfishing. A new stock assessment is due to be completed in 2018.
46. The AFMA member advised TTMAC that the recommendation for the Striped Marlin TACC should remain the same as last year, stating that resource-sharing arrangements have not yet been resolved. It was noted by the MAC that the harvest strategy recommended decrease this year was smaller than that recommended last year. The State Government invited participant raised concerns at the disregard of the harvest strategy advice due to the lack of resource-sharing arrangements, stating that if the Yellowfin tuna TACC can be raised, the Striped Marlin TACC can be decreased. He also stated that the recreational sector are keen to have the resource-sharing arrangements resolved. The AFMA member indicated that, as per previous discussions at MAC meetings, it is unfair for the commercial sector to continually take a decrease in the Striped Marlin TACC while there are no restrictions on the recreational sector. The resource-sharing issue is being dealt with by the Department of Agriculture and Water Resources (DAWR).
47. TTMAC noted that no other fleets recreationally or internationally appear to be reducing their Striped Marlin catch and the stock has continued to be stable over

the last 10 years. In light of this, the recreational fishing member stated that he was not opposed to the TACC remaining at 351t.

48. TTMAC agreed to recommend a Striped Marlin TACC of 351 tonnes for the 2017/18 fishing season.

Yellowfin Tuna

49. The ETBF currently takes a small proportion of the WCPO "Region 5" Yellowfin tuna catch (16.9%) so the harvest strategy is not applied to this species. The ETBF CPUE has been high over the past two seasons, but Yellowfin tuna naturally displays large inter-annual variability. At its March 2016 meeting, following a request from TTMAC, TTRAG considered the sustainability implications of a TACC increase of 200t (including a 10% overcatch provision) and did not raise any concerns. This advice is attached to the formal TTRAG advice document (Attachment B).
50. The AFMA member stated support for the RAG advice and an increase to the TACC for Yellowfin tuna of 200 tonnes, noting the reduced inshore availability concerns raised by the recreational fishing representatives.
51. For clarity, the recreational fishing member reiterated that his concerns are purely based on what recreational fishers have observed and reported and do not have a scientific basis. He also noted the research proposal that has been submitted for funding in early 2017 to investigate recreational catch trends relating to all the ETBF quota species. He further stated that an increase of 200 tonnes to the commercial TACC would be unlikely to have a significant impact on recreational catches of Yellowfin tuna inshore.
52. TTMAC noted that an increase to the TACC of 200 tonnes, does not necessarily mean that the ETBF Yellowfin catch will subsequently increase by 200 tonnes.
53. TTMAC agreed to recommend a Yellowfin tuna TACC of 2400 tonnes for the 2017/18 fishing season.

Bigeye Tuna

54. The ETBF currently takes a small proportion of the WCPO "Region 5" Bigeye Tuna catch (30.7%) so the harvest strategy is not applied to this species. The CPUE of large Bigeye tuna has been higher over the current season and the movement of cohorts through the three sized-based CPUE indices is clear and consistent. While the ETBF TACC for Bigeye tuna (1056t) is close to being caught this season, the WCPO stock status is currently overfished and subject to overfishing. However, the level of connectivity between fish caught by the ETBF and those in the broader WCPO is uncertain. A 3-year connectivity study across the tuna and billfish species began in mid-2016.
55. TTMAC noted that more conclusive information is needed regarding the connectivity of Bigeye tuna within the Tasman Sea before any major adjustments to the TACC can be considered. It was further noted that the TACC of 1056 tonnes was originally set from the average Australian catch of 2001-2004, but was more a political limit than a biological limit. The AFMA member highlighted that should the connectivity study indicate separate Bigeye tuna stocks, a new stock assessment would need to be undertaken, which might then guide TTRAG consideration of what level of TACC would be sustainable within the revised stock region. However until such time, AFMA recommended that the current TACC for Bigeye tuna should remain the same.

56. Noting these points, TTMAC agreed to recommend a Bigeye Tuna TACC of 1056 tonnes for the 2017/18 fishing season.

Albacore Tuna

57. Albacore Tuna is a single stock in the south Pacific Ocean and the ETBF catch proportion of the Region 5 total is very small (6.2%). For this reason, the harvest strategy is also not applied to this species in the ETBF. There has been a large increase in the number of large Albacore taken in the ETBF over the last season, while the small fish catch has declined. The WCPO stock status for Albacore tuna is currently not overfished and not subject to overfishing.
58. The AFMA member informed TTMAC that the Albacore tuna TACC is only 30% caught each season on average. It was also noted that Australia has informally committed to a 2500 tonne limit within the FFA and that this will be difficult to defend and change with the international push towards a Catch Management Scheme for Albacore.
59. TTMAC industry members expressed their concerns regarding a 2500 tonne limit, stating that it should be 3000 tonnes, as well over this amount has been caught in at least one previous season. The AFMA member indicated that this would be an issue that Tuna Australia could engage with the DAWR on.
60. Noting these points, TTMAC agreed to recommend an Albacore Tuna TACC of 2500 tonnes for the 2017/18 fishing season.

3.2: ETBF & WTBF over/undercatch Determination

61. TTMAC noted that while WTBF TACCs are set for 3 years the Western Tuna and Billfish Management Plan 2005 requires that AFMA must determine for each of the quota species the overcatch % and or determined weight and the undercatch % provisions each season. These provisions need to be determined for Yellowfin Tuna, Bigeye Tuna, Striped Marlin and Broadbill Swordfish during the season. This is also the case for the ETBF, with the species being Yellowfin Tuna, Bigeye Tuna, Albacore Tuna, Striped Marlin and Broadbill Swordfish. However, these arrangements for the ETBF must be determined prior to beginning of the season starting on 1 March. In future, AFMA intends to align the Management Plans for both the WTBF and ETBF.
62. TTMAC agreed to recommend the following for each fishery:

Eastern Tuna and Billfish Fishery

Quota species	Overcatch %	Undercatch %	Determined weight (kg)
Albacore tuna	10	10	2,000
Bigeye tuna	10	10	2,000
Yellowfin tuna	10	10	2,000
Broadbill Swordfish	10	10	2,000
Striped marlin	10	10	2,000

Western Tuna and Billfish Fishery

Quota species	Overcatch %	Undercatch %	Determined weight (kg)

Bigeye tuna	10	10	2,000
Yellowfin tuna	10	10	2,000
Broadbill Swordfish	10	10	2,000
Striped marlin	10	10	2,000

63. TTMAC noted the concerns raised by industry members regarding the inflexibility of the overcatch and undercatch system in that they cannot be accessed prior to the last month of the fishing season. Industry indicated that the current system creates the potential for discarding of quota species if operators run out of quota earlier in the season and that under/over catch provisions should be available throughout the season. The AFMA member stated that this is an AFMA policy and relates to the legal “authorisation to fish”.
64. The AFMA member acknowledged industry’s concerns and agreed to work with the quota administration team at AFMA and with Tuna Australia to determine what may be possible in terms of improving overcatch and quota accessibility and flexibility for the ETBF (**TTMAC 15, Actions Arising 2**).

3.3: Review of conversion factors

65. The AFMA observer, Dr Don Bromhead, began discussion on this item, explaining that conversion rates are used by AFMA to calculate various processed forms of Albacore Tuna, Bigeye Tuna, Yellowfin Tuna, Broadbill Swordfish and Striped Marlin into whole weights for the deduction of quota. This data is collected from Catch Disposal Records (CDRs).
66. TTMAC noted that the current conversion rates for the ETBF and WTBF are as follows:

	Whole	Gilled and Guttled	Headed and Guttled	Trunked	Damaged	Filletted	Guttled
Albacore Tuna	1	1.1	1.5	1.5	1.5	-	-
Bigeye Tuna	1	1.1	1.5	1.5	1.5	-	-
Yellowfin Tuna	1	1.1	1.5	1.5	1.5	-	-
Broadbill Swordfish	1	1.1	1.25	1.25	-	1.75	-
Striped Marlin	1	1.1	1.5	1.5	-	-	1.1

67. TTMAC noted that the scientific member, Dr Robert Campbell, had completed an analysis of the landed weight data for the tuna quota species in the ETBF, revealing the more accurate range was 1.23-1.25. He concluded that a Headed and Guttled (H&G) conversion fact of 1.25 was more appropriate than the current 1.5. This conclusion was reviewed and endorsed by TTRAG. TTMAC further noted that very little of the historical catch of tuna had been landed headed and gutted so there would be no impact on historical data in the fishery.
68. TTMAC agreed to also endorse an H&G conversion factor of 1.25 for Albacore, Yellowfin and Bigeye Tuna and recommended that AFMA make the adjustment formally.
69. In relation to the billfish quota species, TTMAC noted that AFMA does not intend to review the conversion factors for Broadbill Swordfish or Striped Marlin at this stage. Historical data for Striped Marlin is in H&G form using the conversion

factor of 1.5 and altering this factor now will impact the historical estimates of catch. TTMAC recommended that TTRAG request Dr Campbell to look at historical Striped Marlin data to determine the potential level of impact an adjustment may make (**TTMAC 15, Actions Arising 3**).

3.4: ERA outcomes

70. The AFMA observer, Dr Don Bromhead, provided a presentation to TTMAC outlining the key outcomes of the recent Ecological Risk Assessment (ERA) for the ETBF. TTMAC noted that a new process and guidelines have now been developed and the ETBF was chosen to be a test case for running the new assessment process. The previous ERA for the ETBF was done in 2006/07 so it has been some time since TTMAC has considered an ERA in detail.
71. TTMAC further noted that the new ERAs will be completed every five years unless monitoring triggers are activated during that time. There is also now a new online tool linked to the ERA that is being developed by CSIRO and it allows different management response scenarios to be explored by fishery managers. In this way, greater understanding can be gained of the ERA process and how various management responses or mitigation may help to reduce or alter the risk of an impact from fishing to a species.
72. The AFMA observer ran through the preliminary results of the ETBF ERA. The level 1 SICA analysis quantitatively considered all categories for the fishery:
 - a) Key commercial and secondary commercial species;
 - b) Byproduct and bycatch species;
 - c) Protected species; and
 - d) Habitats and Communities.
73. At level 1, habitats were eliminated as there were no risk scores greater than 2. There was a suggestion from the AFMA observer that for species categories, a Level 1 SICA analysis may not be necessary in future iterations of the ETBF ERA process as these categories can be expected to result in consequence scores of 3 or higher and they therefore are automatically transitioned to the level 2 analysis. There would be a cost saving with removing this step in the process. This possibility will be discussed at the next ERA Technical Working Group (TWG) meeting.
74. For comparison, at level 1 in 2005 for the ETBF the most vulnerable target species was swordfish (score 4), while Mahi Mahi (score 3) was identified in 2016 for key/secondary commercial species with respect to fishing. Also, for the protected species component, the Shortfin Mako shark was assessed at highest potential risk with respect to fishing in 2016, compared to the flesh footed shearwater and wandering albatross in 2005.
75. The level 2 PSA and SAFE analyses evaluated a total of 111 species across all categories. Only protected species were considered using the PSA method, with 10 of 31 species assessed to be at potential high risk. These included sea birds (e.g. Southern royal albatross, Amsterdam albatross, wandering albatross, light-mantled sooty albatross) and marine mammals (melon-headed whale, New Zealand fur-seal, Australian fur-seal, common dolphin, short-finned pilot whale, long-finned pilot whale). It should be noted that a residual risk analysis has not yet been applied to the PSA results and the final risk rankings may vary

depending on the outcomes of that analysis and pending review and advice from the ERA TWG.

76. The SAFE analysis evaluated all other species, aside from protected species. No ETBF species at this level were found to fall below the SAFE limit reference point, i.e. no species were considered to be at high risk from the effects of fishing.
77. TTMAC noted that the list of protected species generated for the ETBF included some species that have never been seen or interacted with in the fishery. This is due to generalised groups being expanded to include all species. For example, where a generic "Albatross" was recorded in the AFMA database, this was expanded by CSIRO to include all albatross species that may occur in the area of the fishery. This is where the formalised residual risk process is used to consider if those species that have never been reported to have interacted with the fishery or do not have distributions that put them at high risk of capture by longline fishing, are in fact at lower risk than initially assessed via PSA and SAFE methods.
78. It was further noted by TTMAC that the ERA process, while tested on the ETBF, still needs to be reviewed by the ERA Technical Working Group and may be adjusted further in the coming months. It is anticipated that the final ERA will be fully reviewed by TTRAG prior to their meeting in March 2017. TTMAC will then be asked to provide their comments prior to the April/May meeting in 2017.
79. Members questioned the next steps once a species is confirmed to be at a genuine high risk from the effects of fishing. The AFMA observer indicated that AFMA, with advice from TTRAG and TTMAC, will need to consider management options which may include further data collection to help reduce uncertainties in the risk assessment and/or direct mitigation responses to reduce the risk posed by the fishery to high risk species.

3.5: Development of ETBF Fishery Management Strategy

80. The AFMA observer, Dr Don Bromhead, provided TTMAC with a presentation on the development of a Fishery Management Strategy (FMS) for the ETBF. This item was mainly for the information of TTMAC, but also to gain any initial comments regarding AFMA's development of such a strategy.
81. TTMAC noted that the intention of the FMS is to compile and streamline all currently separate management strategies (e.g. harvest strategy, ERM strategy, bycatch and discard workplans, data strategy etc) for the fishery into one document, including how these link and respond to current legislation, policies and guides. The FMS and its associated annual report (of performance against the FMS) should create a more efficient process for reporting and increase transparency and understanding of ETBF management across all stakeholders. AFMA is working towards adopting an ISO standard quality management system, of which an FMS will be a key component, and will contribute to AFMA gaining an agency level accreditation.
82. The AFMA member clarified to TTMAC that both the initial work on the ETBF ERA and on the development of the FMS have been government funded as they are part of the ERA and FMS "testing" process.
83. TTMAC further noted that the draft ETBF FMS should be distributed to TTMAC for comment in April 2017.

3.6: Seabird SFR condition changes

84. The AFMA member informed TTMAC that due to the implementation of e-monitoring in the ETBF, there is opportunity for various SFR conditions regarding mitigation requirements to be altered or simplified. In this regard, AFMA has edited the SFR conditions relating to seabird mitigation. The edits include:
- a) The removal of the requirement for tori lines to be deployed when setting at night, between the hours of nautical dusk and nautical dawn;
 - b) 40g weights can be placed at the hook or at no more than 0.5 metres from each hook; and
 - c) “Smart Tuna Hooks” may be used as an alternative and should be deployed directly at the hook.
85. AFMA advised that advice was sought from the Department of Environment and they gave their approval for these changes.
86. TTMAC endorsed the proposed changes to the ETBF SFR conditions and AFMA advised that they will be implemented before then end of the current fishing season.

Agenda Item 4: Other Information/Discussion Items

4.1: Swordfish research

87. TTMAC noted that a research project proposal is being developed by AFMA, CSIRO and Tuna Australia to investigate the availability of swordfish further offshore, east of 165°E. There is continued uncertainty regarding connectivity and genetics of the swordfish stock in the WCPO and it is intended that genetic samples will also be collected as part of the proposed project. Further information will be provided to TTRAG and TTMAC once the proposal has been finalised.

4.2: US import regulations update

88. Mr Stuart Curran from the Department of Agriculture and Water Resources (DAWR) attended TTMAC and presented on this agenda item. He informed TTMAC that the United States (US) are changing their import arrangements and require countries to reduce their bycatch of marine mammals in relation to fishing in order to continue exporting fish and fish products to the US. These arrangements will come into effect from 1 January 2017, however there is a 5-year implementation period for the US and other countries to adjust their arrangements and meet US standards.
89. Under these new arrangements, harvesting nations must apply for and receive a “comparability” finding. In order to receive a favourable finding, harvesting nations must demonstrate that their regulatory program is comparable in effectiveness to US standards in relation to marine mammal protection. The main concern for Australia is that the US strategy for managing marine mammal interactions in its fisheries uses the concept of Potential Biological Removal (PBR), where most nations, including Australia, do not. PBR’s set an upper “limit” on the number of marine mammals that is able to be interacted with (killed or seriously injured) without impacting on that marine mammal stock. Once this limit is breached, this then invokes some sort of management intervention. It is unclear at this stage, if

PBR as a management strategy will be mandated by the US. Australia does not intend to introduce PBRs as a management method.

90. TTMAC noted this issue and acknowledged that further information and clarification is required from the US in terms of their longer term plans and their expectations. Mr Curran stated that the government will work with the US over the coming year and provide them with all relevant information on our current management of marine mammals. He also advised that industry can visit the NOAA website to obtain further information; <http://www.nmfs.noaa.gov/pr/laws/mmpa/>, but the DAWR will continue to communicate progress on this issue with all relevant stakeholders.

4.3: Hammerhead sharks EPBC Act listing assessment

91. TTMAC noted that Hammerhead Sharks may be being listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as threatened species. If this listing occurs, fishers will no longer be able to take, keep or trade these three species (Great Hammerhead, Smooth Hammerhead and Scalloped Hammerhead).
92. All three hammerhead species are currently listed under Appendix II of the Convention on the International Trade of Endangered Species of Wild Fauna and Flora (CITES). Export of these species requires an export permit and that the fishery in which they are taken has a Wildlife Trade Operation (WTO). Both the Eastern Tuna and Billfish Fishery and the Western Tuna and Billfish Fishery have WTO approval (List of Exemption Native Species exemptions) for hammerhead sharks.
93. The AFMA member advised that AFMA can pursue a “conservation dependent” listing instead of a “vulnerable/endangered” listing if we can show that we have a management plan for them, however the cost to do this would be very high. Hammerhead shark take across AFMA fisheries is generally low and any sharks landed have low commercial value.

4.4: E-monitoring update

94. TTMAC noted the update on e-monitoring provided by the AFMA member. He stated that e-monitoring is largely picking up the discards of all species except for Yellowfin Tuna, Blue Sharks and Lancetfish, as the discards often occur outside of the camera view or they are difficult to identify. It is also very difficult to obtain accurate species identification of Blue and Black Marlin that are discarded.
95. Overall, there has been a large percentage increase in the reporting of discards and protected species in logbooks. The majority of protected species are being released alive. In comparison, the reporting of quota species in logbooks has not changed dramatically, indicating that these species reporting has been fairly accurate. In this way, the e-monitoring program has met its primary objective.
96. TTMAC further noted that there are still ongoing issues relating to AIS and VHF interference with the e-monitoring systems on boats and AAP are continuing to work to resolve these issues.

4.5: Environment update

97. The environment update provided by AFMA was noted by TTMAC. The key points raised were that the fishery LENS exemptions granted by the Department of

Environment relating to the export and trade of wildlife may be extended from 5 years to 10 years and this is a possibility for the ETBF and WTBF. It was also highlighted that interactions with protected species that are reported to the Department of Environment by AFMA were originally recorded by human observers, but now they are being recorded through logbooks. This indicates that the past protected species interaction rates were likely higher than what was estimated.

4.6: 2015/16 budget acquittals and CRIS update

98. TTMAC noted that the ETBF budget in the 2015/16 financial year was overspent by approximately \$65000, largely due to increased effort (number of hooks set) and the subsequent increase in e-monitoring analysis. AFMA indicated that this overspend would have been much higher if human observers were still in place.
99. It was further noted by TTMAC that the first instalment of levies will be due in early January 2017.
100. The AFMA member further advised that the proposed 2016 Cost Recovery Impact Statement (CRIS) was not agreed before the federal election and subsequently, AFMA is still operating under the 2010 CRIS. The 2016 CRIS would have led to increased costs in the ETBF and WTBF of approximately 8-10%. It is still possible that the 2016 CRIS will be approved and in effect for the 2017/18 financial year.

4.7: Fishery Catch Data – 2016/17 Season

101. TTMAC noted the 2016/17 season catch of the quota species and Blue and Black marlin in the ETBF and WTBF to date, as recorded in daily fishing logbooks and catch disposal records.

4.8: Productivity Commission Review

101. TTMAC noted that the Government has asked the Productivity Commission to inquire into Australian wild capture fisheries and aquaculture, with the focus on wild capture fisheries. An inquiry and public hearing have been held, the outcomes of which are on the website; <http://www.pc.gov.au/inquiries/current/fisheries-aquaculture/submissions>. The final report of the Commission's findings is due to be tabled in parliament in late 2016. There are a number of broad recommendations largely relating to the management of recreational fishing included in the draft report, but there are none that directly relate to the tuna fisheries.

Agenda Item 5: Other business

102. No additional items were raised under other business.

Agenda Item 6: Date and venue for next meeting

103. TTMAC agreed that the next meeting should be held in April or May 2017 subject to the appointment and availability of MAC members. It was agreed that a

date and schedule of meetings (MAC/RAG/other) would be determined prior to Christmas.

Catherine Sayer

TTMAC Chair, November 2016

Attachment A

Tropical Tuna Fisheries Management Advisory Committee (TTMAC) 15

AFMA Aquarium room

Canberra

3 November 2016 (8:30am – 5.30pm)

DRAFT AGENDA

1. Preliminaries/Matters Arising

- 1.1. Welcome and apologies
- 1.2. Adoption of agenda
- 1.3. Declarations of interests
- 1.4. Acceptance of Minutes from TTMAC 14
- 1.5. Actions Arising from TTMAC 14
- 1.6. Intersessional correspondence between TTMAC 14 and TTMAC 15

2. Background Information/Discussion Items

- 2.1. AFMA Management report on the ETBF and WTBF fisheries
- 2.2. WCPFC update
- 2.3. FFA annual meeting update
- 2.4. Tuna Australia / Industry update
- 2.5. General update from members, invited participants and observers

3. Consideration/Decision Items

- 3.1 ETBF Total Allowable Commercial Catch
- 3.2 ETBF & WTBF over/under catch for 2017/18 season
- 3.3 Review of conversion factors
- 3.4 ERA outcomes
- 3.5 Development of ETBF Fishery Management Strategy
- 3.6 Seabird SFR condition changes

4. Other Information/Discussion Items

- 4.1. Swordfish research
- 4.2. US import regulations update
- 4.3. Hammerhead sharks EPBC Act listing assessment
- 4.4. E-Monitoring Update
- 4.5. Environment update
- 4.6. 2015/16 budget acquittals and CRIS update
- 4.7. Fishery Catch Data – 2016/17 Season to date
- 4.8. Productivity Commission Review

5. Other Business

Date and venue for next meeting

Attachment B

TTRAG Advice for the Eastern Tuna and Billfish Fishery in the 2017/18 Season

October 2016

Overview

Eastern Tuna and Billfish Fishery (ETBF)

TTRAG is providing RBCC advice using the Harvest Strategy with caveats for both SWO and STM. For YFT, BET and ALB, TTRAG is providing stock status advice based on fishery indicators.

In providing this advice, TTRAG took into consideration the information about the ETBF catch relative to the catch of other fleets in Region 5. The proportion of the ETBF catch in Region 5 (south of 10°S and west of 170°E as shown in Figure 1) is different for each species – SWO (69.6%), STM (66.5%), YFT (16.5%), BET (30.7%), and ALB (6.2%) in 2015 respectively. (TTRAG noted that the catch estimates in Region 5 for 2015 are provisional). If the estimated catch (assuming a 20% mortality for tagged and released fish) of the recreational sectors in Australia and New Zealand is included then the proportion of the ETBF catch in Region 5 for striped marlin is 56.3%.

For YFT, BET and ALB the proportion of the ETBF catch is not high enough to allow the harvest strategy to function and hence the objectives of the Harvest Strategy Policy will not be achieved. TTRAG has provided a range of fishery indicators based on the most recent stock assessments, catches in Region 5 and a suite of indicators from the ETBF.

AFMA should also note the March 2016 advice from TTRAG on a potential increase of the TACC for YFT (see Appendix A).

TTRAG applied the HS and identified a RBCC for SWO and has high confidence in the use of the harvest strategy for the provision of effective management advice for SWO. TTRAG concluded that, if the recent proportion of the SWO catch within Region 5 taken by the ETBF is maintained, then the harvest strategy can achieve its objectives. TTRAG is uncertain at what proportion the harvest strategy will become ineffective in achieving the objectives of the Commonwealth Harvest Strategy Policy. If changes made to catches for SWO in the ETBF are offset by increases in the catches by other commercial and recreational fleets, then these changes need to be taken into consideration.

TTRAG applied the HS and identified a RBCC for STM, but had low confidence in the use of the harvest strategy for the provision of effective management advice for STM. More recent MSE testing of the HS indicates a continual decline in management effectiveness as the ETBF catch as a proportion of the Region 5 total declines.

TTRAG noted that there has been a substantive increase in the catch of SBT over recent years (>500t in 2015). However, the outcome of the CPUE standardisation and

the RBCC results were not sensitive to a re-analysis where all sets catching at least one SBT had been removed from the data used in the standardisation analyses.

TTRAG noted a significant increase in the Region 5 catch attributed to the longline fishery in the Solomon Islands over the past 2 years (with the catch of the three tuna species by this fleet being between 40-50% of the total Region 5 catch in 2015).

Western Tuna and Billfish Fishery (WTBF)

TTRAG noted that there are currently only 2 active boats in the fishery. As no new information on western tuna stocks has become available, TTRAG stated that they cannot provide any further stock status advice for this fishery at this time.

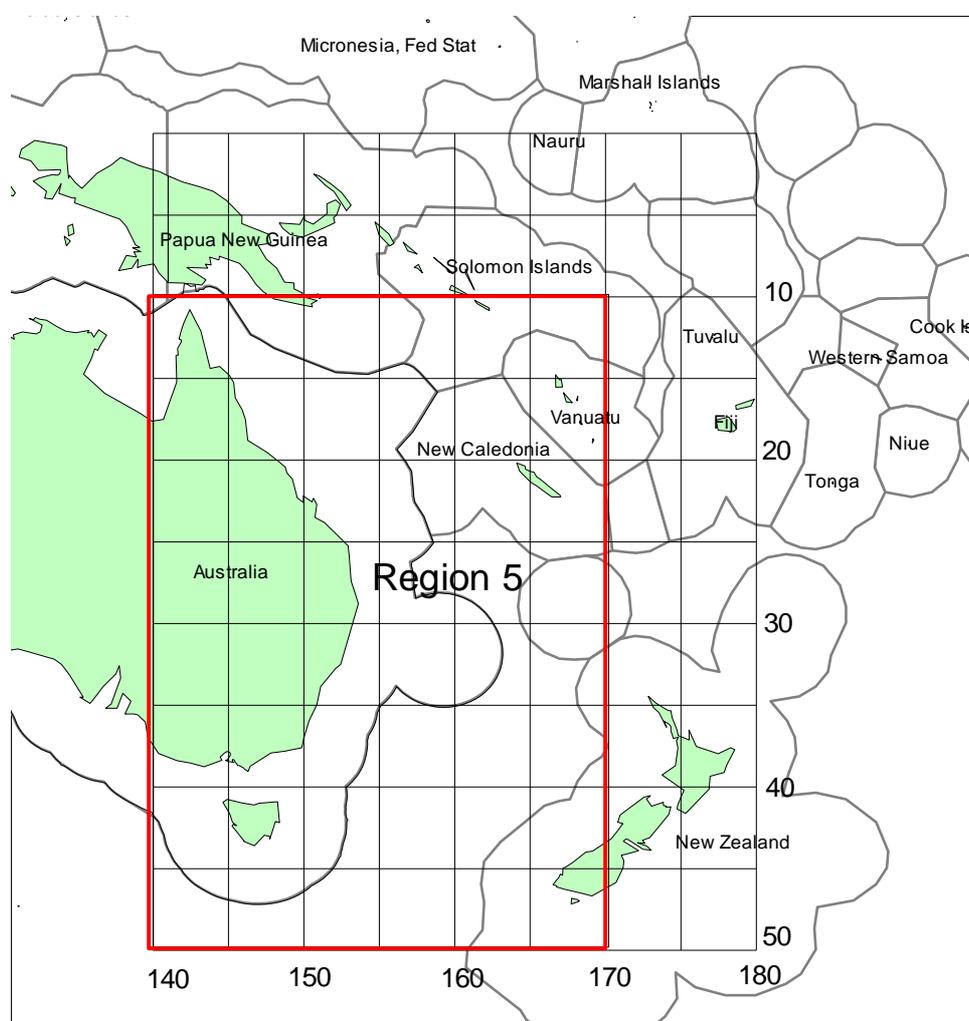


Figure 1. Map of the southwest Pacific Ocean showing the area known as Region 5 used in the provision of management advice.

Broadbill Swordfish (SWO)

- Current TACC: 1,373t
- ETBF catch in 2015/16 quota year (CDR based): 1,232t (8.0% higher than the 1,141t catch in 2014/15 quota year)
- 2015 catch in WCPFC Statistical Area south of the equator: 8,353t (provisional, 16.7% lower than the 10,028t catch in 2014, and 10.9% lower than the average over the past decade).
- 2015 catch in Region 5 (south of 10°S and west of 170°E): 1,377t (provisional). The ETBF catch was 69.6% of this total and has averaged 65.7% over the past 5 years (based on logbook¹ data supplied by SPC).
- **Level of confidence with the current harvest strategy for the provision of effective management advice for the ETBF: High.**
- The outcome from the harvest strategy is 1,285t (-6.4%).

1. Catch weights recorded on logbooks usually consistently under-estimate actual catch weights. Hence CDR (Catch Disposal Record) weights, which are based on fish receiver weights, will be higher than logbook weights. While the true difference remains uncertain a difference of around 15% is not uncommon.

Applicability of harvest strategy

TTRAG endorsed using a domestic harvest strategy to recommend an RBCC for Broadbill Swordfish based on:

- i) scientific advice that there is a separate south-western Pacific stock;
- ii) Australia being a major player in the Broadbill Swordfish fishery targeting that stock;
- iii) results from archival tagging suggesting movements are predominantly north-south (up and down the coast) as opposed to east-west;
- iv) results from the Management Strategy Evaluation (MSE) report indicating management actions by Australia have the potential to impact on the status of the stock; and
- v) industry members' recognition that the level of the domestic catch does impact on the stock, as evidenced by past local depletion by the Australian fleet.

TTRAG agreed that the revised CPUE standardisations adequately reflect changes in fishing practices in the fishery, but may not adequately account for shifts in oceanographic conditions (e.g. the recent strong El Nino).

TTRAG noted there had been a significant decline in the LOWESS-smoothed standardised CPUE for prime sized Broadbill Swordfish between 1997 and 2003, followed by a recovery to 2008 after the application of a 1,400t catch limit in 2006 (c.f. Figure SWO-1b). TTRAG further noted that this CPUE indicator for prime-sized Broadbill Swordfish was stable between 2008 and 2013 but has since decreased and in 2015 was below the target CPUE ($78\%CPUE_{\text{targ}}$). The standardised-CPUE for large-sized Broadbill Swordfish (>68 kg DWT) has been stable since 2008; however the standardised-CPUE for small-sized Broadbill Swordfish (< 20kg DWT) has been decreasing since 2008 and is currently at a historical low (since 1997, c.f. Figure SWO-1a).

TTRAG also noted that the spatial extent of the fishery has contracted considerably over the past decade (both from the east and the south) and concern was raised that the same level of catch being taken from a smaller area may lead to local depletion.

Based on the average processed weight of Broadbill Swordfish and the number of fish recorded in logbooks from 1997 to 2005 and CDR weights since 2006, the average annual Broadbill Swordfish catch during the period 1997 to 2015 was 1,710t. The smallest catch over this period was 1,064t (in 2013) and the highest 2,823t (in 1999). The average CDR catch between 2006 and 2008, a period of rebuilding of the resource, was 1,324t. The average CDR catch over the past 5 years has been 1,128t.

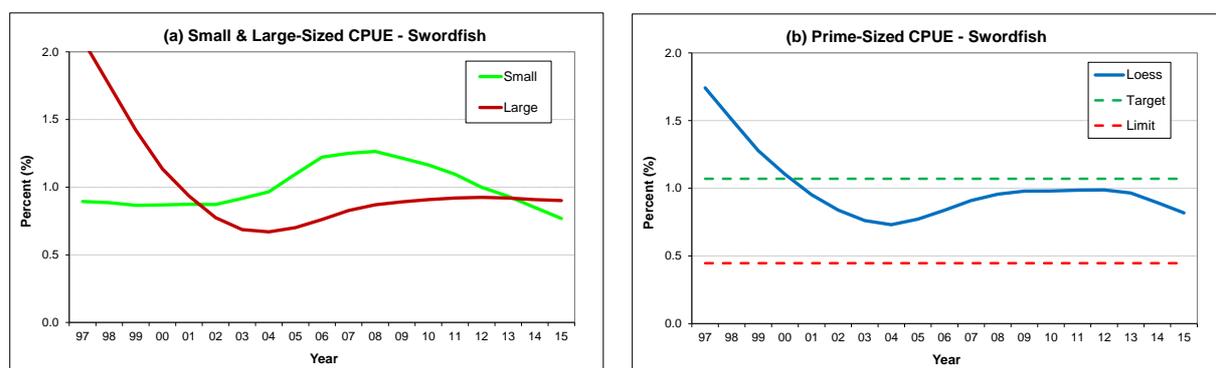


Figure SWO-1. LOWESS-smoothed standardised CPUE for (a) small-sized and large-sized and (b) prime-sized Broadbill Swordfish (scaled so that the mean of the each index over the period shown is 1). The target and limit CPUE reference values are also shown for prime-sized fish.

ETBF catch proportions

South-west Pacific scenario: In 2015 the ETBF catch was 69.6% of the total catch within Region 5 (c.f. Figure SWO-2).

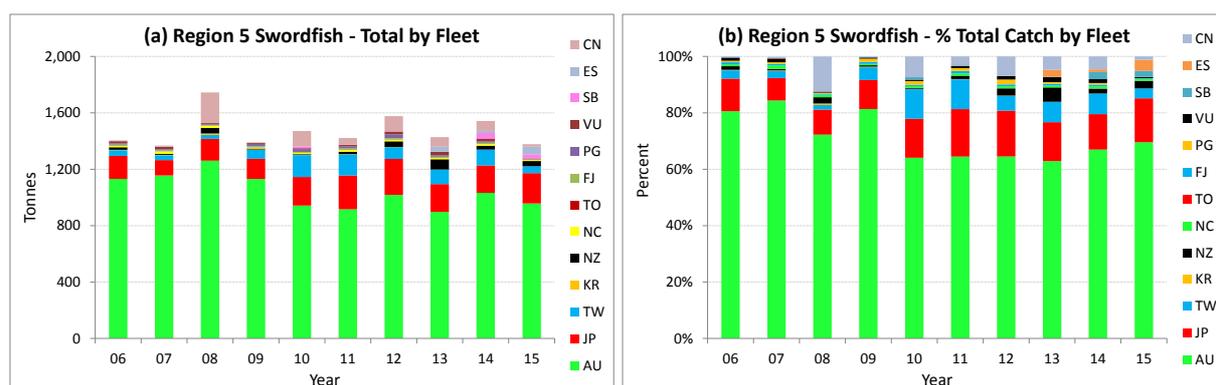


Figure SWO-2. (a) Total annual catch of Broadbill Swordfish by fleet within Region 5, and (b) the percentage of the total annual catch of Broadbill Swordfish by fleet within Region 5.

The current proportion of the ETBF catch compared with the total catch in both Region 5 and the broader south-west Pacific highlights that the harvest strategy for Broadbill Swordfish should be effective in achieving the objectives of the Commonwealth Harvest Strategy Policy. The TTRAG can provide advice on the

RBCC under the harvest strategy with caveats. TTRAG noted that the proportion of the ETBF catch in Region 5 has changed from around 80% between 2006 and 2009 to 66% over the past 5 years (2011-2015). Although TTRAG noted that the proportion taken by the ETBF increased to 70% in 2015, it also noted that if a decreasing trend continues then this could negate the future ability of the HS to effectively manage total fishing mortality in Region 5, particularly if changes made to catches in the ETBF are offset by increases in the catches by other fleets.

Stock structure

The results of genetic studies support a separate south-western Pacific stock of Broadbill Swordfish. TTRAG therefore considered that Broadbill Swordfish is a single stock within the south-west Pacific. Over the past 5 years the ETBF catch as a proportion of the total catch in the WCPFC Statistical Area south of the equator has averaged 10.1%.

Stock status

Last assessment: 2013

Overfished: No

Overfishing: Uncertain

TTRAG noted that the last stock assessment for south-west Pacific Broadbill Swordfish was undertaken in 2013. Two different growth models, one from Australia and the other from Hawaii, were included in alternative model runs and the Scientific Committee (SC9) concluded that the assessment outcomes (and the estimates of current stock status) were highly sensitive to these alternative growth assumptions. Assessment runs using the Australian growth data indicated that overfishing was occurring but that the stock was not in an overfished state. Assessment runs using the Hawaiian growth data indicate that no overfishing is occurring and that the stock is not in an overfished state. SC9 could not decide which of these two assumptions was more reliable. Although the median of the uncertainty grid indicates that overfishing ($F_{current}/F_{MSY} = 0.74$, where *current* refers to the period 2007-2010) was not occurring, those sensitivity runs that used the Australian growth and maturity schedule indicate that overfishing may be occurring (grid range 5th–95th percentiles: 0.51-2.02). The equivalent grid range for the Hawaii schedule was 0.25 – 0.97. Across the uncertainty grid of 378 runs, where the Hawaii schedule was assumed the probability of $F_{current}/F_{MSY}$ being greater than 1.0 was less than 3%, while when the slower Australian schedule was assumed 54% of runs estimated the stock to be experiencing overfishing. TTRAG noted that a research project to resolve this issue has been completed (indicating that the growth and maturity schedules for the Australian fish, while still different, are closer to those for the Hawaiian fish) and those results will be included in the next assessment. The updated assessment results may have implications for the ETBF harvest strategy which is due for review in 2017.

Next assessment: 2017

Management advice from the WCPFC-Scientific Committee

The 2016 WCPFC Scientific Committee meeting (SC12) noted that no updated assessment or management advice has been provided since SC9. Therefore, the

advice from SC9 should be maintained, pending a new assessment or other new information.

The 2013 WCPFC Scientific Committee meeting (SC9) recommended that given the current uncertainty in the assessment that the Commission adopt a precautionary approach when considering future management arrangements. Given this, SC9 recommends that there be no increase in fishing mortality over current (2007-2010) levels. Noting that recent catches between the equator and 20° S now represent the largest component of the catch in Region 2 (equator to 50° S, 165° E to 130° W), SC9 recommends that the Commission consider developing appropriate management measures for this Region which is not covered by CMM 2009-03.

State catches

Negligible based on advice from industry members.

Recreational catches

Currently very small. A small recreational fishery has recently developed off eastern Tasmania.

Whole of government position

Not available.

Status of stock in relation to the Commonwealth Harvest Strategy Policy (CHSP)

If the CHSP interpretation to stock status is applied to the southwest Pacific Broadbill Swordfish stock, the average spawning biomass between 2007 and 2010 is depleted to ~55% of the biomass that would exist in the absence of fishing based on the Hawaiian growth and maturity life histories, and ~41% based on the Australian growth and maturity life histories.

Striped Marlin (STM)

- Current TACC: 351t
- ETBF catch in 2015/16 quota year (CDR based): 320t (8.3% higher than the 295t catch in 2014/15 quota year).
- 2015 catch in WCPFC statistical area south of the equator: 1,483t (provisional, 5.0% lower than the 1,561t catch in 2014, and 11.4% lower than average over the past decade).
- 2015 commercial catch in Region 5 (south of 10°S and west of 170°E): 487t (provisional). The ETBF catch was 66.5% of this total and has averaged 51.4% over the past 5 years (based on logbook¹ data supplied by SPC). When the estimated catch (assuming a 20% mortality for tagged and released fish) of the recreational sectors in Australia and New Zealand is included, the proportion of the ETBF catch in Region 5 for striped marlin is 56.3% in 2015 (and has averaged 43.1% over the past 5 years).
- **Level of confidence with the current harvest strategy for the provision of effective management advice for the ETBF: Low**
- The outcome from the harvest strategy is 332t (-5.4%).

1. Catch weights recorded on logbooks usually consistently under-estimate actual catch weights. Hence CDR (Catch Disposal Record) weights, which are based on fish receiver weights, will be higher than logbook weights. While the true difference remains uncertain a difference of around 15% is not uncommon.

Applicability of harvest strategy

TTRAG was uncertain on the use of the domestic harvest strategy to recommend a Striped Marlin RBCC, based on:

- i) TTRAG noted that the ETBF catch as a proportion of the total Region 5 commercial catch in Region 5 has averaged only 51.4% over the past 5 years.
- ii) When the estimated catch (assuming a 20% mortality for tagged and released fish) of the recreational sectors in Australia and New Zealand (~16% of the Region 5 catch in 2014) is added to the total commercial catch in Region 5 then the proportion of the total catch of striped marlin in Region 5 taken by the ETBF has averaged only 43.1% over the last 5 years.
- iii) Recent MSE testing (Hillary et al, in prep) suggests that at recent ETBF (and non-ETBF) catch levels, the harvest strategy will likely be effective in moving the fishery towards the target CPUE level, providing recommended RBCCs for the ETBF are adopted.
- iv) TTRAG noted that, in effect, the HS aims to steer the population to a level that can sustain an aggregate Maximum Economic Yield (MEY) for the regional fishery. Without a regional mechanism/agreement for catch sharing, the HS reduces regional overfishing by prescribing unilateral catch reductions to the ETBF only, thus preventing the fishery from meeting domestic economic objectives. The HS should maintain the population near the level that can sustain regional MEY, as long as the non-ETBF catch remains below MEY. However, as non-ETBF catches approach MEY, the HS will prescribe domestic catch levels that will approach zero.

TTRAG noted that the LOWESS-smoothed standardised CPUE for prime-sized Striped Marlin declined over the period 2000-05, increased slightly until 2009 before

again declining slightly but since 2012 has been increasing, though still remains below the CPUE target (being 82%CPUE_{targ} in 2015, c.f. Figure STM-1b). There was a significant decline in the CPUE of small-sized Striped Marlin (<54 kg DWT) between 2001 and 2010 but this index has increased significantly over the past 5 years (c.f. Figure STM-1a). The CPUE of large-sized Striped Marlin (>74 kg DWT) increased in the late 1990s, declined over the period 2000-05, increased slightly until 2010, then declined again but has been stable since 2013 (c.f. Figure STM-1a).

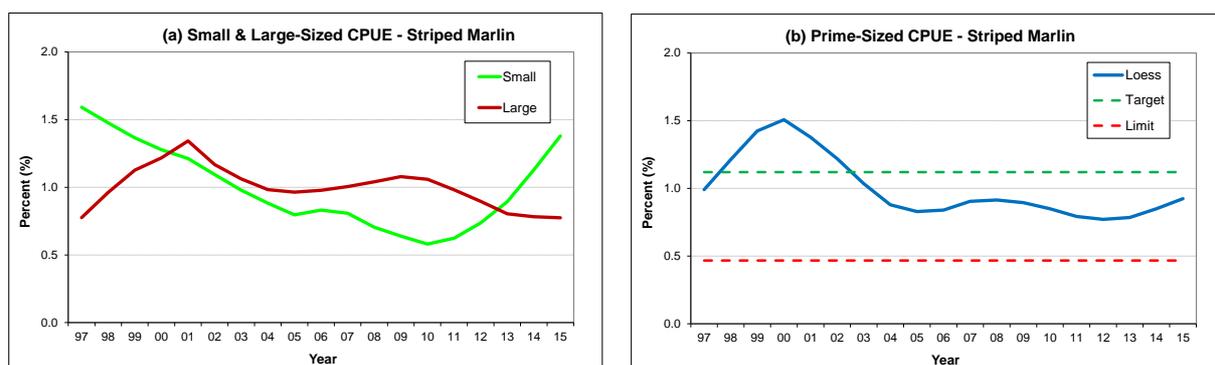


Figure STM-1. LOWESS-smoothed standardised CPUE for (a) small-sized and large-sized and (b) prime-sized Striped Marlin (scaled so that the mean of the each index over the period shown is 1). The target and limit CPUE reference values are also shown for prime-sized fish.

Based on the average processed weight of Striped Marlin and the number of fish recorded in logbooks for the period 1997-2005 and CDR recorded total catch weights since 2006, the average annual catch of Striped Marlin during the period 1997 to 2015 was 470t. The minimum catch over this period was 251t (in 2013) and the maximum was 859t (in 2001).

ETBF catch proportions

South-west Pacific scenario: In 2015 the ETBF catch was 66.5% of the total commercial catch within Region 5, and 56.3% if one includes the estimated mortalities from the Australian and New Zealand recreational sectors (c.f. Figure STM-2). Over the past 5 years these proportions have averaged 51.4% and 43.1% respectively.

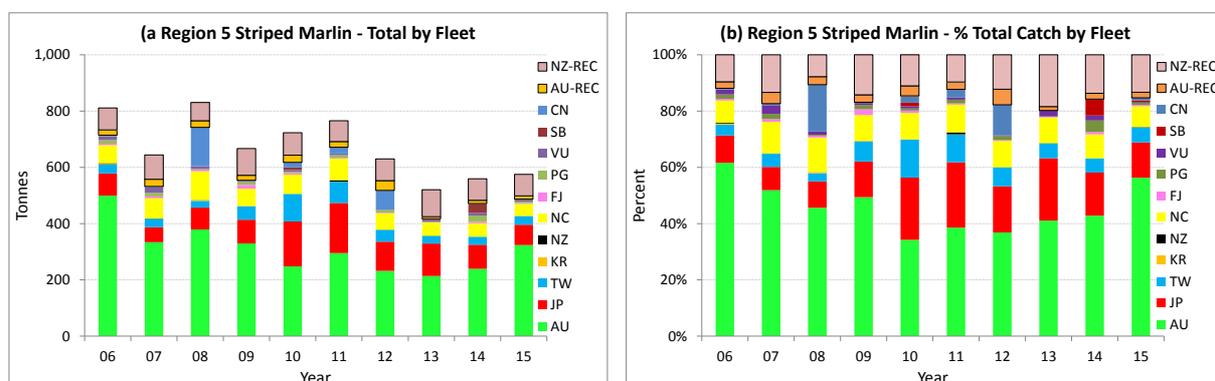


Figure STM-2. (a) Total annual catch of STM by fleet within Region 5, and (b) the percentage of the total annual catch of STM by fleet within Region 5 (including Australian and New Zealand recreational sectors).

Stock structure

The results of genetic studies support a separate south-western Pacific stock of Striped Marlin. TTRAG therefore considered that Striped Marlin is a single stock within the south-west Pacific. Over the past 5 years the ETBF catch as a proportion of the total catch in the WCPFC Statistical Area south of the equator has averaged 16% (and 18% if the recreational catches in Australia and New Zealand are included).

Stock status

Last assessment: 2012

Overfished: Uncertain

Overfishing: No

TTRAG noted that the last stock assessment for Southwest Pacific Striped Marlin was undertaken in 2012.

The base case assessment model selected by SC8 (2012) indicates $SB_{current}/SB_{F=0} = 0.34$ and $SB_{current}/SB_{MSY} = 0.87$ (where *current* refers to the period 2007-2010). The range across the six sensitivity models selected by SC8 was 0.32-0.44 and 0.67-1.14 respectively (with the latter being greater than 1 for only one of the models). Therefore, SW Pacific striped marlin may be in an overfished state. The base case model also indicates $F_{current}/F_{MSY} = 0.81$ with a range across the seven models considered of 0.51–1.21 (being greater than 1 for only one of the models). This indicates that overfishing is unlikely occurring for SW Pacific striped marlin.

SC8 also noted that recent catches are close to MSY, and that recent fishing mortality is slightly below F_{MSY} , and that recent spawning biomass is slightly below SB_{MSY} . The recent catch increase is driven in part by increases in catch in the northern area of the stock that is not subject to the current WCPFC CMM (Conservation Management Measure) for this stock.

Next assessment: 2018

Management advice from the WCPFC-Scientific Committee

The 2016 WCPFC Scientific Committee meeting (SC12) noted that no updated assessment or management advice has been provided since SC8. Therefore, the advice from SC8 should be maintained, pending a new assessment or other new information.

The 2012 WCPFC Scientific Committee meeting (SC8) recommended measures to reduce overall catch of this stock, through the expansion of the geographical scope of CMM 2006-04 to cover the distribution range of this stock. SC8 also recommended that in designing such a measure the Commission may need to consider the historic trends in the fishery, including the catch declines in the traditional central and southern areas and the recent catch increases in the northern areas. SC8 recognised that Striped Marlin is often caught as a non-target species. SC8 therefore recommended that data analyses be conducted to identify areas of high catch concentration that could be subject to targeted management.

State catches

Negligible, based on advice from industry members.

Recreational catches

Unknown, but 567 fish reported tagged in 2014. This is a decline on the ~1100 fish tagged per year in Australia over the previous four years. In New Zealand, about 800-1000 fish are tagged per year. Post-release mortality is uncertain but has been assumed to be 20%. Information on recreational catches in 2015 was not available.

There is probably a substantial landed catch by non-club recreational fishers. The Australian club landed catches are about 100 fish per year.

Whole of government position

Not available.

Status of stock in relation to the Commonwealth Harvest Strategy Policy (CHSP)

If the CHSP interpretation to stock status is applied to the southwest Pacific Striped Marlin stock, the average spawning biomass between 2007 and 2010 is depleted to ~34% of the biomass that would exist in the absence of fishing (based on the base case model selected by SC8).

Yellowfin Tuna (YFT)

- Current TACC: 2,200t
- ETBF catch in 2015/16 quota year (CDR based): 2,376t (36.2% higher than the 1,745t catch in 2014/15 quota year).
- 2015 catch in the WCPFC Statistical Area: 605,963t (provisional, second highest on record and 2.4% higher than the 591,701t catch in 2014, and 8.8% higher than average over the past decade).
- 2015 catch in Region 5 (south of 10°S and west of 170°E) of the WCPFC stock assessment: 11,612t (provisional). The ETBF catch was 18.5% of this total and has averaged 16.9% over the past 5 years (based on logbook¹ data supplied by SPC).
- In response to the AFMA Commission’s request to not provide RBCC advice based on the HS, TTRAG is providing stock status advice based on fishery indicators.
- **AFMA should note the March 2016 advice from TTRAG on a potential increase of the TACC for YFT (see Appendix A).**

1. Catch weights recorded on logbooks usually consistently under-estimate actual catch weights. Hence CDR (Catch Disposal Record) weights, which are based on fish receiver weights, will be higher than logbook weights. While the true difference remains uncertain a difference of around 15% is not uncommon.

Indicators

A summary of the main indicators is found in the table below.

Indicator	Comment
Stock	Considered a single stock in the Western and Central Pacific Ocean (WCPO) – connectivity between ETBF and equatorial regions uncertain but may be small. Over the period 2011-2015 the ETBF catch as a proportion of the total catch in the WCPO has averaged 0.30%.
WCPO ¹ Stock Assessment	<p>Last assessment: 2014².</p> <p>Overfished³: No</p> <p>Overfishing⁴: No</p> <p>The base case assessment model selected by SC10 (2014) indicates $SB_{current}/SB_{F=0}=0.42$ and $SB_{current}/SB_{MSY}=1.37$. The range across the three sensitivity models selected by SC10 was 0.34-0.44 and 1.15–1.68 respectively. Therefore, yellowfin tuna is not considered to be in an overfished state.</p> <p>The base case model selected by SC10 indicates $F_{current}/F_{MSY}=0.72$. The range across the three sensitivity models selected by SC10 was 0.58 – 0.90. Therefore, overfishing is not considered to be occurring for yellowfin tuna.</p> <p>Updated short-term projections presented to SC12 (2016) based on the assessed status in 2012, recorded catch and effort levels for the period 2013-2015 and continuation of 2015 levels in 2016, and recent estimated recruitments indicated that the yellowfin stock was projected to increase with $F_{2016}/F_{MSY}=0.80$; $SB_{2016}/SB_{F=0}=0.49$.</p> <p>Next assessment: 2017.</p>

Indicator	5-Year Trend	Comment
Region 5 Catch	Initial decline then increase in 2015	Decrease (27%) in catch from 2011 to 2012, relatively stable from 2012 to 2014 then increase (15%) in 2015. Catch in 2015 was 2.5% higher than the 2011-15 average. TTRAG noted a significant increase in the catch attributed to the longline fishery in the Solomon Islands over the past 2 years (being ~50% of the total Region 5 catch in 2015).
ETBF Proportion of Region 5 Catch	Initial decline then increase.	Decrease (12.7% to 10.6% of total catch) from 2011 to 2012 followed by an increase to 14.4% in 2014 and 16.5% in 2015. Average of 16.9% over the past 5 years. For the longline component, variable between 2011 and 2015 (ranging between 13.2%-19.0%). Average of 16.1% over the past 5 years.
Region 5 depletion	61.6% $B_{F=0}$ 52.3% $SB_{F=0}$	Averaged over 2008-2011 and based on the 2014 WCPO assessment though this regional estimate is considered to be less reliable.
ETBF Catch	Initial decline followed by successive increases.	A large decrease (42%) between 2011 and 2012 followed by three successive increases of 7%, 25% and 29% over the next three years leading to a 5-year high catch of 2,183t in 2015, being 27% higher than the 2011-15 average.
ETBF Standardised CPUE	Increasing, 2015 above average over last 5 years for all size classes	High inter-annual variability. CPUE of small-sized fish in 2015 is 23% above the mean over the previous 5 years (2010-14), CPUE of prime-sized fish is 31% higher, while CPUE of large-sized fish is 22% higher. CPUE of small-sized fish over the past 5-years (2011-15) is 14% below the mean over all years since 2000, CPUE of prime-sized fish is 8% higher, while CPUE of large-sized fish is 39% higher.
ETBF Weights	Stable	The mean and lower 5 th and upper 95 th percentiles of the processed weight distribution show no long term trends.
State Catches	Negligible	Assumed to be very small.
Recreational Catches	Unknown	About 500 fish tagged per year in last few years. The catch is likely to be reasonably large but the mortality is unknown.
Status of stock in relation to the CHSP		If the CHSP interpretation to stock status is applied to the yellowfin tuna stock within the WCPO, the spawning biomass in 2012 is estimated to be depleted to ~42% $SB_{F=0}$. Within Region 5 the spawning biomass is estimated to be depleted to ~52% $SB_{F=0}$ though this regional estimate is considered to be less reliable

1. The WCPO area is slightly smaller than the WCPFC convention area as it excludes the overlap area in the Eastern Pacific Ocean south of the equator and east of 150°W.

2. The assessment covers the years 1952-2012.
3. The WCPFC has adopted the indicator $SB_{\text{current}}/SB_{F=0} = 0.2$ as a Limit Reference Point for YFT where in the latest assessment SB_{current} refers to the mean annual spawning biomass over the period 2008-11 and $SB_{F=0}$ is the estimated average annual spawning biomass over the period 2002-11 in the absence of fishing. No Target Reference Point has yet been adopted for YFT.
4. The indicator $F_{\text{current}}/F_{\text{MSY}}$ is used to estimate fishing pressure on the stock where in the latest assessment F_{current} is the mean fishing mortality over the period 2008-11 and F_{MSY} is the fishing mortality at Maximum Sustainable Yield (MSY).

Management advice from the WCPFC-Scientific Committee

The 2016 WCPFC Scientific Committee meeting (SC12) noted that no updated assessment or management advice has been provided since SC10. Therefore, the advice from SC10 should be maintained, pending a new assessment or other new information.

The 2014 WCPFC Scientific Committee meeting (SC10) determined that the WCPO yellowfin spawning biomass is above the biomass-based Limit Reference Point the Commission has adopted, $0.2SB_{F=0}$, and overall fishing mortality appears to be below F_{MSY} . It is highly likely that stock is not experiencing overfishing and is not in an overfished state. Latest (2014) catches of 608,807 mt in the WCPO marginally exceed the base case MSY (586,400mt).

SC10 noted that future status under status quo projections (assuming 2012 conditions) depends upon assumptions on future recruitment. When spawner-recruitment relationship conditions are assumed, spawning biomass is predicted to increase and the stock is exceptionally unlikely (0%) to become overfished ($SB_{2032} < 0.2SB_{F=0}$) or to fall below SB_{MSY} , nor to become subject to overfishing ($F > F_{\text{MSY}}$). If recent (2002-2011) actual recruitments are assumed, spawning biomass will remain relatively constant, and the stock is exceptionally unlikely (0%) to become overfished or to become subject to overfishing, and it was very unlikely (2%) that the spawning biomass would fall below SB_{MSY} .

SC10 also noted that levels of fishing mortality and depletion differ between regions, and that fishery impact was highest in the tropical region (regions 3, 4, 7, 8 in the stock assessment model). It recommended that the Commission could consider measures to reduce fishing mortality from fisheries that take juveniles, with the goal to increase to maximum fishery yields and reduce any further impacts on the spawning potential for this stock in the tropical regions. SC10 also noted that the Commission could consider a spatial management approach in reducing fishing mortality for yellowfin.

Finally, SC10 recommended that the catch of WCPO yellowfin should not be increased from 2012 levels which exceeded MSY and measures should be implemented to maintain current spawning biomass levels until the Commission can agree on an appropriate Target Reference Point.

Whole of government position

Not available.

Bigeye Tuna (BET)

- Current TACC: 1,056t
- ETBF catch in 2015/16 quota year (CDR based): 803t (57.7% higher than the 509t catch in 2014/15 quota year).
- 2014 catch in WCPFC Statistical Area: 134,084t (provisional, the 19th highest on record and 15.9% lower than the 159,489t catch in 2014, and 11.1% lower than the average over the past decade).
- 2015 catch in Region 5 (south of 10°S and west of 170°E): 2,207t (provisional). The ETBF catch was 30.7% of this total and has averaged 22.3% over the past 5 years (based on logbook¹ data supplied by SPC).
- In response to the AFMA Commission’s request to not provide RBCC advice based on the HS, TTRAG is providing stock status advice based on fishery indicators.

1. Catch weights recorded on logbooks usually consistently under-estimate actual catch weights. Hence CDR (Catch Disposal Record) weights, which are based on fish receiver weights, will be higher than logbook weights. While the true difference remains uncertain a difference of around 15% is not uncommon.

Indicators

A summary of the main indicators is found in the table below.

Indicator	Comment	
Stock	Considered a single stock in the Pacific Ocean – connectivity between ETBF and equatorial regions uncertain but may be small. Over the period 2011-2015 the ETBF catch as a proportion of the total catch in the WCPO has averaged 0.36%.	
WCPO ¹ Stock Assessment	<p>Last assessment: 2014². Overfished³: Yes Overfishing⁴: Yes</p> <p>The base case assessment model selected by SC10 (2014) indicates that $SB_{current}/SB_{F=0}=0.20$ and $SB_{current}/SB_{MSY}=0.94$. The range across the three sensitivity models selected by SC10 was 0.17-0.22 and 0.76-1.18 respectively. Therefore, WCPO bigeye tuna is currently in an overfished state.</p> <p>The base case model selected by SC10 indicates $F_{current}/F_{MSY}=1.57$ with a range across the three models considered of 1.27–1.95. This indicates that overfishing is occurring for WCPO bigeye tuna.</p> <p>Updated short-term projections presented to SC12 (2016) based on the assessed status in 2012, recorded catch and effort levels for the period 2013-2015 and continuation of 2015 levels in 2016, and recent estimated recruitments indicated no further decline in the bigeye stock with $F_{2016}/F_{MSY} = 1.11$; $SB_{2016}/SB_{F=0} = 0.17$</p> <p>Next assessment: 2017.</p>	
Indicator	5-Year Trend	Comment
Region 5 Catch	Initial decline then increase since 2013	Decrease (30%) in catch between 2011 and 2012, and further decrease (1%) to 2013, then increase (18%) to 2014 and further increase (3%) to 2015. Catch in 2015 was 3.9% higher than the 2011-15 average.

		TTRAG noted a significant increase in the catch attributed to the longline fishery in the Solomon Islands over the past 2 years (being ~40% of the total Region 5 catch in 2015).
ETBF Proportion of Region 5 Catch	Variable	Initial increase (13.8% to 25.4%) from 2011 to 2012 following by a decline to 19.0% in 2014 and then an increase to 30.7% in 2015. Average of 24.7% over the past 5 years. For the longline component, a high of 32.4% in 2015 and a low of 15.4% in 2011 and an average of 26.4% over the past 5 years.
Region 5 depletion	62.1% $B_{F=0}$ 52.8% $SB_{F=0}$	Averaged over 2008-2011 and based on the 2014 WCPO assessment though this regional estimate is not considered to be reliable.
ETBF Catch	Relatively stable, then large increase in 2015	High catches (>1000t) in 2007 and 2008. Over past 5 years catch increased (24%) between 2011 and 2012 then decreased (11%) before remaining stable in 2013 and 2014. Catch in 2015 increased strongly (61%) and was 42% higher than the 2011-15 average. A higher catch is expected in 2016.
ETBF Standardised CPUE	Increasing for Small and Prime-sized fish; decreasing for Large	High inter-annual variability. CPUE of small-sized fish in 2015 is 11% above the mean over the previous 5 years (2010-14), CPUE of prime-sized fish is 94% higher, while CPUE of large-sized fish is 32% lower. CPUE of small-sized fish over the past 5-years (2011-15) is 15% below the mean since 2000, while the CPUE of prime-sized and large-sized fish are similar. A large recruitment of small-sized fish noted in 2014 contributed to a large cohort of prime-sized fish in 2015 and has subsequently been reported as a large cohort of large-sized fish in 2016. Similar patterns of a large cohort moving through the fishery have been noted in the past.
ETBF Weights	Declining	The mean and upper 95 th percentile of the processed weight distribution show decreasing trends, while the lower 5 th percentile remains relatively stable.
State Catches	Negligible	Assumed to be very small.
Recreational Catches	Unknown	Likely to be extremely low with less than 10 fish tagged per year over the past few years.
Status of stock in relation to the CHSP		If the CHSP interpretation to stock status is applied to the bigeye tuna stock within the WCPO, the spawning biomass is estimated to be depleted to ~20% $SB_{F=0}$. Within Region 5 the spawning biomass is estimated to be depleted to ~53% $SB_{F=0}$ though this regional estimate is not considered to be reliable.

1. The WCPO area is slightly smaller than the WCPFC convention area as it excludes the overlap area in the Eastern Pacific Ocean south of the equator and east of 150°W.
2. The assessment covers the years 1952-2012.

3. The WCPFC has adopted the indicator $SB_{\text{current}}/SB_{F=0} = 0.2$ as a Limit Reference Point for BET where in the latest assessment SB_{current} refers to the mean annual spawning biomass over the period 2008-11 and $SB_{F=0}$ is the estimated average annual spawning biomass over the period 2002-11 in the absence of fishing. No Target Reference Point has yet been adopted for BET.
4. The indicator $F_{\text{current}}/F_{\text{MSY}}$ is used to estimate fishing pressure on the stock where in the latest assessment F_{current} is the mean fishing mortality over the period 2008-11 and F_{MSY} is the fishing mortality at Maximum Sustainable Yield (MSY).

Management advice from the WCPFC-Scientific Committee

The 2016 WCPFC Scientific Committee meeting (SC12) noted that no updated assessment or management advice has been provided since SC10. Therefore, the advice from SC10 should be maintained, pending a new assessment or other new information.

The 2014 WCPFC Scientific Committee meeting (SC10) noted that the spawning biomass of WCPO bigeye tuna breached the biomass LRP in 2012 ($SB_{2012}/SB_{F=0}=0.16$) and that the stock was overfished. Rebuilding spawning biomass to be above the biomass LRP will require a reduction in fishing mortality.

SC10 recommended that fishing mortality on WCPO bigeye tuna be reduced. A 36% reduction in fishing mortality from the average levels for 2008–2011 would be expected to return the fishing mortality rate to F_{MSY} . This reduction of at least 36% should also allow the stock to rebuild above the LRP over a period of time. This recommended level of reduction in fishing mortality could also be stated as a minimum 33% reduction from the 2004 level of fishing mortality, or a minimum 26% reduction from the average 2001-2004 level of fishing mortality.

SC10 noted that future status quo projections (assuming 2012 conditions) depend upon assumptions on future recruitment. When spawner-recruitment relationship conditions are assumed, spawning biomass continues to decline and the stock is very likely (94%) to remain below the LRP based on projections through 2032 ($SB_{2032}<0.2SB_{F=0}$). If recent (2002-2011) actual recruitments are assumed, spawning biomass increases and it was unlikely (13%) to remain below the LRP. Under both recruitment assumptions, it was virtually certain (100%) that the stock would remain subject to overfishing ($F>F_{\text{MSY}}$).

SC10 noted that overfishing and the increase in juvenile bigeye catches have resulted in a considerable reduction in the potential yield of the WCPO bigeye stock. The loss in yield per recruit due to excess harvest of juvenile fish is substantial. SC10 concluded that MSY levels would increase if the mortality of juvenile bigeye was reduced.

SC10 noted that fishing mortality varies spatially within the Convention Area with high mortality in the tropical Pacific Ocean and recommended that the Commission could consider a spatial management approach in reducing fishing mortality for bigeye tuna.

Considering the unavailability of operational longline data for the assessment from some key fleets, SC10 recommended that all operational data including high seas should be available for future stock assessments. The current lack of operational data for some fleets, and in particular the lack of operational longline data on the high seas hampered the 2014 assessment in a number of ways (e.g. the construction of abundance indices) and consequently hindered the SC from achieving “best practice” in the 2014 stock assessment.

Finally, SC10 recommended that the Commission consider the results of updated projections at WCPFC11, including evaluation of the potential impacts of CMM 2013-

01, to determine whether the CMM will achieve its objectives and allow the bigeye stock to rebuild above the LRP.

Whole of government position

Not available.

Albacore Tuna (ALB)

- Current TACC: 2,500t
- ETBF catch in 2015/16 quota year (CDR based): 984t (35.8% higher than 724t catch in 2014/15 quota year).
- 2015 catch in South Pacific: 68,594t (provisional; seventh highest on record and 16% lower than the 81,658t catch in 2014, and 7.7% lower than the average over the past decade).
- 2015 catch in Region 5 (south of 10°S and west of 170°E): 11,909t (provisional). The ETBF catch was 6.2% of this total and has averaged 3.9% over the past 5 years (based on logbook data supplied by SPC).
- In response to the AFMA Commission’s request to not provide RBCC advice based on the HS, TTRAG is providing stock status advice based on fishery indicators.

1. Catch weights recorded on logbooks usually consistently under-estimate actual catch weights. Hence CDR (Catch Disposal Record) weights, which are based on fish receiver weights, will be higher than logbook weights. While the true difference remains uncertain a difference of around 15% is not uncommon.

Indicators

A summary of the main indicators is found in the table below.

Indicator	Comment	
Stock	Considered single stock in the south Pacific. Over the period 2011-2015 the ETBF catch as a proportion of the total catch in the south Pacific has averaged 1.01%.	
South Pacific (SP) Stock Assessment	<p>Last assessment: 2015¹.</p> <p>Overfished²: No</p> <p>Overfishing³: No</p> <p>The base case assessment model selected by SC11 (taken as the reference model) indicates $SB_{latest}/SB_{F=0} = 0.40$ (with 90% confidence limits of 0.30-0.60) and $SB_{latest}/SB_{MSY} = 2.86$ (with 90% confidence limits of 1.75-7.03). Therefore, SP albacore tuna was not considered to be in an overfished state.</p> <p>The base case assessment model selected by SC11 indicates $F_{current}/F_{MSY} = 0.39$ (with the 90% confidence limits being 0.13-0.62). Therefore, overfishing was not considered to be occurring for SP albacore tuna.</p> <p>Next assessment: 2018.</p>	
Indicator	5 Year Trend	Comment
Region 5 Catch	Increasing with a substantive decline in 2015	<p>A large increase (28%) between 2011 and 2012 followed by further increases (8% and 3%) over the next two years to a catch high of 20,273t 2014. A large decrease (41%) to a catch low of 11,909t in 2015, being 29% below the 2011-15 average.</p> <p>TTRAG noted a significant increase in the catch attributed to the longline fishery in the Solomon Islands over the past 2 years (being ~45% of the total Region 5 catch in 2015).</p>

ETBF Proportion of Region 5 Catch	Variable	From 4.5% of total catch in 2011 and low of 2.8% in 2014, to 6.2% of the total catch in 2015, averaging 3.9% over the past 5 years. For the longline component, from 4.7% of catch in 2011 and low of 2.8% in 2014, to 6.2% of the longline catch in 2015, averaging 4.0% over the past 5 years.
South Pacific Stock depletion	40% $SB_{F=0}$	For 2013 based on the 2015 assessment.
ETBF Catch	Relatively stable, with increase in 2015.	From 2011 to 2014 the catch varied between 707t in 2012 and 774t in 2013 with an average of 747t. The 2015 catch of 951 tonnes was a 29% decrease on the catch in 2014, and was 21% above the average catch over the five year period 2011-2015.
ETBF Standardised CPUE	Stable	CPUE of all-sized fish over the past 5-years same as the mean over past 15 years.
ETBF Weights	Slight increase	The mean and lower 5 th and upper 95 th percentiles of the processed weight distribution show variable but slightly increasing trends.
State catches	Negligible	Assumed to be very small.
Recreational catches	Unknown	About 331 fish were reported tagged in 2014. This is considerably lower than the 1200 per year reported tagged in the previous few years.
Status of stock in relation to the CHSP		If the CHSP interpretation to stock status is applied to the albacore tuna stock within the WCPO, the stock is estimated to be depleted to ~40% $SB_{F=0}$.

1. The assessment covers the period from July 1960 to June 2011.
2. The WCPFC has adopted the indicator $SB_{latest}/SB_{F=0} = 0.2$ as a Limit Reference Point for ALB where in the latest assessment SB_{latest} refers to the mean annual spawning biomass in 2013 and $SB_{F=0}$ is the estimated average annual spawning biomass over the period 2002- 2011 in the absence of fishing. No Target Reference Point has yet been adopted for ALB.
3. The indicator $F_{current}/F_{MSY}$ is used to estimate fishing pressure on the stock where in the latest assessment $F_{current}$ is the mean fishing mortality over the period 2009- 2012 and F_{MSY} is the fishing mortality at Maximum Sustainable Yield (MSY).

Management advice from the WCPFC-Scientific Committee

The 2016 WCPFC Scientific Committee meeting (SC12) noted that no updated assessment or management advice has been provided since SC11. Therefore, the advice from SC11 should be maintained, pending a new assessment or other new information.

In its management advice to the Western Central Pacific Fisheries Commission (WCPFC) SC11 noted the following:

- The South Pacific albacore spawning stock is currently above both the level that will support the MSY and the adopted spawning biomass limit reference point, and overfishing is not occurring (F less than F_{MSY}).
- While overfishing is not occurring, further increases in effort will yield little or no increase in long-term catches and result in further reduced catch rates.

- Decline in abundance of albacore is a key driver in the reduced economic conditions experienced by many PICT (Pacific Island Countries and Territories) domestic longline fleets. Further, reductions in prices are also impacting some distant water fleets.
- For several years, SC has noted that any increases in catch or effort in sub-tropical longline fisheries are likely to lead to declines in catch rates in some regions (10-30°S), especially for longline catches of adult albacore, with associated impacts on vessel profitability.
- Despite the fact that the stock is not overfished and overfishing is not occurring, SC11 reiterates the advice of SC10 recommending that longline fishing mortality and longline catch be reduced to avoid further decline in the vulnerable biomass so that economically viable catch rates can be maintained.

Whole of government position

Not available.

Appendix A: TTRAG ADVICE ON YELLOWFIN TACC INCREASE

March 2016

Summary statement

TTRAG was requested to provide advice about the implications of increasing the Yellowfin Tuna TACC by 200t. TTRAG recommends that a TACC up to 2651t for Yellowfin should be sustainable and not have negative impacts on the stocks status. The reasons for this recommendation are detailed below. TTRAG also refers to its previous (2015) advice on the status of Yellowfin in the wider WCPFC area and its current status of not overfished and not subject to overfishing¹.

Basis

There has been considerable debate in recent years whether the tuna stocks fished within the ETBF are part of a Western-Central Pacific Ocean wide stock or more localised to the Coral Sea/ Tasman Sea area (also referred to as Region 5 in stock assessments). Recent genetic studies have shown that there are genetic differences between Yellowfin Tuna from Mooloolaba and those in the Central and Eastern Pacific. This combined with other evidence increases the likelihood that the Yellowfin Tuna in the ETBF are part of a more localised stock within Region 5.

In recent years, catches of Yellowfin tuna by other countries within region 5 have been declining (see Figure 1). This appears to be a result of changes in fishing effort rather than changes in yellowfin abundance. This trend indicates that current fishing adjacent to the ETBF (within Region 5) is unlikely to cause a decline in the biomass available to the ETBF.

Within the ETBF, the availability of Yellowfin Tuna is highly variable and therefore standardised catch rates are also variable, albeit increasing over recent years (see Figure 2). The average size of fish is also increasing (see Attached advice from the October 2015 TTRAG meeting). Standardised catch rates and average size of fish are the key indicators used by TTRAG in assessing the fishery.

WCPFC has previously implemented measures to prevent members from increasing their longline catch of Yellowfin tuna above the average catch from 2001-04. These limits have since been weakened, but it is understood that Australia should not increase its longline catch above the average catch from this period which was 2,651t.

A similar level of catch was sustained over the 20 year period within the eastern Australian Fishing Zone from 1987 to 2006 when the combined Japanese and Australian annual catch averaged 2,596t.

Additional notes.

Any substantial increase in Region 5 catches by other states would require a review of TTRAG advice.

Information on the contribution that the recreational catch makes to the total catch of Yellowfin Tuna within the eastern Australian Fishing Zone is currently poor². The relationship between the catches taken by the commercial and recreational sectors in any given year is also poorly understood.

¹ TTRAG concluded that the stock fished in the ETBF is separate from Indian Ocean and that the stock status in the Indian Ocean is not relevant to the ETBF.

² TTRAG recommended that further work be done to better estimate the current recreational catch. TTRAG further recommended that an analysis of the availability of small Yellowfin in the ETBF be compared to years of high availability to the recreational anglers.

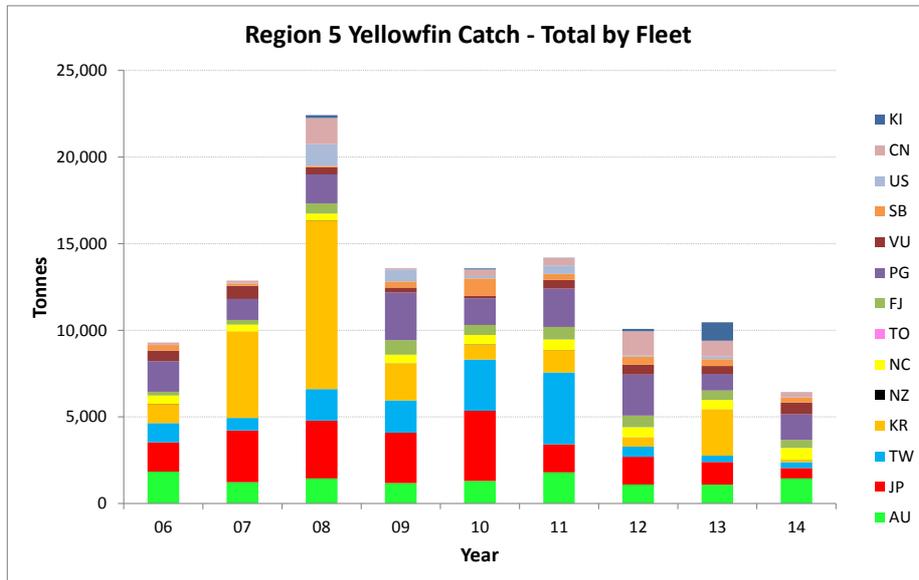


Figure 1. Time-series of total annual catch of yellowfin tuna taken by fleets fishing within Region 5.

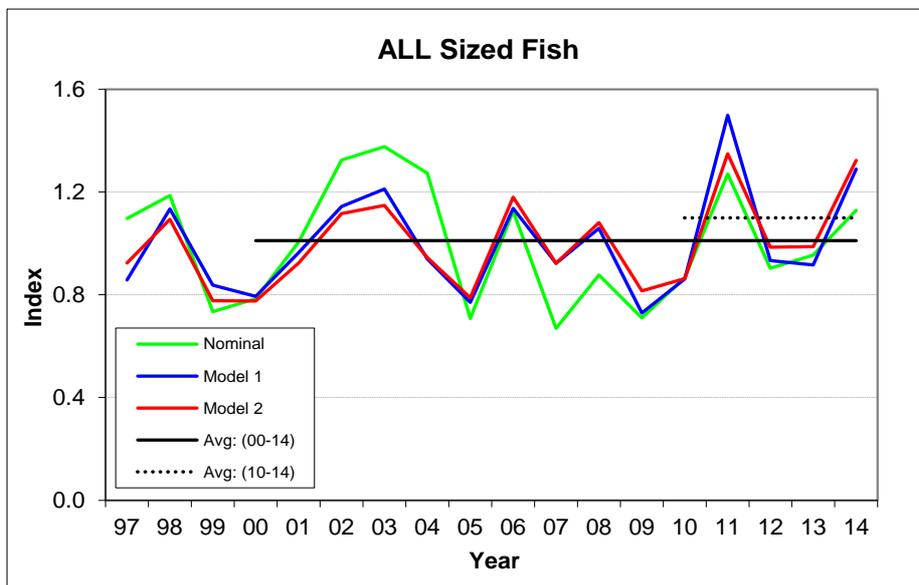


Figure 2. Time-series of standardised catch rates of yellowfin tuna caught within the ETBF.