

**10th MEETING OF THE PZJA TORRES STRAIT
FINFISH FISHERY RESOURCE ASSESSMENT GROUP (FFRAG 10)**

Thursday 18th November – Friday 19th November 2021

Joint Face to Face / Video Conference Meeting

Venue: DoubleTree Hilton Hotel - Cairns

DRAFT AGENDA

1 PRELIMINARIES

1.1 Acknowledgement of Traditional Owners, Welcome and Apologies

The Chair will welcome members and observers to the 10th meeting of the FFRAG.

1.2 Adoption of Agenda

The FFRAG will be invited to adopt the draft agenda.

1.3 Declaration of Interests

Members and observers will be invited to declare any real or potential conflicts of interest and determine whether a member may or may not be present during discussion of or decisions made on the matter which is the subject of the conflict.

1.4 Action Items from Previous Meetings

The FFRAG will be invited to note the status of action items arising from previous meetings.

1.5 Out-of-Session Correspondence

The FFRAG will be invited to note out of session correspondence on FFRAG matters since the previous meeting.

2 UPDATES FROM MEMBERS

2.1 Industry & Scientific Members

Industry and scientific members will be invited to provide a verbal update on matters concerning the Torres Strait Finfish Fishery, in particular, providing comment on fishing patterns, behaviours, prices, and market trends this season.

2.2 Government Agencies

The FFRAG will be invited to note updates from AFMA, TSRA and QDAF on matters concerning the Torres Strait Finfish Fishery.

2.3 PNG National Fisheries Authority

The FFRAG will be invited to note a verbal update from the PNG National Fisheries Authority if a representative is in attendance.

2.4 Native Title

The FFRAG will be invited to note a verbal update from Malu Lamar (Torres Strait Islander) Corporation RNTBC if a representative is in attendance.

3 STOCK ASSESMENTS AND RBC ADVICE

3.1 Spanish Mackerel

The FFRAG will be invited to review the updated stock assessment outcomes and recommend a Recommended Biological Catch for Spanish mackerel for the 2022-23 fishing season.

3.2 Coral Trout

The FFRAG will be invited to consider presentations by Dr Trevor Hutton on;

- a) relevant finfish data collected as part of the CSIRO study: Milton and Long (1997) *Influence of coastal processes on large scale patterns in reef fish communities of Torres Strait, Australia*. This data may be relevant to progressing the preliminary coral trout stock assessment; and
- b) an updated Catch Per Unit Effort data time series.

Having regard for new catch data, previous assessments and the updated CPUE data time series, the FFRAG will also be invited to recommend a 2022-23 season Recommended Biological Catch.

4 HARVEST STRATEGY DEVELOPMENT

The FFRAG will be invited to discuss and provide advice on options for progressing the development of a harvest strategy for the fishery.

5 PRIORITIES FOR THE RAG DATE AND VENUE FOR NEXT MEETING

FFRAG members will be invited to discuss future priorities for management of the Finfish Fishery. This discussion will lead on from FFRAG 9 and will form the final advice from the FFRAG for 2021.

The FFRAG will confirm arrangements for FFRAG 11 and 12, tentatively scheduled for September and October 2022, and be advised of upcoming meetings of the FFWG (25 November 2021) and PZJA meeting to decide next season's sustainable catch limits (January 2022).

6 OTHER BUSINESS

FFRAG members will be invited to discuss other business for consideration.

The Chair must approve the attendance of all observers at the meeting. Individuals wishing to join the meeting as an observer must contact the Executive Officer – Chris Boon (chris.boon@afma.gov.au)

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
PRELIMINARIES Welcome and Apologies	Agenda Item 1.1 For Noting

RECOMMENDATIONS

1. That the Resource Assessment Group **NOTE**:
 - a) an acknowledgement of Traditional Owners;
 - b) the Chair's welcome address;
 - c) apologies received from members unable to attend.

2. As of 5 November 2021, no formal apologies have been received.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting No. 10 18-19 November 2021
PRELIMINARIES Adoption of Agenda	Agenda Item 1.2 For Decision

RECOMMENDATION

1. That the Resource Assessment Group consider and **ADOPT** the draft agenda.

BACKGROUND

2. A first draft annotated agenda was circulated to members and observers on 5 November 2021.
3. No comments from members were received.
4. Agenda item 4.2 *Wildlife Trade Operation (WTO) Conditions: Shark Management* was removed as an agenda item and added to the AFMA update.
5. Agenda items 5.2 and 5.3 were removed due to updates provided at FFRAG 9.
6. The stock assessment and RBC advice agenda items were revised to streamline the flow of discussion. The Historical CSIRO Finfish Dive Survey Data topic was added to the 'coral trout' stock assessment agenda item, along with an update to the coral trout CPUE series.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
PRELIMINARIES Declarations of Interest	Agenda Item 1.3 For Decision

RECOMMENDATIONS

1. That the Resource Assessment Group members:
 - a) **DECLARE** all real or potential conflicts of interest in Torres Strait finfish fisheries at the commencement of the meeting (**Table 1**).
 - b) **DETERMINE** whether the member may or may not be present during discussion of or decisions made on the matter which is the subject of the conflict;
 - c) **ABIDE** by decisions of the Resource Assessment Group regarding the management of conflicts of interest.
 - d) **NOTE** that the record of the meeting must record the fact of any disclosure, and the determination of the Resource Assessment Group as to whether the member may or may not be present during discussion of or decisions made on the matter which is the subject of the conflict.

BACKGROUND

2. Consistent with the *Protected Zone Joint Authority (PZJA) Fisheries Management Paper No. 1* (FMP1), which guides the operation and administration of PZJA consultative forums, members are asked to declare any real or potential conflicts of interest.
3. Resource Assessment Group members are asked to declare all real or potential conflicts of interest or update the standing list of declared interests (**Table 1**) if required.
4. FMP1 recognises that members are appointed to provide input based on their knowledge and expertise and as a consequence, may face potential or direct conflicts of interest. Where a member has a material personal interest in a matter being considered, including a direct or indirect financial or economic interest; the interest could conflict with the proper performance of the member's duties. Of greater concern is the specific conflict created where a member is in a position to derive direct benefit from a recommendation if it is implemented.
5. When a member recognises that a real or potential conflict of interest exists, the conflict must be disclosed as soon as possible. Where this relates to an issue on the agenda of a meeting this can normally wait until that meeting, but where the conflict relates to decisions already made, members must be informed immediately. Conflicts of interest should be dealt with at the start of each meeting. If members become aware of a potential conflict of interest during the meeting, they must immediately disclose the conflict of interest.
6. Where it is determined that a direct conflict of interest exists, the forum may allow the member to continue to participate in the discussions relating to the matter but not in any decision making process. They may also determine that, having made their contribution to the discussions, the member should retire from the meeting for the remainder of discussions on that issue. Declarations of interest, and subsequent decisions by the forum, must be recorded accurately in the meeting minutes.

Table 1. FFrag member and observer Declarations of Interest to be updated at the meeting. Interests declared by those persons at the previous FFrag 9 meeting (14-15 October 2021).

Name	Position	Declaration of interest
Members		
David Brewer	Chair	<ul style="list-style-type: none"> • Director – Upwelling P/L (David Brewer Consulting). • Honorary Fellow - CSIRO • Chair - Torres Strait Finfish RAG • Scientific member – Torres Strait Finfish Working Group • Scientific member – Northern Prawn Fishery RAG • Current consultancies with Quandamooka Yoolooburrabee Aboriginal Corporation. • Co-investigator on the completed Torres Strait 'Non-commercial catch' project funded by TSSAC with RAG member Kenny Bedford. • As a fisheries consultant, may apply for funds for Torres Strait fishery research projects in the future where consistent with his role as Chair.
Rocky Stephen	Industry member	<ul style="list-style-type: none"> • Councillor for Ugar. • Chairperson of Kos and Abob Fisheries Ugar. • Works with brother in a commercial fishing business on Ugar (Brother Bear Fisheries). • Eastern cluster representative on the PZJA Finfish RAG & Working Group. • Traditional inhabitant member - Torres Strait Scientific Advisory Committee. • TSRA Board member for Ugar TSRA Finfish Quota Management Committee. • TSRA Board Fisheries Advisory Committee member. • Member of Zenadth Kes Fisheries company.
John Tabo Jr	Industry member	<ul style="list-style-type: none"> • Commercial coral trout fisher (TIB). • Holds a Torres Strait Traditional Inhabitant Boat Licence. • Member of the Torres Strait Regional Authority Finfish Quota Management Committee. • Member of the Zenadth Kes Fisheries company.
Tenny Elisala.	Industry member	<ul style="list-style-type: none"> • TSRA Ranger Dauan, TIB licence holder, PBC director.
Paul Lowatta	Industry Member	<ul style="list-style-type: none"> • TIB industry member, Finfish RAG, PBC director
Kenny Bedford	Industry Member	<ul style="list-style-type: none"> • Runs a consultancy business which has delivered projects relevant to Torres Strait fisheries. • Principal investigator for 'Non-commercial catch' project (agenda item 5.4) • Board director of Zenadth Kes Fisheries company.
Tony Vass	Industry Member	<ul style="list-style-type: none"> • No financial interests in the Torres Strait. • Former mackerel fisher in Torres Strait 1990 to 2008, does not own or operate a licence in Torres Strait.

Name	Position	Declaration of interest
Michael O'Neill	Scientific Member	<ul style="list-style-type: none"> Principal fisheries scientist working with the Queensland Government (Department of Agriculture and Fisheries, Fisheries Queensland) in the stock assessment program. Principal scientist for TSSAC three-year project for Spanish mackerel stock assessment work. Member of PZJA Finfish RAG and Working Group.
Selina Stoute	AFMA Member	<ul style="list-style-type: none"> Employed by AFMA, no pecuniary interests or otherwise
Chris Boon	RAG Executive Officer - AFMA	<ul style="list-style-type: none"> Employed by AFMA, no pecuniary interests or otherwise
Mark Anderson	Torres Strait Regional Authority (TSRA) Member	<ul style="list-style-type: none"> Employed by TSRA. Program manager for economic development fisheries and infrastructure. No pecuniary interests as an individual - TSRA holds fishing licences on behalf of traditional inhabitants.
Ashley Williams	Scientific Member	<ul style="list-style-type: none"> CSIRO Scientist. Involved in previous Torres Strait research. Project leader for 'Close-kin mark-recapture design' (CKMR) project
Rik Buckworth	Scientific Member	<ul style="list-style-type: none"> Independent Fisheries Scientist with Sea Sense Consultancy. Adjunct professor at Charles Darwin University Ex-NT Fisheries Ex-CSIRO Scientist. Current CSIRO honorary fellow. AFMA Northern Prawn RAG. Project member for TS 'Spanish mackerel stock assessment' project. Team member of 'Close-kin mark-recapture design' project. Chair of Northern Territory Aquaculture Management Advisory Committee.
Ash Lawson	QDAF member	<ul style="list-style-type: none"> Manager of the east coast Spanish mackerel, charter, and deep-water line fisheries. Currently transitioning into managing the east coast inshore finfish fishery.
Permanent Observers		
Maluwap Nona	Malu Lamar	<ul style="list-style-type: none"> TIB licence Holder. Malu Lamar representative for the meeting. Chair of 2 PBCs (Badu Ar Mua Migi Lagal & Maluilgal).
Casual Observers		
Quinten Hirakawa	TSRA officer	<ul style="list-style-type: none"> TSRA project officer.

Name	Position	Declaration of interest
		<ul style="list-style-type: none"> • TIB licence holder with mackerel, line, cray, and BDM endorsements. • Commercial TRL fisher background. • 25 years working with Queensland Boating and Fisheries Patrol (QDAF). • Recent employment with TSRA Ranger Program and now with the TSRA Fisheries Team. • Co-investigator on behalf of TSRA for the current 'Spanish mackerel and coral trout biological sampling' project.
Yen Loban	TSRA fisheries portfolio member	<ul style="list-style-type: none"> • TIB licence holder. • Board director of the Zenadth Kes Fisheries Company. • Chair of the TSRA Board Fisheries Advisory Committee.
Trevor Hutton	CSIRO	<ul style="list-style-type: none"> • Member of the PZJA Finfish Working Group. • Project team member for past 'FF harvest strategy' project.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
PRELIMINARIES Actions Arising & Meeting Record	Agenda Item 1.4 For Noting

RECOMMENDATIONS

1. That RAG **NOTE**:
 - a) the progress of actions arising from previous FFRAG meetings; and
 - b) the draft meeting record of the FFRAG 9 meeting on 14-15 October 2021 as circulated for member comment on 5 November 2021.

KEY ISSUES

Actions Arising

2. Progress against the actions arising from previous FFRAG meetings are detailed in **Table 1**.

Meeting Record

3. The draft meeting record from FFRAG 9 was circulated for member comment on 5 November 2021 with the period for comments to be finalised in the FFRAG 10 meeting, 18-19 November 2021.

Table 1. Status of actions arising from previous FFRAG meetings.

Number	Agenda item	Action	Status update
FFRAG 9, Action 1	3.1 Review of data inputs to support the 2021 Spanish mackerel stock assessment	AFMA to present a summary of CDR catch and effort reporting for the TIB sector at FFRAG 10.	Actioned – AFMA to provide summary at FFRAG 10 meeting.
FFRAG 9, Action 2	2.2 Government agencies update	AFMA to assess the feasibility of getting pre-1989 data digitised.	Ongoing – AFMA to progress and update the RAG out-of-session in 2022.
FFRAG 8, Action 1	4.1 Logbook review TSF01	AFMA to complete project work with industry members in 2021 with a view to implementing a new logbook for the 2021-22 season.	Ongoing – AFMA has not progressed this item due to the limited availability of stakeholders and due to the timing of 2021 black teatfish opening in the Torres Strait Beche-de-mer Fishery, commencing on 30 April 2021, and the level of AFMA resources required to support a new logbook. AFMA to progress with the view to implement a new logbook for the 2022/23 season.
FFRAG 7, Action 2	2.1 Review of data inputs	AFMA to request access to the logbooks of Mr Snowy Whitaker, <i>AFV Trader Horn</i> from the Townsville Maritime Museum where they are reportedly catalogued.	Actioned – Further enquiries by AFMA revealed that these logbooks are not catalogued at the Townsville Maritime Museum.

Number	Agenda item	Action	Status update
FFRAG 6, Action 1	2.2 Coral trout RBC	AFMA to develop a work plan for the FFRAG to advise on best estimates of coral trout catches taken outside the commercial Torres Strait Finfish Fishery (traditional take - kai-kai, recreational, charter sector).	Ongoing – The RAG at FFRAG 9 agreed to retain this action item, noting however, that progressing this action needs to be assessed against other RAG priorities and in light of any future research investment to develop an approach for measuring non-commercial fishing for the region.
FFRAG 5, Action 3	2.1 RAG Updates	AFMA to update the FFRAG on the outcomes of Torres Strait case study fisheries adaption to climate change case study to be presented once complete (it was noted that it may be appropriate for AFMA to arrange an expert to present to the FFRAG on this report at an upcoming meeting).	Ongoing – The recently released final case study report was circulated to the RAG on 13/10/21. The RAG requested that AFMA provide a presentation on report findings at a future RAG meeting.
FFRAG 5, Action 5	3.1 Harvest strategy and 5.2.2 Spanish mackerel stock assessment.	FFRAG are to work on forming a matrix of scenarios (different target reference points and building rates) to support RBC setting and deciding control rules for the Harvest Strategy. Matrix is to compare RBC, time to reach B Target and risk to stock (being number of model runs dropping below the limit reference point).	Ongoing – The RAG noted that a matrix of scenarios has been developed and is currently being used to support setting the RBC. It was noted that the matrix will likely be reviewed alongside further work to develop a harvest strategy for the fishery. To be retained as an action item for further development.
FFRAG 5, Action 6	5.2.2 Spanish mackerel stock assessment	Obtaining accurate catch and effort data from the TIB sector is a key data need. AFMA and TSRA are to continue supporting industry in collecting voluntary effort data in catch disposal records and work on progressing compulsory logbook reporting as a priority.	Ongoing – The RAG noted AFMA advice that it remains an ongoing focus for AFMA to support the TIB sector to report accurate catch and effort data. AFMA further advised that it is continuing to work with the Commonwealth Department of

Number	Agenda item	Action	Status update
			<p>Agriculture, Water and the Environment to progress legislative amendments. AFMA welcomed advice from members on any specific actions or initiatives to explore noting such requests would replace the current broad action.</p> <p>The RAG agreed to retain the action in its current form for the time being.</p>
FFRAG 5, Action 7	5.2.2 Spanish mackerel stock assessment	FFRAG are to consider retrospective analyses for Spanish mackerel and how these can be built in to the assessment	Ongoing – The RAG noted advice at FFRAG 9 from Dr O'Neill that this analysis is to be built into the next stock assessment.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
PRELIMINARIES Out of session correspondence	Agenda Item 1.5 For Noting

RECOMMENDATIONS

1. That the RAG **NOTE** the correspondence sent out-of-session since the 14/09/2021.

BACKGROUND

2. The following correspondence in **Table 1** was circulated out-of-session since 14/09/21. Copies of this correspondence can be requested at any time from the FFRAG Executive Officer.

HUWY1. FFRAG out-of-session correspondence 14/09/2021 - 05/11/2021

Date	Item
01/10/2021	For FFRAG noting – FRAG 9 Papers
01/10/2021	For FFRAG noting – FRAG 9 Papers Attachments
07/10/2021	Change of Meeting Location for FFRAG 9 (Erub to Cairns)
08/10/2021	FFRAG 9 Microsoft Teams invite link & dietary requirements
08/10/2021	For FFRAG Noting - PowerPoint presentations from Dr Michael O'Neill on Stock assessment agenda items for FFRAG 9.
13 October 2021	For FFRAG Noting - Final project report - Guidance on Adaption of Commonwealth fisheries management framework to climate change (FRDC project 2016-059)
3 November 2021	For comment - Confirmation of FFRAG 10 meeting location & final call for comments on the draft agenda.
5 November 2021	For comment - AFMA circulated the draft meeting record from FFRAG 9 to members for comments, which are due on 19 November 2021.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
UPDATES FROM MEMBERS Industry and Scientific members	Agenda Item 2.1 For Noting and Discussion

RECOMMENDATIONS

1. That the RAG:
 - a) **NOTE** any updates provided by industry and scientific members;
 - b) **DISCUSS** strategic issues, including economic trends, affecting the management and development of Torres Strait fisheries.

BACKGROUND

2. Verbal reports will be provided by industry and scientific members under this item. The FFRAG Chairperson may also welcome a short report from any invited participants from industry at this agenda item.
3. It is important that the Finfish RAG (and also the Finfish Working Group (FFWG)) develop a common understanding of any relevant matters within adjacent jurisdictions and what issues if any, are having the greatest impact on industry and the management of fisheries. Such understanding will ensure proceedings of the FFRAG and FFWG are focused and may more effectively address each issue.
4. FFRAG members are asked to provide any updates on trends and opportunities in global markets, processing and value adding. Industry is also asked to contribute advice on economic and market trends where possible. Scientific members are asked to contribute advice on any broader strategic research projects or issues that may be of interest to the Torres Strait industry in future.
5. At the previous meetings of the FFRAG and associated FFWG, members discussed a range of strategic issues affecting the management and development of Torres Strait fisheries which are summarised below.

TORRES STRAIT FINFISH FISHERY RESOURCE ASSESSMENT GROUP	Meeting 10 18-19 November 2021
UPDATES FROM MEMBERS Government Agencies	Agenda Item 2.2 For NOTING

RECOMMENDATIONS

1. That the Resource Assessment Group (RAG):
 - a) **NOTE** the update provided by the Australian Fisheries Management Authority (AFMA) below;
 - b) **NOTE** any additional verbal updates provided by Queensland Department of Agriculture and Fisheries (QDAF); and
 - c) **NOTE** verbal updates provided by the Torres Strait Regional Authority (TSRA).

AFMA UPDATE

Wildlife Trade Operation (WTO) Approval under the EPBC Act 1999

1. The 2021 Wildlife Trade Operation annual report was submitted to the Department of Agriculture, Water and the Environment on 27/10/2021 in accordance with Condition 4 of the fishery's WTO export approval. This report details the status against the nine conditions and one recommendation of the export approval. A copy of the report can be reviewed in **Attachment 2.2a**.
2. Condition 7 of the WTO approval was reviewed by the RAG at FFRAG9 meeting, condition 8 is to be reviewed at FFRAG10. Further conditions, including Condition 6 are scheduled for review in 2022. Condition 6 stipulates that the *Torres Strait Protected Zone Joint Authority must review the current measures applied to the management of the take of sharks in the Torres Strait Finfish Fishery to ensure that they are in line with Commonwealth best practice*. This process will need to be formally reviewed within the current WTO approval (by 1 November 2023).
3. The current commonwealth best-practice management measures applied to the take of shark in AFMA fisheries and that with the Torres Strait Fishery include:
 - A ban on finning at sea – (Currently, the processing of a shark by removing the fins from the shark and discarding the remainder of the shark into the sea by a person in the Torres Strait Finfish Fishery (TSFF) is prohibited).
 - A ban on wire traces – (not addressed in management instruments or licence conditions for the TSFF). AFMA understands that wire traces are used in the Spanish mackerel fishery. However, it is noted that the wire trace ban was implemented in Australia's pelagic longline fisheries to allow sharks the opportunity to be freed from the line before hauling. The Spanish mackerel fishery is an operationally different fishery, in that catch are immediately hauled upon capture, allowing the live release of sharks.
 - A ban on the take of certain species of shark - (The TSFF currently has no-take prohibitions on hammerhead shark (*Sphyrna lewini*), grey nurse shark, (*Carcharias taurus*) and tiger shark (*Galeocerdo cuvier*)).

- VMS/Electronic Monitoring – (TSFF sunset sector vessels currently required to have VMS devices installed on primary vessels).
- Education supported by shark handling/identification/best practice guides. These can be found here: <https://www.afma.gov.au/sustainability-environment/bycatch-discarding/bycatch-reports-publications-id-guides>

See **Attachment 2.2b** for an extract from AFMA's *Handling Practices Guide for Commonly Caught Bycatch Species*

- Bycatch work plan with identified risks and responses to risk to sharks, developed through an ecological risk assessment (ERA). - (The development of an ERA is also a WTO condition for the TSFF).
4. Further information on the current commonwealth shark management measures relating to shark finning can be reviewed in **Attachment 2.2c**.
 5. Noting arrangements in the Torres Strait Finfish Fishery are mostly consistent with Commonwealth best practice, AFMA proposes for the RAG and Working Group (WG) to review and provide advice on necessary shark bycatch management measures in 2022. AFMA is also aiming to undertake an ERA for the fishery in 2022. A bycatch work plan can be built into this assessment.

TIB Sector CDR data – volunteer uptake of effort data reporting

6. As per FFRAG 9 Action 1, a summary of data received from the TIB sector under the voluntary 'Part B' section of Catch Disposal Record (CDR) is provided in **Table 1**. The summary shows the percentage of reporting against each key effort metric. Note the CDR system was implemented in December 2017, and as such, data for the 2017/18 fishing season comprises 2018 data only. The level of reporting is very high.

Table 1: Summary of volunteer effort-data reporting from the TIB sector in the TSFF.

METRIC	2017/18 (2018 data only)	2018/19	2019/20	2020/21
Number of CDR's submitted	42	188	148	160
Number of receivers	10	11	9	6
% of CDRs reporting Area Fished	80.95%	97.87%	97.30%	98.75%
% of CDRs reporting Number of Days Fished	66.67%	82.98%	88.51%	98.13%
% of CDRs reporting Number of Fishers	78.57%	97.34%	99.32%	92.50%
% of CDRs reporting Method Used	80.95%	97.34%	95.95%	93.75%

Torres Strait Finfish Fishery

**Wildlife Trade Operation
Annual Report 2021**

1 Introduction

All fisheries granted export approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are required to produce annual reports containing the information outlined in Appendix B of the Australian Government's *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition* (the Guidelines).

This report to the Department of the Agriculture, Water and the Environment (the Department) meets the annual reporting requirements (Condition 4) for AFMA managed fishery approvals under the EPBC Act. The information provided in this report covers the 12 months since the Torres Strait Finfish Fishery (FF Fishery) was declared as an approved as a Wildlife Trade Operation on 23 December 2020.

Table 1 below summarises the level of information contained in this annual report. Detailed responses are provided under relevant section headings.

Table 1. Summary of key changes to the Finfish Fishery since last approved as a Wildlife Trade Operation on 23 December 2020.

Section	Since the last accreditation	Yes / No	Refer to section below
Description of the Fishery	Has there been any significant change to the description of the Fishery?	No	n/a
Management arrangements	Has there been any significant change to management arrangements and/or fishing practices that may affect EPBC Act approval criteria? If yes, please provide relevant information.	No	n/a
Research and monitoring	Has any research and/or monitoring of fishing activities including stock assessments or risk analysis been conducted? If yes, please provide relevant information.	Yes	2
Catch data for target, byproduct and bycatch species	Has there been any change in average annual catch data for target, byproduct and bycatch species including upward or downward trend in catches and its relevance to limit reference points or performance indicators? If yes, please provide details.	Assessments are in progress. Total catches for the fishery remain relatively similar to past years. End of season catch watch for the fishery is available from the PZJA website.	3
Stock status for target, byproduct	Has there been any change in the stock status for target and byproduct species including any	No	n/a

Section	Since the last accreditation	Yes / No	Refer to section below
and bycatch species	increase or decrease in the number of overfished or uncertain stocks, or where limit reference points or performance indicators have been triggered? If yes, please provide details.		
Interaction with EPBC-listed protected species	Has there been any change in the nature, scale, intensity of impact, and/or management response in relation to interactions? If yes, please provide details.	No	n/a
Ecosystem impact (e.g. habitat, food chains etc).	Has there been any fishery and/or non-fishery change in the nature, scale, intensity of impact, and/or management response including identification and mitigation measures? If yes, please provide details.	No	n/a
Conditions and/or recommendations	Has any progress been made towards implementing the conditions and/or recommendations from the last fishery assessment or annual report under the EPBC Act. If yes, please provide details.	Yes	4

2 Research and monitoring

2.1 Research projects

Three research projects have been funded for the TS Finfish Fishery:

- Torres Strait Finfish Fishery Spanish mackerel stock assessment (project number 200815)
- Enhancing biological data inputs to Torres Strait Spanish Mackerel stock assessment (project number 2019/0832)
- Designing a close-kin mark-recapture study for Torres Strait Spanish Mackerel (project number 200817)

For further information on these projects refer to the meeting papers and record of Finfish Resource Assessment Group 9 (FFRAG 9) on the PZJA website.

2.2 Climate change impacts on Torres Strait Fisheries

In the 2019-20 financial year, the Torres Strait Scientific Advisory Committee (TSSAC) funded a project applicable across all Torres Strait fisheries entitled 'Climate variability and change relevant

tot key fisheries resources in the Torres Strait – a scoping study’. The need to better understand the species-specific effects of climate change and variability on Torres Strait fisheries was identified as a research priority by the TSSAC in 2018. The project builds on a literature review of the main climate change drivers in Torres Strait affecting tropical rock lobster, beche-de-mer, finfish, prawns, turtles and dugongs to provide detailed specification and costings for a future project that will produce the over-arching data framework at the appropriate spatial scales, as required to address future climate variability and change scenarios for Torres Strait fisheries.

2.3 Developing an approach for measuring non-commercial fishing in Torres Strait

This scoping study was funded to quantify the subsistence and recreational (i.e. non-commercial) take of key commercial species and to gauge interest from Torres Strait communities in collecting information on the subsistence take of other non-commercial species, to identify the most culturally significant and important species to communities (including contribution to health and livelihoods).

The research need was identified the Torres Strait Regional Authority (TSRA) Finfish Fishery leasing quota committee. A committee at the time, comprising TSRA Board members and traditional inhabitant representatives from eastern island communities. Members identified the need to improve estimates of non-commercial catch of commercial species to inform stock assessment, the setting of sustainable catch levels and to determine the how much of the available catch needs to be reserved for traditional fishing.

The project found self-reporting using an app (or web-based approach indistinguishable from an app) was likely to be the best approach to monitoring non-commercial fishing, paired with a data validation method of conducting household surveys. The project undertook consultation with stakeholders on this monitoring approach which would need to continue should the project recommendation proceed. This would ensure communities are on board with this approach and identify risks and concerns that would need to be managed around it.

2.4 Electronic catch disposal records

AFMA has launched electronic Catch Disposal Records (eCDRs) as part of the mandatory Fish Receiver System. This will provide Torres Strait fish receivers with a fast and easy way to electronically report landed catch information to AFMA

Using eCDRs means less paperwork and no need to post or email paper CDR records to AFMA. Fish receivers will benefit from electronically submitting their CDRs directly to AFMA in real time. Fishers also benefit by receiving a notification via SMS or email from AFMA when fish receiver submits an eCDR of the catch landed. The system is simple and can be accessed via computer, mobile phones or tablets.

While the Fish Receiver System remains mandatory, the use of eCDRs is voluntary and licence holders are still able to use the paper system.

3 Catch data for target species

Protected Zone Joint Authority (PZJA) advisory Resource Assessment Group and Working Group processes are currently underway for the Finfish Fishery. Meeting outcomes from both advisory committees will be made available on the PZJA website. Total catches for the fishery remain relatively similar to past years. End of season catch watch for the fishery is available from the PZJA website here: https://www.pzja.gov.au/sites/default/files/ff_catch_watch_2020-21_end_of_season.pdf

4 Progress against conditions and recommendations

As per details in Table 2 below.

Table 2. Summary of progress against WTO conditions and recommendations for the Torres Strait Finfish Fishery.

WTO Conditions for the Finfish Fishery	Progress as of October 2021
Condition 1: The Torres Strait Protected Zone Joint Authority must ensure that operation of the Torres Strait Finfish Fishery is carried out in accordance with management arrangements defined in the <i>Torres Strait Fisheries Act 1984</i> , <i>Torres Strait Fisheries Regulations 1985</i> , <i>Torres Strait Finfish Fishery Management Plan 2013</i> , <i>Torres Strait Fisheries Management Instrument No. 14</i> , <i>Torres Strait Fisheries (Finfish) Management Instrument 2020</i> , <i>Torres Strait Fisheries (Furnishing of Logbooks) Instrument 2020</i> and in fishery licence conditions.	On track: The Torres Strait Finfish Fishery continues to be managed in accordance with management arrangements in force under the <i>Torres Strait Fisheries Act 1984</i> .
Condition 2: The Torres Strait Protected Zone Joint Authority must inform the Department of Agriculture, Water and the Environment of any intended material changes to the Torres Strait Finfish Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.	On track: There have been no material changes to management arrangements for the Fishery. As a result AFMA, on behalf of the PZJA, has not been required to inform the Department.
Condition 3: The Torres Strait Protected Zone Joint Authority must inform the Department of Agriculture, Water and the Environment of any intended changes to fisheries legislation	On track: AFMA, on behalf of the PZJA, provided the Department an update on proposed legislative amendments on 26 October 2021.

WTO Conditions for the Finfish Fishery	Progress as of October 2021
that may affect the legislative instruments relevant to this approval.	
Condition 4: The Torres Strait Protected Zone Joint Authority must provide reports to the Department of Agriculture, Water and the Environment annually as per Appendix B of <i>the Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i> .	On track: This report meets this requirement.
Condition 5: By 30 June 2023 the Torres Strait Protected Zone Joint Authority must complete an ecological risk assessment of the Torres Strait Finfish Fishery and develop an associated risk management strategy to address any risks identified in this assessment.	In progress: AFMA is working with CSIRO on priorities for ecological risk assessments across all commonwealth and Torres Strait Fisheries.
Condition 6: The Torres Strait Protected Zone Joint Authority must review the current measures applied to the management of the take of sharks in the Torres Strait Finfish Fishery to ensure that they are in line with Commonwealth best practice.	To be progressed: Advice will be sought from the PZJA advisory Resource Assessment Group and Working Group in 2022.
Condition 7: The Torres Strait Protected Zone Joint Authority must review the appropriateness of the current minimum size limits for Spanish Mackerel in the Torres Strait Finfish Fishery.	In progress: Currently under consideration by the PZJA advisory Resource Assessment Group and Working Group.
Condition 8: By 30 June 2023 the Torres Strait Protected Zone Joint Authority must develop a harvest strategy for the Torres Strait Finfish Fishery.	In progress: Currently under consideration by the PZJA advisory Resource Assessment Group and Working Group.
Condition 9: The Torres Strait Protected Zone Joint Authority must ensure that there is a sufficient level of compliance measures in place to ensure the sustainable management of the Torres Strait Finfish Fishery, in accordance with the management arrangements in place for the fishery, including the reporting of interaction with protected species.	On track: To ensure AFMA's compliance efforts are targeted in the right areas an intelligence driven risk based approach, using Compliance Risk Management Teams (CRMTs) will be applied under the 2020-21 National Compliance and Enforcement Program . The 2020-21 Program will focus on four key areas, one of which is compliance within Torres Strait Fisheries, focusing on quota evasion and reporting of threatened, endangered and protected (TEP) species. This document explains AFMA's compliance program priorities and objectives for the 2020-21 financial year (FY) and performance in the 2019-20 FY.

WTO Conditions for the Finfish Fishery	Progress as of October 2021
<p>Recommendation 1:</p> <p>The Australian Fisheries Management Authority to continue to work with the Department of Agriculture, Water and the Environment and the Protected Zone Joint Authority to implement changes to the <i>Torres Strait Fisheries Act 1984</i> to allow data reporting requirements to apply to all fishing sectors in the fishery.</p> <p>Data collection requirements for target species are to include:</p> <ul style="list-style-type: none"> • The total quantity of each species removed from the fishery, including any catch discarded prior to landing to an authorised fish receiver; an • catch and effort data, including location of all commercial fishing activity. <p>Progress and outcomes of this recommendation to be included in annual reports required under condition 4.</p>	<p>Consistent with the information provided to DAWE via email on 26 October 2021, AFMA is continuing the work with DAWE to progress amendments to the <i>Torres Strait Fisheries Act 1984</i> to create provisions that would require all fishing sectors in the Finfish fishery to undertake logbook reporting.</p> <p>DAWE in consultation with AFMA is finalising drafting instructions for the amendments and sourcing legislative drafting resources from the Office of Parliamentary Counsel. It is expected that an exposure draft of the amendments will be prepared by the end of December 2021, which will then require PZJA approval and subsequent approval from the Prime Minister to be released for consultation.</p> <p>Following this, opportunities to comment on the proposed amendments will be provided to fishers, their communities, Native Title bodies and the general public. This will include a round of community visits in during March - April 2022 where AFMA expects to be consulting with stakeholders on the legislative amendments and other fishery matters.</p> <p>Following the public consultation period, it is expected that Parliament will be able to consider the amendments in the Winter 2022 Parliamentary sittings.</p>

Sharks

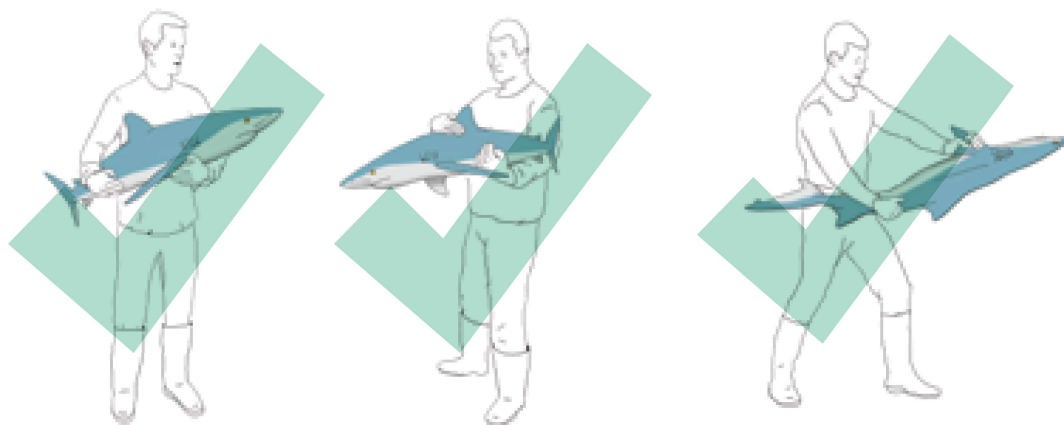
CORRECT HANDLING

If possible, release the shark without bringing it onto the deck.

If the shark has to be brought on board:

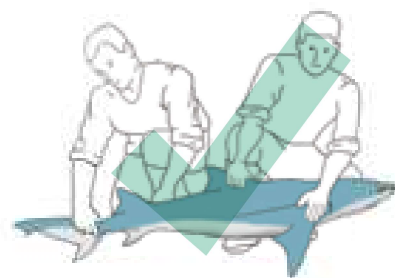
Holding and lifting of sharks

- Generally, small sharks are fragile and need to be handled very carefully. It is best to handle and release them with both hands. Methods of holding include:
 - ~ both hands supporting the body
 - ~ one hand grabbing the pectoral fin and the other the tail
 - ~ holding the dorsal fin and supporting the body and tail.



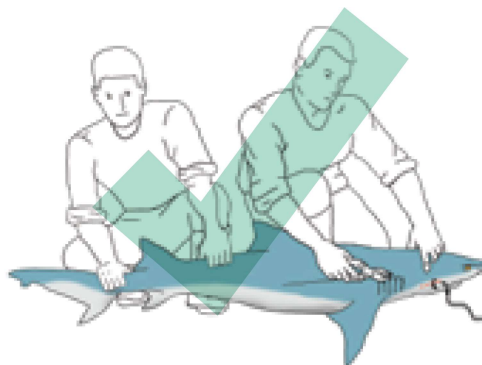
Holding large sharks

- Two people may be required with one person holding the dorsal fin and pectoral fin, while the other person holds the tail.



Treating sharks on deck

- Always attempt to keep the shark in a horizontal position to reduce the risk of internal organ damage
- Hold the shark firmly behind the head and around the tail using gloves and/or a wet towel, and then try to remove the hook
- If the hook cannot be removed easily the line should be cut as close to the mouth as possible
- To calm a shark down turn it over onto its back or place a wet towel over its eyes
- To prevent bites place a dead fish or stick in its jaws
- If release needs to be delayed place a deck hose in the shark's mouth so that water flows through the shark's gills.



Returning sharks to the water

1. Lower the shark gently into the water head first and release it.

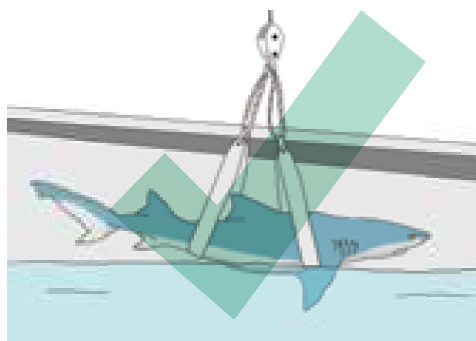
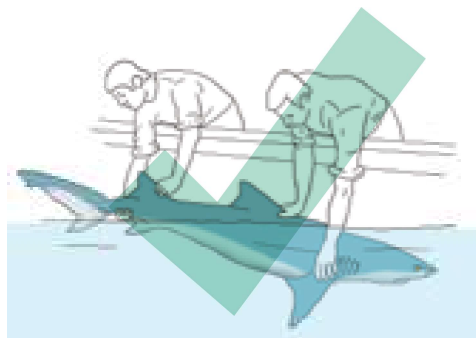
Do not throw it

2. It may be necessary to face the shark into the current and swim it for a few minutes to aid in recovery before it swims away

3. Small sharks can be released by one person

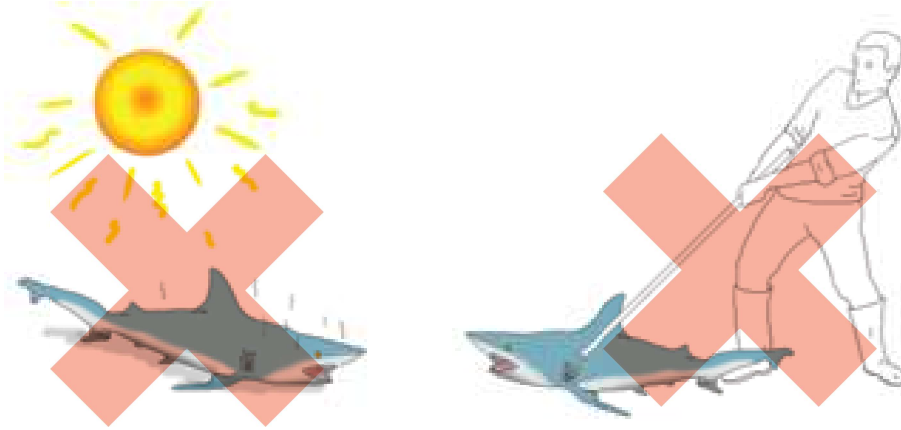
4. Large sharks may require two people to lift and hold the shark

5. Very large sharks may need to be lifted with the use of wide slings. **Do not use thin wires or cables.**

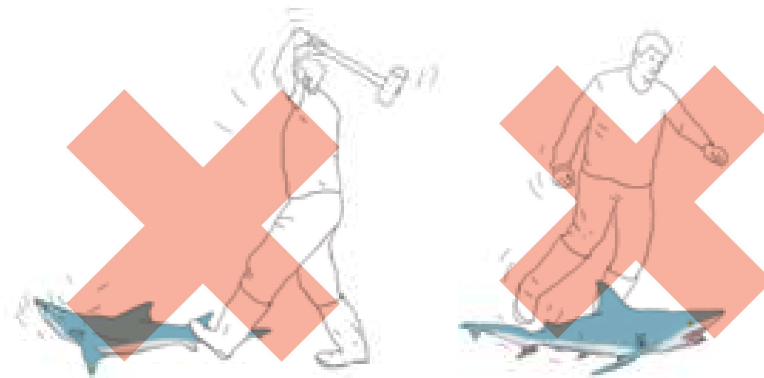


INCORRECT HANDLING

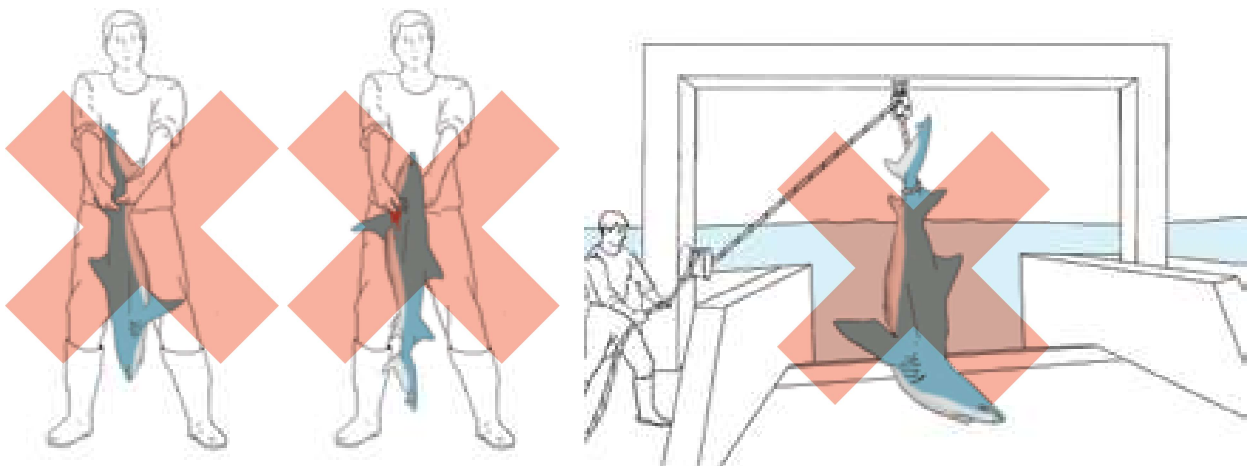
- **Do not** use gaffs or sharp objects in direct contact with the shark. A gaff should be used only to control the line



- **Do not** leave the shark exposed to sunlight for extended periods of time
- **Do not** kick, hit, throw or push the shark harshly, or expose it to other physical trauma



- **Do not** pick up the shark by the tail, head or the gill slits.





Australian Government

Australian Fisheries Management Authority



Shark finning – frequently asked questions

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What is shark finning?

Shark finning is simply the practice of removing a shark's fins from the body for separate sale. The term is sometimes used to describe the practice when a shark's fins are removed to sell and the rest of the body is discarded at sea.

Why do people take the fins? What are the fins used for?

Shark fin is used in predominantly Chinese cooking, e.g. shark fin soup. It is considered a delicacy and some people believe it has medicinal value. It is a high priced commodity, especially as shark finning at-sea has now been banned by a lot of countries.

What happens to the shark when its fins are taken?

The body of the shark is either returned to the water without its fins or the fins and the body are sold separately. On rare occasions the shark is sometimes alive when returned to the water but will soon die.

In Australian fisheries it is illegal to possess shark fins on board a commercial fishing vessel without having the whole shark on the vessel. This helps ensure that shark finning is not occurring at sea. Not allowing finning at-sea allows for more effective monitoring of the catch and promotes optimum utilisation as the fins can then be used along with the rest of the shark. Once landed the whole shark must be offloaded to a licensed fish receiver. From that point on the shark can be processed with various body parts going to different markets, including the fins.

Does AFMA allow shark finning in Commonwealth fisheries?

Shark finning at-sea is illegal in Commonwealth fisheries. This means that the removal of shark fins at sea and the dumping of the carcass are prohibited. To prevent this occurring, all fisheries are subject to Fisheries Management Regulation 9ZO that makes it an offence for the caudal lobe, caudal fin, pectoral fin and dorsal fin to be removed from the shark at sea before it is in the possession of a fish receiver.

Is illegal shark finning at-sea a problem in Commonwealth fisheries?

Between 2008-09 and 2011-12 reports of and evidence for illegal shark finning became less common in Commonwealth fisheries.

AFMA takes this issue very seriously and has done extensive analysis of catch landings and export data, investigated allegations of shark finning and has conducted strategic intelligence assessments on market demand and potential black market implications. Evidence available to AFMA suggests that illegal shark finning at-sea is a low risk however, compliance officers remain on the lookout for evidence of illegal shark finning when they are out in the field.

How does AFMA stop shark finning at-sea in Commonwealth fisheries?

Rules and regulations

In parts of Australia where the Commonwealth has jurisdiction over fishing, AFMA has imposed a range of measures to prevent shark finning at-sea. These include limits on the number of sharks which can be carried on board vessels and restrictions on processing sharks at sea and the form in which fish receivers are permitted to receive shark.

No wire traces

In addition, AFMA has banned the use of wire traces in Australia's pelagic longline fisheries. Elsewhere in the world, wire is used to connect the hook to the main fishing line. The increased strength of wire prevents sharks from biting through the line and escaping. Scientific research has shown banning wire traces allow many sharks to escape longlines by biting through the monofilament that connects the hook to the mainline.

Inspections

AFMA also undertakes regular targeted inspections of Commonwealth fishing vessels and fish receiver premises. These inspections check compliance levels against all Commonwealth fisheries management arrangements, including the landing and receipt of sharks.

Vessel Monitoring Systems

AFMA also ensures strong compliance measures are in place on fishing vessels, including the use of electronic vessel monitoring systems for all boats so their movements can be tracked. This allows fisheries officers to better target their inspections because they know when fishing vessels are coming into port.

E-monitoring

AFMA has also installed electronic monitoring systems on some vessels operating in fisheries that target or otherwise catch significant numbers of shark. These systems monitor vessel location through GPS and video record 100% of fishing activities. AFMA then analyses the footage for data verification and compliance purposes.

What is AFMA doing about shark finning risks in our region?

Australia has taken a leading role at Regional Fisheries Management Organisations (agreements between countries to manage shared fish stocks) to implement stronger shark management measures. Australia has regularly called for the international banning of the use of wire traces and the shark finning at sea.

Which fisheries catch shark?

AFMA manages one fishery that actively targets shark. This fishery predominantly targets gummy shark. Gummy shark is not caught for its fins but to sell as 'flake' which is often used in fish and chips. The fishery is subject to high levels of monitoring and assessment to ensure catches are sustainable and within scientifically-based limits. Catch limits are actively enforced by AFMA Compliance Officers and through catch documentation requirements. School shark, which can be caught with gummy shark, was historically subject to high levels of fishing pressure and the stocks are now being closely managed to ensure recovery.

Some sharks are taken as incidental catch in the Eastern and Western Tuna and Billfish Fisheries. The main species caught are shortfin mako sharks and blue sharks.

Is there legal shark fin?

Yes. Where sharks have been harvested and landed in accordance with the regulations, fins removed from these sharks can be sold legally.

What can I do to help?

If you suspect illegal fishing, including shark finning at-sea or shark catches beyond sustainable limits, please report it via our hotline CRIMFISH on 1800 274 634 or via our [CRIMFISH online form](#).

[EDUCATIONAL](#)

[Shark finning – frequently asked questions](#)

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Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
UPDATES FROM MEMBERS Papua New Guinea National Fisheries Authority	Agenda Item 2.3 For Noting

RECOMMENDATIONS

1. That the RAG **NOTE** the update to be provided by the PNG National Fisheries Authority (NFA).

KEY ISSUES

2. AFMA has a standing invite for officials from the PNG National Fisheries Authority (NFA) to attend all PZJA consultative forums. If in attendance, NFA officials will provide an update on the PNG Finfish fisheries at the meeting.
3. Over 9-10 September 2021 the Torres Strait Treaty Traditional Inhabitants Meeting (TIM) and Joint Advisory Committee (JAC) meetings were held. Reports for each meeting are attached (**Attachments 2.2a** and **2.2b**).
4. Relevantly both meetings discussed matters around the Daru MOU and New City proposal (see paragraph 12 of the TIMs report and paragraph 20 of the JAC report). Both meetings emphasised the need to be included in any consultations on these and other such proposals.

REPORT FROM THE 2021 TORRES STRAIT TREATY TRADITIONAL INHABITANTS MEETING

Virtual, 9 September 2021

1. The Traditional Inhabitants Meeting (TIM) was held virtually on 9 September 2021.
2. The TIM provides Traditional Inhabitants under the Torres Strait Treaty with a forum to discuss and exchange views on the implementation of the Treaty.
3. The meeting was co-chaired for Papua New Guinea (PNG) by Councillor Kebei Salee, Sigabadaru and Councillor Getano Lui (Jnr), Iama (Yam) Island. A list of meeting attendees is at Attachment A.
4. The TIM welcomed the update from the Papua New Guinea (PNG) Immigration and Citizenship Authority (ICA) and Australian Torres Strait Treaty Liaison Officer that Traditional Visits under the Treaty have been put on hold due to the COVID-19 pandemic and border closures. The TIM agreed to defer several of the outstanding recommendations made at the 2019 TIM on Traditional Visits and cross-border activities to the 2022 TIM meeting.
5. The TIM noted the importance of a permanent PNG Department of Foreign Affairs and International Trade (DFAIT) Border Liaison Officer (BLO) on Daru Island to assist with managing the shared border during the COVID-19 pandemic and welcomed advice that the position would be filled in the first quarter of 2022. The TIM noted advice that DFAIT's Peter Mirino would continue as DFAIT's lead from Port Moresby, working closely with Hendrick Naimo from PNG ICA who is implementing BLO functions on-the-ground on Daru Island.
6. The TIM acknowledged the ongoing suspension of Traditional Visits and traditional activities due to international border closures enacted in response to the global COVID-19 pandemic at the beginning of 2020 by local government (the Torres Strait Island Regional Council), and by both the Papua New Guinea and Australian Governments. The TIM acknowledged the unprecedented impact that the COVID-19 pandemic has had on the Treaty and noted that there will likely be implications for the Treaty's implementation going forward.
7. The TIM acknowledged the ongoing risks of COVID-19 transmission to communities on both sides of the border and agreed that all Traditional Visits and traditional activities should remain on hold for the foreseeable future. Australian Traditional Inhabitants emphasised the need to protect the lives of vulnerable Torres Strait communities, and underscored that Traditional Visits will need to be reviewed once border restrictions are eased, at an appropriate time in the future, to ensure that residual COVID-19 risks and other community-level impacts are managed. The TIM noted that Australia and PNG will undertake separate discussions around future border and Traditional Visit management and approaches regarding incoming Traditional Visits to their respective jurisdictions.
8. The TIM acknowledged continuing unauthorised border crossings by PNG Treaty Village constituents seeking medical care on Australia's Saibai and Boigu Islands during the international border closures. The TIM affirmed that the health and safety of their communities is paramount and that such border movements should not occur.
9. The TIM noted the importance of COVID-19 vaccinations to protect communities from COVID-19. The TIM agreed to request an update at the JAC on COVID-19 vaccinations in the Treaty Villages and Torres Strait communities. Australian Traditional Inhabitants did not support a proposal from PNG Traditional Inhabitants that fully vaccinated PNG Treaty Village constituents be allowed to undertake Traditional Visits into Australia's Torres Strait Islands, but committed to continuing dialogue in regards to the border closures.
10. PNG Traditional Inhabitants highlighted the need for adequate medical care for PNG Treaty Villages, particularly for emergencies such as snake bites. Noting strong concerns from Australian Traditional

Inhabitants that any border crossings for medical purposes will raise the risk of COVID-19 transmission into their communities, the Australian Government strongly encouraged PNG Treaty Villages constituents to seek medical care at Mabudawan Health Centre (MHC), which is located in the PNG Treaty Village of Mabudawan. The TIM agreed to seek an update on MHC (including its staffing) at the JAC, and requested that PNG and Australia ensure that it remains fully operational and appropriately staffed.

11. PNG Traditional Inhabitants thanked the Australian Government for its development assistance in the South Fly region, noting the range of areas of support. The TIM noted advice from Australian Traditional Inhabitants that any Australian-supported development initiatives in Western Province's South Fly district must be delivered through PNG channels and not Australia's Torres Strait Islands, to minimise the impacts on their communities and already-limited infrastructure and resources as well as ongoing COVID-19 risks.
12. PNG Traditional Inhabitants noted that they have not been provided information or consulted on the recent Daru Fisheries Memorandum of Understanding, Daru New City Proposal, or similar infrastructure proposals. The TIM noted advice from DFAIT that they were seeking further information across government on the proposals and will report back to the JAC. The TIM stressed the importance of being consulted on these and other proposals, in line with the spirit of the Treaty. The TIM affirmed their concerns around the potentially detrimental effects that such proposals could have on the environment, sustainability of resources in the region and livelihoods, particularly the overfishing of marine resources. The TIM agreed to seek an update on these proposals from the relevant agencies at the JAC. Australian Traditional Inhabitants confirmed that they do not support a review of the Treaty, in reference to a public Australian petition on the same subject.

Signed on 9 September 2021 virtually in Port Moresby and Canberra



Councillor Kebei Salee
Co-Chair and Leader of the Papua New Guinea
Traditional Inhabitant Delegation



Councillor Getano Lui Jnr
Co-Chair and Leader of the Australian Traditional
Inhabitant Delegation

REPORT OF THE 28TH TORRES STRAIT TREATY JOINT ADVISORY COUNCIL MEETING

Virtual, 10 September 2021

1. The Joint Advisory Council (JAC) was held virtually on 10 September 2021.
2. The Forum was co-chaired for Papua New Guinea (PNG) by Mr Joseph Varo, Deputy Secretary, Department of Foreign Affairs and International Trade (DFAIT), and for Australia by Bassim Blazey, Assistant Secretary, PNG Branch, Australian Department of Foreign Affairs and Trade (DFAT).
3. In accordance with Article 19 of the *Torres Strait Treaty* (the Treaty), Council members comprised national, state, and provincial representatives, and Traditional Inhabitant representatives. The delegation list is at **Attachment A** and the JAC functions are set out in **Attachment B**.
4. This document will be transmitted to the Papua New Guinean and Australian Foreign Minister.

Treaty Implementation and management of Traditional Visits

5. The JAC welcomed reports from the Traditional Inhabitants Meeting (TIM) Co-chairs on 9 September 2021 (**Attachment C**) and acknowledged the importance of Traditional Inhabitant views.
6. The JAC noted concerns raised by PNG Traditional Inhabitants around the suspension of Traditional Visits and traditional activities due to international border closures enacted in response to the global COVID-19 pandemic at the beginning of 2020 by the Torres Strait Island Regional Council and both the Papua New Guinea and Australian Governments.
7. The JAC noted concerns raised by Australian Traditional Inhabitants around the ongoing COVID-19 risks to their communities and need for continued border closures, as well as the need for adjustments to Traditional Visits once borders reopen to ensure residual COVID-19 risks and other community-level impacts are managed. Australian Government agencies including DFAT and Australian Border Force (ABF) committed to working further on this out-of-session with Australian Traditional Inhabitants.
8. The JAC noted the importance of a permanent DFAIT BLO on Daru Island to assist with managing borders during the COVID-19 pandemic and welcomed advice that the position would be filled in the first quarter of 2022. Traditional inhabitants noted that the BLO position has been vacant since 2019. The JAC noted advice that the DFAIT BLO would continue to lead from Port Moresby in the interim period, working closely with the PNG Immigration and Citizenship Authority BLO on-the-ground in Daru.
9. The TIM noted establishment of a new Western Provincial Administration (WPA) Border Liaison Officer (BLO) position to assist with provincial management of borders. It was agreed that DFAIT will provide advice to DFAT out-of-session on responsibilities and ways of working with DFAIT, PNG Immigration and Citizenship Authority and the WPA BLO.
10. The JAC noted agreement at the 28th PNG–Australia Ministerial Forum on the need for early consultation on any development proposals in or near to the Torres Strait Protected Zone that could impact on the interests of either country, particularly Traditional Inhabitants. The JAC requested that this includes consideration of such proposals by the JAC and Traditional Inhabitants.

Health and Development Assistance

11. The JAC noted updates on the COVID-19 situation in PNG and Australia, particularly the new and highly infectious Delta variant, and recent outbreaks across Western Province's North, Middle and South Fly Districts and across several states and territories in Australia.
12. The JAC noted agreement at the 28th PNG-Australia Ministerial Forum that COVID-19 continues to pose a serious threat and health advice and vaccinations will underpin decisions to reopen borders.
13. The JAC agreed that vaccination provided the best protection against COVID-19 and welcomed an update on vaccination efforts in the South Fly and Torres Strait. Vaccination levels across both the Torres Strait and South Fly regions need to be increased considerably to be able to consider reopening the shared Western Province-Torres Strait border.
14. The JAC noted that the Health Issues Committee meeting will be held on 12 November 2021 and an update on discussions will be provided at the 29th JAC meeting in 2022.
15. The JAC noted that, as part of Australia's commitment to deepen engagement in PNG priority regions under the Comprehensive Strategic and Economic Partnership (CSEP), Australia is progressing a *Western Province Strategy* in collaboration with the Fly River Provincial Administration to shape Australia's long-term engagement and assist PNG communities to resiliently manage and maximise their own resources. This was articulated in a Memorandum of Understanding (MoU) between the WPA and the Australian High Commissioner to PNG [signed May 2021] which outlines a range of joint development initiatives across Western Province.
16. The JAC noted advice from Australian Traditional Inhabitants that any Australian-supported initiatives in Western Province must be delivered through PNG and not Australia's Torres Strait Islands, to minimise the impacts on their communities and already-limited infrastructure and resources.
17. The JAC welcomed a detailed report on the functioning and staffing of the Mabudawan Health Centre noting that it was fully resourced as a Level Three health facility.

Environment and Fisheries

18. The JAC noted that the PNG Conservation and Environment Protection Authority and Australian Department of Agriculture, Water and Environment are working to determine with stakeholders a suitable time for EMC 28 (likely March 2022) and that updates from EMC 27 are being sought.
19. The JAC noted that the PNG National Fisheries Authority (NFA) and Australian Fisheries Management Authority (AFMA) will progress the Fisheries Bilateral Meeting in 2022.
20. The JAC raised concerns around the risk of overfishing of the fisheries resources in the Torres Strait, emphasising the need for early consultation with AFMA and Traditional Inhabitants. The JAC noted an update on the proposed development of a major fisheries and industrial development on Daru Island (that there was no evidence of any progress on these two initiatives) and acknowledged the concerns of Traditional Inhabitants on both sides regarding risks to the environment and sustainable fisheries. The JAC further noted that any consultations on new development initiatives that will have implications for the implementation of the Treaty, either in or adjacent to the Torres Strait Protected Zone, including but not limited to fisheries developments in the region, should include the JAC.

Customs and Cross Border Law Enforcement

21. The JAC thanked Traditional Inhabitants for their support during the border closures but noted some PNG Traditional Inhabitants [860 passenger arrivals including 181 PNG nationals accessing health services on Australia's Torres Strait Islands since March 2020] have continued to travel to Australia's Saibai and Boigu Islands for health care. The JAC agreed that the borders are to remain closed for the foreseeable future, including for the purposes of seeking medical care in Australia.
22. The JAC noted that PNG Traditional Inhabitants must access health care in PNG, including at the fully operational Mabudawan Health Centre, to protect communities on both sides against cross-border COVID-19 transmission. The Western Province Government committed to discussing further with the Western Provincial Health Authority and development partners such as Australia to ensure MHC is fully staffed, trained and equipped.
23. The JAC emphasised the need to prevent and disrupt transnational crimes such as people smuggling and drug and firearms trafficking and encouraged relevant PNG and Australian border and law enforcement agencies to increase collaboration on managing the shared Western Province-Torres Strait border during the COVID-19 pandemic. The JAC agreed for Joint Cross-Border Patrols to recommence, in a COVID-safe manner, to deter illegal activities and movements. JAC welcome PNG Narcotics Bureau to be part of Law Enforcement Agency along the common borders of PNG including at Torres Strait Protected Zone.
24. The JAC welcomed advice that the Community Safety and Security Facility on Saibai Island is operational (official launch scheduled for 2022). The facility will assist Australia uphold the COVID-19 border closures, manage Treaty Traditional Visits and activities in the long-term and provide community safety and security services to Torres Strait communities.

Biosecurity

25. The JAC noted the reports from the PNG National Agriculture, Quarantine and Inspections Authority (NAQIA) and Australian Department of Agriculture, Water and the Environment (DAWE).
26. Australia and PNG, through DAWE and NAQIA, continue to collaborate to help manage biosecurity risks for the benefit of both countries notwithstanding recent restrictions arising from COVID-19 response measures.
27. Australia confirmed that Traditional Inhabitants in the Torres Strait Protected Zone continued to display high levels of compliance with applicable biosecurity regulations during the period since the last JAC meeting.
28. Australia provided advice regarding continued investments in improved biosecurity surveillance and regulation systems across northern Australia including in Torres Strait. Recent initiatives have included: additional measures to regulate the northward movement of biosecurity threat species from Mainland Australia to Torres Strait and further north; additional investment in biosecurity officer resources in Torres Strait; and dissemination of improved products promoting awareness and compliance with applicable biosecurity regulations for cross border movements (north and south) between PNG and the Torres Strait Protected Zone.

Maritime Safety

29. The JAC noted the report from Australian Maritime Safety Authority (AMSA) on maritime safety activities and acknowledged the ongoing cooperation between PNG NMSA and Torres Strait communities to further enhance ship safety, marine pollution prevention and response and search and rescue in the region. The PNG National Maritime Safety Authority (NMSA) will provide an update at the next JAC.

Other Business

30. The JAC noted the proposed initiatives on a quota allocation of workers from the Treaty Villages in Australia's labour mobility programs, as well as a Teacher Practice Program, and agreed to discuss these items at the next JAC meeting.
31. The JAC noted advice from Australian Traditional Inhabitant Co-Chair of his interest in seeking a change of the name of Torres Strait to Zenadth Kes, clarifying that this would not affect the formal name of the Torres Strait Treaty.

Date and Venue of Next Meeting

32. The JAC agreed that the 29th JAC meeting will be hosted by Australia in 2022.
33. Agencies agreed to progress matters out of session, in accordance with the outcomes of the JAC meeting, and report on progress at the 29th JAC meeting.

Signed virtually on 10 September 2021 in Port Moresby and Canberra



Mr Joseph Varo
Co-Chair and Leader of the Papua New Guinea
Delegation



Mr Bassim Blazey
Co-Chair and Leader of the Australian
Delegation

ATTACHMENT A – DELEGATION LIST

PNG Traditional Inhabitants (Treaty Councillors of South Fly Fore Coast Kiwai RLLG)

PAPUA NEW GUINEA DELEGATION		
Department	Representative	Title
Department of Foreign Affairs and International Trade (DFAIT)	Joseph Varo (JAC Co-Chair)	Deputy Secretary
Department of Health	Ken Wai	Deputy Secretary
Department of Prime Minister and National Executive Council (PMNEC)	Tony Kaib	Director General – Security Coordination
Department of Prime Minister and National Executive Council (PMNEC)	Barbarinue Bagli (Ms)	
Department of National Planning	Martin Pomat	Assistant Secretary
Department of Provincial and Local Level Government	Jacqueline Winuan	
Department of Provincial and Local Level Government	Philo Karabau	
PNG Customs	Nazila Yalambing	
PNG Immigration and Citizenship Authority	Winis Map	
NAQIA	Michael Areke	
Department of Health	Catherina Poko	National Coordinator – Vaccination Program
DFAIT	Peter Mirino	Director, PNG-Solomon Islands Border, Border and Security Division
Western Provincial Administration (WPA)	Robert Aphonse	Provincial Administrator
WPA	Wilfred Gaso	Deputy Provincial Administrator
WPA	Elias Anden	Coordinator National Function Agency
WPA	Rupert Tabua	Deputy Provincial Administrator Resources Development
WPA	Gelam Mark	Border Liaison Officer
WPA	Shirley Kebei	Admin Officer
WPA/ Fore Coast Kiwai Local Level Government	Duobe Amura	Manager, Fore Coast Kiwai Local Level Government (FCKLLG)

South Fly District Administration (SFD)	Tawa Gebia	District Administrator
Royal PNG Constabulary (RPNGC, Daru)	Ewai Segi	Incoming Provincial Police Commander
PNG Defence Force (Daru)	Vincent Wriken	Chief Warrant Officer
PNG Immigration and Citizenship Authority (ICA, Daru)	Henrick Naimo	Manager
Department of Provincial and Local Level Government Affairs (DPLLGA, Daru)	Robin Bazu	Border Admin Officer
Fore Coast Kiwai Local Level Government	Epesi Dabu	Project Officer
Traditional Inhabitant Representatives		
Sigabadaru	Kebei Salee	TIM Co-chair, Councillor for Sigabadaru
Ture Ture	Abua Roy	Councillor for Ture Ture
Sui	Murray Dimia	Councillor for Sui
Parama	Jimmy Walter	Councillor for Parama
Katatai	Tibau Kaware	Councillor for Katatai
Kadawa	Biza Gera	Councillor for Kadawa
Mabudawan	Ma'a Sampson Uku	Councillor for Mabudawan
Kori (a)	Gregory Nabaka	Councillor for Kori (a)
Old Mawatta	Butium Koidawane	Councillor for Old Mawatta
Buzi/Ber	Banu Namai	Councillor for Buzi/Ber
Mari/Tais	Bill Menai	Councillor for Mari/Tais
Bula/Jarai	Bize Goi Menai	Councillor for Bula/Jarai

AUSTRALIAN DELEGATION		
Department	Representative	Title
Department of Foreign Affairs and Trade (DFAT)	Bassim Blazey (JAC Co-Chair)	Assistant Secretary, PNG Branch
Australian High Commission to PNG (AHC), DFAT	Geoff King	Counsellor (Subnational Development)
AHC, DFAT	Lara Andrews	Counsellor (Health)
AHC, AFP	Susan Smith	A/Superintendent PNG
AHC, Home Affairs	Andrew Edgar	Counsellor
DFAT	Johanna Stratton	A/Director, PNG Political and Torres Strait Section
DFAT	Jacqueline Herbert	Torres Strait Treaty Liaison Officer
DFAT	Annie Douglas	Policy Officer, PNG Branch
AHC, DFAT	Katherine Parkinson	First Secretary (Political)
AHC, DFAT	Emeline Cammack	First Secretary (Health Security)
AHC, DFAT	Amanda Young	First Secretary (Subnational Development)
Australian Border Force	Michael Talbot	A/Superintendent, OVERARCH
Australian Federal Police	Rees Folpp	A/Superintendent, Northern Command
Australian Fisheries Management Authority (AFMA)	Selina Stoute	Manager, Torres Strait Fisheries
AFMA	John Jones	Compliance Manager, Torres Strait Fisheries
Department of Agriculture, Water and the Environment (DAWE)	Wayne See Kee	Assistant Secretary, Biosecurity Operations Division (BOD)
DAWE	Murray Korff	Director, BOD
Department of Health (DoH)	Hayley Benson (HIC Co-chair)	Assistant Director, Blood Borne Viruses, Sexually Transmissible Infections & Torres Strait Health Section
DoH	Murimi Njora (HIC Co-Chair)	Assistant Director, Blood Borne Viruses, Sexually Transmissible Infections & Torres

		Strait Health Section
Department of Home Affairs	Nedra Kelaart	A/Director, PNG Section
Department of Premier and Cabinet (QLD)	Andrew Burke	Intergovernmental Relations
Department of Prime Minister & Cabinet (PM&C)	Kristian Nilsson	Advisor, International Division
PM&C	Rachel Kolek	Advisor, National Security Division
Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnership (QLD)	Danny Morseu	Regional Manager
National Indigenous Australians Agency (NIAA)	Nadja Mack	Director, Land Policy and Environment Branch
NIAA	Shay Simpson	Advisor, Land Policy and Environment Branch
Queensland Health	Marlow Coates	Executive Director, Torres and Cape Hospital and Health Service
Traditional Inhabitant Representatives		
Torres Strait Island Regional Council (TSIRC)	Getano Lui	TIM Co-chair and Councillor for Iama Island
TSIRC	Aven Noah	Councillor for Mer (Murray) Island
TSIRC	Conwell Tabuai	Councillor for Saibai Island
TSIRC	Torenzo Elisala	Councillor for Dauan Island

ATTACHMENT B – JAC FUNCTIONS (EXCERPT FROM THE TORRES STRAIT TREATY)

Article 19

Torres Strait Joint Advisory Council

1. The Parties shall jointly establish and maintain an advisory and consultative body which shall be known as the Torres Strait Joint Advisory Council (called in this Article "the Advisory Council").

2. The functions of the Advisory Council shall be-

(a) to seek solutions to problems arising at the local level and not resolved pursuant to Article 18 of this Treaty;

(b) to consider and to make recommendations to the Parties on any developments or proposals which might affect the protection of the traditional way of life and livelihood of the traditional inhabitants, their free movement, performance of traditional activities and exercise of traditional customary rights as provided for in this Treaty; and

(c) to review from time to time as necessary, and to report and to make recommendations to the Parties on, any matters relevant to the effective implementation of this Treaty, including the provisions relating to the protection and preservation of the marine environment, and fauna and flora, in and in the vicinity of the Protected Zone.

3. The Advisory Council shall not have or assume responsibilities for management or administration. These responsibilities shall, within the respective areas of jurisdiction of each Party, continue to lie with the relevant national, State, Provincial and local authorities.

4. In the exercise of its functions, the Advisory Council shall ensure that the traditional inhabitants are consulted, that they are given full and timely opportunity to comment on matters of concern to them and that their views are conveyed to the Parties in any reports and recommendations made by the Advisory Council to the Parties.

5. The Advisory Council shall transmit its reports and recommendations to the Foreign Ministers of the Parties. After consideration by appropriate authorities of the Parties, consultations may be arranged with a view to the resolution of matters to which the Advisory Council has invited attention.

6. Unless otherwise agreed by the Parties, the Advisory Council shall consist of eighteen members, that is nine members from each Party who shall include-

(a) at least two national representatives;

(b) at least one member representing the Government of Queensland in the case of Australia and one representing the Fly River Provincial Government in the case of Papua New Guinea; and

(c) at least three members representing the traditional inhabitants,

with each Party being free to decide from time to time from which of the aforementioned categories any other of its members will be drawn.

7. The Advisory Council shall meet when necessary at the request of either Party. Consecutive meetings of the Advisory Council shall be chaired alternately by a representative of Australia and a representative of Papua New Guinea. Meetings shall be held alternately in Australia and Papua New Guinea or as may from time to time be otherwise arranged.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
UPDATES FROM MEMBERS Native Title	Agenda Item 2.4 For Noting

RECOMMENDATIONS

1. That the RAG **NOTE** any updates on Native Title matters from members, including representatives of Malu Lamar (Torres Strait Islanders) Corporation RNTBC (Malu Lamar).

BACKGROUND

2. On 7 August 2013 the High Court of Australia confirmed coexisting Native Title rights, including commercial fishing, in the claimed area (covering most of the Torres Strait Protected Zone). This decision gives judicial authority for Traditional Owners to access and take the resources of the sea for all purposes. Native Title rights in relation to commercial fishing must be exercisable in accordance with the *Torres Strait Fisheries Act 1984*.
3. Traditional Owners and Native Title representative bodies have an important role in managing Torres Strait fisheries. It is important therefore that the RAG keep informed on any relevant Native Title issues arising.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
STOCK ASSESSMENTS AND RBC ADVICE Spanish mackerel	Agenda Item No. 3.1 For Discussion and Advice

RECOMMENDATIONS

That the Resource Assessment Group (RAG):

1. **REVIEW** the results of the updated Spanish mackerel stock assessment and Recommended Biological Catch (RBC) estimates to be presented by FFRAAG Science Members Dr Michael O'Neill and Dr Rik Buckworth under the funded project "*Torres Strait Spanish mackerel stock assessment*" (project number 200815); and
2. Having regard for the stock assessment outcomes, RBC estimates and advice on a harvest strategy for the fishery, **DISCUSS** and **PROVIDE ADVICE** on an RBC for Spanish mackerel for the 2022-23 season.

KEY ISSUES

1. In preparation for updating the stock assessment and estimating an RBC for the 2022-23 fishing season, at its last meeting¹, the RAG reviewed the new data catch and age data available from the 2020-21 fishing season and provided recommendations on:
 - a) treatments to be applied to data inputs;
 - b) specific model analyses and sensitivities to be undertaken; and
 - c) the RBC calculation method.
2. **Tables 1, 2, 3, and 4** provides a summary of RAG advice to date, and highlights amendments made for the 2021 stock assessment.
3. A copy of the draft presentation for the updated 2021 stock assessment to be tabled at the RAG by Dr O'Neill and Dr Buckworth is provided at **Attachment 3.1a**.
4. Although a harvest strategy for the Spanish mackerel fishery is yet to be completed, progress has been made by the RAG and Finfish Fishery Working Group (WG) on several components of a potential harvest strategy for the species. This work has sensibly guided both RAG and WG advice on recent RBC and TACs. In particular,
 - a) the guiding principles and key fishery attributes (factors that should help shape the development of the harvest strategy); and
 - b) target and limit reference points.
5. **Table 5** provides a summary of RAG advice on relevant components of Spanish mackerel draft harvest strategy from its meeting on 31 October - 1 November 2019 (meeting 5). **Attachment 3.1b** summarises the RAG's RBC advice for the 2021-22 season, demonstrating how the RAG and WG applied the harvest strategy guiding principles.

¹ FFRAAG meeting 9, 14-15 October 2021

Table 1: Summary of RAG advice to date on Spanish mackerel stock assessment data inputs.

Assessment item	RAG Recommendations
1. Total annual harvest tonnes	
Annual average fish weights in Sunset tonnages	<p>To support the 2020 stock assessment the RAG recommended:</p> <ul style="list-style-type: none"> changing the constant assumed average fish weight data rule to apply a weighted mean value to the years for which a mean fish weight was not available from catch sampling; and that the project team use total harvest values available from Catch Disposal Records (CDRs) from the 2018-19 season onwards noting these were verified weights in port. <p>The RAG recommended to retain these values for the 2021 stock assessment.</p>
Harvest estimates 1940-1988	<p>Table 2 summarises RAG advice on 1940-1988 harvest tonnages.</p> <p><u>Sunset sector historic harvests</u></p> <ul style="list-style-type: none"> These figures are based on available data from McPherson et al. (1986). Retained for 2021 stock assessment. <p><u>'TIB' sector historic harvests</u></p> <ul style="list-style-type: none"> On the basis of the advice from the Traditional Inhabitant industry members, the RAG (at FFRAG 7) recommended the table of catches be amended to reflect zero tonnes of harvest from the TIB sector prior to 1975 as an input to the 2020 stock assessment model. The RAG supported the assumption of 3 t harvest to be input into the model per year for TIB sector from 1975 to 1988. Retained for 2021 stock assessment. <p><u>'TIB' sector historic harvests</u></p> <ul style="list-style-type: none"> The RAG (at FFRAG 7) accepted advice from the Traditional Inhabitant industry members and agreed to recommend that the traditional harvest of mackerel be revised from 10 t down to 2 t prior to 1975 as an input to the 2020 stock assessment model. Retained for 2021 stock assessment. <p><u>Recreational Fishing</u></p> <ul style="list-style-type: none"> The RAG noted at FFRAG 7 that the 2 t estimate for recreational catches is based on modern QDAF led survey techniques and is applied consistently across all years as an input into the model. The RAG had no basis to deviate from this approach. The RAG therefore recommended maintaining a 2 t recreational take of Spanish mackerel for all years in the 2020 stock assessment model. Retained for the 2021 stock assessment.
Options for connecting the older historical catch data with the modern logbook time series	<p>At FFRAG 7 the project team presented the RAG with four options (logistic, polynomial, log-linear and weighted mean) available to fit the assumed total harvests in the model to the pre-1989 data points of harvest estimates available from older sources (1957-1962 data from a single boat and 1975-1979 data from the Queensland Fish Board and some processors).</p> <p>RAG scientific members advised that the log-linear and weighted-mean models should be disregarded as these approaches placed too much emphasis on the older uncertain points (1957- 1962 and 1975-1979) in the time series.</p> <p>Based on this advice the RAG recommended that both the logistic and polynomial approaches should be used as inputs to the 2020 stock assessment as they appeared to fit the available data historic data points well.</p> <p>Retained for the 2021 stock assessment.</p>
100 t Taiwanese gillnet	<p>The RAG recommended for the 2019 assessment to inflate the time series of total harvests by 100 t for the years 1979 to 1989 to include this estimate of mortality on the stock in the model.</p> <p>Upon review in 2020, the RAG agreed:</p>

harvest 1979-1986	<ul style="list-style-type: none"> • there was a sufficient weight of evidence to show that IUU fishing of Spanish mackerel did occur. This was chiefly based on the 1992 Joint Advisory Council advice of an apprehension of a drift net boat with a large quantify of catch in its hold and reported take of mackerel in March 1992 and reports from McPherson 1986. • that the IUU catches should be accounted for in the stock assessment. If IUU catches are not accounted for, the stock assessment may overestimate the current biomass estimate through time which could then lead to over-harvesting. • for the time series of harvests from Taiwanese IUU to be extended from 1986 to 1992-93 and to taper the catch down to zero by this point (i.e. extending harvest into 1990, 1991, 1992 reducing to zero tonnes to blend into the existing time series by 1993). Tapering was agreed based on the assumption that IUU fishing decreased as the presence of Australian fishing boats on the fishing grounds increased. <p>Retained for 2021 stock assessment.</p>
Assess logbook over reporting of fish harvest (paper fish)	<p>At FFRAG 6 meeting in 2019 the RAG concluded that, as an issue, paper fish was not substantially influential on the model outcomes and scientific efforts should be placed on other areas in future assessments. The stock assessment team advised that paper fish could be left in the model for future analysis (in 2020) as a post-analysis sensitivity approach rather than including as part of the core assessment model runs. FFRAG supported this approach to leave these data in the model and that there would need to be a clear justification to remove or alter these values.</p>
2. Standardised catch rates	
Number of dories reported	<p>The available data on the historical number of dories used by primary boats was analysed during the 2020 stock assessment.</p> <p>The RAG recommended not including the factor of number of dories in the 2020 stock assessment until further fact finding and investigation on the older data could be conducted.</p> <p>Retained for 2021 stock assessment.</p>
Fishing Power (FP)	<p>The RAG noted at FFRAG 7 that the FP in the Torres Strait model was a calculation carried over from the Queensland East Coast stock assessment and, if applied yearly, would mean about a 23 per cent increase in FP from 1989 to present (0.955 to 1.187). The RAG noted advice from industry that prior to 1989 no one had GPS units, but by the mid 90's this technology was common across the fleet; meaning that FP has indeed been changing across the time series.</p> <p>Based on this advice the RAG recommended that, for the 2020 stock assessment, fishing power should be included as a factor in the model in all model runs i.e. no model runs will be performed excluding FP.</p> <p>Retained for 2021 stock assessment.</p>
Categorise fishing skippers and dory drivers	<p>Outstanding assessment item to review</p>
GLM influences – effects of model terms on sunset catch rates	<p>The RAG noted that the generalized linear model accounts for certain factors such as seasonal changes, wind strength and direction, spatial variation, variations between operators, lunar cycle. The key factor which was included in the 2020 and 2021 stock assessments was the Qld north east coast 'fishing power' offset.</p>

3. Biology	
Age frequency data	<p>At FFRAG 7 the RAG recommended that all years of available fish age and length data below should be included as inputs into the 2020 stock assessment.</p> <p>Retained for 2021 stock assessment – now includes 12 years of data.</p>
Natural mortality rates	<p>At FFRAG 7 the RAG recommended that the 2020 assessment model conduct model runs reusing the Natural Mortality (M) value of 0.3 from the 2019 stock assessment (which was considered as a good logical lower value estimate), 0.45 as a higher range. Following FFRAG 7 the project team attempted to get the model to run using the RAG suggested M values of 0.3, 0.375, 0.45. As the model had issues running with the upper 0.45 value members were advised out of session that the values of values of 0.3, 0.35 and 0.4 would be used as an alternative. Retained for the 2021 assessment.</p>
Spawner – recruitment steepness	<p>At FFRAG 9 the RAG recommended the following to be applied to the 2021 stock assessment:</p> <ol style="list-style-type: none"> that the estimated steepness parameter of 0.4 be used in the model; and two sensitivities to be run using 0.6 and 0.7. The sensitivity runs will assist the RAG to learn how the model performs using higher steepness parameters and therefore to undertake a more detailed review in the future.
4. Stock assessment model	
Data treatments for Stock assessment analyses (summary)	<p>FFRAG 9 advice on stock assessment analyses data treatments is as follows:</p> <ol style="list-style-type: none"> Total harvests: <ul style="list-style-type: none"> Apply two models of historical estimates 1940-1988 Apply the agreed tapered estimate of Taiwanese IUU harvests to these models. Standardised catch rates: <ul style="list-style-type: none"> Do not apply tender/dory data Apply the Qld north east coast ‘fishing power’ offset to the GLM Incorporate available TIB CPUE data into a ‘sensitivity analysis’ for 2021. Fish age frequencies: <ul style="list-style-type: none"> Utilise all years with fish age or length data Natural mortality rate <ul style="list-style-type: none"> Apply a natural mortality rate of 0.3, 0.35, and 0.4 Steepness parameter <ul style="list-style-type: none"> Estimate steepness, and sensitivity test higher fixed steepness values of 0.6 and 0.7.
Method for calculating RBCs	<p>At FFRAG 9 the RAG recommended the following method for calculating an RBC. This was in line with the method used for the 2020 assessment.</p> <ol style="list-style-type: none"> Forecasting the RBC to account for the time lag between the stock assessment and the beginning of the 2021/22 fishing season. This is where stock recruitment and mortality for the 2020/21 season was accounted for. Average recruitment was assumed, removing natural mortality, and removing predicted fishing

	<p>b) Producing a range of RBC values which corresponded with biomass target reference points (also referred to as target fishing mortality rates: 'F-values'). These F-values ranged from 'maximum sustainable yield' (MSY) to 'F₆₀' (to maintain a stock that is at 60% of virgin biomass)</p> <p>c) Running simulations to assess risk to the stock over 12 years against each RBC value.</p>
Design RBC decision tables	<p>The RAG noted the approach used in the 2019 assessment, where a range of target reference point fishing mortalities were considered in recommending an RBC (F MSY, F 40, F 48, F 60), with the median value of all agreed model runs (analyses) being used to select the RBC.</p> <p>This decision table design was retained for the 2020 and 2021 stock assessment. The RBC decision table for the 2021 stock assessment is provided at Table 3.</p>
Dissect the depletion levels up to 1989 and catch history	Outstanding assessment item to review
Retrospective analyses	Outstanding assessment item to review

Table 2. Summary of RAG advice on harvest estimates 1940 to 1988 to support the 2020 stock assessment. Yellow highlighted cells represent changes made from the 2019 assessment based on RAG advice. The RAG recommended to retain these values for the 2021 stock assessment.

Year	Label	'TIB'	Traditional	Sunset	Recreational	Charter	PNG	Total
1940	1940-41	0	2	0	0	0	0	2
1957	1957-59	0	2	34	2	0	0	38
1959	1959-60	0	2	52	2	0	0	56
1960	1960-62	0	2	40	2	0	0	44
1962	1962-75	0	2	70	2	0	0	74
1975	1975-76	3	2	68	2	0	0	75
1976	1976-77	3	2	81	2	0	0	88
1977	1977-79	3	2	69	2	0	0	76
1979	1979-89	3	2	57	2	0	0	64

Table 3. Analyses / model runs agreed to be applied to the 2021 Torres Strait Spanish mackerel stock assessment.

Label	Fish weights	Catch rate series	Natural mortality rate (M)	Steepness parameter	Harvest pre-1989	Ageing data	Start year for data
1	Weighted average	No tender data. Fishing power included.	0.3	Estimated	Historic catches actual + polynomial model + IUU tapered	All years	1940

Label	Fish weights	Catch rate series	Natural mortality rate (M)	Steepness parameter	Harvest pre-1989	Ageing data	Start year for data
2	Weighted average	No tender data. Fishing power included.	0.35	Estimated	Historic catches actual + polynomial model + IUU tapered	All years	1940
3	Weighted average	No tender data. Fishing power included.	0.4	Estimated	Historic catches actual + polynomial model + IUU tapered	All years	1940
4	Weighted average	No tender data. Fishing power included.	0.3	Estimated	Historic catches actual + logistic model + IUU tapered	All years	1940
5	Weighted average	No tender data. Fishing power included.	0.35	Estimated	Historic catches actual + logistic model + IUU tapered	All years	1940
6	Weighted average	No tender data. Fishing power included.	0.4	Estimated	Historic catches actual + logistic model + IUU tapered	All years	1940

Table 4. Summary of potential RBC's for all fishing sectors for the 2022/23 fishing season. These figures are based off the mean value derived from the six core stock assessment analyses.

No.	Name of RBC approach 1940 custom model	Fishing year for the RBC calculation	% of <u>all</u> simulations below S_{20} over 12 years and 6 analyses Assuming average recruitment, and the constant RBC	% of <u>feasible</u> simulations below S_{20} over 12 years and 6 analyses Assuming average recruitment, and the constant RBC	Median RBC tonnes Over 6 analyses
1	Constant F_{MSY}	2022-23	12.8%	8.4%	131
2	Constant F_{40}	2022-23	12.6%	8.2%	129
3	Constant F_{48}	2022-23	10.4%	5.8%	102
4	Constant F_{50}	2022-23	9.9%	5.3%	95
6	Constant F_{60}	2022-23	8.6%	3.9%	68

Table 5. Status of Spanish mackerel draft harvest strategy components as reviewed by FFRAG at its meeting on 31 Oct- 1 Nov 2019 (meeting 5)

Guiding principles and key fishery attributes – factors that helped shape the development of the Harvest Strategy	
Recommended	Consistency with the Commonwealth Fisheries Harvest Strategy Policy and Guidelines (HSP, 2018). This is consistent with objectives of the <i>Torres Strait Fisheries Act 1984</i> (the Act).
	Have regard for traditional knowledge and the ability of communities to manage fishery resources locally, through acknowledging and incorporating customary and traditional laws, recognising; Malo Ra Gelar, Gudumalulgal Sabe, Maluailgal Sabe, Kulkaigal Sabe.
	Recognise commercial fishing by traditional inhabitants is important for local employment, economic development and for the passing down of traditional knowledge and cultural lore. Enough fish need to be left in the water for future fishers to make money and to protect the traditional way of life, livelihoods and cultural values.
	Spanish mackerel are a shared resource important for subsistence, commercial, traditional, charter and recreational sectors. Shared stock under the Torres Strait Treaty with PNG, stock to be shared if PNG nominate to do so.
	<p>TACs should vary according to stock status (up and down):</p> <ul style="list-style-type: none"> • If biomass decreases be cautious. Stock is not to go below the limit; • If biomass is increasing be conservative; 'bank' fish. <p>RAG noted that 'banking' fish was challenging to capture in the decision rules of a harvest strategy with stocks generally building towards a target reference point in a prescribed way based on assessment outcomes.</p> <p>RAG noted that the prescription for this in-principle objective from traditional owners was in regard to when the stock was increasing, to not necessarily increase the TAC but possibly only after a trend/consecutive years of increasing stock. RAG also advised that this approach and wording should also consider the level of certainty and precaution underlying future decision making. RAG suggested that this wording required greater clarity in the final harvest strategy but the spirit of the objective was understood and would likely only apply to the fishery when the stock has eventually build above the Target Reference Point and increases in TACs (via a potential fish-down of the stock to B Target by increasing harvests) are</p>

	suggested by the assessment estimate of biomass. It was considered that clear decision rules to implement this stakeholder desire would need to be developed with stakeholders, potentially as the Strategy is reviewed over time.
	Having regard for the current stock size (B_{31}) and that B_{60} is not quickly achieved (possibly greater than 12 years) without significant reductions in catch which may in turn cause significant economic and social impacts on the Fishery, a shorter-term target reference point is first required.
	Torres Strait Spanish mackerel stock are assumed separate from other regional stocks. They have limited mixing with the Queensland East Coast and the Gulf of Carpentaria stocks (see Buckworth et al. 2007 and Newman et al. 2009).
	There is potential for variations in availability and abundance of Spanish mackerel in the Fishery, due to their movement, schooling and aggregation patterns for feeding and spawning, recruitment and mortality.
	Spanish mackerel are a shared resource important for subsistence, commercial, traditional, charter and recreational sectors.

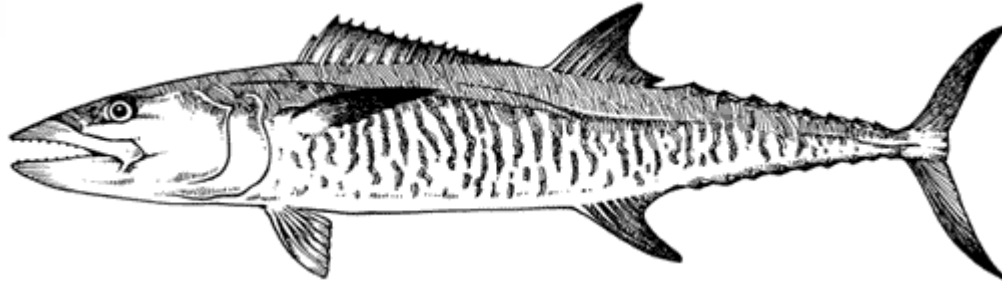
Operational objectives What we want the harvest strategy to achieve.	
Recommended	Maintain the stock at (on average), or return to, a target biomass point (B_{TARG}) equal to a stock size that aims to protect the traditional way and life and livelihood of traditional inhabitants and is biologically and economically acceptable.
	Maintain stocks above the limit biomass level (B_{LIM}), or an appropriate proxy, at least 90 per cent of the time.
	Reduce fishing levels if a stock is below B_{TARG} but above B_{LIM} .
	Implement rebuilding strategies, if the stock moves below B_{LIM} .

Reference points A reference point is a specified level of an indicator used as a basis for managing a stock or fishery. Reference points will generally be based on indicators of either the total or spawning stock size (biomass) or the amount of harvest (fishing mortality). Reference points show where we want (target) and don't want (limit) the stock levels in the fishery to be.		
Recommended	Unfished biomass (B_0) = B_{1940} = 100%.	The year 1940 is considered the start of the commercial operations in the Fishery. The unfished biomass B_0 therefore is the model-estimate of spawning stock biomass in 1940.
	Target (B_{TARG}) reference point = B_{48}	B_{48} ² is the default target (a proxy for B_{MEY} - biomass at maximum economic yield) in the Commonwealth HS Policy.
	Limit reference point (B_{LIM}) = B_{20}	B_{LIM} is the spawning biomass level below which the ecological risk to the stock is unacceptable and the stock is defined as 'overfished'. This is an agreed level which we do not want the stock to fall below. B_{20} is the default limit proxy in the Commonwealth HS Policy ³ .
Outstanding	Long term B TARG = B_{60}	<p>Further analysis and advice is required on the suitability of B_{60} as a long-term B TARG, in comparison to other target biomass levels above BMSY having regard for the biology of the species and performance of the Strategy in meeting its objectives.</p> <p>Stakeholders have recommended that the Strategy ensures enough fish are left in the water to support commercial fishing but also protect the traditional way of life and livelihoods of traditional inhabitants.</p> <p>Advice to date is that a higher target biomass level (referring to 60%), would increase catch rates and improve profits in the fishery over other lower reference points, such as B_{48}. RAG advice on the suitability of B_{60} against other possible higher target biomass levels is necessary. There are likely to be trade-offs between medium-term returns from the fishery (significantly reduced TAC)</p>

² Comm HSP: The target reference point for key commercial fish stocks is the stock biomass required to produce maximum economic yield from the fishery (B_{MEY}). For multispecies fisheries, the biomass target level for individual stocks may vary in order to achieve overall maximum economic yield from the fishery. In cases where stock-specific B_{MEY} is unknown or not estimated, a proxy of 0.48 times the unfished biomass, or 1.2 times the biomass at maximum sustainable yield (B_{MSY}), should be used. Where B_{MSY} is unknown or poorly estimated, a proxy of 0.4 times unfished biomass should be used. Alternative target proxies may be applied provided they can be demonstrated to be compliant with the policy objective.

³ Comm HSP: All stocks must be maintained above their biomass limit reference point (B_{LIM}) at least 90 per cent of the time. Where information to support selection of a stock-specific limit reference point is not available, a proxy of 0.2 times unfished biomass should be used.

		<p>and longer-term returns (more fish in the water meaning less cost to catch and therefore higher returns. Also, there would be more fish in the water for other users).</p> <p>Quantitative analysis and/or evidence from comparable fisheries may enable more evidence-based advice and decision making on the longer-term target.</p>
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Torres Strait

*Scomberomorus
commerson*

Spanish mackerel

The 2021 stock assessment.

FFRAG meeting #10, 18-19 November 2021



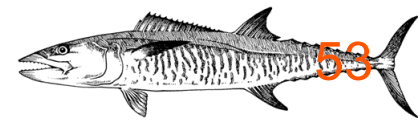
Australian Government

Australian Fisheries Management Authority



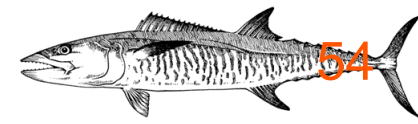
Queensland
Government

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Presentation sections:

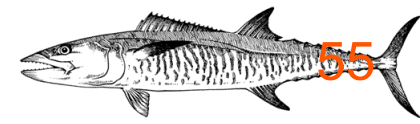
1. Recommended Biological Catch (RBC) results.
2. Learnings from extra analyses.
3. An initial Stock Synthesis (SS) analysis.



Section 1 – Core results

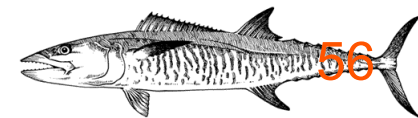
- Review biomass and RBC estimates for the 6 core analyses.
- FFrag #9 agreed on 6 analyses, varying data inputs for natural mortality (M) and total harvest.

List of data inputs (treatments) for 2021.



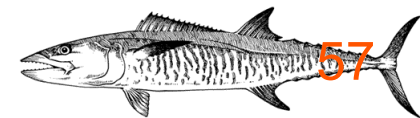
Number of treatments?

1. Total harvests: (2)
 - Two methods for historical estimates 1940-1988.
 - One Taiwanese IUU harvests.
2. Standardised catch rates: (1)
 - Tender/dory data (out)
 - Qld north east coast fishing power offset (in)
3. Fish age frequencies: (1)
 - All years with fish age or length data (in)
4. Natural mortality rate (M ; maximum age = 13.5 years) (3)
 - 0.3, 0.35, 0.4 per year (in)
5. Steepness estimated (1)
 - Estimated (in)



Summary indicators

Indicator	Median results
Median 2020-2021 spawning biomass/unfished biomass	29 per cent
Limit point: spawning biomass / unfished biomass	20 per cent
Maximum Sustainable Yield (MSY) for 2022-23	131 tonnes
Harvest taken in 2020-2021 (all fishing sectors)	52 tonnes
Recommended Biological Catch (RBC) for 2021-2022	94 tonnes

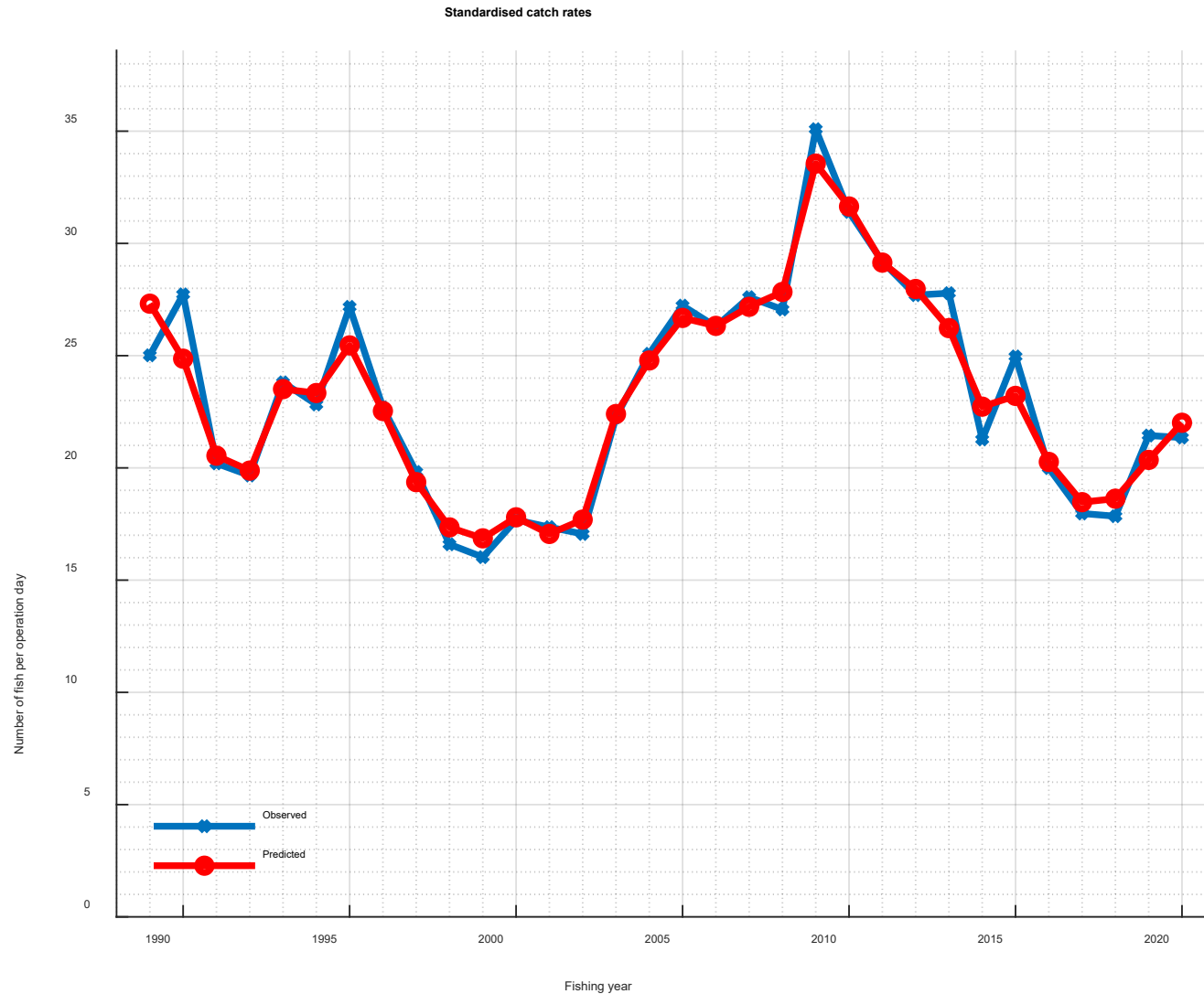
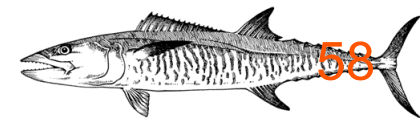


Summary indicators

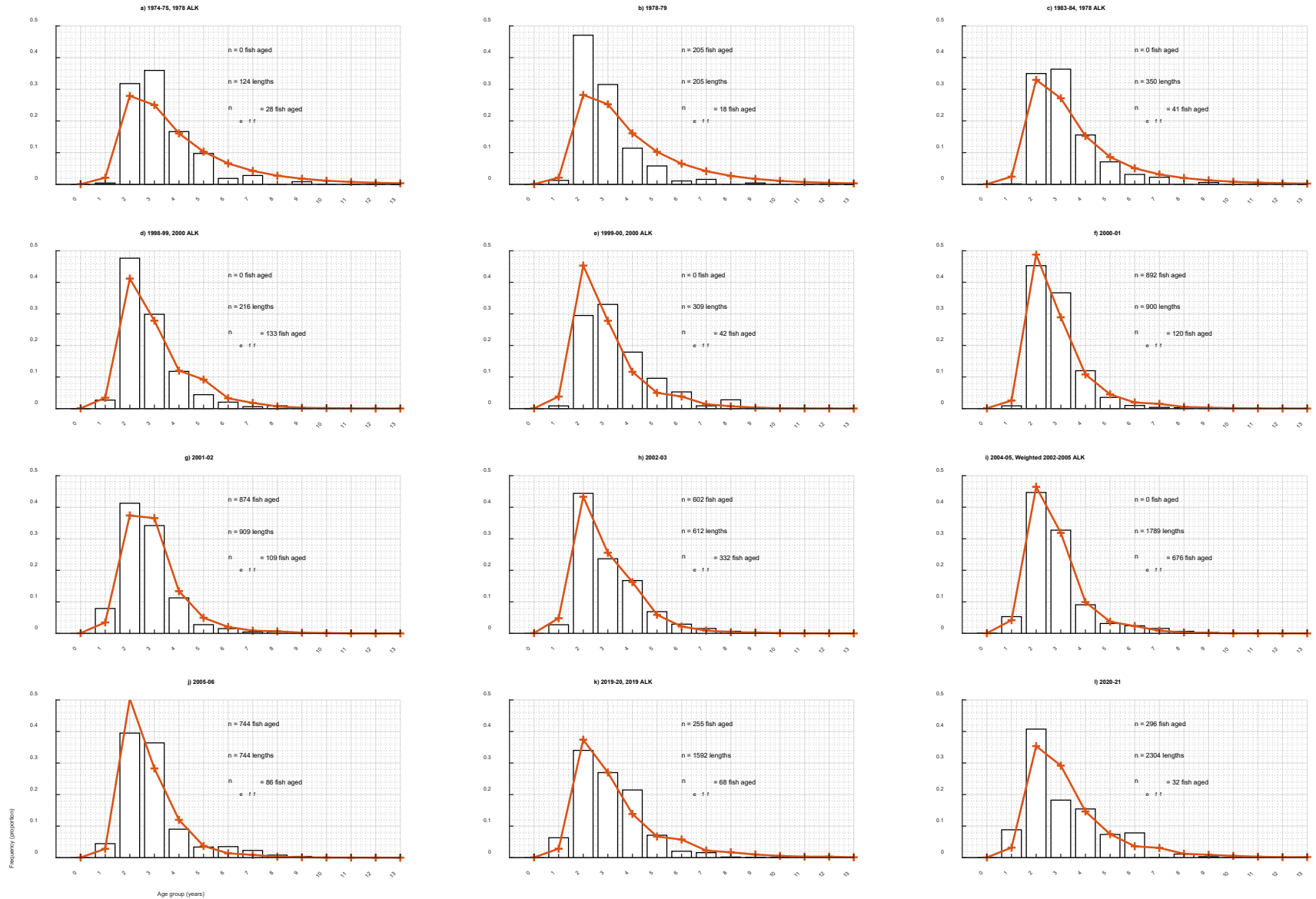
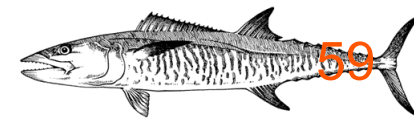
Indicator	Median results
Median F_{40} harvest from the $B_{2022-23}$ exploitable biomass	129 tonnes
Median F_{48} harvest from the $B_{2022-23}$ exploitable biomass	102 tonnes
Median F_{50} harvest from the $B_{2022-23}$ exploitable biomass	95 tonnes
Median F_{60} harvest from the B_{2021} exploitable biomass	68 tonnes

Standardised catch rates

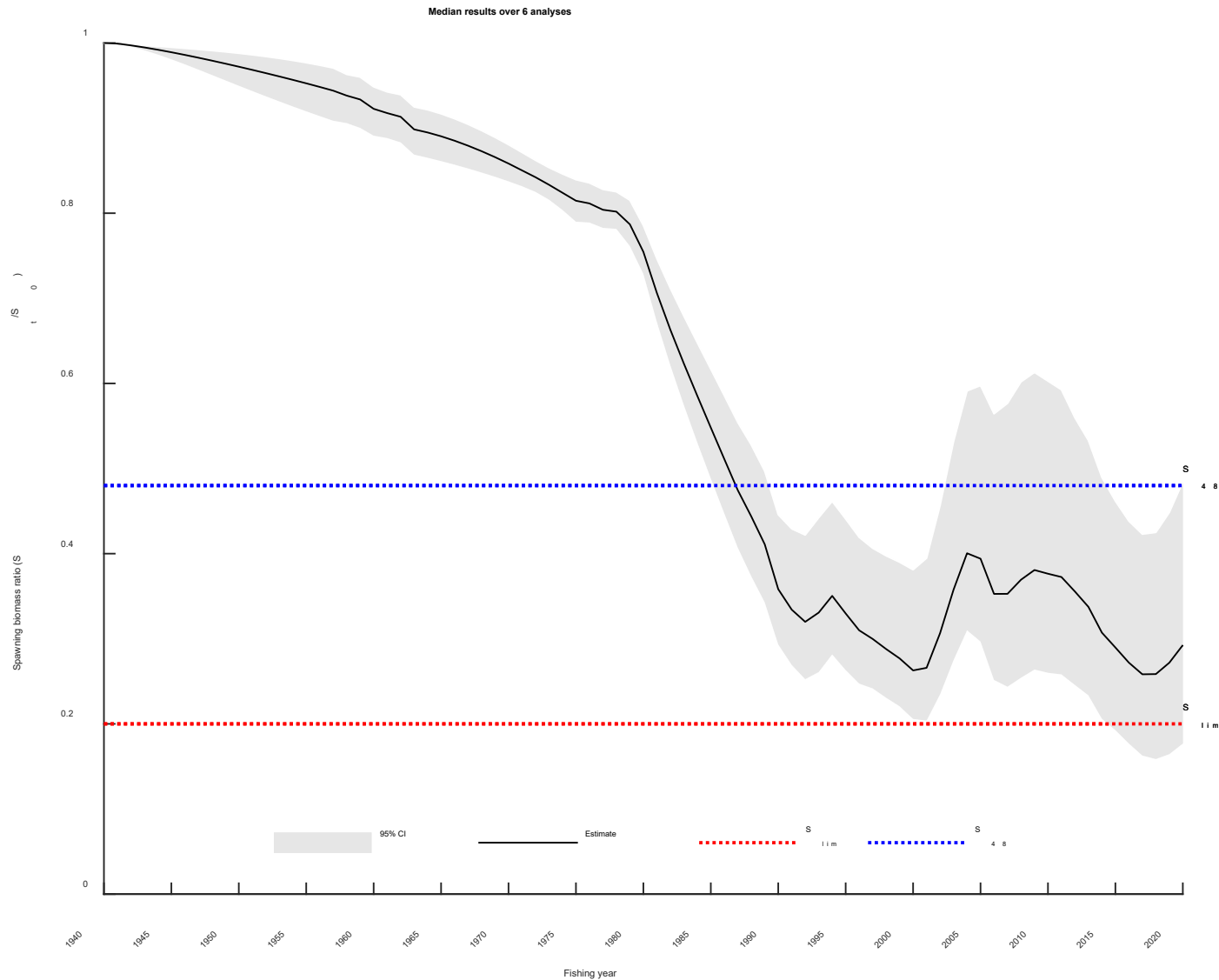
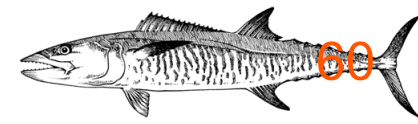
SM02 and TSF01 logbooks; CIs $\approx \pm 3$ fish

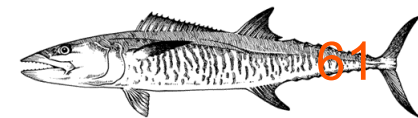


Example: analysis 3 age fit. negLL = -180.9



Spawning biomass (egg) ratios

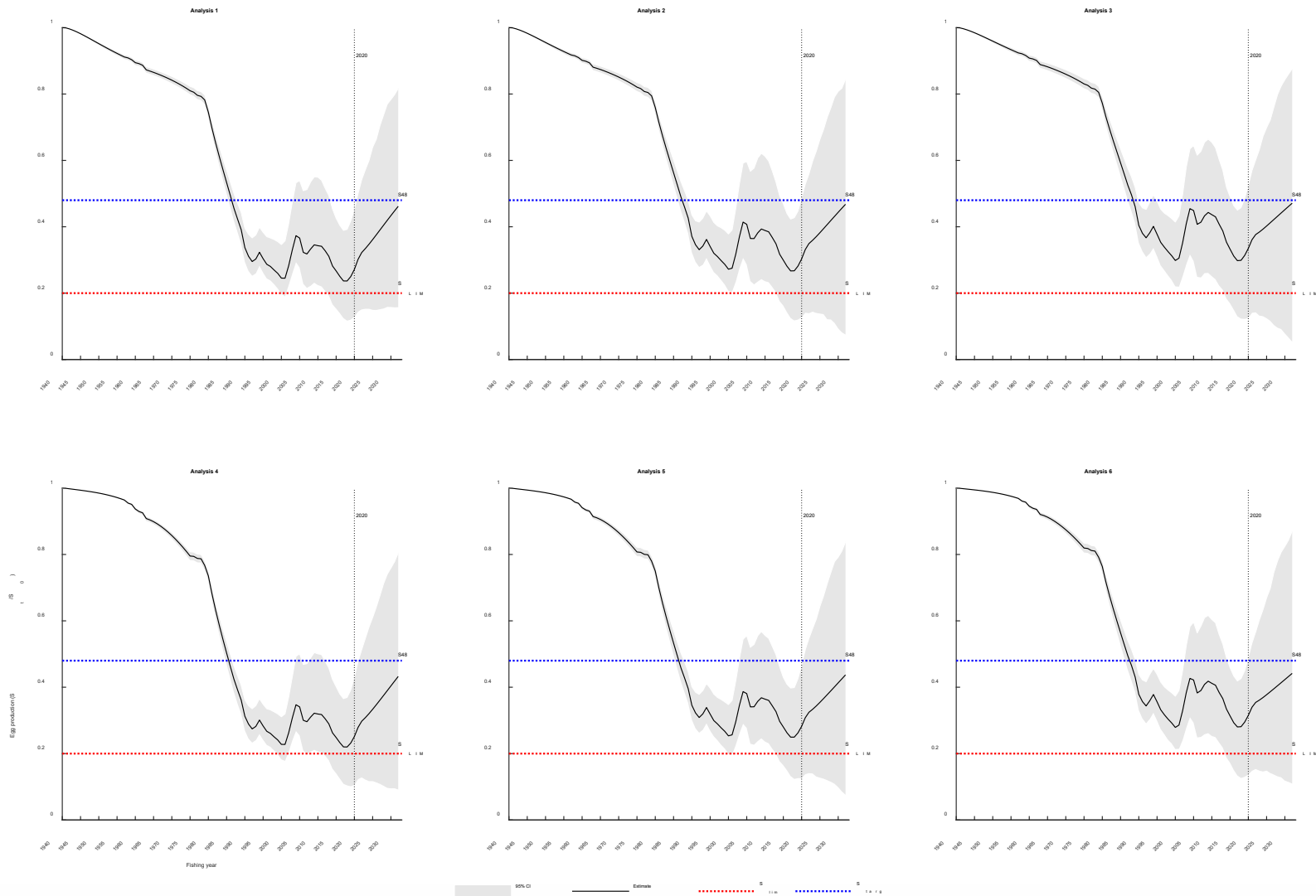
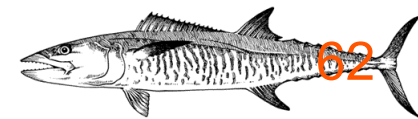


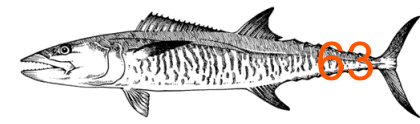


Summary of potential RBC's for all fishing sectors

No.	Name of RBC approach 1940 custom model	Fishing year for the RBC calculation	% of <u>all</u> simulations below S_{20} over 12 years and 6 analyses Assuming average recruitment, and the constant RBC	% of <u>feasible</u> simulations below S_{20} over 12 years and 6 analyses Assuming average recruitment, and the constant RBC	Median RBC tonnes Over 6 analyses
1	Constant F_{MSY}	2022-23	12.8%	8.4%	131
2	Constant F_{40}	2022-23	12.6%	8.2%	129
3	Constant F_{48}	2022-23	10.4%	5.8%	102
4	Constant F_{50}	2022-23	9.9%	5.3%	95
6	Constant F_{60}	2022-23	8.6%	3.9%	68

Spawning biomass forecast for the RBC = 95t





Section 2 – More analyses!

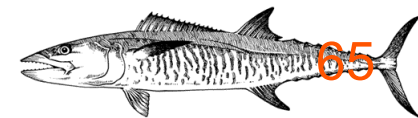
- For FFRAG investigations on data inputs and assumptions.
- Results are not for RBC consideration.

What were the extra analyses 7 - 13



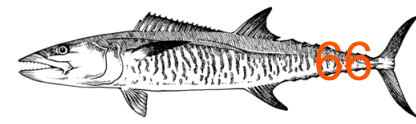
Analysis	Used	Catch Rate	M	Harvest	Age	Start Year	Fix Steepness	Catch Rate TIB	Catch Rate Old
1	1	4	0.3	1	0	1940	0	0	0
2	1	4	0.35	1	0	1940	0	0	0
3	1	4	0.4	1	0	1940	0	0	0
4	1	4	0.3	2	0	1940	0	0	0
5	1	4	0.35	2	0	1940	0	0	0
6	1	4	0.4	2	0	1940	0	0	0
7	0	4	0.35	1	0	1940	0.6	0	0
8	0	4	0.35	1	0	1940	0.7	0	0
9	0	4	0.5	1	0	1940	0.7	0	0
10	0	4	0.7	1	0	1940	0.7	0	0
11	0	4	0.35	1	0	1940	0	1	0
12	0	4	0.35	1	0	1940	0	0	1
13	0	4	0.35	1	0	1940	0	1	1

Results

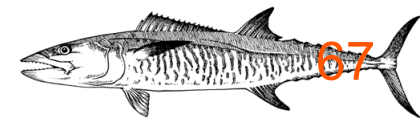


	Negative Log-Likelihoods					
Analysis	CatchRate4	FishAge	RecDevs	CatchRateTIB	CatchRateOLD	Total
1	-42.4671	-177.171	6.1255	0.1842	-4.6643	-213.513
2	-45.8954	-179.374	4.919	0.1593	-4.6429	-220.35
3	-50.0925	-181.004	4.595	0.1557	-4.6091	-226.502
4	-43.4609	-176.92	6.5718	0.186	-4.7368	-213.809
5	-48.2519	-178.362	5.9748	0.1689	-4.7554	-220.639
6	-54.1745	-179.102	6.468	0.188	-4.7595	-226.809
7	8.4143	-189.709	-35.9572	0.1248	-4.515	-217.252
8	9.6235	-189.592	-36.6381	0.0764	-4.3964	-216.607
9	0.41	-200.884	-36.6052	-0.1065	-4.464	-237.079
10	-9.0476	-204.717	-36.07	-0.3483	-3.9698	-249.834
11	-45.4504	-179.642	4.7552	0.1313	-4.6426	-220.206
12	-45.9536	-179.337	4.9408	0.1592	-4.6432	-224.993
13	-45.4967	-179.615	4.775	0.1315	-4.6429	-224.848

Q&A

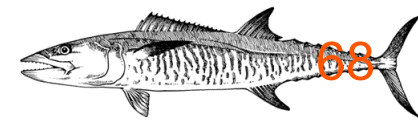


- Can high reproductive resilience (steepness) work?
- Does extra data help?
- Is our selection of core analyses still suitable?



Section 3 – Stock Synthesis model

- A single run on analysis 2 data.
- Results are not for RBC consideration.

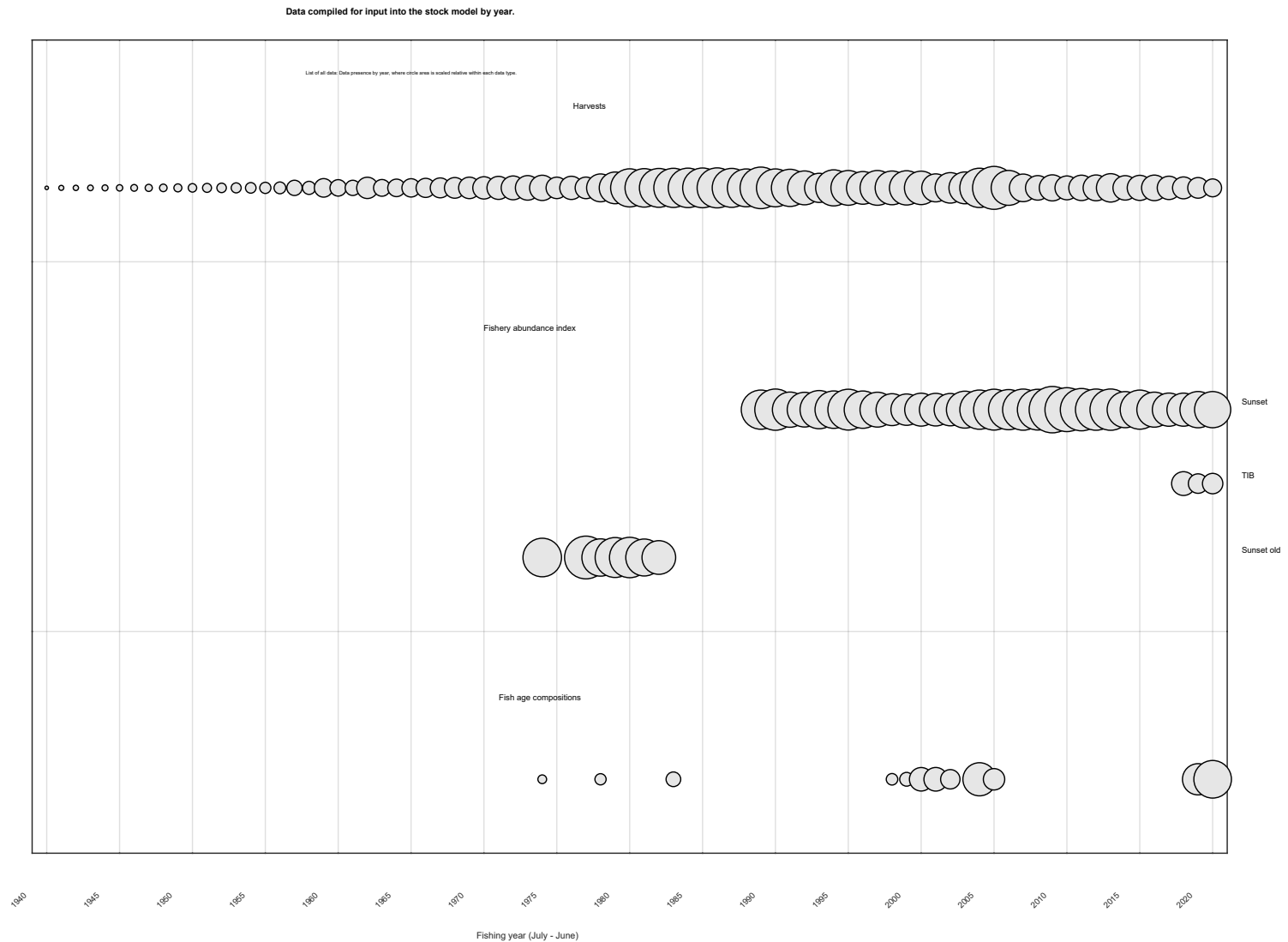
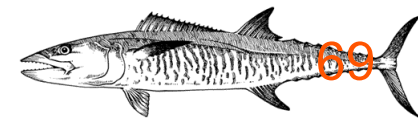


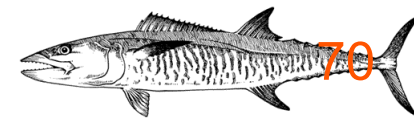
Supplementary slides

Section 1

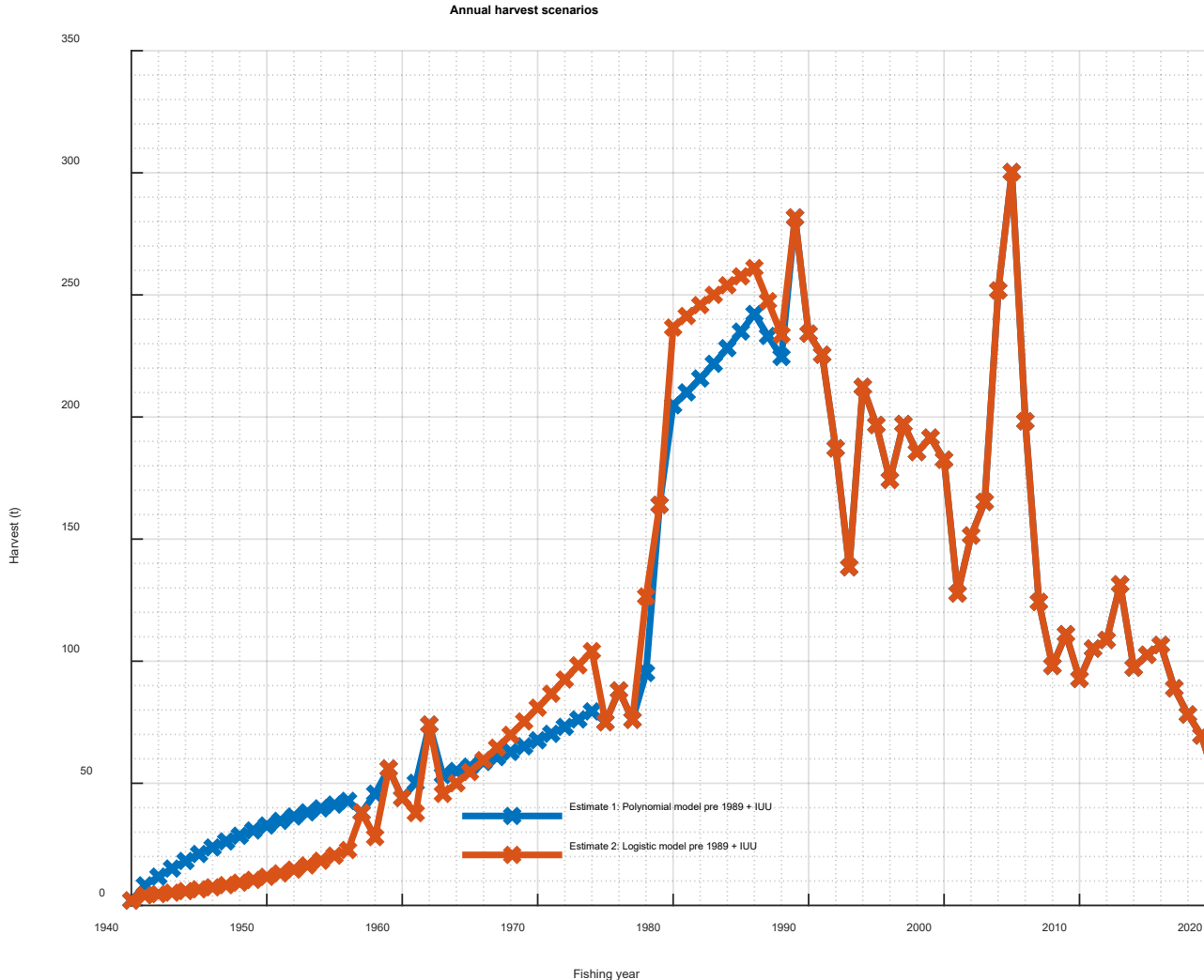
Available data

TIB and Sunset old catch rates were only used in the extra analyses

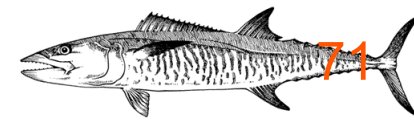




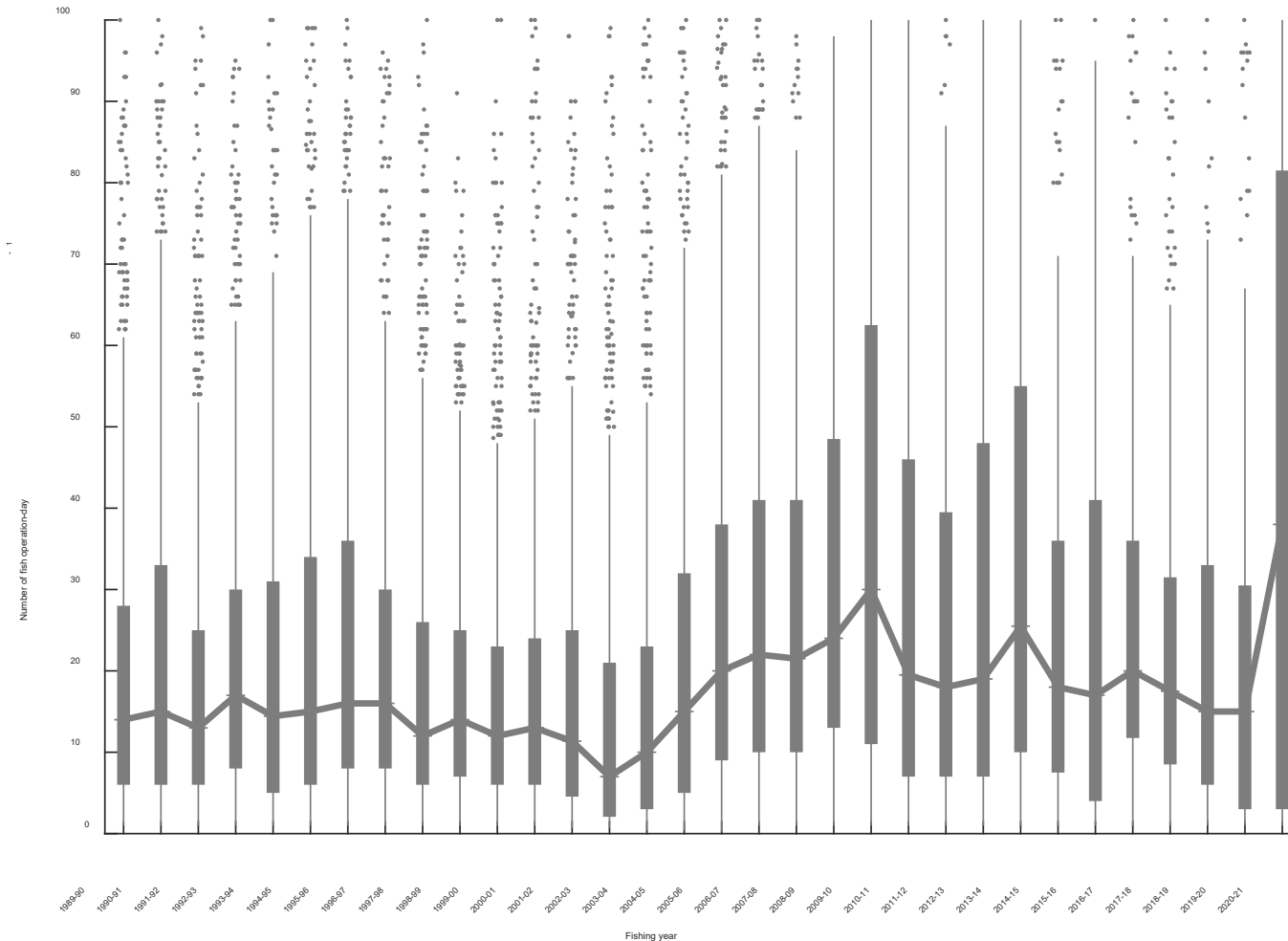
Estimated harvests (all fishing sectors)



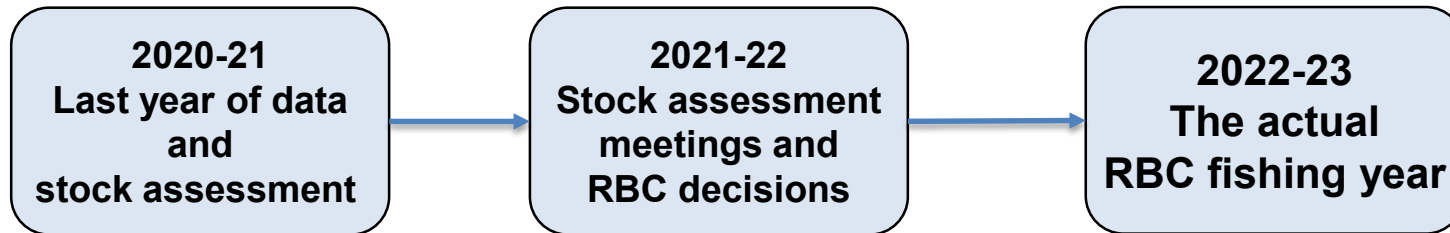
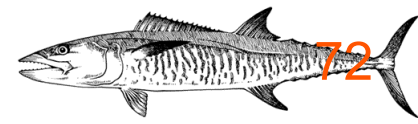
Data – Sunset nominal catch rates, boxplot



On each box, the line and central mark indicates the median, and the bottom and top edges of the box indicate the 25th and 75th percentiles, respectively. The whiskers extend to the most extreme data points not considered outliers, and the outliers are plotted individually using the '+' symbol. Y- axis was truncated at 100 fish. Only 2% of the data was above 100 fish, and the overall maximum catch per operation-day was 471 fish.

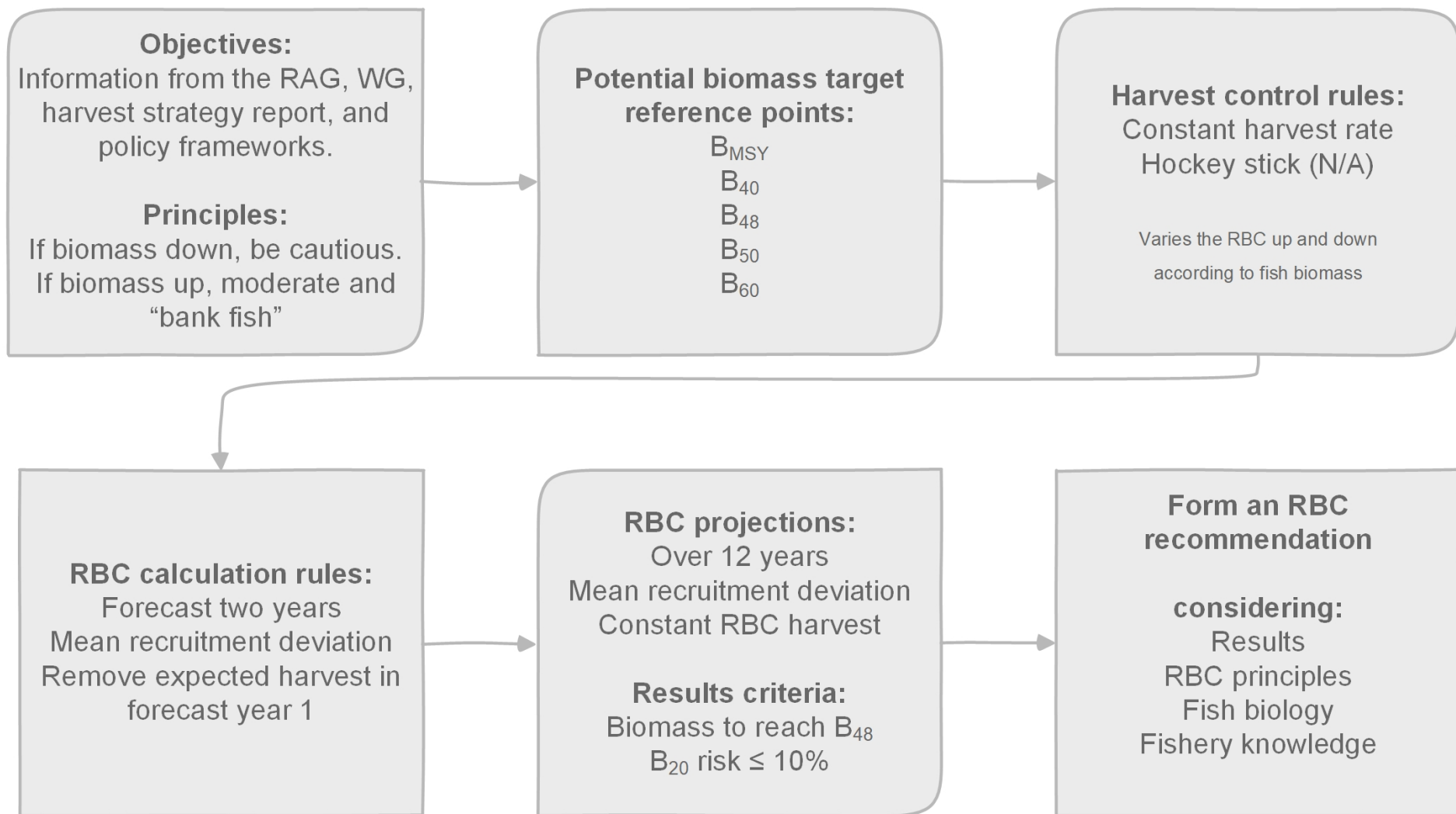
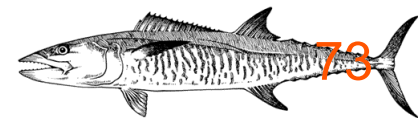


How do we calculate the Recommended Biological Catch (RBC)?

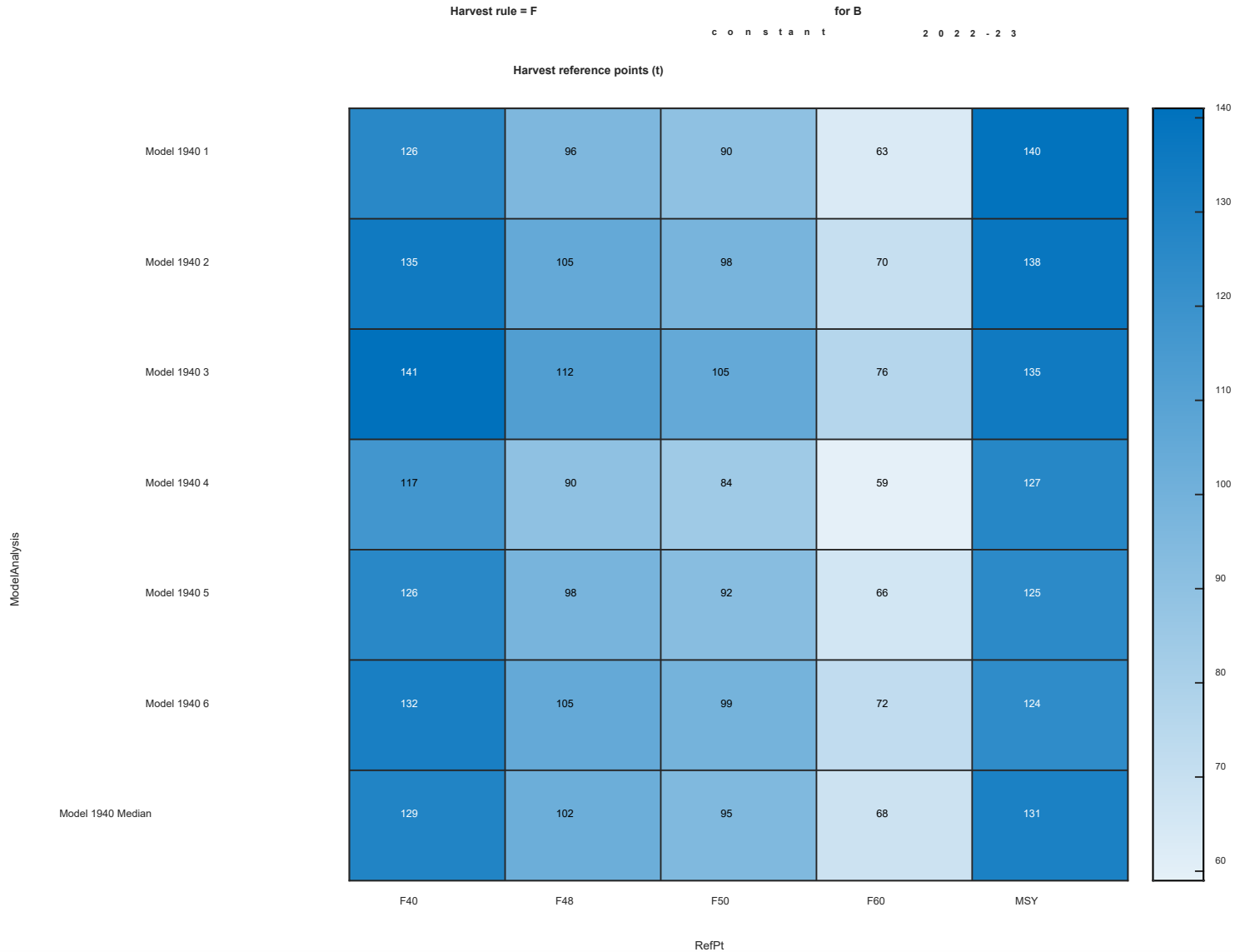
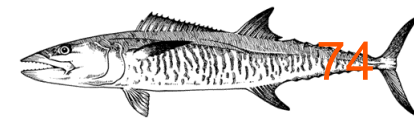


- The RBC calculation accounts for:
 - The time lag.
 - Average fish recruitment and a 2021-22 assumed harvest at 74 t.
 - Last year's assessment assumed a 2020-21 harvest at 55 t.

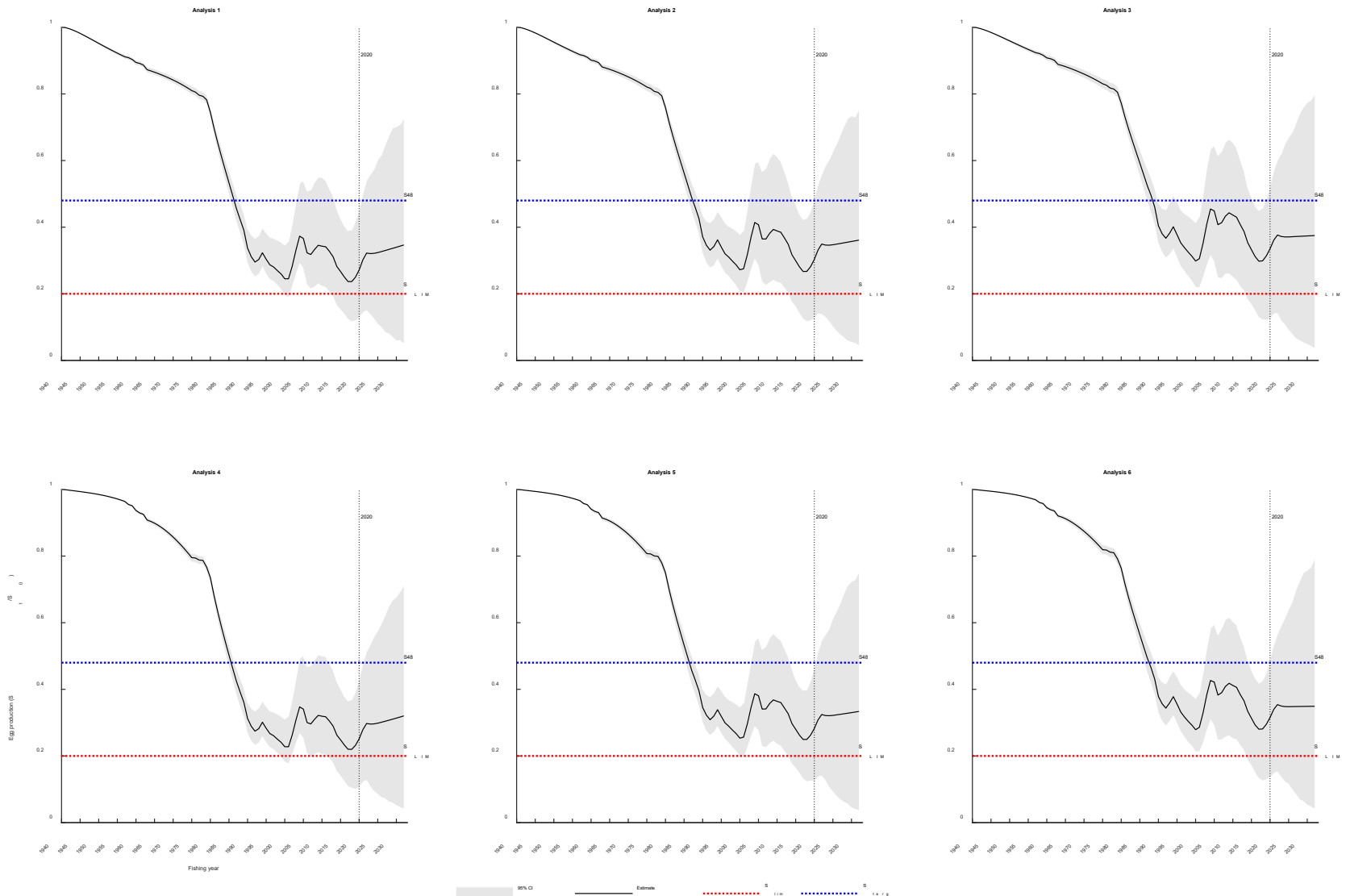
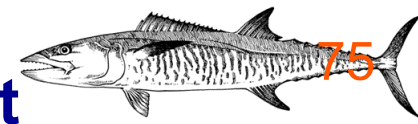
How do we form RBC advice?



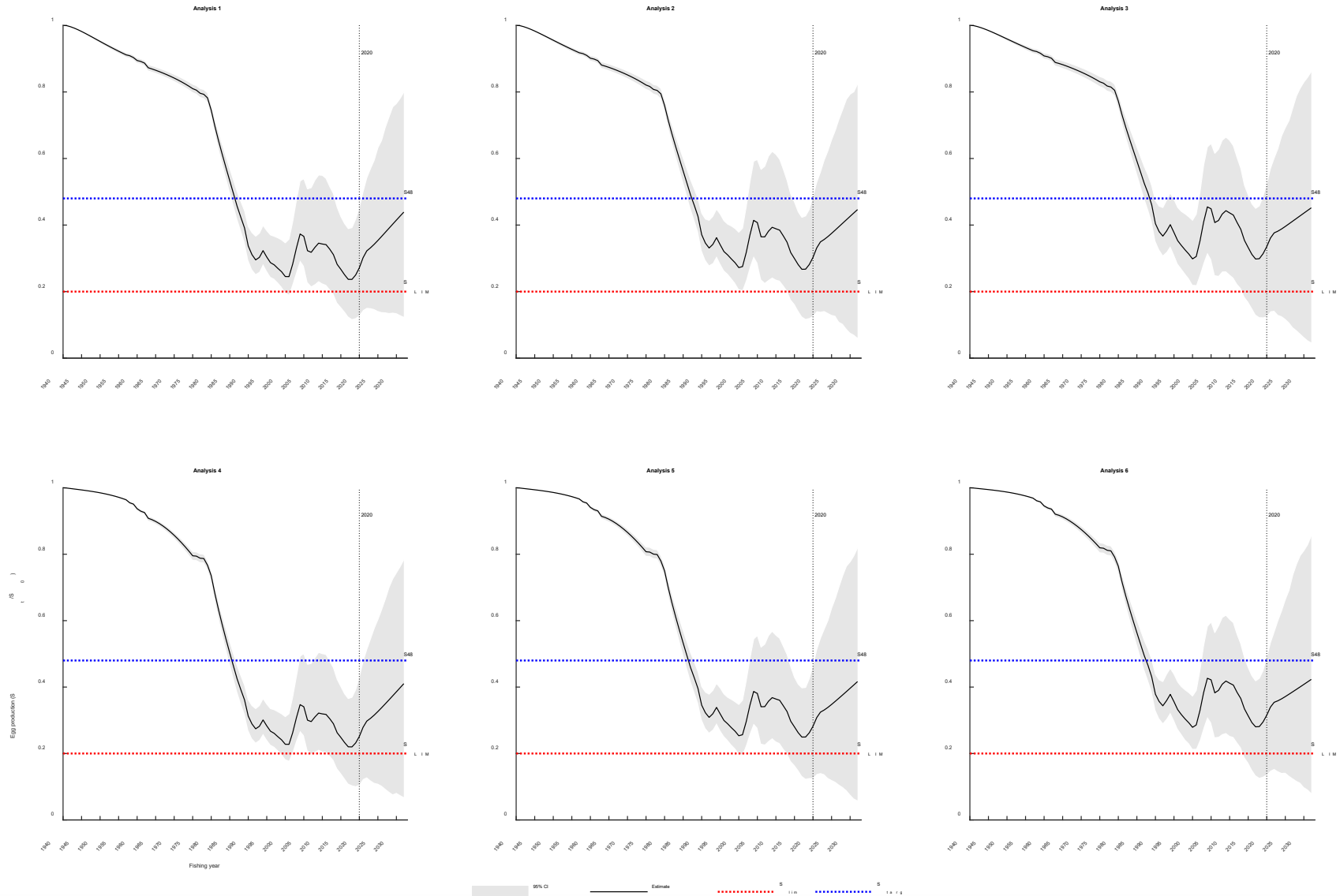
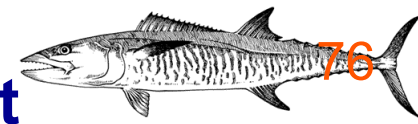
Potential RBC's for all sectors



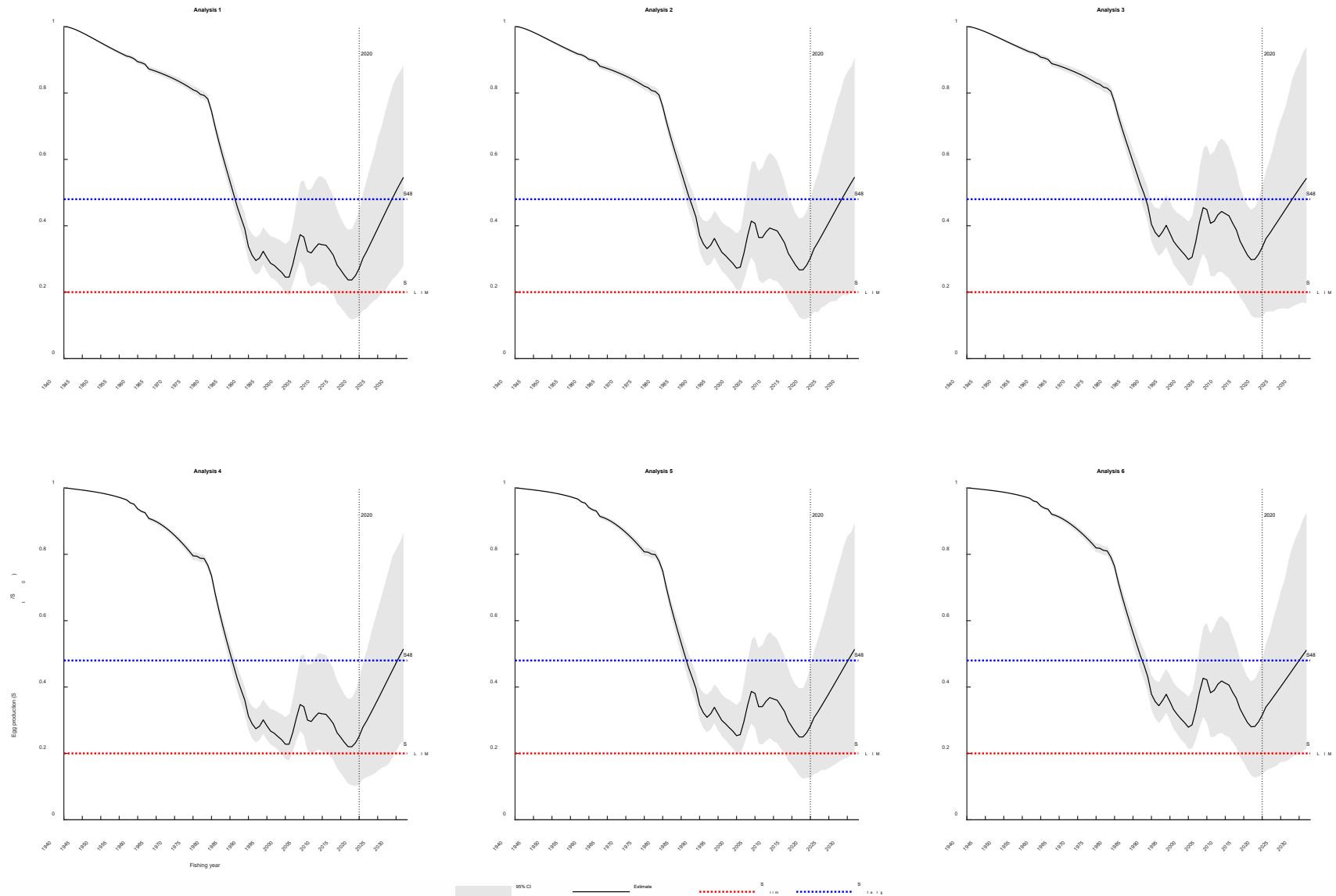
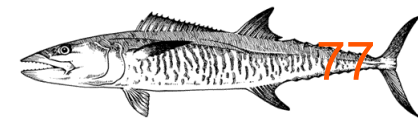
Spawning biomass forecast for the RBC = 129 t

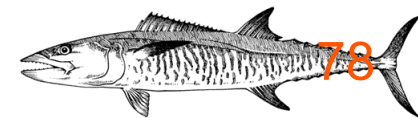


Spawning biomass forecast for the RBC = 102 t



Spawning biomass forecast for the RBC = 68 t



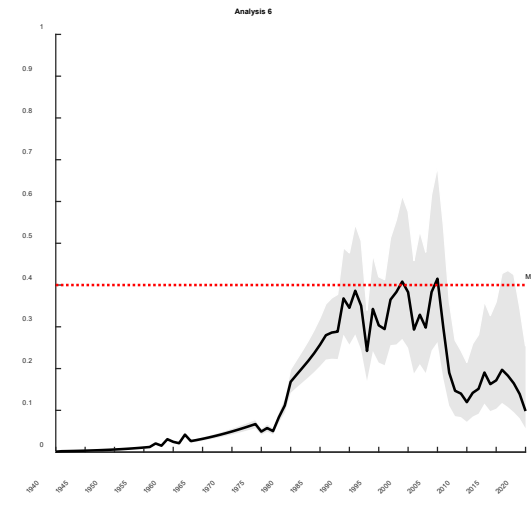
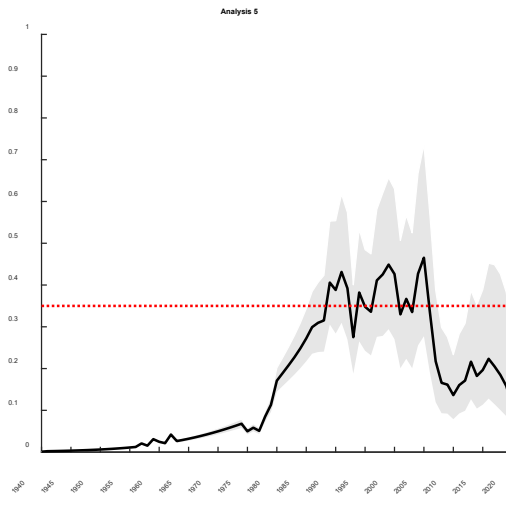
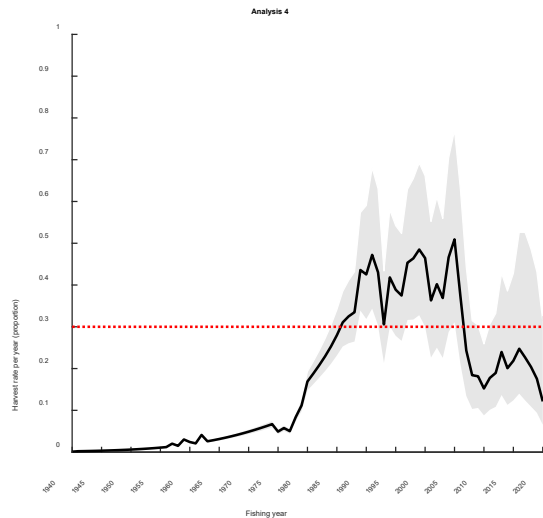
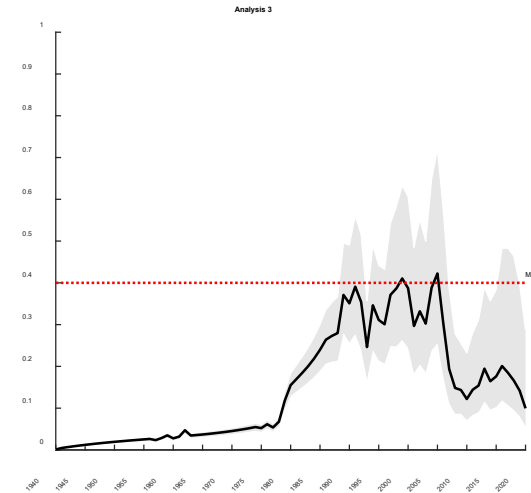
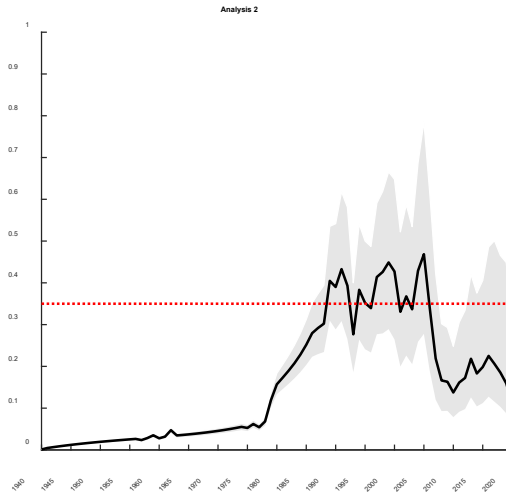
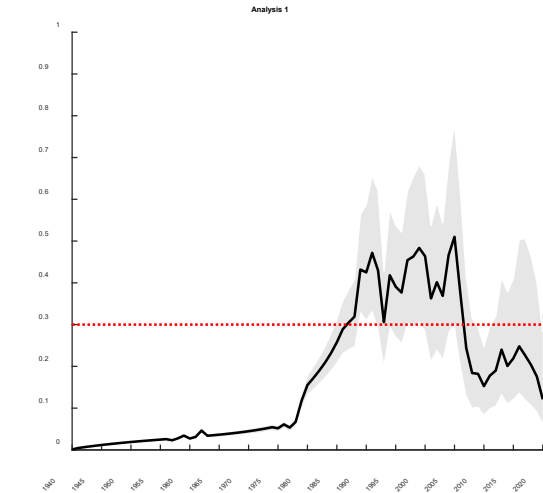
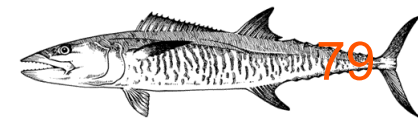


Summary of estimates.

Confidence intervals are in parentheses (95%).

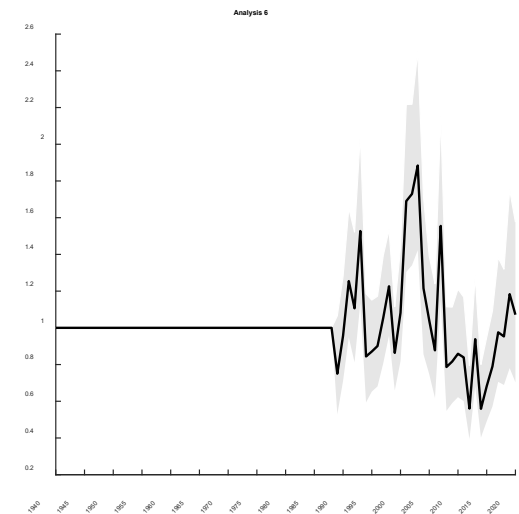
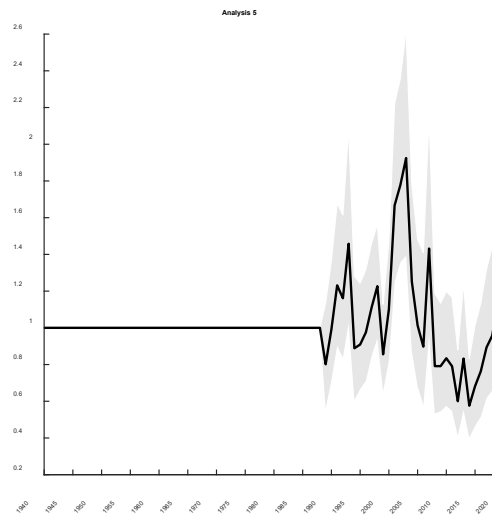
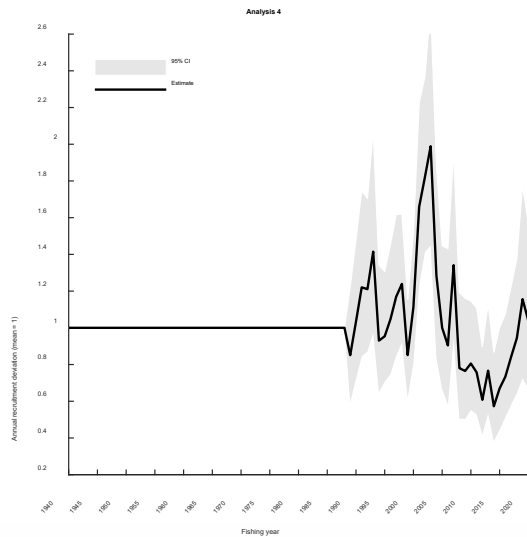
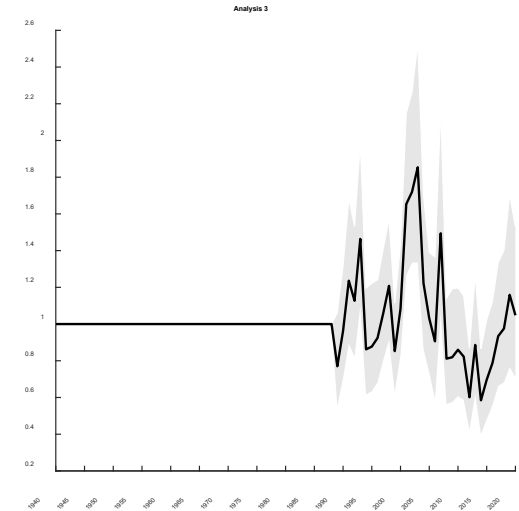
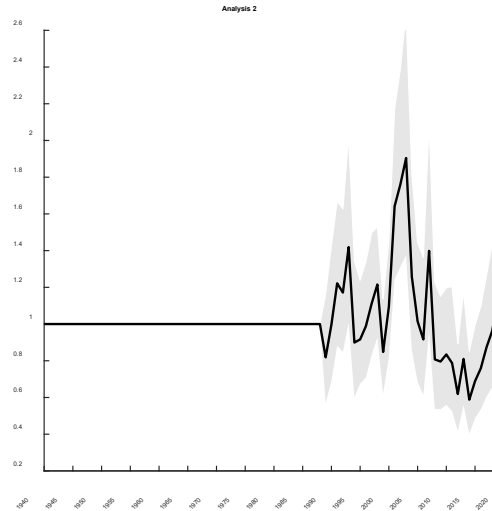
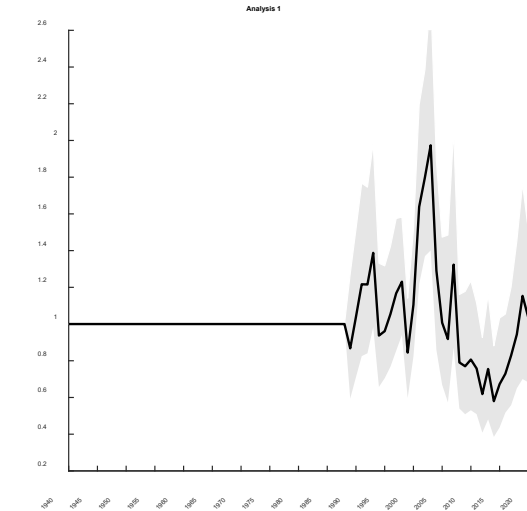
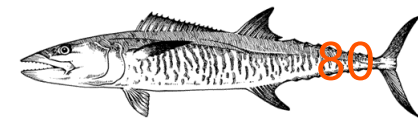
Data	Analysis 1	Analysis 2	Analysis 3	Analysis 4	Analysis 5	Analysis 6
Harvest	Polynomial, IUU	Polynomial, IUU	Polynomial, IUU	Logistic, IUU	Logistic, IUU	Logistic, IUU
Natural Mortality M	0.3	0.35	0.4	0.3	0.35	0.4
Steepness h	0.463 (0.416 : 0.514)	0.396 (0.358 : 0.439)	0.345 (0.315 : 0.38)	0.445 (0.404 : 0.489)	0.382 (0.346 : 0.424)	0.333 (0.307 : 0.365)
Unfished Recruitment R0 / 10 ⁶	0.113 (0.101 : 0.126)	0.15 (0.133 : 0.17)	0.199 (0.174 : 0.23)	0.121 (0.11 : 0.133)	0.161 (0.143 : 0.182)	0.214 (0.189 : 0.243)
Vulnerability age 50%	1.775 (1.581 : 1.976)	1.778 (1.588 : 1.981)	1.779 (1.584 : 1.996)	1.775 (1.59 : 1.954)	1.775 (1.58 : 1.973)	1.768 (1.578 : 1.967)
Vulnerability age 95%	2.491 (2.201 : 2.803)	2.487 (2.209 : 2.78)	2.476 (2.199 : 2.757)	2.491 (2.235 : 2.766)	2.482 (2.201 : 2.787)	2.455 (2.2 : 2.728)
Log recruitment stddev (~CV)	0.295 (0.275 : 0.41)	0.283 (0.244 : 0.399)	0.281 (0.247 : 0.388)	0.3 (0.263 : 0.409)	0.291 (0.252 : 0.406)	0.298 (0.25 : 0.394)
Catch rate negLL	-42.418	-45.77	-50.277	-43.694	-47.739	-54.166
Fish age negLL	-177.2	-179.45	-180.9	-176.76	-178.67	-179.11
Fish age, annual eff sample size	147 (12 : 224)	143 (14 : 224)	141 (16 : 215)	145 (16 : 232)	141 (16 : 225)	138 (21 : 223)
Spawning ratio $S_{1989-90} / S_0$	0.391 (0.348 : 0.443)	0.426 (0.38 : 0.48)	0.461 (0.41 : 0.519)	0.361 (0.32 : 0.406)	0.396 (0.353 : 0.447)	0.431 (0.386 : 0.484)
Spawning ratio $S_{2020-21} / S_0$	0.272 (0.129 : 0.453)	0.303 (0.127 : 0.487)	0.335 (0.125 : 0.525)	0.251 (0.106 : 0.43)	0.282 (0.126 : 0.466)	0.315 (0.137 : 0.491)

Harvest rates – catch / biomass

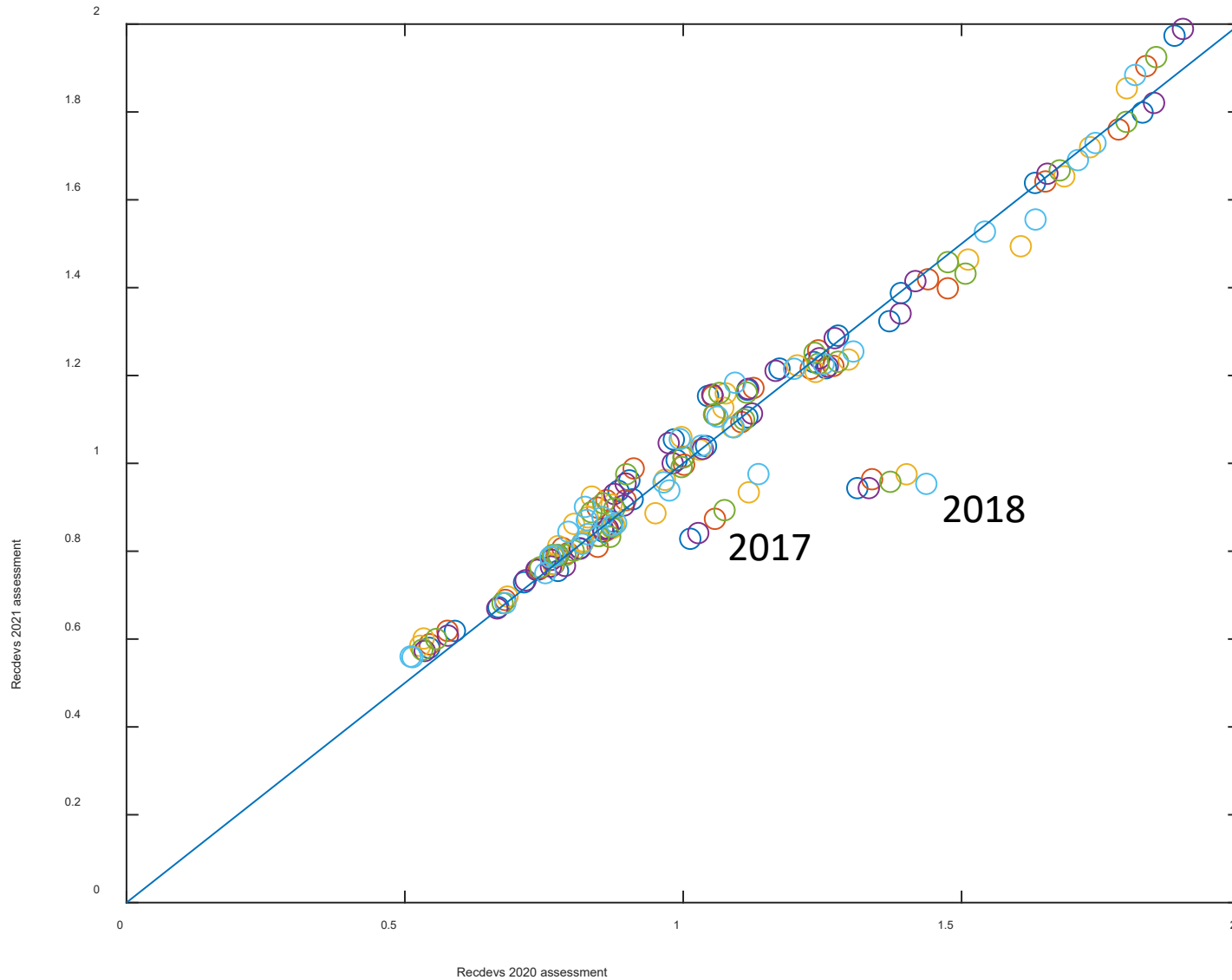
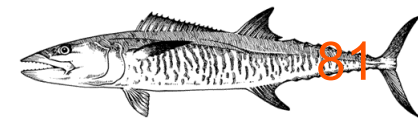


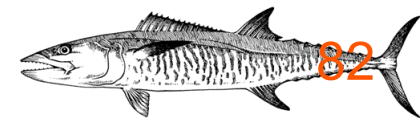
95% CI Estimate M

Recruitment deviations



Comparing recruitment deviations between 2020 and 2021 stock assessment



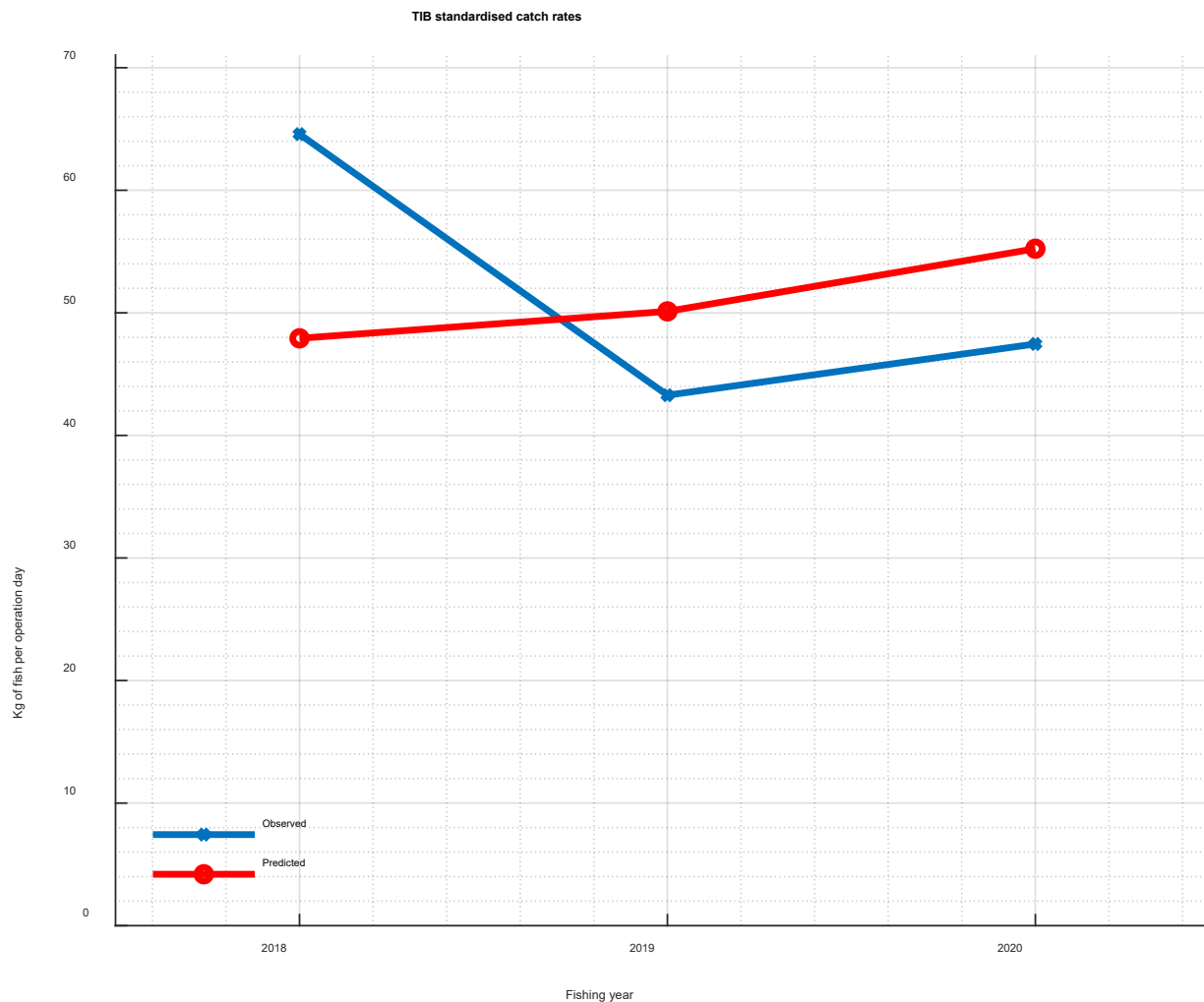


Supplementary slides

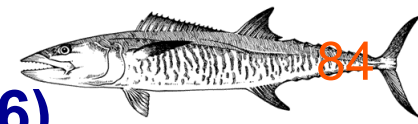
Section 2: Extra analyses



Data – TIB catch rates – analysis 11



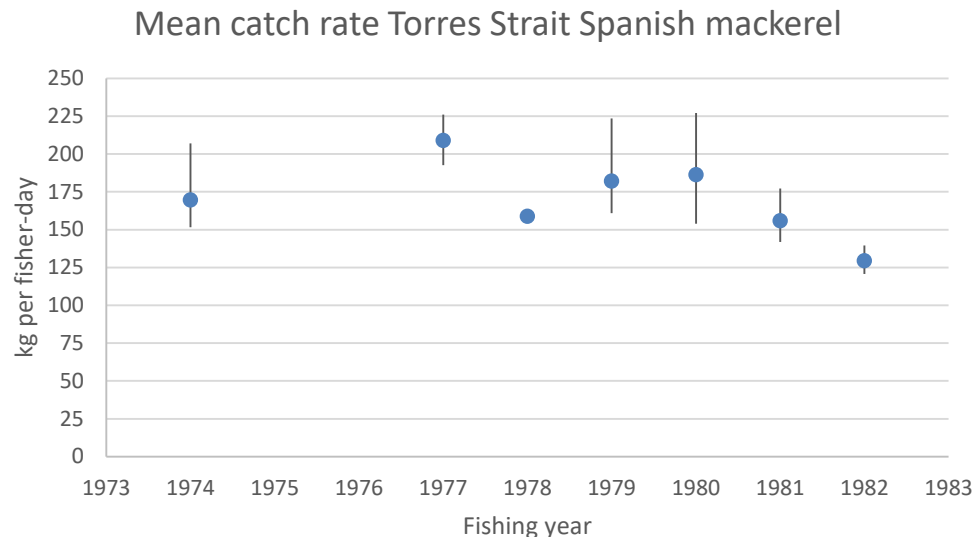
Historical catch rates old – McPherson, G. (1986)



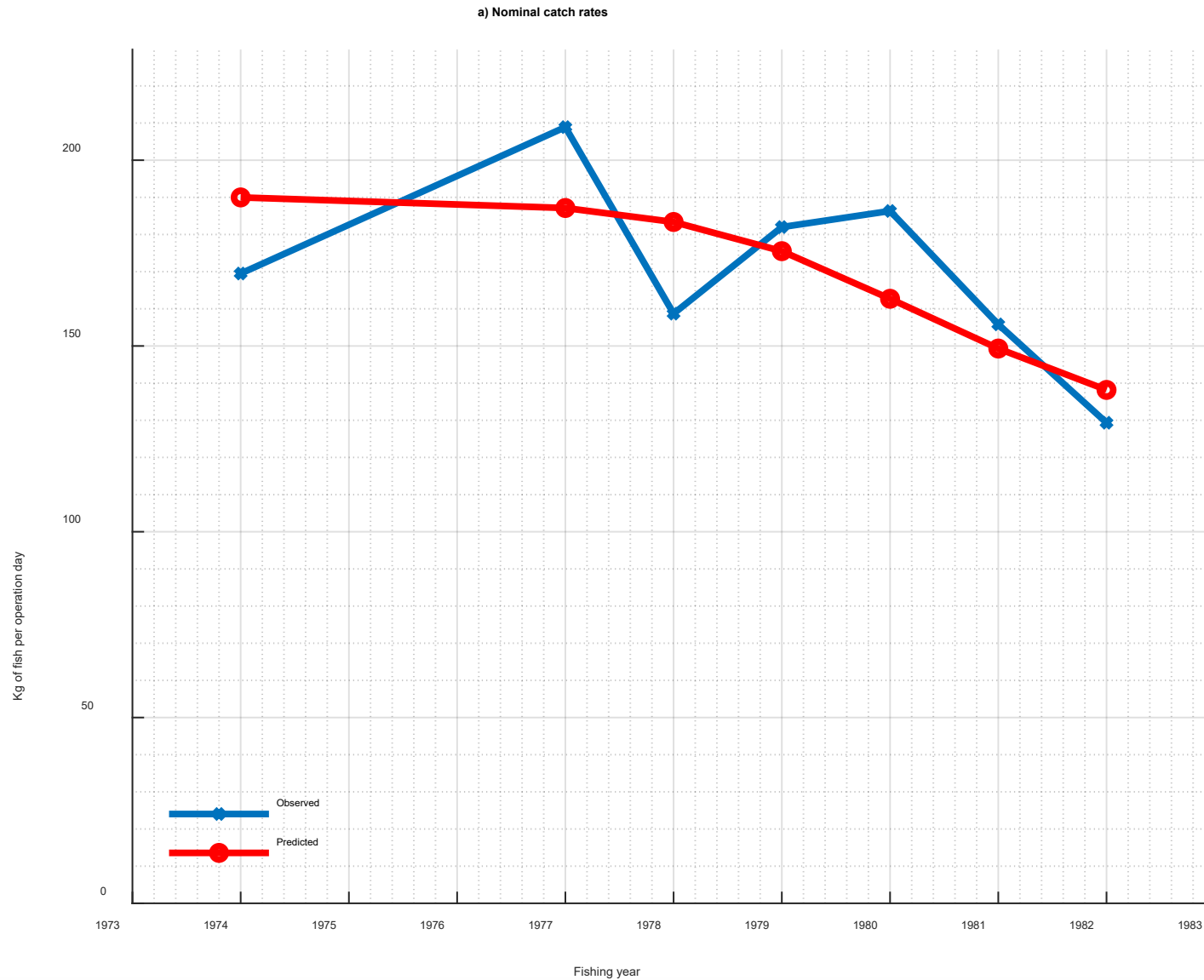
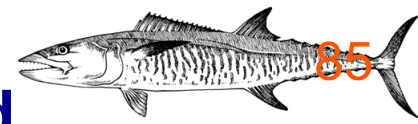
McPherson, G (1986). The Torres Strait Spanish mackerel fishery: A review of Australian development, production and research.

Comments from McPherson (1986):

- A study of catch per unit effort data for one vessel that consistently fished in the Torres Strait region from 1968 to 1983 showed:
 - there has been a decline in fish numbers landed per fisher per day on an annual basis.
 - The decline was evident after 1980.
 - These changes coincided with an illegal Taiwanese gillnet fishery that entered TSPZ waters.



Historical catch rates old – analysis 6, not fitted



Summary of Spanish mackerel RBC advice for the 2021-22 season

Updated stock assessment and results

1. Prior to the 2016–17 fishing year, a Spanish mackerel TAC of 187.7 tonnes had been in place since 2007–08. This TAC was based on the average catch between 2001 and 2005 and included historic high catches reported in the fishery.
2. Since 2017-18, a Recommended Biological Catch (RBC) has been calculated to cover all fishing sector harvests and have been based on updating the stock assessment model with new data. The model has been updated annually since, and based on the outcomes and interim harvest strategies, the TAC has been reduced each season; see table 1.

Table 1. Spanish mackerel TACs by year from 2007-08 to present.

Year	TAC (tonnes)
2007-08 to 2016-17	187.7
2017-18	132
2018-19	110
2019-20	82
2020-21	59

3. The latest stock assessment considered by the PZJA Finfish Resource Assessment Group (FFRAG) on 4-5 November 2020 was based on the same annual age-structured model as the 2019 assessment, which uses all available harvest, catch rate data and fish age-frequency data. This model is referred to as the 1940 model, inferring the year representing unfished biomass (B₀). The update to this model included 2019-20 an additional year of harvest data (fishing year) and an additional eight years of historical age-frequency data
4. All data inputs into the assessment were applied in line with recommendations from FFRAG 7 (8 October 2019). This included advice on reconstructing a catch history for the fishery prior to 1989, including harvests for illegal, unreported and unregulated foreign fishing, treating standardised catch rates (tender data to be excluded, fishing power to be included) and advice on using all newly available fish age-frequency data as inputs.
5. Nine specific agreed model analyses were performed rather than the 35 model scenarios run for the previous 2019 stock assessment update. Six of these model runs were for the 1940 model and three model runs were for the alternative exploratory model referred to as the 1989 model.
6. The exploratory 1989 model was developed and investigated by the stock assessment project team in line with recommendations from FFRAG7. The purpose of this investigation was to examine whether the model would be informative if it only included data from the time when compulsory Sunset logbook data reporting commenced. That was from 1989.
7. Having considered the results of the 1989 model and advice from all scientific members, the FFRAG agreed that the 1989 model remained exploratory but worthy of further development overtime. The FFRAG agreed that the 1940 model run provided the most reliable assessment of the stock and an acceptable basis to evaluate the status of the stock and to calculate an RBC for the 2021-22 fishing season.

8. Based on the six agreed 1940 model runs, the results of the updated 2020 stock assessment show:
- a) The estimated 2019-20 median spawning biomass of Torres Strait Spanish mackerel was 30% (B30), ranging between 26% (B26) and 35% (B35), of unfished biomass in 1940 (B0). This represents a seven percent increase from the 2019 estimated spawning biomass for 2018-19 of 23 (B23) per cent (ranging between 14-37%) of unfished biomass in 1940 (B0);
 - b) None of the median biomass estimates from the six model scenarios were below the agreed limit reference point (BLIM is defined as 20% of the 1940 biomass level ($0.2 \times B_0$)) although the lower confidence intervals of some model runs were below BLIM;
 - c) Unlike the declining trend since 2009-10, the standardised catch rate (number of fish per operation day) of legal-sized Spanish mackerel, using logbook data from Sunset fishing operations, increased in 2019-20 (a statistically significant increase);
 - d) Age-frequency data now available from 2019-20, shows estimates of recruitment have returned to around the average; and
 - e) Recent fishing pressure is not exceeding FMSY (the harvest rate for Maximum Sustainable Yield (MSY) from the stock). This means overfishing is not occurring.

Selecting an appropriate RBC calculation method

9. To guide advice on an RBC for the 2021-22 fishing season, noting there is no agreed, final harvest strategy in place for the Torres Strait Finfish Fishery, the FFRAG considered a range of RBC calculations. These are described in **Table 2** and outlined below.
10. In forming their RBC advice, the FFRAG:
- a) considered five different constant (non hockey-stick) harvest rates applied to the six results from the 1940-model. Each level of harvest rate related to building the stock to different target reference points (F_{MSY} through to F_{60});
 - b) agreed to forecast the stock biomass to the 2021-22 fishing season based on an assumed level of harvest in 2020-21 (55 t = 39 t sunset, 4 t TIB harvest (based on the mean of the past three TIB fishing seasons), 10 t subsistence, 2 t recreational and 0 t for charter catches) and assuming average recruitment occurring. Therefore the RAG discounted approaches based on the 2019-20 estimate of biomass (Table 2, Approaches 7, 8, 9, 10 and 11);
 - c) agreed to assume average, rather than depressed recruitment in future fish population risk-projections. Unlike the findings from last stock assessment, the most recent recruitment deviations for each of the model runs were all positive. The FFRAG therefore agreed there was insufficient basis to assume below average recruitment in the future projections. Therefore the FFRAG discounted all approaches that assumed reduced recruitment (Table 2, Column 5);
 - d) reviewed fish population projections to evaluate risk to the stock. Consistent with the 2019 approach used by the FFRAG, it was agreed to consider how many years in a model run and simulation the stock would drop below the limit reference point (B_{20} or 20% of the

unfished spawning biomass level in 1940) during a 12 year-time period (three times the age of full sexual maturity)⁴. The FFRAG agreed, in line with the *Commonwealth Harvest Strategy Policy*, that if more than 10% of model runs (based on over 1000 simulations), dropped the stock below B_{LIM} that this would represent unacceptable risk to the stock. Therefore the RAG discounted approaches which represented unacceptable risk to the stock (Table 2, Approach 1 Constant F_{MSY} and Approach 2, Constant F_{40});

- e) considered industry member advice at the meeting and the principles recommended by industry for developing a harvest strategy for the fishery to be conservative by '*hastening slowly*' and by '*banking*' fish if the biomass is increasing. Therefore the FFRAG discounted Approach 3 (Constant F_{48}) with an RBC calculation of 112 t as this represented too great of an increase in RBC over the 2019-20, 71 t RBC level. Likewise, the FFRAG discounted Approach 5 (constant F_{60}) with an RBC calculation of 75 t as it offered little increase from the current season 71 t RBC noting that the assessment outcomes did suggest an increase in RBC was warranted based on improvements in CPUE and modelled recruitment;
- f) noting that 75 t RBC (constant F_{60}) was considered too low, and 112 t RBC (Constant F_{48}) was considered too high the FFRAG requested the project team to present a compromise approach of an RBC based on the mean point between F_{48} and F_{60} . This approach (Table 2, Approach 6) would represent an RBC of 94 t;
- g) reviewed fish population projections for 105 t and 94 t harvests to evaluate the likelihood of the stock building to B_{48} over the 12 year projected time period (three times the average age of sexual maturity);
- h) The FFRAG considered B_{48} or B_{50} to be a sensible interim target reference point, noting that B_{48} is the default proxy for B_{MEY} when no economic data are available (under the *Commonwealth Harvest Strategy Policy*). B_{MEY} measures the biomass of fish to yield the sustainable maximum-economic-yield (MEY) from the stock. B_{MEY} also relates to the long-term aspirational target reference point of B_{60} recommended by industry under the harvest strategy work completed to date.
- i) The FFRAG noted that only one of the six 1940-model runs would be reaching the reference point of B_{48} (with a constant harvest of 105 tonnes) after 12 years. Therefore, the RAG discounted the approach labelled 4 (Constant F_{50}) as although the harvest poses acceptable risk to the stock, this level of harvest will likely not build the stock to the interim B_{48} target reference point within 12 years. However, the constant harvest of 94 t did build the stock to B_{48} by 12 years.

RBC advice

11. In line with the agreed RBC calculation method described above of removing less appropriate RBC options (summarised in **Table 2** below), the FFRAG recommended a 94 tonne RBC for Spanish mackerel for the 2021-22 season. The FFRAG agreed that this RBC:
 - a) is based on the application of a constant harvest rate equivalent to the mean point between F_{48} and F_{60} to the estimated biomass in the 2020-21 fishing season;

⁴ The FFRAG reviewed and agreed to the rationale of the 12-year timeframe being three times the full age of maturity i.e., based on age-length information by four years of age most fish are fully mature and contributing to the stock.

- b) would build the stock on average to the interim target reference point (for F_{48}) within a reasonable timeframe of 12 years (three times the age of sexual maturity) and assuming average recruitment to be occurring;
- c) poses an acceptable low risk of the stock falling below the limit reference point (less than 10% of model runs and simulations dropping the stock below 20% of unfished spawning stock biomass in 1940); and
- d) reflects the preference of industry members to have a harvest strategy that is balanced and careful by '*hastening slowly*' by '*banking*' fish if the biomass is increasing.

Table 2. Summary of options presented to the FFRAG as outputs from the 1940 model runs in the 2020 Spanish mackerel stock assessment update. Yellow highlighted approaches were those considered by the RAG as potentially appropriate RBCs for recommendation.

No.	Name of RBC approach	Biomass year for the RBC calculation	% runs below S_{20} over 12 years and 6 analyses		Median
	1940-model		Assuming average recruitment	Assuming reduced recruitment	2021-22 RBC (tonnes)
1	Constant F_{MSY}	2021-22	12%	24%	146
2	Constant F_{40}	2021-22	12%	23%	145
3	Constant F_{48}	2021-22	9%	15%	112
4	Constant F_{50}	2021-22	8%	13%	105
5	Constant F_{60}	2021-22	7%	9%	75
6	Mean of F_{48} and F_{60}	2021-22	8%	N/A	94
7	Constant F_{MSY}	2019-20	8%	12%	99
8	Constant F_{40}	2019-20	8%	12%	97
9	Constant F_{48}	2019-20	7%	9%	77
10	Constant F_{50}	2019-20	7%	9%	73
11	Constant F_{60}	2019-20	6%	8%	53

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
STOCK ASSESSMENTS AND RBC ADVICE Coral trout	Agenda Item No. 3.2 For Discussion and Advice

RECOMMENDATIONS

That the Finfish Fishery Resource Assessment Group:

1. **NOTE** the summary of coral trout data from the 1995-1996 CSIRO Fish Dive Survey in the Torres Strait to be presented by Dr Trevor Hutton;
2. **REVIEW** the updated coral trout Catch Per Unit Effort (CPUE) data series to be presented by Dr Hutton; and
3. Having regard for new catch data, previous assessments, and the updated coral trout CPUE data time series, **DISCUSS** and **PROVIDE ADVICE** on an RBC for Coral trout for the 2022-23 fishing season.

KEY ISSUES

1. The status of coral trout has been assessed against both the results of a Management Strategy Evaluation (MSE) undertaken in 2006 (Williams et al. 2007, 2011) and more recently, a preliminary stock assessment undertaken by Dr George Leigh (QDAF) and Dr Matthew Holden (University of Queensland) under the previously funded project “*Harvest strategies for the Torres Strait Finfish Fishery*”.
2. At its 31 October-1 November 2019 meeting (FFRAG 5) the RAG recommended that a stock assessment be conducted during the 2021-22 fishing season, once further data is available. At the time, the FFRAG considered that postponing the stock assessment for three years would allow enough time for additional data to be included. The additional data priorities identified being:
 - a) Review and possible inclusion of data from a 1994-95 CSIRO fish survey data in the Torres Strait (*Influence of Coastal Processes on Large Scale Pattern in Reef Fish Communities of Torres Strait, Australia*, Milton & Long, CSIRO 1997);
 - b) Improved catch and effort data from TIB fishers; and
 - c) Fishery independent data such as an underwater survey or biological sampling. Biological sampling for coral trout has been commenced in the 2020-21 fishing season for the first time.
3. At its meeting (8 October 2020, meeting 7), the FFRAG did not recommend undertaking a stock assessment for coral trout as a research priority for potential funding in 2020-21 nor did the FFRAG support a Fishery Independent Survey at that time.
4. Gratefully, Dr Hutton has summarised coral trout data from the 1995-1996 CSIRO dive survey (**Attachment 3.2a**) and updated the CPUE data time series for coral trout (**Attachment 3.2b**). Dr Hutton will present these data at the meeting.

5. Consideration of both the dive data and CPUE series will likely assist the RAG in prioritising future assessment and data needs for the coral trout. The CPUE analysis may assist the RAGs consideration of the likely status of coral trout and advice on an RBC for 2022-23 fishing season.
6. At the RAG's meeting on 31 October – 1 November 2019 (meeting 5) the RAG identified, two triggers that may indicate changes in the risk profile for the stock:
 - a) Catches from TIB + Sunset sector exceeding 90 t (being two thirds of the constant catch TAC of 134.9 t); and
 - b) If the standardised catch rate per day drops below 90.6 kg per primary vessel day¹.
7. The RAG advised that either of these two triggers being met would flag a change in the stock status and will mean a stock assessment is to be carried out to investigate. FFRAG considered that further work would be required to develop decision rules based on the outcomes of this assessment if triggered; i.e. how are the outputs of the assessment used to then move the stock relative to the reference points.
8. Relevantly the RAG also recommended that an alternative, robust indicator of stock status, other than CPUE from the small number of sunset boats targeting coral trout, needs to be developed to track the stock status over time.
9. At FFRAG 9 meeting on 14-15th October 2021, the RAG noted the 2020 *ABARES Fishery Status Report* for the Torres Strait Finfish Fishery. It was raised by a scientific member that although coral trout are currently classified as not being overfished, and not subject to overfishing, due to the increasing length of time since the last evaluation of the coral trout stock, there is an increasing risk of it becoming unknown what the productivity of the stock is. This was flagged to the RAG that unless a stock assessment can be endorsed, then there is a risk that the fishery may be classed as 'status uncertain' for being over-fished/subject to overfishing.
10. Recent commercial catches of Coral trout in the Fishery are summarised below:
 - 21 tonnes in 2014-15
 - 38.4 tonnes in 2015-16.
 - 25.7 tonnes in 2016-17
 - 27.3 tonnes in 2017-18
 - 17.3 tonnes in 2018-19
 - 32.5 tonnes in 2019/20
 - 18.9 tonnes in 2020-21

BACKGROUND

1. A coral trout TAC of 135 tonnes has been in place since 2007–2008 (note historically the TAC was 134.9 tonnes but the PZJA agreed to simplify the TAC for the 2019-20 fishing season). This TAC was based on the average catch between 2001 and 2005 and included historic high catches reported in the fishery.
2. For the 2017–18, 2018-19, 2019-20 and 2020-21 fishing seasons the FFRAG and FFWG have recommended maintaining the TAC without change.

¹ The catch rate associated with B80 was determined to be 120 kg per day based on an average from 2012-2017 advice is that if it falls below 90 kg per day (as a proxy for B60) it would trigger an assessment.

3. In the absence of a formal stock assessment, the status of the coral trout stock has been evaluated against the results of a Management Strategy Evaluation (MSE) undertaken in 2006 (Williams et al. 2007, 2011). In this MSE exercise, four constant catch scenarios of 80, 110, 140 and 170 tonnes were tested which all achieved a biomass for the fishery of at least 60 per cent of virgin total biomass by 2025. The biomass in 2004 was estimated to be more than 60 per cent of unfished levels (Williams et al. 2011, 2007). Commercial catch in recent years has been below historical catch levels and well below the lowest catch level simulated in the MSE (80 t per year).
4. At its meeting on 13-14 March 2019 the FFRAG considered a preliminary stock assessment for coral trout. The FFRAG accepted the assessment as preliminary noting the stage of development of the assessment and the range of uncertainties within the assessment. The FFRAG noted the results of the preliminary stock assessment suggest the coral trout stock is healthy with around 80 per cent of virgin biomass available. The RAG noted that all of the model estimates of current spawning biomass were above 65 per cent estimated virgin biomass.
5. At meeting on 25 November 2020 the FFRAG again recommended maintaining the coral trout TAC at 135 t for the 2021-22 season noting, catches remain low in the fishery (catches for the 2019-20 fishing season were 32.34 tonnes), the 2019 preliminary stock assessment outcomes, and industry advice that catches were unlikely to increase significantly in next fishing season.
6. At its meeting on 25 November 2020 the FFWG supported the FFRAG advice and also recommended that the coral trout TAC remain at 135t for the 2021-22 fishing season.
7. The Working Group further noted FFRAG advice on the data priorities for the Fishery and information needed to support the development of a more accurate stock assessment that could be relied upon to adjust the TAC and therefore have greater confidence around the future harvest levels. The Working Group noted the importance of such information to guide investment decisions and therefore potential expansion of the Fishery. The priorities include a fishery independent dive survey of abundance, together with improvements to the accuracy of logbook reporting (effort, species 'split'), biological sampling and habitat mapping.

Catches outside of the Fishery

8. To date, the TAC has not calculated with an explicit deduction to account for likely catches taken outside the fishery (kai kai, recreational, charter). This is because it has not been a high priority to undertake work to determine catch estimates whilst catches remain very low compared with the TAC.
9. At its meeting on 27-28 November (meeting 6), the RAG recommended that AFMA undertake a work plan to support RAG consideration of likely catches ahead of the following fishing season. To date, this work has not been actioned as due to the underutilised nature of the fishery (catches far below the available TAC).
10. The RAG agreed to retain this action item, noting however, that progressing this action needs to be assessed against other RAG priorities and in light of any future research investment to develop an approach for measuring non-commercial fishing for the region

11. At its meeting on 14-15th October the RAG noted the progression of the project *Developing an approach for measuring non-commercial fishing in the Torres Strait in order to improve fisheries management and promote sustainable livelihoods*, which was completed in 2021. This project proposed a timeline of future monitoring projects to measuring non-commercial catch, including coral trout.

Summary of Coral Trout data in 1995-1996 CSIRO Fish Dive Survey in the Torres Straits.

Trevor Hutton (CSIRO)

Introduction

The fish fauna of the edge of coral reefs in Torres Strait was investigated by underwater visual transects at 276 sites on 41 reefs between August 1995 and January 1996. The fish community contained most common families of tropical Indo-Pacific coral reefs (Milton and Long 1997).

Data on Coral Trout

The percentage of the species split is shown in Figure 1. As only *Plectropomus maculatus* was recorded in 1996, the data in Figure 1 summarises 1995 data only (see Table 1, with counts).

Figure 2 shows the observations for all the coral trout seen during the survey (both 1995 and 1996). The abundance estimates from this study will be provided during discussion on the topic with comparisons made to other studies, and the preliminary assessment that was conducted.

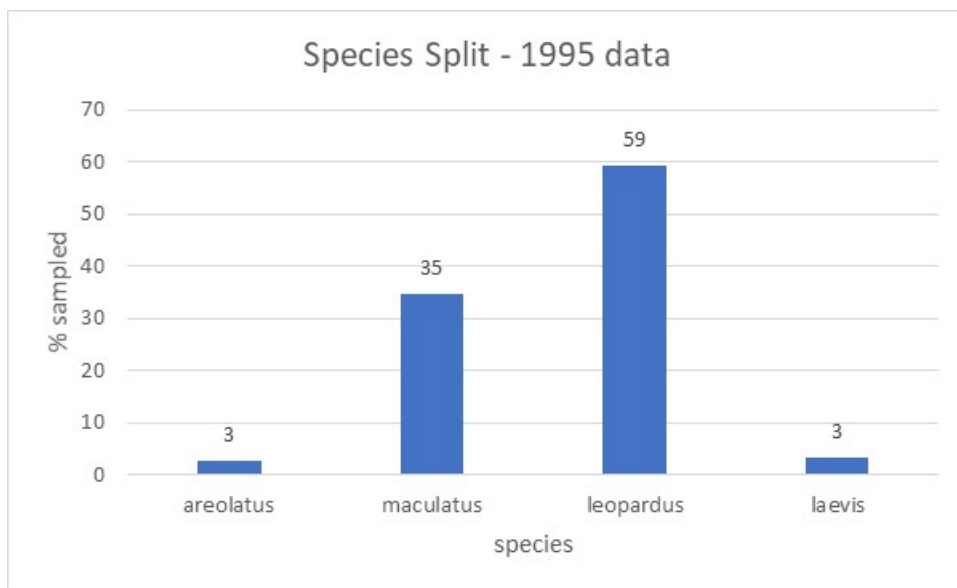


Figure 1. The species split across the four species within category of "Coral Trout" using 1995 data.

Table 1. Count of fish for each species of the group "Coral trout"

Year	areolatus	maculatus	leopardus	laevis
1995	19	249	427	24
1996	0	124	0	0
Grand Total	19	373	427	24

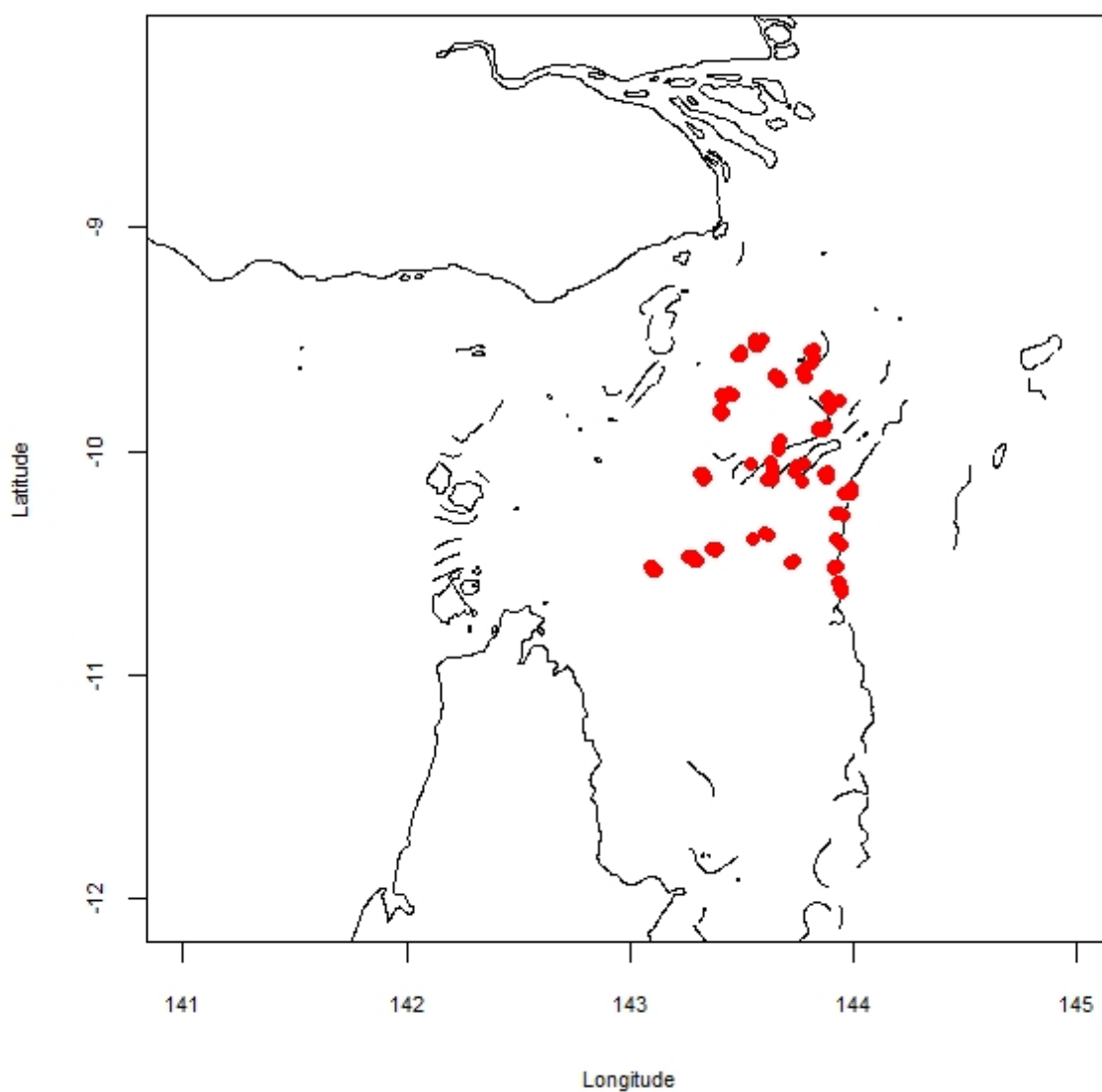


Figure 2. The spatial distribution of the observations for the four species within the fish group – “Coral Trout”.

References

Milton D.A and B.G. Long 1999. Influence of Coastal Processes on the Large Scale Patterns in Reef Fish Communities of Torres Strait, Australia. Report MR-GIS 97/6

Update to Coral Trout CPUE time series

Trevor Hutton (CSIRO) and Chris Boon (AFMA)

Background

We updated the CPUE (not standardised) till 2020 and plotted the standardised CPUE till 2017 for Coral Trout (all four species; all areas)(Figure 1).

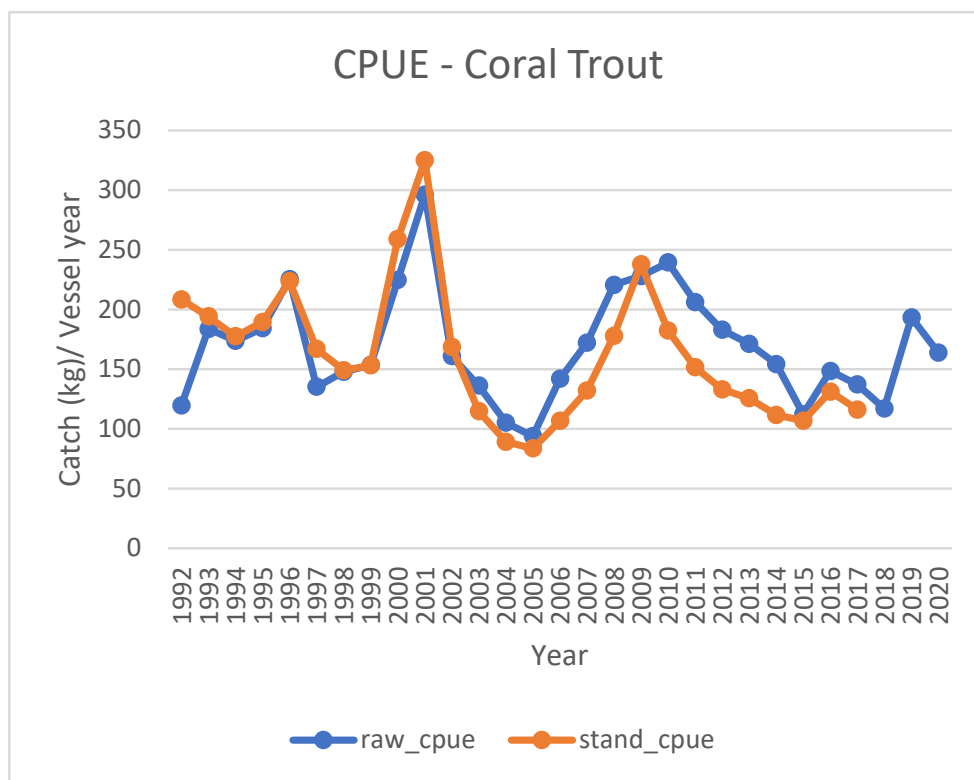


Figure 1. CPUE (not standardised) till 2020 and standardised CPUE till 2017 for Coral Trout (all four species; all areas).

Three years were added – 2018, 2019, 2020 compliments of AFMA, with the standardised CPUE completed by Holden and Leigh (2019).

To note: The difference between the two time series is significant with the 'raw'/non standardised trending above the standardised necessitating the requirement for an the CPUE to be standardised. Part of the harvest strategy document proposed considering the standardised trend year on year and looking for a sudden decrease that if the value went below a certain limit it would trigger a stock assessment (and potential recommendation for a lower TAC) as the CPUE standardised trend had been previously related to predicted biomass and the lower limit of CPUE was obtained by deciding on a lower level of biomass that the stakeholders did not want the stock to go below.

References

Holden, M. and G. Leigh 2019. Preliminary Stock Assessment for Coral Trout in Torres Strait. In: Draft Harvest Strategies for the Torres Strait Finfish Fisheries. Hutton et al. Editors. AFMA. Project No. 2016/0824.

Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18-19 November 2021
HARVEST STRATEGY DEVELOPMENT	Agenda Item No. 4 For Discussion and Advice

RECOMMENDATIONS

That the Resource Assessment Group (RAG):

1. **REVIEW** work to date on developing harvest strategies for Spanish mackerel and coral trout;
2. **AGREE** on outstanding harvest strategy components to be progressed and tested; and
3. **DISCUSS** and **PROVIDE ADVICE** on a work plan to develop RAG advice on final draft harvest strategies for Spanish mackerel and coral trout.

KEY ISSUES

1. The AFMA funded project “*Harvest Strategies for the Torres Strait Finfish Fishery* project (Project number 2016/0824) was completed in 2019. At its meeting on 31 October- 1 November 2019 (meeting 5) the RAG reviewed outputs achieved to date and identified gaps that require further development. Progress made on the harvest strategies was the result of project work and recommendations from the RAG, Working Group and broader industry members that participated in several harvest strategy workshops.
2. Advice from RAG 5 on Spanish mackerel is outlined in **Table 1**. **Table 2** provides a summary of progress for coral trout however the RAG did not review this table given the need at the time for focus on Spanish mackerel.
3. Despite not having finalised a harvest strategy for the Spanish mackerel fishery, the RAG, Working Group and PZJA has taken into account advice to date on key elements and guiding principles of a harvest strategy for the species.
4. At its meeting in October 2020 (meeting 7) the RAG recommended a follow-up project to build on the outputs of this project and continue development of the strategies for Spanish mackerel and coral trout. A project scope was published on in late 2019 (**Attachment 4a**) and a pre-proposal was received and reviewed by the TSSAC at their teleconference on 8 April 2021. The TSSAC decided not to support the finfish harvest strategy project, noting that:
 - a. it was the lowest priority of the four projects put forward;
 - b. there was insufficient funding to support all four projects; and
 - c. given the past work that has already occurred on the finfish harvest strategy, the project proposal presented highlighted a need to further refine the scope of this project before seeking proposals again in future years.
5. The RAG is being asked to reconsider a workplan to develop RAG advice on a final draft harvest strategy noting progress to date and the need to clearly identify outstanding harvest strategy components to be progressed and tested. In doing so AFMA

recommends that the RAG consider the utility of progressing elements within the RAG, intersessionally by a RAG sub-group and/or through discrete project work commissioned through the PZJA research program (TSSAC).

Table 1. Status of Spanish mackerel draft harvest strategy components as reviewed by FFRAG at its meeting on 31 Oct- 1 Nov 2019 (meeting 5). *Note this table is an updated version to that attached to the record for the FFRAG meeting 5.*

Guiding principles and key fishery attributes – factors that helped shape the development of the Harvest Strategy	
Recommended	Consistency with the Commonwealth Fisheries Harvest Strategy Policy and Guidelines (HSP, 2018). This is consistent with objectives of the <i>Torres Strait Fisheries Act 1984</i> (the Act).
	Have regard for traditional knowledge and the ability of communities to manage fishery resources locally, through acknowledging and incorporating customary and traditional laws, recognising; Malo Ra Gelar, Gudumalulgal Sabe, Maluailgal Sabe, Kulkalgal Sabe.
	Recognise commercial fishing by traditional inhabitants is important for local employment, economic development and for the passing down of traditional knowledge and cultural lore. Enough fish need to be left in the water for future fishers to make money and to protect the traditional way of life, livelihoods and cultural values.
	Spanish mackerel are a shared resource important for subsistence, commercial, traditional, charter and recreational sectors. Shared stock under the Torres Strait Treaty with PNG, stock to be shared if PNG nominate to do so.
	<p>TACs should vary according to stock status (up and down):</p> <ul style="list-style-type: none"> • If biomass decreases be cautious. Stock is not to go below the limit; • If biomass is increasing be conservative; 'bank' fish.
	Having regard for the current stock size (B_{31}) and that B_{60} is not quickly achieved (possibly greater than 12 years) without significant reductions in catch which may in turn cause significant economic and social impacts on the Fishery, a shorter-term target reference point is first required.
	Torres Strait Spanish mackerel stock are assumed separate from other regional stocks. They have limited mixing with the Queensland East Coast and the Gulf of Carpentaria stocks (see Buckworth et al. 2007 and Newman et al. 2009).

	There is potential for variations in availability and abundance of Spanish mackerel in the Fishery, due to their movement, schooling and aggregation patterns for feeding and spawning, recruitment and mortality.
	Spanish mackerel are a shared resource important for subsistence, commercial, traditional, charter and recreational sectors.

Operational objectives What we want the harvest strategy to achieve.	
Recommended	Maintain the stock at (on average), or return to, a target biomass point (B_{TARG}) equal to a stock size that aims to protect the traditional way and life and livelihood of traditional inhabitants and is biologically and economically acceptable.
	Maintain stocks above the limit biomass level (B_{LIM}), or an appropriate proxy, at least 90 per cent of the time.
	Reduce fishing levels if a stock is below B_{TARG} but above B_{LIM} .
	Implement rebuilding strategies, if the stock moves below B_{LIM} .

Indicators Indicators provide information on the state of the stock and how the stock is doing against agreed reference points (reference points are addressed below and are a specified level of these indicators)	
Recommended	Biomass – Catch and effort data from daily fishing logbooks is used as a proxy for abundance in the stock assessment model which is used to calculate biomass of the stock as a proportion of unfished biomass (B_0).

Outstanding	Fishing mortality (B) based indicators. The stock assessment model can estimate a level of F to move the stock towards the target. There was some consideration from the FFRAG of using an F-based indicator in the harvest strategy. Advice is sought from the FFRAG on whether there is value in further exploring this as an option.
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Reference points		
A reference point is a specified level of an indicator used as a basis for managing a stock or fishery. Reference points will generally be based on indicators of either the total or spawning stock size (biomass) or the amount of harvest (fishing mortality). Reference points show where we want (target) and don't want (limit) the stock levels in the fishery to be.		
Recommended	Unfished biomass (B_0) = B_{1940} = 100%.	The year 1940 is considered the start of the commercial operations in the Fishery. The unfished biomass B_0 therefore is the model-estimate of spawning stock biomass in 1940.
	Target (B_{TARG}) reference point = B_{48}	<p>B_{48}¹ is the default target (a proxy for B_{MEY} - biomass at maximum economic yield) in the Commonwealth HS Policy.</p> <p>FFRAG supported the B_{48} target reference point and outlined the following rationale for adopting this value.</p> <p>FFRAG noted that the most recent assessment update was estimating B_{MSY} for the stock as being close to the Commonwealth Harvest Strategy Policy of B_{40} which is a commonly accepted indicator in fisheries as a target reference point for maintaining a level of biomass (not catches) focused on maximising sustainable harvest (yield) from the fishery.</p> <p>Noting identified uncertainty in our data and stock assessment model there is a need to be precautionary and apply a 'buffer'. Traditional owners have also advised an objective for the fishery is to have a target biomass level that supports good catch rates. For these two reasons, a multiplier is applied to set the target biomass at a higher level than B_{MSY}. It was</p>

¹ Comm HSP: The target reference point for key commercial fish stocks is the stock biomass required to produce maximum economic yield from the fishery (B_{MEY}). For multispecies fisheries, the biomass target level for individual stocks may vary in order to achieve overall maximum economic yield from the fishery. In cases where stock-specific B_{MEY} is unknown or not estimated, a proxy of 0.48 times the unfished biomass, or 1.2 times the biomass at maximum sustainable yield (B_{MSY}), should be used. Where B_{MSY} is unknown or poorly estimated, a proxy of 0.4 times unfished biomass should be used. Alternative target proxies may be applied provided they can be demonstrated to be compliant with the policy objective.

		<p>noted in other fisheries this may be considered as a B MEY target reference point or proxy (to maximise economics from harvest taken) but in this fishery, B MEY is unable to be calculated without reliable price data from catches.</p> <p>The RAG agreed that a 20 per cent buffer would be applied to B MSY in order to set B TARG (1.2 times B MSY of B₄₀ = B₄₈), though consideration (based on QDAF experience) was given to alternative multipliers given work undertaken by Pascoe et al. to estimate the best proxy economic target reference point in data-poor fisheries. FFRAAG considered comparisons of costs to revenue ratios and appropriate multipliers from the research but noted that the examples were not comparable with the Torres Strait Finfish Fishery.</p> <p>It was noted that a desktop study could be funded to calculate this optimum B MSY: B MEY point noting that setting a biomass level that is high will trade off available harvest and the number of boats active in the fishery.</p>
	Limit reference point (B _{LIM}) = B ₂₀	B _{LIM} is the spawning biomass level below which the ecological risk to the stock is unacceptable and the stock is defined as 'overfished'. This is an agreed level which we do not want the stock to fall below. B ₂₀ is the default limit proxy in the Commonwealth HS Policy ² .
Outstanding	Long term B TARG = B ₆₀	<p>Further analysis and advice is required on the suitability of B₆₀ as a long-term B TARG, in comparison to other target biomass levels above B_{MSY} having regard for the biology of the species and performance of the Strategy in meeting its objectives.</p> <p>Stakeholders have recommended that the Strategy ensures enough fish are left in the water to support commercial fishing but also protect the traditional way of life and livelihoods of traditional inhabitants.</p> <p>Advice to date is that a higher target biomass level (referring to 60%), would increase catch rates and improve profits in the fishery over other lower reference points, such as B₄₈. RAG advice on the suitability of B₆₀ against other possible higher target biomass levels is necessary. There are likely to be trade-offs between medium-term returns from the fishery (significantly</p>

² Comm HSP: All stocks must be maintained above their biomass limit reference point (BLIM) at least 90 per cent of the time. Where information to support selection of a stock-specific limit reference point is not available, a proxy of 0.2 times unfished biomass should be used.

		<p>reduced TAC) and longer-term returns (more fish in the water meaning less cost to catch and therefore higher returns. Also, there would be more fish in the water for other users).</p> <p>Quantitative analysis and/or evidence from comparable fisheries may enable more evidence-based advice and decision making on the longer-term target.</p>
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Decision Rules (also called Harvest Control Rules) These rules are designed to maintain and/or return the stock to the target reference point.		
Recommended	If stock falls below the limit reference point (B_{LIM}).	The Fishery is closed (all commercial fishing for Spanish mackerel is to cease) and subject to a rebuilding strategy. The nature of the rebuilding strategy will be determined on the basis of the stock assessment (to be applied immediately) and the rate of recovery (i.e. number of years to achieve a biomass greater than B_{LIM}).
	Re-opening the Fishery ³	Following closure of the Fishery, the Fishery can only be re-opened when a stock assessment determines the Fishery to be above the biomass limit reference point.
Outstanding	If the stock is above the limit reference point but below the target reference point.	<p>The RBC is to be set at level that allows for the stock to build towards the target. Importantly the decision rule can be designed to build the stock at different rates (e.g. the number of years for the stock to build to the target reference point or the rate of building near the target or limit).</p> <p>An outstanding action has been for the FFRAG to consider scenarios with multiple timeframes to build the stock to reach B_{48}.</p>
Outstanding	If stock is overfished (below B_{LIM})	<p>Consistent with the Commonwealth HS policy the FFRAG and FFWG have recommended that commercial fishing for Spanish mackerel should cease if the stock falls below B_{LIM}.</p> <p>Further FFRAG discussion and advice is now sought to consider additional decision rules and</p>

³ Comm HSP: Once a stock has been rebuilt to above the limit reference point with a reasonable level of certainty, it may be appropriate to recommence targeted fishing in line with its harvest strategy, which will continue to rebuild the stock towards its target reference point.

		<p>actions required to guide rebuilding and to trigger any necessary reviews of the HS, noting the HS should be designed to avoid the stock breaching the limit.</p> <p>FFRAG are to note and discuss the HS policy requirements to be included in the Spanish Mackerel HS if the stock falls below B_{LIM}:</p> <ul style="list-style-type: none"> a) that targeted commercial fishing for Spanish mackerel will cease b) a rebuilding strategy will be developed to build the stock above B_{LIM} with a reasonable level of certainty c) if B_{LIM} is breached while the fishery is operating in line with HS, the HS must be reviewed. <p>FFRAG to provide advice on:</p> <ul style="list-style-type: none"> a) A process to understand how the stock has rebuilt above B_{LIM} with certainty in the absence of commercial fishing e.g. model projections. b) whether a decision rule with a lower level of fishing pressure would be appropriate if the stock is above but close to B_{LIM}. <p>FFRAG noted that four years would likely be the minimum possible recovery time (based on biology of the animal) to rebuild the stock back above B_{LIM} and the existing model could be used to forecast how the stock would respond with zero catches if closed to commercial fishing.</p>
Outstanding	Utilisation related Decision Rules (desired fishing intensity) noting a fishery may have indicators and reference points including spawning stock size (biomass) or the amount of harvest (F or fishing	Decision rules have yet not been established for harvest related performance metrics such as future 'target' catches or 'target' catch rates desired by industry per primary vessel or per TIB dory day. Given that limited catch and effort data has only recently become available from TIB sector, the HS focus has been on agreeing biomass-based reference points and decision rules. Additionally, at the last FFRAG/FFWG meeting with regard to considering various longer-term target biomass reference points, industry expressed a strong preference for management to focus on building the biomass back to BTARG in the coming years, before exploring any other scenarios.

	mortality i.e. utilisation of the resource).	FFRAG are asked to confirm this approach and consider how future decision rules may incorporate increased growth of the TIB sector.
Outstanding	Precautionary increases to total allowable catches.	<p>Stakeholders recommended that if the stock assessment outcomes suggested increases in the TACs, these increases should only occur slowly through some kind of change limiting rule, noting that an increased TAC would likely not affect the TIB sector with the low present level of utilisation. Stakeholder advised a preference for 'banking' these fish to contribute to the biomass and future catch rates rather than harvesting this extra stock.</p> <p>At a previous FFRAG/WG meeting a number of challenges were identified with applying a change limiting rule for possible TAC increases. Instead the RAG/WG placed priority on examining different building rate scenarios which may achieve this desired precautionary outcome. FFRAG are asked to confirm this approach and provide advice on how to progress change-limiting rules if necessary.</p>

Monitoring and assessment cycle	
Recommended	Based on the most recent estimate of the stock status (0.31 times unfished biomass) and declining biomass (and CPUE) trend, a stock assessment should be performed annually until the biomass is estimated to be above B_{40} .
Outstanding	<p>Subject to any further advice from the HS project team, FFRAG advice is sought on:</p> <ul style="list-style-type: none"> a) An appropriate assessment cycle when the stock is above B_{40} and/or methods for evaluating future assessment cycles. b) Likely data needs to support monitoring stock performance under the Strategy over time. c) Standard procedures for applying the decision rules to the stock assessment outcomes, and, any other minimum stock assessment scenarios, and/or, sensitivities. <p>FFRAG noted that although other options balancing risk and cost might be considered, given the decline in catch rates, transitional nature of the fishery, lack of fishery independent monitoring and suggestions of environmental influences on the fishery, there is a strong rationale to conduct yearly stock assessments for Spanish mackerel.</p>

	<p>FFRAG considered that examining CPUE in intervening years between full assessments (as an alternative) would be possible as an indicator of stock health but running a full assessment using the model would be more cost effective - given that running CPUE standardisations alone does require time and resources and the accepted full model can be run.</p> <p>FFRAG recommended that until MSE testing had been conducted, and the stock could be demonstrated to be at or above B40 (as a B MSY proxy), yearly stock assessments are required.</p>
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Table 2. Status of Coral trout draft harvest strategy components tabled at RAG 5. This table was not considered in detail by the RAG.

Guiding principles and key fishery attributes	
Factors that helped shape the development of the Harvest Strategy	
Recommended	Consistent with the Commonwealth Fisheries Harvest Strategy Policy and Guidelines (HSP, 2018). This is consistent with objectives of the <i>Torres Strait Fisheries Act 1984</i> (the Act).
	Have regard for traditional knowledge and the ability of communities to manage fishery resources locally, through acknowledging and incorporating customary and traditional laws, recognising; Malo Ra Gelar, Gudumalulgal Sabe, Maluailgal Sabe, Kulkalgal Sabe.
	Recognise commercial fishing by traditional inhabitants is important for local employment, economic development and for the passing down of traditional knowledge and cultural lore. Enough fish need to be left in the water for fishers to make money and to protect the traditional way of life, livelihoods and cultural values.
	Coral trout are a shared resource important for subsistence, commercial, traditional, charter and recreational sectors.
	TACs in the Torres Strait Finfish Fishery should vary according to stock status (up and down): <ul style="list-style-type: none"> • If biomass decreases be cautious. Stock is not to go below the limit; • If biomass is increasing be conservative; 'bank' fish.
	Since the 2007 Government funded licence buyback there has been limited effort in the fishery and the available total allowable catch has been under-caught.

	Four coral trout species commercially caught in Torres Strait. These four species (Common, Islander, Passionfruit and Blue-spot) are managed under a 'species group arrangement with a shared total allowable catch. There is a risk of local depletion of any of the four species in the Coral trout 'species group' as the existing assessment model assumes all four species are one stock.
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Operational objectives What we want the harvest strategy to achieve.	
Recommended	Maintain the stock at current levels given: <ul style="list-style-type: none"> the assessment is preliminary meaning it does not supply enough evidence to support changing the TACs without further development and catch data to support it; and noting the present high estimate of biomass and recent low harvests, industry are supportive of a conservative B_{TARG} for the stock to manage the fishery at a level which leaves more fish in the water than a straight MSY target rate⁴.
	Maintain stocks above the limit biomass level (B_{LIM}), or an appropriate proxy, at least 90 per cent of the time.
	Reduce fishing levels if a stock is below B_{TARG} but above B_{LIM} .
	Implement rebuilding strategies, if the stock moves below B_{LIM} .

Indicators Indicators provide information on the state of the stock and how the stock is doing against agreed reference points (reference points are listed below and are a specified level of these indicators)	
Recommended	Biomass – Catch and effort data from daily fishing logbooks is used as a proxy for abundance in the stock assessment model which is used to calculate biomass of the stock as a proportion of unfished biomass (B_0).

Outstanding	The current stock assessment is considered preliminary and as a result, the biomass calculation is not yet relied on as an accurate indicator of abundance or biomass. The FFRAG/FFWG did recommend a CPUE proxy for B ₈₀ to be used as a trigger for future stock assessment (see <i>Monitoring and Assessment</i> below). Further discussion and advice is sought from the FFRAG on development of these and other indicators.
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Reference points		
A reference point is a specified level of an indicator used as a basis for managing a stock or fishery. Reference points will generally be based on indicators of either the total or spawning stock size (biomass) or the amount of harvest (fishing mortality). Reference points set out where we want (target) and don't want (limit) the desired stock levels in the fishery to be.		
Recommended	Unfished biomass (B_0) = $B_{1950} = 100\%$.	The year 1950 is considered to be the start of the commercial operations in the Fishery. The unfished biomass B_0 therefore is the model-estimate of spawning stock biomass in 1940.
	Target (B_{TARG}) reference point = B_{60}	<p>The target biomass B_{TARG} is the spawning biomass level equal to 60% of B_0 to take account of the fact that the resource is important for the traditional way of life and livelihood of traditional inhabitants, is leased to sunset licence holders and the target biomass level must be biologically and economically acceptable.</p> <p>The current agreed B_{TARG} is based on the assumption that B_{MSY} is 50% of B_0 for this species and B_{TARG} should be set at 1.2 B_{MSY}.</p> <p>Stakeholders were supportive of a target that can take into account the patchiness of the stock (small areas with good trout catch rates separated by large areas of desert), the preliminary nature of the stock assessment, the risk of localised depletion, the basket of four species and that a proportion of the stock is not available.</p>
	Limit reference point (B_{LIM}) = B_{20}	B_{LIM} is the spawning biomass level below which the ecological risk to the stock is unacceptable and the stock is defined as 'overfished'. This is an agreed level which we do not want the stock to fall below. B_{20} is the default limit proxy in the Commonwealth HS Policy ⁵ .

⁵ Comm HSP: All stocks must be maintained above their biomass limit reference point (BLIM) at least 90 per cent of the time. Where information to support selection of a stock-specific limit reference point is not available, a proxy of 0.2 times unfished biomass should be used.

Outstanding	Consideration of alternative approaches to guide decision making in the fishery.	<p>Reference points for coral trout have been agreed though, as per below, additional work is required on development of decision rules to move the stock relative to these points.</p> <p>Given that the initial stock assessment model does not provide a sufficient basis to support formation of decision rules, FFRAG advice is sought on possible alternative approaches for a strategy to guide decision making, for example the FFRAG may want to consider tiered harvest strategies approaches from data-poor fisheries. Such tiered strategies may set out a precautionary base-level (or status quo) position, outline what data are required to progress the fishery and what the next tier may mean for a fishery in terms of improved understanding/decreased risks to the stock and less precautionary catch levels.</p>
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Decision rules (also called harvest control rules).		
These rules are designed to maintain and/or return the stock to the target reference point.		
Recommended	Maintain current TAC until next Stock assessment	There is no current agreed decision rule for setting catch limits. The FFRAG/FFWG meeting recommended that the current constant RBC of 134.9 tonnes be adopted as the interim RBC until the stock assessment is updated. The current preliminary assessment indicates the stock is likely to be greater than 80% of the unfished biomass level. In the future the decision rules would recommend a harvest level (as a recommended biological catch -RBC) on the basis of evaluating the resource status.
	If stock falls below the limit reference point (B_{LIM}).	The Fishery is closed (all commercial fishing to cease) and subject to a rebuilding strategy. The nature of the rebuilding strategy will be determined on the basis of the stock assessment (to be applied immediately) and the rate of recovery (i.e. number of years to achieve a biomass greater than B_{LIM}).
	Re-opening the Fishery ⁶	Following closure of the Fishery, the Fishery can only be re-opened when a stock assessment determines the Fishery to be above the biomass limit reference point.

⁶ Comm HSP: Once a stock has been rebuilt to above the limit reference point with a reasonable level of certainty, it may be appropriate to recommence targeted fishing in line with its harvest strategy, which will continue to rebuild the stock towards its target reference point.

Outstanding	Maintain current TAC until next Stock assessment	<p>FFRAG are to provide further advice on the operational objective for maintaining the stock at present levels, specifically what an appropriate level of harvest might be to maintain the present impact on the stock, noting:</p> <ul style="list-style-type: none"> a. while the available TAC has been 134.9 t a maximum of 46 t of harvest has been reported taken per year since the 2007 buyout; b. potential risks to individual species within the species basket (the four different coral trout species) noting the species distribution and catch composition is not well understood which add uncertainty around the biomass estimates; c. there is no absolute certainty as to when additional data will be available to Fishery (improved TIB data, independent dive survey).
Outstanding	If stock falls below B LIM	<p>Consistent with the Commonwealth HS policy the FFRAG and FFWG have recommended that commercial fishing for coral trout should cease if the stock falls below B_{LIM}. Further FFRAG discussion and advice is now sought to consider additional decision rules and actions required to guide rebuilding and to trigger any necessary reviews of the HS, noting the HS should be designed to avoid the stock breaching the limit.</p> <p>FFRAG note and discuss the HS policy requirements to be included in the Spanish Mackerel HS if the stock falls below B_{LIM}:</p> <ul style="list-style-type: none"> a) that targeted commercial fishing for Spanish mackerel will cease, b) a rebuilding strategy will be developed to build the stock above B_{LIM} with a reasonable level of certainty. c) If B_{LIM} is breached while the fishery is operating in line with HS, the HS must be reviewed. <p>FFRAG to provide advice on:</p> <ul style="list-style-type: none"> c) A process to understand how the stock has rebuilt above B_{LIM} with certainty in the absence of commercial fishing e.g. model projections. a) whether a decision rule with a lower level of fishing pressure would be appropriate if the stock is above but close to B_{LIM}.

Outstanding	If the stock is above the limit reference point but below the target reference point.	The RBC is to be set at level that allows for the stock to build towards the target. Importantly a decision rule must be designed and agreed to build the stock at different rates (e.g. the number of years for the stock to build to the target reference point or the rate of building near the target or limit). FFRAG are to advise on a process for this decision rule to be developed.
Outstanding	Harvest based decision rules (desired fishing intensity) a fishery may have indicators and reference points including spawning stock size (biomass) or the amount of harvest (F or fishing mortality).	Decision rules have not yet been established for harvest related performance metrics (measuring how the stock is being used) such as future 'target' catches or 'target' catch rates desired by industry per primary vessel or per TIB dory day. The focus so far has been placed on agreeing biomass based reference points and decision rules.
Outstanding	Precautionary increases to total allowable catches.	<p>Stakeholders recommended that if the stock assessment outcomes suggested increases in the TACs, these increases should only occur slowly through some kind of change limiting rule, noting that an increased TAC would likely not affect the TIB sector with a low present level of utilisation. Stakeholder advised a preference for 'banking' these fish to contribute to the biomass and future catch rates rather than harvesting this extra stock.</p> <p>At the last FFRAG/WG meeting a number of challenges were identified with applying a change limiting rule for possible TAC increases. Instead the RAG/WG placed priority on examining different building rate scenarios which may achieve this desired precautionary outcome. FFRAG are asked to confirm this approach and provide advice on how to progress change-limiting rules if necessary</p>
Monitoring and assessment cycle		
Recommended	FFRAG has recommended that a stock assessment should be conducted during the 2021-22 season, once further data is available, ahead of setting catch limits for the 2022-23 season. Postponing the stock assessment for three years would allow enough time for additional data to be included. The additional data priorities identified are:	

	<p>a) the 1994-95 CSIRO fish survey data which may form a valuable baseline datum; b) improved catch and effort data from TIB fishers; and c) fishery independent data such as an underwater survey or biological sampling.</p> <p>Trigger reference points (or breakout rules) were recommended for the years between stock assessments. The agreed trigger reference points will use standardised CPUE data as a proxy for biomass and the yearly fishery catch data to ensure the maximum yield of the fishery zones are not being exceeded.</p> <p>The specific trigger points for when an assessment would be undertaken the next season are:</p> <p>a) In line with the recommended target reference point (B TARG = B₆₀) and taking into account the conservative approach preferred by industry, if the biomass of coral trout is less than B₆₀ (B TARG) then an integrated stock assessment will be conducted. To determine the biomass level, this trigger will use CPUE data as a proxy for biomass. It was agreed that the average CPUE from 2012 until 2017 (inclusive) would be used as an indicative reference point of the CPUE at B₈₀ (average = 120.8 kg per vessel per day) from which the CPUE at B₆₀ can be calculated and used as the trigger reference point. Given the ratio of 80:60 is equal to 0.75 then the trigger reference point which would activate the rule that an assessment must be undertaken is: <i>if the standardised CPUE falls below 90.6 kg per (primary) vessel per day</i> (computed as $0.75 \times 120.8 = 90.6$).</p> <p>b) If the combined yearly total catch of the four coral trout species from both commercial sectors is greater than 90 tonnes. Ninety tonnes was agreed because this 2/3 of the current constant RBC of 134.9 tonnes.</p> <p>If either (a) or (b) above occurs, the stock assessment must be repeated the following year in order to monitor the condition of the stock.</p>
Outstanding	<p>FFRAG to provide advice on likely data needs to support monitoring stock performance under the Strategy over time.</p> <p>The FFRAG advice should also take into account the possible scenario where assessments are able to be funded in accordance with the recommended cycle and/or the additional data recommended to support a further stock assessment are not readily available.</p> <p>FFRAG to provide advice on procedures for interpreting the stock assessment outcomes under HS and how decision rules are to be applied based on these outcomes. While a stock assessment may be triggered through analysis of CPUE data in intervening years between assessment FFRAG advice is sought on what the process should be following this trigger being met and what decision rules should be applied based on the outcomes of this stock assessment i.e. whether the TAC should be changed to reflect this suggested change in biomass.</p>

Torres Strait Finfish Fishery: *Harvest strategy development for the Torres Strait Finfish Fishery (Spanish mackerel and coral trout)*

A Harvest Strategy (HS) for the Torres Strait Finfish Fishery (TSFF) is required to guide future decisions on sustainable commercial catch limits and potential expansion of the fishery using indicators of stock status. The strategy will help the fishery achieve its ecological, economic and social management objectives consistent with the *Torres Strait Fisheries Act 1984*, *Torres Strait Finfish Fishery Management Plan 2013* and the *Commonwealth Fisheries Harvest Strategy Policy and Guidelines*.

A HS for the key target species of Spanish mackerel and coral trout will also guide future investment on finfish research, assessment, data collection and monitoring to make sure the shared interests of Torres Strait Traditional Inhabitants and other fishery stakeholders are balanced in developing biologically, socially and economically sustainable fishing opportunities.

An AFMA-funded project, led by CSIRO, titled: *Harvest Strategies for the Torres Strait Finfish Fishery* was funded in 2017/18 and 2018/19. The Finfish RAG considered the outputs of this project at their FFRAG 6 (October 2019) meeting. The RAG noted outputs achieved to date and identified gaps that require further development. At their FFRAG 7 meeting (October 2020) the RAG recommended a follow-up project to build on the outputs of this project and continue development of the strategies for Spanish mackerel and coral trout.

It is expected that development of this HS will involve a series of stakeholder workshops to ensure traditional inhabitant fishers provide input into the final HS design. It is noted that a tiered HS may be appropriate for the Finfish Fishery, recognizing the current status of the Spanish mackerel stock and available data for coral trout at present.

Desired outcomes:

In consultation with AFMA, FFRAG and fishery stakeholders, the HS project team will develop and recommend an updated HS framework for Spanish mackerel and coral trout, noting a tiered HS may be appropriate, detailing:

1. Target and limit reference points agreed by stakeholders.
2. Indicators of stock status.
3. Harvest control rules (decision rules) which can guide fishery stakeholders and managers on responses should these targets / limits be reached.
4. data requirements to support the harvest strategy.
5. Options for monitoring and assessment to meet these data requirements for the tier levels as the fisheries develop.

Applicants are encouraged to submit an optional two part proposal. The first part of the proposal is to be an application to address the above points with a timeframe and budget. The second optional part of the application could be a proposal with a modified budget and timeframe to also include management strategy evaluation testing alongside or as a succinct program of work following the initial HS development.

Applicants wishing to submit a proposal can contact AFMA for further information.

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Torres Strait Finfish Resource Assessment Group	Meeting 10 18-19 November 2021
FFRAG PRIORITIES AND DATE FOR THE NEXT MEETING	Agenda Item 6 For Discussion & Advice

RECOMMENDATIONS

1. That the Resource Assessment Group:
 - a) **NOTE** the management priorities for 2021-22 for the fishery supported by the Finfish Working Group at their meeting on 26 November 2020.
 - b) **DISCUSS** and **PROVIDE ADVICE** on priorities for the RAG together with a work plan for addressing recommended priorities;
 - c) **REVIEW** the proposed dates for future meetings.

KEY ISSUES

2. Having agreed priorities (RAG issues to focus on) and a corresponding work plan aims to achieve a more efficient RAG process.
3. The RAG may have a standing item at its meetings to discuss assessment, data collection and research needs for the Torres Strait Finfish Fishery. This may be informed by the RAG's meeting discussions, advice from individual members of the RAG and/or advice from the Finfish Working Group (FFWG).
4. At its meeting on 4-5 November 2020, the RAG noted the proposed management and research priorities for 2021 and made recommendations on how to progress some of those priorities. These are summarised in Table 1 below.
5. Where possible, the RAG should aim to prioritise and set a timeline for any identified items, having regard for resourcing.
6. In considering its priorities, the RAG may also wish to note the summary of management priorities supported by the FFWG provided in **Table 1** (some of which align with the RAG's priorities) and their progress to date.
7. Having regard for the outcomes of this meeting (including the assessment and management requirements stipulated in the WTO conditions), the RAG may recommend an alternate list of priorities.
8. As far as practical AFMA proposes that a work plan be developed in-session.

Date and venue for future meetings

9. In developing its work plan, the RAG may consider the summary of key due dates for the finfish fishery outlined in **Table 2**.
10. The next RAG meeting is currently proposed for October and November 2022 in Cairns.

Table 1. Comments relating to any progress against each management priority considered by the FFRAG on 4-5 November and FFWG on 26 November 2020. Priorities are listed chronologically and not in order of importance.

Priority		FFRAG 4-5 Nov 2020	FFWG 26 Nov 2020 comments	Progress to date and comments
1	Progress the development of a harvest strategy	Subject to funding this will require additional workshops with members and broader industry stakeholders including the FFRAG.	Supported as a priority and noted that clear guidance from AFMA to prospective funding applicants on expected deliverables is needed. It was noted that the RAG and Working Group have been developing a harvest strategy approach for Spanish mackerel over the last four years and arguably there are no immediate risks for coral trout given the low fishing effort. However, the Working Group recognised that it is best practice to develop agreed harvest strategies to provide certainty to stakeholders on the information requirements and decision rules for setting TACs in the fishery. This certainty enables more informed business decisions and importantly supports industry and community leaders in building broader stakeholder support for improving data for the Fishery. To ensure a clear return on investment, members agreed that it was essential that a future project build on work already completed to develop a harvest strategy for the fishery. In this regard all potential applicants were encouraged to contact AFMA to discuss proposals prior to submission.	<p>In progress. FFRAG 9 noted an update from QDAF on the development of the East Coast Spanish Mackerel Fishery harvest strategy, and the current QLD Reef Line Fishery harvest strategy: 2020-2025.</p> <p>FFRAG 10, Agenda item 4 scheduled for the RAG to discuss the progression of a harvest strategy.</p>
2	Supporting possible changes to the Western Line Closure	The RAG noted a number of risks and considerations with lifting the northern part of the closure and supported a suggestion that a targeted round of consultation occurs in Gudumalulgal to discuss the three options to support opening the reef line fishery in this area:	Supported as a priority noting that as a long-standing issue, but that good progress has been made more recently to understand the views of Torres Strait Islanders throughout the region and to develop risk-based management options. It was noted that advice needed to be made clear on allowable fishing methods.	In progress. AFMA has not progressed this item due to the limited availability of stakeholders and due to the timing of 2021 black teatfish opening in the Torres Strait Beche-de-mer Fishery, commencing on 30 April 2021, and the level of AFMA resources required to support a successful opening. AFMA had to reprioritise some of our other

Priority		FFRAG 4-5 Nov 2020	FFWG 26 Nov 2020 comments	Progress to date and comments
		1. Opening with data collection and monitoring 2. Survey before opening 3. Adaptive management		fisheries work during the first half of 2021. A proposed plan for reviewing the closure was tabled at the FFRAG meeting on 14-15 October 2021.
3	Update the daily fishing logbook (TSF01) in line with recommendations from the FFRAG.	The RAG supported the logbook changes recommended by AFMA to various aspects of the TSF01 logbook to IMPROVE Sunset sector catch and effort data and support spatial reporting by the TIB sector.	The WG noted the importance of “data priorities for the fishery and information needed to support the development of a more accurate stock assessment that could be relied upon to adjust the TAC and therefore have greater confidence around the future harvest levels.” These priorities which were noted included “ <i>improvements to the accuracy of logbook reporting (effort, species ‘split’).</i> ”	Ongoing. AFMA has not progressed the recommended changes due to resourcing and will be looking to action them in 2022.
4	Supporting the PZJA's consideration of quota unit allocation options	N/A	The Working Group noted the PZJA decision and rationale. That being to consider quota unit allocation options for the Finfish Fishery alongside the review it must undertake for the Traditional Inhabitant quota unit allocation in Tropical Rock Lobster Fishery. The AFMA member advised that having clearly defined catch entitlements (i.e. quota units) will be important to support the transfer of the sunset leasing arrangements from TSRA to nongovernment entity/ies. Members noted that the PZJA has not yet allocated quota in the Finfish Fishery despite there being a plan of management in place to do so. The AFMA member advised that, following Australian Government buyout of licences held by non-traditional inhabitants in 2008 and therefore potential effort, the PZJA agreed that it was no longer a priority to introduce quota management. Some Traditional Inhabitant members raised strong concerns that a quota allocation process could start to divide their people and cause in-fighting. In their view it should be a matter for the new Zenadth Kes Fishing Company (the entity) to consider whether to pursue such an	Ongoing.

Priority		FFRAG 4-5 Nov 2020	FFWG 26 Nov 2020 comments	Progress to date and comments
			option. The Working Group noted the sensitivities around allocation and whilst there was support to involve the new entity as a means of involving stakeholders, members noted AFMA member advice that the nature and extent of any involvement would be subject to the role of the entity. Details on this are to be released by TSRA once the entity is established	
5	Formalising total allowable catches for the Finfish fishery	N/A	Supported as a priority noting the Working Group's previous consideration and support for ensuring the TAC is binding on all sectors. The Working Group noted that, in the absence of having quota management under the management plan, current arrangements do not limit catches by the Traditional Inhabitant sector. Having an enforceable TAC was noted as a necessary part of carefully managing catches in the fishery.	Ongoing. AFMA to progress the review of an enforceable TAC
7	Potential application of VMS on tenders	FFRAG provided advice on the potential scientific benefits from using VMS data to address data needs in the fishery at meeting 6 (27-28 November 2019). AFMA will continue to prepare information, including implementation costs across all licence holders to support further consideration of this initiative.	The Working Group did not consider this a high priority at this time, however, supported further information being tabled on the pros and cons on having VMS on tenders (boats that work in conjunction with a primary boat). Some Traditional Inhabitant members did not support having VMS on TIB boats but supported the measure applying to the sunset sector noting concerns with sunset boats breaching the 10nm closures around eastern communities. The AFMA member noted that the FFRAG had previously considered the use of VMS as an option for addressing the spatial data needs. The AFMA member further advised that whilst VMS is generally considered to be a cost-effective compliance tool, there was still much analysis to be done by AFMA on matters such as implementation costs across all licence holders to support further consideration of this initiative. AFMA maintains this as a lower priority, subject to resourcing.	Ongoing

Table 2. Key dates for the Torres Strait Finfish Fishery for 2021 and 2022.

Key date	Activity
18-19 November 2021	FFRAG10 RBC meeting <ul style="list-style-type: none"> Review updated Spanish mackerel stock assessment. Spanish mackerel - Recommended Biological Catch for 2022-23 Season. Coral trout - Recommended Biological Catch for 2022-23 Season. Review shark management best practice (WTO condition). Progress harvest strategy. Priorities for the RAG
23 November 2021	Annual WTO report due to the Department of Agriculture, Water and the Environment
25 November 2021	Finfish Working Group meeting <ul style="list-style-type: none"> Spanish Mackerel Total Allowable Catch Advice for the 2022-23 Season Coral Trout Total Allowable Catch Advice for the 2022-23 Season Review Spanish mackerel & grey mackerel size limits Review shark management best practice (WTO condition) Progress harvest strategy Policy Guidance for Carrier Licences Torres Strait Finfish Fishery management priorities
January 2022 (date TBA)	PZJA Meeting to decide next season's total allowable catches
February – March 2022	Industry consultation round – AFMA will aim to visit all Communities in the Torres Strait region and the Northern Peninsula Area.
1 July 2022	Torres Strait Finfish Fishery 2022-23 Season opens
September 2022 (date TBA)	RAG/WG advice on annual and five-year research priorities.
DATE TBC	FFRAG 11 Data Meeting <ul style="list-style-type: none"> Review data for Spanish mackerel stock assessment. Progress harvest strategy Priorities for the RAG
October 2022 (date TBC)	FFRAG 12 RBC Meeting <ul style="list-style-type: none"> Review updated Spanish mackerel stock assessment. Spanish mackerel - Recommended Biological Catch for 2023-24 Season. Coral trout - Recommended Biological Catch for 2023-24 Season. Progress harvest strategy Priorities for the RAG

November 2022 (date TBC)	<p>FFWG Meeting</p> <ul style="list-style-type: none">• Spanish Mackerel Total Allowable Catch Advice for the 2023-24 Season• Coral Trout Total Allowable Catch Advice for the 2023-24 Season• Progress harvest strategy• Torres Strait Finfish Fishery management priorities
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Torres Strait Finfish Fishery Resource Assessment Group	Meeting 10 18 - 19 November 2021
OTHER BUSINESS	Agenda Item 6 For Discussion

RECOMMENDATION

1. That RAG members **NOMINATE** and **DISCUSS** any additional items of business for the meeting.