Torres Strait Tropical Rock Lobster Resource Assessment Group

Meeting Record 21

12 & 13 December 2017

Northern Fisheries Centre, Cairns

In-session meeting

Note all meeting papers and record available on the PZJA webpage:

www.pzja.gov.au

Australian Government

Australian Fisheries Management Authority

Contents

Meeting participants

Members

Name	Position	Declaration of interest
Ian Knuckey	Chair	Nil Member of other RAG's and conducts various AFMA research projects. No research projects in the Torres Strait.
Dean Pease	TRLRAG Executive Officer	Nil
Selina Stoute	AFMA Member	Nil
Mariana Nahas	TSRA Member	Nil – public servant employed by TSRA, a government authority. TSRA holds multiple TVH TRL fishing licences on behalf of Torres Strait Communities but does not benefit from them. Partner holds a Fish Receiver Licence.
Eva Plaganyi	CSIRO Scientific Member	Project staff for AFMA funded TRL research projects.
Andrew Penney	Independent Scientific Member	Member of other RAG's and research consultant. None research projects in the Torres Strait.
Mark David	Industry Member	TIB licence holder and industry representative
Terrence Whap	Industry Member	Industry representative, does not hold a TIB licence.
Les Pitt	Industry Member	TIB licence holder and industry representative
Phil Ketchell	Industry member	TIB licence holder and industry representative
Brett Arlidge	Industry Member	General Manager MG Kailis Pty Ltd, holder of TVH licences

Name	Position	Declaration of interest
Daniel Takai	Industry Member	Pearl Island Seafood, Tanala Seafood, TIB licence holder and TVH lease applicant

Observers

Name	Position	Declaration of interest
Jerry Stephen	TSRA Deputy Chair TSRA Fisheries Portfolio	TIB licence holder
Robert Campbell	Scientific Observer	Project staff for AFMA funded TRL research projects
Mark Tonks	Scientific Observer	Project staff for AFMA funded TRL research projects
Suzannah Salam	Industry Observer	Fish Receiver licence holder and buyers of Torres Strait seafood
Tony Salam	Industry Observer	TIB licence holder
Ken McKenzie	Industry Observer	TVH licence holder
David Sabatino	Industry Observer	TIB licence holder
Trent Butcher[1]	Industry Observer	TVH licence holder
Mark Dean[2]	Industry Observer	TVH fisher
Ian Liviko[2]	PNG NFA	NIL

[1] Attended the meeting on the morning of day one only.

[2] Attended the meeting on day two only.

Action items and recommendations

Action Items

Number	Action
1.	Tropical Rock Lobster Fishery catch and effort data should be provided by 31 October each year to allow sufficient time for the stock assessment model to be updated.
2.	AFMA to investigate the potential cause of the TVH sector misreporting of fishing hours.
3.	Lamp fishing data should be used for future TIB CPUE analyses
4.	The RAG **AGREED** to defer the decision on the Torres Strait Docket Book (TDB01) data rules to the next RAG meeting scheduled for March 2018, this was due to a lack of time to present and discuss the results of the paper. The RAG **AGREED** that members and observers review the meeting paper out of session and provide any comments on the paper at the next meeting.
5.	The RAG **AGREED** to defer discussion on the harvest strategy agenda item to the next RAG meeting scheduled for March 2018 due to a lack of time to adequately present and discuss the agenda item.

Recommendations

Recommendations
The RAG **RECOMMENDED** a preliminary recommended biological catch (RBC) of 299 tonnes for Australia and PNG inclusive, based on the following: • the current stock biomass is estimated at 76 per cent of B_{1973} which is above the target biomass of 65 per cent; • the RBC was calculated by applying the interim harvest strategy to the preliminary results of the integrated fishery stock assessment; • the reduction in the RBC is primarily due to the stock assessment responding to the low indices for 1+ lobster; and • the 0+ index of lobster is the lowest ever recorded by a pre-season survey, however the 0+ indices is uncertain due to the small size and cryptic nature of 0+ lobster; and, • although poorly estimated, the stock biomass is predicted to drop to 59 per cent of B_{1973} in 2019.
The RAG **STRONGLY RECOMMENDED** that under the current low levels of abundance, all management actions should be considered to ensure the 2018 RBC of 299 tonnes is not breached.

Agenda Item 1 - preliminaries

1.1 Apologies

Apologies were received from Tom Roberts (QDAF member); Samantha Miller (QDAF member); Ray Moore (industry member); Aaron Tom (industry member); Meremi Maina (PNG industry observer) and Maluwap Nona (Chairperson Malu Lamar RNTBC).

1.2 Adoption of agenda

The RAG adopted the agenda without any changes. The TSRA observer requested that a discussion on moon-tide hookah closures be included in other business at Agenda Item 10.

1.3 Declaration of interest

The RAG generally noted that there could be potential conflicts of interest for members and observers when providing information and advice on some agenda items and these conflicts should be tabled by members. The Chair requested members and observers to leave the meeting room in groups so RAG members could consider the potential conflicts of interest and agree on how those potential conflicts should be managed.

Scientific Member and Observers

The remaining RAG members noted that CSIRO is the major research provider for the Fishery and have interests in fishery research projects. The RAG noted that no new research projects were being discussed at this meeting and that advice from CSIRO members and observers was important for the RAG agenda items. No conflict of interest issues were identified.

Industry Members and Observers

The remaining RAG members noted that industry members and observers have pecuniary interests in the Fishery, however industry is needed at the meeting for their advice and expertise. The RAG considered that there was a diverse representation of industry across the various sectors and it was unlikely the discussion may be biased by a single sector or individual. The RAG agreed it did not need to remove industry members or observers for any of the agenda items. The remaining RAG members noted that in the event that one person's views biased the discussions the RAG Chair may ask them to leave for the discussion or recommendations.

1.4 Action items from previous meetings

The RAG noted progress against action items from previous meetings. The up-to-date list of action items and progress is provided in **Attachment A**.

The independent scientific member noted that for action item 4 'AFMA preparing a summary of evidence of a single stock'; the information paper should include the historical information and the results of the larval modelling research (agenda item 6) that reconfirms the tropical rock lobster fishery is a single stock.

The RAG noted that for agenda item 5 'naming of reefs and significant areas', that Malu Lamar RNTBC is best placed to provide the names of reefs and significant areas. The

scientific observer noted that CSIRO have included the traditional names of some reefs in their meeting papers and presentations.

The RAG noted that the RAG 21 meeting record was ratified out-of-session. Some comments were received from members and these were provided in the RAG meeting papers with track changes (pages 29-45). No further comments were received on the draft meeting record and the RAG agreed the record was a true and accurate representation of the meeting.

Agenda Item 2 - updates

Industry

The RAG noted the updates provide by industry members.

- One industry observer asked whether any further research had been undertaken to provide more information on the spawning of tropical rock lobster, noting that this information is important for managing the stock sustainably. The scientific member noted that research is expensive and there is a limited amount of funding for Torres Strait research projects. The larval advection modelling project (agenda item 6) was cost effective research that aimed to improve the understanding of lobster larval dispersal into the Torres Strait from Yule Island, PNG and Princess Charlotte Bay, QLD.

- One industry member noted that there was a low abundance of lobsters throughout 2017 that corresponded to the low recommended biological catch (RBC) and total allowable catch (TAC) figure of 495 tonnes. The member noted that he was not aware of any exemptions being issued to PNG trawlers in 2017 and to his knowledge there was not any large volumes of PNG trawl caught lobster tails on the market.

- Some industry observers were concerned that the low abundance of lobsters in 2017 and 2018 was a result of PNG trawlers taking spawning lobsters on their migration to Yule Island.

- One industry member noted that fishing on Darnley Island has been slow since the season start on 1 December. The member noted that he has observed large numbers of berried lobsters from Don Cay to Dowar Island. One industry member stated it was too early to comment on the fishing conditions around Mabuiag Island.

- One industry member noted the start of the 2017/18 fishing season is similar to 2016/17 season. The member noted that lobsters had already moulted and this was unusual for the start of the season and it was believed to be due to high water temperature.

- One industry member noted that the tides had not been favourable for the start of the fishing season, however the catches around Yam Island have been good with free dive fisher's landing between 50-80 kilograms of tails for one days fishing, however there has been high number of double skin (moulting lobsters). The member noted

that most of the catch was coming from the shallow water and there was low numbers of lobsters in the deeper water.

- The scientific observer asked industry members what the level of discard in the fishery is. Industry member noted discarding is unlikely for the TIB dinghies because any mortality is processed to a tailed lobster. The AFMA EO noted that the TVH sector complete a daily fishing log and that any post capture mortality and discarding should be captured by the daily fishing log (TRL04).

- One industry member asked other members and observers for any information about PNG fisheries and if they have changed their fishing methods or practices over time and whether this may be having an impact on the stock. One industry member stated he did not believe that PNG had a large increase in fishing efficiency and they are fishing with the same equipment as previous, the member noted that the Australia industry has become more efficient over time with GPS, sounders and faster vessels.

- The scientific member noted that the catch history for the fishery starts in 1973 and there was approximately 573 tonnes of reported trawl catch from PNG. The scientific member noted that the stock assessment includes all sources of fishing mortality and historically the Fishery was trending well and that it seems like in recent years the Fishery has experienced anomalous conditions.

- One industry member noted that there could be some link between the environmental conditions in the Fly River and impacts on the lobster stock, the member noted that recently the Gulf of Papua barramundi fishery had collapsed and black jewfish was in decline. The scientific member noted there are reported increasing levels of toxins in the Fly River, however the impact was further to the north east and unlikely to impact the lobster stock, however further analysis could be undertaken.

Government

The RAG noted the update provided by the AFMA member:

- The introduction of a mandatory fish receiver system (also known as catch disposal record) for Torres Strait fisheries was implemented on 1 December 2017. Since the introduction of the system there has been an increase in licensing and reporting from the TIB sector. The timely reporting of catch landing will help to monitor total catch for the Fishery.

- At its last meeting the TRL Working Group considered outcomes of the consultation process undertaken for the TRL management Plan. The TIB sector representatives noted they want to take into account findings of a New Zealand study tour on Maori fishing entitlements. The TSRA observer noted that a fisheries summit will be held in 2018 for the TIB sector to discuss and agree on the preferred management of the Fishery.

The RAG noted the updated provided by the TSRA Member that:

- In the past year TSRA has purchased 3 TVH licences and noted that there may be some changes to catch and effort for the fishery. The TSRA noted they are intending to lease the three licences out to traditional inhabitants. The Chair asked if leasing the TVH licences was to be ongoing or a once off. The TSRA member stated the objective was to work towards 100 per cent ownership of Torres Strait fisheries by traditional inhabitants and that leasing revenue as well as other sources of funding may be used.

PNG NFA

The RAG noted the update provided by the PNG National Fisheries Authority observer:

- There have been no exemptions issued to PNG prawn trawlers for 2017 or 2018 allowing them to retain tropical rock lobster;
- Observer coverage on the PNG prawn trawler fleet is ongoing, observer coverage is high during the months of September and October when there is a high risk of incidental catch of lobster. PNG NFA officials also monitor the unloads of prawn trawlers;
- Data reporting by the PNG prawn fleet is slow and the NFA are aiming to improve data reporting by implementing a logbook system that is consistent with the PNG tuna fishery.
- The NFA are introducing mandatory bycatch reduction devices (BRDs) for the prawn fleet including turtle excluder device (TED) to reduce turtle bycatch; square mesh panel and fish eye reduction device to reduce the bycatch of finfish.

Native title

The Chairperson for Malu Lamar RNTBC was an apology for the meeting, no update was provided.

Agenda Item 3 – catch summary

The RAG noted an update on the fishery catch and effort information based on the paper titled '*Torres Strait Tropical Rock Lobster Catch Data Summary'* and '*Estimation of Total Annual Effort in the Torres Strait Rock Lobster Fishery – 2017 Update.'*

The RAG noted advice from the scientific observer that:

- The 2016/17 notional TAC was set at 495 tonne for Australia and PNG inclusive. The Australian catch was 255.4 tonnes (TIB caught 104.6 tonnes and TVH sector caught 149.0 tonnes);
- The PNG catch was 113.0 tonnes;
- There was zero reported trawl catch from PNG in 2016/17; and
- There are some uncertainties in the PNG data. When comparing figures from PNG processors and the PNG export data there are large discrepancies in reported PNG

catch in some years. A precautionary approach was taken and the higher catch figures from each year for PNG were used for stock assessment purposes.

The scientific observer noted that AFMA provided the last four years of catch and effort data for the 2017 update. A large number of late returns of the TDB01 docket book were received and this has resulted in an increase in the total reported catch. The scientific member noted that a standard procedure should be developed for receiving fishery data because there is a tight deadline to meet.

The RAG **AGREED** that the Tropical Rock Lobster Fishery catch and effort data should be provided by 31 October each year to allow sufficient time for the stock assessment model to be updated.

The AFMA member noted that there should be an improvement with the provision of accurate and timely data with the introduction of the Torres Strait Fish Receiver System and the Catch Disposal Record.

The AFMA EO questioned whether the increase in unreported fishing hours by the TVH sector from ~2 per cent to ~12 per cent from 2016 to 2017 was accurate. The scientific observer noted that this was an accurate representation.

The RAG **AGREED** for AFMA to investigate the potential cause of the TVH sector under-reporting of fishing hours.

The scientific observer noted that the 2016-17 TIB sector data had a significant change in the reported fishing location. The number of docket book returns with no fishing location recorded significantly decreased and the number of returns with Thursday Island listed as the fishing location significantly increased. One industry member noted that the Thursday Island fishing location (area 9) is likely to be incorrect and over reported for 2016-17.

The independent scientific member recommended that the area effect (whether the reported fishing location impacts on catch and catch rates) be removed from the CPUE standardisation to examine if it is influencing the results in any significant way. The scientific observer undertook an analysis of area effect and reported to the RAG that it is not having a strong influence of the CPUE standardisation.

The RAG Chair questioned if there was any trends of increasing fishing efficiency captured in the time series of data. The scientific member noted that the absence of fine scale spatial information precludes the ability to identify if there has been a trend to accessing deeper water, however it can be captured by looking at when hookah equipment was introduced or the amount of fishing effort at Kirkaldie.

Agenda Item 4 – catch per unit effort indices

The RAG noted an update by Scientific Observer Dr Robert Campbell on the fishery catch per unit effort (CPUE) standardisation for the TIB and TVH sectors as per the papers titled '*An Abundance Index for Torres Strait Rock Lobster using TIB data*' and '*An Abundance Index for Torres Strait Rock Lobster using TVH data.*'**4A – TVH sector standardisation**

Robert noted the stock assessment relies on an index of abundance that is provided by the pre-season survey and the standardised CPUE for the TIB and TVH sectors. The CPUE is standardised to account for changes that influence catch and catch rates. The standardisation process also looks at whether a combination of factors influence catch or catch rates. The relative fishing power across the fleet has the largest effect in the model for the TVH data and it varies from 36 per cent to 192 per cent.

Robert noted that for the TVH CPUE the area effect and fishing method effect did not appear to have a large influence on the model.

4B – TIB sector standardisation

Robert noted that in 2013 there was a reduction in the reporting of fishing effort for the TIB sector and more recently in 2015 and 2016 there was a reduction in the reporting of effort information because some processors reported aggregate catch. This had made the CPUE analysis more difficult for the TIB sector.

Robert noted that in previous years the TIB sector docket book records for lamp fishing (n=4,435 records) were not used in the analysis. The RAG **AGREED** that lamp fishing data should be used for future TIB CPUE analyses.

Robert noted that as per previous discussions, there was a reduction in catch by unknown area and increase in reported catch for Thursday Island (area 9). The RAG noted the increase in reported catch for the Thursday Island was likely to be incorrect and over represented. The RAG noted that when the area effect (the impact of the reported fishing area on model results) was tested it had limited influence on the stock assessment results.

The RAG noted that the Main-Effects model (the base-case used for the fishery assessment) increased by 20 per cent for 2017 when compared to the long-term average. The scientific observer noted that further checks were undertaken and the increase was due to a recent shift from predominately tailed lobster to live lobster for the TIB sector (it was not due to the over representation of catch for Thursday Island, area 9).

Agenda item 5 – pre-season survey results

The RAG noted an update on the fishery independent pre-season survey that was held from 1 to 12 November 2017 presented by the scientific observer Mark Tonks.

Mark noted that:

- There was good visibility and mostly favourable weather conditions throughout the duration of the dive survey;
- A total of 77 reef sites were surveys, each site is surveyed by diving and observing lobsters over a 400 metre long by 4 metre wide belt transect;
- The 2017 1+ index is the lowest ever recorded for the pre-season survey, there was an average of 1.78 lobsters per transect. This is down 75 per cent from 2015 and 15 per cent from 2016;

- The pre-season survey does not provide an index for 2+ lobsters because these lobsters have already migrated from the Torres Strait, instead the Fishery uses the standardised CPUE indices for the 2+ indices;
- Across the 77 sites surveyed only 18 0+ lobsters were observed, this was a substantial decrease from 2016 pre-season survey of 90 0+ lobsters;
- There was no observations of extraordinary changes to benthic habitat at survey sites.

The Chair questioned whether inter-diver comparisons are made to check if one diver or a dive team may be biasing the results. The scientific observer noted that the survey procedures minimise the effect of individual divers on the lobster count. However, there may be up to 15 per cent undercount of 0+ lobster from 2016, due to Darren Dennis retiring (Darren conducted CSIRO lobster dive surveys from 1989 to 2016).

Mark noted that the 77 dive sites do not include deeper dive sites on the eastern edge of Warrior Reef that have previously been included in the dive surveys. The scientific member Eva Plaganyi noted that the survey was at a reduced scale with 77 sites, however before reducing the scale of the survey the RAG made considered the data and agreed that 77 sites would be representative. Eva noted that the survey number of 0+ lobster are so low that the model cannot fit the data well (the model over estimates the number of 0+).

Agenda item 6 – larval movement

The RAG noted the preliminary results of the research project titled '*Environmental update for the Torres Strait tropical lobster Panulirus ornatus*' presented by the scientific member Dr Eva Plaganyi. The aim of the research was to gather better understanding about the connectivity of the tropical rock lobster population between Papua New Guinea, Torres Strait and Queensland East Coast and to improve the reliability of the fishery stock assessment.

Eva noted the potential factors that may have led to the low 2017 pre-season survey results were:

- overfishing may be a potential factor, the stock has been observed to decline in the past due trawling of migrating and spawning lobster. The high reported trawl catch in 2014 may have reduced the abundance of 1+ lobster in 2016;
- natural fluctuations based on environmental conditions and density dependence of the lobster stock;
- environmental anomaly relating to the strong El Nino event in 2015 and 2016 that led to highest ever recorded sea surface temperatures. High sea surface temperatures are known to influence growth and survival of lobsters and changes to oceanic currents may have impacted on larval advection;
- there was reported loss of habitat recently with sand incursions and coral bleaching that may have reduced the productivity of the ecosystem and had a negative impact on lobster abundance;

- the survey method and procedures were consistent with previous years and undertaken by an experienced dive team. The survey method was not considered to be a factor for the low survey count.

The RAG noted the following information and results from research project presented by the scientific member:

- The project modelled larvae dispersal from two location, Yule Island in Papua New Guinea and Princess Charlotte Bay in Queensland;
- Once larvae are released they spend five months travelling in oceanic currents before they settle as a 0+ lobster, and only a very small percentage of larvae survive and settle as a 0+ lobster;
- There is clear evidence that the Torres Strait Tropical Rock Lobster Fishery, the PNG Tropical Rock Lobster Fishery and the Queensland East Coast Lobster Fishery are based on a single stock of tropical rock lobster;
- The plots show that some larvae released at Yule Island and Princess Charlotte Bay settle in the Torres Strait, however there was no clear relationship between larvae modelling, the pre-season survey and stock assessment results and the level of catch;
- There is a lack of tidal flow information for the Torres Strait and as a result the model does not accurately predict the dispersal of larvae once it reaches the Torres Strait.

The independent scientific member noted that the modelling confirmed that the fisheries are based on a single stock and the model is not able to predict how the stock may be influenced by various fishing or environmental conditions. The independent scientific member noted that the model does not predict how the stock may be influenced by anomalous environmental conditions because it did not explore these event in detail.

The independent scientific member noted the modelling results show that the Fishery recruitment is variable from year to year and is reliant on a healthy spawning biomass throughout the range of the lobster population. This is because across multiple years there is likely to be changing conditions that favour the settlement of larvae in the Torres Strait from different locations.

One industry observer noted that Cape Grenville is an important spawning area for tropical rock lobster on the east coast of Queensland and that lobsters spawning in this area may be important for the recruitment of tropical rock lobster into the Torres Strait.

Agenda item 7 – stock assessment update

The RAG noted the preliminary results of the stock assessment update and the recommended biological catch (RBC) based on the presentation titled '*Draft Updated 2017 Integrated Stock Assessment to provide management advice on the Torres Strait rock lobster fishery*' by Dr Eva Paganyi.

Eva noted the stock assessment model is not fitting to the pre-season season survey 0+ lobster indices. The poor model fit relates to the difficulty of accurately sampling 0+ lobsters and the model is unable to predict the trend in abundance of 0+ lobsters.

The independent scientific member noted the model is predicting that there are more 0+ lobster that what were observed in the pre-season survey. As a result, the stock assessment is providing a slightly more optimistic RBC.

Eva noted that the predicted biomass for the Fishery in 2018 is 0.76 (90% CI 0.54 to 0.98) and dropping to 0.59 in 2019.The target biomass reference point for the Fishery is 0.65. The Chair noted that the model is responding (by reducing the recommended biological catch) to what the potential catch will be for 2018, the model does this by placing a large weighting on the 1+ survey index of abundance, rather than the stock biomass.

Eva advised that in line with the stock assessment outcomes and the interim Harvest Strategy the recommended biological catch (RBC) for 2017/18 fishing season is 299 tonnes. The large reduction from 495 tonne in 2016/17 to 299 tonnes is primarily due to the reduction in the 1+ lobster indices.

Eva noted that the draft empirical harvest control rule (eHCR) can only be implemented once the PZJA agreed to the fishery Harvest Strategy. If the RBC was set based on the eHCR the RBC would have been higher, this is due to the eHCR averaging the indices over the previous 5 years to reduce the variability. The independent scientific member noted that if the eHCR uses data from the past four years it would set an RBC of 280 tonnes, this is consistent with the stock assessment result.

The RAG **RECOMMENDED** a preliminary recommended biological catch (RBC) of 299 tonnes for Australia and PNG inclusive, based on the following:

- the current stock biomass is estimated at 76 per cent of B_{1973} which is above the target biomass of 65 per cent;
- the RBC was calculated by applying the interim harvest strategy to the preliminary results of the integrated fishery stock assessment;
- the reduction in the RBC is primarily due to the stock assessment responding to the low indices for 1+ lobster; and
- the 0+ index of lobster is the lowest ever recorded by a pre-season survey, however the 0+ indices is uncertain due to the small size and cryptic nature of 0+ lobster; and,
- although poorly estimated, the stock biomass is predicted to drop to 59 per cent of B_{1973} in 2019.

The RAG noted the stock assessment results will be finalised in March 2018 and presented to the RAG at its next meeting, however it is unlikely that the results will change significantly.

The RAG **STRONGLY RECOMMENDED** that under the current low levels of abundance, all management actions should be considered to ensure the 2018 RBC of 299 tonnes is not breached.

The following members and observers left the meeting: Eva Plaganyi (scientific member); Mariana Nahas (TSRA member); Brett Arlidge (industry member) and Phil Ketchell (industry member).

Agenda item 8 – stock assessment data rules

The RAG **AGREED** to defer the decision on the Torres Strait Docket Book (TDB01) data rules to the next RAG meeting scheduled for March 2018, this was due to a lack of time to present and discuss the results of the paper. The scientific observer recommended that RAG members and observers read the meeting paper prior to discussing this agenda item at the next meeting.

The RAG **AGREED** that members and observers review the meeting paper out of session and provide any comments on the paper at the next meeting.

Agenda item 9 – harvest strategy

The RAG **AGREED** to defer discussion on the harvest strategy agenda item to the next RAG meeting scheduled for March 2018 due to a lack of time to present and discuss the agenda item.

Agenda item 10 – other business

The RAG Chair noted that the TSRA observer requested to discuss the setting of moon-tide hookah closures for the fishery and wanted the RAG to consider if a second moon-tide closure should be implemented during the months February to September.

The RAG Chair recommended the TSRA observer provide a paper to the RAG prior to the next meeting to support an informed discussion.

Agenda item 11 – next meeting

The Chair noted the next meeting was scheduled for March 2018. The meeting was closed.