

Torres Strait Tropical Rock Lobster Resource Assessment Group Meeting 26

Meeting Record

5 February 2019

Cairns

Note all meeting papers and record available on
the PZJA webpage: www.pzja.gov.au



Australian Government

Australian Fisheries Management Authority

Contents

Meeting participants	3
Members.....	3
Observers	4
1 Preliminaries	5
1.1 Welcome and apologies	5
1.2 Adoption of agenda	5
1.3 Declaration of interests	5
1.4 Action items from previous meetings.....	5
1.5 Out-of-session correspondence	6
2 Updates from members	6
2.1 Industry members.....	6
2.2 Scientific members.....	7
2.3 Government agencies	7
2.4 PNG NFA	8
2.5 Native Title	8
3 Catch summary for the 2018/19 fishing season	8
4 Final stock assessment and recommended biological catch	8
5 RAG Data Sub-Group meeting	12
6 Terms of reference for peer review of survey design	13
7 Research pre-proposals for 2019/20	14
8 Other business	15
9 Date and venue for next meeting	15

Meeting participants

Members

Name	Position	Declaration of interest
Dr Ian Knuckey	Chairperson	Chair/Director of Fishwell Consulting Pty Ltd and Olrac Australia (electronic logbooks). Chair/member of other RAGs and MACs. Conducts various AFMA and FRDC funded research projects including FRDC Indigenous Capacity Building project. Nil interests in TRL Fishery and no research projects in the Torres Strait. In 2019, will deliver components of TSRA Induction Program for Traditional Inhabitant members on PZJA advisory committees. Full declaration of interests provided at Attachment A .
Ms Natalie Couchman	AFMA Executive Officer	Nil.
Ms Selina Stoute	AFMA member	Nil.
Mr Mark Anderson [#]	TSRA member (part of meeting only)	Nil. TSRA holds multiple TVH TRL fishing licences on behalf of Torres Strait Communities but does not benefit from them.
Ms Allison Runck [#]	TSRA member (part of meeting only)	Nil. TSRA holds multiple TVH TRL fishing licences on behalf of Torres Strait Communities but does not benefit from them.
Dr Andrew Penney	Scientific member	Research consultant (Pisces Australis), member of other AFMA RAGs (SPFRAG and SESSFRAG). Nil pecuniary or research interests in the Torres Strait.
Dr Éva Plagányi	Scientific member	Lead scientist for PZJA funded TRL research projects conducted by CSIRO.
Mr James Billy	Industry member	Traditional Inhabitant Kulkalgal, TIB licence holder, Coxwain holder and free diver.
Mr Les Pitt	Industry member	Traditional Inhabitant Kemer Kemer Meriam, TIB licence holder and independent freezer operator.
Mr James Ahmat	Industry Member	Traditional Inhabitant Maluialgal and TIB licence holder.
Dr Raymond Moore	Industry member	Torres Strait Master Fisherman licence holder and East Coast TRL Fishery licence holder.
Mr Daniel Takai	Industry member	Pearl Island Seafoods (seafood buyer), Tanala Seafoods (seafood buyer) and TIB licence holder.

Name	Position	Declaration of interest
Mr Brett Arlidge	Industry member	General Manager MG Kailis Pty Ltd. MG Kailis Pty Ltd is a holder of 5 TVH licences. Seafood buyer from Torres Strait, QLD and PNG TRL fisheries.

Observers

Name	Position	Declaration of interest
Dr Robert Campbell	CSIRO	Nil pecuniary interests. Project staff for PZJA funded TRL research projects.
Dr Charlie Edwards	CSIRO	Project staff for PZJA funded TRL research projects conducted by CSIRO.
Mr Jerry Stephen	TSRA Deputy Chair, TSRA Member for Ugar and TSRA Portfolio Member for Fisheries	TIB licence holder and Native Title holder.
Mr Trent Butcher	Industry observer	TVH licence holder.
Ms Suzannah Salam [^]	Industry observer	Torres Straits Seafood Pty Ltd (seafood buyer), partner is TIB licence holder.

Notes:

Departed the meeting at 11:00 am on Tuesday 5 December 2019. Replaced by Allison Runck as TSRA member.

[^] Departed the meeting at 1:00 pm on Tuesday 5 December 2019.

1 Preliminaries

1.1 Welcome and apologies

1. The meeting was opened at 9:00 am on Tuesday 5 February 2019.
2. The Chairperson welcomed attendees to the 26th meeting of the Torres Strait Tropical Rock Lobster Resource Assessment Group (TRLRAG 26), including a welcome for new members, Mr James Ahmat (Industry Member and Traditional Inhabitant Maluialgal) and James Billy (Industry Member and Traditional Inhabitant Kulkaikal). The Chair acknowledged the Traditional Owners of the land on which the meeting was held and paid respect to Elders past and present.
3. Attendees at the RAG are detailed in the meeting participant tables at the start of this meeting record.
4. Apologies were received from:
 - a. Ms Danielle Stewart, Queensland Department of Agriculture and Fisheries (QDAF) member;
 - b. Mr Harry Nona, Industry member and Traditional Inhabitant Kaiwalagal;
 - c. Mr Aaron Tom, Industry member and Traditional Inhabitant Gudumalulgal;
 - d. Mr Joseph Posu, PNG National Fisheries Authority (NFA); and
 - e. Mr Maluwap Nona, Invited Observer and Chairperson for Malu Lamar (Torres Strait Islanders) Corporation RNTBC (Malu Lamar).

1.2 Adoption of agenda

5. The draft agenda was adopted (**Attachment B**).

1.3 Declaration of interests

6. The Chair advised members and observers, that as provided in PZJA Fisheries Management Paper No. 1 (FMP1):
 - a. Members and observers are to treat others with courtesy and respect that there may be different views expressed on issues. The RAG seeks to reach consensus on issues, but where this is not possible, the different views of members will be recorded in the meeting record.
 - b. Material made available to members is generally public information. In some instances, members will have access to information that is confidential, however members will be advised accordingly.
 - c. All members of the RAG must declare all real or potential conflicts of interest in Torres Strait TRL Fishery at the commencement of the meeting. Where it is determined that a direct conflict of interest exists, the RAG may allow the member to continue to participate in the discussions relating to the matter but not in any decision making process. The RAG 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.
7. Declarations of interests were provided by each meeting participant. These are detailed in the meeting participant tables at the start of this meeting record.

1.4 Action items from previous meetings

8. The RAG noted the status of actions arising from previous TRLRAG, and where relevant, TRL Working Group (TRLWG) meetings (**Attachment C**).

9. The RAG adopted the final meeting record for TRLRAG 25 held on 18-19 October 2018 as a true and accurate record of the meeting.
10. The RAG further discussed the following action items:
- a. Action item 7 – AFMA undertook to provide copies to relevant communities.
 - b. Action item 8 – a TSRA Induction Program will be delivered to Traditional Inhabitant members on PZJA advisory committees in May 2019. The Chairperson noted that his company – Fishwell Consulting – will be delivering components of this Program. In addition, TSRA will be holding an initial induction workshop for Traditional Inhabitant members, to coincide with the upcoming TRL Working Group meeting in late February 2019.
 - c. Action item 11 – regarding the conduct of surveys in PNG waters, the RAG discussed the need to ensure consistency across jurisdictions. CSIRO agreed to send information to PNG concerning the current survey design for the Protected Zone TRL Fishery, including details on current and historical survey sites. The AFMA member advised that PNG are currently compiling catch data from the last fishing season and will provide this data once completed. AFMA is also meeting regularly with the PNG NFA, concerning the management of the Protected Zone TRL Fishery, including a possible visit by the PNG NFA Managing Director to Canberra later in February 2019 and Australia-PNG bilateral meetings to be held on Thursday Island in March 2019.

Action

CSIRO to send information to PNG concerning the current survey design for the Protected Zone TRL Fishery, including details on current and historical survey sites.

1.5 Out-of-session correspondence

11. The RAG noted out of session correspondence on RAG matters since the previous meeting.

2 Updates from members

2.1 Industry members

12. The RAG noted updates provided by industry members and observers on the performance of the Torres Strait TRL Fishery during 2017/18 and at the start of the 2018/19 fishing season:
- a. A TVH industry member advised that this season for the Torres Strait TRL Fishery has started well. Free diving catches during the two-month hookah closure (December 2018 to January 2019) have been higher than previous years. Weather conditions, however, for the hookah opening from 1 February have been very poor. Predominant sizes are 600-800 g and 800 g-1 kg. Unlike last season, operators are not seeing the larger 2+ lobsters at the start of the season. Catches in the PNG TRL Fishery are similar to the Torres Strait TRL Fishery. Catches in the QLD TRL Fishery are very poor. Another industry member suggested the poor QLD catches are likely due to the poor weather and may also be because the fishable size lobsters are in areas closed by the Great Barrier Reef Marine Park Authority.
 - b. Another industry member advised that weather conditions are having a large impact on operations, including significant disruptions to logistic chains transporting lobsters to markets. The member also confirmed free diving catches during the two-month hookah closure have been higher than previous years. This seems to correspond with what would be expected based on results of the November 2018 pre-season survey.
 - c. A Traditional Inhabitant industry member confirmed that since the opening of this season, fishers have observed a lot of 0+ lobsters on the grounds. The member advised this is unusual for the early part of the season and hopes it is an indicator for a good season

next year. The distribution of 1+ lobsters is more evenly spread across the eastern region than last season.

- d. Another Traditional Inhabitant industry member advised that before the early closure of the Torres Strait TRL Fishery last season, some fishers did well around Kirkcaldie. During the early part of this season (December 2018), a lot of lobsters had soft shells and water temperatures were quite high with lobsters observed leaving shallower areas. Since January 2019, catches have been good. Predominant size has been greater than 1 kg.
- e. An industry observer advised that the distribution of 1+ lobsters is more evenly spread across the TRL Fishery than last season. The observer confirmed weather conditions this season has had a large impact on operations. Conditions are currently severe with very poor visibility.
- f. An industry member advised that catches around the Thursday Island bridge area this season have been very poor. Another industry member suggested this could be due to the poor visibility since the season start meaning fishers have not had a lot of opportunity to search for and catch lobsters in this area. Catches from the outer islands areas have been good.
- g. Another industry observer noted that while weather conditions have been poor, the cooler water temperatures have been good for the lobsters. The observer also confirmed free diving catches during the two-month hookah closure have been higher than previous years. Prices have been fairly high from start of season, and it is expected that there will be a two week price boost, correlating with the dark moon to full moon celebrations for Chinese New Year.

13. The Independent Scientific Member noted that environmental and habitat data would give a better understanding the effects of climate and habitat changes on the TRL stock. The CSIRO Scientific Member noted that the annual survey collects such data, but not at a fine spatial scale. CSIRO is working with the TSRA to obtain better environmental data for the TRL Fishery, including sea surface temperature and tidal flows. The AFMA member noted that the RAG Data Sub-Group will evaluate data needs and gaps for the TRL Fishery, and if the need for better environmental data is identified, the group will be able to advise on the best method to capture this data.

2.2 Scientific members

14. The RAG noted that no additional scientific updates were required as all relevant topics were to be covered under other agenda items.

2.3 Government agencies

15. The RAG noted an update provided by the AFMA Executive Officer regarding management initiatives relevant to the TRL Fishery:

- a. Australia-PNG catch sharing - AFMA and the PNG NFA met on 17 January 2018 to discuss preliminary catch sharing arrangements for the 2018/19 fishing season, as per the terms of the Torres Strait Treaty. Agencies will meet again in late February to agree on final arrangements, prior to the PZJA endorsing a final total allowable catch (TAC) for this season.
- b. TRL Fishery Management Plan - AFMA has commenced the formal allocation process prescribed under the *Torres Strait Fisheries (Quotas for Tropical Rock Lobster (Kaiar)) Management Plan 2018* (the Management Plan) and will be in contact with affected licence owners as the process progresses;
- c. Management arrangements for the 2018/19 fishing season - AFMA wrote to all TRL Fishery licence holders prior to the start of the season providing details of key management arrangements for this season, including interim sectoral catch shares, interim TAC and moon-tide hookah closures.

- d. Expiry of appointments for PZJA advisory committees – the appointment terms of members on PZJA consultative forums, excluding Traditional Inhabitant members, expire on 28 February 2019. AFMA will seek to have members' appointments extended until later in 2019, to allow time for a new appointment process to be completed.
16. The RAG noted an update provided by the TSRA member regarding TSRA activities relevant to the management of the TRL Fishery:
- a. Acting CEO – the TSRA currently has an acting CEO, Ms Mary Bani.
 - b. Traditional Inhabitant member induction – the TSRA, through a number of providers, will deliver an Induction Program for Traditional Inhabitant members on PZJA advisory committees. The program is to be delivered at sessions in late February and May 2019. The Program will provide an overview of member roles and responsibilities and fisheries management principles as well as provide support to members in disseminating the outcomes of meetings to communities in a timely manner.
 - c. Independent entity – supporting the implementation of the Management Plan, the TSRA continues to progress the establishment of an independent entity to hold and manage Torres Strait fisheries assets on behalf of Torres Strait communities. With a target implementation date of 30 June 2020, there is a large schedule of work ahead to develop the supporting community arrangements.

2.4 PNG NFA

17. No update was provided as a PNG NFA representative was not in attendance.

2.5 Native Title

18. No update was provided as a Malu Lamar representative was not in attendance.

3 Catch summary for the 2018/19 fishing season

19. The RAG noted the reported landed catch for the Australian Torres Strait TRL Fishery for the 2018/19 fishing season is 32,553 kg (as of 29 January 2019). The AFMA member noted that, as per AFMA's Information Disclosure Policy, sectoral catches have been aggregated, as the data from the TVH sector is currently from less than 5 vessels. The Policy does allow more detailed fishing information to be disclosed where the information has or will be used to guide fishery management decisions, but that is not necessary at this time. AFMA will provide public monthly catch updates from February 2019, via the AFMA and PZJA websites, to assist industry in monitoring catch against interim sectoral split arrangements this season.
20. The RAG also noted that the PNG TRL Fishery opened 1 December 2018, with the use of hookah gear prohibited until 31 March 2019. The AFMA member advised that they are working closely with PNG to share catch data.

4 Final stock assessment and recommended biological catch

21. The RAG considered a presentation provided by Dr Robert Campbell, CSIRO Scientific Observer, detailing alternative analysis of the pre-season survey data using General Linear Models (GLMs):¹

¹ Campbell R *et al.* 2018. *Extended Analysis of Pre-Season Survey Data to Calculate the Annual Index for 0+ Lobsters*. Paper presented to TRLRAG, February 2019, Cairns.

- a. At the RAG meeting held on 11-12 December 2018 (TRLRAG 25), the RAG discussed a conflict in the stock assessment model between the November 2017 0+ survey index (which was very low relative to historical) and the 2018 1+ index (which was closer to average) and evidence suggesting the 2017 0+ index may be anomalous. The RAG agreed that the 2017 0+ index should be down-weighted appropriately rather than be excluded entirely. The down-weighting should be undertaken using an appropriate statistical methodology and not be applied arbitrarily. CSIRO explored a number of methodologies and the analyses of those are presented here.
 - b. In comparison to the present method used to calculate the 0+ index, the use of GLMs allows for additional factors which may influence the number of lobsters observed and counted during any survey transect to be taken into account. Factors for which data has been collected and included through the GLM analysis are:
 - i. width and length of the survey transect - transect length was scaled (or standardised) to a 2000 m² area;
 - ii. depth of the survey transect;
 - iii. current speed (estimated value);
 - iv. water visibility (estimated value);
 - v. Southern Oscillation Index and phase of the moon for each sample site; and
 - vi. team effect (e.g. diver experience) – as an experienced diver left the project after 2016, a question has been raised as to whether the absence of this diver during the past two years may have influenced the number of 0+ lobsters observed. This diver was involved in the survey since inception in 1989. Most other divers have been involved in at least 10 years of surveys. Team-1 included all two-person teams which included the experienced diver while Team-2 included all teams which did not include this diver.
 - c. Across all nine years, the strata having the highest average probability of observing at least one 0+ lobster is Mabuiag while the strata having the lowest probability is Kircaldie. The same is also found for the average number of 0+ lobsters observed within each strata.
 - d. Looking at all factors, the *Team* effect was the only factor found to have a significant effect on the probability of observing 0+ lobsters, with Team-1 having a 60% higher probability of observing 0+ lobsters. However, the CSIRO Scientific Member noted that these results are preliminary as the approach used to assess the *Team* effect was rather simple and further investigations should be undertaken to assess the possible influence of other divers. Also it was assumed that the *Team* effect does not vary between years and this should be tested in future analyses.
 - e. Compared to the present method used to calculate the 0+ index, the GLM approach raised the 0+ index value by 33.86% (on an already low index) and standard error (SE) by 84.45% (SE is the measure of confidence (certainty) in a value, with the stock assessment model giving higher SE values a lower weighting).
 - f. Finally, it was noted that it would be useful to add further explanatory variables to account for changes in the in-situ environment (e.g. water temperature) and, in particular, the habitat data which has been routinely collected during the surveying of each sampled site.
22. The RAG considered a presentation provided by Dr Andrew Penney, Independent Scientific Member, detailing research on the effects of seabed type on the abundance and distribution of the South African rock lobster, *Jasus lalandi*. Through GLM analysis, seabed type was found to be the biggest driver of abundance than any other factor (e.g. mining, environmental variables). A likely hypothesis is that seabed type has a similar effect on lobsters in the TRL Fishery and as such, the member recommended habitat data be included in any further GLM analysis undertaken by CSIRO.

23. The CSIRO Scientific Member advised that GLM analysis, including habitat data had been undertaken in 2013 – a copy to be provided to the RAG. This looked at the effect of habitat on 1+, but not 0+ lobsters. The RAG noted that the habitat data collected through surveys is a general characterisation only. Industry members noted that food sources have an important effect on TRL distribution (e.g. large aggregations of 1+ on shell beds (not a preferred habitat, but important food source)).

Action

CSIRO to provide a copy of report concerning GLM analysis in 2013, to be circulated to the RAG for consideration.

24. The CSIRO Scientific Member noted the 0+ index is a secondary indicator as previous investigations have shown that this index is less reliable than the 1+ index, mainly due to the cryptic nature of recently-settled lobsters making them more difficult to survey. The GLM approach, as presented, is preliminary and further investigations need to be undertaken, before this approach is used to construct an annual abundance index for use in the stock assessment, including:
- a. counts by teams for each transect being paired (counts are not independent);
 - b. team by year effect;
 - c. changes in the in-situ environment variables (e.g. water temperature);
 - d. habitat data – a Traditional Inhabitant Industry member noted that 0+ lobsters tend to use seagrass plains and shell beds for habitat.
25. The RAG noted that while this approach has only been used to construct an annual index for 0+ lobsters based on the pre-season surveys, the same approach could also be used to construct annual indices for the other age classes using both the mid-year and pre-season surveys. The RAG agreed that CSIRO should undertake further investigations to improve the GLM approach, and present the findings to the next meeting of the RAG.

Action

CSIRO to undertake further investigations to improve the GLM approach, and present the findings to the next meeting of the RAG.

26. The RAG considered a presentation provided by Dr Éva Plagányi, CSIRO Scientific Member, detailing alternative analysis of the pre-season survey data to reduce the conflict between the November 2017 0+ survey index and the 2018 1+ index:
- a. Summary of model - Age Structured Production Model (ASPMs), widely used approach for providing TAC advice with associated uncertainties. Model fits to all data including survey, catch, length frequency and standardised CPUE data and outputs a recommended biological catch (RBC). Incorporation of environmental correlates data is ongoing.
 - b. Model reference case specifications
 - i. Fix steepness $h=0.7$;
 - ii. Fix hyper-stability parameters CPUE (TVH 0.75) (TIB 0.5);
 - iii. Mid-year survey index – use index after applying mixture model to separate cohorts;
 - iv. Preseason survey index – use as Reference MYO (mid-year only) series and same series as in November 2017 without the additional 5 sites added;
 - v. CPUE TVH – Int1 standardised series;
 - vi. CPUE TIB – Seller standardised series.
 - c. 2018 1+ pre-season index - above the average and about three times the 2017 index.

- d. 2018 1+ pre-season index per stratum - Mabuiag and Buru recorded their highest indices over the last 9 surveys. Warraber Bridge had a below average index. There is also a more even distribution across stratum, compared with 2017.
- e. 2018 0+ pre-season index - three times the 2017 index, but not significantly different from 2006, 2007, 2015 and 2016 indices.
- f. Conflict between model vs observed pre-season survey indices - the November 2017 0+ survey index (which was very low relative to historical) and the 2018 1+ index (which was closer to average). The TRLRAG 25 agreed that the 2017 0+ index should be down-weighted appropriately rather than be excluded entirely:
 - i. model is sensitive to the inclusion or exclusion (or down-weighting) of the 2017 0+ index. 0+ index is less reliable than the 1+ index;
 - ii. environmental anomalies may have influenced the distribution and timing of settlement, and hence the representativeness of the 2017 0+ index (noting that these animals were spawned in late 2016/early 2017 during a period of the hottest recorded sea surface temperatures).
- g. Guiding principles (Francis 2011)
 - i. don't let other data stop the model from fitting abundance data well; and
 - ii. don't down-weight abundance data because they may be unrepresentative. Rather than down-weighting data sets, he recommends that alternative assessments be considered in which possibly unrepresentative data sets are excluded.
- h. Additional variance (AV) approach – provides estimate for process error and can be applied to whole 0+ series or 2017 0+ only. CSIRO applied the approach to the whole 0+ series, as it is unlikely that there would be the same level of process error every year. This approach works by pairing data (0+ from one year and 1+ from the following year) and determining how well they correlate. An AV is then attributed to each 0+ and 1+ value corresponding to how well the 0+ and 1+ data correlates.
- i. Results of revised model reference case with AV attributed – model adequately fits 1+ index. A higher SE associated with 0+ index means model gives much less weight to trying to fit 0+ index. The AV approach has had the largest effect on the 2016 and 2017 values, attributed to a lower number of survey sites and increased uncertainty.

27. The RAG noted that the GLM approach looks to account for effects that can be measured outside of the model, whereas the AV approach looks to account for effects that cannot be measured. The RAG noted that both approaches could be applied under the stock assessment.

Recommendation

Noting the further investigations to be undertaken by CSIRO to improve the GLM approach, the RAG recommended the revised model reference case with AV attributed – (g) AV Pars estimated no lower bound – be used to calculate the RBC for the 2018/19 fishing season and subsequent seasons.

28. The CSIRO Scientific Member noted that under the draft Harvest Strategy, the empirical harvest control rule (eHCR) is calculated differently. The eHCR applies a different weighting to the 0+ index, which takes into account a range of errors. Application of the GLM approach will change the indices that input to the eHCR, an important reason to undertake further investigations before it is applied. Application of the GLM approach would not require retesting of the eHCR.

29. The RAG considered a presentation provided by Dr Éva Plagányi, CSIRO Scientific Member, detailing updated results of the integrated stock assessment, based on the revised model reference case with AV attributed:

- a. Model vs observed CPUE - 2018 observed CPUE for both sectors slightly higher than corresponding model value in 2018. This is not a big difference, and a better understanding of changes to fishing power over time will help inform further analyses.

- b. Model-estimated spawning biomass – the revised model provides a lower estimate of current spawning biomass of 46 per cent of B_0 (compared to 56 per cent under the previous reference case). This is above the limit reference point of 40 per cent. The model predicts the spawning biomass to rise to 92 per cent of B_0 in 2020.
 - c. RBC - the revised model calculates an RBC of 641 tonnes for the 2018/19 fishing season.
30. The AFMA Member confirmed that the reference contained in the agenda paper for this item, to a threshold biomass trigger ($B_{THRES} = 0.48$) as a component of the interim Harvest Strategy, is a transcription error resulting from multiple iterations of the draft document over time. A threshold biomass trigger was proposed during the development of the draft Harvest Strategy, and used in Management Strategy Evaluation testing. However, the RAG did not agree for this to be a component of either the interim or draft Harvest Strategy.

Recommendation

Taking into account of the updated results of the integrated stock assessment, based on the revised model reference case with AV attributed, the RAG recommended an RBC of 641 tonnes for the TRL Fishery for the 2018/19 fishing season.

31. The RAG noted an update from the CSIRO Scientific Member concerning ongoing work to incorporate environmental effects data into the stock assessment model. The member will be attending a meeting in Norway in June concerning the effects of environmental variability on fisheries stocks, and will provide an update at the next RAG on the outcomes.
32. The RAG also noted calculations presented by the CSIRO Scientific Member concerning the additional costs (\$187,300) of increasing the number of pre-season survey sites from the current 77 sites (\$218,100 total cost) to 140 (\$405,400 total cost). CSIRO to circulate cost-benefit paper to RAG.

Action

CSIRO to circulate cost-benefit paper to RAG.

5 RAG Data Sub-Group meeting

33. The RAG noted an update from Ms Natalie Couchman, Executive Officer, concerning arrangements for the upcoming RAG Data Sub-Group meeting:
- a. at the RAG meeting held on 18-19 October 2018 (TRLRAG 24), the RAG recommended a sub-group of the RAG be established to examine and recommend improvements to be made to the collection and analysis of catch and effort data for the TRL Fishery;
 - b. the Sub-Group will be established for an initial term of 18 months, and will focus on issues concerning fishery dependent data inputs to the TRL Fishery assessment framework;
 - c. the Sub-Group will meet on an as needs basis, with the first meeting tentatively scheduled between 19-21 March or 17-18 April 2019, depending on attendees' availabilities;
 - d. the first meeting will undertake a review of the data needs for the TRL Fishery (e.g. data fields), and assessment on how these needs are currently being met and identify any improvements or gaps. It is envisaged that this will include recommendations on improvements to the TRL04 logbook and TDB02 catch disposal record;
 - e. a report will be provided to the RAG following each meeting. The RAG will be asked to consider each report, provide guidance on further work to be undertaken by the Sub-Group including an assessment of the ongoing need for the Sub-Group.
34. The RAG considered the draft terms of reference for the Sub-Group and agreed they should be sent out of session for further comment, noting the following changes:
- a. scope to recommend improvements and refinements to fishery assessment methodology should be removed from the terms of reference;

- b. the Sub-Group should not be limited to fishery dependent data, there should also be scope in the terms of reference for the Sub-Group to look at data inputs such as environmental correlates.

Action

Draft terms of reference for the RAG Data Sub-Group to be circulated out of session for member comment, prior to finalisation.

35. The RAG suggested, that in reviewing the data needs for the TRL Fishery, the Sub-Group should consider identifying which data fields are mandatory, voluntary, desirable and issues with each. The RAG agreed information on the use of dive-loggers to collect fishery dependent data in the Tasmanian Abalone Fishery should be made available to the Sub-Group for consideration in recommending improvements.

Action

Information to be provided to the Sub-Group on the use of dive-loggers to collect fishery dependent data in the Tasmanian Abalone Fishery.

36. The RAG confirmed nominations for the Sub-Group as follows: Ms Natalie Couchman; Ms Danielle Stewart; Dr Éva Plagányi; Dr Robert Campbell; Dr Andrew Penney; Mr Les Pitt; Mr James Billy; and Joseph Posu. Trent Butcher and Suzannah Salam also offered their nominations as observers.

6 Terms of reference for peer review of survey design

37. The RAG considered the draft terms of reference for an independent peer review of the TRL Fishery survey design, noting CSIRO's conflict of interest as the research provider responsible for conducting the surveys.

38. The Independent Scientific Member reinforced the need for the RAG to decide on, and clearly specify, either key questions, or objectives, to frame the review. The member presented a hierarchy of issues (below) the review could cover, noting that the broader the scope of the review, the more costly it will be, due to the technical expertise and time required to address the more complex questions:

- a. Potential for, or evidence of, bias in survey results:
 - i. Survey design (site selection);
 - ii. Survey implementation (diver effects);
 - iii. Survey data analysis (GLM, spatial raising);
- b. Causes of mismatch between survey results and commercial CPUE:
 - i. Has reduction in the number of sites contributed to potential bias, or just to increase in variance?
 - ii. What are the likely causes of perceived survey:CPUE mismatch?
 - iii. Do these indicate any likelihood of bias in survey results?
 - iv. Is there any evidence for a shift in lobster distribution that could be contributing to CPUE mismatch, or resulting in survey bias?
 - v. What data would be required to detect such shifts?
- c. Recommendations for improvement.

39. The AFMA member advised that at the Torres Strait Scientific Advisory Committee meeting on 5-6 December 2018, it was agreed that the independent peer review of the TRL Fishery survey design will be considered for funding in 2019-20, however this project will be directly sourced from specific researchers due to the expected specialist service and relatively low cost

(approximately \$20,000) . The RAG noted the scope of the review will need to match the available budget, and potential reviewers should be informed when asking to submit proposals.

40. The RAG agreed the draft terms of reference should be refined by the Chairperson and Independent Scientific Member out of session, taking into consideration the following changes suggested by the RAG. Members are to provide any additional changes to those below to the Executive Officer:

- a. any recommended improvements needed to preserve the long-term survey data series for the TRL Fishery;
- b. the terms of reference need to be phrased to ensure they do not indicate an assumption of bias in either the survey or CPUE data;
- c. the review should focus on the 1+ survey series;
- d. review should not revisit work that has already been undertaken e.g. CSIRO has previously conducted analyses on site reduction and variance, and this can be made available to reviewer;
- e. reviewer will be required to comply with data confidentiality requirements; and,
- f. if there is bias, is the cause environmental effects, or whole systematic changes to survey design over time.

41. The draft terms of reference will then be sent to the RAG for final consideration and recommendation on whether to proceed with the review.

Action

Draft terms of reference for the independent peer review of the TRL Fishery survey design to be refined by the Chairperson and Independent Scientific Member out of session, taking into consideration the changes suggested by the RAG and any additional changes received from members.

42. The RAG discussed potential researchers to undertake the review and agreed for members to send details of potential reviewers to AFMA for further consideration.

Action

Members to send details of potential reviewers to AFMA for further consideration.

7 Research pre-proposals for 2019/20

43. The RAG noted an update from Ms Natalie Couchman, Executive Officer, concerning research pre-proposals for 2019/20:

- a. as part of its 2019 funding round, the Torres Strait Scientific Advisory Committee (TSSAC) made an annual public call for research applications in late December 2018 to address research priorities identified for potential funding in 2019-20. Three scopes are relevant to the TRL Fishery:
 - i. Climate variability and change relevant to key fisheries resources in the Torres Strait — a scoping study;
 - ii. Measuring non-commercial fishing (indigenous subsistence fishing and recreational fishing) in the Torres Strait in order to improve fisheries management and promote sustainable livelihoods; and
 - iii. Fishery independent survey, stock assessment, Harvest Strategy and recommended biological catch calculation for the TRL Fishery.
- b. Research funding is assessed in two stages by the TSSAC, through pre-proposals, then successful applications will be asked to submit full proposals. Pre-proposals are due 5 February 2019. Applicants will be advised in late March 2019 whether a full proposal should be submitted.

44. The RAG considered two pre-proposals, taking into account TSSAC's evaluation criteria. CSIRO declared a conflict of interest as applicants for both pre-proposals. The RAG determined that a direct conflict of interest existed and decided the CSIRO member and observers retire from the meeting for discussions on each pre-proposal. Prior to leaving the meeting the CSIRO member was asked to first explain the project proposals.
45. With CSIRO absent from the meeting, the RAG provided comments on each pre-proposal as follows:
- a. *Climate variability and change relevant to key fisheries resources in the Torres Strait* (Dr Leo Dutra, CSIRO):
 - i. further details are requested on the range of research already being conducted in this area, including that being currently conducted by CSIRO, and how this project will complement this research without duplication;
 - ii. clarification is requested on the benefit to the TRL Fishery from this project, particularly given work already undertaken/planned as part of the TRL Fishery survey, stock assessment and Harvest Strategy project.
 - b. *Torres Strait TRL survey, stock assessment and Harvest Strategy* (Dr Éva Plagányi, CSIRO):
 - i. a more detailed description of survey costs, in particular diver costs, is requested;
 - ii. a more detailed and descriptive budget breakdown is requested against the different components of the project and milestones – by year by project component (e.g. data analysis, survey, stock assessment vs eHCR, ancillary (e.g. development of a tiered Harvest Strategy, RAG Data Sub-Group)).
 - iii. exact number of survey sites to be confirmed.

8 Other business

46. Members did not raise any other business for consideration.

9 Date and venue for next meeting

47. Member considered a draft work plan for the TRLRAG and Working Group, noting the next RAG meeting is tentatively scheduled for August/September 2019, with exact dates to be confirmed out of session.
48. The meeting was closed in prayer at 5:30 pm on Tuesday 5 February 2019.

Declaration of interests
Dr Ian Knuckey – February 2019

Positions:

Director –	Fishwell Consulting Pty Ltd
Director –	Olrac Australia (Electronic logbooks)
Deputy Chair –	Victorian Marine and Coastal Council
Chair / Director –	Australian Seafood Co-products & ASCo Fertilisers (seafood waste)
Chair –	Northern Prawn Fishery Resource Assessment Group
Chair –	Tropical Rock Lobster Resource Assessment Group
Chair –	Victorian Rock Lobster and Giant Crab Assessment Group
Scientific Member –	Northern Prawn Management Advisory Committee
Scientific Member –	SESSF Shark Resource Assessment Group
Scientific Member –	Great Australian Bight Resource Assessment Group
Scientific Member –	Gulf of St Vincents Prawn Fishery Management Advisory Committee
Scientific participant –	SEMAC, SERAG

Current projects:

AFMA 2018/08	Bass Strait Scallop Fishery Survey – 2018 and 2019
FRDC 2017/069	Indigenous Capacity Building
FRDC 2016/116	5-year RD&E Plan for NT fisheries and aquaculture
AFMA 2017/0807	Great Australian Bight Trawl Survey – 2018
Traffic Project	Shark Product Traceability
FRDC 2018/077	Implementation Workshop re declining indicators in the SESSF
FRDC 2018/021	Development and evaluation of SESSF multi-species harvest strategies

**26th MEETING OF THE PZJA TORRES STRAIT TROPICAL
ROCK LOBSTER RESOURCE ASSESSMENT
GROUP (TRLRAG 26)**

Tuesday 5 February 2019 (9:00 AM – 5:00 PM)

Rydges Plaza Cairns (Corner Grafton & Spence Streets, Cairns)

DRAFT AGENDA

1 PRELIMINARIES

1.1 Welcome and apologies

The Chair will welcome members and observers to the 26th meeting of the RAG.

1.2 Adoption of agenda

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

1.5 Out-of-session correspondence

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

2 UPDATES FROM MEMBERS

2.1 Industry members

Industry members and observers will be invited to provide an update on matters concerning the Torres Strait TRL Fishery.

2.2 Scientific members

Scientific members and observers will be invited to provide an update on matters concerning the Torres Strait TRL Fishery.

2.3 Government agencies

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

2.4 PNG National Fisheries Authority

The RAG will be invited to note an update from the PNG National Fisheries Authority.

2.5 Native Title

The RAG will be invited to note an update from Malu Lamar (Torres Strait Islander) Corporation RNTBC.

3 CATCH SUMMARY FOR THE 2018/19 FISHING SEASON

The RAG will be invited to note TRL Fishery catch data for the 2018/19 fishing season to date.

4 FINAL STOCK ASSESSMENT AND RECOMMENDED BIOLOGICAL CATCH

The RAG will be invited to consider the final results of the integrated stock assessment. A final recommended biological catch (RBC) for the 2018/19 fishing season will be provided based on the integrated stock assessment.

5 RAG DATA SUB-GROUP MEETING

The RAG will consider arrangements for the upcoming data sub-group meeting.

6 TERMS OF REFERENCE FOR PEER REVIEW OF SURVEY DESIGN

The RAG will be invited to consider draft terms of reference for an independent peer review of the Torres Strait TRL Fishery survey design.

7 RESEARCH PRE-PROPOSALS FOR 2019/20

The RAG will be invited to consider relevant research pre-proposals for funding in 2019/20, submitted in response to the 2019 call for research.

8 OTHER BUSINESS

The RAG will be invited to raise other business for consideration.

9 DATE AND VENUE FOR NEXT MEETING

The RAG will be invited to discuss a suitable date for the next meeting.

Action items from previous TRLRAG meetings

#	Action Item	Meeting	Responsible Agency/ies	Due Date	Status
1.	<p>AFMA to review the effectiveness of certain TIB licensing arrangements (in its 2016 licencing review) including:</p> <ul style="list-style-type: none"> TIB licenses should share a common expiry date licences to last for longer than the current 12 month period. 	TRLRAG14 (25-26 August 2015)	AFMA	2017	<p>Ongoing</p> <p>This item will be considered at the next meeting of the TRL Working Group scheduled for 19-20 February 2019, with a view to progressing during 2019. AFMA will provide further updates on this item once it has been considered and prioritised by the TRL Working Group and resourcing has been allocated.</p>
2.	<p>AFMA and CSIRO prepare a timeline of key events that have occurred in the Torres Strait Tropical Rock Lobster Fishery (e.g. licence buy backs, weather events and regulation changes) and provide a paper to TRLRAG.</p>	TRLRAG14 (25-26 August 2015)	AFMA CSIRO	TRLRAG17 (31 March 2016)	<p>Ongoing</p> <p>AFMA to complete this action in 2019.</p>
3.	<p>AFMA to liaise with Mr Pitt and Malu Lamar to provide agreed traditional names for the area around Erub.</p>	TRLRAG23 (15 May 2018)	AFMA		<p>Complete</p> <p>AFMA has liaised with Mr Pitt regarding this action. A map developed by the TSRA's Land and Sea Management Unit in consultation with PBCs, including Malu Lamar was developed in late 2018. A copy of this map was provided to CSIRO and the RAG at the meeting held on 11-12 December 2019. Further copies can be requested from the RAG Executive Officer as required.</p>

4.	South Fly River studies to be provided for consideration at the next TRL and Finfish RAG meetings.	TRLRAG23 (15 May 2018)	AFMA	TRLRAG24 (18-19 October 2018)	Ongoing Preliminary results of these studies was presented to TRLRAG24 held on 11-12 December 2018. A report detailing the findings of these studies is currently being finalised and will be provided to the RAG once available.
5.	With regards to future TIB catch and effort analyses, CSIRO to explore the use of boat marks to improve location fished data extracted from the TDB02 CDR.	TRLRAG24 (18-19 October 2018)	CSIRO	2019	Ongoing To be examined when the next analyses are undertaken.
6.	CSIRO to provide information on a recent review of the survey design to the RAG for information.	TRLRAG24 (18-19 October 2018)	CSIRO	TRLRAG25	Ongoing A review of the Torres Strait TRL Fishery survey design by the U.S. National Park Service is not yet finalised for distribution. A copy will be provided to the RAG once finalised.
7.	RAG members to provide comments on the CSIRO TRL age class poster. CSIRO to include a better image of the 2+ lobster on the poster.	TRLRAG24 (18-19 October 2018)	RAG CSIRO	2019	Completed Copies can be requested from CSIRO or AFMA.
8.	The TRL RAG Chair to provide the TSRA with a copy of expected behaviours of RAG members to assist with the induction program for incoming PZJA forum members.	TRLRAG25 (11-12 December 2018)	RAG Chair	2019	Completed
9.	CSIRO to investigate the length frequency conversion factors from the catch weight data provided by MG Kailis.	TRLRAG25 (11-12 December 2018)	CSIRO	2019	Ongoing CSIRO to address when resources become available. This is a lower priority as the outcomes of this work will not affect the RBC calculations for the 2018/19 fishing season.

10.	CSIRO to calculate the cost of increasing the number of pre-season survey sites from the current 77 sites back to 140 for RAG industry members to consider.	TRLRAG25 (11-12 December 2018)	CSIRO	2019	Completed To be considered under Agenda Item 4.
11.	Considering assessment timelines, PNG NFA to provide CSIRO with a best estimate of PNG catches by mid-November. CSIRO to liaise closely with PNG regarding reporting timeframes and provision of catch data. In parallel, the RAG data sub-group to examine ways to adjust the stock assessment model to account for delayed catch data from PNG.	TRLRAG25 (11-12 December 2018)	PNG NFA CSIRO AFMA RAG Data Sub-Group	2019	Ongoing AFMA and CSIRO continue to liaise with PNG NFA with regards to the provision of catch and effort data for the PNG TRL Fishery. RAG data sub-group yet to convene. Arrangements for this meeting to be considered under Agenda Item 5.
12.	That the TRL RAG data subcommittee discuss which TVH CPUE series are the best to use within the model.	TRLRAG25 (11-12 December 2018)	AFMA RAG Data Sub-Group	2019	Not complete RAG data sub-group yet to convene. Arrangements for this meeting to be considered under Agenda Item 5.
13.	MG Kailis to submit tissue samples from frozen TRL tails for trace metal analysis to better understand the impacts of dissolved contaminants from the Fly River run off on important fisheries species in the Torres Strait.	TRLRAG25 (11-12 December 2018)	MG Kailis	2019	Completed A sample of PNG tails has been sent for testing. Test results expected February 2019.
14.	CSIRO to circulate the final report from the Fly River study	TRLRAG25 (11-12 December 2018)	CSIRO	2019	Ongoing Preliminary results of these studies was presented to TRLRAG24 held on 11-12 December 2018. A report

	to all RAG members once available.	December 2018)			detailing the findings of these studies is currently being finalised and will be provided to the RAG once available.
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Relevant action items from previous TRLWG meetings*

#	Action Item	Meeting	Responsible Agency/ies	Due Date	Status
1.	Discard reporting and estimation be considered by the RAG (possibly by the RAG data subgroup)	TRLWG8 (8 November 2018)	AFMA RAG Data Sub-Group	2019	Not complete RAG data sub-group yet to convene. Arrangements for this meeting to be considered under Agenda Item 5.
2.	RAG to consider the merit and options for improving the index of 0+ lobster abundance, through logbooks or other means. The Working Group noted that this would may be relevant to the RAG data sub-committee.	TRLWG8 (8 November 2018)	AFMA RAG Data Sub-Group	2019	Not complete RAG data sub-group yet to convene. Arrangements for this meeting to be considered under Agenda Item 5.

*TRLWG actions not relevant to TRLRAG have not been included in the above.