Torres Strait Tropical Rock Lobster Resource Assessment Group

Meeting Record 18

2 & 3 August 2016

In-session meeting

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

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Australian Government

Australian Fisheries Management Authority

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Contents

Meeting participants

Members

Name	Position	Declaration of interest
Ian Knuckey	Chair	Nil Member of other RAG's and conducts various AFMA research projects
Dean Pease	TRLRAG Executive Officer	Nil
Selina Stoute	AFMA Member	Nil
Eva Plaganyi	CSIRO Scientific Member	Project staff for PZJA funded TRL research projects.
Andrew Penney	Independent Scientific Member	Member of other RAG's and research consultant
John Ramsay[1]	TSRA Member	Nil
Mariana Nahas	TSRA Member	Nil
Maluwap Nona	Chairperson Malu Lamar	TIB licence holder
Daniel Takai	Industry Member	Pearl Island Seafood; Tanala Seafood; and Supports other commercial fishing interests in Torres Strait
Mark David	Industry Member	TIB licence holder
Terrence Whap	Industry Member	Nil
Les Pitt	Industry Member	TIB licence holder
Aaron Tom	Industry Member	Nil
Phillip Ketchell	Industry Member	TIB licence holder
Brett Arlidge	Industry Member	General Manager MG Kailis Pty Ltd, holder of TVH licences

[1] Attended preliminaries only

Observers

Name	Position	Declaration of interest
Darren Dennis	CSIRO Scientific Observer	Project staff for PZJA funded TRL research projects
Roy Deng	CSIRO Scientific Observer	Project staff for PZJA funded TRL research projects
Mark Tonks	CSIRO Scientific Observer	Project staff for PZJA funded TRL research projects
Joseph Posu	PNG NFA	Nil
Kevin Sabatino	Industry Observer	TIB licence holder
Thomas Nomoa	Industry Observer	TIB licence holder
Graham Hirakawa[2]	Industry Observer	TIB licence holder
Lauren Posmyk[3]	AFMA Observer	Nil

[2] Attended day one only

[3] Attended day two only

Action items and recommendations

Action Items

Number	Action
1.	AFMA to provide a paper out-of-session to RAG members and observers providing TIB and TVH sectors recent catches and the TAC.
2.	PNG NFA to verify the revised 2015 TRL catch figures and provide explanation of changes to the revised catch figures to AFMA for circulation to RAG members and observers.
3.	AFMA to amend the draft harvest strategy framework to explicitly state that catch data used for the TRL fishery is comprised of catch from Australian and PNG waters.
4.	CSIRO to circulate a Microsoft excel spreadsheet with the agreed eHCR 7 which members and observers can use to view the RBC and TAC with different survey indices and TRL catches.
5.	CSIRO final TRL harvest strategy report to include sensitivity testing of eHCR candidates.
6.	CSIRO to circulate information on survey planning for November 2016 to members and observers out of-session
7.	CSIRO to circulate a presentation on coral bleaching to members and observers out-of-session.

Recommendations

Recommendations
The eHCR to include a maximum catch limit (cap) of 1000 t, recognising that the industry member for the Kulkalgal cluster was more comfortable with applying an 800 t cap to have a higher level of precaution.
eHCR 7 as the preferred option for the TRL Harvest Strategy.
Pre-season +1 survey trigger point of 1.25 average lobsters per survey transect (lower than any historically observed values) be included in the harvest strategy for additional precaution. If in any year the index is lower than 1.25 it triggers a stock assessment for the Fishery.
The following decision rules to be applied if the limit reference point (B_{LIM} = 0.32) is triggered: • If after the first year the stock is assessed below the biomass limit reference point it is optional to conduct a mid-season survey, the pre-season survey must continue annually. • If the biomass limit reference point is triggered in two consecutive years, the fishery closes. It is optional to conduct a mid-season survey, the pre-season survey must continue annually. • The fishery should remain closed until the stock assessment model shows the stock has recovered to be above the limit reference point.
Traditional and recreational catches not be estimated in the stock assessment model or when setting the TAC at this time

Agenda Item 1 - preliminaries

1.1 and 1.2 Apologies / adoption of agenda / declaration of interest

Apologies were received from Ian Liviko (PNG NFA), Ray Moore (TVH licence holder) and Tom Roberts (QDAF).

The RAG adopted the agenda with no changes.

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. These conflicts should be tabled by members.

Observers were welcomed to the meeting noting the potential benefits from greater industry awareness of RAG business and industry contributions in RAG discussions. It was noted that only Members could participate in agreeing to recommendations of the RAG.

1.3 Ratification of RAG #17 meeting record

The RAG adopted the draft meeting record of the 17th meeting as true and accurate. The RAG noted advice from the AFMA member that consistent with broader AFMA practice, draft meeting records will be ratified out-of-session. Draft records are circulated to members and observers by email for comment however if requested, records can be sent by other means to members (e.g. hard copy, fax).

1.4 Action items from previous meetings

The progress of action items from previous meetings was provided by the AFMA Executive Officer. The list of action items and progress is provided in **Appendix A**.

Agenda Item 2 - updates

2.1 AFMA

The RAG noted AFMA advice that the:

- Torres Strait Scientific Advisory Committee (TSSAC) had recommended TRL Harvest Strategy, pre-season surveys and stock assessment project proposal for funding subject to some minor amendments to the proposal;
- scientific permit for the November 2016 pre-season survey has been granted to CSIRO; and
- draft *Torres Strait Fishery (Quotas for Tropical Rock Lobster (Kaiar)) Management Plan 2016* (the draft plan) is out for public comment until 26 September 2016. A copy of the draft plan and a questions and answers guide had been sent by mail to all Torres Strait Tropical Rock Lobster Fishery (the Fishery) licence holders and to Chairpersons and Deputy Chairpersons of Torres Strait Prescribed Body Corporates. AFMA is in the process of arranging public meetings at each Torres Strait Island community and the Northern Peninsula Area to discuss the draft Plan.

2.2 Industry

The RAG noted the updates provide by industry members:

- Catch rates were good early in the 2016 fishing season and good number of small lobsters were observed on fishing grounds. Industry members noted that catches declined recently.

RAG noted the following updates provided by individual industry members and observers.

- Most TVH boats are now working around Yam Island. Sand incursions reported in 2015 around Mabuiag Island have persisted and resulted in poor catches during 2016. Australia (TIB and TVH sectors) and Papua New Guinea (PNG) are catching well and catches seem to be aligned with the total allowable catch (TAC) of 796 t for the 2016 fishing season.
- There has been recent sightings of Queensland East Coast TRL Fishery boats illegally fishing in the Torres Strait Protected Zone (TSPZ). The AFMA member noted there was recent compliance activities relating to reports of illegal fishing near the southern boundary (Johnson Islet) of the Torres Strait Protected Zone (TSPZ).
- It was questioned whether there were any concerns for the Fishery regarding poor water quality from the Fly River PNG. The CSIRO observer noted that given the mine had been operating for 30 years and the TRL stocks had remained sustainable, potentially indicated that water quality around the Fly River has had a minimal impact on the TRL stock.
- The TAC's do not seem to reflect what is happening on the fishing grounds. The CSIRO member noted that due to the high natural variability and short lifespan of TRL, it can be difficult to predict the TAC for future fishing seasons. The AFMA

member noted that generally the catch taken compares well to the TAC and on average approximately 80 per cent of the TAC is caught each year.

The scientific member noted the importance of accurate catch reporting and a robust survey procedure to provide a strong basis for setting TAC's, the member noted it is important for future surveys to be completed consistently. CSIRO member noted that current research is looking into environmental patterns and anomalies to help improve predictability of the impact of anomalous events on Torres Strait Fisheries.

2.3 CSIRO

The RAG noted advice that Darren Dennis will be leaving CSIRO after the November 2016 pre-season survey and Mark Tonks from CSIRO will run the dive surveys. It was noted that Mr Tonks has significant experience undertaking research in the Torres Strait including thee TRL surveys. RAG members and observers thanked Mr Dennis for exceptional contribution to the TRL Fishery, noting Mr Dennis has conducted TRL fishery independent surveys since 1989.

2.4 QDAF

The QDAF update was provided by the AFMA Executive Officer. The Executive Officer advised that TRL catch had reportedly improved for the Queensland East Coast Fishery during the month of July.

2.5 TSRA

The RAG noted the following updates from the TSRA member:

- flyers were sent to all TRL Fishery licence holders and PBC Chairs outlining the additional elements TSRA's is seeking advice on to be included in the draft plan;
- an information video is being produced that explains the entire supply chain for live TRL;
- the Native Title Sea Claim Part B is expected to be going for determination through the High Court in February 2017 and TSRA are receiving advice on how the Akiba decision may progress in relation to native title; and
- a number of TIB industry representatives recently completed a training workshop on principles of fisheries management, if there is more interest from TIB fishers TSRA may consider holding workshops every six months or annually.

2.6 Native Title

The RAG noted advice from the Chairperson for Malu Lamar that while there is general support for the draft TRL management plan, Malu Lamar would like the draft plan to be reviewed by a Queens Council barrister. Malu Lamar is seeking advice on whether or not the draft plan addresses issues of localised depletion and if Indigenous Land Use Agreements are required for certain areas to maximum economic returns.

2.6 PNG NFA

The PNG NFA observer confirmed that PNG revised its 2015 TRL catch figure from 192 t to 416 t whole weight comprising of 137 t of tailed TRL (converts to 367 t whole weight using 2.677 conversion factor) and 48 t live TRL. The PNG NFA observer however further advised that further verification of the revised catch figures is required. PNG NFA will report back to the RAG on the outcome of its data verification process.

The PNG NFA observer advised that in 2014 and 2015 trawlers were granted permits to retain TRL, the trawlers catch TRL in September and October and this may have resulted in the large increase of reported catch. The PNG NFA observer further advised that permits were not expected to be granted to trawlers in 2016; however this has not been confirmed.

The RAG noted with the revised catch figures PNG exceeded their notional TAC by 153 t in 2015.

The RAG **agreed** to the following action items:

1. AFMA to provide a paper out-of-session to RAG members and observers providing TIB and TVH sectors recent catches and the TAC.
2. PNG NFA to verify the revised 2015 TRL catch figures and provide explanation of changes to the revised catch figures to AFMA for circulation to RAG members and observers.

Agenda Item 3 – Draft Harvest Strategy Framework

3.1 Draft Harvest Strategy Framework

The RAG noted the initial draft Harvest Strategy document based on the reference points recommended by the RAG at its previous meeting (meeting 17). Members noted the draft was a working document to be updated with outcomes arising from the current meeting. Members noted the recommended reference points are:

- B_0 is the model-estimate of spawning stock biomass in 1973 (start of the fishery).
- B_{TARG} is the RAG-agreed proxy for B_{MEY}, B_{TARG} = 0.65.
- B_{THRES} is the RAG-agreed threshold biomass level below which more stringent rules for calculating the TAC apply, B_{THRES} = 0.48.
- B_{LIM} is agreed to be half of B_{TARG}, B_{LIM} = 0.32.
- If the limit reference point (B_{LIM}) is triggered two years out of the most recent three-year period, then the fishery is closed.
- F_{TARG} is the model-estimated level of fishing mortality that keeps the stock around B_{TARG}, F_{TARG} = 0.15.

The RAG noted (for further background):

- the target reference point for the fishery is expressed in terms of biomass and it aims to keep the stock fluctuating around 65 per cent of the unfished biomass. The model estimate for unfished biomass is the biomass of the stock in 1973. The scientific member noted the carrying capacity of the stock is approximately 5 000 t.

- a target reference point of 0.65 is higher than that default target of 0.48 set out in the *Commonwealth Harvest Strategy Policy and Guidelines 2007* (HSP). A higher target biomass was considered important for the Fishery because: 1) the stock: is a shared resource that is particularly important for traditional fishing; 2) the stock has high variability; and, 3) all industry members recommended the HS maintain the stock around the relatively high current levels (meeting 17).

- limit reference point (where the stock shouldn't be) is the point where fishing stops if the reference point is exceeded a specified number of times. The scientific member noted that at the biomass limit reference point the TRL stock would be approximately 1 800 t; and

- the threshold is the point at which more stringent rules are applied to the stock.

Consistent with previous RAG recommendations, the draft HS framework includes the use of an empirical Harvest Control Rule (eHCR) where:

- the eHCR is to be updated by annual pre-season surveys and TIB and TVH sector catch and effort information;

- the integrated stock assessment model is to be conducted on a three year cycle (unless a pre-season trigger or limit reference point is breached) to check the status of the stock in the previous three years, check the performance of the eHCR and update the eHCR settings if required; and

- future changes to the eHCR may occur to allow for a tiered HS approach as new and/or additional information or procedures become available. A tiered HS approach would account for different risk-catch-cost trade-offs of different assessment and monitoring options.

Two harvest strategy implementation issues were noted and discussed.

1. Potential impact of PNG over-catches on the HS performance noting the revised PNG 2015 catch figures from 192 t to 416 t.

   The RAG noted advice from the CSIRO member that the stock assessment model and candidate eHCRs account for some implementation error (higher or lower than predicted catches). However large over-catches beyond the estimation errors, (similar to the PNG revised catch figures) will impact the performance of the HS. Members noted that accurate catch records together with ongoing validation from the RAG on appropriate estimation errors will be important in ensuring the reliability of the HS.

2. Timing of TAC advice and the start of the fishing season

The RAG noted that a TRLWG action item is for CSIRO to provide advice on any likely stock impacts from changing the season start date from 1 December to a later date. The purpose for changing the season start date is to allow more time for compiling accurate catch records (by mid-October) and completing the pre-season survey (by end November) to advise on a Recommended Biological Catch (RBC) and TAC (by mid-December) for the upcoming fishing season.

One industry member noted the PNG hookah dive season ends on 30 November each year and that there is no closure for free-diving, therefore the provision of accurate PNG catch data by December each year would be difficult.

The RAG **agreed** to the following action item:

3. AFMA to amend the draft harvest strategy framework to explicitly state that catch data used for the TRL fishery is comprised of catch from the Australian and PNG waters.

3.2 Results of HCR Scenario Testing

The RAG noted and discussed the outcomes of the empirical harvest control rule (eHCR) testing undertaken by CSIRO and that advice on a preferred eHCR was sought. Detailed results and methods were tabled in the report: Plaganyi *et al* (2016) *Summary of TRL TAC setting process and development for use under quota management*.

eHCR testing

Members noted the following methods used to test the eHCR:

- the performance of each candidate eHCR is tested using 200 replicates across four versions of the integrated stock assessment model (total 800 projections). Each model is projected forward 20 years using historical data to evaluate the eHCR candidate performance. Performance is evaluated based on meeting the HS objectives and robustness to changes such as environmental factors, fisher behaviour, stock abundance and survey results.

- the spatial model developed as part of the MSE project is not included in the reference set. Significant work beyond the scope of the current project is required to update the spatial model;

- various candidate eHCR were simulation-tested based on the following four categories of eHCRs.

    a) Constant catch (for example 400 tonnes per fishing season);

    b) Simple Slope – based on latest pre-season survey index relative to the average (suggested by Dr Bentley);

    c) Regression slope – applied to last 5 years of pre-season, 1+, 0+, CPUE data with relative weightings for different series; and

    d) Log regression slope – as above but take natural logarithm of indices to dampen variability.

- Of the four categories simulation testing identified Option C, using the slope of the trends (using the natural logarithm of: survey 0+, CPUE TIB and CPUE TVH) over the last five years, as the best approach.

- 12 candidate eHCRs were presented to the RAG for further discussion. Candidates 1 to 11 used Option C with various weightings to parameters and candidate 12 used a constant catch of 700 t.

- for candidates 1 to 11 a maximum catch of 1000 t was applied. A minimum cap was not applied. Taking into account the views of some members at the meeting for setting a more precautionary TAC, additional testing was conducted for eHCRs 1, 5, 6 and 7 with a maximum catch of 800 t tested (page 12);

- candidate eHCRs were assessed under a range of alternative weightings applied to the pre-season survey and TIB and TVH CPUE data. 'Weighting' refers to the relative priority or influence the eHCR gives to each data input (pre-season survey or CPUE data); and

- as recommended by the RAG (meeting 17), key performance statistics analysed included:

    - status of the resource relative to target reference point (B_{TARG} = 0.65)
    - frequency of the stock falling below the limit reference point (B_{LIM} = 0.32);
    - frequency of the stock falling below the threshold reference point (B_{THRESH} = 0.48) but above the limit reference point (B_{LIM} = 0.32);
    - annual average variability in catch; and
    - average annual catch over 20 years.

Members noted the following feedback on the eHCR testing by independent fisheries scientist and previous RAG member, Nokome Bentley:

- looks useful to use the pre-season survey 0+ index in the forecast of a TAC, however precaution is needed given the low number of data points for 0+ indices;

- agreed it was a good idea to include separate implementation error for TIB, TVH and PNG catches;

- suggested using different values of autocorrelation in recruitment as it is highly likely to influence the eHCR performance;

- ideally weighting of parameters will be determined by management strategy evaluation testing, however it would be surprising if a weighting of less than 0.6 for the pre-season 1+ index would perform well.

The scientific member stated the advice from the independent scientist was incorporated in eHCR scenario testing.

eHCR testing results

Numerous eHCR candidates were tested by CSIRO and 12 candidate eHCRs were recommended for RAG consideration **(Appendix B)**. The RAG agreed to consider the 12 noting CSIRO's expertise to evaluate eHCR performance and remove poor performing candidates.

- Members noted that eHCRs 1, 5, 6 and 7 marginally outperformed the other candidates with a very limited risk of the stock falling below the limit reference point.
- The RAG compared sensitivity tests outcomes for eHCRs 1, 5, 6, and 7 with a 1000 t and 800 t maximum catch constraint applied.

The independent scientific member noted a cap on catch is usually asked for by industry due to limited ability to catch high amounts or because of difficulty in marketing large quantities of product, the member noted that a cap adds further precaution but it is not necessary with a well-developed eHCR.

The CSIRO scientific member noted that the 1000 t cap may offer an additional precaution with the shorter time series (5 years) of pre-season survey data. The member noted that additional precaution may not be required if the model has predicted the high stock abundance (i.e. TAC of 800 t or more) fishing is unlikely to have an impact on future recruitment.

The scientific member, RAG Chair and some industry members noted that a 1000 t cap on the TAC would not impact on current catch levels and as a result it would not have an immediate negative economic impact on the industry. It was also questioned whether the fleet currently has sufficient fishing power to catch 1000 t in a season.

The RAG **recommended** the eHCR include a maximum catch limit of 1000 t recognising that the industry member for Kulkalgal cluster was more comfortable with applying an 800 t cap to have a higher level of precaution in the eHCR and noting the following:

- the sensitivity analysis of an 800 t maximum catch limit compared with a 1000 t limit showed a slight increase in probability of closing the fishery and a reduction over time of the average allowable TRL catch;
- fishing may have limited impact on future recruitment at high stock abundance therefore potentially negating the need for a maximum catch limit; and
- the eHCR will be reviewed in three years using the integrated stock assessment model. The review will evaluate if the 1000 t cap on the total allowable catch (TAC) meets performance requirements or if the cap needs to be revised.

Recommended candidate eHCR

The RAG noted the eHCR 1 and eHCR 5 are very similar in performance (**Table 1**). However, the weighting of data inputs underpinning eHCR 5 was considered to be slightly more risky due to 90 per cent of the weighting relying on the fishery-independent dive survey.

The RAG noted eHCR 1 spreads the weighting across the range of data inputs more evenly (**Table 2**). One industry member raised concerns however that a higher weighting to CPUE information may be considered more risky because catch reporting by the TIB sector is voluntary and records may be incomplete.

The RAG **recommended** eHCR 7 as the preferred option for the TRL Harvest Strategy, the weightings of eHCR 7 is between eHCR 1 and eHCR 5. The RAG noted both eHCRs 1 and 5 performed well and the general consensus to have a more balanced weighting of data inputs whilst recognising the potential limitations of TIB CPUE data.

The RAG **agreed**:

4. CSIRO is to circulate a Microsoft excel spreadsheet with the agreed eHCR which members and observers can use to view the RBC and TAC with different survey indices and TRL catches; and
5. the final CSIRO report is to include sensitivity testing of eHCR candidates.

Table 1 Summary of performance statistics for eHCR 1 and 5

Performance statistic	**Comparative result**
Average catch	eHCR 1 and eHCR 5 similar
Average Annual Catch variation	eHCR 1 slightly lower
Risk of falling below the limit reference point	negligible risk for both eHCR 1 and eHCR 5

Table 2. Data weightings for eHCR 1, 5 and 7.

Data input	**Weighting percentage**		
	eHCR 1	**eHCR 5**	**eHCR 7**
Pre-season survey 1+ index	60	80	70
Pre-season survey 0+ index	10	10	10
CPUE TIB	15	5	10
CPUE TVH	15	5	10

Recommended fishery closure rule

The RAG noted the integrated stock assessment if scheduled be run every third year and the harvest strategy may not be responsive if the spawning biomass drops to low levels between stock assessment.

The RAG **recommended** a pre-season +1 survey trigger point of 1.25 average lobsters per survey transect (lower than any historically observed values) be included in the harvest strategy for additional precaution. If in any year the index is lower than 1.25 it triggers a stock assessment.

The RAG **recommended** the following decision rules to be applied if the limit reference point (B_{LIM} = 0.32) is triggered (**Figure 1**):

- If after the first year the stock is assessed below the biomass limit reference point it is optional to conduct a mid-season survey, the pre-season survey must continue annually.
- If the biomass limit reference point is triggered in two consecutive years, the fishery closes. It is optional to conduct a mid-season survey, the pre-season survey must continue annually.
- The fishery should remain closed until the stock assessment model shows the stock has recovered to be above the limit reference point.

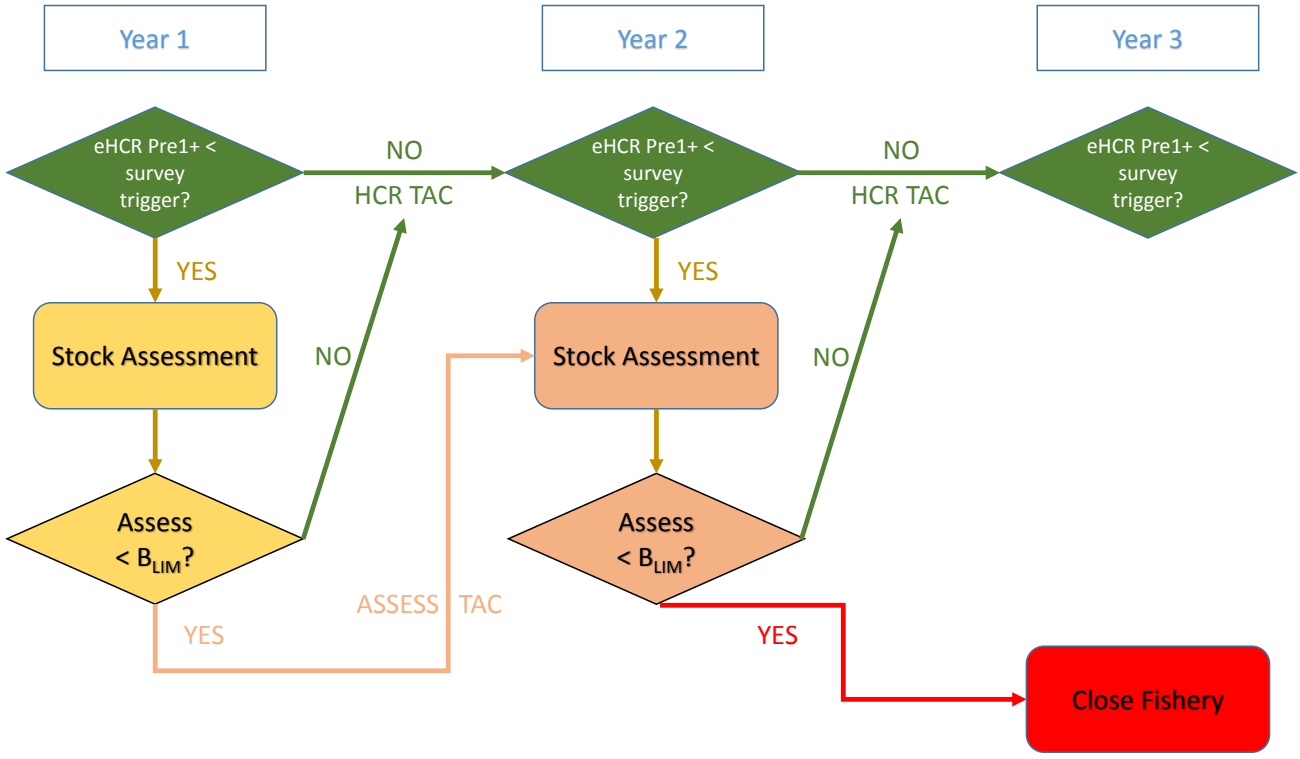

Figure 1. Recommended decision rules to apply if the limit reference point is triggered.

Recommending TACs from the Recommended Biological Catch

The RAG noted in line with the *Commonwealth Harvest Strategy Policy and Guidelines 2007*, the TRL harvest strategy should account for all sources of fishing mortality when recommending the TAC from the recommended biological catch (RBC).

The RAG noted advice from the Independent Scientific Member that if unaccounted fishing mortality, for example catches taken in other sectors, recreational or traditional, remains constant and at low levels, there would be limited impact on the stock assessment if the catches were not included in the model. However, if unaccounted fishing mortality were to increase significantly this may impact on the performance of the stock assessment.

Although some industry members considered recreational catches to be increasing, the RAG agreed that overall catches are likely to be relatively low. The RAG noted currently there was no reliable estimate of recreational or traditional take of TRL but that future Queensland Government recreational fishing surveys may provide some data.

Noting the likely low level of overall catch and the lack of accurate data the RAG **recommended** that traditional and recreational catches not be estimated in the stock assessment model or when setting the TAC at this time.

Agenda Item 4 – Update on Data Processing

The RAG noted outcomes of meeting convened between CSIRO and AFMA data and licencing sections in Canberra on 19 April 2016 to improve the understanding of some of the TRL catch and effort information. Outcomes of the meeting were tabled in the paper titled: *Data issues pertaining to the Torres Strait rock lobster fishery –discussion with AFMA* by Dr Robert Campbell (CSIRO). The key outcomes from the meeting were:

- Since 2012 aggregated annual catch records provided directly to AFMA electronically were not added to the AFMA database, however these figures were include in the integrated stock assessment. The AFMA database was updated in 2016 to include these aggregate catch records.
- There is duplication of catch information across TRL04 logbooks, aggregate catch records and TDB01 docket-book. Following the meeting there was improved understanding of the data fields which may help to identify and remove duplicates.
- A number of TVH vessels had reported catches in the TRL04 logbook and the TDB01 docket-book, however the weights were different. The catch reported in the TDB01 docket-book was mortality of live lobster in tow cages and has already been reported in the TRL04 logbook.

The RAG noted that a number of data issues still persist:

- a large number of TIB catch records are aggregated by financial year for 2013/14 and 2014/15 and supplied monthly since July 2015. Aggregate catch data cannot be used for CPUE analysis and calculation of abundance indices because there is no effort or location information associated with the data;
- a high proportion of the historical data have not completed the 'seller-type' field which is used to indicate whether the seller is TIB or TVH;
- a number of TDB01 docket-book records are not identifying if the catch has been already reported in the TRL04 logbook resulting in duplication of reported catch.

The RAG noted that further work is required to resolve existing data uncertainties and improve data quality into the future. The RAG noted the PZJA is likely to consider introducing a fish receiver system (also known as catch disposal record) for all Torres Strait fisheries.

The RAG agreed that a fish receiver system may provide an important opportunity to further improve data for the fishery. The RAG noted AFMA will be working with the RAG, CSIRO and other scientific members to develop the system.

Agenda Item 5 – Survey Planning

5.1 CSIRO survey

6. Noting there was not enough time for to proceed with a presentation at the meeting the RAG **agreed** for CSIRO to circulate information on survey planning to members and observers out of-session.

5.2 Update on PNG survey

The PNG NFA observer noted that surveys in PNG water were not completed in 2015, PNG NFA will contact CSIRO in late 2016 or early 2017 to continue discussions on completing PNG surveys.

Agenda Item 6 – Monitoring El Nino and Habitats

6.1 Coral Bleaching and 6.2 Mangrove dieback

The RAG noted that several anomalous environmental events had occurred in the region including the large mangrove dieback from Kurumba to Roper River and extensive coral bleaching in the Great Barrier Reef and Torres Strait. The RAG noted that further consideration of likely climatic changes and impacts on the fishery will be required to enable management adaption.

The AFMA member noted that the dieback in Queensland covered approximately 7 000 hectares of mangroves stretching 1000 kilometres of coastline. Further work is required to identify the causing factors of the mangrove dieback and more surveys are required to

determine the spatial extent to the dieback. The CSIRO observer noted that that anomalous weather events resulted in less rainfall, a drop in sea level, increased salinity and a reduction in soil moisture which may have all been contributing factors. The TSRA member noted that there had been some reports of mangrove dieback in the Torres Strait at Moa Island. The CSIRO observer noted that the March sea surface temperate spike was correlated to a coral bleaching event in the Torres Strait.

7. The RAG **agreed** for CSIRO to circulate a presentation on coral bleaching to members and observers out-of-session.

Agenda Item 7 – Other Business

7.1 QLD Fisheries Green Paper

Two observers from Queensland Department of Agriculture and Fisheries gave a presentation to the TRLRAG on the commencement of consultation on the Green paper on fisheries management reform in Queensland July 2016. The TRLRAG noted the consultation is open for a period of 10 weeks and closes on Friday 30 September 2016.

7.2 Govdex

The RAG noted AFMA is implementing Govdex, a secure online website for members and observers to access historic and upcoming meetings papers. A brief overview of was provided on the operation of Govdex. Members were provided instruction and background material as part of the meeting papers. Members and observers noted that they will receive an email from Govdex inviting them to join to gain access. Members may contact dean.pease@afma.gov.au if they are having difficulties accessing Govdex.

APPENDIX A

No.	Action Item	Agenda	Agency	Due Date	Status
1.	AFMA to review the effectiveness of certain TIB licensing arrangements (in its 2016 licencing review) including: • TIB licenses should share a common expiry date • licences to last for longer than the current 12 month period.	TRLRAG14 1.3	AFMA	2016	Ongoing To be complete when AFMA has additional resources.
2.	AFMA to table the results of the finfish smartphone project at TRLRAG15 for further discussion on the use of this technology in the Torres Strait Tropical Rock Lobster Fishery.	TRLRAG14 1.3	AFMA	TRLRAG 17 2016	Project is finished; final report is due to be submitted in May 2016. AFMA will circulate the final report to members for information when it is released.
3.	AFMA to work with industry to develop a data catch summary that may be made available to the public taking into account AFMA's obligations to protect private information.	TRLRAG14 2.4	AFMA	2016	Ongoing
4.	AFMA follow up on the data issues and provide an update at TRLRAG.	TRLRAG14 3	AFMA	TRLRAG 17 2016	Complete Agenda item 4 – paper 'data issues pertaining to the Torres Strait Tropical Rock Lobster Fishery – discussions with AMFA'
5.	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 TRLRAG17.	TRLRAG14 3	AFMA CSIRO	TRLRAG 17 2016	Ongoing CSIRO have provided a draft timeline to AFMA. AFMA have been liaising with TVH licence holder Ray Moore to compile historical records.
6.	AFMA prepare a one page information flyer on docket-book reporting for the TIB sector. The information flyer will be sent to TIB sector TRLRAG members for comment prior to sending to communities.	TRLRAG14 3	AFMA	TRLRAG 15 2016	Ongoing
7.	AFMA send a one page flyer to communities providing information on the minimum size limit of lobsters and the importance of only retaining legal size lobsters prior to lifting the temporal ban of free dive and lamp fishing.	TRLRAG14 7	AFMA	Prior to a season change	Ongoing AFMA is developing management arrangement booklets for Torres Strait Fisheries. The booklets are an easy to understand guide to management arrangements in the fisheries.
8.	AFMA to advise TRLRAG members and observers when final arrangements for the PZJA meeting have been made.	TRLRAG17	AFMA		Complete AFMA notified TRLRAG and TRLWG members the PZJA meeting #25 was held on 29 April 2016 in Melbourne, Victoria. The meeting communique was circulated to TRLRAG and TRWG members

No.	Action Item	Agenda	Agency	Due Date	Status
					and observers on 3 May 2016
9.	AFMA to circulate the sea-surface water temperature website to the TRLRAG members and observers out-of-session.	TRLRAG 17			Complete The Thursday Island water temperature website is available at the aims.gov.au website: http://data.aims.gov.au/aimsrtds/datatool.xhtml?site=921&param=water%20temperature
10.	AFMA to circulate the paper detailing the impact of mobile sediments and lobster abundance to TRLRAG members and observers out-of-session.	TRLRAG 17			Complete Andrew Penney noted the paper has not progressed to publishing at this time, if it is published AFMA will circulate to TRLRAG and TRLWG.
11.	CSIRO to further test the performance of a preferred harvest control rule option (details of rule in paper).	TRLRAG 17			Complete Presented at TRLRAG18
12.	CSIRO to present results of the harvest control rule testing accounting for recommendations by the TRLRAG (details in paper).	TRLRAG 17			Complete Presented at TRLRAG18
13.	AFMA to send industry members an educational DVD on understanding stock assessments and harvest strategies (FRDC Project 2010-306).	TRLRAG 17			Complete AFMA has mailed-out copies to industry members on 6 May 2015. Some copies available at the meeting
14.	AFMA to present a draft harvest strategy paper at the July/August TRLRAG meeting.	TRLRAG 17			Complete Presented at TRLRAG18
15.	CSIRO to include as an appendix to the paper the details of testing decisions, including options that are removed at the July/August TRLRAG meeting.	TRLRAG 17			Complete Presented at TRLRAG18
16.	CSIRO to present written report on the justification of the relative weighting of data under the harvest control rule at the July/August TRLRAG meeting.	TRLRAG 17			Complete Presented at TRLRAG18

APPENDIX B

HCR	Description and Weightings	Evaluation
1.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.6 Pre-season 0+ 0.1 CPUE TVH 0.15 CPUE TIB 0.15	The TRLRAG considered HCR 1 to perform well. The TRLRAG noted HCR 1 is slightly more risky when compared to HCR's 3, 5 and 6. However the weighting takes a more balanced approach. HCR 1 was retained for further discussion.
2.	Slope last 5 years catches and average catch last 5 years. Pre-season 1+ 0.6 Pre-season 0+ 0.1 CPUE TVH 0.15 CPUE TIB 0.15	The TRLRAG considered HCR 2 to be too variable (due to not using a natural logarithm of the slope for the last 5 years catches). HCR 2 was discarded.
3.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.6 Pre-season 0+ 0.3 CPUE TVH 0.05 CPUE TIB 0.05	The TRLRAG considered HCR 3 to perform well. The TRLRAG noted HCR 3 was low risk; it places more emphasis on the pre-season survey index and places a higher rating of 0+ index compared to other HCR's.
4.	Slope last 5 years and average catch last 5 years. Pre-season 1+ 0.6 Pre-season 0+ 0.3 CPUE TVH 0.05 CPUE TIB 0.05	The TRLRAG considered HCR 4 to be too variable (due to not using a natural logarithm of the slope for the last 5 years catches). HCR 4 was discarded.
5.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.8 Pre-season 0+ 0.1 CPUE TVH 0.05 CPUE TIB 0.05	The TRLRAG considered HCR 3 to perform well. The TRLRAG noted HCR 5 was low risk; it places more emphasis on the pre-season survey index and places a higher rating of 1+ index compared to other HCR's.
6.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.7 Pre-season 0+ 0.2 CPUE TVH 0.05 CPUE TIB 0.05	The TRLRAG considered HCR 3 to perform well. The TRLRAG noted HCR 5 was low risk; it places more emphasis on the pre-season survey index.

HCR	Description and Weightings	Evaluation
7.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.7 Pre-season 0+ 0.1 CPUE TVH 0.1 CPUE TIB 0.1	The TRLRAG considered HCR 7 to be more risky when compared to HCR's 1, 3, 5 and 6. HCR 7 was discarded.
8.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.5 Pre-season 0+ 0.1 CPUE TVH 0.2 CPUE TIB 0.2	The TRLRAG considered HCR 8 to be more risky when compared to HCR's 1, 3, 5 and 6. HCR 8 was discarded.
9.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.7 Pre-season 0+ 0.2 CPUE TVH 0.05 CPUE TIB 0.05 - inverse of sigma	The TRLRAG considered HCR 9 to be more risky when compared to HCR's 1, 3, 5 and 6. HCR 9 was discarded.
10.	Natural log slope last 5 years and average catch = 665 t. Pre-season 1+ 0.6 Pre-season 0+ 0.1 CPUE TVH 0.15 CPUE TIB 0.15	The TRLRAG noted that HCR 10 uses a constant average catch of 665 t and as a result the recommended TAC is generally lower compared to other HCR's. The TRLRAG considered the HCR to be too precautionary. HCR 10 was discarded.
11.	Natural log slope last 5 years and average catch last 5 years. Pre-season 1+ 0.6 Pre-season 0+ 0.1 CPUE TVH 0.15 CPUE TIB 0.15 Hockey Rule	The TRLRAG noted that HCR 10 uses a hockey rule based on pre-season survey index. The TRLRAG considered HCR 11 to be too variable. HCR 11 was discarded.
12.	Constant catch 700 t	The TRLRAG noted that HCR 12 uses a constant catch of 700 t. The TRLRAG considered HCR 12 to be too risky. HCR 12 was discarded.