

Torres Strait Tropical Rock Lobster Working Group Meeting 10

Meeting Record

12 December 2019

Thursday Island

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



Australian Government

Australian Fisheries Management Authority

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Meeting participants

Members

Name	Position	Declaration of interest
Dr John Glaister	Chairperson	Member of Parks North, Chair of Northern Prawn Management Advisory Committee (NORMAC), Chair of the Torres Strait Prawn Management Advisory Committee (TSPMAC).
Ms Selina Stoute	AFMA member	Nil
Ms Allison Runck	TSRA member	Nil. TSRA holds multiple TVH TRL fishing licences on behalf of Torres Strait Communities but does not benefit from them
Ms Sevaly Sen	Fisheries Economist Member	Nil interest in Torres Strait fisheries. Conducts various FRDC research projects relevant to AFMA fisheries; Advisor to Sydney Fish Market; AFMA Commissioner.
Mr Aaron Tom [%]	Traditional Inhabitant member	Traditional Inhabitant Gudumalulgal and TIB licence holder
Mr James Ahmat	Traditional Inhabitant member	Traditional Inhabitant Maluialgal and TIB licence holder
Mr Mark Dean	Industry member	TVH operator
Mr Jerome Kalwij [^]	Industry member	Employee of MG Kailis, manager at Pearl Island Seafoods processing factory
Mr Trent Butcher	Industry member	TVH licence holder
Ms Georgia Langdon	AFMA executive officer	Nil

Observers

Name	Position	Declaration of interest
Yen Loban	TSRA Board Member and TSRA Portfolio Member for Fisheries.	TIB licence holder and Councillor for Torres Shire.
Dr Ian Knuckey [#]	Chair, TRL Resource Assessment Group (TRLRAG)	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, delivered components of TSRA Induction Program for Traditional Inhabitant members on PZJA advisory committees.

Name	Position	Declaration of interest
		Full declaration of interests provided at Attachment A.
Dr Éva Plagányi	CSIRO	Lead scientist for PZJA funded TRL research projects conducted by CSIRO.
Lyndon Peddell	AFMA	Nil
Suzannah Salam	Industry observer	Torres Straits Seafood Pty Ltd, TIB licence holder and lessee of TSRA TVH licence in 2017/18 fishing season.
Madeina David	TSRA observer	Nil
Harry Nona	Traditional Inhabitant Member for Kaiwalagal on TRL RAG	Traditional Inhabitant Kaiwalagal and TIB licence holder
James Billy	Traditional Inhabitant member for Kulkalgal on TRL RAG	Traditional Inhabitant Kulkalgal, TIB licence holder, Coxwains holder and free diver.
Richard Takai *	Industry observer	Not declared.
Thomas Fujii *	Industry observer	Not declared.
Sam Salee	Industry observer	Not declared.
Thomas Nomoa	Industry observer	Not declared.

Dr Ian Knuckey only attended the meeting until 11:30am

^ Arrived to the meeting at 10am

% Arrived late to the meeting

* Industry observers left the meeting at 11am.

1 Preliminaries

1.1 Welcome and apologies

1. The meeting was opened in prayer at 9:05 am on Thursday 12 December 2019.
2. The Chair acknowledged the Traditional Owners of the land on which the meeting was held and paid respect to Elders past and present. The Chair welcomed attendees to the 10th meeting of the Torres Strait Tropical Rock Lobster Working Group (TRLWG 10).
3. The Chair advised that the Working Group is an advisory committee to the Protected Zone Joint Authority (PZJA). The Working Group will seek to reach a respectful consensus on issues, but where this is not possible, the different views of members will be recorded in the meeting record.
4. Attendees at the Working Group are detailed in the meeting participant tables at the start of this meeting record.
5. Apologies were received from:
 - a) Ms Danielle Stewart, Queensland Department of Agriculture and Fisheries (QDAF) member;
 - b) Mr Darren Dennis, Scientific member;
 - c) Mr Patrick Mills, Traditional Inhabitant member, Kaiwalagal;
 - d) Mr Les Pitt, Traditional Inhabitant member, Kemer Kemer Meriam;
 - e) Mr Mark David, Traditional Inhabitant member, Kulkalgal;
 - f) Mr Maluwap Nona, Malu Lamar (Torres Strait Islanders Corporation) RNTBC Chairperson; and
 - g) Mr Joseph Posu, PNG National Fisheries Authority

1.2 Adoption of agenda

6. The draft agenda was adopted without change (**Attachment B**).

1.3 Declaration of interests

7. The Chair advised members and observers, that as provided in PZJA Fisheries Management Paper No. 1 (FMP1), all members of the Working Group 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 Working Group may allow the member to continue to participate in the discussions relating to the matter but may also determine that, having made their contribution to the discussions, the member should retire from the meeting for the remainder of the discussions on that issue.
8. Declarations of interests were provided by each meeting participant. These are detailed in the meeting participant tables at the start of this meeting record.
9. The Working Group followed a process whereby each group of members with similar interests were asked to leave the room to enable the remaining members to:
 - a) Freely comment on the declared interests;
 - b) Discuss if the interests precluded the members from participating in any discussions; and
 - c) Agree on any actions to manage declared conflicts of interests (e.g. the member may be allowed to participate in the discussions relating to the matter but not in the formulation of final advice).
10. Those members and observers holding a fishing licence, including the TSRA officers and Board members were asked to leave the room. The remaining members agreed that although the excused members may have real or perceived conflicts of interest, their expertise is critical in the

development of advice. It was also noted that there was no agenda item that favoured one licence holder over another. On this basis, it was agreed that the excused members be permitted to participate in discussions under all agenda items in the formulation of Working Group recommendations.

11. All scientific, economic or consultant members and observers were also asked to leave the room. The AFMA member noted by way of example, that when discussing potential research projects (particularly under agenda item 6 on the five year Research Plan), scientific members may have real or perceived conflicts of interest, however their expertise is highly valued in the development of Working Group advice. On this basis, it was agreed that the scientific, economic and consultant members be permitted to participate in discussions under all agenda items and the formulation of Working Group recommendations.
12. The Chair reminded the group about the importance of the declarations process to ensure transparency and integrity of the advice from the Working Group so that other stakeholders can have confidence in how the group operates. The Chair emphasised the key to managing real or perceived conflicts of interest was for members to be transparent. Real and or perceived conflicts are not unusual in management advisory committees given members are appointed on the basis of their relevant expertise and involvement in the Fishery.
13. The Working Group agreed that all members and observers could be present for each of the agenda items.

1.4 Action items from previous meetings

14. The Working Group noted the status of actions arising from previous Working Group, and where relevant, TRL Resource Assessment Group (TRLRAG) meetings (**Attachment C**).
15. The Working Group noted the final meeting record for TRLWG 9 held on 19 February 2019 was finalised out of session and circulated to members on 26 April 2019.

1.5 Out-of-session correspondence

16. The Working Group noted out of session correspondence on TRLWG matters since the previous meeting.

2 Updates from members

2.1 Industry members

17. The Working Group noted updates provided by industry members and observers regarding the performance of the Torres Strait TRL Fishery during the 2018-19 fishing season and the very start of the 2019-20 season to date, in particular:
 - a) The season has started well with reports of good product on the fishing grounds and observations of smaller sized lobsters. This may influence the fishing patterns of some vessels who may stop fishing during the free dive season and spread out the fishing effort to maximise catch value with limited quota.
 - b) Kulkalgal communities had a slower start to the season with fishers collecting 13-20 crayfish per day. Water temperatures are reportedly cool and catch rates are expected to increase later in the month following the full moon.
 - c) Concerns have been raised amongst the Traditional Inhabitant Boat (TIB) sector about what the TAC will be in the 2019-20 season and whether it will be sufficient to support fishing throughout the full season.

2.2 Scientific members

18. Dr Ian Knuckey, Chair of the TRLRAG provided a summary of the TRLRAG 27 outcomes from their most recent meeting held on 10-11 December 2019 (presentation is at **Attachment D**), importantly:

- a) **RAG Data Sub-group:** The RAG recommended that the data sub-group continue to convene with a short-term focus on logbook improvements to help better understand stock and fishery dynamics (in particular for 2+ lobsters) including improvements to:
 - i. Spatial information;
 - o Education is important to fill out voluntary TIB logbook fields (no. of crew, no. of days fished, and the fishing methods)
 - o Needs to be recorded to a finer resolution
 - o Aligned across logbooks
 - ii. Fishing effort data;
 - o Definition for TVH – fill out actual diving time
 - o Change logbook fields to differentiate between separate steaming / searching / diving
 - iii. CDR needs to better indicate;
 - o no. of divers
 - o Dive time
- b) **Catch and effort analyses for the 2018-19 fishing season:**
 - i. Both TVH and TIB CPUE indices remained similar with no significant change in fishing attributable to the implementation of the quota management system;
 - ii. There is a slight increase in TVH fishing effort compared to the 2017-18 fishing season and a larger increase in TIB fishing effort (in terms of days fished and number of fishers);
 - iii. Data issues with TDB02 data set (potential duplication, decline in voluntary spatial and effort data)
- c) **Results of the 2019 pre-season survey:**
 - i. Undertaken between 11-21 November, dive transects were conducted at 77 repeat pre-season sites.
 - ii. Highest counts of newly settled lobsters (age 0+) on the western side of the survey area and highest counts of newly recruited lobsters (age 1+) on the eastern side of the survey, which is different from the 2018 survey.
 - iii. Substantial increase in 0+ and 1+ counts since the record low in 2017 and highest 1+ survey index recorded since 2005.
- d) **Recommended Biological Catch:**
 - i. 2019-20 season is the first year applying the adopted empirical harvest control rule (eHRC) under the TRL Harvest Strategy;
 - ii. The eHCR is a formula that multiplies the average annual catch over the last five years (582.6 tonnes; using available catch from TIB, TVH, PNG) with a statistic that measures the relative performance of the fishery based on the following five data inputs:
 - Pre-season survey recruiting lobster (1+) standardised relative numbers (70%);
 - Pre-season survey recently-settled lobster (0+) standardised relative numbers (10%); and,
 - nominal CPUE for TIB sector (10%); and,
 - standardised CPUE for TVH sector (using data available up until end of October) (10%).

- iii. In accordance with the TRL Harvest Strategy, using the above eHCR inputs, the RAG recommended an RBC value of 582.1 tonnes for the 2019-20 season with no deduction of catches taken by non-commercial fishing sectors

e) Preliminary stock assessment results:

- i. A stock assessment was undertaken this year because of concern about the 2017/18 low RBC and as a baseline for change in management arrangements (i.e. quota management system).
- ii. Overall, the stock assessment results indicate that the TRL stock is not overfished as the spawning biomass is approximately 93% of relative unfished biomass $B(2019)^{sp} / B(1973)^{sp}$, which is well above the agreed target reference point (B_{TARG}) of 65 per cent unfished biomass under the harvest strategy and well above the agreed limit reference point of 32 per cent (B_{LIM});
- iii. The model estimated a stock biomass $B(2019)^{sp}$ of 4,467 tonnes;
- iv. Overfishing is not occurring as fishing effort is below the fishing mortality target (F_{TARG}) of 0.15
- v. The 2019-20 season RBC output from the stock assessment is 766 tonnes.

f) Interactions between the TRL Fishery and other species:

- i. The RAG agreed that further analysis be undertaken in relation to the impacts of the Torres Strait Prawn Fishery on the TRL Fishery;
- ii. That the potential risks of increased diver/shark interactions resulting from berley and baiting for commercial reef line fishing should be considered when assessing the removal of the Finfish Western Line Closure, noting that the impact further north (Gudumalulgal communities) may be less as TRL diving is less prevalent;
- iii. The RAG noted that potential impacts of trophic interactions between reef fish and TRL are difficult to quantify, however the potential impacts of technical interactions between different fisheries and the TRL Fishery are measurable.

g) Research Priorities:

Priority	Research item	Funding Status
1	Fishery surveys, C&E analysis, Assessment, eHCR	Funded
2	Ecological Risk Assessment	Funded
3	Improved data collection	Funded
4	Document and analysis of impacts of change to quota management <ul style="list-style-type: none"> a. changes in fishing behaviours / fleet dynamics and impacts on fishery indicators b. review of need for various input controls 	Unfunded
5	Peer review of fishing independent survey design	Unfunded
6	Understanding fishery environmental drivers	Unfunded

19. The Working Group noted that:

- a) accurate data is imperative to understanding CPUE as well as the operational fishery characteristics of the fishery in informing on the spawning biomass of the TRL stock.
- b) the new management plan may change fishing behaviours and therefore impact on the inputs in to the eHCR. As such, this item is now the highest unfunded research priority.

2.3 Government agencies

20. The Working Group noted an update provided by the AFMA member, regarding AFMA activities relevant to the management of the Torres Strait TRL Fishery, in particular:

Review of TRL quota unit allocation to the Traditional Inhabitant sector

- a) The TRL Management Plan requires the PZJA to review the allocation of quota units to the Traditional Inhabitant (TIB) sector within two years of the Management Plan commencement (30 November 2020). At the commencement of the quota system on 1 December 2019, the TSRA will hold quota units on behalf of the Traditional Inhabitant sector.
 - b) Separate to the allocation review to be undertaken by the PZJA, the TSRA is working with stakeholders to establish an independent, non-profit entity to manage community-owned commercial fishery assets under the Fisheries Regional Ownership Framework project (FROF project). The TSRA is working to have the entity established by 1 July 2020.
 - c) At its meeting on 19 November 2019 the PZJA agreed in principle that the review of allocation be undertaken by an independent allocation advisory panel (IAAP) in accordance with the policy and procedural framework outlined within Fisheries Management Paper 2 (FMP2). The PZJA directed the PZJA Standing Committee to provide draft Terms of Reference (ToR) for an IAAP, including its membership and process to the PZJA by April 2020 that that PZJA can confirm this in principle decision.
21. Members sought further clarification on the PZJA's role in determining and making allocations for the TIB sector. The AFMA member noted that while the PZJA review process is supported, some communities feel that PZJA decisions often do not reflect the views of communities despite extensive consultation that is undertaken.

Compliance outcomes for the 2018-19 fishing season

22. AFMA took over the Torres Strait Fisheries Domestic Compliance Program on 1 July 2018 from the Queensland Boating and Fishing Patrol. To increase capacity in this area, AFMA has since recruited a third officer to assist with the increase in work load in delivering both domestic and foreign compliance functions that is largely intelligence and risk-based.
23. AFMA fisheries officers work closely with the support of the Australian Border Force, Royal Australian Navy, Queensland Water Police, TSRA Rangers and PNG National Fisheries Authority.
24. A number of formal warnings were issued to TRL operators for relatively minor breaches. Two matters were referred to the Commonwealth Director of Public Prosecutions (CDPP) for consideration, with a further two current matters pending.
25. In addition, AFMA have also conducted a number of stakeholder / community / one-on-one meetings aimed at increasing education and awareness of compliance related issues and to foster voluntary compliance with fisheries regulations. Recently, AFMA has undertaken targeted patrols ahead of the TRL season opening based on reports of product stockpiling, with no breaches of regulations incurred.
26. The Working Group noted that it is not a fisheries officer's role in deciding whether cases should be pursued through to prosecution. AFMA fisheries officers collect evidence and build a case to meet the evidentiary requirements for the AFMA Operational Management Committee to consider whether cases are progressed further to the CDPP.

Development Permit Policy

- a) At its meeting on 8 October 2019, the PZJA agreed to release a draft policy on the issue of development permits used for training purposes in all Torres Strait fisheries. The draft policy is expected to be released before the end of the year and all TIB licence holders should expect a copy of the policy in the mail. The Working Group noted:

- i. The Policy was developed to provide transparency to stakeholders and guidance to both the applicant and the PZJA on the principles an application is assessed against; and
- ii. Any existing holders of a development permit will not be impacted by the new policy;;
- iii. Industry stakeholders have expressed strong views that development permits should not be used for diver training purposes and that it will be important to ensure those views are captured again during the public consultation period.

27. The Working Group noted further updates from the AFMA member including:

- a) Ongoing efforts for AFMA and PNG National Fisheries Authority to agree on a process for finalising catch sharing arrangements for the 2019-20 fishing season, including subject to further stakeholder consultation, the preferred arrangement for utilising Australia's cross-endorsement allocation within PNG's waters. That is, to not seek cross-endorsement but rather pursue a preferential entitlement arrangement under Article 25 of the *Torres Strait Treaty* (to be discussed under Agenda item 5).
- a) As of 1 December 2019, the TRL fishery is now operating under a quota management system following the allocation of quota units in accordance with the *Torres Strait Fisheries (Quotas for Tropical Rock Lobster (Kaiar)) Management Plan 2018*.
- b) AFMA is continuing to progress draft amendments to the *Torres Strait Fisheries Act 1984* (the Act) and *Torres Strait Fisheries Regulations 1985* (the Regulations) as resources and priorities permit. AFMA have experienced delays to the project due to the Federal Election, competing Australian Government legislative priorities and limited internal resources. Noting the need for improved catch reporting however, AFMA is aiming to work with stakeholder to develop a strategy to encourage a level of voluntary logbook reporting by TIB Fishers.

2.4 PNG NFA

28. No update was provided as a PNG National Fisheries Authority representative was not in attendance.

2.5 Native Title

29. No update was provided as a Malu Lamar (Torres Strait Islanders) Corporation RNTBC representative was not in attendance.

3 Catch and effort summary for 2018-19 fishing season

30. The Working Group noted an update on reported landed catch for the Australian TRL Fishery and for the PNG Fishery for the 2018-19 fishing season:

- a) Australian Torres Strait TRL Fishery: as reported through the mandatory fish receiver system (FRS), the reported landed catch for the Fishery for the period 1 December 2018 – 30 September 2019 was 415, 835 kilograms. This equates to 84.03 per cent of Australia's 494,850 kilogram total allowable catch (TAC).
- b) PNG TRL Fishery: as reported by the PNG National Fishers Authority (NFA) total reported catch for the PNG Fishery taken from the Torres Strait Protected Zone (TSPZ) for the period 1 January – 31 August 2019 is 86,560 kilograms, with a further 32,923 kilograms reported from outside the TSPZ. The catch inside the TSPZ equates to 90.03 per cent of PNG's 96,150 kilogram TAC for 2019.
- c) The Working Group noted the methodology the TRL RAG applied to calculate an estimate of total PNG catches for the 2019 season by using the average total (inside and outside of the TSPZ) monthly reported PNG catch (13,921kg) as a proxy for likely catches taken

in December 2018 and November 2019 (months for which NFA is yet to advise on reported catches). Based on this approach the assumed total 2019 seasonal catch (Dec 2018-Nov 2019) for the PNG TRL fishery is 167,053kg.

31. AFMA acknowledged the good work by licenced fish receivers to improve the quality and timeliness of data available for the fishery.

4 Total Allowable Catch

32. The Working Group considered an overview of the TAC setting process and application of the TRL Harvest Strategy to inform the discussions about advising on a TAC for the 2019-20 fishing season, noting some new changes to the process with the introduction of the TRL Management Plan.
33. In chronological order, the key steps to setting a TAC in the TRL fishery are:
- a) Mid November – TRL Fishery pre-season survey conducted by CSIRO;
 - b) 1 December – Australian TRL fishery opens under a 200 tonne interim TAC;
 - c) Mid-December – TRL RAG provides advice on a RBC;
 - d) Mid-December – TRL WG provides advice on a global TAC;
 - e) Mid-January – Global TAC endorsed by the PZJA;
 - f) End-January – Australia and PNG agree on the global TAC and how it is to be shared, included cross-endorsement; and,
 - g) End-February – Australian TAC is increased to final amount.
34. The Working Group noted advice from the Economics member that the staged TAC setting process (interim with a subsequent expected increase in the TAC following the season start) may impact the asset value of a quota units during the interim TAC months (i.e. December to February) and subsequently impact a person's ability to borrow against quota holdings during that time. The Working Group noted that clear information needs to be publically available to assist third parties (such as banks) understand the management process and make informed decisions on quota asset values.
35. Having regard for the TAC setting process, the Working Group noted:
- a) The newly adopted Harvest Strategy uses an empirical (data-based) Harvest Control Rule (eHCR) to rapidly provide a Recommended Biological catch (RBC) using catch, survey indices and CPUE data inputs and is designed to dampen variability in the TAC. The eHCR-derived RBC can therefore be expected to be less variable than the stock assessment-based RBC.
 - b) The eHCR is applied in December and outputs a RBC for the following year. This formula is the multiple of the average annual catch over the last 5 years (582.6 tonnes; using available catch from TIB, TVH, PNG) and a statistic which measures the relative performance of the fishery based on the following four data inputs:
 - i. Pre-season survey recruiting lobster (1+) standardised relative numbers (70%);
 - ii. Pre-season survey recently-settled lobster (0+) standardised relative numbers (10%); and,
 - iii. nominal CPUE for TIB sector (10%); and,
 - iv. standardised CPUE for TVH sector (using data available up until end of October) (10%).
 - c) If the overall performance of the fishery is improving then the RBC calculated using the eHCR will increase, while if the overall performance of the fishery is decreasing then the calculated using the eHCR RBC will also decrease. Over the long-term the eHCR should maintain the stock around the target biomass level (B_{65}) under the agreed Harvest Strategy. Different weightings are applied to the four abundance indices included in the

relative performance statistic used in the eHCR, based on extensive testing to compare performance of alternative weightings and also considering the information content and reliability of each series, as well as a preference expressed by the stakeholders to use a portfolio approach in determining the RBC.

36. The Working Group noted the RAG had recommended an RBC of **582.1 tonnes** and that, consistent with the agreed Harvest Strategy other sources of mortality from non-commercial sectors should not be deducted from the RBC to determine a TAC. The Working Group noted that other sources of mortality from non-commercial sectors are assumed to be low and consistent through time and are therefore not included in the stock assessment or eHCR model. However, if the level of non-commercial catch were to rapidly increase, careful consideration would be needed to understand if it was an increase on what was previously assumed to be the level, or if the new estimate was the same value through time and to be incorporated in the model accordingly.
37. The Working Group noted it is best practice for both the RAG and Working Group to annually consider assumptions on the level of TRL take outside the commercial fishery. Noting catches may change and/or new information may become available.
38. **Having considered advice from the TRLRAG, the Working Group recommended a global TAC for the Torres Strait Protected Zone (TSPZ) TRL Fishery of 582.1 tonnes for the 2019-20 season.**

5 Catch Sharing with PNG

39. AFMA presented an overview of the provisions under the *Torres Strait Treaty* (the Treaty) and the process therein for agreeing catch sharing arrangements between Australia and Papua New Guinea over the Torres Strait Protected Zone TRL stock.
40. The Treaty recognises the rights of both Australia and PNG to fish in the waters of the other country. This practice is known as cross-endorsement and involves Australia and/or PNG nominating an agreed number of commercial fishing boats to fish an agreed share of the TAC.
41. The Working Group noted three key elements of catch sharing with PNG:
 - a) It is agreed that 85 per cent of the global TRL TAC is to be taken in Australian waters and 15 per cent of the global TAC is to be taken in PNG waters. This split is based on the agreed distribution of TRL in the area of the TSPZ;
 - b) Under Article 23(4) of the Treaty, each country is entitled to fish for 25 per cent of the other country's TAC apportionment in the waters of the other country, unless otherwise agreed; and
 - c) Under Article 25 of the Treaty, where Australia and/or PNG does not itself propose to take all the TAC to which it is entitled, either in its own area of waters or that of the other country, the other country will have preferential entitlement to that share. This must be agreed between Australia and PNG.
42. The Working Group noted that at their meeting held on 19 November 2019, the PZJA agreed that, subject to further consultation with stakeholders, the preferred arrangement for utilising Australia's cross-endorsement allocation within PNG's waters is to not seek cross-endorsement but rather pursue a preferential entitlement arrangement under Article 25 of the Treaty. In effect this means, Australia will seek to take a proportion of PNG's cross-endorsement allocation within Australian waters equivalent to Australia's cross-endorsement allocation in PNG's waters.
43. Considering Australia's allocation in PNG waters is relatively small (25 per cent of 15 per cent of the global TAC – which in the 2018-19 season equated to only 24 tonnes), the Working Group acknowledged the issue of being able to provide equitable opportunity to access cross-endorsement across Australian licence holders without encouraging over investment and providing cost-effective and efficient administration, monitoring, control and surveillance.
44. The Working Group noted that during the 2018-19 fishing season, PNG and Australia agreed:

- a) That Australia would effectively take its catch entitlement amount in PNG waters, in Australian waters (24 tonnes), which was shared across all licence holders; and that PNG would then take the no more than the equivalent of Australia's entitlement in their own waters; and
 - b) That Australia seek preferential entitlement to any expected under-catch of PNG's catch TAC apportionment within Australian waters. This is because PNG expressed an interest in accessing 50 tonnes of their 136.21 tonne apportionment of the TAC in Australia's waters through cross endorsement.
45. A schematic diagram outlining the final catch sharing arrangements for 2018-19 is provided in **Attachment E**.
46. Subsequently, no PNG boats fished under a cross-endorsement licence which in effect means the 50 tonnes apportioned to PNG went unallocated. Australia last issued a cross-endorsement licence to PNG operators in the 2014-15 fishing season, and has not accessed cross-endorsement allocations for any fishing in PNG waters since the early 2000s.
47. Having regard for the provisions under the Treaty and issues raised above, and considering the recommended TAC for the 2019-20 fishing season (582.1 tonnes), the Working Group discussed future utilisation of Australia's cross-endorsement allocation for TRL within PNG's waters in the area of the TSPZ. The Working Group discussed:
- a) AFMA is working towards establishing the best process for agreeing catch sharing arrangements with PNG which has been prompted by both the low RBC in 2017-18 and the shift to quota allocation under the *Torres Strait Fisheries (Quotas for Tropical Rock Lobster (Kaiaar)) Management Plan 2018* (the TRL Management Plan). Future arrangements need to be very clear about catch allocations, ensuring best practice for both countries, and protecting the rights and entitlements of Australian fishers under the Treaty.
 - b) Cross endorsement allocations sit outside the remit of the TRL Management Plan.
 - c) Traditional fishing is not considered under the Treaty, and the TRL Harvest Strategy is intended to maintain the TRL stocks at a higher biomass to ensure more lobsters are available to ensure the traditional way of life and livelihoods is protected with minimal impact on the commercial fishery.
 - d) Cross-endorsed licences would be subject to the fishing regulations of the other country, including but not limited to a vessel monitoring system (VMS) and logbooks.
 - e) Under a 85 per cent / 15 per cent split of the global TAC, the Working Group noted that equates to 87 tonnes in PNG waters, and 494.78 tonnes in Australian waters, to then be split according to the TRL Management Plan, with approximately 125.54 tonnes to the TVH sector and 245.55 tonnes to the TIB sector (without finalised cross-endorsement) for the 2019-20 season. Concerns were raised that should catches this season be similar to the 2018-19 season, compounded with likely increased catch rates under a very high stock biomass (93% of relative unfished biomass based on preliminary stock assessment results), the TIB sector is likely to reach the TAC prior to the end of the season.
 - f) Considering this, the Traditional Inhabitant members discussed the potential need to establish a system of controls that will allow the sector to prolong fishing throughout the season and/or to promote value adding fishing practices (e.g. increased selectivity to maximise lobster quality and market prices). The Working Group noted the additional challenges and broad consultation requirements (educational campaigns) for the TIB sector to secure the necessary collective action under the current competitive TAC arrangement for the sector.
48. **Having regard for AFMA's advice on the outstanding administrative matter associated with supporting a cross-endorsement system for Australian boats and the immediate benefits from maximising the available catch to Australian fishers in Australian waters, the Working Group supported AFMA pursuing preferential catch entitlements under the Treaty when agreeing catch sharing arrangements with PNG.**

6 Five-year research plan

49. The Working Group considered an update provided by the AFMA member regarding research priorities for the TRL Fishery identified in the Five-Year Fishery Research Plan 2020/21 – 2024/25.
50. The Working Group noted the advice from TRLRAG 27, and supported the research priorities identified by the RAG as follows:
- a) The following to remain as essential research priorities (noting also all are currently funded):
 - i. **Fishery surveys, stock assessment, harvest control rules and recommended biological catch (RBC).** This research is used to monitor the performance of the Fishery and inform annual management decisions on the TAC.
 - ii. **Ecological risk assessment (ERA).** AFMA has committed to update ERAs for Commonwealth managed fisheries and having an ERA is often considered export approval assessments.
 - iii. **Improvement of data collection.** The RAG supported the continuation of the data sub-group as a means to progress options for addressing ongoing fishery dependent data needs for the fishery.
 - b) To re-prioritise the research priority of **understanding fishing behaviour** to essential noting the need to carefully understand impacts of quota management on: (i) data collected in the Fishery and therefore how is it used to assess the Fishery; and (ii) broader fisheries management performance against social and economic objectives for the Fishery. The latter would likely inform evaluations on the ongoing role of input controls in the Fishery. The RAG had agreed that this research need was the highest priority currently unfunded research. The Working Group supported the view that understanding changes to fisher behaviour will require time and will be useful in supporting the work of the IAAP review.
 - c) To revisit the priority ranking for the **Science peer review** research need following RAG agreement of a final draft the Terms of Reference (ToR) for such a review.

7 Future Management Priorities

51. Noting that the PZJA at its meeting on 26 November 2018 reaffirmed existing management controls currently applied to the TRL Fishery, the Working Group discussed future management priorities for the TRL Fishery for progression in 2020, focussing primarily on a future review of management controls.
52. The Working Group noted that there has been substantial management changes in recent times in the TRL Fishery, including:
- a) implementation of the Management Plan, including the formal allocation of quota units, setting of a total allowable catch (TAC) and strategic assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
 - b) finalisation of the draft Harvest Strategy for the TRL Fishery, including a call for public comments, further consideration by the TRLRAG and Working Group, adoption by the Protected Zone Joint Authority (PZJA) through to application for the first time at this meeting; and
 - c) ongoing efforts to improve fishery dependent data collection and analyses for the TRL Fishery, including ongoing implementation of the fish receiver system (FRS) and the first meeting of the TRLRAG Data Sub-Group.

53. The Working Group noted AFMA's preference is to approach a review in a careful, and considered step-wise manner. This is to ensure a clear understanding of the objectives and rationale of any proposed changes (of the TRL Fishery and the *Torres Strait Fisheries Act 1984* (the Act)) in order to assess the benefits and impacts of proposals. When assessing the benefits and impacts, any proposed change should be supported by an objective assessment of its expected benefits and outcomes against a clear set of evaluation criteria, (e.g. biological, economic, social and management) including identification of who is likely to be affected and how those benefits and impacts are likely to be distributed.
54. The Working Group noted that any proposed changes would require broader stakeholder consultation, and acknowledged that some changes to management controls may only apply to one sector.
55. Importantly, the Working Group noted scientific advice for careful consideration of the potential impacts of changes to management controls on fishing patterns or fisher behaviour. Such changes may result in changes to catch rates and have consequences on CPUE indices and downstream effects on the application of the TRL Harvest Strategy empirical harvest control rule (eHCR).
56. A summary of concerns and issues raised by the Working Group, to be explored further is outlined in Table 1 below.
57. Other concerns raised not directly related to existing management controls included:
- a) Ensuring integrity of the quota management system both within and between sectors (i.e. an Olympic TAC versus ITQs), and managing the risk of quota evasion;
 - b) Consideration of the impact of changes to management controls in response to changing environmental drivers; and
 - c) Consideration of the impact of changes to management controls in relation to changes in market trends and demands.

Table 1. Summary of industry based concerns/issues in relation to current management controls.

Current Controls	Industry concerns/issues	Management/Scientific/Economic considerations
Moon-tide hookah closures (and associated carriage of gear restrictions)	<p>TVH members are seeking flexibility to allow vessels to steam to and from fishing grounds the day before and after a hookah closure. The members reported that the current arrangements:</p> <ul style="list-style-type: none"> • force operators to steam at night which is risky. Some vessels do not have the crewing capacity to steam overnight and commence fishing the next day; • results in two days lost fishing time per closure, equating to approximately one month of lost days fishing in a season. Further, for slower boats it is often not worth it fishing at particular fishing grounds if others have already been fishing there for a day; and • creates a bottle neck at processing factories when unloading product. Aside from processing issues, mass unloads can cause a temporary market supply causes prices to drop. <p>TVH members advised that their preference in the long-term is to remove all moon-tide hookah closures.</p> <p>One TVH industry member requested no further changes to management in the short term to allow for a period of adjustment to the quota management system.</p>	<p>AFMA</p> <p>Whilst regulations may be altered there are often trade-offs between operator flexibility and enforceability. The Act defines fishing broadly and includes activities such as transiting to and from fishing grounds. Further when evaluating regulatory options consideration must be given to the various types of operations in the fishery. At present in the TRL Fishery only primary boats have VMS, small dinghy operations do not. Given the complexity required to develop transiting only regulations and the challenges associated with monitoring such a large fleet without VMS the only viable alternative to the current regulation is to simply change the period of the closure.</p> <p>For background AFMA historically received several concerns from fishers that boats were routinely found on the fishing grounds before hookah closures were lifted.</p>
	<p>Traditional Inhabitant members would like consideration of having an additional moon-tide hookah closures to alleviate fishing pressure on home reefs and to reduce the competition pressure on free-divers from hookah divers.</p>	<p>AFMA</p> <p>For background AFMA advised that the re-introduction of moon-tide hookah closures in 2015 was supported by the Working Group with both TVH and TIB members agreeing that the closures reduced competition between hookah and free-divers.</p> <p>Recent reports from TVH operators on the difficulties some operators are experiencing with increased competition arising from the hookah closures (see above), provide a further basis to carefully consider how various arrangements may impact the pursuit of broader economic and social objectives for the fishery. The Act has explicit objectives relating to the protection of the traditional way of life and livelihood of traditional inhabitants and the need to have regard for promoting economic opportunities for traditional inhabitants. At present most participants in TIB sector free-dive.</p>

Current Controls	Industry concerns/issues	Management/Scientific/Economic considerations
Boat replacement policy (restrictions on boat length in the TVH sector)	<p>TVH industry members expressed a desire to remove the boat replacement policy, advising that:</p> <ul style="list-style-type: none"> • with output controls (i.e. Individual transferrable quota (ITQs) and a TAC), a larger vessel provides a safer operating platform and results in higher quality product during bad weather events. • A larger vessel means crayfish can be transported in live tanks on board (at greater speeds), rather than towed in cages behind the primary (with increased risk of mortality and product loss). • Larger vessels would not result in an increased number of dories • The original policy was introduced during a time when the fishery was largely based on frozen tails and the intent of the boat length restriction was to limit vessel freezer capacity. <p>TIB industry members expressed concern that an increase in larger TVH vessels will result in increased TVH effort despite limitations on quota. Large boats increases the effects of localised depletion and adds pressure on communities to fish their home reefs.</p>	<p>AFMA</p> <p>The boat replacement policy was introduced in 2004 in an attempt to limit overall fishing effort in the TVH sector.</p>
Two month hookah closure from December to January.	<p>An industry observer requested the hookah season commence earlier (on 1 January) and possibly close again in March.</p> <p>This is to allow industry to maximise the catch value in the season by fishing to the Chinese New Year market, and restricting hookah catches in March when market prices are reduced and lobster mortality is higher due to moulting and increased water temperatures and lobster discards.</p>	<p>CSIRO Scientific Observer</p> <p>Early in the season industry are mostly catching larger remnant males, allowing the new 1+ cohort to grow and value add to the fishery later in the season. Suggestion to undertake an economic analysis to consider the trade-offs of changing hookah closure periods and potential impacts on age 1+ cohort lobsters.</p> <p>The hookah closure was designed to afford free divers the opportunity to operate without social completion from hookah divers.</p>
Processor/Carrier licence conditions	A TIB industry member requested that processor/carrier licences be issued to fishing vessels to allow the buying of product on fishing grounds.	<p>AFMA</p> <p>It will be important to consider the impacts of changed licence arrangements on other fisheries, in particular the beche-de-mer fishery.</p>
Primary/tender vessel restrictions	TSRA noted a number of industry members have requested the removal of restrictions on towing tenders un-associated with primary vessels; accommodation of fishing crew and provision of fuel and other services from the primary vessel to un-associated tenders with them. The advice from industry has been that this could	<p>AFMA</p> <p>It will be important to consider the impacts of changed licence arrangements on other fisheries, in particular the beche-de-mer fishery.</p>

Current Controls	Industry concerns/issues	Management/Scientific/Economic considerations
	<ul style="list-style-type: none"> • improve cost inputs for smaller operators in the fishery • improve safety for fishers accommodating on fishing grounds and/or avoid travel in poor weather 	

8 Other Business

58. No other business was nominated for discussion.

9 Date and venue for next meeting

59. The Working Group noted that the next regular meeting of the TRL Working Group is tentatively scheduled for 17 December 2020.
60. On behalf of Working Group members and observers, the Chair thanked the significant contributions and dedicated work of Natalie Couchman as the management officer of the TRL fishery and Executive Officer of the TRL Working Group over the past few years.
61. The 10th TRL Working Group meeting was closed in prayer at 3:35pm on Thursday 12 December 2019.

Declaration of interests

Dr Ian Knuckey – November 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
Chair –	Victorian Central Zone Abalone Fisheries Resource Advisory Group
Chair –	Gulf of St Vincent's Prawn Fishery MAC Research Scientific Committee
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 Vincent's Prawn Fishery Management Advisory Committee
Scientific Member –	Tropical Tuna Resource Assessment Group
Scientific participant –	SEMAC, SESSF Resource Assessment Group

Current projects:

AFMA 2020/0807	Bass Strait Scallop Fishery Survey – 2020-22
FRDC 2017/069	Indigenous Capacity Building
FRDC 2016/116	5-year RD&E Plan for NT fisheries and aquaculture
Traffic Project	Shark Product Traceability
FRDC 2018/021	Development and evaluation of SESSF multi-species harvest strategies
FRDC 2017/014	Informing structural reform of South Australia's Marine Scalefish Fishery
NT Fisheries	Design and implementation of a tropical snapper trawl survey
Sea Cucumber Ass.	Design and implementation of a sea cucumber dive survey
FRDC 2019-072	A survey to detect change in Danish Seine catch rates of Flathead and School Whiting resulting from CGG seismic exploration.

**10th MEETING OF THE PZJA TORRES STRAIT TROPICAL
ROCK LOBSTER WORKING GROUP (TRLWG 10)**

12 December 2019 (9:00 AM – 5:00 PM)

**TSRA Boardroom
Level 1 Torres Strait Haus
46 Victoria Parade, Thursday Island**

ADOPTED AGENDA

1 PRELIMINARIES

1.1 Welcome and apologies

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

1.2 Adoption of agenda

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

1.5 Out-of-session correspondence

The WG will be invited to note out of session correspondence on WG 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 and economic members and observers will be invited to provide an update on matters concerning the Torres Strait TRL Fishery.

2.3 Government agencies

The WG will be invited to note updates from AFMA, TSRA and QDAF on matters concerning the Torres Strait TRL Fishery. AFMA will provide updates on the implementation of the Management Plan and draft Harvest Strategy for the TRL Fishery, management arrangements for the 2019-20 fishing season and delivery of the Compliance program.

2.4 PNG National Fisheries Authority

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

2.5 Native Title

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

3 CATCH AND EFFORT SUMMARY FOR THE 2018-19 FISHING SEASON

The WG will be invited to note TRL Fishery catch and effort data for the 2018-19 fishing season.

4 TOTAL ALLOWABLE CATCH

The WG will be invited to consider advice from the TRL Resource Assessment Group (RAG) on the recommended biological catch (RBC) for the TRL Fishery for the 2019-20 fishing season based on estimates derived through the application of the empirical harvest control rule (eHCR). The WG will then be invited to provide advice on a total allowable catch (TAC) for the TRL Fishery for the 2019-20 fishing season.

5 CATCH SHARING WITH PNG

The WG will be invited to discuss the future utilisation of Australia's cross-endorsement catch share in PNG waters under the Torres Strait Treaty.

6 FIVE-YEAR RESEARCH PLAN

The WG will be invited to provide further advice on research priorities for the Torres Strait TRL Fishery for the next five funding years (2020/21 to 2024/25). This is to include consideration of matters raised by members out-of-session and advice from the RAG.

7 FUTURE MANAGEMENT PRIORITIES

The WG will be invited to discuss future management priorities.

8 OTHER BUSINESS

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

9 DATE AND VENUE FOR NEXT MEETING

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

Action items from previous TRLWG meetings

#	Action Item	Meeting	Agency	Status
1.	<p>The following be presented at the next TRLWG meeting:</p> <ul style="list-style-type: none"> a. an overview of the current understanding of stock connectivity between the Queensland East Coast and the Torres Strait TRL Fisheries; and b. the basis for the Queensland east coast TAC. 	TRLWG 6 held on 25-26 July 2017	CSIRO	<p>a. Complete – stock connectivity</p> <p>At TRLRAG 21 held from 12-13 December 2017, CSIRO presented the preliminary results of the research project titled '<i>Environmental update for the Torres Strait tropical lobster Panulirus ornatus</i>'. Some further results were presented at TRLRAG 22 held from 27-28 March 2018. CSIRO's final report, titled '<i>Environmental Drivers of variability and climate projections for Torres Strait tropical lobster Panulirus ornatus</i>', was provided as a meeting paper at the TRLWG 8 meeting held on 8 November 2018, for reference.</p> <p>b. Complete – QLD TAC</p> <p>See meeting record for TRLWG 8 meeting held on 8 November 2018.</p>
2.	AFMA to clarify with PNG NFA if the PNG TRL Closure was for the entire fishery or for hookah fishing only.	TRLWG 8 held on 8 November 2018	AFMA	<p>Complete</p> <p>PNG NFA provided clarification at TRLWG 9 held on 19 February 2019. The PNG TRL Fishery fishing season runs from 1 January through to 31 December each year. There is a prohibition on the use of hookah gear in the waters of Western Province and Torres Strait from 1 December through to 31 March the following year.</p>
3.	<p>AFMA (and CSIRO) to provide the PNG NFA with:</p> <ul style="list-style-type: none"> a. Further information concerning catch sharing arrangements under the Treaty, in particular the two tier formula and the basis of the historical agreement between Australia and PNG on the likely distribution of the TRL stock. b. Guidance from AFMA and CSIRO on the desired timeframes for sharing catch data to support the stock 	TRLWG 9 held on 19 February 2019	AFMA and CSIRO	<p>Complete</p> <p>Additional information provided on 22 February 2019 and 16 August 2019.</p>

#	Action Item	Meeting	Agency	Status
	assessment for the Torres Strait TRL Fishery.			
4.	AFMA to provide publically available information to the Working Group concerning Federal Court proceedings between Malu Lamar, the Assistant Minister for Agriculture and Water Resources and the PZJA.	TRLWG 9 held on 19 February 2019	AFMA	Complete Information provided to TRLWG members on 12 November 2019.
5.	In preparation for the next Working group meeting, TSRA to work with Traditional Inhabitant industry members to identify management measures for review and objectives against which any proposed changes can be assessed.	TRLWG 9 held on 19 February 2019	TSRA	Complete To be discussed under Agenda Item 7.
Recommendations requiring further action				
6.	The Working Group recommended AFMA provide further guidance to industry concerning: <ul style="list-style-type: none"> a. Current requirements concerning the possession and use of hookah gear around hookah closure periods. b. What fishers need to do should they have a situation where they wish to be in possession or use hookah gear during a hookah closure period (e.g. contact AFMA). 	TRLWG 9 held on 19 February 2019	AFMA	Complete AFMA provided advice to fishers concerning these requirements throughout the 2018-19 fishing season. Further communication materials will be prepared for the upcoming 2019-20 fishing season to reiterate these requirements to fishers. Any questions can be directed to the AFMA Thursday Island office on 07 4069 1990.
7.	The Working Group further recommended that the requirements concerning the possession and use of hookah gear around hookah closure periods be	TRLWG 9 held on 19 February 2019	TRLWG members	Not complete

#	Action Item	Meeting	Agency	Status
	considered further at the next meeting of the Working Group. It was also recommended that industry submit proposals for changes to these requirements to AFMA for consideration at this meeting, noting that requirements need to be cost-effective and enforceable.			A reminder concerning this action was sent to all TRLWG members on 12 November 2019. No written proposals had been received at the time this paper was prepared.
8.	The Working Group recommended that the PZJA develop a policy concerning the administration of developmental permits as a priority, and consult with industry in its development. Further, the Working Group recommended the existing developmental permit conditions be reconsidered in light of concerns raised by industry members.	TRLWG 9 held on 19 February 2019	PZJA	Ongoing Update provided under Agenda Item 2.3.
9.	The Working Group recommended that current TIB primary boat licence conditions which prohibit a TIB primary boat from towing dories not associated with the primary boat, be reviewed with a view to permitting this activity, noting survey requirements for individual primary boats. The Working Group further recommended a proposal be developed for PZJA consideration regarding this matter.	TRLWG 9 held on 19 February 2019	PZJA	Not complete At TRLWG 9 held on 19 February 2019, the AFMA member noted that this issue has been raised by industry in the past and is relevant to all Torres Strait fisheries, not just the TRL Fishery. Given this, broader consultation is required, including with Native Title bodies. The AFMA member further noted that a range of issues will need to be considered in developing a proposal for PZJA consideration including who has ownership of catches carried aboard the primary boat and who is responsible should offences be committed by dories not associated with the primary boat. The TSRA member supported the development of a proposal for PZJA consideration, noting such a proposal did not have PZJA support in the past as, at that time, Torres Strait fisheries were primarily operating under input controls. To be discussed under Agenda Item 7.

#	Action Item	Meeting	Agency	Status
10.	Noting that all current input controls will remain in place for the 2018-19 fishing season, the Working Group recommended that in preparation for the next meeting, members are to identify management measures for review and objectives (social, economic, biological) against which any proposed changes can be assessed.	TRLWG 9 held on 19 February 2019	All TRLWG members	Complete To be discussed under Agenda Item 7.

Relevant action items from previous TRLRAG meetings*

#	Action Item	Agenda	Agency	Status
1.	The RAG endorsed the draft TRL Harvest Strategy and recommended the WG further discuss and provide the RAG with details on the trigger level and proposed management response.	TRLRAG 22 held on 27-28 March 2018	AFMA	Complete Considered at TRLWG 9 meeting held on 19 February 2019. Please refer to the record of the meeting provided at Meeting Paper 1.4b , for further details.

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

TRL RAG 27



Meeting Summary December 2019

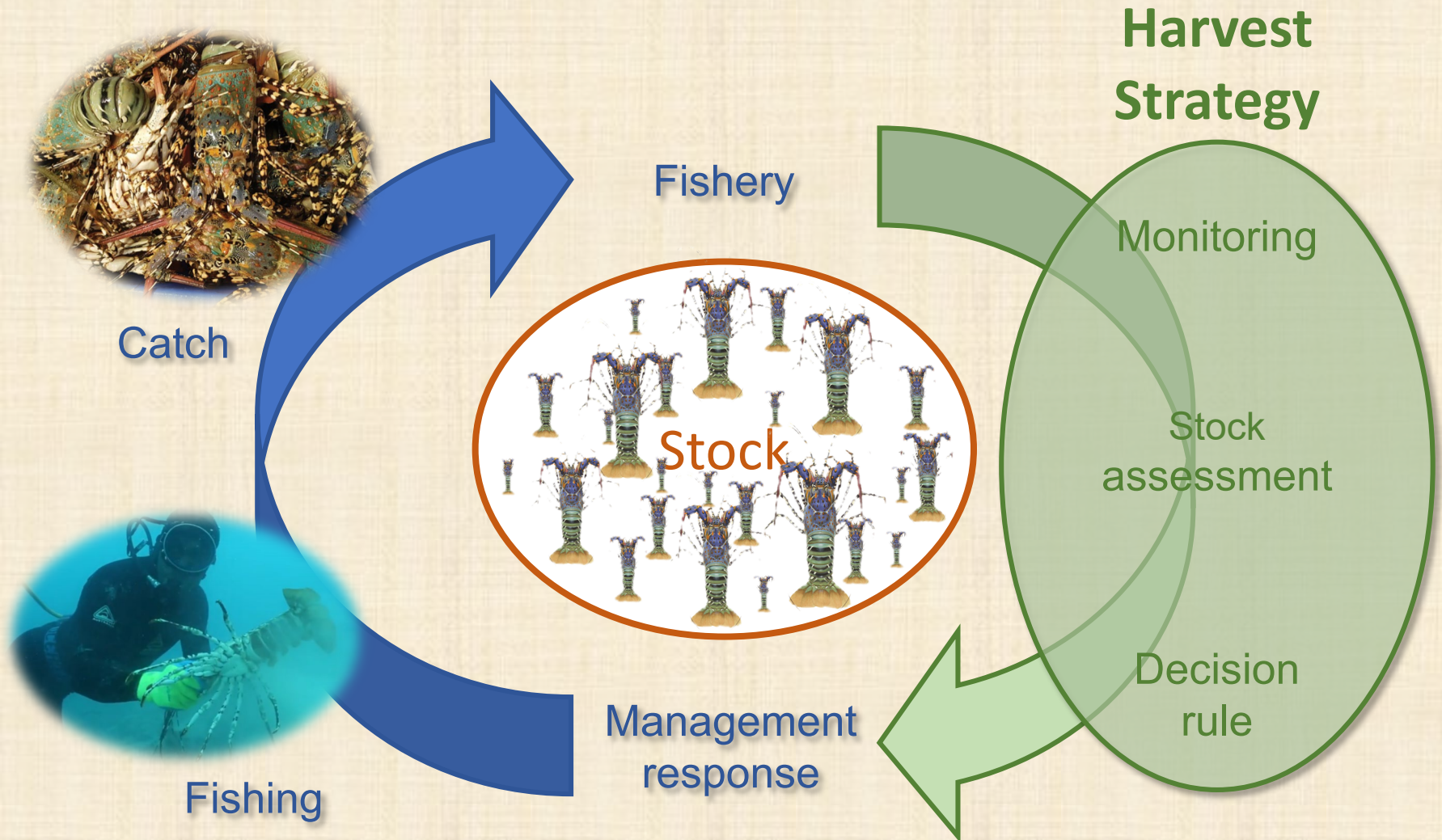


Australian Government

Australian Fisheries
Management Authority

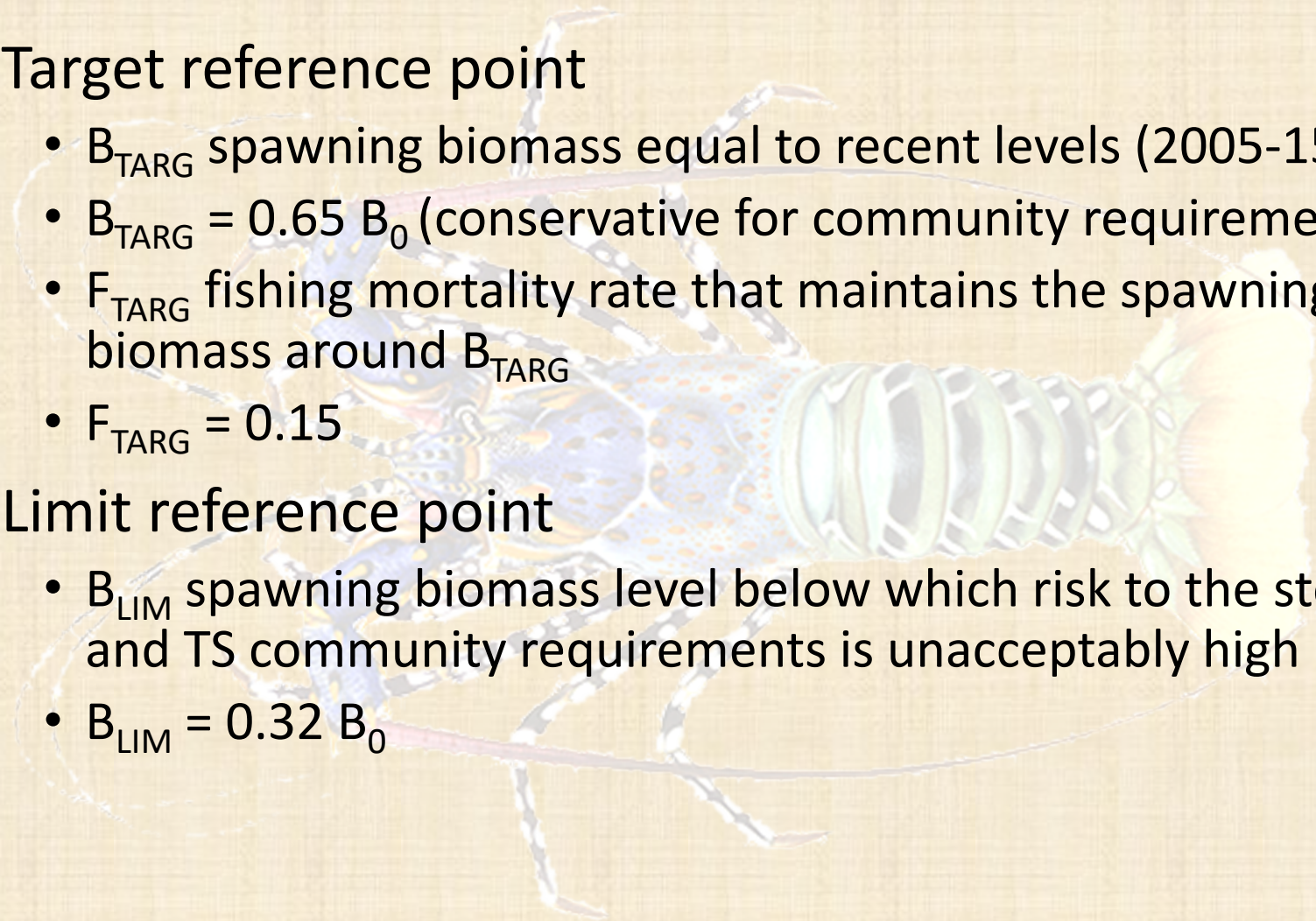
Working Group

TRL RAG



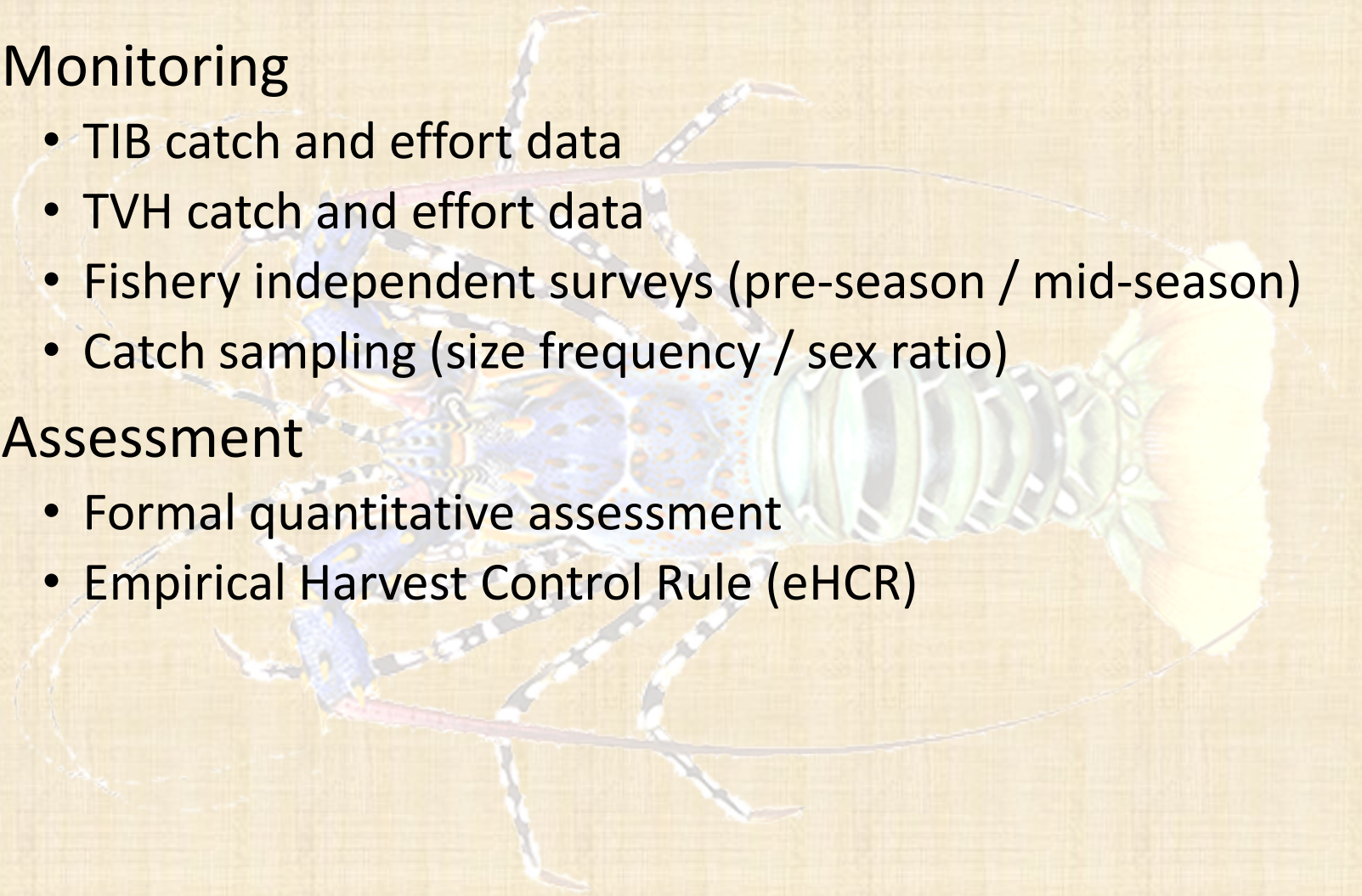
TRL Harvest Strategy

- Target reference point
 - B_{TARG} spawning biomass equal to recent levels (2005-15)
 - $B_{TARG} = 0.65 B_0$ (conservative for community requirements)
 - F_{TARG} fishing mortality rate that maintains the spawning biomass around B_{TARG}
 - $F_{TARG} = 0.15$
- Limit reference point
 - B_{LIM} spawning biomass level below which risk to the stock and TS community requirements is unacceptably high
 - $B_{LIM} = 0.32 B_0$



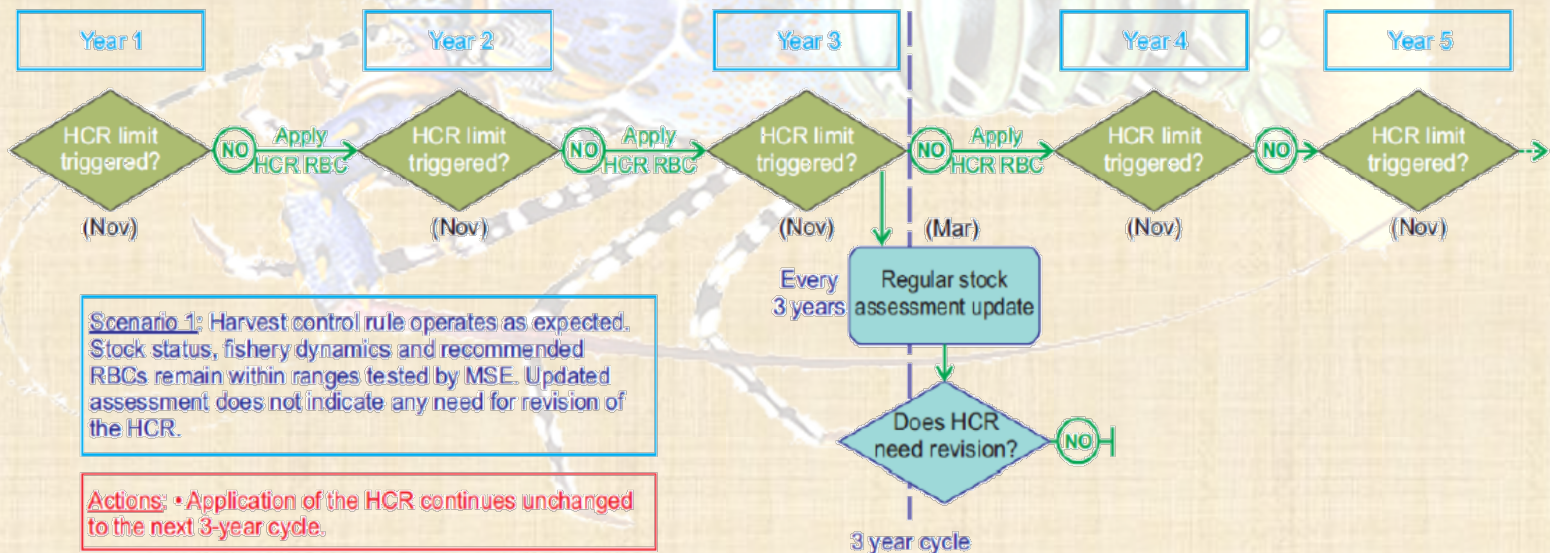
TRL Harvest Strategy

- Monitoring
 - TIB catch and effort data
 - TVH catch and effort data
 - Fishery independent surveys (pre-season / mid-season)
 - Catch sampling (size frequency / sex ratio)
- Assessment
 - Formal quantitative assessment
 - Empirical Harvest Control Rule (eHCR)



TRL Harvest Strategy

- Decision Rules
 - eHCR results → limit? or RBC set
 - Maximum catch limit of 1000 t
 - 1+ pre-season survey ≤ 1.25 → assessment
 - $< B_{lim}$ 2 years → fishery closure
 - Various scenarios

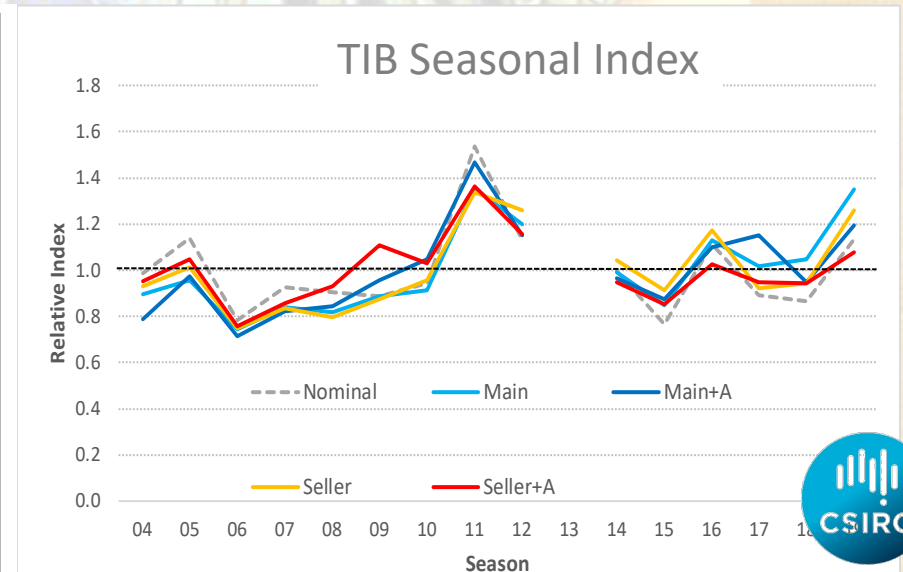
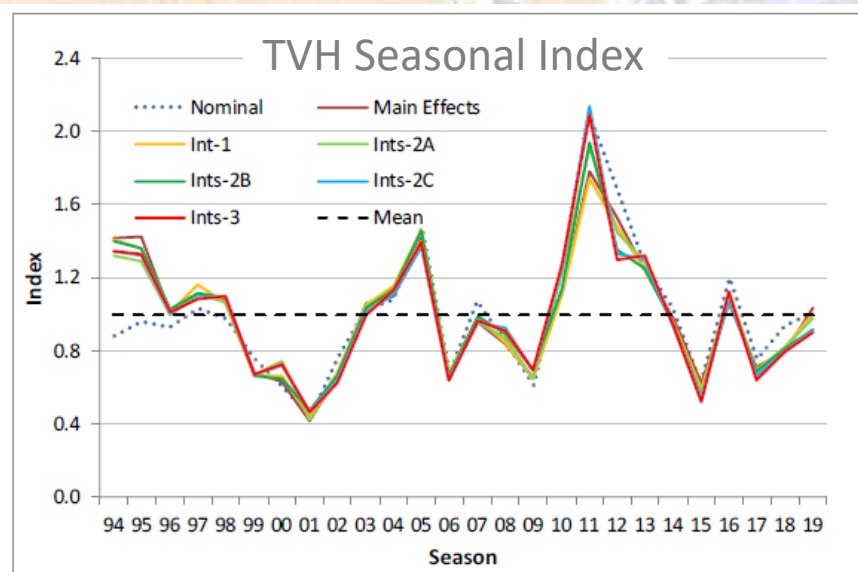


TRL RAG 27 – Data sub-group

- Short-term focus on logbook improvement
- Helps understand stock and fishery dynamics (2+)
 - Spatial information
 - Education is important to fill out voluntary TIB logbook fields (no. of crew, no. of days fished, and the fishing methods)
 - Needs to be recorded to a finer resolution
 - Aligned across logbooks
 - Fishing effort data
 - Definition for TVH – fill out actual diving time
 - Change logbook fields so we can separate steaming / searching / diving
 - CDR needs to better indicate
 - no. of divers
 - Dive time

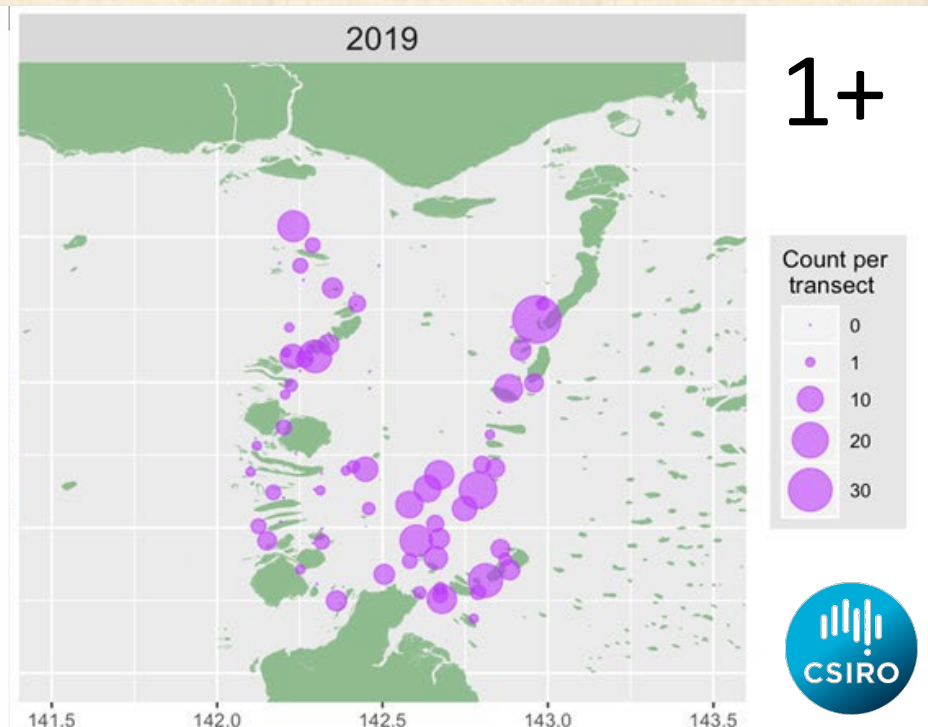
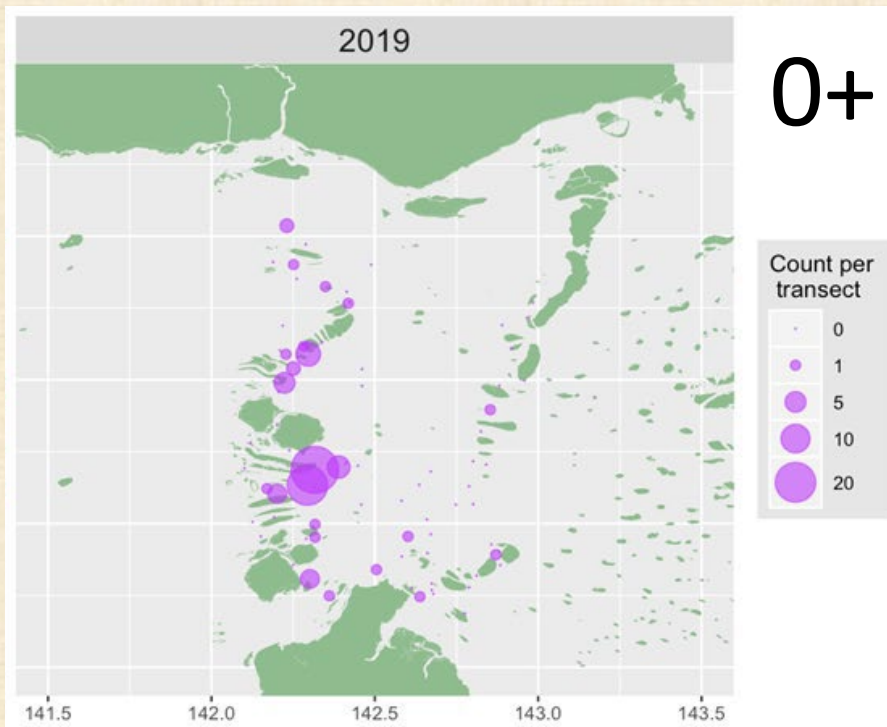
TRL RAG 27 – CPUE Analysis

- **NO** dramatic change in fishing attributable to move to TACs (TIB and TVH trends remained similar)
 - Slight increase in TVH effort compared to 2018
 - Larger increase in TIB effort (days and number of fishers)
 - TBD01 issues (voluntary, duplication, poor spatial data)



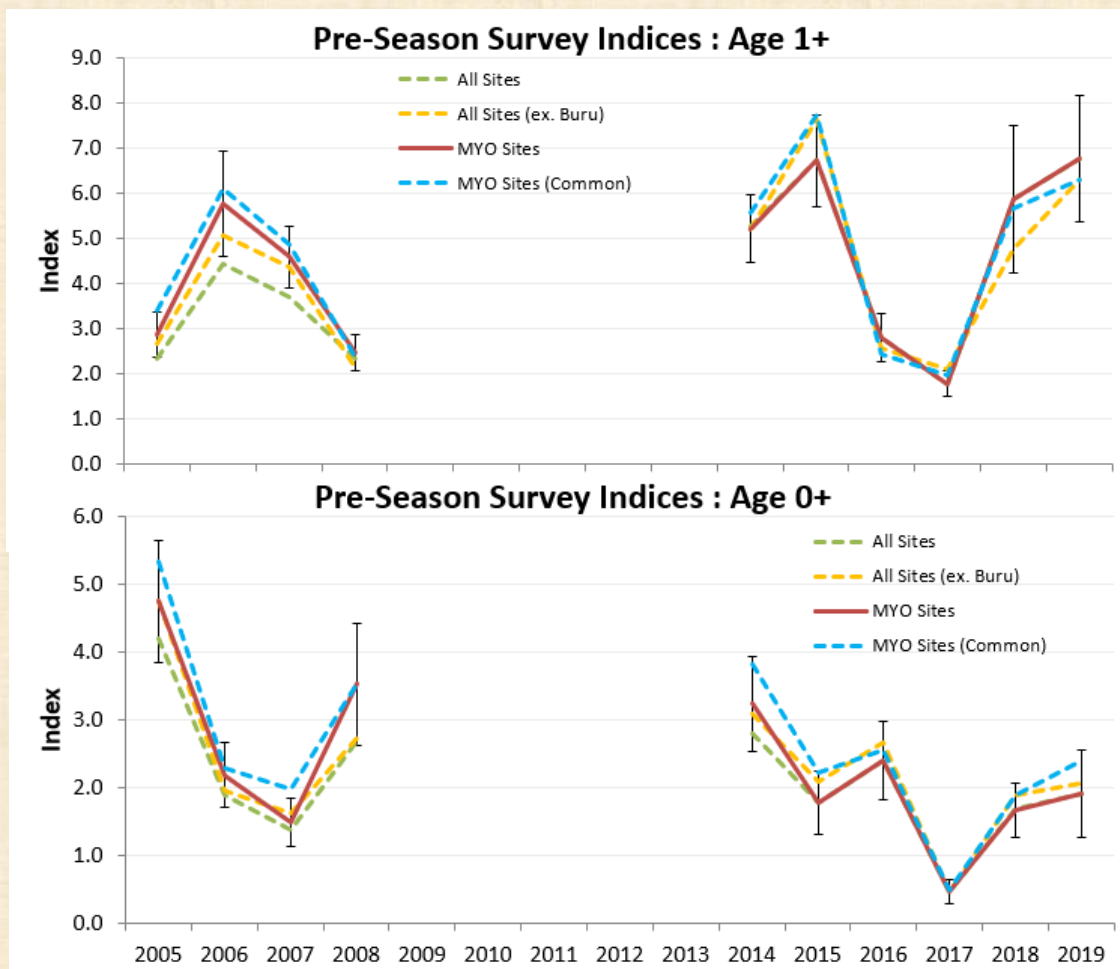
TRL RAG 27 – Pre-season survey

- Successful survey – 77 transects completed
 - 0+ settlement on western side
 - Higher 1+ counts on eastern side



TRL RAG 27 – Pre-season survey

- Increase in 0+ and 1+ counts since 2017 low

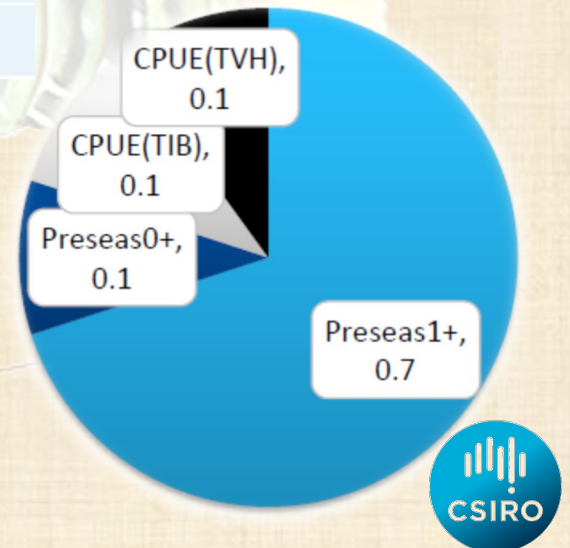


TRL RAG 27 – eHCR

- 5-year average catch
 - Australian logbook data (Dec-Sep)
 - PNG catches (Dec – Nov)
 - Used avg catch of 14t for missing months

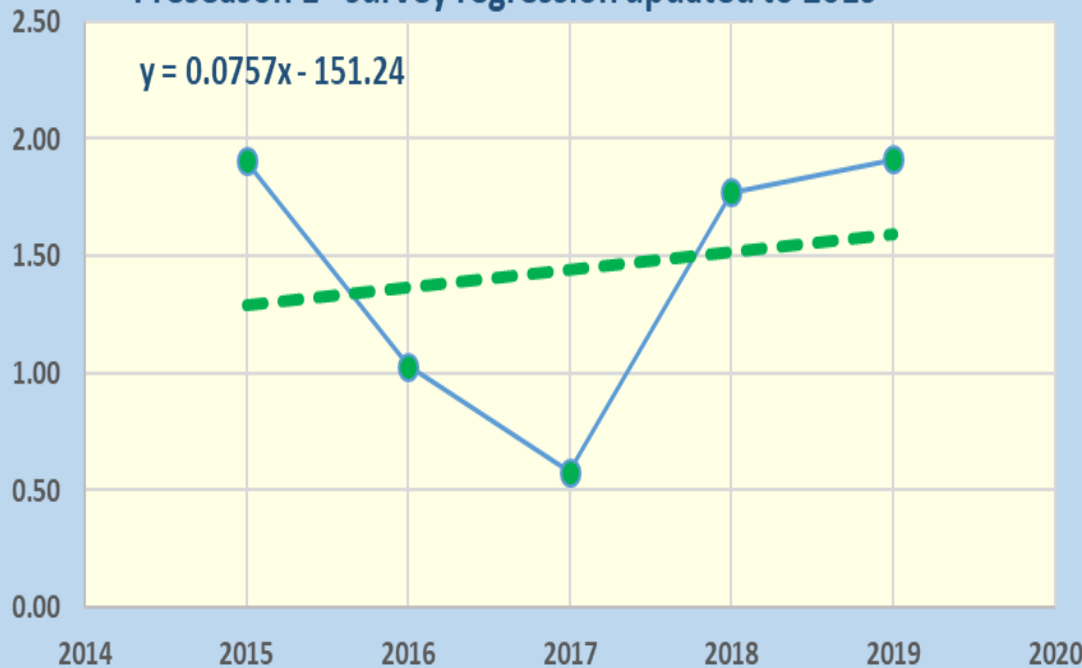
CATCH TOTAL				
	TIB	TVH	PNG	TS_total
2019	259.7	155.9	167.0	582.6

- Multiplied by weighted slopes of
 - Survey 1+ trend (70%)
 - Survey 0+ trend (10%)
 - TIB CPUE trend (10%)
 - TVH CPUE trend (10%)



TRL RAG 27 – eHCR

Preseason 1+ survey regression updated to 2019



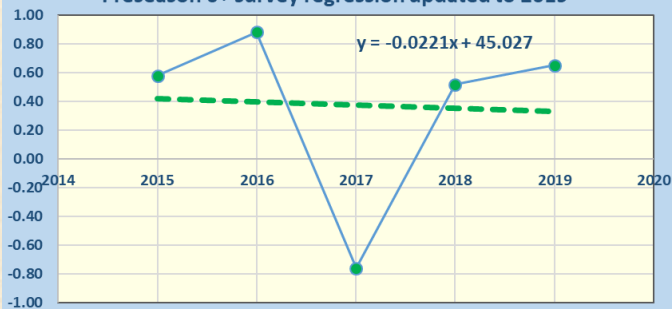
CPUE_TIB regression updated to 2019



CPUE_TVH regression updated to 2019



Preseason 0+ survey regression updated to 2019

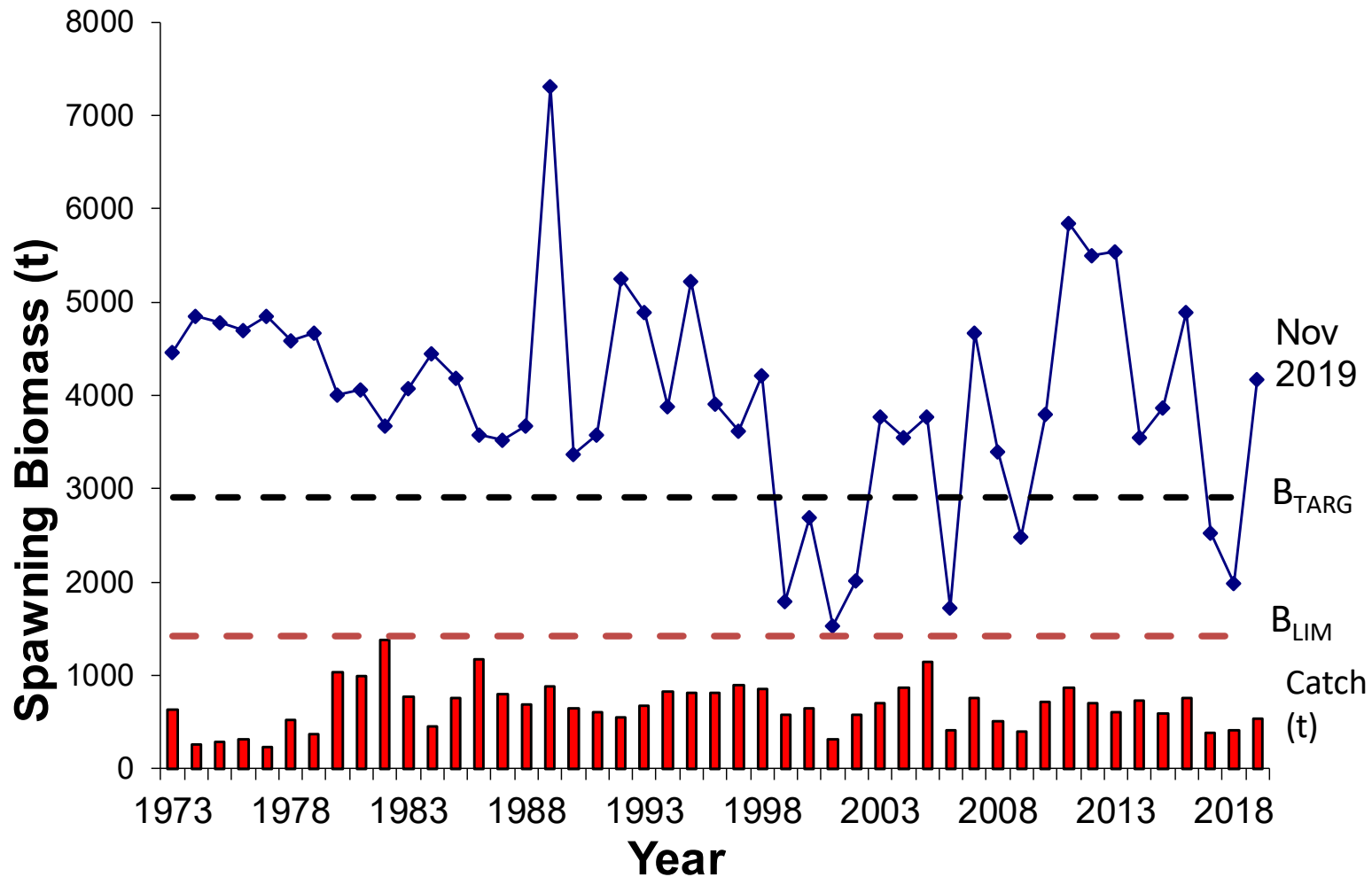


TVH model	TIB model	TIB CPUE	TVH CPUE	Ps 0+	Ps 1+	RBC
Int-1	Seller	1.26	1.01	1.92	6.77	582.1

TRL RAG 27 – Stock Assessment

- Run during 2019 because:
 - Concern about 2018 season
 - Baseline for change of management arrangements
- Stock is at 93% of virgin Biomass (1973)
 - Above B_{targ} (65%)
 - Well above B_{lim} (32%)
 - Not overfished
- Fishing effort is below F_{targ} (0.15)
 - No overfishing

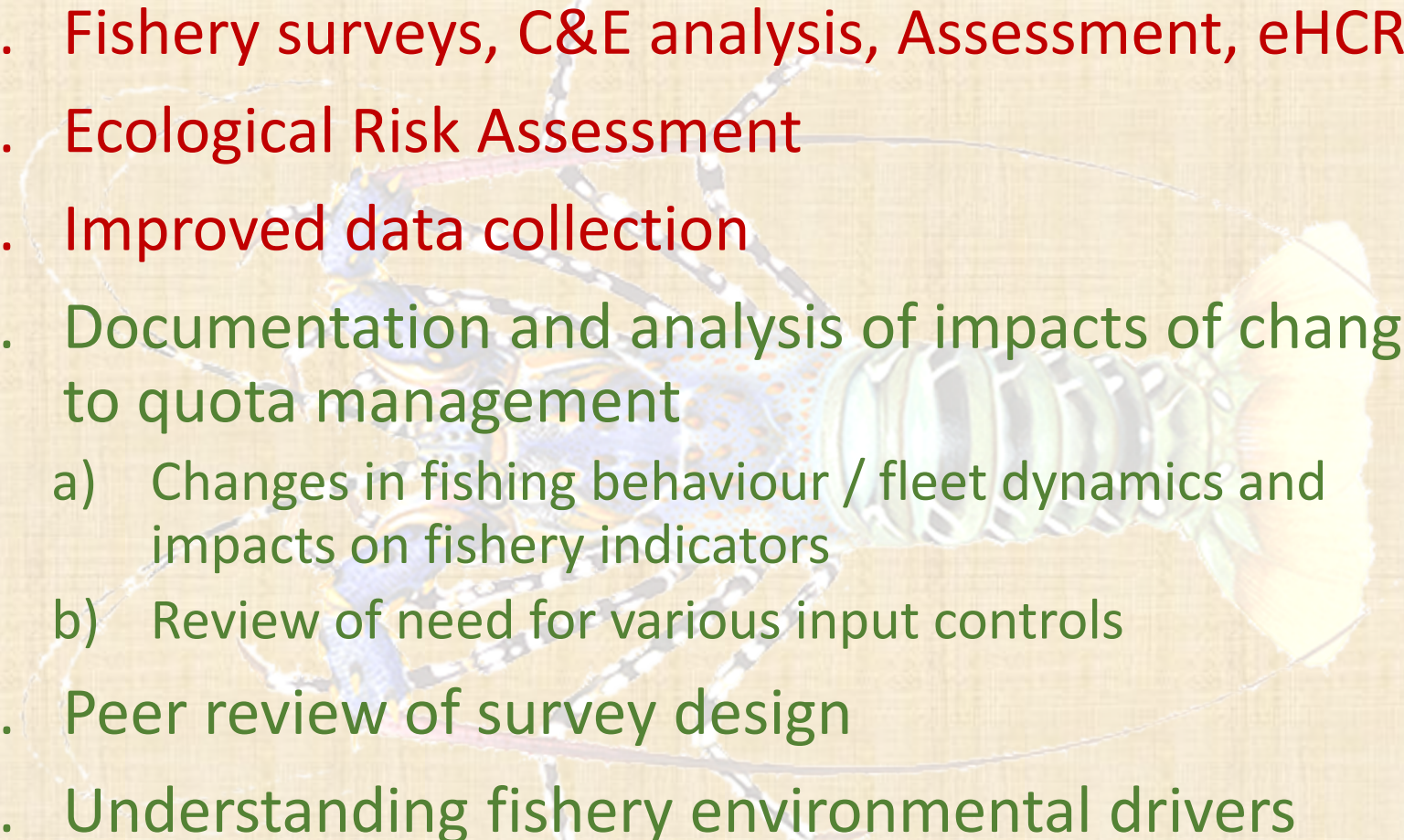
TRL RAG 27 – Stock Assessment



TRL RAG 27 – Fishery Interactions

- Should mostly be tackled higher up than TRL RAG
 - TSRA / PZJA / Working Groups / communities
- Issues of relevance to TRL RAG
 - Further review of data on prawn trawl bycatch of TRL
 - Impacts on diver safety (shark attraction to berley / bait)
 - Potential impacts of trophic interactions between reef fish and TRL (difficult to measure)
 - Potential impacts of technical interactions between different fisheries and TRL fishery operations
 - Impact further north likely to be less as water is murky and less TRL diving occurs

TRL RAG 27 – Research priorities

- 
1. Fishery surveys, C&E analysis, Assessment, eHCR
 2. Ecological Risk Assessment
 3. Improved data collection
 4. Documentation and analysis of impacts of change to quota management
 - a) Changes in fishing behaviour / fleet dynamics and impacts on fishery indicators
 - b) Review of need for various input controls
 5. Peer review of survey design
 6. Understanding fishery environmental drivers

CATCH SHARING AGREEMENT 2018–19

