Northern Prawn Fishery Resource Assessment Group (NPRAG)

Meeting minutes

17-18 May 2022

View Hotel – Brisbane

Meeting participants

Position	Participant
Chair	Ian Knuckey, Fishwell Consulting
NPRAG members	David Brewer, Scientific member
	Ian Boot, Industry member
	Rik Buckworth, Scientific member
	Tom Kompas, Economic member
	Éva Plagányi, Scientific member
	Phil Robson, Industry member
	Darci Wallis, AFMA[1]
	Bryan van Wyk, Industry member
Invited participant	Annie Jarrett, NPFI[2]
AFMA Employees	Cate Coddington (Executive officer)
	Brodie Macdonald
	Elissa Mastroianni
Observers	Beau Anderson, Raptis (day 2)
	Laura Blamey, CSIRO[3] (online day 1 / in person day 2)
	Josh Cahill, NPFI (online)
	Robert Curtotti, ABARES[4]
	Roy Deng, CSIRO
	Gary Fry, CSIRO
	Krystle Keller, ABARES (online)
	Rob Kenyon, CSIRO
	Sean Pascoe, CSIRO
	Toby Patterson, CSIRO (online)
	Trent Timmiss, ABARES (online)
	Judy Upston, CSIRO (online – agenda items 6, 9 & 12b)
	Tonya van Der Velde, CSIRO (online)
Apologies	
Ian Butler, ABARES	
Trevor Hutton, CSIRO	
Shijie Zhou, CSIRO	

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[1] Australian Fisheries Management Authority
[2] Northern Prawn Fishery Industry
[3] Commonwealth Scientific and Industrial Research Organisation
[4] Australian Bureau of Agricultural and Resource Economics and Sciences

Agenda item 1. Preliminaries

a. Welcome and apologies

Ian Knuckey, the Chair, opened the meeting with an Acknowledgement of Country at 0830 AEST[5].

The RAG noted that there was a quorum for the meeting as per *Fisheries Administration Paper 12* ([FAP12](#)).

b. Declarations of interest

The RAG discussed potential conflicts of interest and participation under specific agenda items as outlined in FAP12, noting:

- Declarations of interest are at **[Attachment A](#)**
- Industry participants were deemed to have a potential conflict of interest with **Agenda Items [5](#)** (*harvest strategy review*), **[6](#)** (*Tiger prawn assessment*), **[7](#)** (*Banana prawn MEY*), and **[10](#)** (*Redleg stock assessment*), given the potential impact on Total Allowable Effort for these species. These participants left the meeting and their participation in the item was discussed by the remaining participants. It was agreed that these participants should be present for the discussions and recommendations but should step out if a specific conflict arises.
- Research interested participants were deemed to have a potential conflict of interest with **[Agenda Item 9](#)**: *NPF Research*. These participants left the meeting and their participation in the item was discussed by the remaining participants. The intent of the agenda item is to identify potential scopes to provide to the May meeting, not for making decisions about research items. It was agreed that these participants should be present for the discussion and for recommendations but should step out if a specific conflict arises.

c. Adoption of agenda

The RAG adopted the agenda, with additional items at other business, outlined at **[Attachment B](#)**.

d. Minutes from previous meetings

Previously accepted out-of-session, the 8-9 February 2022 NPRAG minutes were accepted as a true and accurate record of the meeting. The RAG noted that they have been published on the AFMA website on the [NPRAG past meetings](#) webpage.

Agenda item 2. Actions arising from previous meetings

The RAG noted the status of the action items from previous meetings and an update provided by the Executive Officer at **[Attachment C](#)**.

A list of new action items established at this meeting are listed in **[Attachment D](#)**.

The RAG agreed:

- *Action Items 19* (February 2019), and *1 and 2* (May 2021) relating to the 'brown tiger prawn problems' be marked redundant as this has been recognised as a broader issue, and there are several actions being taken that overarch this action – including research priorities relating to tiger prawn stock assessment and consideration of factors affecting the tiger prawn population.
- *Action Item 45* (November 2019) 'Explore options to maintain accessibility and usability of the various components of the Fishery Management Strategy (FMS)' be marked redundant, as AFMA is currently considering the format of these, and NPRAG will be consulted during drafting.

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[5] Australian Eastern Standard Time

- to consolidate several actions related to the development of a NPF data plan into one action to ensure that ongoing and completed items are retained for consideration, these were:
  - *Action Item 4*: AFMA and NPFI to investigate the objective for collecting species abundance counts and whether this data should continue to be collected
  - *Action item 6*: AFMA to look into New Zealand's protocols for counting bird abundance
  - *Action Item 22*: Investigate if data quality checks and rectifying data errors can be automated
  - *Action Item 23*: Consider including updating drivers of data needs to ensure they include habitat and communities, social licence/values and acceptability, market access, animal welfare and indigenous interests
  - *Action Item 24*: Refine objectives and continue development of the data and monitoring plan in consultation with the RAG
  - *Action Item 35*: Explore options for validating the CMO and Scientific Observer eyeball estimates of total bycatch
  - *Action Item 42*: Review the AFMA Scientific Observer report and suggest a process for determining the temporal and spatial observer needs of the fishery, taking into consideration the scientific report that originally established the program
  - *Action Item 43*: Consider including the observer program targets in the annual observer report and a summary of how the program is tracking in relation to the targets
  - *Action Item 44*: Consider the NPF byproduct species and determine aspirations for each species to inform what level of assessment is required and what the data gaps are
  - *Action Item 46*: Explore the feasibility of changing the NPF logbook reporting requirement to a shot-by-shot report
  - *Action Item 80*: Discuss any additional costs and develop some options for implementing finer scale reporting in the banana prawn sector and provide advice back to NPRAG.

Action Item 1: AFMA

AFMA to continue development of a data and monitoring plan for the fishery in consultation with the RAG. The following items are to be considered:

- Refining the objectives of the data and monitoring plan including updating the drivers of data needs by considering habitat and communities, social licence/values, market access, animal welfare and indigenous interests;
- Determining the temporal and spatial observer needs of the fishery, taking into consideration the scientific report that originally underpinned the program;
- Consider setting and monitoring of observer program targets on an annual basis;
- Determining the worth of continuing to collect TEP[6] species abundance counts and, if retained, whether the current protocols are suitable;
- Exploring options for validating the CMO and Scientific Observer eyeball estimates of total bycatch;
- Automating data quality checks and the rectification of data errors;
- Consider if there are any required changes to byproduct species data collection and monitoring; and
- Consider the feasibility (including costs) and options of introducing finer scale reporting (shot level) for tiger prawn fishing and, potentially, banana prawn fishing.

Agenda item 3. Outcomes of out-of-session items

The RAG endorsed the items that were considered out-of-session since the May 2021 meeting:

- Update to the NPF harvest strategy for red endeavour prawns in August 2021. The updated NPF harvest strategy was endorsed by the Commission at their 79th meeting (20 September 2021)

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[6] Threatened, Endangered and Protected

incorporating harvest control rules for red endeavour prawns as supported by the NPRAG and the Northern Prawn Fishery Management Advisory Committee (NORMAC).

- Strategic research proposal – All Commonwealth Fisheries: Scoping studies to address four key strategic research needs[7] – call for feedback in December 2021. One member declared a conflict of interest and did not provide a comment. Two comments providing full support for the project were received and provided directly to the Policy Environment Economics and Research Section on 13 January 2022 for provision to the AFMA Research Committee – the comments were not consolidated to form a NPRAG position.

Action Item 2: AFMA

AFMA to inform the RAG of the outcome of the strategic research proposal process.

Agenda item 4. Update reports

a. Industry update report

The RAG noted and discussed the industry update on:
- 2022 banana prawn season – the three industry members outlined:
  - the extraordinary economic situation that companies are facing currently in the NPF, particularly relating to the unprecedented high price of fuel, changing prawn prices, and uncertainty about exchange rates, and raised general concerns about the costs of production and transport of product.
  - recruiting and retaining personnel is a significant issue with many workers going to the mining sector and there are barriers recruiting overseas workers in a timely manner.
  - the variable catch rates across the fishery – catch rates in the Weipa region were significantly better in previous years along with good catch rates in other regions, but the rest of the fishery had relatively poor catch rates.
- broodstock operations – orders for broodstock (*Penaeus monodon*) animals are well below the 9000 animal limit. As such, there has been a reduction in the number of broodstock trips planned for 2022, with only nine planned.
- crew monitoring observer (CMO) program reporting and NPFI data management – there were 3 active CMOs deployed for the banana season. The banana season data is still being received. A number of CMOs previously involved in the program left the fishery at the end of 2021 – NPFI will run the usual process to recruit an additional seven CMOs for the upcoming tiger season.
- Marine Stewardship Council (MSC) certification:
  - All conditions pertaining to the red leg banana prawn fishery have been met, but the inclusion of the JBG harvest strategy will need to be finalised and approved by the AFMA Commission before the next MSC reassessment begins. Progress on incorporating red endeavour prawns into the harvest strategy (as per the condition under MSC certification) is continuing.
  - The current certification expires in July next year. The next re-assessment is scheduled to commence in October 2022 and will be undertaken using a different MSC Standard (as V1.3 will

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[7] 1) Climate adaptation strategies: how to collect and incorporate environmental data into assessments and harvest strategies, 2) Innovative projects that inform pursuit of AFMA's economic objective: the data needed and how performance against the objective can be better measured and reported for low participant or limited data fisheries, 3) Minimising the interaction of TEPS with fisheries: better understanding TEP species behaviour and factors associated with interactions, & 4) Ensuring that requirements of the 2018 Commonwealth Fisheries Harvest Strategy Policy (CFHSP) continue to be met: updating the guidance for new and emerging issues to facilitate developing alternative assessment and harvest strategy approaches.

no longer be available). Considerable concerns have been raised by the global MSC-certified fisheries in relation to several proposed changes to the Standards as part of the current MSC Standards review, particularly in relation to habitats and new evidence-based requirements. The outcome of the Standards review is expected to be announced following MSC Board consideration in June 2022.

b. AFMA management update

The RAG noted the update provided by AFMA management about key issues relevant to the Northern Prawn Fishery (NPF):

- The AFMA Commission:
  - o endorsed the updated NPF harvest strategy that incorporated the changes to the NPF Stock Assessment to incorporate Red Endeavour Prawns in September 2021 at its 79th meeting; and
  - o supported continuing arrangements for managing broodstock collection for the 2022 to 2024 fishing seasons in November 2021 at its 80th meeting.
- Development of a fishery management strategy (FMS) for the NPF has been progressing through work undertaken to update the harvest strategy, data plan and the finalise the bycatch strategy (in June 2021). The research plan component is complete and will reflect the existing strategic research priorities along with annual updates.
- The final draft ERAs for the common banana prawn and the tiger prawn sub-fisheries will be considered for finalisation by NORMAC at their meeting on 20 May 2022. The ERA for the redleg banana prawn fishery has commenced.
- The Sawfish and River Sharks Multispecies Recovery Plan review commenced in 2021. Narrow sawfish will be included for the first time as it is now listed as a migratory species. The narrow sawfish is now recommended for assessment for listing as a threatened species. This process is on the same timeline of assessment as the up-listing of the largetooth / freshwater sawfish *Pristis pristis*, which must be completed by 30 October 2022.

The RAG noted the update provided on the Data Transformation and Electronic Monitoring Program and raised some concerns regarding:

- the short timeframe of the funding to modernise data management infrastructure and processes, and to enhance and expand the use of electronic monitoring in Commonwealth fisheries.
- issues that had occurred with the transition of NPF data to the new AFMA system and the Catchlog updates, which caused problems with e-logs. Change over in data management staff at AFMA had also created issues. These issues are being worked through in AFMA in consultation with NPFI.

The RAG noted that data transformation /EM working groups have been established with members from industry to assist in the delivery of the data transformation and EM processes.

> **Action Item 3:** AFMA
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> AFMA to inform the RAG on how funding is allocated under the Data Transformation and Electronic Monitoring Program.

c. CSIRO update

The RAG noted and discussed the presentation by CSIRO that provided an overview of the options available to develop an environmental report card appropriate for the Northern Prawn Fishery.

> **Recommendation**
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> The tiger prawn assessment working group (refer to **Action item 9**), or if not possible the NPRAG, to consider the parameters that would be useful for an environmental report card.

The RAG noted that mangroves in the region of the Karumba airport continue to recover. Regrowth is likely to be from seedlings of the same species and detritus from the dead mangroves continues to decay.

d. Northern rivers update

The RAG noted the update provided by Rob Kenyon on the catch/flow research that is assisting the understanding of irrigated agriculture initiatives around the northern development area, including:

- The FRDC Gulf of Carpentaria MICE project (refer to **Agenda Item 12a**)
- Northern Australia Water Resource catchment assessment and the Roper River Water Resource Assessment, in particular a reconnoitre trip that was undertaken by CSIRO Land and Water. Rob's view is that it is unlikely that there will be any significant water resource activities happening in the near future. However further impact predictions will be developed for the water resource development scenarios on the key estuarine species, including banana prawns.
- Queensland Water Resource Plans, which have not changed and will not be amended for at least two years.

The RAG noted that NPFI are collaborating with other stakeholders including northern landholders to establish a partnership to provide a holistic approach to land and water management in Northern Australia (including Gulf catchment areas) under the auspice of the Commonwealth's Land Care program.

e. Northern marine parks update

The RAG noted the information on northern marine parks as provided and noted that both Ian Knuckey and John Glaister (the NORMAC Chair) are also on the Northern Marine Parks Advisory Committee.

Agenda item 5. Harvest Strategy review

The RAG noted the information provided by Darci Wallis:

- that AFMA has considered consistency with the 2018 Commonwealth Harvest Strategy Policy (CHSP) in reviewing the Northern Prawn Fishery Harvest Strategy (the harvest strategy).
- due to resourcing constraints, only a preliminary review of the available squid information was undertaken. A broader review is required with outcomes presented to NPRAG at the November 2022 meeting.
- observer data for cuttlefish was reviewed and found that there is significant variability in the proportion of retained and discarded cuttlefish each year.
- the active scampi operators were contacted for input on the proposed update to the harvest strategy.
- changes relating to the redleg banana prawn HS need to be undertaken and presented to the Commission for consideration in mid-September to meet the timing for the next MSC re-assessment.

The RAG discussed the following proposed changes in the draft harvest strategy and provided the following advice:

- The incongruity between the CHSP, which enables the fishery as a whole to be at MEY, even though all individual key target species are unlikely be at B_{MEY} and the MSC criteria of requiring that all P1 species fluctuate around B_{MSY} is problematic. This may particularly be the case in ensuring that red endeavour prawns fluctuate around B_{MSY} which may require considerably reduced effort on the other

key species (tiger prawns and blue endeavour prawns). As such, NPFI needs to consider the importance and cost/benefit of maintaining MSC assessment for red endeavour prawns.

- Redleg banana prawns:
  o the insufficient data decision rule needs to be explained to provide context – perhaps as a footnote.
  o Further clarification is needed regarding closures, limit reference points and data-sufficient years.
- The flowchart regarding sources of data for the NPF (Figure 2) needs to be made more generic (by removing the word 'annual').
- Consider terminology use of byproduct and bycatch in terms of the CHSP and MSC.
- Byproduct species:
  o The heading structure for the byproduct species should be updated to include the overarching components and then each of the specific species sections be included below.
  o For all byproduct species:
    1. include the basis for the tonnage that is set for triggers / limits in the harvest strategy to clarify that the tonnages outlined are sustainable and a statement of allowable biological catch (ABC).
    2. Need to ensure that reviews are undertaken in a timely manner when triggers are breached. Further detail needs to be included in the harvest strategy about timing for the reviews (e.g., need to complete these by May each year for RAG consideration), the scope of the reviews and whether further action is needed if there are no concerns.
  o Scampi – review trigger of 30 tonnes is recommended.
  o Scallops and cuttlefish – these need to be separated, with a 50-tonne trigger requiring a review of the available data.
  o No changes to the catch limits or triggers were recommended for squid or bugs.
- Climate change – include a statement that climate change is globally impacting fisheries acknowledge that climate change can impact the fishery and that the environmental parameters will be monitored annually.

> **Action Item 4:** NPFI
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> NPFI to consider the importance and cost/benefit of maintaining MSC certification for red endeavour prawns.
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> **Action Item 5:** Harvest Strategy Drafting Working Group
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> A Harvest Strategy Drafting Working Group to be established and convened in early to mid-July to ensure that the draft harvest strategy incorporates all items as discussed at the meeting.
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> The updated harvest strategy to be provided to NPRAG at the end of July, NORMAC to consider it in mid-August, in time for the Commission meeting in mid-September.
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> Membership: NPFI, AFMA, Rik Buckworth, Ian Knuckey, Tom Kompas and Éva Plagányi

Agenda item 6. Tiger prawn stock assessment

a. Consideration of assessment outcomes

The RAG considered the presentation of the stock assessment outcomes presented by Roy Deng, noting in particular:

- The grooved tiger prawn catch and the brown tiger prawn catch decreased about 30% (to the second lowest value in fishery history) and 17% respectively in 2021, with a decrease in the tiger prawn species-combined catch by about 26%. Corresponding total nominal effort decreased by 13% compared with 2020. The blue endeavour prawn and red endeavour prawn catch increased by 14.2% and 36% respectively. The nominal effort targeting grooved tiger prawns decreased by about 19%, but that targeting brown tiger prawns slightly increased by 2.8% from 2020 to 2021.

- That, as per the NPRAG recommendation in February 2022, the various scenarios have been run based on 2020 model settings for the tiger prawn assessment.
- The key outputs of the 2022 stock assessment:
  - Spawning stock size of grooved tiger prawns in 2021 (S_{2021}) was around 61% of Maximum Economic Yield (S_{MEY}) and about 75% spawning stock size at Maximum Sustainable Yield level (S_{MSY}).
  - Spawning stock size of brown tiger prawns in 2021 (S_{2021}) was around 66% of S_{MEY} and 90% of S_{MSY}.
  - The estimated spawning stock size of blue endeavour prawns in 2021 (S_{2021}) was around 57% of S_{MEY} and 65% of S_{MSY}, but remained greater than the limit reference point, with average stock size (66%) (five year moving average of abundance) for the Base Case.
  - The sensitivity test indicates that the spawning stock size of red endeavour prawns in 2021 was around 106% the level corresponding to the S_{MEY} and 87% of S_{MSY}[8].
  - For all assessed species, the estimated stock size is above the limit reference points (the 5-year moving average spawning stock size over 50% S_{MSY}).
  - The tiger prawn species and both blue and red endeavour prawns are not considered overfished.
  - With 2021 effort levels of 48% and 45% E_{MSY} for both species of tiger prawn species overfishing is not occurring.
  - Effort for grooved tiger prawns in 2021 was less than the E_{MEY} level (76%). Effort for brown tiger prawns was 49% of the E_{MEY} level (Base Case).
- While the spawning stock size of tiger prawn was assessed as below S_{MEY} and S_{MSY}, the model predicted that the estimated total allowable effort to achieve MEY in the tiger prawn fishery in 2022 is 5554 boat days. This is comprised of the effort floor of 2777 boat days directed at grooved tiger prawns and 2777 boat days directed at brown tiger prawns and equates to an increase in total effort of 19% over 2021 effort. This would be the equivalent to a gear increase of 90%. The effort floor of 2777 is set as a minimum effort constraint in the model (to achieve long-term MEY without compromising economic viability) and it was triggered for two project years in row.

b. Tiger prawn base case

The RAG noted the information provided by CSIRO, in particular:
- That in February 2022, NPRAG outlined that 2777-day threshold per species is no longer representative of the actual effort in the fishery as it overestimates the effort in the brown tiger prawn component. To facilitate consideration of an appropriate threshold, CSIRO conducted five alternative assessments using the base case parameters with various low effort thresholds applied:
  - 2777 days for each brown and grooved tiger prawns,
  - zero effort threshold, for each of brown and grooved tiger prawns,
  - 1000 days for each brown and grooved tiger prawns
  - zero effort threshold for grooved tiger prawns and 1280-day for the brown tiger prawn[9] (which is 108% of the year 2007 brown tiger prawn effort), and
  - 1389 days for each brown and grooved tiger prawns (which is 2777 divided equally across the two species).

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[8] As this species is not a primary target species, MEY is higher than MSY for this species as the cost of targeting them is largely attributed to tiger prawn fishing.

[9] In 2008, there was agreement to take an 8% increase in effort due to the reduction in boat numbers in 2006/07 and that this should apply to half the tiger prawn effort (assuming that effort was split 50/50 to brown and grooved tiger prawns). The 2007 level of nominal effort was 5142 days, when divided by 2 and increased by 8% gives the minimum effort constraint of 2777 days for brown tiger prawns; if it had been based on the last stock assessment at the time it would have been 1280.

- The outputs of total effort across both grooved and brown tiger prawns were presented (**Table 1**). Regardless of the scenario used, all effort trajectories provided an ecologically sustainable fishery in the long term: if the 2777-day threshold trajectory is used, there is a slower recovery (with increased effort), and zero threshold provided a faster recovery (with a very significant effort reduction in the short term that is unlikely to be economically sustainable).

Table 1: Fishing effort threshold scenarios – outputs from the model for grooved and brown tiger prawns combined

Effort	2777	0	1000	0,1280	1389
E_{2021} (observed)	4667	4667	4667	4667	4667
E_{2022} (predicted)	5554	1454	2843	2092	3579
E_{2023} (predicted)	5554	5378	4362	4585	4028

Considering the tiger prawn stock assessment results and the base case and sensitivity tests the RAG noted:

- Over recent years, the industry has not fully utilised the extent of the fishing days recommended out of the MEY model. There was no real concern about this lower level of effort in the fishery. Historically, a fishery lower effort limit of 2777 days for both tiger prawn species was introduced to ensure that the pathway to an MEY target did not include effort levels that were not feasible or practical for the fishery. Since this time, the base case model-predicted level of effort was consistently above the fishery lower effort limit of 2777 days for grooved tiger prawns and mostly above it for brown tiger prawns. The model-predicted level of effort for the two tiger prawn fleets hit the lower constraint in the first and second project years for the first time this year (largely due to the unusual conditions at play in the fishery), prompting a more focussed examination of this lower level in the base case by the RAG.
- Industry concerns about the extraordinary economic situation that operators are currently facing in the NPF, particularly relating to the unprecedented high price of fuel, changing prawn prices, uncertainty about exchange rates and general concerns about the costs of production (refer to **Agenda item 4a**).
- All RAG members were concerned about the trends shown from the recent (February 2022) recruitment surveys and the stock implications for the 2022 tiger prawn season (refer to **Agenda Item 12c**).
- In the current assessment results, the minimum effort determined by the base case model was greater than the previous year's total effort, and hence, if adopted, would imply a higher 2022 TAE than the current effort levels in the fishery. There was concern by RAG members about this given the recent series of poor survey recruitment indices and particularly the adverse economic conditions facing the industry.

One of the tasks of the RAG during this meeting was to review the lower effort limit level used in the assessment. A range of alternative lower minimum effort levels were examined (see above), but consensus could not be reached in terms of what was an acceptable lower effort limit or an acceptable justification for a changed lower limit. The RAG discussed the stock assessment results and agreed that:

- it was not appropriate to allow a significant increase in fishing effort for both economic and stock reasons given the concerns about recent survey results, the dramatic changes in prawn and especially fuel prices and other operating costs, along with the need to redefine a baseline minimal level of effort (for breakeven profits).

- the MEY model predicted 2022 TAE be set aside and a temporary and precautionary once-off approach to setting effort in the tiger prawn fishery be taken by reducing effort based on the recent average effort in the fishery (nominal days).
- while a once-off reduction in effort (as nominal days) is fairly ad hoc, it is based on first principles and is a precautionary approach to addressing declining stock trends and substantial increases in fishing costs. It is also aligned with approaches taken in other Commonwealth fisheries under anomalous (COVID and trade) conditions and acknowledging that reductions in effort levels can be staged or constrained within reasonable bounds to not overly impact the viability of fishing operations and still result in stock sustainability.
- the process to consider an update to the current MEY model coincides with the current high priority research need to conduct a workshop to fully reconsider the tiger prawn stock assessment model. These conditions experienced in the NPF are similar to those experienced in multiple other Australian fisheries as a result of anomalous economic situations and impacts of changing climate. These factors mean that long-term average reference points – both in terms of economics and stock productivity – may no longer be appropriate under rapidly changing circumstances and hence it is prudent to allow time for a more detailed consideration of how assessment models and harvest strategies can be adapted to cope with this.

Recommendations

The RAG recommended a 10-20% cut in effort (as nominal days) relative to the recent five-year average noting:
- the fishery independent surveys have indicated a potential and possibly significant fall in recruitment indices in the tiger prawn fishery over the past three years, and
- the substantial recent increase in fuel prices could generate, in an MEY model calibrated with the latest updated estimates, a considerable fall in effort to meet the fishery MEY objective.

The RAG recommended that NPFI consider the tiger prawn stock assessment results and the RAG recommendations and advice and provide advice to NORMAC on the preferred option/s to achieve 10 – 20% effort cut on tiger prawns in 2022.

The RAG recommended that the MEY tiger stock assessment be undertaken again in 2023 to obtain improved model output with updated 2022 data, rather than waiting for the usual two-year cycle for this assessment.

The RAG recommended that the MEY model is updated before using current model results and that this work should be considered as part of the tiger prawn fishery model improvements workshop.

Action Item 6: CSIRO, NPFI and AFMA

The tiger prawn stock assessment be performed again next year to obtain improved model output with updated 2022 data, rather than waiting for the usual two-year cycle for this assessment.

Action Item 7: NPFI

NPFI to consider the tiger prawn stock assessment results and the RAG recommendations/ advice and provide advice to NORMAC on the preferred option/s to achieve a 10 – 20% effort cut on tiger prawns in 2022.

Required updates to the MEY model be discussed/ considered as part of the tiger prawn fishery assessment improvements workshop.

Agenda item 7. Banana prawn MEY in season trigger annual review

The RAG noted the information presented by Sean Pascoe on the banana prawn MEY catch trigger calculations for 2021 and reviewed the industry estimated fuel and prawn prices compared with the actual and the implications these had for the breakeven catch rate and the MEY trigger (**Table 2**). The RAG noted that the predicted and the actual estimates were very close and expressed appreciation to NPFI for the efforts in providing the fuel cost and prawn price estimates.

Industry advised that the ability to predict accurately for the 2022 season is likely to be impacted due to the current volatility in both fuel costs and prawn prices.

Table 2: Comparison of the industry predicted prices and the actual prices estimated from the industry survey for the 2021 banana prawn season and the impacts of these on the triggers calculated for the fishery.

	Item	Industry estimate - prediction	Survey estimate - actual	% difference
Inputs	Fuel price ($/litre)	$0.72	$0.76	5.6%
	Banana prawn price ($/kg)	$14.50	$15.10	4.1%
Implications	Breakeven catch rate (kg/day)	208	207	-0.5%
	MEY Trigger (kg/day)	425	425	0%

Agenda item 8. Sea snakes – summary of initiatives

The RAG noted and discussed the update provided by Elissa Mastroianni about initiatives being undertaken for sea snakes and the need to ensure that these adequately meet the conditions under the Part 13 of the *Environment Protection and Biodiversity Conservation Act 1999* accreditation of the Northern Prawn Fishery (www.awe.gov.au/environment/marine/fisheries/commonwealth/northern-prawn).

- There is sufficient ongoing monitoring to enable the evaluation of the nature and level of impacts of fishing and education in the fishery has been effective in leading to an increased accuracy in sea snake interaction reporting by operators (although this needs to be tested properly).
- There are no sustainability concerns for sea snakes. However, there is a gap in the knowledge of the understanding of sea snake escapement, particularly as new bycatch reduction devices have been introduced since this was last analysed.
- There are three projects are being (or have recently been) undertaken on sawfish that could be used to help understand sea snake behaviour. Results from these may assist in determining if current bycatch reduction devices are likely to be effective at allowing escapement of sea snakes.

Recommendation

That a project is developed using existing information that could be available from sawfish projects to understand sea snake interactions with fishing gear and assess performance of currents BRDs in reducing interactions/allowing escapement.

Action Item 8: AFMA

AFMA to undertake an analysis of sea snake interactions, like that done for sawfish, to determine whether these interaction rates are consistent between logbook information and that from the CMO and AFMA scientific observer programs.

Action Item 9: AFMA, NPFI and CSIRO (Gary Fry)

Develop an appropriate project using available information that can analyse sea snake behaviour in fishing gear and understanding escapement through the current bycatch reduction devices, noting that footage and information regarding size structure and species that interact with the gear is available from research undertaken on sawfish.

Agenda item 9. NPF Research

a. AFMA strategic research plan 2023-28

The RAG noted the update provided by Cate Coddington about the draft AFMA strategic research plan 2023-28, which will provide broad advice and information on the direction for research for the upcoming five-year period, and that it will inform the development of a new strategic research plan for the NPF relevant to 2024-29. The RAG provided the following advice:

- There needs to be the acknowledgement of economics and its importance in the section relating to resource assessment groups, as economic members are included in these groups and MEY is part of their considerations in developing advice.
- While the draft strategy has a key strategic research priority (program 2b) relating to taking into account indigenous commercial and recreational interest, this is a gap for the NPF and needs to be improved, especially in the sea country where the fishery operates.

b. Strategic review of the NPF tiger prawn stock assessment

The RAG noted the information provided by Darci Wallis on the proposed workshops to facilitate a strategic review of stock assessment approaches to ensure that the NPF tiger prawn assessment remains appropriate and futureproofed.

Recommendation

The RAG supported the workshop proposal as a high priority: run of a one-day scoping workshop in July 2022, to prepare for and scope the larger multi-day workshop, to be held in late 2022. Funding to support this to be sourced outside the AFMA Research Committee for 2023-24 process to ensure that the strategic review proceeds as soon as possible.

Action Item 10: Tiger prawn assessment review working group

AFMA and NPFI to conduct a scoping workshop in July 2022 that will prepare for and 'scope' a more targeted workshop in late 2022 to enable a strategic review of the tiger prawn stock assessment that will consider the latest information and initiatives.

Membership: NPFI (Annie Jarrett to confirm key industry members), AFMA, Ian Knuckey, CSIRO, ABARES, Tom Kompas and Rik Buckworth

c. 2023-24 Research statement

The RAG noted the information provided by Cate Coddington on the development of the annual research statement, in particular:
- the research priorities identified in the *NPF Strategic Research Plan 2019-23*.
- that funding for the third year of the vessel charter for the NPF recruitment/spawning surveys 2021-24 (AFMA project 200803) will be considered by the AFMA Research Committee (ARC) at their August 2022 meeting.
- that the priority *Climate change – direct impacts on prawn stocks and secondary impacts trade and export markets*, identified at the February 2022 meeting, was not included for consideration in the 2023-24 research statement as a similar project is underway with the Department of Agriculture, Water Resources and the Environment (DAWE).

The RAG provided advice on the proposed projects for inclusion in the draft NPF Annual Research Statement 2023-24:

Projects for funding consideration in 2023/24
- *Detailed analysis of environmental variables that could affect tiger prawn population dynamics*;
  - Given the costs of each of the components of the project, it should proceed in a staged approach:
    1. collate relevant environmental and biological data, spatially disaggregated where possible, and conduct statistical analyses to inform as to potential environmental drivers of tiger prawn population dynamics. The cost of this component is expected to be approximately $100K.
    2. rigorously analyse and quantify potential role of environmental variability in driving tiger prawn population dynamics, including exploring plausibility of alternative hypotheses and

possible role of changes in predation. The cost of this component is expected to be approximately $100 to $200K.

3. fill the most critical data gap – inshore tiger prawn juvenile abundance and associated habitat. The cost of this component is anticipated to be approximately $400K.

- o While the first two components are necessary for the success of the project, the need for the third component should be assessed following the completion of the other components.

- *Estimation of banana prawn price flexibilities*
  - o Currently the banana prawn price flexibilities in the NPF bioeconomic model is assumed with the price elasticity untested and taken as a given, not as a sensitivity. This project will estimate the own-price and cross-price flexibilities for banana prawns from the NPF on the Australian domestic market with the derived price.
  - o There are several drivers for price flexibility, including the quantity of product from other fisheries into the market – imports and aquaculture – and exchange rates. These drivers are not currently taken into account in the model.
  - o The project to incorporate price elasticity into the model will enable more precision to determine profitability and revenue for the fishery.
  - o There are other drivers in the fishery that are likely to have greater impact than price elasticity on the profitability of the fishery.
  - o Other work, including the climate change impacts on prawn stocks and secondary impacts on trade and export markets, can dovetail into this project.
  - o The work could potentially be extended to inform the model for tiger prawns.

For consideration of funding in 2022/23

- Strategic Review of the NPF Tiger Prawn Stock Assessment (refer to **Agenda item 6**)
- Desktop study on sea snake bycatch (refer to **Agenda item 8**).

Priorities for external funding in 2023/24

- *Improve understanding of sawfish post-release survival*. This project was not successful in gaining funding through Round 3 of the Marine Parks Grants Program. The RAG agreed that this project remain as research on sawfish remains important for the fishery. An appropriate funding source needs to be identified for the project.
- Retain all projects that are listed in this table of the statement.

Recommendation

The RAG recommended, after researchers left the room (for conflict-of-interest purposes), that the project:

- *"Detailed analysis of environmental variables that could affect tiger prawn population dynamics"* be a high research priority with high feasibility. It will be important to conduct the project in a staged approach to ensure that each component is necessary and offers value for money.
- *"Estimation of banana prawn price flexibilities"* be a medium priority with high feasibility. While price elasticity is an important component of the model, there are other drivers that overpower this. Additionally, if this type of project is going to be undertaken, it could be important to consider tigers as well particularly that it is the more valuable component of the fishery.

Action Item 11: AFMA

AFMA to update the 2023/24 Annual Research Statement based on the discussion at the meeting.

Agenda item 10. Redleg stock assessment

The RAG noted the information presented by Éva Plagányi on the redleg banana prawn stock assessment:

- An assessment was completed for the JBG redleg banana prawn because it met the harvest strategy condition as the number of boat days (414) is well above the data-sufficient number (70) for undertaking an assessment.
- The catch of redleg banana prawns in 2021 was 479t in the JBG.
- The model assessment results use an estimate of fishing power for 2021.
- The rainfall for the first part 2022 was above the median rainfall particularly for April, which is very high compared to recent values and suggest that it could be a relatively good year for redleg banana prawn stocks.
- The preliminary assessment suggests that the stock may be recovering from a downturn as spawning biomass was estimated to be below B_{MEY} target (but above B_{LIM}) since 2015, but the 2021 estimate has increased to be close to the B_{MSY} level.
- The variability about B_{MSY} is to be expected for a prawn stock. Because the biomass levels were estimated to have been below the target level in recent years, leading to some concern about stock level, the change under the revised harvest strategy – closing the first season – is predicted to allow the stock to recover rapidly provided total effort does not greatly exceed the TAE.
- The recommended TAE for the 2022 season is 364 boat days.

The RAG discussed the assessment noting that it is likely that an increased number of operators will be interested in fishing in the JBG/red leg fishery given the predictions for the tiger prawn season. While it is anticipated that it will be a good year there is considerable uncertainty associated with this prediction.

The RAG noted the fixed 500kg/day figure as the CPUE trigger that could be used as a voluntary guide to stop fishing to avoid the potential for overfishing against an MEY target.

Agenda item 11. ERA triggers

The RAG considered the information presented by AFMA relating to the introduction of an Ecological Risk Assessment trigger checklist for the NPF:

- ERAs currently have a long timeframe between the data that is used and the finalised assessment, which creates an "out-of-date" issue for the fishery's MSC audit and ongoing certification. Given the importance of the ERAs for both the WTO approval and MSC certification, updating the ERAs for both the tiger prawn and the banana prawn fisheries needs to be prioritised and brought forward.
- The process for conducting the ERAs is being automated and is expected to be a faster process. Currently the redleg banana prawn fishery ERA is being undertaken and NPRAG will be considering the first draft of the ERA at the November meeting.
- Need to ensure that a process such as the ERA trigger checklist to assist determining if an ERA needs to be updated represents a cost-effective approach, particularly given the potential of the automated process that could keep ERAs timely.

> **Action Item 12:** AFMA
>
> AFMA to provide an update to the RAG on the status of the automation of ERAs, and an evaluation of the costs for undertaking an ERA triggers checklist.

Agenda item 12. Research project update

a. MICE update

The RAG noted the information presented by Éva Plagányi on the finalised project "*Ecological modelling of the impacts of water development in the Gulf of Carpentaria (GoC) with particular reference to impacts on the Northern Prawn Fishery*" (FRDC2018-079):

- All water resource development (WRD) scenarios lead to increased risks for species, habitat groups (aside from seagrass habitat) and to fisheries to varying degrees. Scenarios associated with highest water allocation across multiple catchments are the highest risk developments.
    - For common banana prawns, the Flinders River catchment emerged as the most sensitive to WRDs, consistent with previous findings from estuarine productivity studies. Economically, the risk of a bad year may more than double under some of the WRD scenarios, which are exacerbated if repeated in the following year.
    - Largetooth sawfish were predicted to show the greatest sensitivity to WRDs with risks ranked as intolerable across alternative water extraction or impoundment scenarios.
    - Major to severe risks were predicted to mangrove habitats under some of the scenarios.
    - The *Model of Intermediate Complexity for Ecosystem assessments* (MICE) is a useful framework for ongoing studies on WRDs and climate drivers and is readily extended to represent WRDs applied to other catchments – the Roper River is the next catchment to be considered. There is considerable scope for improving the modelling approach as new information becomes available.

b. Species distribution update

The RAG noted the update from Judy Upston about the species split project "*Updated NPF species distribution data, models and sampling schemes – towards regular ongoing monitoring*" (AFMA project 2019/0805). The minimum sampling requirements were achieved in 2021 and sampling is underway for the banana season 2022 (the final season). If the sample numbers are achieved, then it will be possible to test whether there is a significant long term shift in tiger prawn species proportions.

The RAG will consider the results of the project and any implication for future stock assessments.

c. Integrated monitoring program – pre-season survey update

The RAG noted the update by Rob Kenyon on the results of the recent recruitment surveys in February 2022. Aside from the Weipa region, which was promising for banana prawns and had the highest index on record for the region (the Gulf-wide index was the third highest of the series), the surveys generally showed very poor abundances of sub-adult grooved tiger prawn (second lowest in the 20-year time series), sub-adult brown tiger prawns (4th lowest in 20-year time series), and sub-adult blue endeavours (2nd lowest in 20-year time series). These low levels of recruitment generally continued the low or declining levels that have been evidenced over the last 2-4 years.

d. Bycatch sustainability

The RAG noted the information presented by Gary Fry on the long-term bycatch sustainability assessment project. The assessments analysed all available catch and biological data on 40 TEP (including sawfish, sea snakes, pipefishes, and sea horses) and 'at risk' bycatch species under the ERA (yellow and brown-striped mantis shrimp and the large stingray). Data is sourced from the crew-member observer program, AFMA scientific observer program, NPF prawn population monitoring surveys and CSIRO scientific research and observer surveys.
- There were 14 species that could be assessed under the model (including 10 sea snake species, the narrow sawfish, pipefish, and the brown-striped mantis shrimp) for the period 2010 to 2019, no significant declines in catch rates were observed.
- The final report will be published on the AFMA website.
- A recommendation in the final 2019 report is the removal of the brown striped mantis shrimp from the CMO program species monitoring list as there is evidence that it is not at risk.

The RAG discussed:

- the removal of species from the CMO program's species list and agreed there needs to be a transparent and reliable process to allow for the removal of species from the monitoring list.
- the need to ensure that the report includes wording alongside catch rates to reflect whether the trends are from reported or actual catch rates.

Action Item 13: Gary Fry

Gary Fry to investigate a list of steps and develop a reasonably reliable basis to document the process for considering removing the collection of species from the CMO program.

e. Sawfish projects

The RAG noted the update provided by NPFI:

- Overall, TEP reporting is improving with all vessels reporting TEP interactions for the 2021 fishing season. Additionally, the number of skippers reporting sawfish has been steadily increasing in both fishing seasons and, due to emphasis NPFI have placed on accurate species identification, the number of unidentified sawfish in logbook reports has reduced significantly.
- NPFI is continuing to work with CSIRO, Charles Darwin University, DAWE, and the Australian Government Director of National Parks to undertake research and improve management and mitigation of sawfish interactions in the NPF.
  - *Assessing the impacts of trawl gear on sawfishes in the Northern Prawn Fishery* – the project is a continuation of the previous project funded by Parks Australia. Video cameras have been deployed with the area 2 metres forward of the TED (identified as an interaction hot spot). TED orientation has also shown to have an impact on the number of interactions, this will be explored in greater detail during the upcoming tiger season as additional underwater cameras will be deployed.
  - *Is the Northern Prawn Fishery interacting with a single population, or multiple populations of the narrow sawfish?* [10] – the project determined that males move between regions, whereas females breed in the regions where they were born leading to regional populations which are effectively isolated from each other
  - *Sawfish Bycatch Sampling* – the Department of Agriculture, Water and the Environment has granted additional funding for the kits to ensure the sampling continues for another 3 years.
  - *Sawfish Tagging Research Proposal* – this project was not approved for funding through the *Our Marine Parks Grants* program round three. NPFI is considering alternative funding options for a satellite tagging project, including a collaborative project between NPFI and various research agencies for submission to the National Environmental Science Program (NESP).
- *NESP Sawfish Workshop*: NPFI, AFMA management and CSIRO staff – together with a range of other scientists, industry group and State fishery management agency representatives – participated in the NESP Sawfish workshop. A longer-term goal is to develop a nationwide monitoring strategy for sawfish that will enable the following to be determined: status of sawfish, the effectiveness of the recovery plan actions, and whether mitigation measures are having a positive impact on sawfish populations. The workshop raised awareness of the issue, brought the various interest groups

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[10] Feutry P, Laird A, Davies C-L, Devloo-Delva F, Fry G, Johnson G, Gunasekara RM, Marthick J, Kyne PM (2021) *Population structure of Narrow Sawfish Anoxypristis cuspidata across northern Australia*. Report to the National Environmental Science Program, Marine Biodiversity Hub. CSIRO, Charles Darwin University, and NPF Industry Pty Ltd. (available at: www.nespmarine.edu.au/document/population-structure-narrow-sawfish-anoxypristis-cuspidata-across-northern-australia)

together and shared information on the range of research, monitoring and mitigation initiatives being undertaken across jurisdictions.

The RAG noted the update by Toby Patterson:

- the sawfish close kin mark recapture (CKMR) project that commenced in January 2022.
  - Narrow sawfish tissue samples have been collected via the NESP CMO program, Charles Darwin University vials, NPF monitoring program and during the 2020 and 2021 seasons. There are about 550 viable samples. Wide spatial coverage collection is ongoing.
  - DNA sequencing of the samples will commence in early 2023.
  - age estimates are needed to enable the full power of CKMR, as such, collecting length measurements is imperative.
- Arising from the NESP workshop is the potential to expand the CKMR project to other sawfish species. Ongoing discussions are being held between CSIRO and both Queensland and Northern Territory net fishers.

The RAG discussed the potential for this close kin work to inform the implementation of appropriate management responses before the project is completed. This is important given the risk to the fishery as sawfish interactions are a critical issue. Subject to sufficient sample number and coverage, close kin work on sawfish should provide key population information including absolute abundance of the spawning stock, philopatry/dispersal, and a total mortality rate for adults. When used in combination with other work – such as post release survival, actual catch rates and modelling (based on close kin results could help inform development of an acceptable biological catch).

> **Recommendation**
>
> The RAG recommended that processes are identified to enable appropriate management responses to be developed alongside the sawfish CKMR research project rather than waiting until the project is finished.

> **Action Item 14:** NPFI / CSIRO
>
> Annie Jarrett and Toby Patterson to discuss the development of processes that will enable appropriate management responses to occur in parallel with research, rather than needing to wait until the completion of research projects.
>
> **Action Item 15:** CSIRO
>
> Toby Patterson to provide an update of the sawfish CKMR project at the November 2022 NPRAG meeting.

Agenda item 13. Standing items

The RAG noted that consultation was undertaken on the proposed scheduling of meetings and agenda items with NPFI and CSIRO and agreed, depending on needs of the fishery, three meetings to be held each year, face-to-face meetings in February and May and virtually in November; with fisheries data and stock assessments to be considered at the May meeting.

Agenda item 14. Indigenous engagement

a. Commencement of a Reflect RAP

The RAG noted the information provided by Darci Wallis:

- AFMA's partnership with Reconciliation Australia to develop a Reflect Reconciliation Action Plan (RAP).
- the broad objectives of the Reflect RAP, which are to:

- o Facilitate improved engagement with and acknowledgement of Aboriginal and Torres Strait Islander peoples;
- o Foster internal agency knowledge, awareness and appreciation of First Peoples, histories, perspectives, and ongoing cultures;
- o Honour the continuing and current presence and significance of First Nations when managing Australia's Commonwealth fisheries;
- o As the Reflect RAP evolves, consult with Traditional Owners, local Elders, communities, and content experts to ensure that AFMA engages in a culturally sensitive and appropriate manner; and
- o Support the ability for AFMA to give effect to our legislative obligations when taking into account stakeholder interests and perspectives.

b. NPF perspective

The RAG noted the information provided by Darci Wallis about activities that are being progressed by AFMA (the Reflect RAP, Indigenous Acknowledgement, development of an Indigenous engagement strategy and Indigenous capacity building) and consultation or engagement that occurs with First Nations in the area of the NPF.

The RAG discussed the Reflect RAP and activities being undertaken in the NPF:

- First Nations engagement by AFMA has been improving since the *Fisheries Management Act 1991* was amended to ensure that the interests of First Nations fishers are taken into account.
- The inclusion of First Nations representation on the RAG is challenging due to the diversity of these groups in the fishery, particularly as an individual may be unwilling to speak on behalf of another group. Notwithstanding the lack of First Nations representation, the RAG deemed that it is important to ensure that this "perspective" is provided and a mechanism to enable this should be considered.
- The NPF has shown some initiative in this space. AFMA and NPFI (in particular) have engaged with First Nations groups on NPF fishery management issues and attended various First Nations forums.
- While guidance will be developed during the AFMA / FRDC projects to develop an Indigenous engagement strategy and build Indigenous capacity, it would be worth undertaking actions in the meantime, for example:
  - o show the First Nations lands on which the NPF operates,
  - o provide information explaining the projects that include traditional information and names of species, and/or
  - o ensure that relevant First Nations groups are informed when surveys are undertaken on sea country.
- It may be possible to draw learnings from CSIRO conducted activities relating to First Peoples including:
  - o processes developed when conducting research in the Torres Strait, and
  - o the CSIRO / FRDC project that is supporting fishery representatives to attend workshops.
  - o First Nations representation at the World Fisheries Congress 2021
- While relevant to both NPRAG and NORMAC, NORMAC is the most appropriate forum to develop First Nations initiatives, which the RAG can consider as appropriate.

Agenda item 15. Other Business

a. Economic indicators – Northern Prawn Fishery

The RAG noted the information provided by Robert Curtotti ABARES on the latest draft, unpublished NPF economic indicators report.

The RAG noted that data for the economic indicators is typically collected through an ABARES survey of the major NPF fishing companies every two years – capturing approximately 30 boats each survey – with a lag of two years between the data and the published results. With increasing processing capacity at ABARES, the turnaround time to publish the information in a dashboard format could be reduced to approximately six months.

The RAG noted that the last published economic indicators report relates to 2016/17 and expressed concern about the lag between the timing of data collection and publishing of the economic indicators report, particularly given the reported data no longer represents the current situation in the fishery. It was noted that similar data is also collected by NPFI for stock assessment purposes and that there may be ways to simplify the two processes and improved overall efficiency by sharing data.

Agenda item 16. Next meeting

The RAG noted the next meeting is to be scheduled in late July 2022 via Teams, to consider the revision of the harvest strategy in particular.

Close of meeting: 1615 AEST

Attachment A – Register of interest

Name	Declared interests
Chair	
Ian Knuckey	**Positions:** Director –Fishwell Consulting Pty Ltd Director –Olrac Australia (Electronic logbooks) 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 –Gulf of St Vincent's Prawn Fishery Management Advisory Committee Scientific Member –Tropical Tuna Resource Assessment Group Scientific Member – SESSF Resource Assessment Group Councillor –Victorian Marine and Coastal Council Member –The Geelong Agri Collective **Fishwell current/recent projects:** DAWE Project: Multi-sector fisheries capacity building AFMA 2022: Annual monitoring, reporting and assessment of SPF marine mammal interactions, including effectiveness of mitigation measures AFMA 2020-0807: Bass Strait Scallop Fishery Survey – 2020-22 AFMA 2019-0836: Information the Bass Strait Central Zone Scallop Fishery Harvest Strategy and TAC setting process with economic data and MEY proxies FRDC project: Principal Investigator for SA Peak Industry body project AFMA project: Design sea cucumber fishery-independent survey for Coral Sea FRDC 2019-027: Improving and promoting fish-trawl selectivity in the SESSF and GABTS FRDC 2019-072: A survey to detect change in Danish Seine catch rates of Flathead and School Whiting resulting from CGG seismic exploration. FRDC 2019-129: Potential transition of shark gillnet boats to longline fishing in Bass Strait - ecological, cross-sectoral, and economic implications FRDC 2018-021: Development and evaluation of SESSF multi-species harvest strategies Traffic Project: Shark Product Traceability NT Fisheries: Design and implementation of a tropical snapper trawl survey Sea Cucumber Ass. : Design and implementation of various sea cucumber dive surveys. Australia Bay: Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery Tas. Abalone: Scientific Advisor for Tasmanian Abalone Council Ltd PEMSEA: Developing EAFM Plan for Red Snapper in Arafura and Timor Seas Beach Energy: BACI study of Prion Marine Seismic Survey impacts relative biomass of scallops on beds in the immediate vicinity. Expert Witness: Gladstone Harbour development impacts
Members	
David Brewer	Scientific member – NPRAG Director – Upwelling P/L (David Brewer Consulting) Scientific member – Torres Strait Fin Fish Working Group Chair – Torres Strait Fin Fish RAG Current consultancy work with the Quandamooka Yoolooburrabee Aboriginal Corporation/FRDC (Moreton Bay), Newcrest mining (Lihir I gold mine PNG) and MRAG (MSC certification assessment). Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Ian Boot	Industry member – NORMAC Managing Director of Austfish, a company that operates NPF vessels. Has a commercial interest in the fishery. NPF broodstock permit holder. Participates in scampi fishing.

Name	Declared interests
Rik Buckworth	Scientific Member – NPRAG Scientific Member – Torres Strait Finfish RAG Director – Aquatic Remote Biopsy Pty Ltd Director -Sea Sense Australia Pty Ltd Adjunct Professor – Charles Darwin University CSIRO Honorary Fellow Chair of the NT Aquarium Fishery Management Advisory Committee Consultancy contract with NPFI to review Red Endeavour Prawns Current and pending projects with government agencies, CDU and fishing industry for projects in the NT, Torres Strait and Qld Researcher involved particularly in stock assessment research in NPF. Has in the past and may in future seek and receive funding for research in the fishery.
Tom Kompas	Economic member – NPRAG Employed by University of Melbourne. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Éva Plagányi	Scientific member – NPRAG Employee of CSIRO. Research provider involved particularly in stock assessment research in NPF. Also currently receiving FRDC funding related to development of a GoC ecosystem model. Has in the past and may in future seek and receive funding for research in the fishery. Scientific member of TRLRAG and TS HCRAG.
Phil Robson	Industry member – NPRAG Employee of A Raptis and Sons, responsible for managing NPF vessels & an NT demersal fish trawler. Has provided charter for scientific surveys in NPF in the past and may in future.
Darci Wallis	AFMA member – NPRAG Employed by AFMA, Manager of Northern Prawn Fisheries. No interest, pecuniary or otherwise.
Bryan van Wyk	Industry member – NPRAG Employed by Austral Fisheries, a company with SFR holdings in the fishery.
Invited participant	
Annie Jarrett	CEO – NPFI MSC – Asia Pacific director Commonwealth Fisheries Association Director Chair – Australian Council of Prawn Fisheries (ACPF) Member of the FRDC selection panel. Invited participant - NORMAC No pecuniary interests Represents the interests of industry.
AFMA employees	
Cate Coddington (EO)	AFMA employee No interest, pecuniary or otherwise.
Brodie Macdonald	Employed by AFMA, A/g Senior Manager – Northern Fisheries. No interest, pecuniary or otherwise
Elissa Mastroianni	Employed by AFMA No interest, pecuniary or otherwise.

Name	Declared interests
Observers	
Beau Anderson	Employee of A. Raptis & Sons NPFI member Skipper in the NPF.
Laura Blamey	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Josh Cahill	Employed by NPFI – Projects Manager Contract work for other various fisheries Commercial sea urchin diver in the Victoria Central Zone Fishery Lessee holder of sea urchin quota Undertakes contracting work with other fisheries – Commonwealth and state jurisdictions.
Robert Curtotti	Employed by ABARES. Economics research provider. No current pecuniary interest in fishery. Potential to seek and receive funding for research in the fishery in future.
Roy Deng	Employed by CSIRO. Research provider. Member of a research body providing scientific advisory services to the fishery management. May in future seek and receive funding for research in the fishery.
Gary Fry	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Krystle Keller	Employed by ABARES. Economics research provider. No current pecuniary interest in fishery. Potential to seek and receive funding for research in the fishery in future.
Rob Kenyon	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Sean Pascoe	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Toby Patterson	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Trent Timmiss	Employed by ABARES, which is a research provider. No current pecuniary interest in fishery. Potential to seek and receive funding for research in the fishery in future.
Judy Upston	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.
Tonya Van Der Velde	Employed by CSIRO. Research provider. Has in the past and may in future seek and receive funding for research in the fishery.

Attachment B – Final meeting agenda

Item	Purpose	Presenter

1. Preliminaries
  a. Welcome and apologies
  b. Declarations of interest
  c. Adoption of Agenda
  d. Minutes from previous meeting
	For action	Chair

2. Actions arising from previous meetings	For action	AFMA

3. Outcomes of out-of-session items
  • NPF harvest strategy for red endeavours (August 2021)
  • Strategic research proposal – call for feedback (December 2021).
	For endorsement	AFMA

4. Update reports
  a. Industry update
  b. AFMA management update
  c. CSIRO update
  d. Northern rivers
  e. Northern marine parks
	For information	a. Industry members
		b. AFMA
		c. CSIRO
		d. CSIRO
		e. AFMA

5. Harvest Strategy review
  • Byproduct species (squid/scampi/scallops and cuttlefish)
  • Tiger prawn fishery
  • General updates
	For recommendation	AFMA

6. Tiger prawn stock assessment
  a. Consideration of assessment outcomes
  b. Tiger prawn base case
	For recommendation	CSIRO

7. Banana prawn MEY in-season trigger annual review	For review	CSIRO
8. Sea snakes – summary of initiatives	For advice	AFMA

9. NPF research
  a. AFMA strategic research plan 2023-28
  b. Strategic review of the NPF tiger prawn stock assessment
  c. 2023-24 Research Statement and research scopes
	For advice	a. AFMA
		b. NPFI
		c. AFMA

10. Redleg stock assessment
  • Stock assessment model
  • Stock assessment results
	For recommendation	CSIRO

11. ERA triggers	For recommendation	AFMA

12. Research project update
  a. MICE Update
  b. Species split
  c. Integrated monitoring program
  d. Bycatch sustainability
  e. Sawfish projects
	For information	a. CSIRO
		b. CSIRO
		c. CSIRO
		d. CSIRO
		e. NPFI

13. Standing items	For advice	AFMA

14. Indigenous engagement
  a. Commencement of a Reflect RAP
  b. NPF perspective
	For advice	AFMA

15. Other business, including: a. Economic indicators – Northern Prawn Fishery		a. ABARES
16. Next meeting	For decision	AFMA

Attachment C – NPRAG action items

Complete	Redundant	Underway	Need NPRAG advice	Not yet started

No.	Mtg Date	Action Item	Agency / Person	Timeframe	Progress
4	23-24 May 2018 Meeting	AFMA and NPFI to investigate the objective for collecting species abundance counts and whether this data should continue to be collected.	AFMA / NPFI		**Complete** – AFMA observers continue to collect 15 minute observations on bird warp strikes. This count is undertaken across all AFMA fisheries to give an indication of abundance created by fishing operations. This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
6	1 November 2018 Meeting	AFMA to look into New Zealand's protocols for counting bird abundance.	AFMA		**Complete** – the Department of Conservation New Zealand (NZ DOC) advice re bird counts is at www.doc.govt.nz/our-work/biodiversity-inventory-and-monitoring/birds/#introduction. This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022), noting collecting such information is undertaken across AFMA fisheries.
7	1 November 2018 Meeting	AFMA to check the observer protocols to ensure the collection of the 10 kg subsample is in accordance with the method outlined by Heales et al. (2003)	AFMA		**Complete –** The observer protocol does not match the protocol as it is impractical. 2-3 kg subsamples are taken to remove bias and account for stratification. NPF Observer protocol: "A 10 kg (5 kg for broodstock voyages) subsample is taken from the catch prior to sorting, directly from the hopper. This is taken in 2-3 kg subsamples to overcome stratification. This subsample is separated by species and then the individuals are counted. Each species group is then weighed. Counts and weights are recorded on the catch composition form." Heales, D.S., Brewer, D., Jones, P.N. (2003) Subsampling trawl catches from vessels using seawater hoppers: are catch composition estimates biases? *Fisheries Research* 63(1):113-120. "Samples of the small bycatch from trawlers that use seawater hoppers should be collected when the catch is well mixed, e.g. before the catch falls through the grid and into the seawater hopper. Before the catch is spilled from the codend, a small temporary tray (about 1m^2) could be placed so that it partially covers the seawater hopper grid. Samples can be collected from

					the small portion of the catch spilled onto the temporary tray, while the remainder of the catch spills into the seawater hopper. That portion of the catch collected on the temporary tray would be equivalent to any section of a catch spilled on to the conventional sorting tray of a trawler."
17	21 February 2019	Review the size structure of the scampi catch using grading data from scampi operators.	NPFI		**Complete** – the size class and distribution of scampi was analysed. Recommendations provided to NPRAG (February 2022 meeting).
19	21 February 2019	Analyse the historical catch and effort data, by season, around Bountiful and Mornington Islands and present the analysis to the RAG at its May 2019 meeting for its consideration.	AFMA / Phil Robson		**Redundant** –*Action items 1 and 2* (12-13 May 2021) progress this specific issue, and *action Item 7* (8-9 February 2022) encompasses the broader issue with the stock assessment review/workshop to consider if spatial elements are necessary in the model/assessments.
22	30-31 May 2019	Investigate if data quality checks and rectifying data errors can be automated.	AFMA		**Redundant** – This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
23	30-31 May 2019	Consider including updating drivers of data needs to ensure they include habitat and communities, social licence/values and acceptability, market access, animal welfare and indigenous interests.	AFMA		**Redundant** – This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
24	30-31 May 2019	Refine objectives and continue development of the data and monitoring plan in consultation with the RAG.	AFMA / NPFI		**Redundant** – This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
25	ERA species list review	Split the ERA species lists by logbook data and all other data sources (e.g. observers) to help clarify the species splits.	AFMA / CSIRO		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
26	ERA species list review	Consider splitting the logbook recorded squid species group in the ERA by the percentages recorded by CSIRO survey data.	CSIRO / AFMA		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
27	ERA species list review	Use the species split model to split the tiger prawns recorded in the banana prawn sub-fishery.	CSIRO / AFMA		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
28	ERA species list review	Double check the catch of Redleg Banana Prawns in the banana prawn sub-fishery.	CSIRO / AFMA		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
29	ERA species list review	Review the ERA species value table and split the species using the species split model so that each species only appears once in the table.	CSIRO / AFMA / ABARES		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
30	ERA	Categorise all king prawns as a byproduct species group.	CSIRO /		**Complete** – NPRAG endorsed the final draft Ecological Risk

	species list review		AFMA		Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
31	Harvest Strategy review	Compile all available data on each byproduct species to enable the RAG to assess what level of assessment is feasible and review if current harvest strategy triggers are appropriate.	AFMA		**Complete** – data was compiled to enable the provision of recommendations to NPRAG at the February 2022 meeting.
35	Bycatch Strategy review	Explore options for validating the CMO and Scientific Observer eyeball estimates of total bycatch.	AFMA		**Redundant –** This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
42	7-8 November 2019	Review the AFMA Scientific Observer report and suggest a process for determining the temporal and spatial observer needs of the fishery, taking into consideration the scientific report that originally established the program.	Dave Brewer / Gary Fry		**Redundant –** This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
43	7-8 November 2019	Consider including the observer program targets in the annual observer report and a summary of how the program is tracking in relation to the targets.	AFMA		**Complete** – The approximate number of days targeted for the NPF is 186, with 180 included within the observer program budget over the last few years. These are spread out across seasons – with the aim to collect more days during the longer tiger season than the banana season. Biological collection is on a shot-by-shot basis. It is assumed that the setting of coverage was based on a percentage of effort when the original NPF observer days were set. Other fisheries are between 2.5 and 4 % (roughly), depending on data requirements and RAG recommendations. There has been little time spent in Joseph Bonaparte Gulf over the last few years / The observer section can change the method of reporting and add an extra section for JBG if it is considered beneficial / Observer program targets will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
44	7-8 November 2019	Consider the NPF byproduct species and determine aspirations for each species to inform what level of assessment is required and what the data gaps are.	NPFI		**Redundant –**A stepped approach has been taken to managing the potential risk to byproduct species. As none of the byproduct species are at high-risk from the most recent ERA for the tiger and banana prawn fishery. Further expert advice or assessments will be undertaken if required in the future, following advice from NPRAG. Any changes to data collection requirements will be considered as part of the data plan (see Action Item 1 (May 2022).
45	7-8 November 2019	Explore options to maintain accessibility and usability of the various components of the FMS.	AFMA		**Redundant –** The format of Fishery Management Strategies is currently being considered at AFMA, and options will be considered as part of the FMS development.
46	7-8 November 2019	Explore the feasibility of changing the NPF logbook reporting requirement to a shot-by-shot report.	AFMA		**Redundant –**NPRAG agreed (Nov/Dec 2020 meeting) switching to shot-level reporting is possible during tiger prawn fishing but operationally difficult during banana prawn season when multiple

					short shots can be landed in quick succession and processed together. In principle support was provided to move to shot-level reporting for tiger prawn fishing, although additional protocols that need to be developed and considered by the RAG before any recommendation can be made for shot-level reporting for banana prawn fishing. If the decision is made to switch some or all of the fishery to shot-level reporting the AFMA database and Catchlog are can accommodate the change. Consideration of additional costs from AFMA, CSIRO or NPFI that may arise, and further consultation with the broader industry and skippers is needed before any change is implemented. This change will be further considered as part of the development of the NPF Data Plan (see Action Item 1 (May 2022).
49	7-8 November 2019	Revise the NPF Harvest Strategy for squid to clarify that there is a review point at an annual catch of 300t and an annual limit of 500t.	AFMA		**Complete** – these were included into the draft harvest strategy as recommendations to NPRAG at the February 2022 meeting.
50	7-8 November 2019	Review data for all byproduct species (i.e. mudbugs and scallops) to inform the development of sustainable catch triggers in the NPF Harvest Strategy.	AFMA / CSIRO		**Complete** – the data was reviewed to provide recommendations to NPRAG at the February 2022 meeting.
51	7-8 November 2019	Include commentary in the ERA to clarify the different nature of scampi fishing (including the associated catch of red champagne lobster).	ERA sub-group / CSIRO		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
54	7-8 November 2019	Scampi review project to assess the 'species identification problem'.	AFMA		**Redundant** –the 'species identification problem' was not assessed during the review. If further research or assessment is needed this could be considered this as a research priority; noting, the data does not show any major issues with the stock.
80	30 Nov – 02 Dec. 2020	Discuss any additional costs, and develop some options, for implementing finer scale reporting in the banana prawn sector and provide advice back to NPRAG.	AFMA / NPFI		**Redundant** – This will be considered as part of the NPF data plan development (see Action Item 1 (May 2022).
1	12-13 May 2021	NPFI to define the Brown Tiger Prawn problem in terms of area, time and species, and report back to the RAG on the broader industry view. The problem will be included on the agenda for the November 2021 NPRAG meeting.	NPFI	November 2021	**Redundant**– NPFI have raised broad concerns directly with CSIRO re possible contributing factors to productivity. The issue will be considered during the stock assessment review as it is a broader issue of the tiger fishery performance and whether changes are required to the model/stock assessments.
2	12-13 May 2021	CSIRO to use existing spatial data, to undertake a preliminary assessment of the localised issues with Brown Tiger Prawn raised by an industry member.	CSIRO		**Redundant** – this will be considered within the workshop/stock assessment review as this action has moved on and is now a broader issue of the tiger fishery performance and whether changes are required to the model/stock assessments.

3	12-13 May 2021	CSIRO to consider the expert advice and RAG comments and update the draft ERA's in line with the residual risk guidelines.	CSIRO		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting.
4	12-13 May 2021	CSIRO to use depth information for each of the potential high-risk squid and cuttlefish species and clip it to the boundary of the fishery to determine an availability score.	CSIRO		**Complete** – NPRAG endorsed the final draft Ecological Risk Assessment (ERA) reports for the common banana prawn and the tiger prawn sub-fisheries at the February 2022 meeting
5	12-13 May 2021	AFMA/NPFI to provide NPRAG with an analysis of the champagne lobster data, including grading data.	AFMA / NPFI		**Not yet started** – this action is to consider implementing a minimum legal size of 7.5 cm carapace length of champagne lobsters and a prohibition on taking berried females. While considered unnecessary given the relatively small catch, and limited time and area of the scampi sub-fishery, further analysis of catch data, including collecting some grade data was agreed.
6	12-13 May 2021	CSIRO to provide industry with a Redleg Banana Prawn CPUE (per boat per day) converted TAE to allow operators to self-manage against their catch rates in-season.	CSIRO		**Complete** – this information was provided to NPFI who will discuss at their next meeting. New action item (#4 – Feb 2022 NPRAG meeting) for industry to provide feedback to CSIRO.
7	12-13 May 2021	Working group to revise the draft Redleg Banana Prawn Harvest Strategy for RAG review out-of-session before providing to NPFI for industry consideration.	AFMA / CSIRO / NPFI		**Complete** – working group of CSIRO, NPFI, AFMA and Ian Knuckey revised the draft redleg harvest strategy and presented at the RAG previously.
8	12-13 May 2021	CSIRO to provide a draft example environmental report card for RAG review at its November 2021 meeting.	CSIRO		**Complete** – CSIRO presented example environmental report cards to NPRAG.
9	12-13 May 2021	NPFI, AFMA and CSIRO to draft changes to the NPF Harvest Strategy to incorporate currently available information for red Endeavour prawns.	NPFI / AFMA / CSIRO		**Complete** – the Commission approved the required updates in September 2021.
10	12-13 May 2021	CSIRO to provide NPRAG with a summary of the 2021 banana prawn season species-split sampling effort shortly after the season ends.	CSIRO		**Complete** – email sent to NPRAG on 22 July 2021, sufficient samples were collected for the analysis during the season.
1	23 November 21	Shijie Zhou to explore the potential for undertaking comparisons of size of prawns (maximum size) with more recent data (which as species-split).	CSIRO		**Complete** – comparison was undertaken with observer data and incorporated into a revised red Endeavour prawn report.
2	23 November 21	Éva Plagányi to check if red Endeavour prawns part of previous data focusing on JBG stocks of redleg banana prawns.	CSIRO		**Ongoing** – update to be provided at the October/November 2022 meeting.
1	8-9 February 2022	NPFI and AFMA to consult with industry regarding the trigger and catch limit proposed for scampi to provide back to the RAG. A paper to be provide to NPRAG in May 2022 that includes industry feedback and any other relevant information.	AFMA and NPFI	May 2022	**Ongoing –** NPFI will consult with industry stakeholders at the NPFI meeting on 19 May 2022.

2	8-9 February 2022	AFMA to provide NPRAG with information about the landed weight / total catch weight ratio for cuttlefish from available observer data. A paper to be provided to NPRAG in May 2022.	AFMA	May 2022	**Complete**
3	8-9 February 2022	AFMA, CSIRO and NPFI to develop a proposal to review the information on squid to support updating the NPF harvest strategy. Need to ensure that the protection of spawning aggregations and the experience from other squid fisheries (including pre-season surveys) are considered. An update to be provided to the NPRAG in May 2022, with further consideration to occur at the October/November 2022 if required.	AFMA, CSIRO and NPFI	November 2022	**Ongoing**
4	8-9 February 2022	Industry to provide feedback to CSIRO on the approach of using a voluntary trigger rate to help operators decide when to stop fishing for redleg banana prawns; currently proposed as 0.5 tonnes (500kg) per day.	Industry	As soon as practicable	**Complete**
5	8-9 February 2022	AFMA to work with the relevant parties to develop research scopes for consideration by NPRAG at the May meeting.	AFMA	May 2022	**Complete**
6	8-9 February 2022	CSIRO and AFMA to summarise the sensitivity tests used for the tiger prawn assessment, including the basis for their use, and their purpose to ground-truth the tests. This will enable informed decisions to be made about the tests that are reasonable to use. A paper to be presented at the May meeting.	CSIRO and AFMA	May 2022	**Complete** – paper presented and considered by NPRAG.
7	8-9 February 2022	As a 2023/24 research priority for the fishery, workshops will be held to ensure that the approach to the tiger prawn assessment remains appropriate and is future-proofed by considering the latest information and initiatives. These workshops will inform the new 5-year strategic research plan.	AFMA, CSIRO, NPFI and Ian Knuckey	Feb 2023	**Ongoing**
8	8-9 February 2022	NPFI (Josh Cahill) and CSIRO (Gary Fry) to consider readjusting priorities for the CMO program to ensure that the program it is targeting fishery needs, particularly given the recent ERA results.	NPFI and CSIRO	August 2022	**Ongoing** – any change to data collection will commence for the tiger season in August.
9	8-9 February 2022	CSIRO (Éva Plagányi) to provide an extract from the *economic risk assessment applied to common banana prawn model report* to NPRAG for comment.	CSIRO	As soon as practicable	**Complete** Fact sheet and report can be accessed at: www.frdc.com.au/project/2018-079

Attachment D – Action items arising from the meeting

No.	Meeting Date	Action Item	Agency / Person	Timeframe
1	17-18 May 2022	AFMA to continue development of a data and monitoring plan for the fishery in consultation with the RAG. The following items are to be considered: • Refining the objectives of the data and monitoring plan including updating the drivers of data needs by considering habitat and communities, social licence/values, market access, animal welfare and indigenous interests; • Determining the temporal and spatial observer needs of the fishery, taking into consideration the scientific report that originally underpinned the program; • Consider setting and monitoring of observer program targets on an annual basis; • Determining the worth of continuing to collect TEP[11] species abundance counts and, if retained, whether the current protocols are suitable; • Exploring options for validating the CMO and Scientific Observer eyeball estimates of total bycatch; • Automating data quality checks and the rectification of data errors; • Consider if there are any required changes to byproduct species data collection and monitoring; and • Consider the feasibility (including costs) and options of introducing finer scale reporting (shot level) for tiger prawn fishing and, potentially, banana prawn fishing.	AFMA	During development of the data plan
2	17-18 May 2022	AFMA to inform the RAG of the outcome of the strategic research proposal process	AFMA	As soon as practicable
3	17-18 May 2022	AFMA to inform the RAG on how funding is allocated under the Data Transformation and Electronic Monitoring Program.	AFMA	As soon as practicable
4	17-18 May 2022	NPFI to consider the importance and cost/benefit of maintaining MSC certification for red endeavour prawns.	NPFI	As soon as practicable
5	17-18 May 2022	A Harvest Strategy Drafting Working Group to be established and convened in early to mid-July to ensure that the draft harvest strategy incorporates all items as discussed at the meeting. The updated harvest strategy to be provided to NPRAG at the end of July, NORMAC to consider it in mid-August, in time for the Commission meeting in mid-September. Membership: NPFI, AFMA, Rik Buckworth, Ian Knuckey, Tom Kompas and Éva Plagányi	Harvest Strategy Drafting Working Group	mid-July
6	17-18 May 2022	The tiger prawn stock assessment be performed again next year to obtain improved model output with updated 2022 data, rather than waiting for the usual two-year cycle for this assessment.	CSIRO, NPFI and AFMA	May 2023

[11] Threatened, Endangered and Protected

No.	Meeting Date	Action Item	Agency / Person	Timeframe
7	17-18 May 2022	NPFI to consider the tiger prawn stock assessment results and the RAG recommendations/ advice and provide advice to NORMAC on the preferred option/s to achieve a 10 – 20% effort cut on tiger prawns in 2022. Required updates to the MEY model be discussed/ considered as part of the tiger prawn fishery assessment improvements workshop.	NPFI	May 2022
8	17-18 May 2022	AFMA to undertake an analysis of sea snake interactions, like that done for sawfish, to determine whether these interaction rates are consistent between logbook information and that from the CMO and AFMA scientific observer programs.	AFMA	November 2022 meeting
9	17-18 May 2022	Develop an appropriate project using available information that can analyse sea snake behaviour in fishing gear and understanding escapement through the current bycatch reduction devices, noting that footage and information regarding size structure and species that interact with the gear is available from research undertaken on sawfish.	AFMA, NPFI and CSIRO (Gary Fry)	As soon as practicable
10	17-18 May 2022	AFMA and NPFI to conduct a scoping workshop in July 2022 that will prepare for and 'scope' a more targeted workshop in late 2022 to enable a strategic review of the tiger prawn stock assessment that will consider the latest information and initiatives. Membership: NPFI (Annie Jarrett to confirm key industry members), AFMA, Ian Knuckey, CSIRO, ABARES, Tom Kompas and Rik Buckworth	Tiger prawn assessment review working group	July 2022
11	17-18 May 2022	AFMA to update the 2023/24 Annual Research Statement based on the discussion at the meeting.	AFMA	August 2022
12	17-18 May 2022	AFMA to provide an update to the RAG on the status of the automation of ERAs, and an evaluation of the costs for undertaking an ERA triggers checklist.	AFMA	November 2022 meeting
13	17-18 May 2022	Gary Fry to investigate a list of steps and develop a reasonably reliable basis to document the process for considering removing the collection of species from the CMO program.	Gary Fry	August 2022
14	17-18 May 2022	Annie Jarrett and Toby Patterson to discuss the development of processes that will enable appropriate management responses to occur in parallel with research, rather than needing to wait until the completion of research projects.	NPFI / CSIRO	November 2022 meeting
15	17-18 May 2022	Toby Patterson to provide an update of the sawfish CKMR project at the November 2022 NPRAG meeting.	CSIRO	November 2022 meeting