



Australian Government

Australian Fisheries Management Authority



Northern Prawn Fishery - Northern Prawn Fishery Resource Assessment Group (NPRAG)

NPRAG 29 AUGUST 2011

MINUTES

Northern Prawn Fishery Resource Assessment Group (NPRAG) Meeting was held at the Novotel Brisbane airport on 29 August 2011.

Attendees

Members

Dr Ian Knuckey, Chair
Ms Fiona Hill, AFMA Member
Dr Tom Kompas, Economist
Mr Michael O'Brien, Industry
Mr Ron Earle, Industry
Mr Ian Boot, Industry
Dr Norm Hall, Scientist Murdoch University
Dr Malcolm Haddon, CSIRO
Mr James Woodhams, ABARES

Ms Rebecca Williams, A/g Executive Officer NPRAG

Observers

Dr Cathy Dichmont, CSIRO
Dr Rik Buckworth, CSIRO
Dr Bill Venables, CSIRO
Ms Emma Lawrence, CSIRO
Ms Annie Jarrett, NPFI



Preliminaries

Agenda item 1.1 Welcome

The Chair opened the meeting at 9:00am and welcomed all members and observers. He advised that the primary purpose of the meeting was to discuss: the model for predicting a Total Allowable Catch (TAC) for Banana Prawns; the Harvest Strategy for the NPF under output controls; and the draft report for the Strategic Assessment of the fishery.

Apologies

Apologies were received from Dr Rodrigo Bustamante (CSIRO) and Dr Trevor Hutton (CSIRO).

Agenda item 1.2 Adoption of agenda

Members adopted the agenda with no change.

Agenda item 1.3 Adoption of minutes of May NPRAG meeting

The final draft minutes from NPRAG May 2011 were accepted as a true and accurate record of the last meeting pending some minor edits and clarification of the discussion on the relationship between Blue Endeavour Prawns and Brown Tiger Prawns.

Action NPRAG August 2011: 1 (NPRAG EO)

Minutes of NPRAG May 2011 to be amended as advised at the meeting.

Actions arising from previous minutes

Person responsible	Description of ACTION item	Deadline
1. NPRAG EO	Minutes of NPRAG October 2010 to be amended as advised at the meeting.	Complete
2. Dr Bustamante, Mike O'Brien and Melissa Brown	For CSIRO, industry and AFMA to liaise on contacting SEWPaC to try and get a copy of the draft MPA shapefiles to CSIRO to run through the model.	Carry over. The shapefiles have been released and there is a 90 day window for submissions. NPF will discuss this with Dr Bustamante.
3. Dr Hutton	For Dr Hutton to follow up on providing the information relating to Action item 8 to Simone Valle de Souza.	Complete

4. NPRAG EO	Follow up with Rob Kenyon and Michelle Burford to check if the new proposal for the TRaCK project presented at the last NPRAG meeting has been accepted or rejected by FRDC and to assess if a letter of support from NOMRAC is required.	Complete
5. Fiona Hill	To review the agreement with Queensland in relation to trawl fishing in the Gulf and feed this information into the consultation process with the Northern Territory.	Complete
6. Dr Cathy Dichmont and assessment team	The MSE showed that the stock would not hit the limit reference point in the 7 year projection. As such the NPRAG requested that the stock be simulated to hit the limit reference point to assess how it recovers from that point (i.e. crash the stocks).	Complete. Wording change from 'made' to 'simulate'
7. Dr Tom Kompas	To investigate the use of an inter-annual variability factor and a value that might be appropriate.	Carry over no progress
8. Dr Rik Buckworth, AFMA	To produce accurate timelines needed for both the assessment (Dr Buckworth), including the dates when data is required for the assessment, and for management for the TAC setting process.	Complete. Addressed at agenda item 9 at this meeting.
9. Dr Tom Kompas	To look at sensitivity tests around fuel and prawn prices.	Complete
9a. NPRAG Chair	To send a letter to the Chair of NORMAC outlining the outputs of the assessment model state that to achieve MEY an effort increase will need to occur in the fishery, and the preliminary results of the analysis conducted by Dr Deng.	Complete
10. Dr Cathy Dichmont	Update the Harvest Strategy in line with comments provided by the NPRAG in this agenda item and the MSE agenda item. To remove king prawns from the Harvest Strategy.	Complete
11. NPRAG EO	Check Milton et al report to ensure that the mean ABC's are what is recommended as the ABC for each species and report back to NPRAG.	Remove
12. AFMA	Review if there is a catch sharing arrangement for squid between the Commonwealth and Northern Territory for squid.	Complete.
13. NPRAG	To supply Matt Barwick with more detailed comments on the observer data collection protocols out-of-session.	Complete
14. NPRAG	To supply NPRAG EO with comments on the NPF strategic assessment out-of-session.	To be discussed at Agenda item 8 NPRAG August 2011

The NPRAG discussed Action item 2. The NPRAG noted that the shapefiles for the proposed MPAs in the North have now been released by the Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC). The



Northern Prawn Fishing Industry Pty Ltd (NPFIL) advised that they needed to discuss the merits of running the shapefiles through the CSIRO model as there are costs involved.

Action NPRAG May 2011: 2 (NPFIL)

NPFIL to discuss the possibility of running the draft MPA shapefiles through the CSIRO model with Dr Rodrigo Bustamante from CSIRO.

Action item 7 is incomplete and will be carried over.

Action NPRAG May 2011: 3 (Dr Kompas)

To investigate the use of an inter-annual variability factor and a value that might be appropriate.

Action item 9 is complete and Dr Kompas will send the results of the tests to NPRAG members out-of-session.

Action NPRAG May 2011: 4 (Dr Kompas)

To circulate the results from sensitivity tests around fuel and prawn prices to NPRAG members out-of-session.

The NPRAG discussed action item 12 in detail. Northern Territory fisheries have enquired about how catch limits are set for squid by the Commonwealth as this is a developmental fishery in the Northern Territory. AFMA has investigated and found that there is no formal catch sharing agreement between Northern Territory fisheries and the Commonwealth for squid. The NPRAG concluded that no further action was required on this issue at this point in time.

Action NPRAG May 2011: 5 (Ms Hill)

To circulate a summary of the correspondence between AFMA and NT fisheries regarding catch sharing arrangements for squid to NPRAG members out-of-session.

Action item 13, to provide Matt Barwick with more detailed comments on the observer data collection protocols out-of-session is complete, however the Chair requested that Ms Jarrett provide the NPRAG with an update on the tender process.

Action NPRAG May 2011: 6 (Ms Jarrett)

To circulate an update on the tender process to NPRAG members out-of-session.

Agenda Item 2. Industry Report (Michael O'Brien and Ron Earl)

Banana Prawns

Industry reported that red-leg banana prawn fishing in the Joseph Bonaparte Gulf has been disappointing to date, with small catches reported. Given the low volume of preliminary catches, effort has been low at around three to four vessels and catches are ranging from U15-U25 to U10-U20.

Mr Boot advised that they had fished two sets targeting red-legs, 7 days in the first set and 10 days in the second set, with an average of about 15 tonnes for both sets. Catch sizes were disappointing comprising mostly of U15 and a small percentage of U10s. The



weather has been fair this year so vessels will stay for a third set. Fuel prices have improved with the net price being about 88 cents out of Darwin.

In the Gulf of Carpentaria, the wet season has been good and so has the banana prawn fishing season, although cold weather towards the end of the season meant a disappointing finish. Catches exceeded the last trigger point for banana prawns, resulting in the season being extended for a further two weeks. Mr O'Brien advised that all vessels ended fishing with five to six days of the season still to go.

Prices for banana prawns have been disappointing, due largely to the strong Australian dollar but also to the supermarkets holding product, which is driving prices down. Supermarkets have been buying prawns at one to two dollars cheaper than last year and Woolworths are advertising specials of \$12.88 per kilo. Mr O'Brien feels as though the "keeping prices down" strategy of the two big supermarkets Coles and Woolworths, is also affecting industry profits. For example, usually fishers hold U15 banana prawns for the Christmas market but for the past two years the U15 have not sold well because the supermarkets have U10-20 at around \$14.00 per kilo.

Mr Earle advised that there are some positives to the supermarkets buying up a large proportion of the catch, as the markets have tightened a little bit which in turn lifts prices. Mr Earle also added that he believed that this was also compounded by the fact that the East Coast prawn fisheries have not produced well this year.

Tiger Prawns

The Tiger Prawn season has not begun well as the weather has been cold and rough. Industry advised that catches of tiger prawns are about fifty percent down on the last season. Vessels are catching more Banana Prawns and Endeavour Prawns and some locations are yielding better Endeavour Prawn catches than Tiger Prawns. Although the quality of the prawns is good, industry feel that they are catching too many small (U9-U12 and U13-U15) with approximately ten percent of the catches U8s. There is a lack of Tiger Prawns north of Mornington. Industry advised that increasing fuel prices and lower than average catches will put pressure on industry between now and December.

There was some discussion over the possible reasons behind the poor catches, with some suggesting that colder than normal waters could be affecting the catchability of Brown Tiger Prawns. The NPRAG also noted that prawn fisheries around Australia and in Indonesia are not performing well at the moment and this could be due to environmental factors such as cold and rough weather.

Due to the poor catches of Brown Tiger Prawns, industry is hoping catches of Grooved Tiger Prawns kick in soon. Industry feel that there are no tools in the current Harvest Strategy that adjust for such fluctuations in catchability of different prawn species and they are having to be more reactive than proactive. The RAG noted that the model can account for changes in catchability.

The NPRAG noted that the pre-season survey showed that Tiger Prawn recruitment was good in February but the mid-year survey indicated no great abundance. Dr Dichmont stated that there is no indication that there is a stock issue. Dr Buckworth advised the RAG that he had looked at on the impacts of temperature on catch rates in the 80s and that the relationship was not linear. The general consensus was that temperature mostly



affects catchability and only has an impact on growth if the cold waters are experienced when the prawns are juveniles.

The NPRAG noted the industry report and the problems the fishery is currently experiencing. Given that there is no indication of a stock issue and the difficulties are associated with market fluctuations and environmental factors, no further action will be taken by the NPRAG.

Agenda item 3. Managers Report (Ms Hill)

Pre-season survey

The NPRAG noted that the pre-Tiger Prawn season survey was undertaken in late June/early July. Bubble plots were produced based on the outcomes of the survey and were provided to industry and made available on the AFMA website prior to the start of the Tiger Prawn Season.

The results from the 2011 assessment recommended an increase in the level of effort in the fishery, meaning an increase in the length of headrope that can be towed. Through consultation with the Northern Prawn Fishery Management Advisory Committee (NORMAC), the NPRAG and the Northern Prawn Fishing Industry Pty Ltd (NPF) it has been decided to increase the value of gear Statutory Fishing Rights to 9 cm for twin gear and 8.1 cm for quad, triple and twin tongue gear. The AFMA Commission has agreed to the increase in effort for the NPF out of session in July 2011.

Bug size limit

Following advice received from the NPRAG and NORMAC, AFMA has decreased the minimum size limit for bugs. The new minimum legal size limit for bugs is 60 mm carapace width, replacing the old size limit of 75 mm. As well as the lowering of the minimum size limit there is also a 100 t catch trigger limit in place for bugs. If this limit is reached in a season then further analysis will be done to ensure that there are no sustainability concerns with the take of bugs in the fishery. The size and sex of bugs caught will be monitored through the Crew Member Observer program and the AFMA Scientific Observer Program. Industry believes that smaller bugs are still marketable and increases competitiveness with overseas imports.

Bycatch and Discard Workplan

The NPRAG noted that the current Bycatch and Discard Workplan is under review. A working group was convened in June 2011 where the future needs for the NPF were discussed. NPF arranged for a skipper to be in attendance, which was very beneficial to the process. A lot of the discussion focused around extension of information on Bycatch Reduction Devices available to industry and the potential for AFMA to have an education role in providing this information to industry. AFMA is currently finalising the revised Bycatch and Discard Workplan based on the outcomes of the workshop. AFMA is working with CSIRO on finalising the list of species highlighted through the recent Sustainability Assessment for Fishing Effects (SAFE) assessment, which will be included in the Workplan. The draft Workplan will be distributed to NORMAC and NPF for comment prior to finalisation.



The NPRAG noted that the AFMA Bycatch Section has received funding from Caring for our Country, where the main focus will be extension and education related to Bycatch Reduction Devices. The NPF will be one of the focus fisheries, and the Bycatch Section are planning on working with company representatives as well as skippers and crew over the next 12 months.

Ecological Risk Management

AFMA is also reviewing the NPF Ecological Risk Management (ERM) plan, based on the outcomes of the SAFE assessment undertaken earlier in 2011. AFMA is working with CSIRO on finalising the list of species highlighted through the recent SAFE assessment, after which the revised ERM will be distributed to NORMAC and NPF for comment.

Action NPRAG August 2011: 7 (Ms Hill)

To circulate the draft Ecological Risk Management plan to the NPRAG for comment.

Summary of catches – 2011 so far

The table below summarises catches for the 2011 season up to mid-August 2011.

Species Name	Catch Weight (kg)
White banana prawns	6,875,110
Red-leg banana prawn	157,121
Tiger Prawn	13,718
Endeavour Prawn	588
Moreton Bay Bugs	461
Bugs	193
Squids	103
Total	7,047,294

E-monitoring

The draft report from the electronic monitoring project in the NPF was sent to the Fisheries Research and Development Corporation (FRDC) on 1 July 2011. The updated draft included additional analysis of discards during the 2011 Banana Prawn season, which was recommended by NORMAC. The next FRDC milestone is 1 September 2011 – for submission of the final NPF trial report. However, the FRDC reviewer was away for most of July and as such there may be some delays in FRDC providing comments to AFMA. With this in mind, it is likely that there will be some delay to the final submission of the report.

Action NPRAG August 2011: 8 (Ms Hill)

To circulate the draft report from the electronic monitoring project in the NPF to NPRAG and NPF for final review before final submission.



Marine Bioregional Planning

A draft Marine Bioregional Plan and a Commonwealth marine reserve network proposal for the North Marine Region were released by the SEWPaC for public consultation on 23 August 2011. The draft MPAs will be available for public comment for 90 days during which everyone is encouraged to make a formal submission. The consultation period will conclude on Monday 28 November 2011. Industry is concerned that fishers at sea will not be able to submit their comments given the short public consultation period. The NPFI also felt that meetings on the draft MPAs between SEWPaC and industry were not very beneficial as SEWPaC did not seem very understanding of the issue.

Action NPRAG August 2011: 9 (NPFI)

To write to SEWPaC regarding the issue of the short public consultation period, highlighting the issue it presents to industry at sea and requesting further consultation with industry on the matter.

There was also concern from industry regarding the proposed Mornington Island marine reserve. SEWPaC have revised the past years of data and are confident that this Marine Protected Area will be confirmed given the low levels of catch. However, industry have not fished in the area over the past ten years as they have been trying to rebuild the stock, so believe that the lack of catch history is not indicative of a lack of interest in fishing the area.

Action NPRAG August 2011: 10 (Ms Hill)

To contact SEWPaC and request that further meetings are held in Cairns for industry regarding Marine Bioregional Planning and implications for the NPF.

Agenda item 4 and 5. Common Banana Prawn Project

Presentation

Dr Venables gave a presentation regarding *Prediction of the Common Banana Prawn Potential Catch in Australia's Northern Prawn fishery*. The model is used to predict the potential catch in any given season no later than 1 March.

There are nine Common Banana Prawn Total Allowable Catch (TAC) regions and each of these regions can be associated with a number of rainfall basins, usually river catchments. These river catchments are important as the species is strongly influenced by environmental factors such as river flow. River flow would be the best indication of Banana Prawn catches in the predictive model but the data is very difficult to collect and would not be available in time to set the TAC. Rainfall data is the only reliable information that can be gathered in time to set the TAC and so is the main input to the model.

Two types of model have been explored: the weighted model and the unweighted model. The unweighted model assumes that the fishing fleet will find all available Banana Prawns and will catch most of them; therefore, effort is determined by abundance. The weighted model assumes that effort is not always sufficient to catch most of the available product, although the larger the fleet, the more likely it is that they will.

As it is difficult to determine the stock recruitment relationship for Banana Prawns, a common input in Stock Assessments, it is necessary to build a model for potential catch in the first step to setting a TAC for the species. Total annual catch is used as a surrogate for potential catch. Under the unweighted model, this is always reliable. Under



the weighted model this is most reliable where effort is high, which is where the model needs to fit well.

Model predictions need to be made in early February before the Banana Prawn season begins, so input data needs to be available then. The models use daily rainfall totals, translated into two numbers representing rainfall for the six months prior to the end of February and six months prior to the end of November. These numbers are used as a catch predictor in each basin. The models also allow for a constant annual proportional change increase or decrease termed the “year effect” which essentially describes a simple trend effect over years).

The NPRAG noted model predictions for the 2011 Banana Prawn season. In some cases, the weighted model proved more accurate than the unweighted model and Dr Venables indicated that the weighted model would be the preferred model to use, given that it does not just rely on effort being an indicator of abundance. Both models found it difficult to accurately predict catch in some areas, such as South Groote and Weipa. In general, the results from the models were very positive, providing a reasonably accurate prediction of overall Banana Prawn catch.

Industry advised that the North Groote region has a limited fishing season, and that they believed future models should account for this. Dr Venables advised this would only improve the estimates in the unweighted model.

Discussion

The NPRAG supported Dr Venables’ model as the best available option to predict the available catch of Banana Prawn but noted that further refinement of the model is needed. The NPRAG also noted that the model itself cannot set a TAC and that the model outputs would be used to develop control rules to set a TAC for the species. Therefore, the NPRAG agreed that the following steps should be taken:

1. The highest priority is to undertake uncertainty analysis to determine a reliability estimate for the model
2. Undertake a basin assessment to ensure that they are the most appropriate.
3. Thirdly, the NPRAG will need to develop and discuss control rules to include in the NPF Harvest Strategy. This would include determining the price elasticity for Banana Prawns (find the dependence between catch and price). Dr Kompas advised that this information would be readily available and the calculations easy to perform.

To undertake this further work, the NPRAG suggested applying for assistance through the FRDC Tactical Research Fund (TRF). Maximum funding available through the TRF is \$75,000. It was suggested that CSIRO and Dr Kompas develop a detailed research proposal detailing the costing of proposed further work, such as uncertainty analysis and price elasticity, for submission.

Dr Venables offered his assistance with this proposal and the undertaking of any further work, noting he could not be a Principal Investigator but could assist as a post-retirement research fellow with CSIRO. The NPRAG accepted this offer.

Action NPRAG August 2011: 11 (Ms Lawrence, Dr Hutton and Dr Kompas)

To prepare a TRF research proposal for further work on the Banana Prawn predictive model and prices elasticity for banana prawns. Dr Venables to assist.



Ms Jarrett requested that the 2011 predicted catches and updated information on the rainfall/climate (SILO) information) be presented to NORMAC at their next meeting in September.

Action NPRAG August 2011: 12 (Ms Lawrence, Dr Hutton and Dr Kompas)

To present updated 2011 Banana Prawn catch predictions and rainfall/SILO information to NORMAC in September.

The NPRAG also discussed the availability of rainfall data in the Gulf of Carpentaria and noted an update from Ms Lawrence regarding Integrated Marine Observing System (IMOS), Bureau of Meteorology (BOM) and CSIRO data. Ms Lawrence informed the NPRAG that BOM rainfall data from the limited sites is interpolated by DERM to produce more complete rainfall data. This data is then downloaded by CSIRO to use in the predictive model. CSIRO also pay for this data so if AFMA decides to run the model without using CSIRO, AFMA would need to liaise with Department of Environment and Resource Management (DERM) (Queensland Climate Change Centre of Excellence) regarding cost of access.

The NPRAG noted that the big point of difference from the first presentation on the banana prawn model given at the June 2011 NORMAC was that the availability of rainfall data is no longer a limiting factor to the models success.

Industry raised concerns with the rainfall data points, as some areas could be relying on only a few stations to feed information to BoM. They felt as though isolated areas in the Gulf of Carpentaria would have limited gauges, and this could have a large impact on the models ability to successfully predict Banana Prawn catches. Dr Venables did not see this as a big issue, as he doesn't believe that more data points would improve the indices.

The NPRAG also discussed the usefulness of the survey data given that the survey is designed for Tiger Prawns. There is also an issue regarding whether survey data would be available in time to input into the model and whether or not:

- a) it needs to be included in the model;
- b) further analysis of the survey data is needed to improve its usefulness;
- c) the survey needs to be amended to specifically collect Banana Prawn information in February

The NPRAG agreed that further analysis of the survey data should be undertaken, which could be included under funding from the TRF. Any decision to amend the survey design or exclude the data from the model would happen after further analysis has occurred.

Agenda item 6 and 7. Harvest Strategy under output controls

The NPRAG discussed the draft NPF Harvest Strategy. After further comments have been incorporated, the document will be presented to the Harvest Strategy workshop in September. Dr Dichmont advised that the Harvest Strategy project is now complete but the Harvest Strategy itself will continue to evolve, in particular, the issue of Banana Prawn quota will need to be included once the method to set the TAC has been finalised. The Harvest Strategy will be handed to AFMA for custodianship and any further changes after the September workshop will need to be included in the document by AFMA. The Harvest Strategy is due to be submitted to the AFMA Commission by the end of September.



Tiger Prawns

Dr Dichmont advised that, contrary to what is currently in the NPRAG minutes from the May meeting, Blue Endeavour Prawns are linked with Brown Tiger. This section of the minutes will need to be edited to reflect this.

The NPRAG discussed the options available for setting a TAC for Tiger Prawns in the first year of quota management in the NPF. The NPRAG unanimously agreed that at the beginning of quota management the TAC set should be the one the figure that comes out of the bioeconomic model, as opposed to a method which gradually increases to this point over several years.

The NPRAG discussed the issue of what control rule to implement once B_{LIM} is met for Blue Endeavour Prawns. The Management Strategy Evaluation (MSE) has indicated that it would be rare, and would also take a long time, to trigger B_{LIM} (the five year moving average). With the fishery in such a poor state over a number of years, it is highly likely that management and industry would be implementing measures to mitigate the situation before B_{LIM} was reached. The NPRAG agreed that the likelihood of reaching B_{LIM} for Blue Endeavour Prawns is very low.

Catching Blue Endeavour Prawns is inevitable when targeting Brown Tiger Prawns given the relationship between the two species. As such, the Harvest Strategy will require that if B_{LIM} was reached for Blue Endeavour Prawns, fishing for Brown Tiger prawns would also have to stop. The NPRAG noted that this scenario would be best managed via spatial closures, as there are problems associated with other options such as having a catch limit on a quota species.

Another option discussed was to include all possible options in the Harvest Strategy and then run an assessment for each if B_{LIM} is even reached and there is a need for action:

- First response: spatial closure
- Second response: temporal closure
- Third response: a mixture of spatial and temporal closures

Dr Dichmont highlighted that even if B_{LIM} has not been reached, the control rules within the Harvest Strategy help the fishery to keep from reaching B_{LIM} .

The NPRAG discussed decision rule number five which states that *'else if the most recent spawning stock size index for one of the Tiger Prawn species is above the LRP but below S_{MSY} for two years in a row, the number of weeks that the fishery is open is reduced using the most recent stock index relative to S_{MSY} ...*' The NPRAG requested that the *'two most recent years'* are used instead.

Banana Prawns

NPRAG noted that B_{LIM} has not previously been set for this species as the six week season and trigger limits allow for adequate escapement, which protects the species. The NPRAG noted that this may change after the method for setting a TAC has been finalised.

The NPRAG discussed the timing of the spatial and temporal closures and agreed that *'the season will not start earlier than the 15th March and will not finish later than 15th June'*. Dr Dichmont also suggested that a decision rule could be added to state that *'if the Tiger Prawn season extends beyond the mid-year closure then Banana Prawn*



fishing will not be stopped'. It was noted that NORMAC had agreed to an end date of 15th June for the Banana Prawn season.

A temporal closure and TAC is necessary for the Banana Prawn fishery as it is a multi-species fishery and Tiger Prawns still need to be covered by a TAC for the first season.

Red-legged Banana Prawns

The NPRAG noted that a request from Industry has been made that the limit reference point for Red-legged Banana Prawns be aligned with that for Tiger and Endeavour Prawns. Dr Dichmont advised that the lead researcher on the red-legged banana prawn model, Dr Plaganyi-Lloyd, has advised against this given the uncertainty in the assessment, which means that a more precautionary approach is required.

The NPRAG discussed the decision rules for Red-legged Banana Prawns, in particular, what actions would be taken if the trigger limit was reached.

There are two options:

- 1) set TAC based on the assessment and have a precautionary LRP; OR
- 2) be more precautionary setting the TAC (policy is clear – can't have targeted fishing) and have a more relaxed LRP.

Given the natural variability of the activity in the JBG, having a two year rule before a closure is triggered would account for natural troughs in the fishery in certain years. This would ensure a repeated low catch rate would be needed before a response is required as low catch rates for two consecutive years signifies a bigger problem than a one year anomaly.

The NPRAG agreed that two consecutive years of being below B_{LIM} would have to occur before the fishing for the target species stopped, effectively setting a TAC for the target species as zero. The zero TAC would be in place for one year and then re-open under the stock assessment predicted TAC. It was noted that reducing the TAC for the red-legged banana prawns to zero would still allow fishing for other species to occur.

Given the data used in the assessment is based on Catch per unit of Effort (CPUE), industry voiced concern that if fishing stops for a season under the decision rule, then the continuity of CPUE data would be lost. They are concerned that this would affect the stock assessment and make it difficult to determine when to re-open fishing for the target species. The NPRAG concluded that if the decision rule is triggered and the fishery is closed for a year, the stock assessment would indicate what level to reopen it as the base line TAC has been set by the NPRAG.

Another way to address the concern of missing data is for the Harvest Strategy to allow for research fishing for the target species in the period of closure. This would allow for restricted fishing to continue under a research permit, which would carry specific conditions such as the need to tag and record data on each catch. Details such as the catch limit that may be set on research fishing do not need to be included in the Harvest Strategy but would be discussed by the NPRAG if the situation arises.

In summary, the NPRAG agreed that the Harvest Strategy should outline the following:

After the TAC for the target species is set, if the biomass falls below 20 percent of virgin biomass, then the TAC will be lowered in response and targeted fishing will continue. If, in the second year of fishing, the stock remains below 20 percent of the virgin biomass, the TAC for the target species will be set at zero, with the option for research fishing



under a scientific permit. Following a year of no targeted fishing, the TAC for the target species will be set using the estimate from the stock assessment model.

The NPRAG asked if Dr Plaganyi-Lloyd's model was able to predict the level of recovery of a species if the TAC was set at zero. They also asked if the model could indicate how long the recovery would take.

Action NPRAG August 2011: 13 (AFMA)

To communicate the NPRAG discussion on the two year rule and fishery closure to Dr Plaganyi-Lloyd and ask if the stock assessment model can predict the level of recovery of a species if the TAC was set at zero and if the model is able to indicate how long the recovery will be.

Ms Jarrett requested that the Harvest Strategy specifically states as a control rule that after the first year where B_{LIM} is reached, the TAC will be lowered to reduce the risk of a second consecutive poor year triggering a closure of the red-legged banana prawn fishery.

King Prawns

The NPRAG agreed that seasonal closures currently in place for King Prawns provide the best protection for the species. The NPRAG agreed to add King Prawns in the 'Byproduct Limits and measures' table with the catch limit to state 'no limit due to extensive spatial and temporal closures'.

Action NPRAG August 2011: 14 (Mr O'Brien)

To send to AFMA a list of locations where spatial closures coincide with King Prawn habitat.

Action NPRAG August 2011: 15 (Dr Dichmont)

To incorporate changes to the Harvest Strategy made at the NPRAG and take to the Harvest Strategy workshop in September

The NPRAG noted that following the September Harvest Strategy workshop, AFMA will take ownership of the NPF Harvest Strategy and will be responsible for any further changes or updates in the future.

Agenda item 8 Strategic Assessment

The NPRAG was presented with a draft report on the NPF which will be used by SEWPac to conduct a Strategic Assessment for the fishery, given that a new Management Plan will be in place for the Fishery in 2012. The NPRAG provided comment on the draft document. As well as some small typographical edits, the document will be updated to include information from the most recent draft of the Harvest Strategy, briefly outline co-management arrangements in the fishery and will mention the Marine Stewardship Council certification of the fishery.

Agenda item 9 Other business

Assessment timeline for Tiger Prawn and Banana Prawn

Dr Buckworth gave the NPRAG an overview of an indicative timeline for the assessment process for Tiger and Banana Prawns. The main problem is that in some years, the



survey data will not be available until the last minute, leaving only a few weeks to do all of the necessary calculations for the model.

The NPRAG noted that Dr Buckworth felt as though it may be difficult to set quota for both Banana Prawn and Tiger Prawn at the same time prior to the start of the first season. The NPRAG noted that two main risks have been identified with the assessment timeline. The first is having the available personnel to carry out the work required. The second is the timely availability of the survey data. The NPRAG discussed the potential problems that may be encountered. The NPRAG agreed that this issue warranted a full RAG paper, and further discussion should be held off until after a more detailed paper is prepared by CSIRO with clear options identified for discussion. The NPRAG also agreed that NORMAC should also be consulted on this issue.

Action NPRAG August 2011: 16 (Dr Buckworth)

Dr Buckworth to send the draft timeline for the assessment process for Tiger and Banana Prawns to the NRPRAG out-of-session.

Action NPRAG August 2011: 17 (Dr Buckworth)

Dr Buckworth to write a formal paper to AFMA and NORMAC highlighting the issue of tight timeframes as a risk with the assessment of tiger and Banana Prawns.

Harvest Strategy – MEY Objectives

The Chair suggested that the Industry consider the issue of lack of fleet capacity in the NPF at the upcoming Harvest Strategy workshop in September. Dr Knuckey believes that fleet size in the NPF is a limiting factor in the ability to take up effort and although this is not a stock issue, it could hinder the objectives of the Harvest Strategy which states a goal of MEY. As such, the lack of capacity in the fishery could be acknowledged as a hindrance to achieving the fishery objectives. Dr Knuckey proposed that if there is opposition to increasing the fleet size, then the objectives of the Harvest Strategy may need to be reconsidered. The NPRAG noted that there are other options available, such as increasing the season length.

Next meeting

To be confirmed.

The Chair closed the meeting at 4:30pm

