

RECORD OF MEETING

Meeting #24, 2 July 2019
Queenscliff

CHAIR: Ian Knuckey

MEETING COMMENCED: 9:30am

1. PRELIMINARIES

Present	
Ian Knuckey	Chair
Johnathon Davey	Seafood Industry Victoria (SIV) representative
Rafael Leon	Institute of Marine and Antarctic Studies (IMAS)
Klaas Hartmann	Institute of Marine and Antarctic Studies (IMAS)
David Reilly	Victorian Fisheries Authority
Toby Jeavons	Victorian Fisheries Authority (Executive Officer)
Lawrence Moore	Recreational fishing representative
Markus Nolle	Industry member
Gary Ryan	Industry Member
Wayne Dredge	Industry Member
Anthony Olver	Industry member
Guests	
Matt Harry	Industry member
Matt Phillips	Industry member
John Hotchin	VRFish Representative
Athol Whitten	MEZO Research
Justin Bell	Victorian Fisheries Authority
Apologies	
Caleb Gardner	Institute of Marine and Antarctic Studies (IMAS)
Dallas D'Silva	Victorian Fisheries Authority
Mark Peychers	Industry member
Ross Bromley	Industry member
Michael Burgess	VRFish
Russel Frost	Industry member
Rohan Henry	Bunurong Land Council Aboriginal Land Corporation

1.1. Welcome

Ian Knuckey, as Chair, stated an Acknowledged Country and welcomed members to the 24th meeting of the Victorian Rock Lobster and Giant Crab Resource Assessment Group (RLRAG).

1.2. Adoption of agenda

The agenda was adopted with one additional item added into other business: whale interaction.

1.3. Minutes and actions from last meeting

Ian noted that a final copy of the minutes of the last meeting had been circulated via email. As a matter of process, the RLRAG endorsed the minutes to record that they are a true and accurate reflection of the meeting.

The following actions remained outstanding:

- Undertake a review of industry code of practice
- Updated stock assessment report to incorporate new TACC lookup tables, egg production limit reference point, total number of records, applied filters and PFN's
- Analysis of weighting of catch rate/LF data adopted by the model

All other outstanding actions arising from Meeting 24 are outlined in the attached 'Actions List' circulated with the meeting minutes.

Action:

- **Toby to invite SafeFish to RLRAG in October**

1.4 Stock Assessment Service Provision 2019 – 2021

The Victorian Fisheries Authority ran an open tender process over the past 6 months for the invitation to supply scientific stock assessment services for the Victorian rock lobster and giant crab fisheries. The Institute of Marine and Antarctic Studies (IMAS) has been successful in their bid to provide stock assessment services to the VFA for a further two year term (with 1 year extension option).

1.5 Confidentiality

The VFA is undertaking an investigation into an alleged breach of confidentiality following the December RLRAG stock assessment meeting. Ian noted that a number of RLRAG members have been contacted regarding the allegations and reiterated the importance of observing the confidentiality policy as outlined in the RLRAG Terms of Reference.

2. 2019/20 TACC outcomes and updated Harvest Strategy

Western Zone

Application of the decision rules in the Harvest Strategy relating to egg production, CPUE and PRI indicated that the TACC should be maintained for the 2019/20 quota period. However, after undertaking consultation on updating a number of key harvest strategy components, the CPUE-Biomass relationship was updated to reflect the most representative time period. The TACC lookup table was therefore updated to reflect this change, resulting in the TACC at the catch rate band of $0.50 < 0.55$ increasing by 1t. The TACC for the 2019/20 quota period has been set at 246t (1 increase).

Following recommendation from the RLRAG, the VFA undertook consultation on updating a number of key components of the Harvest Strategy. The outcomes of the consultation process and recommendations from the RLRAG have been endorsed by the VFA resulting in the following updates to the harvest strategy:

- **CPUE-Biomass relationship reflecting most accurate representation (2000 – 2016 time series).**
- **Adopting Egg Production limit reference point to 20% of 'Unfished levels' in applying Decision Rule 1 of the Harvest strategy moving forward.**
- **The exploitation rate for the Western Zone will be maintained at 32.5%.**

A number of members of the RLRAG expressed concern over maintaining the exploitation rate of 32.5% in the Western Zone. There was a level of support shown during the TACC port visits and recommendation from the RLRAG to adopt a more precautionary exploitation rate. Toby explained that there was not a clear consensus among industry on the willingness to adopt a more precautionary exploitation rate and the response time to declining catch rates. The RLRAG recommended that a reduced exploitation rate be revisited with an industry directed paper to be put together for the VRLA AGM and consultation to take place during next years TACC setting process.

Action:

- **Toby/Klaas to compile industry directed paper recommending adopting a reduced exploitation rate in the Western Zone for the on November 7 VRLA AGM**
- **VFA to undertake consultation on reduced exploitation rate during next TACC setting consultation period**

Eastern Zone

Application of the decision rules in the Harvest Strategy relating to egg production, CPUE and PRI indicated that the TACC should be reduced to the catch rate band of $0.35 > 0.375$.

Following recommendation from the RLRAG, the VFA undertook consultation on updating a number of key components of the Harvest Strategy. The outcomes of the consultation process and recommendations from the RLRAG have been endorsed by the VFA resulting in the following updates to the harvest strategy:

- **CPUE-Biomass relationship reflecting most accurate representation (1978 – 2016 time series).**
- **Increase the Eastern Zone exploitation rate to 20.5%**
- **Adopting Egg Production limit reference point to 20% of 'Unfished levels' in applying Decision Rule 1 of the Harvest strategy moving forward.**

The CPUE band at $0.35 < 0.375$ following the updated CPUE-Biomass relationship corresponds to a TACC level of 32t. However, the TACC has been set at the higher CPUE band of $0.375 < 0.40$ to achieve a balance in rebuilding the fishery and supporting the short-term viability of fishers. Therefore, adopting the updated TACC lookup table, an exploitation rate of 20.5% and the catch rate band of $0.375 < 0.40$ the 2019/20 TACC for the Eastern Zone has been set at 40t (7t reduction).

3. Eastern Zone PRI

Klaas began by providing an overview of why the PRI is included in the Harvest Strategy. The PRI:

- Avoids increasing the TACC if PRI indicates undersize abundance may not support a high TACC in future years
- Provides an additional component to avoid over-shooting the TACC and consequent instability
- Similarly, the PRI may provide support for reductions to the TACC when future recruitment to the fishery is low

Klaas proceeded to address three key concerns regarding the use of the PRI in the Harvest Strategy.

1) Is the PRI representative of undersize abundance in surveyed area?

The nature of selectivity and the increased likelihood for larger lobster to enter and remain in a pot in comparison to undersize is consistent. The indicator is therefore relevant as the consistent methodology and bias from year to year is maintained.

The comparison between fixed site, observer and combined PRI index trends is consistent for both the Western and Eastern Zone providing confidence that the PRI is indicative of recruitment.

Action:

- **Rafael to include voluntary data and undersize data from logbooks to show comparison of trends with PRI index**

2) Is the PRI spatially representative?

Klaas presented a visual displaying the locations of fixed site surveys across the Victorian coastline. This highlighted that the Western Zone PRI data is spatially representative, however more work is required in the Eastern Zone as the current coverage is less representative.

The concern of lack of spatially representative data in the Eastern Zone was noted by a number of RLRAG members. Lawrence Moore commented that recreational fishers are also observing few undersize lobster in the Eastern Zone. Gary Ryan noted that the number of undersize recorded in log books may look healthier due to an increase in night fishing and this needs to be taken into consideration when comparing PRI indexes. Matt Harry noted that he has been observing a lot of lobster just above LML in the Eastern Zone, however these were not seen the year prior.

3) Is the PRI threshold currently used suitable?

The current PRI threshold was determined using the reference period from 2004/5 to 2013/14 with a normal distribution fitted to the combined PRI value. The threshold has then been set to the 40% quantile.

Industry has previously expressed concerns around lowering TACC's due to the difficulty in satisfying the PRI to achieve future TACC increases. Therefore, a consideration is to adopt an incremental PRI value that is representative of recruitment at the lower end of the scale to achieve small increases in TACC.

Klaas presented a draft combined TACC/PRI lookup table that reflected observing smaller levels of recruitment at lower TACC's. The incremental PRI values were calculated by multiplying the TACC by the PRI (Required for each tonne of rebuild). The rebuild required for each tonne was calculated by dividing the PRI value by the TACC at the time of implementing the Harvest Strategy (2016/17) ie. Eastern Zone rebuild rate per tonne was calculated by $0.32/59 = .0054$.

Klaas noted that the new TACC/PRI table may be difficult to communicate to industry and currently the Western Zone fishery is more reliant on the PRI because less fish are left in the water due to the higher exploitation rate.

RLRAG members supported the concept in general and recommended including an industry discussion paper at the VRLA AGM. Gary Ryan noted that Mark Peychers may make the suggestion to include a rule requiring 2 years of subsequent improvement before considering a TACC increase. Matt Harry noted that at the upper end of the new Draft table TACC increases would require a higher PRI than the current 0.32/pot lift and it may be worth considering taking the highest PRI value in the reference period at the upper end of the TACC table.

Action:

- **Toby/Klaas to compile industry directed paper recommending incremental PRI to be adopted in the Harvest Strategy**
- **Klaas to consider including rule requiring 2 years of subsequent improvement to permit a TACC increase**
- **Klaas to undertake re-analysis of updated PRI table**

3.3 Enhanced voluntary data collection to improve PRI

David Reilly provided a brief update on enhanced voluntary data collection in the Eastern Zone to improve robustness of the PRI data. This has included expansion of daily data collected from fishers using 3 research pots, and spatial vision are progressing development of an app to integrate blue tooth wet tag technology and electronic callipers.

4. Modernising the Stock Assessment Tools in the Rock Lobster Fishery – Final Handover

Athol Whitten attended to announce completion of the project to modernise the stock assessment tools for the Victorian Rock Lobster fishery.

Athol provided a demonstration and overview of the key outcomes of the project including:

- New model – The new model is much faster and easier to operate, maintain version control, run simulation testing and extend and build with other jurisdictions. Written in commonly used open source programs, R and TMB.
- Comparison of outputs – The new model is producing almost identical results and has been verified by checking component likelihoods. Outputs (Exploitable biomass demonstrated) match close to perfectly.
- Automated reporting system – Includes model settings output, stock assessment report and AVIS.
- Ability to revert back to version 1.1 at any time.
- Management Strategy Evaluation – Ability to change parameters easily and test a number of features. Athol provided a caveat that features have been tested in isolation and that there are many possible combinations that have not been tested and may have issues.
- Technical documentation – Manual to using and operating the new model has been provided.

Members of the RLRAG commended Athol on his achievements and were enthusiastic of the ability to shortcut the process to test assumptions to inform future changes in managing the fishery.

Future direction of model use

Klaas prompted support from the RLRAG, industry and the VFA to share the new model via open source to other jurisdictions in order to provide the opportunity for adoption, continued investment and development. Ian noted that the strength now lies with VFA/Industry to provide access to the code to other states. Markus commented that industry will seek to have recognition of initial investment by Victorian Fishers in progressing and extending the rock lobster model. Athol suggested that an overarching committee comprising representatives from each jurisdiction be put together with the role of overseeing maintenance and updates.

Action:

- **Toby/ Markus to provide endorsement from the VFA and VRLA to share new model coding with other jurisdictions**
- **Klaas to take RockB model to 'Model Development' workshop led by Andre Punt in late July for consideration by other jurisdictions**

5. Giant Crab

Anthony Olver presented a short slide show and overview of his observations as the key giant crab fisher in Victoria.

Anthony has recently observed positive signs that the fishery is in a healthy state with improving catch rates and indications of strong recruitment. Anthony has noted a large number of "10 cent to 20 cent piece" sized crab in his pots and significant numbers of male crab below the current LML of 150 millimetres. Anthony is happy with the proposed reduction to the male giant crab size limit, given the large number of sub legal males he is observing and resulting shift of pressure from the females to males to further benefit the stock.

Anthony provided an insight into his fishing practice and the challenges that he faces. Fishing is restricted to a significantly reduced area that has not been subject to trawl fishing and there is constant difficulty in targeting depths due to strong 'set'. The 'set' can at times cause a large amount of horizontal movement before a pot hits the bottom and it is not uncommon to lose strings of pots and be forced to wait several days for the 'set' to slow and pots to surface. Anthony also commented that catch rates are very sensitive to certain depths and Ian suggested that temperature/depth loggers may assist with gaining a better understanding of this relationship.

Anthony noted that his priorities from a science/management perspective to enhance the fishery include:

- Increase to 12t TACC
- Reduction to male size limit
- Increased overcatch allowance at end of quota season
- Research into the impact of climate change in the fishery

Toby provided an update on key management changes within the giant crab fishery that are currently underway. Consultation has commenced to implement a Fisheries to Notice to reduce the size limit for male giant crab from 150mm to 140mm. Reducing the minimum size limit will align arrangements with Tasmania, provide access to product within the highest value size class and reduce pressure on larger females to benefit future recruitment to the fishery. The proposed Fisheries Notice will implement the reduction whilst the current Regulation Review Process is completed.

Consultation is also underway to amend the Initial Quota Order for the Giant Crab fishery in the Western Zone to permit licence holders to increase the amount which they can exceed their quota allocation. Under the proposal, a licence holder will be permitted to exceed their quota allocation by 20 kilograms, or 5% of the licence holders quota allocation at the commencement of the quota period, whichever is greater, up to maximum amount of 500 kilograms. The amount that a quota allocation is exceeded will be deducted from the

quota in the following quota year. Amendment to the Initial Quota Order will provide greater flexibility to fishers in operating their business on their final trip of the season.

Ian asked the question if the current quota period is not suited to giant crab fishing activity. Anthony responded that shifting the quota year would not necessarily be the answer due to difficulty in estimating average weight of crab. Average weights can at times vary from approximately 3-5kg, making it difficult to comply with the current 20kg overcatch buffer.

David Reilly presented the data from Anthony's research pots indicating the high number of crabs in the 130 – 149 mm size class.

Action:

- **David Reilly to provide Anthony with temperature/depth loggers to trial**
- **David to update and plot research pot data to present at next RLRAG**
- **Toby to formalise additional data collection requirements requiring reporting of male crab under 150mm on logbook with the implementation of reduced male size limit**
- **Note the introduction of reduced male size limit and the impact on catch rates for stock assessment purposes**
- **Toby to update GC Stock Assessment Report on VFA webpage**

6. Model Growth Parameters

Klaas presented a time series showing tag recaptures through time that reflects fewer tagged lobsters in the population therefore less reporting. A fewer number of undersize lobsters in the population has also contributed to less tagged lobsters.

The majority of growth data for the Eastern Zone is pre-2000, with the Western Zone having a better post-2000 subset. The majority of lobster tagged in the Western Zone are below the LML resulting in lobster growth understanding limited to sub legal and first few years in the fishery. Klaas noted that as the tag recapture information informs the model, relying on pre-2000 growth estimates is a less than ideal situation.

Klaas displayed annual growth data (year corrected for moult) showing that generally growth is more rapid in earlier years and then tapers off as they grow. However, there is greater discrepancies in larger lobster due to less data in the subset.

A workplan was suggested by Klaas that:

- 1) Uses the testing of the new model to conduct a comprehensive sensitivity analysis to growth; and
- 2) On the basis of this, develop a strategic plan for future tagging including:
 - Sample size
 - Spatial distribution
 - Size of tagged animals
 - Cost/benefit analysis.

Ian recommended that initially a high level analysis be undertaken to ensure the model is sensitive to growth data input before proceeding with tag recapture program. Klaas suggested that through testing the new stock assessment model, the exercise of focusing on the sensitivity to growth data can be used and also inform the future of the tag recapture program.

Action:

- **Klaas to incorporate conducting a comprehensive sensitivity analysis to growth as part of new stock assessment model testing**
- **Klaas to develop a strategic plan for tag recapture program based on findings of growth sensitivity analysis**

7. Tag recapture program update

David Reilly presented an update of recently completing mapping work of the tag recapture program. A total of 96,000 releases have occurred since 1994 with the majority located in the Western Zone due to resourcing and fishing activity. During this time there has been a 12% recapture rate. The data has shown that the majority of lobsters do not move considerably with 93% recaptured within 5km of release location. However, of the lobsters that did move there was consistent trends of South Westerly and inshore to offshore movement. Growth was shown to be highly variable and dependant on sex, size, location and depth.

8. Recreational tagging program Season 1 summary

Toby provided a preliminary comparison of the peak fishing period (November to May) from Season 1 and partial Season 2 data. Key statistics are as follows:

	Season 1	Season 2 (Nov – May)
Total accounts	5378	7815
Participants in citizen science program	440	688
Participants that ordered tags	5098	5451 (2325 new participants and 3126 also ordered tags in Season 1)
Total tags ordered	92326	80706
Accounts that reported 'Used tags'	1374	1151(482 new participants and 669 fished in Season 1)
Number of used tags	7917	5860
Average weight of lobster in citizen science program	East - 1.8 kg West - 1.37 kg	East - 1.85 kg West - 1.45 kg
Estimated recreational catch (Nov – May comparison)	East – 6085 kg West – 4954 kg	East – 4701 kg West – 4498 kg

Members of the RLRAG suggested improving the analysis by determining the number of 'duplicate accounts' that have been created. This will give some indication of the number of participants that have not reported in Season 1 and have created a new account for the subsequent Season to be able to order tags.

Toby noted that consultation has been completed to remake the Fisheries (Rock Lobster Tagging) Notice 2019 continuing arrangements for Season 3 of the tagging trial. Discussions will take place over the next 12 months to determine the future direction of the tagging program. An FRDC funded project to undertake an independent review of the program will take place in the second half of 2019.

Action:

- Toby to analyse the number of duplicate accounts created in the RL tagging program

9. Other business

9.1 SRL RD&E update

Markus provided a brief update of current SRL agenda items and projects including:

- MEZO project to be discussed at SRL
- Traceability through the supply cold chain – Investigating temperature changes in product from fishers to consumer
- Bursary from SRL for RL fishers to attend TransTasman lobster congress in August. Simon Nash and Matt Phillips to attend from Victoria .
- Clean green digitisation project is continuing.
- Aquis – Use of sedative that is added to tanks prior to exporting product has come under scrutiny. Aquis is not currently a food safety accredited product and may not be approved from China with potential negative impacts on product.

Action:

- **Markus to raise the MEZO project and whale entanglement at the upcoming SRL meeting**

9.2 RLRAG workplan for 2019

The draft RLRAG workplan to be circulated with RLRAG meeting minutes.

Action:

- **Toby to circulate 2019 workplan**

9.3 Tri-state giant crab proposal

Toby provided a summary of the progress towards submitting an FRDC funding application for a tri-state project. The project will look to enhance data collection in the giant crab fishery through utilising new technologies such as photo recognition and machine learning. A Tri-state meeting will be held mid July to finalise and submit the application.

9.4 Reef reseeding update

A research student under Justin Rizarri (Deakin University) has completed the first steps towards a feasibility study for collection, grow-out and reseeding of lobster. Next steps to complete the feasibility study include:

- Refine puerulus collection methodology
- Refine cost estimates surrounding the rearing of the puerulus on land
- Provide some estimate of costs for a pilot project (e.g. a small scale research project that focuses on localised benefits only (e.g. the reef scale).
- Investigate TEP translocation support

Upon completion of feasibility study conduct a meeting of all interested stakeholders

9.5 ECatch project update

Toby provided an update of the current VFA ECatch project that will replace the paper based catch and effort reporting with electronic logbook reporting. The VFA have been working with Spatial Vision to communicate core business requirements and commence development of the base work flow. Industry will be engaged over the coming weeks to review and provide input into the base work flow.

9.6 Collection of data to support development of MEY

An action that is included in the Rock Lobster Management Plan and new stock assessment service contract is development an MEY for the fishery. This has been included as an agenda item to commence the conversation and determine approaches for data collection to inform development of an MEY in 2020. Markus noted that SIV has completed a socio-economic evaluation of Victorian fisheries with preliminary findings from the report to be released in October. The report will contain base data to provide starting point for further MEY development.

Action:

- **Johnathon to provide Klaas with details of the Victorian Socio-Economic evaluation as a starting point for development of MEY**

9.7 Whale entanglement

There have been two recent whale entanglement incidents involving Victorian commercial rock lobster fishing gear. The incidents occurred off Barwon Heads and Portland approximately one month apart. In both cases the whales were freed from fishing gear and were subject to significant media interest. As whale populations continue to increase, the occurrence of whale entanglements and resulting social licence conversations are likely to also increase.

A meeting is planned to bring together the VFA, Department of Land Water Environment and Planning (DELWP), Seafood Industry Victoria (SIV) and the Victorian Rock Lobster Association (VRLA). The meeting will provide an opportunity to review industry code of practice, understand whale population increases and approaches to mitigate future interactions with commercial fishing gear.

Action:

- **Toby to arrange DELWP, VFA, VRLA and SIV whale entanglement meeting**
- **Markus to raise whale entanglement at SRL**

Meeting concluded: 5:00pm

