

Minutes

Rock Lobster And Giant Crab Resource Assessment Group

Topic:	Meeting# 30 – Session 1
Date:	22 February 2021 - 09:30am – 1:30pm
Chair:	Ian Knuckey
Attendees:	Lawrence Moore (VRFish), Mike Burgess (VRFish), Toby Jeavons (VFA), Klaas Hartmann (IMAS), Gary Ryan (Western Zone industry member), Wayne Dredge (Eastern Zone industry member), Ross Bromley (Eastern Zone industry member), Johnathon Davey (SIV), Markus Nolle (Western Zone industry member), Rohan Henry (Bunurong Land Council Aboriginal Land Corporation), Rafael Leon (IMAS), David Reilly (VFA), Peter Galvin (Scuba Divers Federation Victoria), Simon Nash (Western Zone industry observer), Caleb Gardner (IMAS), Steve Parsons (Eastern Zone industry observer), Alex Haberfield (Western Zone industry observer), Matt Harry (Eastern Zone industry member), Zeb Johnston (Western Zone industry member)
Apologies:	Mark Peychers (Eastern Zone industry member), Dallas D’Silva (VFA), Anthony Oliver (Giant Crab industry member),

1. Preliminaries

1.1 Welcome and apologies

Ian Knuckey, as Chair, stated an Acknowledgement of Country and welcomed members to the 30th meeting of the Victorian Rock Lobster and Giant Crab Resource Assessment Group (RLRAG). Ian acknowledged the apologies and provided guidance on protocols for undertaking an online meeting.

Ian asked attendees to each introduce themselves and to declare any conflicts-of-interest from members and observers:

- Wayne Dredge – EZ Fisher – Licence owner/operator
- Gary Ryan – WZ fisher - Licence owner/operator
- Matt Harry – EZ fisher – Licence owner/operator
- Simon – WZ Fisher licence owner/operator
- Johnathon Davey – Executive Director of Seafood Industry Victoria (SIV)
- Caleb Gardner – IMAS
- Markus Nolle – WZ Licence holder – Director RL/GC on SIV – Director Apollo Bay Co-op
- Zeb Johnston – WZ Licence owner/operator
- Lawrence Moore – VRFish representative – Recreational fisher
- David Reilly – VFA scientist
- Peter Galvin – VRFish representative - Scuba Diver Federation Victoria (SDFV)
- Ross Bromley – Executive Officer of Eastrock
- Rafael Leon – IMAS
- Klaas Hartmann – IMAS
- Toby Jeavons – VFA Fishery Manager – Executive Officer of the RLRAG

1.2 Overview of meeting and adoption of Agenda

The agenda was adopted with no changes.

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Ian acknowledged and congratulated SIV on establishment of the Victorian Rock Lobster Committee (VRLC). Markus noted this will lead to better representation and engagement across the rock lobster industry. Markus also noted that Origin funding has successfully been transitioned to provide resources for the committee to begin commencing projects with available resources. Johnathon noted that five of the VRLC members are also members of the RLRAG. Johnathon also announced that he will be finishing up with SIV on 10 March and moving into the Agriculture sector. Ian thanked Johnathon on behalf of the RLRAG for his input and wished him all the best with his new endeavours.

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.

Progress against the outstanding actions is summarised as follows:

- Update on paper-based reporting v Electronic reporting analysis – Agenda item 3.1;
- Establish a Trello board – Completed by Toby – Toby seeking feedback from the RLRAG;
- Puerulus Monitoring Program update – Agenda item 3.2
- Modelling – Klaas to provide update on WRL model development in Agenda Item 7.2;
- Giant Crab – Outstanding actions to be covered in Agenda item 6;
- Review of Harvest Strategy – To be undertaken during review of Management Plan;
- Stock Assessment – Review growth estimates of larger lobster in the Eastern Zone – Completed at previous RLRAG, Remainder of Action to be covered under Agenda item 4
- Data collection – Toby and David to consider data collection requirements that are mandated/overlap with voluntary data collection program and be presented at the next RRLAG – This item is underway and will be informed by initial comparison of logbook data and electronic reporting data;
- Modelling – Klaas to run both models simultaneously for 2019/20 stock assessment, decision to be made on which model to adopt going forward following completion of WRL model in 2020;

The following actions remain outstanding:

- Undertake a review of industry code of practice – Markus Nolle;
- Harvest Strategy Review – Review of key components to be undertaken during review of Management Plan;
- Model different levels of PRI and likelihood of breaching reference point – Klaas Hartmann;
- Strategic plan for future tag recapture program – Klaas Hartmann;
- Indigenous participation – Toby has followed up discussions with Rohan and Mike Gilby around project scope for 2021 to engage indigenous sector in telling the story of Southern Rock Lobster. Toby is awaiting internal clarification of funding source to engage with the sector;
- Increase to LML in the Eastern Zone to be considered with respect to spatial and price components with MEY development;
- Research projects – Klaas to update on progress of Katie Creswell study looking into impact of South Easterly weather patterns on productivity in Victoria. Klaas to update on research project investigating impact of larger lobster keeping smaller lobster from pots;
- SRL – Markus to raise the MEZO project, biotoxin monitoring, whale entanglement and Aqwi-S at the upcoming SRL meeting;

All other actions arising from Meeting 30 are outlined in the attached 'Actions List' circulated with the meeting minutes.

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2. Management update

2.1 Management Plan Review

- Toby advised that progress has been made with approval internally at the VFA to establish a committee to undertake a review of the Management Plan over the next 12 months.
- Toby advised that he is currently in the process of appointing positions to the committee however is currently waiting for final nominations from SIV and VRFish.
- Johnathon noted that nominations will be provided to the VFA on Friday following upcoming SIV board meeting.

2.2 Recreational Tagging Program Season 3 Summary

Overview of Season 3

- Toby provided an overview of the key findings from Season 3 of the recreational rock lobster tagging program. The findings from Season 3 have been highly compromised because of the bushfire crisis and COVID-19. The independent review that is currently underway by IMAS provided an opportunity to understand this better through including a question within their phone survey around the impacts on fishing activity. 17% of respondents stated that the bushfire impacted their rock lobster fishing plans, whilst 59% of respondents were impacted by COVID restrictions
- Similar trends were observed for participation, average weight, male/female catch and mean carapace lengths
- Catch for Season 3 decreased in the Eastern Zone to 1840 rock lobster and 2555 rock lobster in the Western Zone. This corresponds to a weight of 3864kg (9.7% of TACC) and 4343.5kg (1.8% of TACC) for the Eastern and Western Zones respectively
- Noticeable decreases in catch were evident for November, February, March and April across both zones
- 10894 participants have registered in the program of the three seasons with approximately 5000 registered participants in each season. There are 5134 fishers who have participated in one of the seasons, 2078 fishers that have participated in two seasons and 2367 fishers that have participated in all three seasons of the program
- Members of the RLRAG had questions relating to participation – Toby advised this will be further explored by IMAS as the dataset continues to grow
- The majority of active participants in Season 3 reported using 1-2 tags
- A similar number of participants have registered in the citizen science program (Approximately 10%) over the three seasons, and of the total registered users approximately 5% consists of citizen scientists who have actively reported tags in each season
- The Warrnambool region in the Western Zone and Queen scliiff region in the Eastern Zone consisted of the largest catch through the citizen science program
- A slight decrease has been observed in the number of fishers reporting on the day of capture, which may be expected with reduced motivation to report following three seasons of the tagging requirements. Toby noted this is an opportune time to be undertaking a review of the program and increasing communication/education

Review of RL Tagging program

- Toby advised that a steering committee consisting of VFA Management/Education and Enforcement, VRFish and recreational fishers affiliated with dive clubs has been established and has now met on 6 occasions. The steering
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committee is working together to provide advice and recommendation to the VFA on shaping the future direction of the rock lobster tagging program

- The work undertaken by the steering committee continues to be simultaneously guided by the IMAS independent review. The review consists of a report identifying areas for improvement, an initial phone survey to gain feedback of participants and an angler diary catch comparison for the upcoming summer period.
- A service provider has now been identified to commence development of App enhancements and merge the RL tagging App with GoFishVic
- The closed 2021 closed season will act as a transition period where fishers can close off their existing tags under the current reporting platform and download the new App ready for use on 16 November 2021
- Future management arrangements under the program have been drafted for inclusion in the Fisheries Regulations
- Ross queried if the VFA had any plans to manage the recreational sector to 10% of the TACC in the Eastern Zone. Toby noted that this discussion will be addressed through review of the Management Plan

3. Monitoring program – Data summary

3.1 Reporting comparison analysis – Electronic v. Paper based reporting

- Dave provided an analysis of a comparison between electronic logbooks vs paper-based reporting that occurred through the first 6 months of transitioning to Vic-eCatch. Data collected through the comparison period was very similar with less than 1% difference (largely attributable to key-punching errors).

3.2 Update on puerulus sampling program

- Dave provided an update on the puerulus sampling program. 2020 has seen a slight dip in the numbers of puerulus that remains below the long-term average of 0.5 puerulus per collector.
- Dave provided an update on purchase of the new 'oyster basket' collectors. The VFA has purchased 12 Hexcyl oyster baskets that will be weighted and suspended from the floating pontoon in the Apollo Bay harbour. Proposed deployment will occur in May 2021 with SOLN to assist with monthly servicing.
- Port Campbell site has been decommissioned. The VFA are working with Parks Victoria to remove the gear remaining in the water.

3.3 Update on voluntary data collection program

- There has been a significant increase in voluntary pot sampling, with better spatial coverage across both zones.
- Data collected by 6 fishers in the Western Zone and 4 fishers in the Eastern Zone, each measuring catch from 3 pots.
- A total of 331 sampling days were undertaken across Portland, Warrnambool, Apollo Bay, Queenscliff, and San Remo regions.

3.4 Data summary

Fixed site surveys

- Western Zone – A total of 8,524 rock lobsters were measured which is a slight reduction from last season however above the target of 5000 individuals.

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- Eastern Zone – A total of 1,909 rock lobsters measured which is a significant increase from the previous season but remains below the 2,500 target.
- Fixed site surveys completed at all 8 sites in the Western Zone and the 3 sites in the Eastern Zone.
- Positive signs of improved numbers of undersize across the West and East.

Observer program

- Greatly reduced spatial coverage in 2019/20 due to COVID. Coverage was reduced to 16 and 17 days in the Warrnambool and Queenscliff regions respectively. Dave noted it was a difficult year to get observers out with COVID restrictions, however fishers were always very supportive.
- Mike noted that the undersize figures are encouraging and questioned how confident we are that we are seeing a good recruitment coming through? Dave noted that South Australia has been observing a recruitment pulse coming through for a lot longer than we have and we have been seeing this in the far West of Victoria also. We are now the improved signs through Warrnambool/Port Fairy and generally only pick these up 1-2 years prior to recruiting to the fishery. Dave added that we have seen this translate to a good recruitment to the fishery in the past however it is important to note that there are some areas within the fishery at a finer aspatial scale that are not going so well.

4. Rock Lobster Stock Assessment Results

4.1 Presentation of 2019/20 stock assessment results

Klaas provided an overview of key considerations when determining the impact of COVID-19 on the 2019/20 assessment period. These considerations include the impact on catch rate standardisation including:

- Timing of catch - Did the changes in beach prices/demand impact the timing of catch
- Were there shifts spatially?
- Changes in depth?
- Fleet composition change? More new entrants to the fishery?
- Change in targeting of size classes?
- Vessel efficiency – Less frequent fishing anecdotally results in less efficient fishing due to the stop/start nature.

Catch rate standardisation can account for some of the changes associated with:

- Timing of catch (shift between months)
- Spatially shifts
- Depth changes
- Changes in fleet composition

The two main considerations that are not accounted for through standardisation are:

- Change in targeting size classes
- Vessel efficiency (stop/start fishing impact on catch rates)

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Klaas noted that as there has been such abrupt changes relating to targeting particular size classes, there are complexities in accounting for changes to catch rate. An understanding of how changes in fishing behaviour have impacted catch rates is expected to become clearer through discussion held at the port visits.

Klaas noted that there were concerns around application of the Harvest Strategy arising from the impact of catch timing. With roll-over provisions, this results in less catch in one season (assume higher catch rate due to reduced catch) and the catch rate in the subsequent season is also inflated because catch was left behind (more fish on the ground). The result is that we end up with two seasons of higher catch rates. The Harvest Strategy does not account for this inflation in catch rate. However, as the rollover was less than 10% in each zone, the impact was not as significant as when we first began looking at the potential impact of roll-over.

Steve Parsons raised concerns around changes in fishing behaviour related to fishers storing large numbers of fish in wet wells and selling off the wharf. Klaas clarified that the biggest impact will be due to changes in behaviour where fishers are targeting different size classes. Steve highlighted that fishers are driven to fish when conditions are not optimal if dictated by the market. Klaas acknowledged that this factor could be investigated further.

Western Zone

Klaas provided an overview of data for the Western Zone.

- Catch and effort has declined slightly across the zone.
- Western Zone CPUE – Nominal catch rate decreased slightly, and standardised catch rate has continued to increase across the Western Zone.
- Gary Ryan noted that the gap between nominal and standardised catch rates seem larger this year. Klaas advised that the trend over the past few 10 years with the increasing gap between nominal and standardised catch rate is due to increasing fisher efficiency. In the last season, the standardised catch rate has gone up and the nominal catch rate has reduced. We expect that this is mostly due to seasonality. Ian noted that standardisation will have difficulty with the past year anomaly. Dave added that there was a large amount of catch in the month of April in 2020 compared to historically which may account for the changes observed.
- Klaas presented a comparison between CPUE expressed as both numbers and weight. Both indicators show a similar trend. The mean weight of lobster in the Western Zone has continued to increase. The catch rate in weight was determined at the previous RLRAG to be the most appropriate indicator as the exploitation rate is expressed as a percentage of total available biomass.
- Portland region – Catch and effort has declined slightly. Ongoing increases in nominal and standardised catch rate.
- Warrnambool – Catch and effort has declined slightly. Both nominal and standardised CPUE have decreased.
- Apollo Bay – Catch and effort has declined slightly. Both nominal and standardised CPUE have reduced by the most significant amount across the zone over the past few years.
- Markus commented that there has been a local turn over in fishers and boat changes which may be impacting the data. Klaas confirmed that the combination of person and vessel changes are excluded from the standardisation process until fishers have built up a reasonable level of data. Although, the nominal data still contains these fishers.
- PRI – Consists of observer program and fixed site survey data. However, there was limited observer coverage in the assessment season due to COVID restrictions.
- Fixed site surveys – Both male and female data show positive increase in sub-legal biomass.
- The fixed site indicator is above the threshold. Observer coverage was limited to areas of typically low PRI. Calculating a combined PRI puts the index below the threshold. However, as the observer coverage is not robust for this period, we have looked at other data sources.

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- Voluntary LF sampling – Observed a positive increase in smaller size classes.
- Logbook reporting – Observed an increase in numbers of undersize reported.
- Comparison of the PRI to other data sources – Observed an increase in all data sources. This gives greater confidence in the PRI with the absence of observer coverage. Toby noted that the observer indicator has typically sat above the fixed site value for the past 10 years.

Stock assessment model outputs

- Biomass has increased slightly, and exploitation rate has reduced due to the roll-over provisions implemented.
- Klaas has run both models in parallel for this assessment period and they match in outputs (MEZO and Rock B).
- Egg production – Has declined slightly although is sitting above the LRP of 20% of unfished levels.
- Klaas presented the Western Zone Egg production distribution as calculated by the new method.

Consideration of industry perspectives:

- Markus – Aware of market impacts and potential impact on fishing behaviours. Anecdotal feedback from fishers that seismic survey has impacted fishing.
- Simon Nash – Undersize numbers and catch rate has reduced in local Port Campbell region whilst the rest of the zone has continued to increase. The impacted area consists of Port Campbell through to Peterborough following seismic surveys taking in 2015/16. Klaas noted that it is very challenging to explore further and differentiate the proposed seismic impact from statistical noise and inter-annual variation.
- Gary questioned if the PRI is standardised, and why there is a difference between the data sets? Klaas confirmed that there is some level of standardisation. Klaas outlined that the data sets have been calculated differently. The reference line for the PRI value was based on the historic time series of PRI data that has been calculated in this same way.
- Gary noted that after the period that fisherman were not active in early 2020, the April 2020 month would have had a higher catch rate as there had not been any fishing activity for several months.

Ian proposed pushing agenda items 5,6,7 to a separate meeting due to time restrictions. Members were supportive of arranging a separate meeting to address outstanding agenda items.

Application of the Harvest Strategy:

Step 1: Egg production is over 20% of unfished level with a 90% probability – Currently sitting at 23%

Step 2: TACCC band for the current assessment period is 246t, 2019/20 CPUE has increased to a higher band (0.67kg/potlift)

Step 3: TACC increase for next year (one level) if CPUE band is higher and the PRI is above the threshold

Members and observers discussed the utility of the PRI, which as a combined value is highly compromised due to the reduced observer coverage. A weight of evidence approach that considers the increase observed in the voluntary data, champions logbook data, logbook data would suggest that the PRI is likely to be sitting above the threshold. Ian sought input from industry members if they felt that the weight of evidence approach, suggesting that the PRI is above the threshold, is reflective of what they are observing on the water.

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Members clearly articulated that they are not supportive of accepting the PRI, based on fixed site surveys and other data presented, as reflective of what they are seeing on the water. The value of the voluntary data was also questioned, and industry members consider this data set as highly compromised by individuals. All Western Zone industry members are concerned about recent trends with undersize. Industry want to ensure the rigour of the PRI value and due to the incomplete combined PRI are not willing to accept the indicator as above the threshold.

Ian summarised the discussion by noting the observer program data point has limited credibility for this assessment period, therefore the PRI figure has been compromised. Whilst the PRI is moving in a positive direction, industry is clear that the fixed site indicator alone is not sufficient to put the PRI value above the threshold and therefore the threshold is not met. There is concern about the huge increase in voluntary data, and only a slight increase in the champions data of which is held in higher regard by industry. Whilst there is continued but slight increase, the compromised PRI requirement of the Harvest Strategy does not justify increasing above the TACC level.

RLRAG recommendation will be that the PRI has not met the threshold and is incomplete, therefore in accordance with the Harvest Strategy we are not eligible to increase the TACC.

Eastern Zone

Klaas provided an overview of data for the Eastern Zone.

- Catch and effort has decreased across the zone.
- Eastern Zone CPUE – Both nominal and standardised catch rate follow a similar decreasing trend across the zone.
- Queenscliff region – Decrease in catch and effort. Slight decrease in standardised CPUE with a minor increase in nominal CPUE.
- San Remo – Decrease in catch and effort. Both nominal and standardised CPUE follow a similar declining trend.
- Lakes Entrance – Catch and effort increased slightly – Nominal CPUE decreased however standardised CPUE shows slight increase.

PRI

- The data from the observer program and fixed site surveys is combined to determine the PRI. Trends in undersize data from fisher logbooks and voluntary data collection program is also considered.
- The sample size in the Eastern Zone is low, therefore there is a patchy distribution of Length-Frequency measurements.
- The observer program data shows an increase in abundance of undersize male and to a lesser degree female RL.
- Fixed site surveys – Data from the fixed site surveys shows a similar increase in undersize male abundance, and to a lesser degree undersize female.
- The combined PRI value has increased, however remains below the threshold reference point of 0.32 undersize per pot lift.
- Additional data sources – Undersize numbers have increased through the voluntary data collection program and industry champions data set, however, these do not show the significant uptick that is observed with the PRI.

Stock Assessment model outputs

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- Biomass has continued to decline, but to a lesser degree.
- The exploitation rate has been on target at 20.5%.
- Egg production remains above the limit reference point, however, continues to follow a concerning long term decline.

Consideration of industry perspectives:

- Wayne Dredge – Agree that the indicators are consistent with what we are seeing on the water. The difference in nominal/standardised for the Lakes Entrance region is related to spatial shifts. San Remo area has been very low compared to what have seen historically. Small signs of improvement recently but negligible in relation to what we are seeing with long term decline in data.
- Matt – When COVID hit, catch rates were at their peak and when fishing recommenced catch rates had slowed significantly. Klaas explained that the standardisation process accounts for shifts across months, however it is based on the historical average for months which will not reflect if catch rates were exceptionally good. Matt explained that due to COVID, industry was forced to fish at a time when the fishing was not as good due to decreasing water temperature. The difference between post-COVID catch rates was about 0.4kg/potlift compared to pre-COVID fishing at 0.8kg per potlift.
- Wayne – Late January/February in 2020 the fish were exceptionally good. However, we would have expected to go back this summer to something similar and this is not the case with only about half of what we were seeing. Wayne commented that it is unlikely the January/February 2020 catch rates are indicative of increased biomass.
- Matt – Post COVID fishing to two size classes with split price favouring targeting larger red fish. Market is not accepting whites which forces fishers to target certain areas that are known for producing larger red fish. This is likely to result in decreased CPUE in comparison to the ability to also target smaller fish and white fish.
- Wayne – Post COVID shut down there was only a small amount of TACC left in water. Therefore, the catch rates are indicative of what the fishing was doing prior to this time. Dave clarified that 29 tonnes were caught by the end of February with the remaining 20% caught through the rest of the season.
- Peter – Questioned if fishers are targeting new areas because of market demand as he has observed over the last month over 300 pots in certain areas where normally you would see only 50-100 pots. Matt confirmed the price split of \$26/kg - \$46/kg for bigger red fish. Cape Schanck also will be seeing a larger amount of effort. There is only a small amount of areas in the Eastern Zone that are supporting these size classes.
- Matt noted the domestic market wants fish over 1.5kg however he is seeing a good number of smaller fish
- Wayne – Cooking a large amount of fish this summer which reduced the reliance on the size classes demanded by buyers and provides flexibility to fish over a greater range.
- Gary – Expressed concern around localised depletion resulting from only targeting 3 small areas in the Eastern Zone.

Ian summarised industry comments that COVID Jan/Feb 2020 shut down good fishing, and then when fishers returned the catch rate has significantly slowed. However, the positive catch rates during this period have not carried through to this summer. Fishing behaviour changes resulting from targeting a particular size classes have impacted fisher efficiency.

Application of the Harvest Strategy:

Step 1: Egg production is over 20% of unfished level with a 90% probability – Currently sitting at 24%

Step 2: TACC band for the current assessment period is 40 t, 2019/20 CPUE has decreased to a lower band (0.374kg/potlift)

Step 3: TACC decrease for next year to 32 tonnes (one level) due to CPUE in a lower band

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Ian noted that application of the Harvest strategy will determine a reduction in the TACC. In previous years there has been recognition of the economic and social aspects of the Management Plan and the reduction has not been taken. Ian and Klaas noted the very small amount by which the CPUE fits into the lower band, however expressed concern around the continued long-term declining trends across the key indicators.

Wayne – According to the Harvest Strategy the TACC should go down. Sticking with the Harvest Strategy we should have been going down more and sooner than we have been. The positive summer in 2020 has not continued through to this year. Wayne has been fishing Wilsons Promontory to San Remo this summer and has not been seeing good signs. Wayne acknowledged fishing is most likely better East of the Prom but has not targeted this area due to the large number of brindles. The downward catch rate has not been halted by two TACC reductions.

Steve - Is there any analysis of the correlation between water temperature and catch rate information? Klaas noted that the Eastern Zone long term trends are trending downwards smoothly which is unlikely to be impacted by a small period related to water temperature changes. Dave noted that we have been collecting some temperature data but do not have long enough time series to interpret meaningfully.

Ian commented that the Egg production graph is the most concerning and there are significant ongoing recruitment issues. Ian suggested it will be difficult to ignore the scientific indicators to recommend not taking a further TACC reduction.

Ross – Indicators for the fishery are not good. If we step outside the Harvest Strategy, it will not help the fishery recover. The fishery has not shown a lot of recovery or resilience at the level that it has been fished at currently.

Caleb – Biomass and egg production trends are concerning. Without a target, we should also note that we should be looking to not only avoid the limit reference point, but aspire to a rebuilding target

Ian requested industries view on whether applying the Harvest Strategy is the right management response?

- Matt Noted that an 8 tonne reduction based on an approximate 100kg difference in catch will have substantial costs to industry and we may not see the industry recover. Ian noted that people understand this and do take this into account. There is a significant social issue at play and when it comes down to being able to provide for the family there is a real issue. Egg production has a big trend down. The consequences will also come when you close the fishery due to breaching the limit reference points for the fishery.
- Steve - In 2019/2020 period how many boats data not taken into consideration? Toby – Nominal data shows a very similar trend to the standardised CPUE which consists of all vessels.

Ian summarised discussion that from a stock point of view, the reduction by the Harvest Strategy is fully warranted as we are trying to avoid this stock going to the limit reference point for egg production. We are at the lowest level of biomass we have seen in the fishery and based on stock assessment alone and harvest strategy, the RLRAG support a reduction in the TACC. However, the RLRAG recognises that the human and social outcomes will be felt by the families involved.

- Markus – Recreational take is likely more than what has been accounted for. As we reduce the TACC it only amplifies the impact of unconstrained recreational take. In the Eastern Zone recreational catch is increasing part of the out-take, concern is that the commercial catch continues to be cut and we need to control the fishery as a whole.

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- Steve – Highlighted the impact of the Charter boat industry
- Lawrence – Noted that if the charter boat went outside the rip they would not catch a lobster. The charter operators know where to go however the majority of participants do not catch a rock lobster
- Ian – Looking at approximately a 20% reduction in catch for the commercial sector and the RRLAG can recognise and recommend the recreational catch is also considered to have a reduction and should be across the whole sector
- Steve – In the best interest of the fishery if we have a commercial cut, there also needs to be a cut for the recreational sector.
- Ross – Agree, the RLRAG should be looking at all sources of fishing mortality. Support a recommendation that the VFA look at constraining recreational catch as part of a reduction.
- Matt – If we are reduced to 32 tonne there needs to be a change to the bag limit. Matt would like to see the narrative from the VFA social media line up with the science from the stock assessment report
- Lawrence – I do agree that there should be a reduction to recreational take. Crays are quite scarce in the back beach area and no doubt over past 10 years the good days have been reducing.

Ian summarised that the RLRAG is supportive of a TACC reduction based on egg production/ and biomass decline. The RRLAG is aware of the social and business implications of this decision and in addition unanimously support that the reduction should be made across both commercial and recreational sectors for the eastern Stock.

- Ian commented that a similar level of reduction in recreational catch should be taken in line with the commercial sector. Wayne noted that reducing the bag limit is not the correct management response.
- Peter – Support a similar reduction to the recreational sector to the commercial sector.
- Mike B – The discussion of resource allocation will follow a process through the management plan review. The objective from everybody is to rebuild this fishery and the total harvest in bringing the TACC down. This fishery is not in a good state – Whether you are in the recreational or commercial sector we need to turn this around.

Ian – Unanimous agreement from RLRAG that cut should be across all sectors and all management arrangements to be implemented to reduce pressure on this stock

- Steve – There is a greater need for education of the recreational sector to be made aware of the situation in the Eastern Zone.
- Mike – It will be important to maintain the level of trust with participation in the RL Tagging program and this discussion needs to be kept separate to discussion about the health of the resource.

Toby thanked all for their participation and input into discussion and urged industry to consider if in the Eastern Zone a 10% rollover of quota remaining against an individual's licence should be considered at all given the need to rebuild the fishery.

The meeting was closed and Toby was given the task to arrange a follow up meeting to account for outstanding agenda items.

Meeting closed 1:30pm.

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Rock Lobster And Giant Crab Resource Assessment Group

Topic:	Meeting# 30 – Session 2
Date:	2 March 2021 - 02:30pm – 4:30pm
Chair:	Ian Knuckey
Attendees:	Toby Jeavons (VFA), Klaas Hartmann (IMAS), Gary Ryan (Western Zone industry member), Ross Bromley (Eastern Zone industry member), Johnathon Davey (SIV), Rohan Henry (Bunurong Land Council Aboriginal Land Corporation), Peter Galvin (Scuba Divers Federation Victoria), Steve Parsons (Eastern Zone industry observer), Matt Harry (Eastern Zone industry member), Zeb Johnston (Western Zone industry member), Justin Rizarri (Deakin University)
Apologies:	Mark Peychers (Eastern Zone industry member), Dallas D'Silva (VFA), Anthony Olver (Giant Crab industry member), Lawrence Moore (VRFish), Mike Burgess (VRFish), Wayne Dredge (Eastern Zone industry member), Markus Nolle (Western Zone industry member), Rafael Leon (IMAS), David Reilly (VFA), Caleb Gardner (IMAS),

Ian Knuckey, as Chair, welcomed members to the second session of the 30th meeting of the Victorian Rock Lobster and Giant Crab Resource Assessment Group (RLRAG). Ian acknowledged the apologies and assumed all preliminaries were accounted for following on from the first session of the meeting 30.

Justin Rizarri (Deakin University) attended the RLRAG to present the Giant Crab stock assessment report and Harvest Strategy update on behalf of Klaas.

5. Giant Crab Stock Assessment Results

5.1 Presentation of 2019/20 stock assessment results

Justin provided an overview of data for the Giant Crab fishery:

- In August 2019, the size limit for male crabs was reduced to 140mm. In 2019/20 of the 3090 crabs landed, 475 were between 140 and 150mm. This corresponds to 15% of the landed catch. These crabs would not have constituted legal catch under the old system and consequently resulted in an increased CPUE compared to previous years. This bias was corrected for using two methods, firstly by correcting the 2019/20 CPUE by removing 15% of the catch, and secondly by considering the catch rate of crabs in numbers per pot-lift. The CPUE range provided in the stock assessment consists of these two methods.
- Overall, the targeted catch rate in 2019/20 was between 0.95 and 1.14kg/24-hour pot-lift. This is a substantial reduction from the 2017/18 value of 1.27kg/24-hour pot-lift but remains well above the limit reference point of 0.52kg/24-hour pot-lift for the fishery
- The mean weight of giant crab has remained consistent since size 2011/12. Justin noted that in the future there will be greater focus on understanding the weight of fish in the 140 – 150mm size class to more accurately correct for impact on CPUE since crab in this slot limit became available
- Ross questioned if the weight of crabs changes significantly through the moult cycle and how this may impact inferences on mean weight and calculating CPUE? Ian clarified that whilst the weight of crabs does vary dependent on their stage within their moult cycle, this typically rounds out through the cycle and has minimal implications for assessment

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5.2 Consideration of results and sector perspectives

Members noted that anecdotally the crab fishing has been very slow.

Gary noted that there have been many wrongs done in the past with this fishery and questioned if this catch and effort had been corrected for in the CPUE time series. Toby suggested that David Reilly can provide clarification on removal of particular PF N's data at certain times through the CPUE time series.

5.3 Application of harvest strategy

Ian summarised that the CPUE range remains well above the Limit Reference Point of 0.52kg/potlift per day and the RLRAG supports application of the harvest strategy to retain a TACC of 10.5 tonnes for the 2021/22 fishing period.

6. Giant Crab – Harvest strategy development

6.1 Harvest Strategy development

Updated Tier harvest strategy approach

Justin presented a summary of each level under the new Tiered Harvest Strategy approach:

Level 1

A voluntary length-frequency data collection program exists. This provided sufficient data for the 2018/19 assessment, but not for the 2019/20 assessment. At this level the TACC is capped at 10.5 tonnes with TACC decreases remaining possible and no ability to again increase.

Level 2

An FRDC project has commenced in late 2020 which aims to develop an automated camera-based data collection system which would meet the level 2 requirement. Alternatively, or complementarily a reasonable proportion of observer coverage (e.g. >20%) would also meet this requirement. TACC increases possible every three years if CPUE remained above the target reference point for three consecutive years.

Level 3

Details of the depth-stratified survey would be refined if industry seeks to shift to a Level 3 tier. However, it is envisioned that this would involve industry volunteering to set meshed pots at pre-determined gps locations across a range of depths. The entire catch from each pot would be recorded, possibly by an observer or the camera-based system under development (see Level 2). This would be conducted at similar times and the same location each year. A similar approach is being utilised in Western Australia's West Coast Deep Sea Crab Fishery. Annual TACC increases possible however capped at 10%.

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Level 4

At this level an integrated stock assessment model would be developed. This may be cost prohibitive given the scale of the fishery. A model of this nature was utilised in Tasmania, however for several reasons including a lack of ongoing length-frequency data collection this is no longer being utilised. Level 4 TACC increases would be increased in flexibility

- Ross questioned if the increases of 10% under level 2 and 3 with the requirement for the CPUE to remain above the target reference period for 3 years was related to slow growth rates? Justin clarified that the three-year measure is related to growth rates and that TACC decreases will be determined based on where they fall in relation to the target, trigger, and limit reference points. Ian added that we do not want to respond on an annual basis as it is quite twitchy in that the times series shows big swings in annual catch rate. Ian suggested consideration of running a smoothing average (2 year) and including wording in the tiered table that articulates what is guiding TACC reductions.
- Ian added that there is some uncertainty as to why the catch rate has jumped around as much as in this time series. A species this long lived should not be bouncing around at this rate.
- Zeb questioned if catch from trawlers was accounted for in analysing total mortality. Justin clarified only targeted giant crab catch is considered in the stock assessment report.
- Ian noted caution that when a survey is brought in it may confuse the approach in interpreting data. If the survey is going up and catch rates are going down, then how is this interpreted?

Reference points

Justin provided an overview of justification for setting reference points and outlined several approaches that were considered.

It is proposed that updated reference points be based off standardised catch rates. The proposed reference points are based off a peak standardised CPUE of 2.82 kg/24 hr potlift as a proxy for an unfished fishery. The target reference point represents 50% of peak CPUE (1.41 kg/24 hr potlift), 30% of peak CPUE as the threshold reference point (0.85 kg/24 hr potlift) and 20% peak CPUE as the limit reference point (0.56 kg/24 hr potlift).

- Ian requested clarification of the abbreviation 'TRP' and whether this related to a trigger of target reference point. TACC increases should only be available after reaching the target reference point as any increase before this time will result in never reaching the Target. Whilst the fishery remains between threshold and target the approach should be to keep ticking along until the target is reached

Harvest control rule

Justin provided an overview of the basic harvest control rules that the harvest strategy will implement:

Due to the small nature of this fishery and the stochasticity in the CPUE time series it is inappropriate to have a strictly defined harvest control rule. The following harvest control rule provides a guide to TAC setting at the Tier 1 level that provides sufficient flexibility to allow management to consider other information about the fishery which may be available on a sporadic basis:

1. If CPUE exceeds the threshold RP the TAC remains unchanged
 2. If CPUE falls below the threshold RP the TAC is reduced by up to 50%
 3. If CPUE falls below the limit reference point a stock rebuilding strategy is developed and the TAC is reduced by 50-100%
- Ian noted that it is important to align with the harvest control rules in South Australia and Tasmania.

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- Gary commented that if CPUE drops below threshold it would be good to have stronger leadership in decision making. If a two-year rolling average was added this would support decision making.

7. Other business

7.1 SRL update

Thomas Consentino (SRL) and Alison Turnbull (IMAS) attended to provide the SRL update in Markus' absence.

Thomas and Ali have been leading the Australian Lobster Sampling program and provided an update on the status of this project.

- 7 out of 8 Victorian blocks have been completed. The far Eastern Zone for Victoria is the last to be completed. This will be the last SRL block to be sampled.
- Almost 600 animals have now gone through the laboratories at SARDI.
- The project has collected and dissected over 1100 animals in less than three months.
- The Laboratory results for 950 of these animals have been returned.
- The decision was recently made to only do a subset of the legs for sampling of meat in the legs.
- As soon as Victorian results are done, the project will look to move to sampling the legs.
- Following completion of sampling the results will go back to the statistician who will then put out a report relating to cadmium. The delivery date for this report is early May.
- Ross questioned which parameters will be reported on? Ali responded that Stage 1 is cadmium only. The report will provide a map of each state from where lobster have come from, general description of samples (size, sex, grade), average statistics for cadmium results between tail meat and leg and give population statistics for cadmium by location, grade and sex.
- Tom clarified that the purpose of doing the project is that we have been asked to do so by China customs and will also be sharing with Department of Agriculture.
- Tom commented that when the results are received, if they are what we want to see they will be shared far and wide and to the Department to satisfy the China request. Sharing bad results is in no-one's interest.
- Gary questioned that if we jump through these hoops for China, are we expecting to see any change in China? Tom clarified that if we don't step through this hoop we will not see change. If we do step through, we might strike lucky and may provide an excuse to step down from the Trade barrier. However, it will take a combination of factors and some time before things can be expected to return to normal.

Thomas provided a brief update on other SRL matters highlighting that the sampling program has been the focus since last October. Rather than provide a verbal update, Thomas will provide a presentation for Toby to circulate to RLRAG members.

Thomas also offered to come across to present a Market Access/sampling presentation the Victorian industry of which Toby will gauge interest at upcoming port visits.

7.2 WRL model development update

Klaas was absent and will circulate an update out of session.

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7.3 Membership renewal

- Toby undertook a membership renewal process in November 2020. Zeb Johnston has replaced Russel Frost in the Western Zone, and Peter Galvin has joined as a recreational representative. The membership will again be reviewed in November 2021.
- Ian suggested that the PowerPoint for new members be circulated to Zeb and Peter.
- Johnathon Davey noted that future SIV representative and a replacement ED will be discussed over the coming weeks.
- VRLC committee is up and running. As the chair of this group has a good working relationship with SIV.

7.4 2021 Workplan

- Toby circulated an updated RLRAG workplan for 2021 prior to RLRAG meeting 30.
- Toby briefly highlighted the key VFA projects for the year included the review of the recreational tagging program, review of the rock lobster management plan, review of the giant crab harvest strategy and management plan and giant crab tri-state data collection project.
- Toby will again circulate the workplan with the meeting minutes for members to review.
- Toby will look to schedule the remaining RLRAG meetings for 2021.

Meeting concluded: 04:00 pm.

<Actions>

- Klaas analysis on voluntary data based on regional areas
- David to confirm that Giant Crab CPUE data has been adjusted to account for historical 'wrongdoing' in the fishery
- Toby to schedule the next 3 meetings
- Klaas to apply 2-year average to giant crab CPUE time series to assess smoothing impact
- Toby to schedule a meeting for Tom Consentino to provide a market access/sampling presentation to industry
- Toby to circulate an SRL update on behalf of Tom Consentino
- Toby to circulate 'new RLRAG membership' PowerPoint to Peter and Zeb
- Klaas to circulate a WRL model development update
- Klaas to revise 'weight of evidence' wording and implication on application of the Harvest Strategy in the Stock Assessment Report