



Australian Government

Australian Fisheries Management Authority

# **Great Australian Bight Resource Assessment Group (GABRAG)**

## **Meeting # 1 – November 2019**

### **Minutes**

**Date: 21 November 2019**

**8:40am – 4:10pm (AEST)**

The Chair opened the meeting at 8:40am

## **Agenda Item 1 – Preliminaries**

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### **1.1 Welcome and Introductions**

1. The Chair welcomed members and invited participants to the meeting and made an Acknowledgement of Country statement; paying respect to the traditional owners of the land and waters in which we fish and study, the Mirning people, further recognising the Tasmanian Aboriginal people as the traditional custodians of the land on which we meet – Muwinina country, and paying our respect to their Elders past, present and future.
2. There was an apology from Ms Marcia Valente, Dr Miriana Sporcic and Ms Fiona Hill who were unable to attend the meeting.
3. The Chair welcome Dr Robert Gale as the new Economic Member and acknowledged the contributions of the previous Economic Member, Professor John Tisdell.
4. Attendees (see list provided at [Attachment A](#)) introduced themselves and outlined their relevant background and experience.

### **1.2 Declarations of Interest**

5. Attendees considered the agenda and discussed items where there were potential conflicts of interest.
6. It was noted that industry members may have a conflict of interest for the Orange Roughy Research Plan (Agenda Item 6.2).
7. Industry members left the room while the remaining attendees discussed their participation in this agenda item.
8. Recognising their knowledge and ability to contribute to the discussions, the remaining attendees agreed that it was appropriate for industry members to participate in the discussion, however, they would be asked to leave the room if a recommendation on research allocation was made.
9. A copy of the Declarations of Interest is provided at [Attachment B](#).

### **1.3 Adoption of Agenda**

10. The RAG agreed to keep the Manager's Update and Industry Update brief; with a full update to be provided to the Great Australian Bight Management Advisory Committee (GABMAC) in December 2019.
11. The RAG adopted the agenda without change ([Attachment A](#)).

## 1.4 Action Items Review

12. The AFMA member provided the RAG with an update on the status of action items arising from previous GABRAG meetings. The following updates were discussed:

### **November 2017 - Action item 3 – Agenda Item 1.4**

***OLRAC to provide some instructional screengrabs to provide to GAB skippers, on how to complete e-logs with the new discard report changes.***

Dr Knuckey confirmed that skippers were provided with instructions on how to complete e-logs, as required. The AFMA member noted that non-quota species discards were being accurately recorded in e-logs, using the species groups (categories) provided in the e-log software. The RAG agreed that this action item was now complete and should be removed.

### **November 2017 – Action item 8 – Agenda Item 4**

***AFMA and Dr Haddon to develop a research project outline for an age frequency sampling project to evaluate the uncertainty in stock assessments caused by reducing the frequency of age sampling for deepwater flathead and circulate to the RAG.***

CSIRO advised the RAG that Andre Punt is currently looking at age and length sampling requirements for SESSF species. The work has not yet been completed but will be finished by this time next year. The RAG agreed to replace the existing action item with the action item below.

#### **Action Item 1**

CSIRO/AFMA to provide the RAG with the outcomes from Andre Punt's research looking at age and length sampling requirements for SESSF species; when they become available. Outcomes, and how they might apply to the GAB, will be considered at a future GABRAG meeting.

### **June 2018 – Action item 1 – Agenda Item 2.1**

***GABIA and AFMA to work together to locate the results of the dogfish hook survey mentioned in the GABIA submission and circulate to the RAG. Also to ensure that the data is made available to the committee conducting the review of the Strategy.***

The 'submission' referenced in this action item refers to GABIA's proposal to amend the boundary of the Kangaroo Island Hill closure to exclude waters shallower than 700m.

In the submission, GABIA suggested that amending the boundary would not impact upper slope dogfish species and would:

- allow for traditional fishing access to slope species associated with the area
- maintain the objectives of the deepwater closure (to control access and rebuild orange roughy stocks in the area)

The submission makes reference to a hook survey that potentially demonstrated the absence of dogfish within the Kangaroo Island Hill closure.

Attendees noted that Dr Knuckey had directed the AFMA member to the following report prior to the meeting:

*FRDC Final Report 2009/024 – Mapping the distribution and movement of gulper sharks, and developing a non-extractive monitoring technique, to mitigate the risk to the species within a multi-sector fishery region off southern and eastern Australia.*

The RAG noted the following:

- The outcomes of this survey were used to inform placement of closures under the Upper-Slope Dogfish Management Strategy (the Strategy).
- Auto-longline vessels, FV Dianna and FV Riba 2, undertook hook surveys west of Port Lincoln in 2005 and the FV Sarda undertook surveys west of Portland in 2010.
- No hook surveys had been undertaken in the Kangaroo Island Hill area.
- To date, no records of any hook surveys in Kangaroo Island Hill closure have been located.

The AFMA member informed the RAG that the Strategy is currently being reviewed. Two GABIA proposals are being considered as part of this review; the aforementioned submission and a proposal to provide access to deeper waters of the Racetrack/Hamburger and Kangaroo Island Hill closures under scientific permits (issued under the GABT Orange Roughy Research Plan).

The RAG agreed to remove the action item as the Strategy review will be discussed at GABMAC December 2019.

#### **November 2017 – Action item 14 – Agenda Item 4**

***Professor Tisdell to work with AFMA and provide guidance on cost/benefit analysis for the Bycatch Research and Development Plan when developing the full project proposal.***

The RAG agreed this would be discussed as a research priority at GABRAG 2, December 2019.

**December 2018 – Action item 1 – Agenda Item 1.4**

***Dr Knuckey to provide Professor Tisdell with relevant bycatch paper that includes economic content of interest***

Dr Knuckey provided Dr Robert Gale with this paper, as it is required for the cost/benefit analysis outlined in Action Item 14 (4/Nov 2017).

The RAG agreed to remove both of these action items, under the proviso that they be discussed as part of the research agenda item at GABRAG 2, December 2019.

**Action Item 2**

AFMA to provide Dr Robert Gale with a summary of information surrounding the cost/benefit analysis for the Bycatch Research and Development Plan; as well as any other relevant economic items from previous meetings.

**December 2018 – Action item 4 – Agenda Item 4**

***Dr Ian Knuckey to check the catch of Bight redfish recorded in logbooks for 2016 to confirm the accuracy of the large catch reported at 190m in the GABT FIS Report.***

There was confusion regarding the wording of this action item and why it had been assigned to Dr Knuckey. The action item refers to figures in the SESSF Data Summary, which is comprised of logbook data and is not related to the Fishery Independent Survey (FIS).

Dr Koopman (Fishwell Consulting) provided out of session advice that the skipper may have entered the depth in fathoms instead of metres.

Industry didn't think this was possible as their e-logs report in metres; and suggested consulting with skippers (who often keep their own records) to find out if these depths were accurate.

The RAG agreed to replace the existing action item with the action item below.

### **Action Item 3**

AFMA to identify the vessels which recorded catch of Bight redfish at depths of 190m in their logbooks and verify the records with the skippers.

### **December 2018 – Action item 5 – Agenda Item 5**

***AFMA and Dr Knuckey to communicate with Fish Ageing Services (FAS) about the use of Fishery Independent Survey (FIS)/commercial collected otoliths for use in the 2018-19 assessment to ensure it is representative of length frequencies.***

Dr Knuckey informed the RAG that otoliths collected during the FIS are not representative of commercial fishing throughout the year, and are only used if sampling under the ISMP program is insufficient.

The RAG agreed to remove this action item.

### **December 2018 – Action item 9 – Agenda Item 8**

***AFMA and GABIA to investigate the possibility of using a non-AFMA observer. Observers would need to possess relevant credentials to undertake the same sampling as AFMA observers.***

This action item relates to industry concerns regarding the cost of carrying AFMA observers, as required under the GABT Orange Roughy Research Plan. The requirements were amended in 2018 to only require observers during years when observer coverage is already scheduled under the ISMP program. This creates efficiencies by only recovering the cost of the observer for days spent in orange roughy closures, while the rest of the trip is covered under the ISMP program.

The RAG recognised the efficiencies gained and agreed to remove this action item.

13. The Chair asked attendees whether there were any other questions relating to action items before moving on to the next agenda item.
14. The list of action items was updated after the meeting ([Attachment C](#)). Items that were noted as completed (highlighted green) at the meeting will be removed and an updated list will be provided to GABRAG 2 in December 2019.
15. The list of action items arising from this meeting is included ([Attachment D](#)).

## Agenda Item 2 – Management Items

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### 2.1 Manager's Update

16. The RAG noted that George Day is no longer the Senior Manager of Demersal and Midwater Fisheries at AFMA and that Fiona Hill has now commenced in this role. Ms Hill extended her apologies to the RAG for being unable to attend this meeting.
17. The RAG acknowledged Mr Day's outstanding work and contributions to the fishery and welcomed Ms Hill into her new role.
18. The RAG also recognised Dr Malcolm Haddon's contribution to the RAG.
19. The Chair offered to compose letters to:
  - Mr Day, Dr Haddon and Professor Tisdell, thanking them for their contributions to GABRAG over the years.
  - Ms Hill welcoming her to her new position at AFMA as Senior Manager of Demersal and Midwater Fisheries.

#### **Action Item 4**

The Chair to compose letters on behalf of GABRAG to Mr Day, Dr Haddon and Professor Tisdell, thanking them for their contributions to GABRAG over the years; and to Ms Hill to welcome her to her new role at AFMA as Senior Manager of Demersal and Midwater Fisheries.

### 2.2 Industry Update

20. The GABIA executive officer advised the RAG that:
  - the Market Development Project is underway (funded by the Department of Environment & Energy).
  - deepwater flathead have returned to the Bight with catches in high abundance and with many large fish being landed.
21. The RAG discussed potential environmental factors (including nutrient availability and water temperature) that could be responsible for changes in flathead abundance. The RAG agreed that factors contributing to the productivity of the fishery requires further research and suggested it be discussed under the research agenda item at GABRAG 2.

## Agenda Item 3 – GAB Data

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22. Dr Paul Burch (CSIRO) provided an overview of the available data for Bight redfish and deepwater flathead. The RAG noted the following:

- Length data is important for stock assessments as it provides information on gear selectivity
- Industry data collection provides a valuable, cost effective data source that supplements the ISMP program
- GAB crew collected data provides a good sample size and the data is generally consistent:
  - o 7,500 deepwater flathead (valid measurements) per year
  - o 2,000 Bight redfish (valid measurements) per year.
- Some data (small component of overall data) was excluded from the assessments as insufficient information was provided. In some cases, the wrong fields were recorded or the wrong fish were measured (e.g. size graded catches from market).

### Action Item 5

CSIRO to provide GABIA with the names of vessels that have reported crew collected data incorrectly (i.e. providing insufficient information, recording wrong fields and measuring the wrong fish e.g. size graded catches).

- Sample weight (weight of the fish that are measured) and the shot weight were used to scale length frequencies. Samples with missing/incorrect data for sample or shot weight were excluded.
- Samples that were graded or discarded were excluded.
- Samples with incomplete fields for sorted/unsorted, retained/discarded or graded/ungraded catch were assumed to be sorted, retained and ungraded.
- The current process for recording crew collected data (paper based) is inefficient and allows for data entry errors. Length fields could be switched on for GAB Operators' OLRAC systems; but would require system updates.
- It was a SMARP recommendation that AFMA curate all data sources into the future, and crew collected data needs to be housed directly in AFMA's data warehouse.
- Recent research (Thomson and Burch, 2019) has shown that for most fish species, length increases with depth.
  - o Depth and true location (i.e. latitude and longitude) are not currently recorded for GAB crew collected data.



- Depth and true location fields should be included in system updates to GAB Operator's OLRAC systems.
- Current data sheets should be updated to include Operation Number to link crew collected and logbook data.

**Action Item 6**

Crew collected data sheets to be updated to include an extra field to record the Operation number, enabling crew collected and logbook data to be linked.

- The *Great Australian Bight Trawl Fishery Boat Operating Procedures Manual* should be updated to provide crew with clear instructions on what data needs to be collected and how.

**Action Item 7**

GABIA, AFMA and Dr Paul Burch (CSIRO) to collaborate and review Section 5: *Data Collection and Research of the Great Australian Bight Trawl Fishery Boat Operating Procedures Manual*; to ensure that all data required by CSIRO for stock assessments is clearly identified and the procedures for collecting this data are outlined.

23. The RAG agreed that AFMA, GABIA, CSIRO and Fishwell should work together to implement electronic recording of GAB crew collected data. Data recorded in the OLRAC system should not be able to be submitted without completed length, depth and location data fields.
24. The RAG noted that CSIRO and AFMA's data team were meeting the following day (22 November 2019). The AFMA member and CSIRO agreed to investigate the steps required to allow data recorded in OLRAC to be entered directly into AFMA's data warehouse.

**Action Item 8**

- (a) AFMA, GABIA, CSIRO and Fishwell to work together to implement electronic recording of GAB crew collected data.
- (b) Fishwell to update GAB operators' OLRAC systems to include fields associated with length, depth and true location (latitude and longitude).
- (c) All necessary parties to liaise with AFMA's data team to allow data recorded in OLRAC to be entered directly into AFMA's data warehouse.
- (d) Fishwell to adjust fields in the OLRAC software to prevent forms from being submitted without all required fields being completed.

## Agenda Item 4 – Tier 1 Deepwater Flathead Stock Assessment

### 4.1 Overview of recent data

25. Dr Tuck (CSIRO) provided an overview of the Tiger Flathead Tier 1 base case assessment:

- The last assessment in 2016 estimated a 2017/18 spawning stock biomass of 45 per cent of virgin stock biomass ( $45\%B_0$ ).
- The 2013 assessment also estimated a 2014/15 spawning stock biomass of  $45\%B_0$ .
- The model assumes a single stock across zone 80 and one fleet (GAB trawl, separated for different sources of length data – ISMP, Industry, GAB-FIS). A Danish seine vessel operates in the GAB however there was insufficient data to include it as a second fleet.
- Size selectivity is allowed to differ between the GAB-FIS and the trawl fleet – lengths are able to be separated, allowing for different selectivity functions to be estimated.
- Discards are minimal and therefore ignored by the model.
- Natural mortality (M) is estimated to be 0.263.
- Recruitment is estimated from 1980 to 2013 (previously to 2011) and the 2019 assessment shows that for the last 10 years, recruitment was:
  - o good for six years (1995, 1996, 1999, 2000, 2002, 2003)
  - o poor for two years (1994, 1997)
  - o average for two years (1998, 2001).

26. The following comments were provided by the RAG:

- Dr Knuckey expressed his concern that the assessments are not impacted by the recent FIS abundance estimates and the latest catch data; both of which are indicating that the stocks are declining.
- Industry requested that AFMA provide the RAG with recent non-standardised catch rate data at their next meeting.

#### **Action Item 9**

AFMA to provide the RAG with recent catch rate data (non-standardised) for deepwater flathead at the December 2019 GABRAG meeting. This should include data up to the end of November 2019. Catch rates for previous years (2016-18) should be included for comparison.

- Dr Knuckey noted the low 2014 FIS abundance estimate was attributed to the seismic surveys that were being undertaken at the same time as the FIS. It was expected that the abundance estimate would recover, however the 2018 FIS estimate was also low.
- The RAG agreed that it is fundamental to understand whether there has been a spatial or temporal shift in spawning for Bight redfish; as the FIS was designed to be undertaken when Bight redfish are aggregating to spawn. Although an apparent temporal shift in deepwater flathead spawning has been observed, this will have minimal impact on the FIS.
- Dr Day noted that additional FIS data points could provide a better indication of the actual data trends and that it would be worth interpolating points for 2011, 2012, 2013, 2015 and 2016.

#### **Action Item 10**

CSIRO to re-run the deepwater flathead assessment with interpolated values for the FIS data series for 2011, 2012, 2013, 2015 and 2016; to determine whether the large gaps between FIS years is impacting the overall data trend.

27. Dr Tuck questioned the RAG about the next FIS not being scheduled until 2021. The AFMA member informed Dr Tuck that in 2018, the RAG agreed to delay the FIS until 2021 in favour of bringing the Bight redfish assessment forward to 2019.

## **4.2 Preliminary Base Case**

28. Dr Tuck noted the following:

- The 2019 preliminary base case estimates a spawning stock biomass of  $45\%B_0$ .
- There are reasonable model fits to all data sources, except for the last two FIS abundance estimates, as previously discussed.
- Standardised catch rates only include data up to April 2019. Errors detected during processing of the data prevented inclusion of additional data to June 2019 in the catch rate standardisation and including this updated catch rate series as a sensitivity.

29. The likelihood profile for natural mortality ( $M$ ) suggests that  $M$  is reasonably well estimated, noting the following:

- $M$  was estimated to be 0.263
- the likelihood profile suggests that the value of  $M$  is likely to be in the range between 0.225 and 0.3.

30. The likelihood profile for steepness ( $h$ , a measure of productivity) is uninformative, noting the following:

- steepness cannot be estimated and was set at a fixed value of 0.75.

31. The likelihood profile for virgin spawning stock biomass ( $SSB_0$ ) is broad and hence  $SSB_0$  is not very precisely estimated. The likely range is between 8,000 and 11,000 tonnes and the estimated value for  $SSB_0$  is 9,000 tonnes.
32. The likelihood profile for spawning stock biomass in 2018 ( $SSB_{2018}$ ) is broad and hence  $SSB_{2018}$  is not very precisely estimated. There was conflict between the length data (higher  $SSB_{2018}$ ) and age data (lower  $SSB_{2018}$ ). The likely range is between 2,250 and 5,000 tonnes and the estimated value for  $SSB_{2018}$  is 3,350 tonnes.
33. The likelihood profile for relative stock status (depletion at 2018/19) is broad and hence relative stock status is not very precisely estimated. There was some conflict between the length data (higher stock status) and the age data (lower stock status). The likely range for relative stock status is between  $28\%B_0$  and  $50\%B_0$ , and the estimated value at 2018/19 is  $37\%B_0$ .

### 4.3 Model Sensitivities

34. Dr Tuck discussed the sensitivities included within the model:

- i) Included Danish seine data - The base case already includes Danish seine trawl catch to account for total mortality. The sensitivity treats Danish seine as a new fleet and includes 2016 and 2017 conditional age-at-length data and 2012, 2016 and 2017 length data.

The RAG was surprised at the difference that including a second fleet made to the estimated biomass trajectory, especially considering the Danish seine fleet doesn't catch large quantities.

- ii) Include zone 50 (western CTS) catch – this made no notable difference to the model.

35. The RAG agreed to proceed with the current base case with no additional sensitivities required.

## Agenda Item 5 – Tier 1 Bight Redfish Stock Assessment

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### 5.1 Overview of recent data

36. Dr Day (CSIRO) summarised the 2019 Bight redfish preliminary Tier 1 base case assessment:

- The 2015 assessment estimated a 2016/17 spawning stock biomass of 62% of virgin stock biomass ( $62\%B_0$ ).
- The 2011 assessment estimated a 2012/13 spawning stock biomass of  $90\%B_0$ .

- The model assumes a single stock across zone 80 and one fleet (GAB trawl, separated for different sources of length data – ISMP, Industry, GAB-FIS). A Danish seine vessel operates in the GAB however there was insufficient data to include it as a second fleet.
- Size selectivity is allowed to ‘vary’ between the GAB-FIS and the trawl fleet – lengths are able to be separated, allowing for different selectivity functions to be estimated.
- Discards are minimal and therefore ignored by the model.
- Natural mortality is estimated to be 0.1017.
- Recruitment is estimated from 1960 to 2003 (previously to 2005) and the 2019 assessment estimates that for the last 10 years, recruitment has been:
  - o good for six years (1995, 1996, 1999, 2000, 2002, 2003)
  - o poor for two years (1994, 1997)
  - o average for two years (1998, 2001).

37. The following comments were provided by the RAG:

- CPUE is unlikely to be an accurate index of abundance for Bight redfish because catches are taken from aggregations over only a few months.
- Dr Day noted that the model fit to CPUE is poor with much better fits to the age and length data.
- There was a concern that the models don’t show the same trends observed in the FIS and by industry; and that these observations will be overlooked in favour of the model. For example, industry have observed declining catch rates since 2007 whereas the model shows that catch rates have increased.
- Industry suggested inviting a skipper to GABRAG 2 to provide first hand observations.
- GAB-FIS age data was missing from the SESSF Data Summary for Bight redfish. Dr Burch contacted Fish Ageing Services (FAS) via email during the meeting and the data was supplied to Dr Burch before the meeting adjourned.
- There are no clear age cohorts apparent in the ISMP data and Dr Day expressed concerns regarding the decrease in the number of large fish, in the length compositions, over the past few years.

38. The RAG discussed the feasibility of including additional data in future assessments; including:

- o targeted vs incidental shots
- o economic/market information
- o catch of other key commercial species (included as an offset). For example, deepwater flathead catch included as an offset in the Bight redfish CPUE standardisation.

39. Dr Day noted the following with regard to the ageing error matrices used in development of this assessment:

- The initial ageing error matrix indicated a large reading error for younger fish and a smaller error for older fish, which is the opposite of what you would expect.
- A few older fish were 'skewing' the results.
- A revised ageing error matrix with a constant CV was proposed as an alternative to avoid these problems and the assessment was updated with the revised ageing error matrix.

40. The RAG agreed to proceed with the updated base case that included the new ageing error matrix.

## 5.2 Preliminary Base Case

41. Dr Day informed the RAG that the likelihood profiles and retrospectives were conducted using the preliminary base case; not the ageing error matrix sensitivity. The following was noted:

- The last assessment (2015) estimated a spawning stock biomass of  $62\%B_0$ . The 2019 preliminary base case estimates a spawning stock biomass of  $70\%B_0$ .
- The ageing error sensitivity estimates a spawning stock biomass of 63% of virgin stock biomass.
- Standardised catch rates only include data up to April 2019. Errors detected during processing of the data prevented inclusion of additional data to June 2019 in the catch rate standardisation and including this updated catch rate series as a sensitivity.
- Recruitment was only estimated up to 2003 (previously to 2005). The variance was high on the last few recruitment events in the previous assessment, and selectivity suggests recruitment at age 15 is more appropriate than at age nine.

42. The likelihood profile for natural mortality indicates that  $M$  is reasonably well estimated. The age data are most influential, with biomass index data (higher mortality) and length data (lower mortality) showing some conflict. The confidence intervals on  $M$  are narrow with a likely range between 0.093 and 0.11. The estimated value for  $M$  is 0.1017.

43. The likelihood profile for steepness ( $h$ , a measure of productivity) is uninformative. Steepness cannot be estimated and  $h$  was set at a fixed value of 0.75.

44. The likelihood profile for spawning stock biomass ( $SSB_0$ ) is broad and hence  $SSB_0$  is not very precisely estimated. The biomass index and trawl age data are most influential. The likely range for  $SSB_0$  is between 6,000 and 9,500 tonnes and is estimated to be 7,300 tonnes.

45. The likelihood profile for spawning stock biomass at the end of the time series ( $SSB_{2018}$ ) is broad and hence  $SSB_{2018}$  is not very precisely estimated. The index and recruitment data are most influential, though there is conflict between the two. The likely range for  $SSB_{2018}$  is between 3,500 and 7,000 tonnes and the estimated value for  $SSB_{2018}$  is 4,900 tonnes.
46. The likelihood profile for relative stock status (depletion at 2018/19) is broad and hence relative stock status is not very precisely estimated. The index and recruitment data are the most influential, though there was conflict between the two. The likely range for relative stock status is between  $55\%B_0$  and  $82\%B_0$  and the estimated value is  $65\%B_0$ .
47. The retrospective analysis shows no pathological patterns and no large biases in the estimates at the end of the time series due to the addition of new data.
48. The RAG agreed to proceed with the updated base case including the revised ageing error matrix; with no additional sensitivities required.
49. Dr Burch left the meeting at 2:24pm.

## **Agenda Item 6 – Orange Roughy**

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50. The AFMA member provided the following overview of the Orange Roughy Rebuilding Strategy and the GABT Orange Roughy Research Plan:
  - The Commonwealth Fisheries Harvest Strategy Policy 2018 (HSP) requires a rebuilding strategy to be developed for all species assessed as being below their biomass limit reference point.
  - The Orange Roughy Rebuilding Strategy (the Strategy) has been implemented in its current form since 2014.
  - Catch and effort data are reviewed annually to monitor the performance of the rebuilding strategy against its objectives.
  - Understanding how orange roughy are rebuilding in the GAB is difficult due to the lack of data.
  - The Strategy is designed to prevent targeted fishing, which is achieved in the GAB through a series of deepwater closures placed over historical roughy grounds.
  - Industry are able to apply for scientific permits, issued under the GABT Orange Roughy Research Plan (the Plan), allowing them to fish within closures to collect data.
  - The Plan was developed by GABIA to meet the requirements of the then Orange Roughy Conservation Program (ORCP) and now Strategy, to ensure robust scientific

information is collected to allow for an assessment of the status of the stocks; with the ultimate aim of determining sustainable harvest levels for commercial fishing.

## **6.1 Orange Roughy Rebuilding Strategy Review**

51. The RAG was asked to provide advice on the effectiveness of the Orange Roughy Stock Rebuilding Strategy 2014 (the Strategy) and to recommend amendments for consideration when drafting the Orange Roughy Stock Rebuilding Strategy 2020.

52. The RAG noted the following:

- Industry maintain the decision to close the GAB to orange roughy fishing was not based on scientific evidence; it was based on the response to the depletion of orange roughy stocks in the east.
- Industry believe that orange roughy in the GAB are a separate stock and should not have been managed in the same way as the east.
- The GAB Orange Roughy Research Plan (the Plan) enabled operators to continue to fish for orange roughy under a scientific permit and a 200 t research allocation.
- Under the Plan, fishing was undertaken between 2010 and 2012 with only 29 t of orange roughy caught in 2011. Surveys ceased after 2012, largely due to difficulties catching orange roughy.
- GAB operators have experienced difficulty catching roughy as the skippers who possessed the knowledge and skillset are no longer in the fishery.

53. The RAG agreed the management arrangements outlined in the Strategy, particularly spatial closures and catch triggers, remain effective for the purpose of deterring targeting and promoting rebuilding.

54. The RAG noted that the eastern stock had rebuilt, and asked AFMA to consider the implications for other stocks managed under the rebuilding strategy.

## **6.2 GABT Orange Roughy Research Plan Review**

55. The RAG was asked to provide advice on the effectiveness of the GABT Orange Roughy Research Plan 2016-2020 (the Plan) and to recommend any amendments/additions to sampling design and data requirements to be considered when drafting the GABT Orange Roughy Research Plan 2020-24.

56. The St Helen's closure in the east was reopened based on scientific evidence; which included acoustic surveys and targeted fishing to demonstrate that the eastern stock had recovered. Similar data is not available in the GAB.



57. Noting the recovery of orange roughy in the east, the RAG asked the AFMA member to provide advice on why closures are still required in the GAB, and whether they can be removed.

**Action Item 11**

AFMA to investigate whether orange roughy closures in the GAB are still required. given what is known about recovery of the eastern stock.

58. The RAG noted the following:

- The current plan is considered by industry to be too restrictive and they are currently not undertaking orange roughy research trips due to the associated costs.
- Industry would like to opportunistically sound orange roughy grounds while market fishing, to detect aggregations and determine whether research trips would be economically viable.
- The Fisheries Management Act 1992 defines 'sounding' as fishing, which is why it is prohibited in closures. The Plan however allows for fishing (and sounding) to occur within closures under a scientific permit.
- Industry suggested the current 200 t research allocation, of which no more than 50 t can be taken in a single zone, is not enough incentive to undertake orange roughy trips.

59. GABIA presented an industry proposal to review the Plan to provide for:

- access over a full year to encourage greater prospectivity
- three management zones
  - a. Far West (Albany, Bremmer)
  - b. West (Humdinger, Magic Mountain, the Knob, United Nations)
  - c. East (Racetrack, Hamburger Hill, Kangaroo Island Hill)
- research allocation of 200 tonnes per zone (600 tonnes total research allocation)
- a sampling program for length, reproductive status, otolith microchemistry and DNA assessment be provided using crew based or port based sampling programs.

60. The following amendments to the Plan were proposed by the RAG:

- Existing orange roughy research zones to remain in place
- Shot information should be amended to include only those fields recorded in logbooks.
- Crew to measure two bins of orange roughy per shot, with 1,000 lengths collected per zone.
- Length measurements to be recorded for 10 per cent of the landed catch (up to 1,000 individuals per zone).

- Otoliths to be collected from 5 per cent of the landed catch (up to 500 individuals per zone)
- Include fin-clip sampling for stock discrimination. Mr Moore advised the RAG of molecular work undertaken for gemfish stock discrimination by CSIRO in 2012.

**Action Item 12**

Mr Moore provide a summary of the 2012 molecular work on gemfish stock structure conducted by CSIRO and circulate the paper to the RAG.

- All extractive biological samples (otoliths, gonad staging, fin clips) to be extracted from the same individuals.
- The bycatch section to be removed from the Plan. This is reported in logbooks and will be addressed in the Great Australian Bight Trawl Fishery Boat Operating Procedures Manual.
- Opportunistic acoustic surveys should be included in the Plan if operators' acoustic systems have the capacity to record and log information. An index of abundance could be derived from acoustic survey data.

**Action Item 13**

Industry to investigate whether their multi-frequency acoustic systems have the capacity to record and log information.

- Removal of the 50 t catch limit per zone restriction.
  - Maintain the 200 t research allocation.
61. Proposed amendments will be confirmed at GABRAG 2 and presented at GABMAC in December 2019.
  62. The revised Plan will be presented at the SESSFRAG Chairs' meeting in early 2020.
  63. The AFMA member will confirm whether the Plan also needs to be signed off by the Commission.

**Action Item 14**

AFMA to provide an overview of the approval process to finalise amendments to the GABT Orange Roughy Research Plan, including whether the final version needs to be signed off by the Commission.

## **Agenda Item 7 – Other Business**

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64. The Chair asked members whether there was any other business.
65. The RAG noted there is planned oil exploration, including seismic surveys, scheduled in the Great Australian Bight for 2020.

66. Industry asked the RAG to help identify funding opportunities to market flathead in the GABT. The members agreed that it isn't the role of the RAG to identify funding opportunities.
67. The Economic Member suggested that the question of economic research priorities, if any (costs/benefits, potential markets, sustainability), could be considered at the next meeting.

## **Agenda Item 8 – Meeting Close**

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68. The Chair noted that the next meeting, GABRAG 2, is scheduled for 12 December 2019.
69. The Chair thanked all attendees for their input into discussions.
70. The meeting was closed at 4:09pm.

**Signed (Chairperson):**

A handwritten signature in black ink, appearing to be 'L. Lloyd', written in a cursive style.

**Date: 31 Jan 2020**

# Attachment A -Agenda

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## Agenda

Thursday 21 November 2019

Time (AEST): 08:30

CSIRO, Hobart - Cove Room

Chair: Mr Lance Lloyd

<b>Members</b>	
<b>Name</b>	<b>Membership</b>
Mr Lance Lloyd	Chair
Dr Ian Knuckey	Scientific Member
Mr Anthony Moore	Scientific Member
Mr Neil MacDonald	Industry Member
Mr Jim Raptis	Industry Member
Dr Robert Gale	Economic Member
Mr Daniel Corrie	AFMA Member
Ms Kehani Manson	Executive Officer
<b>Apologies</b>	
Ms Marcia Valente	Industry Member

<b>Invited Participants</b>	
<b>Name</b>	<b>Affiliation</b>
Dr Jemery Day	CSIRO
Dr Geoff Tuck	CSIRO
Dr Paul Burch	CSIRO
<b>Apologies</b>	
Dr Miriana Sporcic	CSIRO

Time	Item	Lead presenter
08:30	<b>1. Preliminaries</b> 1.1 Acknowledgement of country, introductions and apologies 1.2 Declarations of interest 1.3 Adoption of agenda 1.4 Action items review	Chair (45mins)
09:15	<b>2. Management Items</b> 2.1 Manager's Update  2.2 Industry Update	Dan Corrie  Neil MacDonald (15 minutes)
9:30	<b>3. GAB Data</b>	Paul Burch (15 minutes)
9:45	<b>4. Tier 1 Flathead stock assessment</b> <ul style="list-style-type: none"> <li>Preliminary 2019 assessment – base case presentation</li> <li>Discussion</li> </ul>	Geoff Tuck (1 hour)
10:45	<i>Morning Tea</i>	
11:00	<i>Continued...</i> <b>4. Tier 1 Flathead stock assessment</b> <ul style="list-style-type: none"> <li>Preliminary 2019 assessment – base case presentation</li> <li>Discussion</li> </ul>	Geoff Tuck (1 hour)
12:00	<b>5. Tier 1 Bight Redfish stock assessment</b> <ul style="list-style-type: none"> <li>Preliminary 2019 assessment – base case presentation</li> <li>Discussion</li> </ul>	Miriana Sporic (1 hour)
13:00	<i>Lunch</i>	
13:30	<i>Continued...</i> <b>5. Tier 1 Bight Redfish stock assessment</b> <ul style="list-style-type: none"> <li>Preliminary 2019 assessment – base case presentation</li> <li>Discussion</li> </ul>	Miriana Sporic (1 hour)
14:30	<b>6. Orange Roughy</b> 1. Rebuilding Strategy 2. Research Plan	Dan Corrie and Neil MacDonald  (1 hour)
15:30	<i>Afternoon Tea</i>	
15:45	<i>Continued...</i> <b>6. Orange Roughy</b> 1. Rebuilding Strategy 2. Research Plan	Dan Corrie and Neil MacDonald  (45 mins)
16:30	<i>Adjourn</i>	

## Attachment B – Declarations of Interest

Member	Declared Interest
Mr Lance Lloyd	<ul style="list-style-type: none"> <li>• GABRAG Chair</li> <li>• Member of GABMAC and SESSFRAG</li> <li>• Board Member, AwF – Aquaculture without Frontiers (Australia)</li> <li>• Director – Lloyd Environment Pty Ltd.</li> <li>• Research Fellow – Federation University Australia</li> </ul> <p>No pecuniary interest</p>
Dr Ian Knuckey	<p><b>Positions:</b></p> <ul style="list-style-type: none"> <li>• Director – Fishwell Consulting Pty Ltd</li> <li>• Director – Olrac Australia (Electronic logbooks)</li> <li>• Deputy Chair – Victorian Marine and Coastal Council</li> <li>• Chair / Director – Australian Seafood Co-products &amp; ASCo Fertilisers (seafood waste)</li> <li>• Chair – Northern Prawn Fishery RAG</li> <li>• Chair – Tropical Rock Lobster RAG</li> <li>• Chair – Victorian Rock Lobster and Giant Crab Assessment Group</li> <li>• Chair of the Central Zone Abalone Resource Advisory Group</li> <li>• Scientific Member – Northern Prawn Management Advisory Committee</li> <li>• Scientific Member – SESSF Shark RAG</li> <li>• Scientific Member – Great Australian Bight RAG</li> <li>• Scientific Member – Gulf of St Vincent’s Prawn Fishery Management Advisory Committee</li> <li>• Scientific participant – SEMAC, SERAG</li> </ul> <p><b>Current projects:</b></p> <ul style="list-style-type: none"> <li>• AFMA 2018/08 - Bass Strait Scallop Fishery Survey – 2018 and 2019</li> <li>• FRDC 2017/069 - Indigenous Capacity Building</li> <li>• FRDC 2017/122 - Review of fishery resource access and allocation arrangements</li> <li>• FRDC 2016/146 - Understanding declining indicators in the SESSF</li> <li>• FRDC 2016/116 - 5-year RD&amp;E Plan for NT fisheries and aquaculture</li> <li>• AFMA 2017/0807 - Great Australian Bight Trawl Survey – 2018</li> <li>• Traffic Project - Shark Product Traceability</li> <li>• FRDC 2018/077 - Implementation Workshop re declining indicators in the SESSF</li> <li>• FRDC 2018/021 - Development and evaluation of SESSF multi-species harvest strategies</li> <li>• AFMA 2017/0803 - Analysis of Shark Fishery E-Monitoring data</li> <li>• AFMA 2016/0809 - Improved targeting of arrow squid</li> </ul>

Mr Andy Moore	<ul style="list-style-type: none"> <li>• GABRAG Scientific Member</li> <li>• Employed by ABARES – interest in sources of funding for research purposes, involved in the Gemfish stock structure project and the Western gemfish Tier 1 assessment; running the national recreational fishing survey and the national survey of SBT recreational catch</li> <li>• Senior Research Fellow – University of Queensland</li> </ul> <p>No personal pecuniary interest</p>
Mr Neil MacDonald	<ul style="list-style-type: none"> <li>• Director NMAC (SA) P/L</li> <li>• Executive Officer of the Great Australian Bight Industry Association (GABIA)</li> <li>• Executive Officer of Surveyed Charter Boat Owners and Operators Association South Australia</li> <li>• Executive Officer Southern Fishermen’s Association</li> <li>• Executive Officer of Saint Vincent Gulf Prawn Boat Owner’s Association</li> <li>• Executive Officer of Marine Scale Net Fishers Association</li> <li>• Committee support services South Australian Rock Lobster Management Advisory Committee &amp; Research Sub-Committee</li> <li>• Chair – CGG Gippsland MSS Scientific Advisory Committee</li> </ul>
Mr Jim Raptis	<ul style="list-style-type: none"> <li>• GABRAG Industry Member</li> <li>• Operates two boats in the GABT Fishery and owns four GAB SFRs as well as quota in the Southern and Eastern Scalefish and Shark Fishery</li> </ul>
Dr Robert Gale	<ul style="list-style-type: none"> <li>• Director – Next Level Sustainability</li> <li>• Environment Institute of Australian and New Zealand (paid membership)</li> <li>• Committee for Waste Reduction (Cairns) (paid membership)</li> <li>• Adjunct Professor – James Cook University</li> <li>• Independent reviewer of the 2018 SA State of the Environment Report for the SA Environmental Protection Authority</li> </ul>
Mr Daniel Corrie	Employed by AFMA. Manager of Southern Trawl, Scallop and Squid Fisheries. No pecuniary or other interest in the SESSF.
Ms Kehani Manson	Employed by AFMA. Executive Officer of GABRAG. No interest, pecuniary or otherwise.



## Attachment C – List of all GABRAG items (updated)

• Complete/Redundant

• Underway

• Yet to start

• Need SESSFRAG advice

Table 1 Action item summary

Meeting & agenda item reference	No.	Action Item	Agency/Person Responsible	Timeframe	Progress
1.4 / Nov 2016	1	AFMA and Dr Knuckey to transfer Orange Roughy otoliths from 2006 onwards from Fishwell to Fish Ageing Services	AFMA and Dr Knuckey		All otoliths have been transferred, stored and will be aged as required.
4/ Dec 2016	4	Investigate the proportion of Western Gemfish discarded as whole shots to inform the CPUE standardization.	AFMA/CSIRO	Before 2017 CPUE Standardization	Western gemfish Tier 4 is now being considered by SERAG (2019). Dr Sporic has advised that as discards are accounted for in the Tier 4 assessment, this no longer needs to be considered.
4/ Dec 2016	6	AFMA and GABIA to review GABTF development strategy species triggers for Western Gemfish in the SESSF Harvest Strategy Framework	AFMA/GABIA	Prior to 2017/18 season	Triggers are revised and available in the back of the SESSF Harvest Strategy



	Agenda Item	No.	Action Item	Agency/Person Responsible	Timeframe	Progress
	3.1/Aug 2017	2	Dr Knuckey to review the logbook data for consistency in discard reporting since the implementation of e-logs and discard grouping changes.	Ian Knuckey (Fishwell Consulting)	As soon as practicable	Overview of non-quota species discard reporting will be reported annually as part of the CSIRO Data Services Contract and presented at the SESSFRAG data meeting each year.
	1.4/Nov 2017	1	Follow up on alternative options to Fish Ageing Services for storage of Orange Roughy otoliths from 2006 onwards so that transfer from Fishwell can occur	Christian Pyke	As soon as practicable	Redundant – refer to above (1.4/ Nov 2016 Item1)
	1.4/ Nov 2017	2	If still archived, check original data sheets for 2014-15 crew collected data for Deepwater Flathead to see if the data contains a combination of Flathead and Redfish.	AFMA	As soon as practicable	No redfish records.
	1.4/ Nov 2017	3	Follow up August 2017 action item 6 with Matt Koopman when arrives at meeting: OLRAC to provide some instructional screengrabs to provide GAB skippers on how to complete e-logs with the new discard report changes.	GABRAG	21 Nov 2017	<p>Link to online tutorials provided to the RAG. Need to be provided to GAB Skippers. (From previous meeting)</p> <p>GAB operators are reporting correctly using the discard groups.</p> <p>RAG marked this action item as complete and agreed to remove it.</p>
	4/ Nov 2017	8	AFMA and Dr Haddon to develop a research project outline for age frequency sampling project to evaluate the uncertainty in stock assessments caused by reducing the frequency of age sampling for Deepwater Flathead and circulate to the RAG.	AFMA and Malcolm Haddon	As soon as practicable	<p>Consider running sensitivities to current assessment at GABRAG 2 (Dec 2019) or Consider at GABRAG 2 under research priorities.</p> <p>The RAG agreed to remove this action item and replace it with 1.4/ Nov 2019 (1).</p>

4/ Nov 2017	14	Prof Tisdell to work with AFMA and provide guidance on cost/benefit analysis for the Bycatch Research and Development Plan when developing the full project proposal.	AFMA and John Tisdell	As soon as practicable	This will be discussed at GABRAG 2 (Dec 2019) under the research action item.
5/ Nov 2017	16	Investigate what Orange Roughy otoliths (number and location per year) have been collected for Albany/Esperance zone and determine the cost of ageing additional otoliths.	AFMA and GABIA	As soon as practicable	Kyne has provided an updated summary.
2.1/ June 2018	1	GABIA and AFMA to work together to locate the results of the dogfish hook survey mentioned in the GABIA submission and circulate to the RAG. Also to ensure that the data is made available to the committee conducting the review of the Strategy.	AFMA and GABIA	As soon as practicable	Refer to Appendix A FRDC Report 2009-024 is provided in GovTeams
3.1/June 2018	3	GABMAC and SEMAC to consider advice regarding delineation of Eastern and Western Gemfish stocks between zone 40 and 50 prior to the 2019 assessment.	AFMA	ASAP, but prior to the 2019 assessment	Stock structure presentation provided to SERAG 1 2019 and advice provided to assess zone 50 in the Tier 4. Presentation to be presented at GABRAG 2 2019.
1.4/December 2018	1	Dr Knuckey to provide Professor Tisdell with relevant bycatch paper that includes economic content of interest	Dr Ian Knuckey	As soon as practicable	Will be attached to research agenda item at GABRAG 2 (Dec 2019).
1.4/December 2018	2	AFMA to provide industry with a paper that outlines the requirements that must be met in order for an orange roughy closure to reopen to fishing in the GAB	AFMA	As soon as practicable	AFMA/GABIA meeting in Port Lincoln, discussed the need to pursue the Orange Roughy Research Plan and demonstrate the rebuilding of orange roughy.  This will also be considered at GABRAG 1 2019 as part of the orange roughy research plan review.
3/December 2018	3	AFMA member to raise industry's recommendations for an increase in boat hire cost with AFMA staff	AFMA	As soon as practicable	Noted and will be considered when setting the research budget for 2020-2021.

			responsible for setting the 2019-20 Financial Year budget			
4/December 2018	4	Dr Ian Knuckey to check the catch of Bight redfish recorded in logbooks for 2016 to confirm the accuracy of the large catch reported at 190m in the GABT FIS Report	Dr Ian Knuckey	As soon as practicable	<p>The depth was recorded in logbooks, not as part of the FIS.</p> <p>It is suspected that the skipper recorded depth at 100 fathoms (not meters), which equals 183m. It is unclear what impact this will have on the assessment.</p> <p>GABRAG agreed to remove this item and replace it with 1.4/Nov 2019 (3).</p>	
5/December 2018	5	AFMA and Dr Knuckey to communicate with FAS about the use of FIS/commercial collected otoliths for use in the 2018-19 assessment to ensure it is representative of length-frequencies.	AFMA and Dr Ian Knuckey	As soon as practicable	<p>Otoliths collected under either program (ISMP or FIS) are independent of one another and their 'usefulness' depends on how representative the sample was from which they were obtained.</p> <p>Generally, all otoliths are aged and available for the assessment.</p> <p>FIS collected otoliths are only used if the otoliths collected through the ISMP program fall short or result in patchy sampling. They are not relied upon, as FIS samples are collected from one location, at one particular time of year; and as such are not a representative sample.</p> <p>The RAG agreed to remove this item.</p>	
6/ December 2018	6	AFMA to enquire about the absence of 2017 length data in the 2017 Draft Data Summary ISMP, Port and GAB Industry length frequency graphs for both bight redfish (page 232 of Data Summary) and deepwater	AFMA	As soon as practicable	CSIRO provided an updated version of the Data Summary which includes the 2017 and 2018 data (Attachment A)	

			flathead (page 239 of Data Summary). Investigate whether 'length frequencies' and ISMP Onboard' data have been labelled incorrectly on the above graphs.			
6/December 2018	7		AFMA to check the discrepancy between landed catch reported in the Data Summary vs that reported within the Catch and Discard Report for deepwater flathead.	AFMA	As soon as practicable	The data summary report is by calendar year (at the request of SESSFRAG) and the Catch and Discard Report is by financial year.
8/ December 2018	8		AFMA to investigate the feasibility of issuing 12 month scientific permits. If this is not possible, are two six month scientific permits issued to the same applicant a possibility?	AFMA	As soon as practicable	GABRAG agreed to issuing 6 monthly permits under the Orange Roughy Research Program
8/ December 2018	9		AFMA and GABIA to investigate the possibility of using a non-AFMA observer. Observers would need to possess relevant credentials to undertake the same sampling as AFMA observers.	AFMA and GABIA	As soon as practicable	AFMA observers are only required on one trip during the year where ISMP days are budgeted, to verify crew collected data. Crew based data collection has been supported, provided the relevant training is provided. The RAG agreed that efficiencies have been introduced to address cost concerns associated with onboard observers and agreed to remove this action item.

8/ December 2018	10	AFMA and GABIA to work together to establish a set of guidelines for Orange Roughy samples required from crew based collection. Samples collected by crew and through port based sampling will substitute for having an observer onboard. If these guidelines are not complied with, the vessel will be prohibited from undertaking future roughy trips without an onboard observer. These guidelines will be reviewed after 12 months and amendments made as necessary.	AFMA and GABIA	As soon as practicable	To be reviewed as part of the Orange Roughy Research Program review at Agenda Item 6.2 (GABRAG 1, 2019).  The RAG agreed to replace this action item with 3/Nov 2019 (7).
9/ December 2018	11 & 12	AFMA to confirm the accuracy of the retained catch of ornate angelshark, sharpnose sevengill and piked spurdog reported in the ERA.	AFMA	As soon as practicable	Records appear to be accurate, however these species are no longer assessed as high risk species in the ERA.
11/ December 2018	13	AFMA to investigate if and when gonad staging is recorded in Western Gemfish and where the data is stored.	AFMA	As soon as practicable	Tamre Sarhan advised that gonad staging has not been recorded for Western Gemfish. Gonad staging is not taken for any species as part of the ISMP program unless specifically requested.
11/ December 201	15	AFMA to amend table in Appendix A of Western Gemfish Harvest Strategy Triggers paper such that the third column from the left reads 'Trigger for implementing an ageing plan (ageing of collected otoliths).'	AFMA	As soon as practicable	Western Gemfish Harvest Strategy Triggers table was amended to change this column heading after the meeting.

Note: All items marked green (complete) will be removed from the list of action items that is prepared for the next meeting (GABRAG 2, December 2019)

## Attachment D – Action Items Arising from GABRAG 1 November 2019

Action Item	Agenda Item Ref	Description	Responsibility	Timeframe
1	1.4	CSIRO/AFMA to provide the RAG with the outcomes from Andre Punt's research looking at age and length sampling requirements for SESSF species; when they become available. Outcomes and how they might apply to the GAB will be considered at a future GABRAG meeting.	CSIRO/AFMA	As soon as available
2	1.4	AFMA to provide the Economics Member with a summary of information surrounding the cost/benefit analysis for the Bycatch Research and Development Plan; as well as any other relevant economic items from previous meetings.	AFMA	As soon as practicable
3	1.4	AFMA to identify the vessels which recorded catch of Bight redfish at depths of 190m in their logbooks and verify the records with the skippers.	AFMA	As soon as practicable
4	1.4	The Chair to compose letters on behalf of GABRAG to: Mr Day, Dr Haddon and Professor Tisdell, thanking them for their contributions to GABRAG over the years; and to Ms Hill to welcome her to her new role at AFMA as Senior Manager of Demersal and Midwater Fisheries.	CSIRO	As soon as practicable
5	2.1	CSIRO to provide GABIA with the names of vessels that have reported crew collected data incorrectly (i.e. providing insufficient information, recording wrong fields and measuring the wrong fish e.g. size graded catches).	CSIRO	As soon as practicable
6	3	Crew collected data sheets to be updated to include an extra field to record the Operation number, enabling crew collected and logbook data to be linked.	AFMA/GABIA	As soon as practicable
7	3	GABIA, AFMA and Dr Paul Burch (CSIRO) to collaborate and review Section 5: Data Collection and Research of the Great Australian Bight Trawl Fishery Boat Operating Procedures Manual; to ensure that all data required by CSIRO for stock assessments is clearly identified and the procedures for collecting this data are outlined.	GABIA, AFMA and CSIRO	As soon as practicable

8	3	<p>(a) AFMA, GABIA, CSIRO and Fishwell to work together to implement electronic recording of GAB crew collected data.</p> <p>(b) Fishwell to update GAB operators' systems to include fields associated with length, depth and true location (latitude and longitude).</p> <p>(c) All necessary parties to liaise with AFMA's data team to allow data recorded in OLRAC to be entered directly into AFMA's data warehouse.</p> <p>(d) Fishwell to adjust fields in OLRAC to prevent forms from being submitted without all required fields being completed.</p>	AFMA, GABIA, CSIRO and Fishwell	As soon as practicable
9	4	AFMA to provide the RAG with recent catch rates (non-standardised) of deepwater flathead at the next meeting (December 2019). This should include data up to the end of November 2019. Catch rates for previous years (2016-18) should be included for comparison.	AFMA	Before GABRAG 2 December 2019
10	4	CSIRO to re-run the deepwater flathead assessment with interpolated values for the FIS data series for 2011, 2012, 2013, 2015 and 2016; to determine whether the large gap between FIS years is impacting the overall data trend.	CSIRO	Before GABRAG 2 December 2019
11	6.2	AFMA to investigate why GAB closures, that were implemented based on the stock depletion in the east, are still required. Scientific evidence demonstrates that stocks have recovered in the east and eastern closures have now been reopened to roughy fishing.	AFMA	As soon as practicable
12	6.2	Mr Moore to follow up the 2012 molecular work on gemfish conducted by CSIRO and circulate the paper to the RAG.	Mr Moore	As soon as practicable
13	6.2	Industry to investigate whether their multi-frequency acoustic systems have the capacity to record and log information.	Industry	As soon as practicable
14	6.2	AFMA to investigate and confirm the approval process involved in amending and updating the Orange Roughy Research Plan. Specifically, determining whether the final version needs to be signed off by the Commission.	AFMA	As soon as practicable