Australian Government
Australian Fisheries Management Authority

Commonwealth Fisheries Marine Mammal Working Group (CFMMWG) Meeting No 2

Meeting Minutes

Date: 21 June 2017

Venue: Melbourne Airport

Attendees

Name	Member type
Mr Bill Talbot	Chairperson
Ms Nicola Beynon	Conservation Member
Dr Karen Evans	Scientific Member
Dr Alice Mackay	Scientific Member
Dr Mark Hindell	Scientific Member
Dr John Wakeford	Industry Member
Dr Mike Double	Member for the Department of the Environment and Energy
Mr Tony Harman	Member for the Department of Agriculture and Water Resources
Mr Phil Ravanello	AFMA Member
Ms Giverny Rodgers	AFMA, Gillnet Hook and Trap Fishery
Ms Jo Fisher	AFMA, Manager Antarctic Fisheries
Ms Claire Wallis	Executive Officer, AFMA
Dr Simon Goldsworthy	SARDI, invited participant

1. Introduction and apologies

The Chair opened the meeting and Members noted apologies from Julian Pepperell (Recreational Fishing Member), and welcomed Dr Simon Goldsworthy as an invited participant. The group welcomed Nicola Beynon, the new Conservation Member, and familiarised themselves with the Terms of Reference. The group noted that the role of the CFMMWG is as an advisory body only.

Adoption of Agenda

The group noted that John Wakeford (Industry Member) and Karen Evans (Scientific Member) were delayed in their attendance, and agreed to adjust the agenda to allow their full participation in discussion of agenda items requiring discussion of potential analyses (Dolphin and Seal interactions changed to Items 7 and 8 to facilitate their input). The agenda was adopted with alterations. The revised agenda is provided at Attachment 1.

Declaration of Interests

The members of the CFMMWG were canvassed for verbal declarations of interest. No declarations were received during this process. The group noted that a conflict of interest register had been developed and distributed prior to the meeting, and agreed that conflicts of interest should be raised at pertinent items within the context of the meeting in the future.

2. Minutes of previous meeting

Members noted the draft minutes from CFMMWG Meeting 1, and ratified them as an accurate reflection of the meeting. The Department of the Environment and Energy representative asked whether the Minutes were publically available. The CFMMWG

Executive Officer advised that they would be publically available on the AFMA website following ratification by the group at the current meeting.

3. Action Items of previous meeting

Members noted the progress against Action Items from CFMMWG Meeting 1. The AFMA member provided a brief verbal update and requested feedback on members' receipt of action items outputs. No concerns were raised.

4. Population estimate update for Australia sea lions

Historic surveys and trends

The group noted a presentation by Dr Simon Goldsworthy on work conducted by the South Australian Research and Development Institute (SARDI) on Australian sea lion (ASL) (*Neophoca cinerea*) population modelling.

South Australia makes up 83 per cent of ASL pup production, and 5 breeding sites account for 58% of SA's estimated ASL pup abundance. A state-wide survey of 42 breeding sites in South Australia was conducted in 2014/15 produced a total pup abundance estimate of 2,520. Estimates of pup production at 32 of these breeding sites were compared to estimates obtained from surveys of the same sites between 2004 and 2008 and showed a 24% reduction in pup production. Professor Goldsworthy advised that as there are limited time series data for many breeding sites due to patchy historical survey effort and the difficulty in predicting when the optimum survey timing for each site is, given breeding is asynchronous between sites. An optimistic overall population estimates that there are ~11 500 individuals across South Australia (based on estimators used for stable populations). Dr Goldsworthy suggested that a more realistic population estimate would be ~10 000 animals.

The group noted that in Western Australia (WA) four geographically isolated regions contain ASL colonies, and of 28 known breeding sites in WA, only Jurien Bay is consistently monitored. Surveys have been reduced and many surveys were undertaken outside of breeding season. As a result, time series data is again limited. Estimated pup numbers in WA in 2014/15 were 509. The available time series data (covering 56 per cent of known sites within WA) makes up 80 per cent of pup abundance.

Pup production is estimated to have shown an overall decline of 2.5 per cent per year, or 3.7 per cent each 18 month breeding season. The group heard that, based on the estimated decline in pup production, an application is being considered by the Threatened Species Scientific Committee to change the listing of ASL from *threatened* to *endangered*, under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Tracking studies of adult female ASL have shown that individuals vary in their foraging strategies, and that colonies where individuals showed a preference for offshore foraging are struggling more. The Conservation Member asked what thought had been given to why this pattern was occurring. Dr Goldsworthy stated that there is spatial overlap between sea lion foraging areas and gillnet fishing effort in the Gillnet Hook and Trap

(GHAT) fishery, and that the pattern of decline is consistent with expectations of where areas with a higher risk of interaction are. AFMA highlighted that in 2015 and 2016 only two ASL interactions were recorded in each year and that with the introduction of electronic monitoring and review that AFMA has in confidence in the number of interactions reported from industry in relation to ASLs. The group noted that cryptic mortality, particularly due to drop outs from nets, may be an issue. Because such mortality is difficult to account for, reported interactions may underestimate actual interactions with the fishery.

Current monitoring, risk determination, and future actions

The group heard that a microchipping program of ASL pups at Seal Bay commenced in 2003, with regular scanning of ASL of all age classes every 2 months for 3 consecutive days, allowing resighting of microchipped animals and investigation of age specific survival. Given the length of reproductive period of ASLs, approximately another decade of data collection is needed in order to collect sufficient resighting data to provide a dataset for robust analysis.

The group discussed the recorded ongoing population decline of ASLs in relation to the introduction of the ASL Management Strategy by AFMA in 2010, which incorporated increased fishery observer monitoring and fishery closures around ASL colonies. The group noted that on average, females don't recruit into the breeding population until 6 years of age, so the most recent breeding season may have included contributions from the first cohort of females born after the introduction of the ASL Management Strategy. In regards to detecting changes that might have occurred in population trajectories as a result of the strategy, the group noted that population monitoring is currently inadequate. Additionally, estimates of the likely time frame required to detect a population recovery are not currently available. Prof. Goldsworthy advised that the data required to determine this time frame are available, but the desktop analysis has not been undertaken due to lack of resources. As a result, Prof. Goldsworthy stated that it cannot be determined whether Wildlife Trade Operations assessment conditions for the GHAT have effectively been met.

Prof. Goldsworthy advised that there was still uncertainty as to whether present declines in ASL populations can be explained by historic bycatch in the gillnet component of the GHAT. The group noted that management actions and industry response should suggest that the threat is markedly reduced, and the hope is that the response provides for the recovery of the population, as intended by the ASL Management Plan.

The AFMA member queried what work is being done in parallel on factors contributing to observed declines that may not be directly related to Commonwealth fisheries, such as increased predation by white sharks (*Carcharodon carcharias*), or interactions with state fisheries. The group discussed various potential sources of mortality in adults and pups, noting that both pup and adult survival is important, because the survival of life history stage interact. A Scientific Member clarified that the desktop study identified previously is the first step in investigating to what extent current declines may be explained by historical bycatch rates in the gillnet sector of the GHAT and when a change in trajectory in response to application of the Australian sea lion management strategy would be expected .

The group discussed the objectives outlined in the ASL Management Strategy, defined as "*The ASL Strategy aims to monitor and minimise the impacts of interactions between Australian sea lions and gillnets used by Commonwealth shark fishers so as to enable breeding colonies of sea lions to recover*". In light of these objectives, the group noted the importance of the collection of population data from ASLs across the species' range for use in the performance evaluation of the ASL Management Strategy and for the assessment of the extent to which WTO conditions have been met. It also noted the importance of updating the ASL population model to determine how much current declines could be explained by historical bycatch, and if Commonwealth fisheries remain a significant factor.

The group noted **Action item 7** from the 30 July 2015 meeting of the previous Marine Mammal Working Group (MMWG), stating that Nick Rayns (AFMA) would seek to explore funding for review of previous ASL population modelling work as requested by a previous MMWG member. Noting that an update to the population modelling has since been completed, the group recommended that this action item should be progressed in that AFMA should provide advice to the group on potential sources of funding for marine mammal population work (**Action Item 1**). Prof. Goldsworthy asked AFMA whether there were mechanisms for providing funding through industry levies. The AFMA member advised that they were unable to respond on behalf of a specific fishery on the matter. The group noted that complexity exists in regards to the source of funding for ongoing monitoring, and where the responsibility for funding lies. Dr Goldsworthy noted that the DotEE has advised him that bycatch related research should be funded by AFMA. The group noted that AFMA's position is that work directly related to mitigation and fishery interactions is within scope for funding consideration, while work relating to population monitoring and conservation is the responsibility of the DotEE. AFMA is willing to provide support for funding applications through agencies such as the Fisheries Research and Development Corporation (FRDC) as they arise. The DotEE Member clarified that current DotEE funding provided through the National Environment Science Program (NESP) does not tend to support ongoing monitoring, limiting it's applicability to some aspects of the discussion. The group noted advice that the use of NESP structures moves some capacity of the DotEE to make decisions away from itself, reducing flexibility in the matter. The group noted that the Threatened Species Commissioner favoured corporate funding (e.g. supermarket chains) on matters like this, but that products derived from the GHAT fishery generally services small business rather than large suppliers.

It was noted that the results of the proposed desktop study to update the ASL population model should clarify to what extent ongoing declines reflect historical bycatch rates, the time after implementation of the ASL Management Strategy it would take to see a change in population trajectory (if bycatch was the leading cause in decline) and whether there may be other currently unidentified factors limiting population recovery. These results should make it possible to determine more clearly where the responsibility for funding ongoing monitoring of ASL populations lies.

The Conservation Member requested clarification on the cost associated with undertaking the desktop analysis. Prof. Goldsworthy advised that he would have to take providing that information on notice (**Action Item 2**), but noted that the desktop analysis would not be an

overly large task. He advised that recent data from the Seal Bay microchipping program could be used to update already developed population models, and integrated with data from the 2010 bycatch mortality assessment and new data from AFMA. The group noted that shifts in effort in response to management actions should also be incorporated into the updated model and assessment.

The group recommended that to assess the utility of the ASL strategy, an analysis of new population demographic data is required to be undertaken. If Commonwealth fisheries are identified as a continuing contributing factor to observed declines in the population, the group identified the obligation of industry in addressing this, and the importance of ongoing monitoring to allow continued performance evaluation of AFMA's ASL strategy.

5. Elephant seal bycatch in Southern Ocean fisheries

Jo Fisher (AFMA, Manager Antarctic Fisheries) participated via teleconference for discussion of this agenda item.

AFMA asked the group to consider whether current Australian fishing activities in the Southern Ocean fisheries are likely pose risks to southern elephant seal (SES) (*Mirounga leonin*a) populations, noting that of four recognised SES populations within the Southern Hemisphere, three are considered stable (Peninsula Valdés and Falkland Islands, South Georgia, and Iles Kerguelen). The Macquarie Island SES population appears to be undergoing some level of female specific recruitment failure.

Within the Southern Ocean, Commonwealth fishers participate in the Heard Island and McDonald Island Fishery (HIMI), the Macquarie Island Fishery, and exploratory fisheries operating under the Commission for the Conservation of Antarctic and Marine Living Resources (CCAMLR) closer to the Antarctic continent.

A Scientific Member confirmed current understanding in regards to declines observed in the SES population on Macquarie Island, but that bycatch of individual SES is regarded to be relatively low in proximity to this colony and considered a minor source of mortality. He stated that environmental factors are being considered to explain the ongoing decline.. The area around HIMI is subject to effort from multinational fisheries compared to Macquarie Island and in association, has higher levels of bycatch of SES. The group noted the lower data availability around bycatch of other nations, but agreed that responsibility for identifying an issue in this area lies with CCAMLR. The group heard that exploratory fisheries on the Antarctic continental shelf area currently comprise low effort, but are located in a region accessed heavily by SES for foraging. The group noted that any future increases in fishing effort in areas used by SES for foraging may increase interaction risk. The group noted that at this time, no interactions had been recorded by Australian exploratory fishers in CCAMLR zones 58.4.1, 88.1 or 88.2. A Scientific member raised that they were unsure of the level of interactions by New Zealand and Russian fishing fleets in these zones, but the expectation is that there are interactions with both fleets.

The group noted that Commonwealth fishing activity in Antarctic fisheries is subject to round the clock observer coverage on all vessels. When bycatch of a marine mammal

occurs, the age class and sex of the bycaught animal is sometimes recorded, but reporting rates are variable, which may be related to drop-outs. The group advised that data should be collected consistently when possible, and discussed means of improving this data, given the availability of 100 per cent observer coverage. The group requested that where possible, AFMA collect size information as a means of determining sex, and investigate the publication and dissemination of educational material to observers to assist in age and sex classification (**Action Item 3**).

The group discussed a recent paper documenting active predation by SES on toothfish caught on longline fishing gear at depths of greater than 1000 metres (van den Hoff et al. 2017), and the challenges of mitigating motivated predators depredating fish caught on longline gear. The group heard that the authors of the paper may be seeking to present its findings at the 2017 meeting of the CCAMLR Scientific Committee, and requested clarification on whether this is likely to occur, and whether the authors will be seeking any outcomes from that meeting (**Action Item 4**).The DotEE Member outlined approaches used by Spanish longline vessels to mitigate against depredation by cetaceans, and described a physical barrier in the form of a basket or chain that would descend over the target species once hooked, protecting it from predation. To his knowledge, the approach worked well for a period, but orcas eventually problem solved their way around the barrier, lifting it to access the fish. The group noted that the weight of the barrier devices also provided an added benefit for the mitigation of seabird bycatch by adding weight to the lines as they were set, thereby allowing for rapid deployment of baited hooks and a lower rate of interaction with surface and diving birds. The group sought clarification on mitigation devices that have been trialled under these circumstances, and the DotEE Member advised that a review has been published that he could provide to the group (**Action Item 5**).

6. Other Business

GHAT and SPF Dolphin Mitigation Strategies: Update

An AFMA representative from the GHAT fishery provided an update on the implementation of the GHAT Dolphin Mitigation Strategy (GHAT Strategy), and advised the group that educational port visits to raise awareness of the plan are scheduled. The group was also provided an update on behalf of the SPF Dolphin Strategy (SPF Strategy). The group noted advice that a vessel may be active in the SPF before the next scheduled meeting and request was made for the group to consider providing feedback out of session on dolphin mitigation paperwork. In regards to the GHAT Strategy, a Scientific Member requested clarification that the review of Electronic Monitoring (EM) footage has been reduced from 100 per cent to 10 per cent in the Coorong Zone. The AFMA representative from the GHAT clarified that 10 per cent of the EM footage collected from every vessel fishing in the Coorong Zone would be subject to review, in line with the rest of the fishery, unless a vessel fished in an ASL exclusion zone, where all fishing effort is subject to 100 per cent EM review. Scientific members queried whether a sampling strategy was in place for 10 per cent review. The AFMA representative from the GHAT advised that the company reviewing electronic monitoring video, Archipelago, has an in house document outlining the video review regime, which requires review of 10 per cent of the total effort of

each vessel, or a minimum of one fishing event (should the hard drive contain less than 10 shots) for each month recorded on every hard drive, per vessel. The AFMA representative from the GHAT also advised that work is being undertaken to explore the ability to automate direct comparisons between catch data derived from EM and logbooks.

Members provided feedback that requests for advice from the CFMMWG have not been conducted across realistic timelines with requests providing insufficient time for members to comment on documents requiring input. The group noted that five working days is not a feasible timeframe, and that ideally a month would be provided for input. The group also requested that feedback from the group be presented in the terms it was provided to AFMA, (e.g. in consensus, from individual members etc.) and that AFMA clarify where it has exercised discretion. A Scientific Member requested clarification on why all members of the CFMMWG working group were not involved in previous out-of-session requests for comment. The group agreed that for AFMA to benefit from advice from the CFMMWG members, requests for comment need to be very clear in regards to what AFMA is looking for in terms of information or feedback provided by WG members, how that information or feedback will be used, and how the information or feedback will be presented.

The Conservation Member asked whether individual Dolphin Management Plans (DMPs) for GHAT or SPF vessels are publically available. The AFMA member advised that individual DMPs will not be made publically available, but the current GHAT Strategy outlines the methods and practices that fishers can incorporate into their fishing operations when establishing their own DMP. The group was interested in reviewing such a list and providing mitigation efficacy rankings on the various practices if possible. In support of this, the group was interested in comments provided in 2014 by the MMWG on Coorong mitigation techniques and requested the distribution of these comments to the group (**Action Item 6**). The AFMA member clarified that DMPs could be made available to the CFMMWG, but not to the general public as information on gear configuration is commercial in confidence. In regards to continuous improvement of dolphin mitigation, AFMA advised that it intends to engage with industry champions to educate other industry members, on improving general performance of mitigation activities in the Gillnet sector of the GHAT.

The Conservation Member asked whether information would be coming back to the group in regards to the types of mitigation techniques being used, and any subsequent correlation with mitigation success (**Action Item 6**). A Scientific Member clarified that potential mitigation techniques associated with gillnet gear tension and configuration have to date, not been associated with reductions in small cetacean interactions, but that acoustic pingers have been shown to reduce interactions with harbour porpoises (*Phocoena phocoena*) and possibly common dolphins (*Delphinus delphis*). The question was raised whether acoustic pingers are currently used by Commonwealth fishers. A Scientific Member advised that the (no longer active) Dolphin Sub-Committee for the GHAT undertook a review on commercially available acoustic pingers that were regarded as most likely to be effective on common dolphins, and that the Scientific Member would like to see a formal trial in this area. The group raised that having access to discussions and decisions made by previous iterations of the MMWG would be of value to the current group, to ensure efficiencies across each of the related groups. The AFMA Executive

Officer advised the group that she had initiated the set-up of a GovDex page for the group, and would seek to upload historical material as requested (**Action Item 7**).

US Import Requirements

The Department of Agriculture and Water Resources (DAWR) Member advised the group that Australia recently responded to a request from the USA on management approaches to marine mammal interactions in the context of new requirements for fisheries importing product into the USA. These requirements specify that nations importing fish and fish products demonstrate that they have a management strategy for mitigating marine mammal bycatch that is comparable to those prescribed under the *Marine Mammal Protection Act of 1972*. The group heard that these updates to import requirements will not be implemented until 2022, and that Australia in replying to the USA, has identified that they will be seeking recognition that existing Commonwealth management arrangements relating to marine mammal bycatch are comparable to U.S. standards. The DAWR hopes that the US will recognise the comparability and that therefore there will be no impacts on the operations of Commonwealth fisheries. If concerns are raised as a result of Australia's submission in any jurisdiction, Commonwealth or state, then particular fisheries may need more attention and to work further with the USA to maintain market access. The DAWR Member noted that part of their role is keeping industry and the CFMMWG informed of any developments.

A Scientific Member asked whether the US requires the application of PBR approaches to marine mammal management at this stage. The DAWR Member again advised that the hope of the Department is that the USA will recognise Australia's management arrangements for bycatch of marine mammals as comparable to those required under US legislation and that Commonwealth fisheries management arrangements are operating under a similar overall objective, if applied slightly differently. The AFMA member advised that given that Australia does not currently manage bycatch of marine mammals against formal Potential Biological Removal (PBR) assessments, Australia's submission for comparability outlines the active marine mammal mitigations in place in each fishery. Prof. Goldsworthy commented that it would be interesting to conduct a PBR assessment, as such an assessment seeks to address the cumulative impacts of all sources of removal; impacts that Australia's current bycatch management approaches do not. The DAWR Member advised that it is unlikely that Australia is at high risk of losing its import arrangements under the requirements being set out by the USA. The group heard that Australia's current management arrangements should mean that, in the first instance, the USA's focus for reform will be on other countries, and that Australia expects that it has put forward a reasonable case that both countries seek to protect marine mammals and minimise mortality and harm, albeit through different arrangements.

Dr Goldsworthy asked whether the US has provided an assessment "scorecard", and expressed interest in applying this method. The DAWR Member advised that the process is still in the early stages on both sides, and a scorecard has not been provided. The DotEE Member raised that some developing countries are more likely to be impacted by these decisions, and that a paper recently published in the journal Science relating to the matter was available that he would distribute to the group for information (**Action Item 8**).

7. Dolphin Bycatch: frequency and factor determination

Review and limitations of AFMA data

Members noted the observer and logbook data provided by AFMA on 28 March 2017, and identified some limitations to the data that would need to be addressed before basic manipulation and analysis of these data could progress. A Scientific Member identified that the data required considerable quality control, which while simple, is time consuming and outside the scope of the tasks agreed to by group members. The group also noted that the dataset containing wildlife interactions was provided separate from the one containing effort and substantial work is needed to clean and link these datasets. The group members reiterated that data cleaning is time consuming and outside the scope of the tasks agreed to by group members. The group identified that cleaned data is used by stock assessment scientists when conducting stock assessments on behalf of AFMA, and asked whether similar cleaned data could be provided to the group. Both AFMA and a Scientific Member from one of the stock assessment providers agreed to talk to their respective organisations to determine how best to access cleaned data for use by the CFMMWG (**Action Item 9**).

It was noted that identification of bycatch to species has historically been poor, limiting the types of analyses that can be conducted on the data. This is because the population dynamics of inshore bottlenose dolphins (*Tursiops aduncus*) and offshore common dolphins (*T. truncatus*) are significantly different and so the two species need to be considered separately in any potential analyses. The group advised that any data analysis would need to be mindful of variations in management controls over the period assessed, as these affect both effort and spatial and temporal distribution of fishing activity – and may also impact interaction reporting behaviour. The group advised AFMA that to undertake any examination of the data would require a funded piece of work. The DotEE Member noted that to be effective, the group would require clear direction from AFMA on the questions that AFMA would like answered and the associated context for and objectives of any resulting analyses.

A Scientific Member queried whether AFMA's fishery independent data is robust enough to develop an understanding of cumulative impacts on populations such as impacts that might arise from interactions occurring across multiple fisheries. The group noted that if the overarching goal of any analyses is to assign bycatch rates of species to individual fisheries, the key first step is to clarify the robustness of AFMA's logbook data. This would require developing an understanding of the relationships between observer data and logbook data, and to do this the group needs to have an understanding of observer coverage levels by fishery over time.

Bycatch estimation case study

In discussing estimating bycatch and the cumulative impacts of interactions occurring across fisheries with any degree of precision, the Industry Member noted that logbook data indicates that interaction rates of marine mammals with vessels operating in the Coorong increased when monitoring increased. On the basis of these observations the Industry Member suggested that analysis that erred on the side of caution would realistically expect that interaction rates of marine mammals with fisheries are generally higher than reported.

The Industry member indicated that, consistent with the group's thoughts expressed at CFMMWG Meeting 1, he held some reservations about applying management frameworks incorporating limits based on dolphin interaction rates recorded in the Coorong across the remainder of the GHAT, as lower interaction rates have been reported outside of this zone. He noted that higher interaction rates are useful for developing an overall understanding of patterns in interactions and identifying counter measures that might mitigate for interactions, while low interaction rates made establishing patterns more difficult thereby make it harder to develop new strategies.

The group determined that the GHAT fishery, which is considered reasonably data rich, could be used as a case study for determining whether the available data can provide power to determine factors influencing bycatch rates or temporal or spatial differences in underlying rates is available. The group noted that the study would rely on provision of cleaned catch, effort, observer, EM and logbook interaction data from AFMA, and information on management arrangements and observer coverage. A Scientific Member advised that prior to advancing this, the group should review the most recent Environmental Risk Assessment (ERA) for the South East Scalefish and Shark Fishery (SESSF), as it should have included a step that investigated data availability for determination of impacts on bycatch species (**Action Item 10**). Should the ERA indicate that the data is available, the group advised progression to a high level data summary. The group agreed that AFMA would need to explore funding for a short, multi-day project to produce a high level data summary of the capacity of the current data in supporting such calculations, and if such calculations were not possible, what would be required to facilitate the calculations (**Action Item 11**). The group agreed that AFMA would need to provide additional data for the analysis, including a timeline of management actions (such as implementation of EM) and expected impacts on logbook reporting (**Action Item 12**). The group clarified that the data exploration and analyses should seek to provide advice on what the data gaps are and what data are required to improve confidence in estimates:

The group clarified that the initial data exploration should address the following objectives:

1. Provide an estimate of total "dolphin" bycatch in the GHAT (noting that species is not always recorded) from existing data and level of precision around the estimate.
2. Estimate marine mammal interaction rates for dolphins from observer / EM data.
3. Compare observer / EM interaction rates with logbook reported interaction rates taking into account changes in management strategies.
4. Conduct a power analysis to determine levels of precision in estimating bycatch for different levels of EM review.
5. Analyse data to determine which factors are related to bycatch

The Industry Member raised the question of an economical approach to increasing the amount of EM footage reviewed if necessary, noting the large costs associated with implementing and carrying out review of 100 per cent of the footage collected. He suggested an approach of choosing a data rich fishery and conducting a power analysis to determine how much video footage should be reviewed, and whether the footage for intensive analysis should be derived from all vessels or a random/non-random subsample of vessels. The value and importance of automating processes for linking interaction events recorded in logbooks with those recorded by EM to provide accurate identification

and isolation of “video snips” of events of interest, to reduce costs and avoid backlogs of data review, was discussed.

The AFMA Member suggested that the current sampling regime of 10 per cent effort is reasonable and includes review of footage from the whole fishery. He also noted that reporting of interactions with Threatened, Endangered and Protected Species (TEPS), such as marine mammals in vessel logbooks has increased since the introduction of EM. The Industry Member acknowledged this, and identified that area/individual interaction variability might need to be assessed as secondary data, as not all vessels are equal in regards to interaction rates. The group noted that while this analysis may be possible for the GHAT, it may be unlikely for other fisheries, and in that case, an intermediate step focused on improving data collection would be needed to support future analyses.

Improving logbook data

The group discussed approaches to improving the reliability of reporting marine mammal interactions in current logbook reporting frameworks, particularly for assessing the cumulative impacts of interactions across fisheries. The AFMA Member cautioned the group that this may be a case of being asked to compare apples with oranges if trying to contrast the GHAT and the Commonwealth Trawl Sector (CTS). He elaborated that the GHAT has reasonably good data, corroborated with EM and logbook data, while the CTS is limited to data collected by an Independent Scientific Monitoring Program data supported by 3 per cent observer monitoring, results from which are extrapolated across the fishery. As a result, reports of interactions derived from logbooks should be approached with caution as bycatch may be more loosely reported within this fishery when compared with the GHAT. The Industry Member noted that data on interactions is critical, and queried how AFMA might move forward in improving the robustness or quality of data collected relating to marine mammal interactions - particularly in regards to cryptic mortality or capturing drop outs (i.e. individuals that drop out of nets before being landed) as accurately as possible.

Species ID and dropouts

The group noted that AFMA was still seeking advice on **Action Item 2** from CFMMWG Meeting 1 (November 2016), in regards to the collection and storage of EM footage of cetacean interactions. A Scientific Member noted that it would be very simple and helpful for fishers to provide a photograph of dolphins with their interaction reports. The group noted that identification of bycatch to species cannot occur when individuals drop out of nets prior to reaching the vessel and high uncertainty exists around species identification where a report is submitted, but no verifying photograph is available. A Scientific Member suggested that deckhands frequently have access to smartphones or cameras such as GoPros, so a request for including a photograph with each interaction report is not unreasonable.

The AFMA Member advised that fishers are highly likely to push back against the addition of another required action, and was advised by the group that to effectively collect data required to assess potential population impacts of fisheries interactions, fishers will be required to assist in ensuring accurate species identification. The Industry Member suggested that the message to fishers should be that these are species that are listed

under the EPBC Act, and fishers are given a license to fish a public resource with associated responsibilities. The message should be driven home that it only takes a few minutes, and poor data on species identification can jeopardise a fishery and its social licence. He added that fishers could be told that if EM is on board and the animal is landed they should lay it out and rotate it, and provide a measuring stick or similar for dimension reference. The DotEE Member raised the report provided to the group detailing a 2012 AFMA based study of the capacity of identifying dolphins to species from EM footage collected from vessels in the GHAT. The group noted that the report recommended recording close up photographs of certain body parts to be certain of species identification, and in order to obtain the sex of the individual. The key outcome from the study was that two cetacean species were identified, the majority being common dolphins. The report noted that there are a number of other small cetacean species that have been recorded in South Australia and therefore it should not be assumed that dolphins caught in the fishery will only comprise common or bottlenose dolphins. The group requested that AFMA provide a report from Archipelago on what proportion of dolphins are identified to species, and if not identified, reasons why (**Action Item 13**).

The group noted the difficulty in discussing the capacity for identifying dolphins to species without viewing recent footage and confirmed that clarifying the matter remains a priority. The group reiterated the value of developing the ability to correlate logbook data with the EM data for shot by shot comparisons, or to develop automated processes for allowing the extraction of all interactions with TEPS. The AFMA representative from the GHAT Fishery advised that Archipelago mark shots with their own programs, but was unsure whether it is possible to get access to that footage to then match up with information contained in logbooks. A Scientific Member advised that the key pieces of information required to automate this include accurate recording of when an interaction occurred in logbooks, and information associated with when the haul started derived from EM footage. The Scientific Member advised the group that researchers at CSIRO currently developing automated processes for species identification and enumeration of catches, may be looking for test data sets for furthering automated recognition processes to non-longline data, which AFMA may be able to take advantage of in progressing automation in this area. The group advised that if a method of extracting interaction events involving TEPS exists, then these data should be exempt from the 6 month EM data purge currently in place (currently all EM footage is destroyed after a period of six months). AFMA advised that retaining EM footage in these circumstances may be cost prohibitive in terms of both the extraction and storage, and advised that it would continue to consider this proposal and report back at the next meeting (**Action Item 13**).

There was a strong recommendation from the CFMMWG scientists that it is extremely important to identify cetaceans accurately to species level, and to facilitate the long term retention of all available footage of interactions with marine mammals.

The group recommended exploring technical solutions to automation of extracting data in regards to marine mammal interactions.

Interaction rates: determination and review

Group members noted that interaction rates are likely to vary with geographic area, and advised that setting management limits on interactions across the GHAT based on interaction rates derived from the Coorong should be a temporary measure until a more accurate understanding of interaction rates is determined. The Industry Member advised that the trigger rate from the Coorong may not provide opportunities for improvements to fishery practices by vessels operating in lower interaction rate areas. He noted that the lower interaction across the remainder of the GHAT could be presented as a good news story to industry, and promote a conversation about risk based approaches to areas where interaction rates are low. AFMA reiterated that the goal is continuous improvement across all areas of the fishery, with those management measures currently in place subject to continuing future evaluation and modification to support working towards lower rates of interaction. The DAWR Member asked the group to consider positive incentives to encourage industry to aim to achieve lower interactions than the average across the fishery that could be considered should an operator on occasion meet or exceed the defined triggers. The AFMA representative for the GHAT fishery clarified that the GHAT Strategy is based on multiple interaction events, rather than single interaction events that might comprise multiple dolphins, thereby removing the need for considerations such as those proposed by the DAWR Member. Operators are only subject to management actions if they are continually interacting with dolphins, and the Strategy is meant to provide an opportunity for fishers to review and modify their operations, rather than immediately implementing punishment.

Noting that the GHAT Strategy has recently been implemented, the group supported reviewing the prescribed interaction rates. The group supported AFMA moving towards adjusted, area specific interaction rates in 2019 based on review of EM footage, with resultant adjustment of trigger limits where appropriate.

8. Fur Seal Bycatch: frequency and factor determination

Review and limitations of AFMA data

Members noted the observer and logbook data provided by AFMA on 28 March 2017, and identified some limitations to basic manipulation and analysis of the data relating to fisheries interactions with fur seals (Australian fur seal, *Artocephalus pusillus doriferus*, long-nosed fur seal, *A. forsteri*) at this stage. The group clarified that one dataset sent to WG members was from the ISMP surveys, while the associated supporting paper contained data derived from logbooks and observer reports, with the two containing varying numbers of interactions. The group raised that there appeared to be a significant discrepancy between logbook and observer data interaction reports in the Otter Trawl sector, with approximately 275 interactions reported by logbook in 2011, compared to an extrapolated rate of ~1400 animals based on observer data for that year (at 3 per cent monitoring). A Scientific Member queried whether the discrepancy could be an issue in terms of meeting EPBC requirements for WTO assessment, and strongly recommended that AFMA seek to address the issue in a timely manner.

It was noted that the higher number of reported interactions with seals (not always recorded to species) facilitated more ready analyses of these data. The greater

understanding of the population size and status of seals and sea lions also provided for more ready analyses in terms of population impacts. However, in terms of data quality and robustness, data relating to fur seals are subject to many of the limitations identified for dolphin interactions. The group asked whether AFMA routinely collects the biological status of fur seals caught by fishing vessels as bycatch across age and sex has different impacts ecologically. AFMA advised that observers collect age and sex data when possible, noting that it may not be possible in instances where an animal is not landed.

A Scientific Member and Prof. Goldsworthy identified that variability in the reporting of interactions appears to be a major issue, and strongly recommended prioritising EM to improve data collection on interactions.Having improved knowledge of sex composition of bycatch is a simple thing that could address concerns in regards to population impacts. The potential for age and sex composition of seal bycatch to vary across fishery areas and gear types was raised, noting that in New Zealand the grenadier fishery mostly interacts with male seals at deeper depths. Discussion of the life history and ecology of fur seals followed with the group being advised that at present most fur seal colonies do not have multi-year population biology data and that female fur seals s nurse pups for 8-10 months, restricting their geographic foraging range. While an assessment of interactions with pinnipeds should be relatively simple, the group expressed concern that the absence of photographs associated with interactions allowing for the identification of species makes an assessment of potential impacts at a species / population level difficult to undertake.

The group noted that depending on the scale of variability between logbook and observer data, underreporting may reduce data utility. A Scientific Member noted that the logbook data comprises presence-only information on interactions. They also noted that an understanding of observer presence/absence on the logbook reports is necessary to better understand reporting behaviour and data quality. The group requested clarification on whether any of the logbook data from the CTS fishery was associated with trials developing mitigation devices for the fishery. The group also requested clarification on the proportion of interactions recorded in logbooks that occurred with an observer on board, and a summary of observer coverage in the fishery for a given year (as per dolphin interactions in the GHAT) (**Action Item 12**). Given the range of gear types and species targeted in the CTS, the group discussed the need for a high level data summary for a subset of CTS vessels, similar to that discussed for the GHAT in relation to dolphin interactions. It was suggested that the blue grenadier component of the CTS fishery could be investigated, with the data collated in terms of wet boats/vessels with freezer capacity, and trawl/Danish seine gear types (**Action Item 12**).

A number of group members queried why quarterly TEPS interaction reports provided by AFMA under their EPBC Act reporting requirements are based on logbook reports rather than observer data. The AFMA EO clarified that observer data should be captured within the logbook data, as fishers are required to provide their independent TEPS reports regardless of observer presence. The group recommend AFMA consider providing information in quarterly reports that clarifies how many reported interactions are from observer trips, as a means of increasing transparency in reporting from industry.

Pending review of the data, the group recommended that AFMA needs to review the potential compliance issue associated with the discrepancy between observer and logbook data, noting the requirements of fishers to report all TEPS interactions.

Electronic Monitoring in the Commonwealth Trawl Sector

The Industry member suggested that implementing EM coverage, and the data capable of being extracted from EM footage in trawl fisheries needs to be tackled head on with a potentially reluctant industry. A soft, staged introduction of EM in 10 per cent of vessels was raised, and it was suggested that past the challenge of initial introduction, industry's trust in regulator use of footage might be expected to increase from the remainder of operators. The AFMA Member agreed that discrepancies in the reporting of TEPS interactions between logbooks and observer reports could be a lever for implementation of EM into the CTS as a management tool. However AFMA would need further justification for its introduction, noting that there is currently a drive within AFMA to improve discards reporting in the CTS. The AFMA Member suggested a second key benefit from implementing EM was that it would allow confirmation of mitigation device deployment. The Industry Member agreed that the benefits of EM need to be better communicated to industry. He advised that in the Pilbara on introduction, EM was regarded as a "big brother thing", but once industry accepted the presence of EM throughout the fishery, its utility for crew safety was recognised. With the installation of EM and associated video feeds available in the wheelhouse, the skipper is provided with another set of eyes, allowing for greater oversight of operations and crew activities, an additional capability that is now seen as a valuable asset by some Pilbara operators.

The AFMA Member expressed concern that implementation of EM as a logbook verification tool in the trawl sector may be limited as EM may not be suitable for catch enumeration particularly where large mixed species catches are concerned. A Scientific Member referred to work that CSIRO is currently doing in regards to automated processing of EM footage and associated catch enumeration, and advised the group that developing the technology beyond single catch events (such as catches using longline gear) to purse seine or trawl catches is being considered by CSIRO and others. The Scientific Member expressed an opinion that EM implementation in nearly all fisheries worldwide is inevitable, and it might be faster than expected given the number of initiatives focused on EM currently active worldwide.

The AFMA Member expressed reservations on mandating EM only on the safety aspect, and suggested that there is a need to clearly define data requirements that can be undertaken with EM footage prior to implementation. The group noted the opinion of the Industry Member that all fisheries will eventually head to EM, and sooner rather than later is better. The Industry Member suggested that EM can go beyond safety, and can be used as a deterrent in the realms of animal cruelty, marine pollution, and unsafe interactions with other vessels. The Conservation Member agreed that from an animal welfare perspective, there is a risk to industry in criticism and steps should be taken to address it. A Scientific Member suggested that from AFMA's perspective there might also be a need for EM to support compliance in TEPS reporting in adequately meeting their requirements under the EPBC Act. They stated that relying on the skipper to be truthful about fishing operations, despite good intentions, seems to be insufficient given the discrepancies noted

between logbooks and observer reports in regards to marine mammal interactions. They disagreed with the AFMA Member that there is no strong argument for the introduction of EM into the CTS. The AFMA member agreed, but noted that if there is a lack of reasons palatable to industry, the challenge of expanding implementation of EM to vessels in the trawl sector could be significant. The AFMA Member noted that New Zealand is trying to integrate electronic logbooks with EM with a compliance focus and is experiencing strong pushback from industry as result. The Industry Member referred to previous discussions around the period required for communication and socialising of new strategies, and noted that any implementation of new rulings should be approached with caution. He expressed confidence in industry's ability to reduce interaction rates, but that industry needs to be empowered and motivated to do so. He advised that it would be detrimental to efforts if an approach was taken that showed a lack of understanding for their circumstances. He closed by stating that, industry also needs to be aware that AFMA needs good information to make robust and appropriate decisions.

Seal Excluder Devices (SEDs)

The Conservation Member asked whether SEDs were required in the CTS. Prof. Goldsworthy advised that the midwater trawl sector uses hydrostatic release SEDs at all times, but that it's a mitigation measure suitable for midwater boats only. The AFMA Member asked whether any work has been done on semi rigid or magnetic SEDs. The Industry Member advised the group that Norway trialled semi-rigid SEDs several years ago. He advised that vessels of a similar size to those in the CTS work in the Pilbara trawl, and that the Pilbara trawl fishery addressed operational issues relating to using solid grids on small boats when grids were introduced. His experience was that rigid grids were preferable, and modifications to the net design so that the grid was robust on the drum when hauling were possible. He considered that grids on small vessels are feasible, and noted that semi-rigid grids work but resulting distortion to the nets has to be actively avoided. A Scientific Member agreed that when SEDs were first considered in the wet boat sector globally the initial issues around grids on drums were discussed and, as evidenced by the Pilbara trawl, those complaints don't hold and the use of SEDs should be revisited in other trawl fisheries.

The DotEE Member raised the point that grids are not universally accepted as a solution to mitigating pinniped bycatch. The group heard that controversy exists over the use of Sea Lion Excluder Devices (SLEDs) in New Zealand fisheries interacting with New Zealand Sea Lions (NZSLs), particularly in regards to whether SLEDs cause potentially fatal injuries to NZSLs, specifically blunt trauma. As a result, there is now public opposition to the use of SLEDs in the fishery from some stakeholder groups. His opinion is that this perception in relation to potential injuries is misguided and that SLEDs have a lot of potential as a bycatch reduction device. The Industry Member suggested that there has also been successful use of excluder devices in trawl nets in mitigating dolphin and large marine megafauna bycatch. He referenced a 2014 paper by Corey Wakefield et al (Department of Fisheries, Western Australia) which assessed grid performance using above and underwater cameras in the Pilbara fish trawl over a 6 month period, covering 70 per cent of all daylight tows in that period. The study observed 1 dolphin mortality which dropped out during hauling and established that data recorded in logbooks was robust. He

suggested that some of the fishers in the Commonwealth Trawl Sector could benefit from reading similar material and developing their own positive narrative.

9. Next meeting and close of meeting

The Group agreed to next meet in late September or early October 2017.

Dr John Wakeford advised that he would be at sea from 10 October onwards, and the group agreed to try for the first week of October. AFMA agreed to consult and confirm dates via online poll.

Signed (Chairperson):

Date: 22 November 2017

Attachments

1) CFMMWG Meeting 2 Annotated Agenda
2) CFMMWG Meeting 2 Action Items Summary

Commonwealth Fisheries Marine Mammal Working Group Agenda – Meeting 2

Objective

The objective of this meeting is to discuss the development of protected species strategies across Commonwealth Fisheries and seek guidance from the working group on a desired direction for dolphins

Date	21 June 2017	
Time	9.00am to 5.00pm	
Location	Qantas Meeting Room - Melbourne	
Chair	Mr Bill Talbot	
Attendees	Ms Nicola Benyon	Dr John Wakeford
	Dr Karen Evans	Mr Phil Ravanello (AFMA)
	Mr Tony Harman (DAWR)	Ms Giverny Rodgers (AFMA)
	Dr Mark Hindell	Ms Claire Wallis (AFMA)
	Dr Alice Mackay	Ms Jo Fisher (AFMA)
	Dr Mike Double (DoEE)	Prof. Simon Goldsworthy (invited participant)
Apologies	Dr Julian Pepperell	
	Mr Ryan Murphy	

Agenda item	*Speaker*	*Duration*
1. Welcome and introduction	Chair	9am – 9.10am
2. Minutes of previous meeting	Chair	9.10am – 9.20am
3. Action Items of previous meeting	AFMA	9.20am – 9.30am
4. Population estimate update for Australian sea lions	Dr Simon Goldsworthy	9.30am – 10.45am
5. Elephant seal bycatch in Southern Ocean fisheries	AFMA	11am – 11.30am
6. Other Business – update on general bycatch issues a. GHaT and SPF dolphin plans b. US import requirements	AFMA, DAWR	11:30am-12pm
7. Dolphin Bycatch: frequency and factor determination & discussion	AFMA	12pm-2.30pm

Date	21 June 2017		
8.	Fur seal bycatch: frequency and factor determination & discussion	AFMA	2.30pm – 4.45pm
9.	Next meeting and close of meeting	Chair	4.45pm – 5pm

Morning tea	*10.30am – 10.45am*
Lunch	*12.30pm – 1.15pm*
Afternoon tea	*2.45pm – 3.00pm*

Next meeting

TBD

Action item		Responsible
1	AFMA to finalise Action Item 7 from the 2015 meeting of the MMWG, regarding exploration of funding sources for re-modelling of ASL population data as originally queried by I Knuckey.	AFMA
2	Simon Goldsworthy to provide a costing/EOI around the desktop study to update the population model, to determine how much current declines can be explained by historical bycatch rates in the gillnet sector of the GHAT, and when a change in trajectory in response to application of the Australian sea lion management strategy would be expected, and provide a 2 page project proposal to AFMA and the DotEE member, to have available for opportunistic funding opportunities.	S Goldsworthy
3	AFMA to seek to increase age/sex ID of SES from SO boats where possible (including length measurements), and to investigate the provision of materials to observers to facilitate this if necessary.	AFMA
4	Mike Double to send review of physical barrier mitigation devices used to deter cetaceans in the Spanish toothfish longline fisheries through to group for information.	DotEE
5	Mike Double to speak to John van den Hoff and Dirk Welsford to confirm their paper is to be presented at CCAMLR 2017, and clarify actions they might be seeking to progress.	DotEE
6	AFMA to produce list of mitigation devices used in the GHAT, including current relative uptake of these techniques, collate data on levels of implementation on various dolphin mitigation devices vs interaction rates vs effort and provide to the CFMMWG for consideration/ranking where possible.	AFMA
7	AFMA to invite CFMMWG members to Govdex page and upload any available papers and minutes from previous iterations of MMWG papers to the shared site.	AFMA
8	Mike Double to distribute a recent Science magazine article exploring the new US Marine Mammal Protection Act ruling on import restrictions and its impacts on developing nations to CFMMWG members.	DotEE
9	AFMA and Karen Evans to investigate sourcing cleaned SESSF effort data used for stock assessments, and AFMA to explore provision of: a) clean catch and effort data, b) all observer data c) all EM events and d) logbook reported interaction data Above data sets to be used to support desk top study of cetacean interactions in the GHAT (marine mammal CPUE, changes in effort, and regional variation in interaction rates) and high level review of CTS data prior to exploration of marine mammal CPUE and base interaction rates between seals and CTS vessels.	AFMA, CSIRO
10	AFMA to provide the ERA for the GHAT to the CFMMWG for determination of data availability prior to initiating a high level data review.	AFMA
11	AFMA to explore fishery-based funding for a short, multi-day high level review of the data to explore whether it can do what we need, and if not, where the holes are and how they could be fixed for the GHAT and the wet boat sector of the CTS.	AFMA
12	AFMA to provide for the GHAT and CTS: - a timeline of management measures in the fishery (e.g. roll out of EM) and likely impacts on logbook data -a summary of observer/monitoring coverage (including an indication of how observer coverage has been distributed across the fishery, and how observer reporting requirements or training have varied through time) and variation in effort for the previous 10 years for the fishery in question; and - a summary of how many of the AFMA logbook reports are from a trip where an observer was present.	AFMA
13	AFMA to review costings for development of ability to provide clips related to marine mammal interactions, and longer storage of these clips or photos, and advise the CFMMWG on Archipelago's species ID process if possible, and what proportion of dolphins are identified to species.	AFMA