



# Marine Mammal Working Group

## SOUTHERN AND EASTERN SCALEFISH AND SHARK FISHERY

 25 SEPTEMBER 2013

The Armory, South Australian Museum,  
North Terrace Adelaide 5000

**Chair** Nick Rayns  
**Date** 25 September 2013  
**Location** South Australian Museum

### Attendance

Catherine Kemper	South Australian Museum
Dirk Holman	Manager GAB Marine Parks
Derek Hamer	Australian Antarctic Division
Dirk Welsford	Australian Antarctic Division
David Stone	Sustainable Shark Fishing Industry Association
Mat Koopman	Fishwell Consulting
Kyriakos Toumazos	Industry representative
Phil Toumazos	Industry representative
Terry Toumazos	Industry representative
Geoff McPherson	Global Detection Systems, Acoustic Consultant
Mandy Goodspeed	Department of Agriculture Fisheries and Forestry
Kerry Cameron	Department of Environment
Nathan Hanna	Department of Environment
Alexia Wellbelove	Humane Society International
Alice Mackay	South Australian Research and Development Institute
Simon Goldsworthy	South Australian Research and Development Institute
Brad Milic	Primary Industries and Resources South Australia
Kathryn Warhurst	Conservation Council SA
Kirsten Bilgmann	Flinders University
David Power	AFMA
Erik Raudzens	AFMA

### Apologies

Anthony Ciconte	Industry representative
Pamela Allen	Australian Marine Conservation Society
Carolyn Stewardson	Fisheries Research and Development Corporation

### 1. Preliminaries Chair

The Chair updated the working group on the appointment of the Hon. Barnaby Joyce as the Minister for Agriculture Fisheries and Forestry, the Hon. Richard Colbeck as Parliamentary Secretary.

The Minister and Parliamentary Secretary have highlighted the need for sustainable fisheries and reduced duplication of regulatory procedures. The Commonwealth Marine Reserves Network will be reviewed and funding is to be provided for the formation of representative bodies for the recreational and commercial fisheries sectors.

#### 1.4 Progress on action items

Table 1: Action items form 14 November 2012 Marine Mammal Working group meeting.

	Action Required	Progress/Comments
1	<p>AFMA to consider and amend the draft TOR as appropriate for further consideration by the MMWG at the next meeting. This will include:</p> <p>taking comments from MMWG participants out of session up to 15 January 2013</p> <p>reviewing differences in the TOR objectives for responding to ASL and dolphin interactions</p> <p>AFMA considering the relationship of the MMWG with other groups such as the SESSF Resource Assessment Group and through the Australian Marine Mammal Centre.</p>	<p>Complete. Circulated to group via email. Members noted a lack of communication between SharkRAG and the working group. The Chair noted both SharkRAG and the working group are able to provide advice on request or undertake action items.</p>
2	<p>Details of three additional ASL colonies to be provided to AFMA</p>	<p>Complete. AFMA closed additional areas in SESSF Closures Direction No.6 2013. Simon Goldsworthy queried the rationale for the size of the closures. AFMA noted the size of colonies was related to the pup production and estimated female bycatch mortality of the each colony. Simon Goldsworthy advised that such measures have been updated (see Action Item 2 for the 25 September 2013 working group).</p>
3	<p>AFMA to provide the MMWG with details regarding seabird interactions in the auto-longline trial, including where samples were sent and who identified them.</p>	<p>Complete. AFMA provided to MMWG via email. Members noted concerns with the process for retention and identification of seabirds (see Action item 1 for the 25 September 2013 working group).</p>
4	<p>AFMA to explain to the MMWG how the GHAT Future Directions project outcomes will be conveyed to Environmental Non-Governmental Organisations.</p>	<p>Complete. AFMA provided to MMWG via email.</p>
5	<p>AFMA to circulate threatened, endangered and protected species interaction forms to the MMWG for comment and possible additions to the form. For example, using a tick to mark 'haul' 'set' etc. AFMA to also provide any available analysis from</p>	<p>Complete. AFMA provided to MMWG via email.</p>

	the form.	
6	If there is an expansion of MMWG beyond ASL in the GHAT as proposed, AFMA to contact Mike Double regarding how the MMWG would fit with the AMMC.	Under consideration and carried over to table 2 below.
7	AFMA to circulate the outcomes of the United States meeting on acoustic pinger operation when available.	Complete. AFMA provided to MMWG via email
8	AFMA to investigate inviting Geoff McPherson, SEANET or similar to the next MMWG.	Complete. Presented at meeting.
9	AFMA to review data on marine mammal interactions and provide the MMWG with any available analysis.	Complete. AFMA provided to MMWG via email. Some members raised concerns regarding the reporting of the performance of the ASL Management Strategy.

**Table 2:** Summary of action items from the 25 September 2013 Marine Mammal Working Group.

	Action Required	Responsibility
1	Documentation of the process for seabird collection and identification of seabirds	AFMA
2	Simon Goldsworthy to provide AFMA with updated estimates of ASL pup production and female bycatch mortality for the Cap Island and Rocky South Islands colonies.	Simon Goldsworthy and AFMA
3	AFMA to supply working group with summary statistics of Electronic Monitoring footage analysed from the Australian Sea Lion management area including levels of observer coverage and proportions of footage reviewed. AFMA to present Working Group with an example of EM footage obtained from systems at the next meeting.	AFMA
4	AFMA to inform the Working Group of the details of the dolphin interactions reported as released alive.	AFMA
5	Final FRDC report <i>Trials of longlines to target Gummy Shark in SESSF waters off South Australia</i> to be distributed to Working Group. Fishwell Consulting to provide Working Group information of age at sexual maturity for Gummy Shark.	Fishwell Consulting and AFMA
6	AFMA to establish sub-group of the Working Group to define best practise mitigation measures and identify appropriate candidate pingers.	AFMA
7	Members to provide comment to on Sustainable Shark Fishing Incorporated Risk Assessment paper to David Stone. This work will support the sub-committee reviewing mitigation measures.	All

The Working Group accepted the minutes from the 14 November 2012 Marine Mammal Working Group.

Nathan Hanna from the Department of Environment (DoE) updated the working group on permit requirements for the retention of marine mammals. He noted there were two pathways to gain permits. Changes to the SESSF Management Plan or under DoE scientific permits. Changes to the management Plan would take over 12 months to implement and incur substantial costs. Scientific permits would take 6-7 weeks to be granted and could apply to individuals or the industry as a whole. Kirsten Bilgmann noted that Flinders University had obtained a scientific permit to collect dolphin specimens.

## **2. Reporting on ASL Strategy**

### **2.1 Update on activities since last meeting**

- AFMA Management updated the Working Group on the ASL management strategy. Two additional 4nm radial closures areas have been added surrounding colonies at Cap Island and Rocky South Islands.
- Three of the seven ASL management zones, (A, B and D) have been closed to fishing after the implementation of revised ASL trigger limits in January 2012.
- After remaining closed for 18 months, Zone A opened on 15 May 2013, Zone B on 10 August 2013 and Zone D on 23 August 2013.
- One ASL interaction has occurred during the 2013/14 SESSF fishing season in Management Zone C on 25 May 2013. As a result, Management Zone C has a remaining trigger limit of one.

Simon Goldsworthy queried the rationale for the size of the new radial closures. AFMA noted the size of closures followed the rationale for previous closures based on estimates of pup production and female bycatch rates. Professor Goldsworthy suggested new figures would require larger spatial closures. Kyriakos Toumazos queried the requirement for a larger closure noting that the areas already had triggered interaction requirements.

Action item 2: Simon Goldsworthy to provide AFMA with updated estimates of ASL pup production and female bycatch mortality for the Cap Island and Rocky South Islands colonies.

Working group members queried the nature of the last ASL interaction and the amount of fishing effort captured and analysed by EM systems. AFMA noted observed EM requirements were 100% of fishing operations. The current percentages of footage reviewed varied by vessel although targets aim to achieve 100% review of footage from fishing operations within the ASL management zones.

Action item 3: AFMA to supply working group with summary statistics of electronic monitoring footage analysed from the Australian Sea Lion management area including levels of observer coverage and proportions of footage reviewed. AFMA to present Working Group with example of EM footage obtained from systems at the next meeting.

## **3. Update on interactions**

AFMA updated the Working Group on interaction rates since the dolphin closure was implemented. Interaction rates have been much lower. Industry reporting of interactions has also improved since industry training and education programs were introduced during 2012.

- Since the dolphin closure came into effect in September 2011 there have been 33 dolphin mortalities and two non-fatal interactions across the fishery.
- 18 mortalities occurred west of the Eyre Peninsula, three in the dolphin observation zone, three between the Spencer Gulf and Kangaroo Island and the remainder in Bass Strait or waters adjacent to Victoria.
- As a result of the spatial closures implemented in South Australia, gillnet effort in waters off South Australia declined significantly during 2012. ASL management zones A, B and D as well as the Coorong dolphin closure were all closed for the entire 2012-13 season.
- There has been some shift in effort to the east of the fishery with boats moving from South Australia into Bass Strait.

Action Item 4: AFMA to inform the Working Group of the details of the dolphin interactions reported as released alive.

#### **4. Progress on additional management measures**

##### 4.1 Auto-longline trial final report by Fishwell Consulting

Matt Koopman of Fishwell Consulting updated the working group on draft results from the FRDC report *Trials of longlines to target Gummy Shark in SESSF waters off South Australia*.

- The trial had two components which included stratified scientific sampling and a trial of commercial fishing operations.
- The stratified scientific sampling component focused on length frequency and discard data collection while the trial of fishing operations focused on the economic viability of auto-longline methods to target Gummy Shark.
- The economic results were still being finalised and were not described during the presentation.
- Results for size selectivity found a similar trend for 6 and 7 inch mesh gillnet methods although auto-longline trial results had a larger distribution of smaller sharks and larger sharks noting such catches were relatively small.
- Gummy Shark, comprised between 56% and 88% (by weight) of the retained catch during the scientific trips and 60% of the total catch (retained and released) and 74% of the retained catch during normal operations.
- Discarded snapper accounted for 3% of total discards.
- School Shark catches comprised 2–8% during scientific trips, and 10% to the total catch by weight for commercial trips (about 17% of the Gummy Shark catch).
- A number of seabirds were captured during the commercial trial. The trial ceased after a large number of bird interactions were reported in December 2012. The authors of the report sought independent advice from Dr Nigel Brothers regarding potential mitigation strategies for future operations which included adherence to sink rates and gear modifications and spatial temporal risk factors.

David Stone queried some of the figures used to estimate catch values and costs listed in the draft paper. Matt Koopman noted the economic component of the paper was in draft format and he was happy to take advice from members regarding market sale prices for certain species.

Members noted that times around the breeding cycle for shearwaters and the new moon were likely to see an increase in interactions. In addition sink rates of lines and the location of where lines are deployed due to impact of vessel turbulence were also crucial factors.

Dirk Welsford noted that offal management was important factor in reducing risks of interactions in other Commonwealth managed fisheries. Matt Koopman stated that there are number of recommendations made by Dr Nigel Brothers which could be used and an industry code of best practice for further trials.

Action item 5: Fishwell Consulting and AFMA to distribute the final FRDC report *Trials of longlines to target Gummy Shark in SESSF waters off South Australia* to be distributed to Working Group. Fishwell Consulting to provide Working Group information of age at sexual maturity for Gummy Shark.

#### 4.2 Acoustic mitigation devices by Geoff McPherson

Geoff McPherson presented a summary of research efforts relating to acoustic techniques to mitigate negative interactions between fishing gear and dolphin species.

- The use of acoustic pingers have been shown to be effective at deterring some species of cetaceans from accidental entanglement in fishing gear, and reducing interactions associated with catch depredation, including special cases of depredation where dolphins 'play' with gear. Applications had a greater chance of success when acoustic devices met the manufacturers own specifications and were tested where species, signal type and commercial gear replication were all scientifically relevant.
- There are significant acoustic and behavioural response differences between bycatch mitigation pingers and depredation mitigation pingers. Bycatch pingers simply alert inattentive animals resulting in heightened perception facilitating fishing gear detection. Depredation mitigation pingers function probably by downgrading sonar fine scale performance at close range to entrained catch reducing depredation and social play near gear.
- There remains uncertainty about whether the cause of entanglements in the GHAT, namely as an outcome of depredation behaviour or accidental entanglement.
- Passive acoustic monitoring, including 3D localisation, would provide information on the type of dolphin behaviour and assist with selecting an appropriate pinger.
- Causes of interactions could be species and area specific.
- There is currently no evidence of dolphin habituation to acoustic signals that would result in an increase in entanglement. Dolphins are usually not spatially excluded by bycatch mitigation pingers.
- Acoustic assessment of dolphin behaviour is required in order to select the most appropriate pinger for the application and indeed if gear modification may be required to augment pinger mitigation.

Working Group members raised concerns regarding acoustic pingers causing a potential increase in pinniped interactions through attraction although it should be noted that operating vessel acoustic and light signatures may have greater range capability of attraction than a single low frequency pinger.

Working Group members also noted the importance of conducting any acoustic mitigation trials in areas outside of the Australian Sea Lion management and dolphin closure areas to mitigate risks of high interaction rates. It was noted that Bass Strait would be the best area for acoustic monitoring to assess behaviour of both Common Dolphins and Bottlenose Dolphin.

The Working Group noted uncertainty as to the appropriateness of various dolphin interaction mitigation strategies and recognised that if the fishery was to move to an

individual accountability framework more information on pinger suitability for specific situations should be provided to fishers. It was encouraging to see so much detail on the types of pingers available and that they have been successful for certain species. Industry noted that they need clarity around what type of pinger would be suitable for the types of dolphin behaviour they may experience (e.g. predation or entanglement due to not detecting the net).

The working group recommended the establishment of a sub-committee from the Working Group consisting of industry representatives, acoustic mitigation and marine mammal experts. The sub-committee would provide advice to fishers regarding best fishing practices, identify what or if pingers would be most effective for deterring dolphin entanglement in net gear and to identify research priorities.

Action item 6: AFMA to establish sub-group of the Working Group together to define best practise mitigation measures and identify appropriate candidate pingers.

## **5. GHAT Future Directions project**

AFMA members provided the working group with background of the Future Directions Working group and its objectives which include:

1. Temporarily allowing gillnet fishers to use hooks in gillnet closures in South Australia and trial the suitability of using hooks over the longer term;
2. The use of electronic monitoring through onboard camera systems and developing boat level responses to strengthen incentives for minimising protected species interactions; and
3. Reducing complexity of GHAT management arrangements to improve cost-effectiveness of management and provide greater economic certainty.

AFMA noted that public consultation paper was to be released in the near future and asked the Working Group for comment.

Members queried whether the extension of hook permits which may allow the use of auto-longlining methods was considered a trial. AFMA members noted such permits would be in place for a maximum of two years. During this period the use of auto-longlining would be assessed on performance criteria including sustainability of target species, bycatch species and threatened, endangered or protected species.

The Working Group gave in principle support to the concepts provided by the Future Directions Working Group noting that the success of implementing such management arrangements were somewhat dependant on the details yet to be provided. The working group noted the importance of implementing monitoring requirements based on risk.

Industry members claimed they required a Cost Benefit Analysis in relation to the uptake of electronic monitoring and needed more certainty regarding impacts of systems breaking down in relation lost fishing opportunities.

AFMA noted analyses of costs of implementing electronic monitoring had been previously published by AFMA and this work would be updated with a service delivery model and provided to industry in the near future.

## 5.1 Dolphin Management Strategy

AFMA management noted dolphin interactions rates have decreased in the fishery since the closure but remain an ongoing issue for the fishery. AFMA intends to implement a Dolphin Management Strategy to address the following needs:

1. Minimise interactions with dolphins;
2. Improve monitoring and reporting of dolphin interactions; and
3. Provide incentives for individual operators to reduce interactions and implement and develop mitigation measures best suited to their circumstances and location.

The Working Group was asked to provide comment and recommendations regarding general objectives.

Working Group members expressed the need for a phased approach to management measures to ensure fishers were provided with the best information on mitigation measures. The establishment of the Working Group sub-committee would aid in providing advice to fishers.

The Working Group recommended adding an additional objective to the dolphin management strategy which included:  
'to increase knowledge or building mitigation knowledge for fishers'.

Members queried monitoring requirements. AFMA stated SharkRAG would provide advice on monitoring levels required.

Members gave in principle support for a dolphin management strategy that included individual responsibility with management measures introduced for individual operators that exceeded threshold interactions rates.

The objectives supported by the working group include:

1. Minimise interactions with dolphins in the gillnet fishery;
2. Improve monitoring and reporting of dolphin interactions;
3. Provide incentives for individual operators to reduce interactions and apply mitigation measures best suited to their circumstances and location; and
4. Identify mitigation options and best practice measures to support fishers minimise interactions.

Objective 4 outlined above will be addressed through the action item 6 (Sub-committee to define best practice mitigation measures and identify appropriate candidate pingers).

Members requested that the details of the strategy be distributed to the Working Group for comment before implementation.

## 5.2 Industry experience and current initiatives

David Stone, Executive Officer of the Sustainable Shark Fishing Industry provided a risk analysis of marine mammal interactions in the gillnet fishery.

Members appreciated the work undertaken and noted that it was important to recognise a lack of fishing gear uniformity in the fishery.

Mr Stone stated that industry did not have issues with dolphin interactions in Tasmania and would like clarity regarding the cause of interactions, including dolphin behaviour and biopsies of animals to check for possible disease.

Members noted that a risk analysis matrix should include defined consequences. Mr Stone was willing to take the advice of members regarding the risk analysis.

Action item 7: Working Group members to provide David Stone with comments regarding the SSFI risk analysis. This work will support the sub-committee reviewing mitigation measures.

## **6. Update on marine mammal research**

### **6.1 Update on Flinders University project**

Kerstin Bilgmann provided the Working Group with an update of Common Dolphin research undertaken by Flinders University. Research has been undertaken to elucidate genetic structure of common dolphins off southern Australia, and aerial surveys were conducted off central South Australia to estimate the relative abundance of common dolphins. The work identified multiple common dolphin populations; i.e. Management Units (MUs). MUs are defined as demographically distinct populations that have significantly different microsatellite allelic frequencies (a measure of genetic diversity). This indicates that there is low recent genetic exchange between the MUs. Results from genetic studies based on 308 samples from 11 locations off southern Australia (WA, SA, VIC, TAS, and NSW) have found:

- Significant difference in allele frequencies (13 microsatellites) between populations and low contemporary genetic migration rates among populations.
- Significant genetic differentiation between populations was also found for mitochondrial DNA (mtDNA control region sequences). There were six genetically distinct MUs of common dolphins across southern Australia.
- MU four was most likely to be impacted due to regional distribution overlapping with fishing effort in the GHAT.
- MU three and five may also be impacted
- Dolphins from MU six are at risk when they undertake migratory movements into fishing areas.
- Genetic assignment tests can be used to identify which population a dolphin is from - noting that research permit has been issued to collect tissue samples for any dolphins captured and only a small piece of dolphin skin would be needed.

Aerial surveys for dolphin abundance estimates were conducted during the winter and the summer in central South Australia, including Spencer Gulf, shelf waters south of the gulf, Investigator Strait and Gulf St Vincent. A robust data analysis is underway and preliminary figures are summarised below.

- Perception bias was addressed by using a double observer platform during aerial survey flights
- Summer and winter surveys covered all of Spencer Gulf region, Investigator Strait and Gulf St Vincent.
- More schools were seen in winter surveys, however, schools were smaller on average during winter (dolphins were more spread out).
- Summer estimates of populations were 14,549

- Winter survey estimates were 20,749. Both estimates produced large confidence intervals therefore there is some uncertainty around estimates. Estimates are only preliminary and should not be used for management decisions. A robust analysis is underway which may change final estimates.

Kerstin Bilgmann noted that Flinders University are submitting a research proposal to the Marine Mammal Centre to conduct a population viability analysis on MU four, the MU that is likely to be mainly impacted by fisheries mortality. A population viability analysis will provide estimates of what levels of dolphin mortality would cause a decline in the population.

## 6.2 Update on SARDI research and project proposals      Simon Goldsworthy

Professor Simon Goldsworthy updated the Working Group on the latest status on ASL populations. Recent surveys have been attempting to measure whether mitigation strategies have been effective. SARDI has been undertaking regular sampling. Micro chipping of ASL pups is expected to produce extensive life history information. Recent surveys have included additional monitoring of the Bunda Cliffs region. Current general results have found population trends variable with some areas stable, others in decline some positive.

Professor Goldsworthy also updated the Working Group on research proposals which may include an assessment and review of electronic monitoring of gillnet vessels. Such research could provide an updated and more accurate bycatch rate.

Working Group members noted the importance of the fishing industry to report changes in fishing methods and behaviour regarding attempts to reduce marine mammal interaction rates and reiterated the importance of retaining Australian Sea Lions and dolphins.

## **7. Other business**

Brad Milic from PIRSA updated the Working Group on State fisheries issues. He noted the rock lobster fishery was implementing ASL mitigation (spikes in the entrance of lobster pots) in the northern zone with mitigation requirements to be extended to the remainder of the fishery and the recreational sector in the near future.

The pilchard fishery has been measuring net sets for observer coverage for the 2012/13 season. To date there has been one observed interaction at 13% observer coverage. Past issues with fisher behavioural changes when observers are onboard appear to have been rectified.

The meeting closed at 4pm