

Annex H

REPORT OF THE WHALE KILLING METHODS AND WELFARE ISSUES WORKING GROUP¹

Thursday 20 October 2016, Portoroz, Slovenia

Summary of Main Outcomes

Agenda Item	Main outcomes
3. Data provided on whales killed	The Working Group (WG) reviewed reports from a number of governments on their hunting operations or events requiring euthanasia.
4. Information on improving the humaneness of whaling operations	<p>The WG welcomed reports from the Kingdom of Denmark, Norway and the USA on their improvements in whaling operations.</p> <p>The WG thanked NAMMCO for its presentation on the report of its Expert Group Meeting on Assessing Time to Death from the Large Whale Hunts, November 2015, Copenhagen, Denmark.</p>
5. Whale welfare	<p>The WG endorsed the recommendations from the IWC Workshop to Support the Consideration of Non-Hunting Related Aspects of Cetacean Welfare, May 2016, Kruger National Park, South Africa (Appendix 4). The primary focus of these is to take forward work to further develop a draft cetacean welfare assessment framework.</p> <p>The WG agreed that the Intersessional Working Group on welfare should continue its work in support of implementation of the IWC Welfare Action Plan and to progress the recommendations from the recent workshops; and agreed revised Terms of Reference for this group as follows:</p> <p>(1) support implementation of the IWC Welfare Action Plan and report back to the WKM&WI WG, including on any need for updating or revision; and</p> <p>(2) identify and agree upon important issues or themes to progress the promotion of good animal welfare and agree a timetable of regular future technical workshops on these issues, that would report back to the relevant working groups, recognising the success of previous IWC workshops on specific issues incorporating invited external experts.</p>
6. Whale issues associated with the entanglement of large whales	<p>The WG endorsed the recommendations from the third IWC Workshop on Large Whale Entanglement Issues, April 2015, Provincetown, MA, USA, (Appendix 5), including those relating to development of a Global Entanglement Database.</p> <p>The WG endorsed the recommendations presented in the summary report of the joint IWC, NOAA, NEAq Workshop on Global Assessment of Large Whale Entanglement and Bycatch Reduction in Fishing and Aquaculture Gear, May 2016, Portsmouth, New Hampshire, USA (Appendix 6).</p> <p>The WG thanked David Mattila, the technical adviser to the Secretariat to assist with reducing conflicts between cetaceans and marine resource users for his progress report and recommended that this valuable work continue.</p>

¹ Presented to the meeting as IWC/66/Rep06.

7. Strandings	<p>The WG endorsed the recommendations from the IWC Workshop to Develop Practical Guidance for the Handling of Cetacean Stranding Events, May 2016, Kruger National Park, South Africa (Appendix 7).</p> <p>The WG endorsed the Scientific Committee recommendations on strandings, including the proposal to establish an Expert Panel on strandings, to convene the first meeting of this panel and to appoint a Strandings Coordinator. The WG agreed to forward the discussion on funding for the first Expert Panel and Coordinator to the Finance and Administration Committee.</p>
---------------	--

1. INTRODUCTORY ITEMS

A list of participants is given as Appendix 1.

1.1. Appointment of Chair

1. Michael Stachowitsch (Austria) was appointed as Chair.

1.2. Appointment of Rapporteurs

2. Harriet Gillett, Martin Jenkins, Robert Munroe, Sara Oldfield and Pablo Sinovas were appointed as rapporteurs.

1.3. Review of Documents

3. The list of available documents is given as Appendix 2.

2. ADOPTION OF AGENDA

4. The adopted agenda is given as Appendix 3.

3. DATA PROVIDED ON WHALES KILLED

5. The Chair introduced this agenda item, noting that it allows Contracting Governments to provide the information specified in Resolutions 1999-1 and 2001-2. Resolution 1999-1 encourages reporting of data on whales killed including the number killed by each method, the number killed instantaneously, times to death, number of whales targeted and missed, number of whales struck and lost, calibre of rifle where used, number of bullets used and methods to determine unconsciousness/time to death. Resolution 2001-2 encourages governments to submit information on variance data on times to death (to the extent possible) and comparative data from the killing of other large mammals. This item also allows reporting of data relevant to administration of euthanasia. The Chair noted that, this year Contracting Governments were also invited to report on progress made in implementation of the recommendations from IWC Workshop on Euthanasia Protocols to Optimise Welfare Concerns for Stranded Cetaceans, 11-13 September 2013, London, UK [IWC/65/WKM&AWI Rep01].

3.1. Reports from Contracting Governments on Whales Killed

6. Reports were received from the Kingdom of Denmark, Norway, the Russian Federation, New Zealand, St. Vincent and the Grenadines, the United Kingdom and the United States of America (Documents IWC/66/WKM&WI05; IWC/66/WKM&WI07 and IWC/66/WKM&WI09). The Working Group thanked them for these reports.

3.1.1 Kingdom of Denmark

7. The Kingdom of Denmark presented the data for 2014 and 2015 in IWC/66/WKM&WI05. They noted one error, the omission of one bowhead whale from the 2015 report, giving a total of one whale killed.² Methods used are penthrite grenades as primary and secondary method for the larger species and penthrite grenades as primary with high calibre rifles as the secondary killing method for the common minke whale, apart from the collective rifle hunt for common minke whales

²A revised document including this whale was submitted after the conclusion of the meeting of the Working Group as IWC/66/WKM&WI05rev.

(which comprised 45% in 2014 and 59% in 2015). The presented Greenlandic data on the time to death (TTD) is biased high for those hunts where the TTD are estimated by the hunters and are not corrected by post-mortem examinations. In both 2014 and 2015, the median TTD for common minke whales was 1 minute with about 55% estimated to have died instantly in the harpoon hunt; times are longer in the rifle hunt than the harpoon hunt. For fin whales, the median TTD was about 10 minutes and the percentage killed instantly around 40% in both years. For humpback whales, the median TTD was 10 minutes in 2014 and 20 minutes in 2015. The percentage killed instantly was around 20% in 2014 and zero in 2015.

3.1.2 Norway

8. Norway introduced the data for 2014 and 2015 in IWC/66/WKM&WI07. In addition to information on whales taken in 2014 and 2015 and weapons used (penthrite grenades using 50mm or 60mm harpoon cannons with high calibre rifles and round nosed, full metal jacket bullets as back-up weapons) they reported on obligatory shooting tests for gunners and the inclusion of NAMMCO observers on board and at processing plants in some seasons. Norway noted that research and developments on whale killing methods being undertaken have been continuously reported to the IWC and that from 2008 similar reports have been presented to NAMMCO.

3.1.2 Russian Federation

9. The Russian Federation presented the data for 2014 and 2015 in IWC/66/WKM&WI05, noting that the methods and quantity of ammunition used remains comparable to previous years. The mean TTD was 23-35 minutes.

3.1.3 New Zealand

10. New Zealand presented the data for 2014 and 2015 in IWC/66/WKM&WI05, noting that all killings related to euthanasia. Killing was usually accomplished using high calibre rifles. Median TTD was 5 min. for long-finned pilot whales (n=11) and instant for pygmy sperm whales (n=11) and for a single Gray's beaked whale, common dolphin and Cuvier's beaked whale. In light of the difficulties they encountered with stranded animals, they expressed their view that killing whales humanely under whaling conditions would be much more difficult. They encouraged submission of full data sets to the IWC.

3.1.4 St Vincent & the Grenadines

11. The Chair noted that St. Vincent and The Grenadines had submitted data for 2014 and 2015 in IWC/66/WKM&WI09. The weapons used were a harpoon and lance.

3.1.5 United Kingdom

12. The United Kingdom presented the data for 2014 and 2015 in IWC/66/WKM&WI05 noting that all killings related to euthanasia. Methods used were either chemicals or shooting. Species concerned included, bottlenose dolphins, short-beaked common dolphins, striped dolphins, white-beaked dolphins, Risso's dolphins, long-finned pilot whales and common minke whales. They had not routinely collected information on times to death previously but had begun to do so and presented some estimated times for 2015. They thanked other countries for providing reports but noted that, in some cases, reported time to death can be long. They urged increased efforts to reduce times to death, and encouraged other countries to submit data.

3.1.6 United States

13. The United States presented the data for 2014 and 2015 in IWC/66/WKM&WI05. The primary methods used were the penthrite projectile alone or the black powder projectile alone from the darting gun with a black powder projectile from a darting gun also used as a secondary/backup method where necessary. The most common combination was a black powder projectile from a darting gun with the black powder projectile from a shoulder gun (80%). Time to death was estimated to be instant for about 30% of the whales in 2014. The prevailing environmental conditions of the hunt make estimating time to death using cessation of movement difficult.

3.2. Reports from Contracting Governments on implementation of the recommendations from IWC Workshop on Euthanasia Protocols to Optimise Welfare Concerns for Stranded Cetaceans

3.2.1 United Kingdom

14. The United Kingdom introduced IWC/66/WKM&WI04, which provided information on UK progress in relation to implementing each of the sixteen recommendations made by the workshop. Many of the recommendations already form guiding principles and practice within the UK rescue community and, where this is not the case, relevant recommendations are being assessed and integrated into protocols as appropriate. Progress reported related to chemical and physical techniques for euthanasia, the testing of methods on dead animals and reporting of euthanasia data. The UK noted that euthanasia is often an important part of a humane response to strandings and that establishing best practice is highly desirable. They encouraged other countries to submit reports on these issues, and welcomed further discussion when these were available.

4. INFORMATION ON IMPROVING THE HUMANENESS OF WHALING OPERATIONS

15. The Chair introduced this Item which allows Contracting Governments to provide information specified in Resolution 1997-1 and supported by Resolution 2001-2. Resolution 1997-1 concerns steps being taken to improve the humaneness of aboriginal whaling operations. Resolution 2001-2 encourages all Contracting Governments to provide appropriate technical assistance to reduce time to unconsciousness and death in all whaling operations.
16. Three Contracting Governments (Norway, the Kingdom of Denmark and the USA) provided information on this item and a presentation was also received from NAMMCO.

4.1. Reports from Contracting Governments

4.1.1 Kingdom of Denmark

17. The Kingdom of Denmark presented the relevant information in IWC/66/WKM&WI05. It referred to the improvements reported previously but noted that it had no new information to present this year.

4.1.2 Norway

18. Norway presented the relevant information in IWC/66/WKM&WI07. An improvement in instant death rate from 80% in 2000-2002 to 82% in 2011-2012 was reported.

4.1.3 USA

The USA presented the relevant information in IWC/66/WKM&WI06. The USA has had great success in the implementation of the penthrate projectile modified for use in the hand-held darting gun and the Alaska Eskimo Whaling Commission continues to conduct training for whaling captains and crew members in the use of the penthrate projectiles. It was noted that large whales have shifted northwards and that some whaling villages have food shortages due to the change in distribution of bowhead whales. Some other changes in Alaska arise from climate change, leading to increased offshore oil and gas activity and shipping, all of which can affect subsistence hunting and reduce its efficiency.

4.2. Report of the NAMMCO expert group meeting

19. NAMMCO presented a report on its Expert Group Meeting on Assessing Time to Death from the Large Whale Hunts, 4-6 November 2015, Copenhagen, Denmark (see IWC/66/WKM&WI03). The aim of the Expert Group meeting was to review and evaluate whale killing data and give recommendations with respect to possible improvements.
20. Data and information were presented from Greenland, Iceland, Norway, Japan, USA (Alaska and Makah hunts) and Canada with respect to Time to Death (TTD), Survival Time (ST) and Instantaneous death rate (IDR). It gave evidence that the considerable efforts and resources channelled into research and development of more efficient hunting methods have been very successful, resulting in substantial improvements in TTD and IDR. Looking at the NAMMCO countries (Greenland, Iceland and Norway) the IDR has increased from 17% in 1981 to 82% in 2012 in the harpoon gun hunt for minke whale and TTD mean from 11 to 1 minute. In the Icelandic fin whale hunt the IDR is as high as 84%. The Expert group meeting had identified and agreed to recommendations on how to improve the TTD/IDR in all hunts. They also underlined the importance of using standardised methods for collection and analysis of TTD data and recommended monitoring of TTD/IDR at 10-year intervals unless the situation required more frequent monitoring, and finally a continued emphasis on training and exchange of information between hunters focusing on the importance of the strike location and angle of the shot.

21. Commenting on possibilities for cooperation between NAMMCO and IWC on animal welfare issues, NAMMCO argued that both organisations have the same goal; conservation and rational management of healthy marine mammal populations, but that countries supporting this goal have different rationales for doing so. NAMMCO views marine mammals as valuable resources that people have a right to utilise. This basic difference may deter cooperation on killing methods. Animal welfare concerns related to other human induced activities may on the other hand represent possibilities for cooperation, and special attention was drawn to the IWC's important work on entanglement.

4.3. Discussion and action arising

22. The UK thanked NAMMCO for the presentation. They acknowledged the request for cooperation with IWC and would like such information from countries to be submitted directly to the IWC in the future so that it can be included in discussions. They noted that lance/cold harpoons clearly result in poor whale welfare outcomes and considered it important for the use of these killing methods to be reduced or stopped as quickly as possible and welcomed further consideration in this group on the progress made. They noted the concern from NAMMCO in its report over the increase in Greenland's rifle hunt of minke whales, which has more than doubled in size over the last ten years, and that TTD is extremely long in comparison with other minke whale hunts. They therefore would welcome action to review this and other methods and request that use of rifles as a primary killing method be limited to the greatest extent possible.
23. The Kingdom of Denmark thanked NAMMCO for the presentation. They noted that Greenland is working to improve hunting efforts and hunting associations have been working to improve technology. The Greenland Government has a policy to reduce rifle use in minke whaling. The Kingdom of Denmark noted two further issues. The Department of Fishing and Hunting in Greenland is working to increase subsidies to incentivise the use of Penthrite Grenades for hunting of large whales. Greenland is experiencing some decrease in numbers of large whale hunts using harpoon canons as a result of the dynamics of fishery management (vessels often combine fishing with whaling)
24. The Russian Federation welcomed this as useful and interesting work. They noted that various factors have to be considered with regards to TTD, the difficulties of estimating TTD at sea, and that determinations of TTD should take into account killing methods used. They also noted that the use of modern weapons is expensive and unaffordable to small whaling communities. They expressed willingness to cooperate further with NAMMCO with regards to efforts to assess and improve TTD.
25. The Humane Society International thanked NAMMCO for its presentation, and considered that data should be submitted directly to IWC. They drew attention to the Commission's cold harpoon ban (to which Japan lodged an objection) and underlined the NAMMCO Expert Group's comments on the ineffectiveness of the steel lance as a secondary killing method. They asked Japan to comment on any progress towards minimising or eliminating use of these killing methods in its North Pacific hunt. Japan needed further information before responding to the question from the Humane Society International and therefore had no comment at this time.

5. WHALE WELFARE

26. The Chair introduced this item and recalled that, at IWC65 in 2014 the Commission agreed to reflect the full scope of the IWC's consideration of welfare within the Terms of Reference of the Whale Killing Methods and Welfare Issues Working Group and agreed to an updated Action Plan for the Working Group (provided as IWC/66/WKM&WI11). There were several items of progress to be considered by the Working Group.

5.1. Chair's report of the 2016 IWC Workshop to Support the Consideration of Non-Hunting Related Aspects of Cetacean Welfare

27. The Chair of the intersessional Working Group on Welfare presented the report of a workshop which was held in Kruger National Park, South Africa from 3-4 May 2016 (IWC/66/WKM&WI Rep01). The primary objectives of the workshop were to: (i) facilitate coherent discussion of the welfare aspects of non-hunting threats to cetaceans within the IWC by synthesising the state of current knowledge and identifying priority issues on which the IWC should work to develop

management advice on and/or work to address knowledge gaps; and (ii) provide clarity on the role of the IWC and other organisations in addressing non-hunting threats to cetacean welfare; and (iii) to support the IWC in becoming a leading body for the provision of advice on this issue.

28. The workshop explored how non-hunting threats to cetacean welfare can be assessed. The assessment of animal welfare itself is a rapidly evolving science, therefore the workshop drew extensively on experience from elsewhere. In particular, it proposed an adaptation of the 'Five Domains Model' (Mellor and Beausoleil, 2015; Mellor and Reid, 1994)³ which had previously been used for livestock. The potential to use a modified version of this model as a tool for assessing the welfare implications of non-hunting threats to wild cetaceans was recognised by the workshop and its further development recommended.
29. Even in the early stages of developing and testing this tool, entanglement in fishing gear was clearly identified as a significant welfare concern. The workshop thus reiterated the importance of the Global Whale Entanglement Response Network and the development of a global entanglement database. The workshop made a number of additional recommendations, provided in Appendix 4.
30. The Chair of the intersessional working group expressed the UK's willingness to continue chairing the intersessional working group and encouraged further members to join this group.

5.2. Discussion and actions arising

31. The Working Group thanked the UK and the intersessional working group for their work in convening the workshop, South Africa for hosting the workshop, and workshop participants for their efforts. The Working Group **endorsed** the workshop recommendations and agreed that the intersessional working group should continue its work to support implementation of the IWC Welfare Action Plan and of the recommendations from the workshop. Revised Terms of Reference for the intersessional working group were agreed as follows:

(1) support implementation of the IWC Welfare Action Plan and report back to the WKM&WI WG, including on any need for updating or revision; and

(2) identify and agree upon important issues or themes to progress the promotion of good animal welfare and agree a timetable of regular future technical workshops on these issues, that would report back to the relevant working groups, recognising the success of previous IWC workshops on specific issues incorporating invited external experts.

5.3. Engagement of other organisations and experts on issues relating to cetacean welfare

32. The Secretariat introduced relevant aspects of document IWC/66/04 which provides a report on progress to date and suggestions for next steps with respect to cooperation on a range of issues, including those related to cetacean welfare. It was noted that the Welfare Action Plan agreed at IWC65 includes a work stream on communications and outreach. The workshop considered under Item 5.1 had recommended that the IWC Secretariat proactively engage with organisations with a welfare remit and experts to share information and facilitate the use of existing welfare principles, standards and definitions as appropriate. The Secretariat noted its readiness to take forward the relevant actions in the Welfare Action Plan, and the relevant workshop recommendations and will report on progress at the next meeting of this Working Group.

5.4. Discussion and actions arising

33. The Working Group thanked the Secretariat for its report. There was no discussion or actions arising.

6. WELFARE ISSUES ASSOCIATED WITH THE ENTANGLEMENT OF LARGE WHALES

6.1. Report of the third IWC Workshop on Large Whale Entanglement Issues

34. Arne Bjørge (Norway) presented the report of the workshop (IWC/66/WKM&WIRep03), held in Provincetown, MA, USA from 21-23 April 2015. The workshop conducted a review of

³Mellor, D.J. and Beausoleil, N.J. 2015. Extending the 'Five Domains' model for animal welfare assessment to incorporate positive welfare states. *Animal Welfare* 24(3): 241-53; Mellor, D.J. and Reid, C.S.W. 1994. Concepts of animal wellbeing and predicting the impact of procedures on experimental animals. pp.3-18. *In: Baker, R.M., Jenkin, G. and Mellor, D.J. (eds). Improving the well-being of animals in the research environment.* Australian and New Zealand Council for the Care of Animals in Research and Teaching, Glen Osmond, Australia.

information since the 2011 workshop⁴; and reviewed the IWC capacity building including training conducted from 2012-2014, the experience of recently trained entanglement networks and principles, guidelines and training criteria. Recommendations from the workshop (Appendix 5) included those relating to a Global Entanglement Database to improve the understanding of the impacts of entanglements on whale populations, as well as factors associated with entanglement risks and assist with mitigation efforts.

35. Australia and Mexico stressed the importance of preventing entanglements.
36. World Animal Protection noted that they act as the current Secretariat of the Global Ghost Gear Initiative (GGGI) and encouraged the development of a global IWC entanglement database to help mitigate the impact of entanglements in active fishing gear and abandoned, lost and otherwise discarded fishing gear (ALDFG). The GGGI would welcome data sharing with the IWC and World Animal Protection encourages member governments to submit entanglement data.
37. The Working Group **endorsed** the report of the Workshop and its recommendations.

6.2. Report of the joint IWC, NOAA, NEAq Workshop on Global Assessment of Large Whale Entanglement and Bycatch Reduction in Fishing and Aquaculture Gear

38. Greg Donovan (co-chair of the Workshop) provided a summary of the general recommendations from a Workshop held in Portsmouth, New Hampshire, USA, in May 2016. The Workshop was co-organized by the IWC with the New England Aquarium and the Consortium for Wildlife Bycatch Reduction and co-funded by NOAA (USA). The Workshop had arisen out of the frequent advice from the Scientific Committee and the Workshops on entanglement that the ultimate goal should be the prevention of bycatch. He noted that the report was relevant to both this Working Group as well as to the Conservation Committee. He also noted that the focus was on large whales and noted the great need for similar work on small cetaceans, where the problem of bycatch is huge.
39. Donovan noted that the final report of this Workshop is still being developed and that it will provide a valuable technical resource. His presentation concerned the overall conclusions and recommendations that were discussed at the end of the workshop; although the final wording may be modified slightly, the intent will not change.
40. When considering bycatch mitigation measures, workshop participants noted that, where possible, the 'ideal' hierarchy for action should be to: (1) avoid encounters; (2) reduce entanglements where encounters cannot be avoided; and (3) minimize mortality associated with entanglement when entanglement occurs. Actions on all three can proceed in parallel depending on circumstances. Any mitigation action should include a commitment to an appropriate monitoring programme to evaluate the effectiveness of the mitigation technique over time. From the outset it was recognised that there are common issues but that ultimately local solutions are required for local issues.
41. The Workshop developed seven overarching recommendations (Appendix 6). The key themes addressed included:
 - (a) that governments should recognise the global importance of the issue and act to: (i) facilitate rapid development of methods, testing, implementation and monitoring, including issuance of permits; (ii) work multilaterally given the transboundary nature of whale populations; and (iii) emphasise the importance of this issue and encourage action in inter-governmental organizations and regional fishery management organizations;
 - (b) recognise that solutions require support by fishers and fishery sectors including: (i) the need for full collaboration with fishers, technologists, scientists, and regulators; (ii) the value of identifying test areas (throughout the world); (iii) that fishers should communicate the issue in their communities, innovate reduction approaches and promote socio-economic perspectives;
 - (c) scientists should consider innovative approaches to testing and analysing data evaluating techniques, recognising the difficulty of establishing traditional experimental testing;
 - (d) a concerted effort is needed to collect and disseminate data and information on the frequency and process of entanglement; and

⁴International Whaling Commission. 2013. Report of the Second Workshop on Welfare Issues Associated with the Entanglement of Large Whales, with a Focus on Entanglement Response. *J. Cetacean Res. Manage. (Suppl.)* 14:417-35.

- (e) given the scale of the problem for artisanal fisheries and the socio-economic impacts, nations and scientists should assist them with the development and evaluation of prevention measures.
- 42. Donovan concluded by noting that the last day of the workshop had focussed on IWC-related issues with respect to: gear marking, the role of disentanglement in developing prevention measures, the need for international collaboration on data collection (including discussion of the global database); and abandoned, lost or otherwise discarded fishing gear (ALDFG). These matters were considered by the Scientific Committee and will be reported elsewhere. He thanked the organisers, funders and especially the participants for an excellent and productive workshop.
- 43. The USA noted that the full report will be circulated as soon as it is completed. The USA expressed its full support for the work undertaken by the participants of the workshop and for the continuation of work on entanglement and bycatch of cetaceans. They also stressed that priority should be given to preventing entanglements, noting that disentanglement is not itself a prevention measure.
- 44. The Working Group welcomed the summary report and **endorsed** the recommendations therein.

6.3. Secretariat report on progress

- 45. David Mattila presented an overview of his work as the technical adviser to the Secretariat to assist with reducing conflicts between cetaceans and marine resource users (October 2014 to October 2016) (IWC/66/WKM&WI08). Key accomplishments in this intersessional period included the delivery of 14 entanglement response trainings of over 500 trainees, in response to requests from governments and five apprenticeships for training participants identified in Brazil, Chile and Mexico. He highlighted the broad national support, in particular that from impacted communities, and the value of conducting this work through the IWC with the endorsement of its 88 member countries.

6.4. Discussion and action arising

- 46. The Working Group, including Australia, Belgium, Argentina and Whaleman International, thanked David Mattila and the trainers for their work and the USA for the initial secondment and continued support of David's role.
- 47. Dolphin Connection highlighted the potential role of local initiatives as a component of a government's national response.

7. STRANDINGS

- 48. The Chair introduced this item, noting that the Action Plan agreed at IWC65 includes several objectives on strandings. He drew attention to document IWC/66/WKM&WI10 which provides a collation of IWC recommendations from the Scientific Committee; the IWC Workshop to Develop Practical Guidance for the Handling of Cetacean Stranding Events; and the IWC Workshop on Investigations of Large Mortality Events, Mass Strandings, and International Stranding Response, 11-12 December 2015.

7.1. Report of the IWC Workshop to Develop Practical Guidance for the Handling of Cetacean Stranding Events

- 49. The Chair of the intersessional working group on welfare presented the workshop report (IWC/66/WKM&WI Rep02). The Workshop was held in Kruger National Park, South Africa from 5-6 May 2016, back to back with the Workshop to Support the Consideration of Non-Hunting Threats to Cetacean Welfare discussed under agenda item 5.1. The primary objective of this workshop was to assist the IWC in its efforts to build global capacity for effective cetacean stranding response and promote the IWC as a leading body for the provision of advice through the development of practical guidance for responders.
- 50. The workshop made a number of recommendations (see Appendix 7) including on the potential role of the IWC in capacity building, and the dissemination of guidance and best practice for strandings response; coordination between the IWC and other intergovernmental organisations with respect to strandings; and some specific aspects of the strandings response including public and media engagement and health and safety.

7.2. Discussion of the IWC Workshop to Develop Practical Guidance for the Handling of Cetacean Stranding Events and actions arising

51. The Working Group thanked the UK and the intersessional group for its efforts in organising the workshops and thanked workshop participants for their efforts. The Working Group **endorsed** the workshop recommendations (see Appendix 7) and **agreed** that the intersessional group on welfare should support their implementation.

7.3. Scientific Committee recommendations on strandings

52. The Chair of the Scientific Committee introduced recommendations on strandings from the Scientific Committee. The Scientific Committee had discussed the issue of strandings at both its 2015 and 2016 meetings (IWC/66/Rep01(2015) and IWC/66/Rep01(2016)). The recommendations are summarised in IWC/66/WKM&WI10 which relate to the development of capacity for stranding response, the investigation of strandings events and the collection and reporting of strandings data. She drew particular attention to the recommendations to establish an Expert Panel to guide and inform strandings response and training activities and to appoint an IWC Coordinator to oversee these activities.
53. The USA noted the Scientific Committee recommendation that additional funding would be required for a first expert panel meeting and IWC strandings coordinator and suggested that the Finance and Administration (F&A) Committee add this to its agenda for discussion. In response to a request for clarification from the USA, the Chair of the Scientific Committee suggested that the proposed strandings coordinator could be a member of the proposed Expert Panel, but reiterated that this was open for discussion.
54. UN Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS), highlighted ASCOBANS Resolution 8.10 on Small Cetacean Stranding Response, its complementarity to the recommendations in IWC/66/WKM&WI10, and its interest in participating in the proposed Expert Panel. The Working Group welcomed the interest of ASCOBANS and looked forward to increased cooperation.
55. The Working Group **endorsed** the recommendations from the Scientific Committee and **agreed** to forward the discussion on funding for the first Expert Panel meeting and IWC strandings coordinator to the Finance and Administration (F&A) Committee.

8. ADOPTION OF THE REPORT

56. Before closing the meeting, the Chair invited nominations for a new Chair. The UK thanked the Chair for his work, and wished him all the best in his future endeavours.
57. The meeting closed at 16:32. The report was **adopted** by correspondence on 24 October 2016.

Appendix 1

LIST OF PARTICIPANTS

ARGENTINA

Juan Pablo Paniego
Miguel Iniquez

AUSTRALIA

Nick Gales
Pam Eiser
William de la Mare
Frank Lamacchia

AUSTRIA

Andrea Nouak
Michael Stachowitsch

BELGIUM

Stephanie Langerock
Els Vermeulen
Fabian Ritter

BRAZIL

Marcia Engel

DENMARK

Gitte Hundahl
Amalie Jessen
Nette Levermann

FINLAND

Penina Blankett

FRANCE

Nadia Deckert
Vincent Ridoux

GERMANY

Andreas Christian Taeuber
Jurgen Friedrich
Nicole Hielscher

GHANA

Benson Nutsukpui

ICELAND

Johann Gudmundsson
Gisli Vikingsson
Kristjan Loftsson

ITALY

Alessandro Iannitti
Caterina Fortuna
Francesca Granata

JAPAN

Joji Morishita
Toshinori Uoya
Naohito Okazoe

KENYA

Susan Imende

KOREA, REPUBLIC OF

Hawsun Sohn
Young Min Choi

NEW ZEALAND

Amy Laurenson
Andrew Townend
Erin Morriss
Julia Reynolds

NORWAY

Ole-David Stenseth
Arne Bjørge
Hild Ynnesdal
Kathrine Ryeng

RUSSIAN FEDERATION

Valentin Ilyashenko
Ayvana Enmynkau
Kirill Zharikov
Nataliia Slugina
Olga Safonova

SLOVAK REPUBLIC

Branislav Hrabkovsky
Lucia Vlckova

SLOVENIA

Andrej Bibic
Tilen Genov

SOUTH AFRICA

Herman Oosthuizen
Ed Couzens
Hester Pretorius

ST. KITTS & NEVIS

Marc Williams

ST. LUCIA

Horace Walters

SWEDEN

Anders Alm

SWITZERLAND

Bruno Mainini
Patricia Holm

UNITED KINGDOM

Nigel Gooding
Catherine Bell
Jamie Rendell
Jennifer Lonsdale
Mark Peter Simmonds

UNITED STATES OF AMERICA

Ryan Wulff
Brian Gruber
DJ Schubert
Greig Arnold
Arnold Brower, Jr.
Harry Brower, Jr.
Jordan Carduner
Michael Gosliner
Michael Tillman
Robert Brownell

European Commission

Marc Richir

NAMMCO

Charlotte Winsnes

UNEP/CMS/ASCOBANS

Heidrun Frisch-Nwakanma

Alaska Eskimo Whaling Commission

John Hopson, Jr.
Jessica Lefevre
Taquik Hepa
Christopher Winter
Robert Suydam

Animal Welfare Institute

Kate O'Connell

Centro de Conservacion Cetacea

Maria Jimenez
Peter Sanchez

Dolphin Connection

Paul Spong

**Environmental
Investigation Agency**

Daniel Hubbell

Fundacion Cethus

Carolina Cassani

**Humane Society
International**

Bernard Unti

Claire Bass

Cristobel Block

**Inst. de Conservacion de
Ballenas**

Roxana Schteinbarg

Makah Indian Tribe

Keith Johnson

OceanCare

Fabienne McLellan

Nicolas Entrup

Pro Wildlife e.V.

Sandra Altherr

**Whale and Dolphin
Conservation**

Astrid Fuchs

Whaleman Int.

Jeff Pantukhoff

**University of Tasmania,
Faculty of Law**

Lucy Smejkal

World Animal Protection

Nicola Beynon

**World Conservation Trust
(IWMC)**

Nikolas Sellheim

IWC

Simon Brockington

David Mattila

Greg Donovan

Kate Wilson

Katie Penfold

Sarah Ferriss

Sarah Smith

Rapporteurs

Harriet Gillett

Pablo Sinovas

Appendix 2

LIST OF DOCUMENTS

Whale Killing Methods and Welfare Issues Working Group		Agenda item
IWC/66/WKM&WI	01 Draft Agenda	
	02 List of Documents	
	03 NAMMCO Report of the Expert Group Meeting on Assessing Time to Death Data from the Large Whale Hunts	4.2
	04 Update from the United Kingdom on follow up to IWC workshop "Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans" (submitted by the United Kingdom)	3
	05 Summary of Activities Related to the Action Plan on Whale Killing Methods (based on Resolution 1999-1)	3.1 & 4.1
	06 Report on Weapons, Techniques and Observations in the Alaskan Bowhead Whale Subsistence Harvest (submitted by the USA)	4
	07 Norwegian Minke whaling 2014 and 2015	3 & 4
	08 Overview of the work of the technical adviser to the Secretariat to assist with reducing conflicts between cetaceans and marine resource users: October 2014 to October, 2016	6.3
	09 Whaling Report from St. Vincent and the Grenadines 2014-2015	3
	10 Update on discussions and strandings (Submitted by: (1) the Chair of the Scientific Committee; (2) the Chair of the Whale Killing Methods and Welfare Issues Working Group and (3) the Chair of the Standing Working Group on Environmental Concerns on the Topics of Strandings and Mortality Events)	7
	11 IWC Whale Killing Methods and Welfare Issues Action Plan (submitted by the Secretariat)	5
	12 Summary of the General Recommendations from the Global Assessment of Large Whale Entanglement and Bycatch Reduction in Fishing and Aquaculture Gear Workshop	6.2
IWC/66/WKM&WI Rep	01 Report of the Workshop to Support the IWC's Consideration of Non-Hunting Related Aspects of Cetacean Welfare	5.1
	02 Report of an IWC Workshop Developing Practical Guidance for the Handling of Cetacean Stranding Events	7.1
	03 Report of the Third Workshop on Large Whale Entanglement Issues	6.1

Appendix 3

AGENDA

1. Introductory items
 - 1.1. Appointment of Chair
 - 1.2. Appointment of Rapporteurs
 - 1.3. Review of Documents
2. Adoption of agenda
3. Data provided on whales killed
 - 3.1. Contracting Government reports
4. Information on improving the humaneness of whaling operations
 - 4.1. Reports from Contracting Governments
 - 4.2. Report of the NAMMCO expert group meeting
5. Whale welfare
 - 5.1. Chair's Report of the 2016 IWC Workshop to Support the Consideration of Non-Hunting Related Aspects of Cetacean Welfare
 - 5.2. Engagement of other organisations and experts on issues relating to cetacean welfare
6. Welfare issues associated with the entanglement of large whales
 - 6.1. Report of the third IWC Workshop on Large Whale Entanglement issues
 - 6.2. Report of the joint IWC, NOAA, NEAq Workshop on Global Assessment of Large Whale Entanglement and Bycatch Reduction in Fishing and Aquaculture Gear
 - 6.3. Secretariat report on progress
7. Stranding
 - 7.1 Report of the IWC Workshop to Develop Practical Guidance for the Handling of Cetacean Stranding Events
 - 7.2 Scientific Committee recommendations on strandings
8. Adoption of the report

TERMS OF REFERENCE

The Working Group is tasked with reviewing information and providing advice to the Commission on issues relating to whale killing methods and all aspects associated with ensuring good welfare of cetaceans that are hunted or otherwise impacted by human activities (Report of the 65th Meeting of the International Whaling Commission in 2014. Annex H, Appendix 4).

ADMISSION OF OBSERVERS

Rule of Procedure C.2

2. Observers accredited in accordance with Rule [of procedure] C.1.(a) and (b) are admitted to all meetings of the Commission and the Technical Committee, and to any meetings of Committees and all subsidiary groups of the Commission and the Technical Committee, except the Commissioners-only meetings, meetings of the Bureau and closed meetings of the Finance and Administration Committee.

SPEAKING RIGHTS FOR OBSERVERS

Rule of Procedure C.3

3. Observers accredited in accordance with rule C.1.(a) and (b) will have speaking rights during Plenary sessions and sessions of Commission subsidiary groups and Committees to which they are admitted to under C.2, in accordance with the Rules of Debate of the Commission. Observers might also submit documents for information to the delegations and observers participating in such sessions, provided these are submitted through the Secretariat at least 48 hours before the session in which they are intended to be made available, and are duly authored or endorsed by the accredited organisation making the submission, which is to be held responsible for its contents.

Rules of Debate Paragraph A

A. Right to Speak

1. The Chair shall call upon speakers in the order in which they signify their desire to speak, with the exception of accredited Observers, which should be allowed to speak only after all Commissioners desiring to speak do so. As a general rule, Observers will only be allowed to speak once at each Agenda item under discussion, and at the discretion of the Chair.

Appendix 4

RECOMMENDATIONS OF THE WORKSHOP TO SUPPORT THE IWC'S CONSIDERATION OF NON-HUNTING RELATED ASPECTS OF CETACEAN WELFARE, KRUGER NATIONAL PARK, SOUTH AFRICA, MAY 2016

The Workshop recommended that:	Action by:
The IWC endorse the further development and application of the cetacean welfare assessment framework in assessing non-hunting threats to cetacean welfare and promote its use beyond the IWC.	Whale Killing Methods and Welfare Issues Working Group (WKM&WI) (Intersessional working group on welfare)
Further work on the assessment framework be taken forward, in particular to continue to adapt the Five Domains model for wild cetaceans; address how best to assess welfare impacts and changes in welfare status over time; define and incorporate potential stressors and include accepted best practice/limits (e.g. for whale watching and noise); determine the most appropriate scale for scoring severity; address how best to incorporate a consideration of cumulative, in-combination effects and long-term impacts and identify any further improvements that can be made.	WKM&WI (Intersessional working group on welfare)
Terms of Reference be drafted to guide further work to refine the assessment framework and that its refinement and application be progressed through the existing IWC Intersessional Working Group on Welfare with the aim of submission to IWC67 in 2018 for endorsement.	WKM&WI (Intersessional working group on welfare)
The Intersessional Working Group on Welfare and the IWC Secretariat ensure that appropriate experts are engaged in the continued development and application of the assessment framework.	WKM&WI (Intersessional working group on welfare) IWC Secretariat
Care be taken to ensure that the practical application of the assessment framework be assisted by appropriately trained experts, including animal welfare experts and cetacean experts and that the conclusions be shared with local communities in order to facilitate education and promote best practice.	IWC Contracting Governments
Consideration is given to progressing further work where uncertainty may reduce the confidence in the application of the proposed assessment framework including in relation to prey depletion, chemical pollution, anthropogenic sound, marine litter, and biotoxins	WKM&WI IWC Scientific Committee IWC Conservation Committee
A process be established that allows for the continued re-assessment of welfare threats as knowledge and understanding improves.	WKM&WI (Intersessional working group on welfare)
In cases where the welfare implications of certain activities are only poorly understood, management of a particular activity or threat should be precautionary and adopt a risk based approach based on best available scientific knowledge.	IWC Contracting Governments IWC Scientific Committee
The assessment framework be submitted to the Scientific Committee and other relevant IWC committees and working groups for further scrutiny and comment, and eventual transmission to the IWC Commission for endorsement.	WKM&WI IWC Scientific Committee IWC Conservation Committee
Application of the assessment framework be considered by the IWC entanglement expert group for its utility and potential addition to the existing entanglement intervention framework to enhance welfare considerations in the decision-making process.	IWC Secretariat
The encouragement of monitoring of wound healing, wound progression, and time to death in cetaceans in the wild that have incurred vessel-strike or entanglement injuries, in order to provide greater understanding of the welfare implications for individuals.	IWC Contracting Governments IWC Scientific Committee IWC Conservation Committee IWC Ship Strikes Working Group
IWC Contracting Governments ensure national ship strike data, including non-lethal incidents, are submitted to the IWC Ship Strike Database and that the IWC promote the importance of submission of this data directly to the IWC database in order to develop understanding of the welfare risk to cetaceans.	IWC Contracting Governments IWC Ship Strikes Working Group
IWC Contracting Governments and the IWC Secretariat place a high priority on developing effective entanglement mitigation and prevention measures, and until such time as that is developed, continue support for the palliative care offered by further developing the Global Whale Entanglement Response Network and database.	IWC Contracting Governments IWC Secretariat
A more detailed consideration is carried out on the implications of entanglement and bycatch for small cetaceans	IWC Conservation Committee IWC Scientific Committee
IWC Secretariat proactively engages with organisations with a welfare remit and experts to share information and facilitate the use of existing welfare principles, standards, and definitions as appropriate, for example with the OIE, NAMMCO, and CITES.	IWC Secretariat
IWC Contracting Governments identify national experts in the assessment of welfare for inclusion on the list of welfare experts to be compiled under the IWC Welfare Action Plan.	IWC Contracting Governments IWC Secretariat
The Secretariat provide clear cost estimates for work necessary to facilitate the delivery of the IWC Welfare Action Plan, starting with the completion of the welfare assessment framework.	IWC Secretariat
IWC gives consideration to the establishment of a dedicated funding stream to help progress the assessment and mitigation of non-hunting threats to cetacean welfare.	IWC Contracting Governments

Appendix 5

RECOMMENDATIONS OF THE THIRD WORKSHOP ON LARGE WHALE ENTANGLEMENT ISSUES, PROVINCETOWN, MA, USA, APRIL 2015

2. NEW INFORMATION SINCE 2011 WORKSHOP

2.1 Aspects of reports from relevant workshops in 2011-2014

The Workshop **endorsed** the recommendations (A15/ER/ALL/22) of a workshop about large whale entanglements on the U.S. west coast, convened in Portland, Oregon, which made a number of general recommendations to assist in understanding and reducing large whale entanglements, summarised as follows:

- (1) engage commercial fishermen and commercial fishery managers to better understand the fisheries and what measures may be taken to fill existing data gaps;
- (2) address the unknowns surrounding large whale entanglement by conducting research needed to encourage or support fishery management actions or legislation changes, including
 - (a) identifying the level of conservation concern surrounding population level impacts from entanglement for different whales species;
 - (b) conducting fine scale research on areas identified as having high co-occurrence of fishing gear and large whales;
 - (c) studying the mechanisms by which whales become entangled in gear;
- (3) evaluate possible gear modifications (e.g. related to increasing the number of traps per line, which may reduce entanglement risk by reducing the number of vertical lines with which whales could interact; and
- (4) support lost gear and marine debris removal efforts to reduce the risk of whale entanglements.

2.2 New of unusual relevant cases since 2011 (Guadelupe, Korea)

The Workshop **recognised** the increase in aquaculture (including expansion offshore) around the world and the particular difficulties that may entail with respect to entanglement response. It **stressed** the importance of developing prevention measures as a priority in addition to entanglement response training.

2.3 New tools or techniques

The Workshop highlighted the fact that gillnet is a complicated gear to cut, partially due to the range of materials involved (monofilament, rope and lead). It was **agreed** that smooth blades are more effective than serrated blades for monofilament entanglements.

In discussion, the Workshop **noted** that knives with box cutter style blades are useful and cost-effective because the blades can be replaced as needed. However, the Workshop **stressed** that the appropriate tools to use will depend on the situation.

The Workshop **thanked** Smith for this information [on testing protocols for new equipment and techniques before approval for use within the Atlantic Large Whale Disentanglement Network]. It stressed the need for careful evaluation of new tools and techniques both in terms of safety of responders and the animals. It noted the value of a formal approval scheme in this regard and **encouraged** other groups to consider whether it was appropriate for their areas. The Workshop also **highlighted** the importance of sharing information on failure as well as success to improve safety and reduce issues in future events.

The Workshop discussed the concept of sharing AutoCAD tool designs to allow them to be manufactured in other countries, reducing the cost of manufacture and logistics of transport. The Workshop **strongly recommends** that neither tools nor design specifications are provided to anyone who has not undergone training. The current practice for IWC trainings is to share a basic kit of tools (see Item 2.3.2) with trained teams and they are then allowed to replicate those designs from what they have in hand. However, the manufacture of those original tools is closely scrutinised and efforts to replicate those designs have not always been successful even with the tool in hand. Efforts to reproduce them in Mexico, for example, did not meet the design specifications and so some were not as effective. The group **agreed** that the AutoCAD designs might be helpful to avoid such situations, but they should only be given to the proper authority within the officially trained network.

2.4 New safety or risk assessment tools or protocols

The Workshop **thanked** Lyman for these updates [on use of “Site Cams” in the USA] and **endorsed** both the value of new technology and approaches after careful evaluation and the cautions he highlighted in their use. It also **recognised** the different local needs, resources and in some cases legislative frameworks that must be taken into account in addition to the importance of adequate training.

The Workshop **thanked** Coughran for his presentation [on Unmanned Aerial Vehicles in Western Australia] and **commended** the thorough testing that had been undertaken. It **agreed** that this is potentially a very valuable and relatively inexpensive tool (*ca* USD 2000). It recognised that there are a number of important issues to be addressed before being used widely including proper training, consideration of legal frameworks etc.

The Workshop **thanked** Smith for drawing this useful document to its attention [Decision Tree for Tagging (A15/ER/ALL/14)] and **endorsed** the principles therein, recognising that such decision trees will necessarily reflect local conditions and norms.

3. REVIEW OF IWC CAPACITY BUILDING

3.1 Summary of work since last meeting

The Workshop **congratulated** the trainers and the trainees, recognising the importance of this work, not only in terms of training the entanglement teams but also in stimulating discussion surrounding the ultimate goal of prevention (see below). It noted the advantage of having more than one trainer where this was feasible (e.g. see Item 3.2.3) and **agreed** that efforts would be made to expand the international pool of trainers in the future.

3.2 Overview of newly trained participating national networks

The Workshop **thanked** the Argentinian team for its report. It was noted that as part of the IWC's Conservation Management Plan for right whales in the southwest Atlantic, a refresher course and advanced training was being planned.

The Workshop **thanked** the Brazilian team for its report. In discussion, the importance of archiving gear and related items (e.g. bone and gear) was highlighted and this is considered further under Item 4.5.3. It was also noted that when examining proportions of entanglements by gear type and/or age or reproductive class by region, account must be taken of information of temporal/geographical availability of various gear types and any temporal/geographical segregation by age or reproductive class.

The Workshop **thanked** the RABEN team for its report and **commended** them for their thoughtful and comprehensive dedication to further training and improvements following the IWC guidelines and principles, and for the careful manner in which a range of stakeholders have been involved. In discussion, the importance of documenting certain types of information (e.g. behaviour) was raised as well as the importance of public outreach in all languages.

3.3 Review of strategy, curriculum and prioritisation

The Workshop **reiterated** its support for the existing strategy and curriculum, including emphasis on the long-term goal of prevention, recognising that local circumstances must be taken into account when finalising individual workshops. In particular, the Workshop **emphasised** the importance of involving members of the commercial sector in the process (e.g. fishing, whalewatching); it noted that in many cases the effort expended by the fishing community in prevention involves business decisions; as witnessed for example by the successful work undertaken in Newfoundland over several decades, it is important to work with fishermen in the context of how improved practices will assist them as well as whales.

Subsequently, the criteria for evaluating requests that come through the IWC for training have evolved into the following:

- (a) Conservation: How endangered is the whale population and how significant is the entanglement impact?
- (b) Human Safety: Are well-meaning but un-trained people currently responding with dangerous techniques?
- (c) Animal Welfare: How many whales are likely to benefit from the range states developing a response network?
- (d) Socio-economic impact: How much impact do entanglements have on the affected fishers?
- (e) National support: Has the country requested and is supporting the training?
- (f) Added impact: Does the training fit into and/or encourage other productive initiatives?
- (g) Funding: Is there logistical and financial support?

The Workshop **agreed** that it was important to evaluate priorities in the light of experience and **endorsed** the above criteria. These should be made clearly available on the IWC website. It **agreed** that a degree of flexibility would be required in assigning the balance amongst the above criteria on a case-by-case basis. The importance of some commitment to a reasonable level of longer-term funding to ensure that training was not wasted was also stressed. With respect to funding, it was noted that the issue of entanglement response and bycatch prevention are attractive to outside funders and it is particularly important that evidence of the success of the Networks be visible.

The Workshop also **stressed** the importance of follow-up training. This can take a number of complementary forms including:

- (1) apprenticeships of several weeks, such as those hosted by CCS which can provide broad-based training including attendance at actual entanglement response events should they occur as well as exposure to photoidentification, biopsy sampling and other relevant research activities;
- (2) follow-up workshops held by expert trainers, primarily aimed at participants from initial workshops and which can be tailored in the light of local experience and events with on-water training focussing on more difficult scenarios than the initial training;
- (3) internal follow-up work (such as that discussed under Item 3.2.3 undertaken by RABEN) involving a considerable degree of self-critique that may also involve remote interaction with other experts from the global network.

3.4 Consideration of adding additional subjects to the IWC training programme

The Workshop **agreed** that in general it was more productive to hold focussed entanglement response workshops rather than combined workshops that may dilute the effectiveness of either topic. However, it **agreed** that requests to hold combined workshops should be considered on a case-by-case basis.

There was also a brief discussion of how to handle requests for entanglement response for other marine species (e.g. small cetaceans, pinnipeds, turtles etc.). The Workshop **stressed** that the appropriate authority, responses, expertise, equipment and logistics may be quite different to those for large whales, which is the primary focus of the present global network; where appropriate expertise is available, the network may direct requesters to relevant advice/advisors.

3.5 Discussion of cooperation between Government and private sector

The Workshop **agreed** that the involvement of a wide range of stakeholders at a variety of levels ranging from direct participation to fundraising was important and valuable and probably inevitable. However, it also provides a number of organisational challenges that must be faced. In particular, careful organisation and an agreed 'chain-of-command' are crucial. It is essential that all know their duties and responsibilities, the limits of their involvement and the legal framework. Such an organisational framework is essential to prevent 'well-meaning disasters'.

The Workshop noted the different situations from around the world and **agreed** that it was not possible to be prescriptive about particular frameworks but rather **recommended** that such frameworks be developed if they do not exist. To assist in the development process, the Workshop **recommended** that participants should submit relevant existing documents to the IWC Secretariat and that these be made available as examples on the IWC website.

3.6 Review of different approaches to legal authority

As for previous items (e.g. Item 3.5), the Workshop **noted** that it was not its responsibility to be prescriptive with respect to recommendations on appropriate legislative frameworks but rather to note that it is important that such frameworks be developed. It **stressed** that the IWC and the global network, whilst providing training, were not formally 'authorising' responders. National networks must take care of themselves in terms of legislation, authorisation and responsibility.

Discussion under this item focussed rather on the importance of regular training, the sharing of both successful and unsuccessful events amongst members and, for specific agreed events, with the public through *inter alia* the IWC website. As part of this process, the Workshop **recommended** that networks provide regular updates to the global network of: (1) training exercises; (2) successful and unsuccessful case studies; (3) proposed example case studies for the public section of the IWC website.

4. REVIEW OF PRINCIPLES AND GUIDELINES

4.1 Consideration for 'less than idea' situations

The Workshop **thanked** Marcondes for this presentation [on the results of interviews with fishermen in the northern portion of Abrolhos Bank, Brazil about the impact of the recovery population of humpback whales]. It **reiterated** the importance of dialogue with the fishing community and the need to involve them in an active way in developing mitigation measures. The Workshop noted that there may be a workshop on artisanal gillnets at the SMM (Society for Marine Mammalogy) conference in December 2015.

4.1.2 Using heavier boats when an inflatable is not available

The Workshop noted that there are advantages and disadvantages to using larger vessels as compared to the 'traditional' inflatable rescue boats as discussed above. The Workshop **agreed** that there may be practical and

logistical reasons such that in some cases larger vessels may be appropriate (or the only option). In such cases, the Workshop **recommended** that responders fully examine any potential dangers and manage the situations accordingly in the safest possible manner (which may include not proceeding with the release effort).

4.1.3 'Remote' advice to non-trained responders

There was considerable discussion on whether it was a good idea to provide advice directly to fishermen on disentanglement. The Workshop recalled previous recommendations and the principles and guidelines that **stressed** the importance of having trained personnel present. However, the Workshop recognised that circumstance may arise in which advice/messaging may need to be provided to reporters/ fishermen in cases where authorised, experienced, well-equipped network response is not possible. In such circumstances the following was **agreed**:

- (1) Ask if they have reported to local/ regional authorities? If possible get contact information. Depending on circumstances may need to provide advice here as well.
- (2) Obtain basic information to try to make a typical assessment of the entanglement if this is possible;
- (3) Given (1), in most cases it should be possible to let them know that whale is probably not in immediate danger – it may also be appropriate to explain that some animals free themselves of entanglements over time;
- (4) Emphasise human safety i.e. their life is the most important consideration. If they were to get hurt it may have a detrimental effect on whale response for years to come.
- (5) Further assess their safety. If they are attached to the gear (i.e. in a tended fishery), primarily advise them to not approach closely (i.e. maintain at least one whale body length) and release the vessel from the animal, perhaps with a small buoy if there is a chance that a trained team may be in a position to find and release the whale later. If not attached, re-emphasise the dangers involved and stress that they should not approach the animal and they should leave any gear on it. Stress that it is not appropriate to try to haul the animal to remove gear.
- (6) Emphasise the importance of documentation and the value of gaining information towards potentially helping this animal later (even if unlikely) and addressing the threat in general.

4.2 Improvements in assessment and documentation of events

The Workshop **thanked** the authors [van der Hoop and colleagues work measuring drag from sets of fishing gear removed from entangled North Atlantic right whales] for their innovative work, recognising that it was inevitable that certain assumptions had to be made, and encouraged its continuation. The Workshop **endorsed** the following recommendations made by the authors:

- (1) the current disentanglement response practice of reducing trailing lines/rope to ~20m to accommodate a telemetry or marking buoy should be continued;
- (2) estimates of drag based on length, and consequent energetic costs, should be incorporated into response assessments and serious injury determinations.

The Workshop **thanked** Knowlton for presenting this information [a study on the parameters of ropes removed from entangled large whales from the western North Atlantic] and encouraged its continuation. As noted elsewhere (see Item 4.5.3) in its report, it **recommended** the archiving of entangled gear as a valuable resource in terms of revisiting and understanding past events. The Workshop **recommended** that other archives be tested for trends in rope breaking strength, as this could help validate the work presented and potentially produce broader recommendations for mitigation.

4.3. New tools for veterinary assessment and survival

4.3.1 Use of sedation

The Workshop **recommended** to establish a similar analysis for other species, to enable more routine deployment of this tool in a commonly entangled species such as humpback whales, to increase experience and understanding of the approach. To do so could reduce disentanglement stress significantly, akin to the benefit to restraining a horse chemically as compared to the use of a hobble, a practice that is no longer widely used in veterinary medicine for reasons of safety and animal welfare.

4.4 Determining gear/debris type and origin

The Workshop participants **recommended** that countries consider developing similar protocols investigating entangling gear removed from animals, highlighting a proactive relationship with fisheries to document and learn as much as possible about the entangling gear and scenarios resulting in an entanglement and ultimately sharing of that information with other nations. However, it was also understood that, while working cooperatively with the fishing industry to identify entangling gear is the ideal goal, there can be numerous challenges to developing this type of framework, ranging from lack of reporting infrastructure to varying legal frameworks which might make a fisher more or less likely to participate.

The Workshop **thanked** Toole for her presentation of a complex and major initiative. It noted that its objectives were far more ambitious than simply relating to large whale entanglements, which the available evidence suggested was due more to active fishing gear. However, it **encouraged** participants to cooperate with the initiative as appropriate and noted that the IWC would consider the GGGI in the context of marine debris.

The Workshop **agreed** that archiving entangling materials is valuable and encouraged all entanglement response networks to do so, in partnership with the relevant National authority.

5. DATABASE COMPONENTS AND STRUCTURE

The Workshop **agreed** that lessons learned from the development of the ship strikes database will be valuable in consideration of an entanglement database for large whales.

5.4 Recommendations to IWC with respect to a global database

The Workshop considered the need for a global database from a number of perspectives, taking into account (1) the review of existing databases under Item 5.1 and the need to avoid duplication of effort; (2) the importance of providing advice and resources to new entanglement networks with respect to data management and archiving; (3) possible confusion arising out of having separate databases recording impacts to animals, especially given difficulties in attempting to make determinations of mortality or serious injury from stranded animals; (4) lessons learned from the development of the IWC global ship strikes database (Item 5.3).

Initial discussion **stressed** the importance of agreeing to the potential objectives of any IWC-related database before discussing development details. The Workshop **agreed** that the primary long-term goal of the IWC initiative is to improve the understanding of the impacts of entanglements on whale populations and the factors associated with entanglement risks in order to minimise and ultimately eradicate entanglement of large whales in fishing gear, recognising that complete eradication may prove impossible.

Although entanglement is a widespread problem, in many areas the sample sizes of reliable observations are small. Thus any centralised global database could facilitate informative analyses of factors that may affect entanglement risk by species and gear type at a broader level than may be achieved by looking at regional data alone.

Sub-objectives for a database could be to:

- (1) determine the incidence of lethal entanglement and relevant sub-lethal effects (or at least put reasonable bounds on incidence that can be incorporated into population dynamics models);
- (2) identify the fisheries/gear types and specific practices that lead to a high risk of entanglement (globally and regionally), differentiate COAFG from ALDFG and other debris, and identify particularly vulnerable species, reproductive/age classes, seasons etc;
- (3) record and archive the information obtained from entanglement response networks (both successful and unsuccessful) in order to:
 - (a) improve present practice;
 - (b) obtain a better understanding of how entanglement occurs and survival of animals;
 - (c) inform mitigation/prevention measures
- (4) combine information from (1)-(3) to prioritise and develop mitigation and prevention measures.

The Workshop **agreed** that these sub-objectives are appropriate and valuable and are sufficient to justify its **recommendation** that a fully specified, costed proposal is developed for submission to the IWC at the 2016 Annual Meeting. It recognised that there was insufficient time to achieve this at the present workshop and that it would require a concerted effort of a small group to develop such a proposal. In this regard it **recommended** that a small sum (e.g. £3000) be allocated by the IWC, to allow one short meeting of the group in 2015/16 in order to develop the database proposal, and that the task be assigned to a small group (e.g. six) comprising: the IWC Secretariat, and others.

The Workshop **agreed** that the fully specified proposal should take into account *inter alia*:

- (1) maximising synergies with existing databases, learning from their strengths and weaknesses;
- (2) meeting the objectives and sub-objectives given above (and consideration of likely analytical methods associated with these where appropriate);
- (3) the discussions on important fields arising out of this workshop (including the discussions on the data form at the present workshop and that in 2011) and emphasis on consistent and specified definitions;
- (4) lessons learned from the development of the ship strikes database including those related to data entry (both new data and the inclusion of data from existing databases) and validation (including levels of uncertainty);
- (5) data availability considerations (authorisation; confidentiality; data sharing amongst networks, the IWC Scientific Committee and others; what summaries might be made public etc.);

- (6) links with other mortality-related databases and archives;
- (7) mapping capabilities;
- (8) links to other material (e.g. photographs, videos, original field reports);
- (9) alternative software approaches (including web-based, stand alone, metadata etc.);
- (10) the provision of a service to new entanglement response networks;
- (11) consideration of curation and maintenance.

6. NEW TOOLS OR PROTOCOLS FOR EUTHANASIA (ESP. AT SEA)

6.2 Euthanasia at sea

The Workshop **thanked** Øen for his presentation that had been based on previous recommendations from IWC Workshops. When considering the applicability of this tool for euthanasia of species other than right whales, it was clarified that the penthrite grenade is already used in the hunt of a variety of large cetacean species in several countries. On the question of possible deployment by air rifle, Øen clarified that the force would be inadequate to penetrate the body to the appropriate depth and to trigger the firing pin. The explosion could occur at or near the surface of the whale and thereby fail to euthanize and also create a hazardous situation for humans. He further clarified that the grenade produces a radiant charge but that there have been no injuries to humans yet in deployment. When asked about failed killing attempts, he noted that this had occurred in the past, due to improper targeting (i.e., outside of the required neck or chest areas) by individuals who had not had adequate training.

As noted in Item 6.1, further development of a gun-type delivery system had been recommended at the IWC euthanasia workshop, but Øen clarified that this had not advanced further because funding is required. The Workshop **endorsed** the earlier recommendation and encourages individual nations where this approach may be appropriate to support development of system further.

7. INTERFACING WITH THE PUBLIC

Participants **confirmed** their earlier agreement to send stories of successful rescues to the IWC Secretariat for potential posting on the IWC web site, and for distribution to organisations supporting the global network. These stories would be tailored for the public, and of course will not contradict the consensus principles and guidelines developed in 2011, and reviewed and re-endorsed here. The Workshop also **agreed** that an accessible, public-friendly regular summary of achievements of the global network be included on the IWC website and sent to contributors to the initiative.

8. GATHERING AND ANALYSING INFORMATION TOWARD PREVENTION

The Workshop **stressed** that even if the use of pingers (or any other mitigation methods) is found to be effective in an experimental situation, monitoring should be undertaken to ensure that the desired effect persists.

Appendix 6

SUMMARY OF THE GENERAL RECOMMENDATIONS FROM THE GLOBAL ASSESSMENT OF LARGE WHALE ENTANGLEMENT AND BYCATCH REDUCTION IN FISHING AND AQUACULTURE GEAR WORKSHOP, PORTSMOUTH, NEW HAMPSHIRE, USA, 23-26 MAY 2016

Note: the final report of the Workshop is not yet complete and thus has not been reviewed by all participants and agreed. The conclusions and recommendations below were discussed at the end of the workshop and although the final wording may be modified, the intent will not change.

BACKGROUND TO OVERALL RECOMMENDATIONS

Forty participants (from Australia, Brazil, Canada, Europe, Mexico, South Africa, South Korea and the USA) attended a workshop co-organized by the IWC with the New England Aquarium and the Consortium for Wildlife Bycatch Reduction and co-funded by NOAA (US), to exchange information on preventing large whale entanglements. Although the focus of this workshop was on devices and techniques that can be incorporated into or in the vicinity of fishing gear, it was recognized that switching gear, reducing effort, or spatial-temporal management have a role in managing bycatch of large whales in some situations, and that in some cases the alternative types of fishing gear might produce comparable fishing revenues while reducing entanglement risk. The workshop participants stressed that there is no single solution for large whale entanglements and recognised that whilst there are lessons to be learned from global examples and great value in international co-operation and information sharing, local problems require local solutions.

When considering bycatch mitigation measures, workshop participants noted that, where possible, the 'ideal' hierarchy for action in descending order should be to:

- (1) avoid encounters with fishing gear;
- (2) reduce entanglements in such gear where encounters cannot be avoided; and
- (3) minimize mortality associated with entanglement when entanglement occurs.

This does not imply that actions on all three cannot proceed in parallel, and promising (e.g. simple, cost effective, and effective) actions that enjoy support among fishermen should be encouraged. Within this framework, assessments of the overall cost-benefits of different options (including consideration of user and conservation goals) can help identify priority techniques for testing and implementation.

The Workshop **stresses** that any mitigation action should include a commitment to a well-designed and long-term monitoring program to evaluate the effectiveness of the bycatch mitigation technique over time.

MAIN OVERARCHING RECOMMENDATIONS⁵

- (5) Acknowledging that development and implementation of solutions has lagged behind the increasing threat in many locations and around the globe, the workshop participants **recommend** that governments recognise the importance of the issue and work internationally and nationally to promote an environment that facilitates a more rapid development and testing of methods, and implementation and monitoring of mitigation measures. Multi-national approaches are especially important as entanglement risk assessment, and the implementation and monitoring of entanglement prevention measures must consider the species'/population full geographic distributions that generally span multiple countries.
- (6) Given the scope and urgency of this issue, workshop participants strongly **recommend**:
 - (a) that inter-governmental organizations and regional fishery management organizations elevate bycatch of whales to the level that spurs these entities to evaluate their data to assess the risk of cetacean bycatch in their fisheries and, where necessary, develop and implement bycatch prevention and mitigation measures; and
 - (b) that authorities facilitate the evaluation of bycatch mitigation measures, and expedite any administrative requirements or permits needed to test such mitigation.
- (7) The development and implementation of effective solutions requires full collaboration between fishers and gear technologists, for innovation, development of practical ideas and their application, and scientists for appropriate testing methodology; therefore, workshop participants **recommend** that fisheries associations, individual fishers, technologists, scientists, and regulators collaborate to develop, test, and implement whale entanglement prevention techniques. In this regard, the participants also **recommend** that fishermen and scientists identify test areas (throughout the world) that can optimise evaluation of techniques that can either

⁵In addition to these broader recommendations, the final report will contain a number of technical recommendations.

advance our understanding of or significantly prevent/reduce entanglement. These collaborations should be encouraged and facilitated by national and regional authorities.

- (8) Recognizing that the fishing sector uses practices in meeting global demand for seafood that result in whale entanglements and that it needs to be central to the solutions to the bycatch issue, the workshop participants **recommend** that respected members in the fishing community use their understanding of the urgency and magnitude of the bycatch problem to: (1) communicate the issue within their community; (2) lead the innovation of bycatch reduction measures; and (3) promote socio-economic perspectives of the problem so that appropriate mitigation measures can be implemented that have the greatest probability of achieving long-term use and support within the fishery.
- (9) While structured experiments are the preferred and optimal approach for developing and evaluating bycatch mitigation measures, they are often difficult to conduct with respect to whale entanglements; workshop participants **suggest** that other analytical techniques be considered/developed for such studies, and that evaluation of field work should be augmented by simulation studies and appropriate incorporation of opportunistic information.
- (10) Given the present lack of sufficient data to understand the frequency and process of entanglement, the workshop **recommends** that nations and scientists make a concerted effort to gather and make available current and historic data on entanglement and to promote frequent exchange of information among fishers, scientists, and policy makers on bycatch mitigation through workshops, websites, and other collaborations.
- (11) Artisanal fisheries represent the largest sector of global fishers and may be the greatest contributor to cetacean bycatch; therefore, workshop participants **recommend** that nations and scientists assist and engage artisanal fishers in the development and evaluation of prevention measures for their fisheries.

CONCLUSION OF THE LAST DAY DISCUSSIONS WITH A FOCUS ON IWC-RELATED ISSUES

1. Gear marking – goals and feasibility globally

Identifying the source of gear that has caused an entanglement is important for developing mitigation measures but has proven to be challenging. In most cases of disentanglement of free swimming whales, the gear that is recovered is just rope. Only 10% of gear recovered from whales off the US east coast has been identified to a fishery.

Gear marking is one way in which the source of gear that caused the entanglement may be identified. This has been a subject of discussion for many years and there are a number of issues that need to be considered when considering the type of marking scheme that may be useful. In particular, these relate to the questions that the marking scheme is intended to address.

Gear marking can be used to demonstrate that a particular fishery did *not* cause an entanglement. For example, in South Africa, any gear from bather protection nets recovered from an entangled whale would be expected to be identified back to the Shark's Board. No such gear has ever been recovered. However, gear marking may also result in 'blame'. Fishers have concerns over gear being identifiable to the individual because of the possibility of negative publicity or even prosecutions in some countries.

FAO held a recent technical meeting on gear marking and this will be discussed further at the COFI meeting in July. The ultimate objective for FAO is to develop a system for tracing gear back to a licensed vessel. Discussion of gear marking within FAO has primarily focused on IUU fishing and ALDFG (Abandoned, Lost and Discarded Fishing Gear). Other reasons for marking gear which may benefit a fishery include allowing gear theft to be identified.

Gear marking in relation to bycatch of turtles and sea birds has been considered by FAO (FAO, 2016 ECFG/2016/Inf.1). IWC has been engaged with FAO to assist in gear marking schemes that FAO is working on, including drawing attention to whale entanglement at the technical FAO meeting in April 2016.

Given the opportunity to input into the FAO process, the workshop participants discussed questions that might be addressed through gear marking and ways that this might be achieved. The questions can be divided into two broad categories, those that help assess the extent of a problem and those that help inform and evaluate mitigation measures.

For assessment of the scale of a problem there is a need for information on the type of gear involved, and the amount of effort within fisheries using that type of gear. At a minimum, gear needs to be identifiable throughout the range of the whale population and the full range of the fishery. Information at finer spatial scales is often needed if management measures such as area closures are being evaluated, or for example, identifying localised risk hot spots for species with long migrations.

Relevant issues to assist in developing whale entanglement prevention measures include:

- (1) the need to distinguishing vertical line from ground line in pot or trap fisheries;

- (2) evaluation of the relative risk from the different ways and water depths in which gear is set;
- (3) evaluation of whether sinking ground line reduces risk compared to floating line; and
- (4) Evaluation of the effectiveness of gear modifications in reducing entanglement risk through identifying incidents in modified and unmodified gear (such analyses need information on frequency of use of the modifications as well as the frequency of gear involved in whale entanglements).

The FAO marking scheme just requires some part of the gear to be identifiable. In the case of whale entanglements there are only likely to be fragments of gear remaining and so multiple marks are required (e.g. at specified intervals closer than the length of a typical recovered fragment along all ropes). Gear marking for identifying the source of ALDFG has rather similar requirements to identifying gear recovered from a whale. The ideal marking system would allow identification of gear from photographs but this would be a huge challenge.

The gear marking scheme on the US east coast is now quite complex and time consuming with marks needing to be changed for fishing in different regions. Marking rope at the manufacturing stage is preferable to asking individual fishers to do this. Rope may be marked such that each individually manufactured spool can be identified, but then needs to be traced through the supply chain and all users.

One potential alternative to gear marking that is worth exploring is the use of natural biological or chemical markers for forensic analysis of the gear origin. This could for example include analysis of fouling species which vary between areas and by depth. Stable isotope signatures may also be useful.

Given the challenges and complexities, there were different views on the value of gear marking in developing measures to prevent large whale entanglements. It was **agreed** that there is a need for resources that disentanglement teams can use to find out information about the gear that they find on whales. The workshop participants also **recommended** a review to investigate the potential for biological forensic techniques to assist in identifying the origin of the gear. In addition, a localized study of a gear marking scheme for a specific area and fishery could help develop practical systems and evaluate the value of the information they generated.

2. Role of disentanglement efforts in prevention

Disentanglement is not itself a prevention measure and only a small fraction of the entanglements that occur are likely to be successfully disentangled. Even in the Gulf of Maine off the US east coast, with highly developed reporting systems, the detection probability for a whale carrying gear is only around 10-15%.

However, disentanglement does provide an opportunity to gather information which can assist in developing prevention measures (e.g. studies evaluating weak rope work as a prevention measure such as Knowlton *et al.*, 2015 have been greatly informed by disentanglement work on whales).

Disentanglement efforts also create awareness of the issue. The disentanglement outreach and training provided by the IWC has led to a number of initiatives in several countries, including substantially higher reporting rates. For example, in Mexico it has led to workshops to help fishers avoid losing their gear, and also resulted in proposals for management measures in some fisheries.

In most countries, disentanglement teams are a combination of fishers, NGOs, and government representatives. The IWC suggests the type of skills that are needed within a disentanglement team. Other areas of expertise needed include experience with whales, gear and safety. Therefore, teams may typically include biologists, fishers and coastguard or navy.

It was noted that any disentanglement without collecting data does not achieve one of the key objectives. The workshop participants therefore **recommended** that all data collection opportunities are maximized.

The IWC has developed a data form for use during disentanglement. This is introduced to teams as part of the training sessions. Some participants believed that the form was too complicated since a lot of people trained in disentanglement are not whale biologists and that this might be overwhelming for them. However, others thought that having all the fields shows what data are considered useful even if it is not possible to complete them all every time fill. It was also noted that there is increasing scope for collecting video and photographic data (particularly from devices such as helmet mounted cameras) that can be analysed later, allowing some additional data fields to be completed.

The IWC has less of a structured data collection scheme for following up after the event, for example to try and identify gear. It was noted that retrieving samples such as pieces of rope can be very informative. Biological samples from fouling organisms could also be very informative if developing forensic methods but would need to be archived in a way that allowed suitable analysis. The workshop participants **recommended** that the IWC expert group provide further suggestions for follow up data that may be useful for future studies as part of training programs and to other groups.

3. International coordination on data collection

The IWC currently collects limited data on whale entanglements through National Progress Reports. These provide a summary of available information plus the name of a contact person for further information. There is limited information on the extent of data collection effort within these reports. Some countries provide more detail than others but in many cases it is limited to a list of known fatal entanglements by species. For some years, the IWC has been considering developing a global entanglement database that could be hosted by the IWC. The overarching goals of the database would be to identify the species involved, gear type, configuration and origin, whether the entangling materials were in active use or debris, and the geographic region and timing of the entanglement. The ultimate goal would be to use this information to inform mitigation initiatives by the Commission, relevant partner inter-governmental organizations, regional fishery councils or member Nations.

A global IWC database would supplement rather than duplicate national databases. Some countries without national databases have requested centralized data collection through IWC for the disentanglement networks.

The currently available information held by IWC may be sufficient to identify suitable locations to trial entanglement mitigation methods. These would involve a high reported entanglement rate but not necessarily a population where there were serious conservation concerns.

It was **agreed** that a global database would be a useful initiative, particularly to include data from countries that are not members of IWC. For example, there are around 120 nations that have cetacean bycatch that export to the US but reporting is very limited in many of these countries. It was suggested that a first step could include a survey by country of any reported bycatch. There is a need for greater awareness of the extent of the large whale entanglement problem globally. Awareness could be increased by a global review.

4. ADLFG /marine debris

The proportion of entanglements in lost gear compared to active gear is not well known. Most estimates are around 5-15% but it could be as high as 30% in some areas. The majority of entanglements that have been attributed to marine debris appear to originate from gear that was original used for fishing.

One way to evaluate the entanglement risk from ghost gear could be an evaluation of gear washed up on beaches. This can be assessed through the initiatives such as the International Coastal Clean Up and NOAA's projects in various part of the USA⁶. Incentives and recycling facilities may also reduce any gear abandoned at sea. The IMO currently requires adequate port reception facilities for end of life fishing gear. Some countries including Korea and Norway have incentive programs for gear recovery.

In studies of the North Atlantic right whale, only one piece of rope taken off in the last 20 years appeared to be ghost gear. In this context, ghost gear was defined as gear that had been lost for some time. Recently lost gear such as static gear cut by large commercial ships cannot be readily distinguished from actively fished gear.

Given the relatively low proportion of entanglements attributed to ghost gear, the workshop participants **recommended** that large whale entanglement prevention should focus primarily on active gear. However, it also **recommended** that recovery of ghost gear should continue (Marine debris report). It was noted any prevention techniques should try to avoid a higher risk of creating ghost gear. However, evaluating such risks may not always be straightforward. For example, lighter gear associated with weak ropes may make gear more likely to be lost but easier to retrieve.

4. Gear characterization

The IWC has recommended using FAO codes to describe fisheries gear for use in National Progress Reports. This was mainly intended for use in broad scale risk analyses to try and estimate the extent of bycatch and entanglement. It was noted that these codes were of limited relevance for entanglement prevention. Even in limited areas there can be a great variety of different types and configurations of fishery that may fall within the same FAO category.

It was **agreed** that from entanglement prevention perspective, gear has to be described beyond such simple codes. Gear descriptions (such as available for Gulf of Maine lobster fisheries) can help with disentanglement efforts by giving more information on how gear was set. In addition to basic descriptions, information on the weight of gear is important for consideration of measures such as weak ropes.

It was noted that the current codes (as used by IWC) did not list aquaculture facilities. It was **agreed** that these should be included because of the recent expansion of such facilities and the potential risk to large whales. Entanglement risk from Fish Aggregating Devices (FADs) also needs to be considered.

It was also **agreed** that there were some categories in the FAO codes that could not pose a risk to whales and these could be eliminated from the options provided in entanglement reporting systems to make data entry simpler.

⁶<https://marinedebris.noaa.gov/>.

Appendix 7

RECOMMENDATIONS FROM THE WORKSHOP TO DEVELOP PRACTICAL GUIDANCE FOR THE HANDLING OF CETACEAN STRANDING EVENTS, KRUGER NATIONAL PARK, SOUTH AFRICA, MAY 2016

The Workshop recommended that:	Action by:
The IWC establish a framework to provide advice to contracting governments on critical elements to include in the establishment of a national strandings response network.	IWC Scientific Committee
The IWC promote capacity building by acting as a repository for the dissemination of best practice on strandings response, including national strandings response strategies, appropriate training materials, and euthanasia.	IWC Secretariat IWC Scientific Committee
Case study examples from around the world be pulled together, with information on successes and failures, to help illustrate best practice in responding to stranding events, and that these be hosted on the IWC webpage.	IWC Secretariat IWC Scientific Committee
The IWC Scientific Committee actively engage in the phase 2 development of the GMAST by facilitating a meeting of relevant experts and providing advice to the Commission on its use within the IWC.	IWC Scientific Committee
IWC Contracting Governments should be invited to provide updates on how the recommendations of the IWC Workshop on Euthanasia Protocols to Optimise Welfare Concerns for Stranded Cetaceans have been implemented at a national level	IWC Working Group on Whale Killing Methods and Welfare Issues (WG WKM&WI) IWC Secretariat IWC Contracting Governments
The IWC Scientific Committee consider the need to develop a global strandings data portal	WG WKM&WI IWC Scientific Committee
Coordination between the IWC and other organisations including ASCOBANS/ACCOBAMS, the European Cetacean Society and other relevant regional processes be continued, in order to promote consistent data collection on the causes of strandings and potential welfare issues.	IWC Contracting Governments IWC Secretariat
IWC Contracting Governments establish clear and effective strategies for media handling and promote proactive engagement with the media and public during high profile stranding events.	IWC Contracting Governments
Rescue attempts should ideally be undertaken by appropriately trained individuals. In addition, those involved in rescues are encouraged to give careful consideration to appropriate insurance coverage.	IWC Contracting Governments
The Secretariat create a document, drawing on existing material, to be hosted on the IWC website that provides basic advice to the general public on health, safety, and animal welfare during live stranding events and during the handling of dead cetaceans.	IWC Secretariat IWC Scientific Committee
The IWC give consideration to the establishment of a dedicated funding stream to help improve cetacean stranding response globally.	IWC Contracting Governments