Annex O

Report of the Sub-Committee on Cetacean Stocks That Are or Might Be the Subject of Conservation Management Plans

Members: Brownell, Urbán-Ramírez (co-Convenors), Alzarte, Andrianarivelo, Aoki, Bironga, Bjørge, Castro, Charlton, Cipriano, Collins, Cooke, Donovan, Ferriss, Frisch-Nwakanma, Goetz, Gonzalez, Holm, Hosoda, Hubbell, Iñíguez-Bessega, Jackson, Jiménez, Joseph, Kato, Kim, Kuppusamy, Lang, Leaper, Lee, Lent, Mallette, Marcondes, Minton, Morita, Moronuki, Mwabili, Nakamura, Nelson, Nio, Panigada, Parsons, Porter, Punt, Razzaque, Reeves, Reyes Reyes, Ritter, Robbins, Rojas-Bracho, Rose, Santos, Scheidat, Seyboth, Simmonds, Smith, Stachowitsch, Suydam, Suzuki, Svoboda, Tarzia, Taylor, Trejos Lasso, Trujillo, van de Water, Vermeulen, Walløe, Walters, Weinrich, Weller, Willson, Yaipen-Llanos, Zerbini.

1. CONVENER'S OPENING REMARKS

Brownell and Urbán-Ramírez welcomed the participants. This is the second year of this sub-committee. It will consider stocks (with a focus on progress with scientific work and information) that are:

(1) the subject of existing Conservation Management Plans (CMPs); or
(2) high priority candidates for a CMP.

It will also consider stocks that have previously been considered for potential CMPs, recognising that the Commission has stressed the need for range states to support any IWC CMPs. Items related to the stock structure and abundance of these stocks are considered by the sub-groups on SDDNA and ASI.

2. ELECTION OF CHAIR

Brownell was elected Chair and Urbán-Ramírez was elected co-Chair.

3. APPOINTMENT OF RAPPORTEURS

Mallette and Weller were appointed to act as rapporteurs.

4. ADOPTION OF AGENDA

The adopted Agenda is given as Appendix 1.

5. REVIEW OF AVAILABLE DOCUMENTS

The documents available for discussion by the sub-committee included SC/68A/CMP/01rev1; SC/68A/CMP/02-06rev1; SC/68A/CMP/07-09rev1; SC/68A/CMP/10-12rev1; SC/68A/CMP/13-15rev1; and SC/68A/CMP/16-20.

6. STOCKS THAT ARE OR MIGHT BE THE SUBJECT OF CONSERVATION MANAGEMENT PLANS (CMPS)

Rojas-Bracho presented a summary of SC/68A/CMP/03 that reviewed the major changes to the CMP process, and highlighted the following key section in the document which is pertinent to the process for candidate CMPs:

> 'The Scientific Committee **considered** that [species/population] would benefit from the development of a CMP, and **recommends** that the SWG-CMP treat the species/population as a 'priority species/population' for the purpose of the CMP development process. In making this recommendation, the Scientific Committee acknowledges that a nomination would not be required for the species/population, and the Scientific Committee encourages the SWG-CMP to commence outreach to relevant range states and stakeholders to encourage and support the development of a CMP.'

6.1 Stocks with existing CMPs

6.1.1 Eastern South Pacific southern right whales

SC/68A/CMP/05 reported on the advances made on implementing priority actions of the CMP for Eastern South Pacific Southern Right Whales from April 2018 until March 2019. Various funding sources are acknowledged for their contributions in the report. Significant advances have been made for priority action RES05, 'Increase sighting efforts on possible reproductive areas', as a result of the implementation of the Passive Acoustic Monitoring (PAM) project that was reported in SC/68A/CMP/06rev1. A second coordination meeting was held in August 2018 in Peru and a new implementation strategy for 2019-20 was endorsed by the Commission in Brazil in 2018. A landmark achievement was the signing of a Memorandum of Understanding (MoU) between the Governments of Chile and Peru 'to coordinate cooperation in the conservation of the southern right whale population of the southeast Pacific' during the II Binational Cabinet Meeting of Chile-Peru held in Chile (in November 2018). This MoU represents strong, high level political commitment from Chile and Peru to prioritise actions under this CMP for southern right whales.

Due to the increasing concerns on recent fatal entanglements (2014 and 2017), it was agreed that a workshop for disentanglement and stranding events was extremely urgent. The first Multinational Combined Capacity Building on Cetacean Stranding and Entanglement Response Training under the CMP was successfully conducted in Peru during a four-day workshop in November 2018, and included more than 60 specialists, including: representatives of government institutions, university students, civil society representatives from Chile and Peru, as well as special guests from Colombia, Ecuador and Panama.

To increase efforts to collect photo-identification and genetic data (priority actions RES-02 and RES-03), seven confirmed sightings of southern right whales were recorded in 2018, including four cow-calf pairs. One sighting was reported off Peru, while the rest were documented off Chile; one whale was identified using drone imagery. In collaboration with the St Andrews University (United Kingdom), Centro de Conservacion Cetacea (CCC-Chile) conducted the first genetic and hormone analyses from samples obtained from a southern right whale supporting the hypothesis of a separate population and results are reported in SC/68A/SH/06. To increase identification capacities of cetacean species, especially southern right whales along the coasts of Chile and Peru (priority action PACB-03), 2,000 outreach posters

were distributed in 500 communities along the Chilean coast. Additional efforts by the Fisheries and Aquaculture Service of Chile are underway to develop a bi-national poster about the CMP to distribute all along the Chile-Peru coastline.

To address priority action PACB-01 'Development of strategy to raise citizens' awareness and increase range states capacities', several news articles were published in mainstream and social media in Chile and Peru, including a press article released on the International Whaling Commission website. The PAM project also had meetings with local authorities and artisanal fishermen from northwestern Isla de Chiloé to inform stakeholders about the project objectives.

The 2016 implementation strategy was successfully completed and a new 2019-20 implementation strategy was adopted. Regarding the new 2019-20 implementation strategy adopted last year during the SC/67b annual meeting, all priority actions were maintained while several medium-term actions were also given priority. These new activities include: the development of a mobile phone app to increase real-time reporting of sightings and whales at risk; a workshop on whale watching regulations and scientific permits to standardise measures across operations; and the establishment of the Southern Right Whale Day in Chile and Peru to position the conservation of the species as high-priority for both States. Coordination efforts have proved to be essential for the effective and positive implementation of the eastern South Pacific southern right whale CMP.

SC/68A/CMP/06rev1 reported on the project 'Passive Acoustic Monitoring of the Eastern South Pacific Southern Right Whale, a Key to Improve Conservation Management Plan Outputs' and provided details on the hydrophone equipment and deployment, which aims to obtain temporal coverage and spatial coverage over a complete annual cycle. Two hydrophones will be deployed along the populations range; the first deployment successfully occurred on 2 July 2018 off northwestern Isla de Chiloé (41°56'S; 74°07'W), an area that has been proposed to be part of a breeding area. To date, 10 months of continual acoustic data from northwestern Isla de Chiloé has been collected and an intern is reviewing this data. The second possible location for PAM deployment is Talcahuano-Arauco Gulf, a former whaling area for southern right whales. Planning logistics are underway and deployment is tentatively scheduled for June 2019. Antofagasta-Mejillones, another possible breeding area in the north of Chile is being considered as a third site. A call to involve PhD or MSc students from both Chile and Peru is underway aimed at increasing acoustic capacities of local students (e.g. an in-depth apprenticeship at Woods Hole Oceanographic Institution, USA).

In discussion, the MoU between Peru and Chile for the CMP was highlighted as a success. The importance of the CMP in effectively leveraging funds and encouraging range states' involvement was **recognised**. The sub-committee **welcomed** the progress being made in the implementation of the CMP by Chile and Peru.

Attention: SC, CC

*The Committee **reiterated** the importance of the CMP for the conservation of the critically endangered population of southern right whales in the southeastern Pacific. The Committee:*

*(1) **encouraged** the continued coordination between Peru and Chile; and*

*(2) **commended** the scientific work and international cooperation being undertaken for the PAM project and **looks forward** to receiving the results of the acoustic studies such that future sighting surveys will be more informed and baseline information on the location of breeding grounds will be available.*

6.1.2 Southwestern Atlantic southern right whales

SC/68A/CMP/01rev1, reported that the 2018 season had the highest count of southern right whales ever recorded. In four hours of aerial surveys, 1,605 whales were counted along the coast of Península Valdés. In 2007 the rate of increase in abundance of all whales was approximately 7% and in 2017 it decreased to 0.5% (with a 2.4% decrease in the total number of calves). In 2018, the rates for total whales was estimated to be 1.0% and 3.4% for calves. Trends in the rates of increase for the total number of whales and the number of calves were still negative (-0.757% and -0.397%), and compared with previous years were still in decline. The authors concluded that whales are still increasing in abundance, while the rate of increase is starting to fluctuate near zero for the total number of whales and it continues to be positive for calves.

SC/68A/CMP/15rev1 reported that in the Península Valdés area where whale watching has taken place since the early 1970s, only short-term behavioural reactions to boats had previously been evaluated. The whale watching in Puerto Pirámide can be considered a social-biological system, and the biological sub-system is changing due to the increase in the abundance of whales, rendering some regulation obsolete. Evaluation of the movement indices and breathing rate as a proxy to energy expenditure was assessed to evaluate the effects of the whale watching boats. No significant effect was detected from a fixed vantage point for any of the movement indices. The breathing rate increased significantly when boats were close to the whales, which the authors thought may be related to the reaction of the whales to remain motionless whilst near the boats. Whale watching at Península Valdés at a similar level is carried out without significant effects on the movement indices analysed. Based on findings from this work and previous research in the area, it was suggested that the whales that breed at Península Valdés may be habituated to whale watching boats. The authors suggest the social sub-system be given higher consideration.

SC/68A/CMP/18 provided an update on the CMP actions developed in Argentina for the southwestern Atlantic southern right whale in the period April 2018 to March 2019. This information was compiled from the Progress Report of Argentina (2019). The overall objective of the CMP is to protect southern right whale habitat and minimise anthropogenic threats to maximise the likelihood that southern right whales will recover to healthy levels and recolonise their historical range. The Conservation Management Plan for the southern right whale southwest Atlantic population was adopted in 2012 following the recommendations of the IWC and particularly considering the southern right whale die-off event in Península Valdés area, Argentina.

Jackson provided an update on vessel surveys conducted off islands at 54°55'S, 36°45'W in 2018. While whales are observed in the shoulder months, the peak of sightings occur in January, although effort is also highest during this month. Records revealed high productivity near the shelf and a high year for krill, but no right whales were sighted. There are plans to return next year for surveys and supplement these with echosounders. It was also noted that during

two opportunistic sightings (Feb.-Mar. 2019) along the Patagonian shelf this past season, only one whale sighting was detected, while in previous years, large aggregations have typically been documented.

In discussion it was noted that Brazil and South Africa also observed an increase in the number of right whales along their coasts. It was suggested that multi-state resight models would be useful to determine how populations are connected, as some resightings and known individuals and changes are being observed. Further it was suggested that generating quantitative movement estimates would be useful. It was noted that tagging efforts in Argentina over the last four years have been logistically challenging. The researchers are interested in conducting additional telemetry efforts to test tags with longer duration and less impact to whales, similar to efforts on humpback whales in the Gulf of Maine, USA. Thus far 25 tags have been deployed successfully. It was also noted that Brazil had recently received substantial funds for additional research.

The sub-committee received a proposal from the SH sub-committee to consider a proposal for funds to support researchers comparing Southern Hemisphere right whale photo-identification catalogues between southern Brazil and Península Valdés. The CMP sub-committee subsequently endorsed the proposal given the importance of this work and the relatively small amount of funds requested.

The sub-committee **welcomed** the progress being made on the CMP and looks forward to more information on southern right whales in this area.

Attention: SC, G, CG, S

*The sub-committee **commends** the amount of effort and highlighted the impressive array of work being conducted by the researchers and encourages its continuation. The Committee **reiterates** the importance of continued long-term monitoring of the southwestern Atlantic population of southern right whale and the importance of the CMP for the conservation of the population. The Committee therefore:*

*(1) **encouraged** the researchers to continue work on stress hormones in baleen and present a full report to the Committee when it becomes available;*
*(2) **encouraged** collaboration with range states to generate more new information and more effort from Brazil given the additional funding received;*
*(3) **encouraged** comparisons of photo-identification catalogues between Argentina, Brazil and Uruguay;*
*(4) **commended** the telemetry work, and looks forward to new information as it becomes available; and*
*(5) **recommended** that the Secretariat write to the IWC Commissioner for Argentina and ask them to facilitate the internal permit process for the tagging project.*

6.1.3 North Pacific gray whales

6.1.3.1 RANGE WIDE ASSESSMENT

The Committee has had long-standing cooperation with the IUCN Western Gray Whale Advisory Panel (WGWAP) and there is a joint IUCN/IWC CMP for western gray whales. Since SC/67b, the Panel's composition has changed, however Reeves and Donovan continue as co-Chairs and the Terms of Reference remain the same. Although the contractual arrangement between Sakhalin Energy (SE) and IUCN extends through 2021, the severe cutbacks experienced in 2018-19 call into question whether, and for how long, the Panel can continue to function beyond 2019. Five formal meetings of the Panel or Task Forces took place between June 2018 and May 2019. The focus of two Noise Task Force meetings and one Panel meeting was to carry out a retrospective evaluation of the gray whale monitoring and mitigation programme associated with the large-scale Piltun-Astokh seismic survey conducted by SE in summer 2018. In late spring of 2018, Russian authorities denied permission to conduct any form of acoustic monitoring on the Sakhalin Shelf during the 2018 open-water season. Because such monitoring was a key component of the plan that had been developed collaboratively and agreed by the Panel and SE, last-minute *ad hoc* consultations were required to assess options. In the end, the company decided to proceed with no acoustic monitoring and depended on model predictions as the sole indicators of sound levels in and near the whale feeding area, meaning that the agreed mitigation and monitoring was not fully implemented. The Panel has again expressed disappointment at how the Sakhalin Energy-Exxon Neftegas Limited (ENL) Joint Program of gray whale monitoring has been scaled back and narrowed in scope in recent years. The companies have abandoned three of what were once key annual elements of this program: (i) behaviour monitoring; (ii) acoustic monitoring; and (iii) benthic sampling in the near-shore (Piltun) gray whale feeding area. The Panel is particularly concerned that benthic sampling was discontinued after 2016, despite an apparently steep decline in amphipod biomass in the Piltun (nearshore) feeding area from 2013. Reported changes in the abundance and distribution patterns of gray whales in the Piltun and offshore feeding areas are broadly coincident with this apparent trend in what is assumed to be the whales' main source of prey (particularly for mothers and their calves). The ongoing collaboration between the IWC and IUCN to update and promote implementation of the Western Gray Whale Conservation Management Plan (CMP) was aided in 2018 by a drafting session at IUCN immediately before the WGWAP-19 meeting in Moscow. In Moscow, the drafting group of Donovan, Weller and Reeves engaged in discussions with Kato, coordinator of the Memorandum of Cooperation Concerning Conservation Measures for the Western Gray Whale, regarding the CMP and a planned stakeholder workshop tentatively planned for late 2019 in Tokyo.

In light of the reported decline of benthic biomass in the nearshore feeding area and the potentially related change in overall whale numbers and distribution, the sub-committee **emphasised** the critical importance of collecting these data and **reiterated** previous recommendations from the Scientific Committee that the benthic sampling programme be reinitiated by the oil and gas companies (or other capable parties) working in the area.

The sub-committee **welcomed** the information that Donovan has continued his efforts to facilitate a common western gray whale photo-identification catalogue and database under the auspices of the IWC. That being said, **serious concern** was also expressed that this concept, long discussed and endorsed by the Committee, had not progressed in a tangible way. Thus, the sub-committee **encouraged** the relevant data holders, in coordination with the Head of Science, to move forward with this initiative in a timely manner.

Kato, as coordinator of the 'Memorandum of Cooperation Concerning Conservation Measures for the Western Gray Whale', advised the sub-committee that the Fisheries Agency of Japan is considering holding the CMP stakeholder workshop in Tokyo. To formalise this and move ahead, Japan has asked that the Secretariat provide a letter that officially

requests Japan to hold the stakeholder workshop. The sub-committee **welcomed** Japan's willingness and **encouraged** the Secretariat to provide the requested letter as soon as possible.

The sub-committee **thanked** Reeves and the other WGWAP members for this update and **encouraged** continued collaboration between the IUCN and IWC, including work on the CMP and stakeholder workshop.

SC/68A/CMP/11rev1 presented new information resulting from the multinational effort of the Collaborative Pacific Wide Study on Population Structure and Movement Patterns of North Pacific Gray Whales. Images of 379 whales identified on the summer feeding grounds off Russia, were compared to 10,685 individuals identified in the wintering lagoons of Baja California, Mexico. A total of 43 matches were found, including: 22 females, 13 males, and 8 whales of unknown sex. These 43 matches, in combination with 11 previous matches, result in 54 gray whales being linked between Russia and Mexico. Movements between the western and eastern North Pacific represents at least 25% of the western population.

In discussion of this paper, the sub-committee **emphasised** the value of ocean basin photo-identification catalogue comparisons. While such comparisons can be labour intensive, they are generally low cost and often, as in the present case, complement tagging studies that generally have smaller sample sizes.

The sub-committee **thanked** Urbán, his colleagues and Mexico for their continued work on this important effort.

6.1.3.2 REGIONAL STUDIES

6.1.3.2.1 RUSSIA

SC/68A/CMP/16 reviewed findings from 2018 field studies conducted by the Russian Gray Whale Project (formerly the Russia-US Program) on gray whales feeding near Piltun Lagoon in the western North Pacific off Sakhalin Island, Russia. This research program provides a 20+ year time series (1997-2018) that has served as the foundation for the assessments of the population (Cooke, 2018). Photo-identification research in 2018 resulted in the identification of 23 individuals, including five calves and six previously unidentified non-calves. All mother-calf pairs observed in 2018 had previous sighting histories off Sakhalin. One of these females, first identified as a calf in 2002, had never been previously observed with a calf. This new mother contributes to a total of 35 reproductive females that have been documented since 1995. The general distribution of gray whales in the study area has been changing since 2015, with most of the whales now encountered south of the mouth of Piltun Lagoon. A steep decline in amphipod biomass in the Piltun (nearshore) feeding area was detected in 2013-16 during routine benthic sampling surveys. Reported changes in the abundance and distribution patterns of gray whales in the Piltun area are broadly coincident with this apparent trend in what is assumed to be the whales main source of food (particularly for mothers and their calves).

In discussion, the sub-committee asked why the number of whales photo-identified in 2018 (n=23) was lower than other years. Weller explained that the 2018 field season was plagued by inhospitable weather that prevented boat-based research from being regularly conducted and thereby resulting in few opportunities to identify individual whales. In addition, the decline in benthic biomass (see Appendix 2) in the nearshore feeding area has resulted in more whales (except for mother-calf pairs) using the offshore feeding area.

The sub-committee **thanked** Burdin, the Russian Gray Whale Programme and Russia for their continued fieldwork and willingness to report the results of the worl to the sub-committee on an annual basis. Further, the sub-committee **reiterated** its long-standing **recommendation** that this work continue into the future.

SC/68A/CMP/21 provided an updated population assessment of the gray whales feeding off Sakhalin Island. An individually based population model (described in full in Cooke, 2018) was fit to photo-identification data collected off Sakhalin during 1995-2018 (SC/68A/CMP/16), sex determinations from biopsies, tracking of whales from Sakhalin to the eastern North Pacific (Mate *et al.*, 2015), and photo-identification matches of gray whales between the Sakhalin and Mexico catalogues (SC/68A/CMP/11). The results show that the Sakhalin feeding population increased at 3.4-4.8% per year over the 20 years to 2018, but with significant inter-annual fluctuations in calving rates and calf survival. It is unclear whether the increase is still continuing, and recent declines in prey availability in the Piltun feeding ground, the main feeding ground for mother-calf pairs within the population, imply that a continued increase cannot be assumed. The aged 1+ population size in 2018 of the Sakhalin feeding population is estimated at 191 whales, excluding calves (95% CI 171-214). The proportion of the population that migrates to the eastern North Pacific is estimated to be 56% (95% CI 45-80%): therefore, it is likely that a western breeding population that migrates through Asian waters still exists.

In discussion, Cooke reminded the sub-committee that specifications of his modelling framework for this assessment and the related results were considered in detail and endorsed at SC/67b by the ASI SWG (Cooke, 2018).

Noting the increased number of photo-identification matches between the western and eastern North Pacific (Kim *et al.*, 2018), the sub-committee asked how this increase influenced the results of the analysis. Cooke explained that the actual number of matches was compared to what would be expected if all of the whales sighted off Sakahlin migrated from the western to the eastern North Pacific. His past analysis of these data, based on a lower number of west-east matches, could not rule out the possibility that 100% (range 30-100%) of the Sakhalin whales migrated east. Inclusion of the updated results from SC/68A/CMP/16 decreased the upper bound of this estimate to 80% (range 45-80) and thereby strengthens the evidence for the existence of a western breeding population that migrates within the western North Pacific.

The sub-committee **welcomed** the new information presented by Cooke and expressed its continued **serious concern** about what is likely to be a very small (<50) and highly endangered remnant group of 'true' western north Pacific gray whales.

Further, recognising the reported decline of benthic biomass in the nearshore feeding area and potential impacts this may have on calving rates and calf survival, the sub-committee **emphasised** the critical importance of collecting benthic biomass data and **reiterated** previous recommendations from the Committee that the benthic sampling programme be reinitiated by the oil and gas companies (or other capable parties) working in the area.

Finally, Cooke mentioned the importance (and requisite need for an update) to his modelling framework of the analysis of inter-annual resighting rates of whales in the lagoons of Mexico. The sub-committee thanked Urbán and his team for conducting the original analysis and **recommended** that an updated version of this analysis be completed.

6.1.3.2.2 JAPAN

SC/68A/CMP/02 reported the recent status of conservation and research on gray whales in Japan during May 2018-April 2019. During this period, no anthropogenic mortality of gray whales was reported from the waters off Japan. A total of two gray whales were sighted opportunistically. The first sighting was made in Ishikawa and Fukui prefectures from 8-15 March. The second sighting was made on 22 April off the Miyake Island in the Izu archipelago. A young gray whale (8.77m) was stranded in Kanagawa prefecture on 11 April, and biological observations and collection of samples were made.

In discussion, it was asked if Japan had undertaken any 'rapid response' training, including strategically located caches of requisite equipment to collect biopsies and photo-identification images when gray whales are reported or sighted in coastal waters. Nakamura indicated that no such readiness training had occurred, in part, because of the sporadic and unpredictable (albeit increasing) nature of gray whales occurring off Japan.

The sub-committee **thanked** Nakamura and Japan for their continued work to assess gray whale sighting and stranding information and willingness to report the results to the sub-committee on an annual basis.

SC/68A/CMP/04 reported on a juvenile male gray whale, 877cm in length, that was found on 11 April 2019 stranded in Manazuru, Kanagawa Prefecture Sagami Bay (35.142°N; 139.161°E), on the Pacific coast of Japan. The carcass was in a highly decomposed condition and the cause of death was not determined but no sign of ship strike was detected. Many circular to ovoid scars were observed on the specimen, suggestive of healed cookie-cutter shark bites but also possibly from barnacles. The nearly complete skeleton was collected by scientists from the National Museum of Nature and Science (Tsukuba, Japan).

6.1.3.2.3 MEXICO

SC/68A/CMP/12rev1 provided information on winter 2019 gray whale abundance in Laguna San Ignacio and the Bahía Magdalena complex. The season as a whole was characterised by an approximate two-week delay in arrival of the whales to the lagoon, very low numbers of calves-of-the-year, and a greater than expected percent of 'skinny' adult whales compared to the previous seven winters. In Laguna San Ignacio, only 23 female-calf pairs were seen in 2019, a number far less than observed between 2011 to 2017, when female-calf counts in March ranged from 50 to 60 pairs to just under 130 pairs. Similar low calf counts were observed from 2007-10 following the 1999-2000 rangewide 'mortality event' when an estimated 33% of the eastern North Pacific population perished.

SC/68A/CMP/13 presented new information on gray whale body condition in 2019 from Laguna San Ignacio. During the 2019 breeding season, 569 photographs suitable for evaluating body condition were obtained from 529 single whales and 40 females with calves. Of these, 22.1% (n=117) of the single whales and 50% (n=20) of the females with calves were scored as having 'good' body condition. 'Fair' condition was represented by 54.3% (n=287) of single whales and 50% (n=20) of females with calves. Finally, 23.6% (n=125) of single whales and none of the females with calves were in 'poor' condition. The 23.6% of single whales in 'poor' condition in 2019 was the highest observed in Laguna San Ignacio during the past 10-years. While the condition of all females with calves was either 'good' or 'fair', their abundance in 2019 was the lowest recorded since 2010 (SC/68A/CMP/13, table 3) when females with calves had scores indicating 'poor' condition or as 'skinny whales'.

The sub-committee expressed **serious concern** about the higher than usual number of gray whales observed to be in poor body condition during the winter of 2019. Kato asked if any independent measures (e.g. hormones) were used to corroborate the visual/photo assessment of body condition. Urbán responded that no other data were collected but reminded the sub-committee that the visual/photo protocol used followed that used for gray whales off Russia and published by Bradford *et al.* (2012). Further, Urbán noted that five whales photo-identified in the lagoons in 2019 were individuals that have also been observed off Sakahlin and that all of these whales were in good body condition.

SC/68A/CMP/14 presented information collected between December 2018 and April 2019 in Mexico that reported 73 gray whales stranded along the Pacific coast of Baja California and the Gulf of California, Mexico. A majority (83.5%) of these stranding were encountered in Laguna Ojo de Liebre (Scammon's Lagoon) and the surrounding areas. Of these whales, 44 were females, 16 males, and 13 were of undetermined sex. Separating these whales by age class categories, there were 28 adults, 39 subadults, 2 calves and 4 whales of unknown age class. The low number of stranded calves (n=2) compared to the range of 4-44 dead calves observed between the winters of 2012 and 2018, suggests that there were fewer calves produced this past winter, or females with newborn calves did not enter or utilise this lagoon. In addition, the 2-3x increase in the number of stranded sub-adults and adults was unexpected and unusual.

Serious concern was expressed by the sub-committee regarding the higher than usual number of stranded gray whales off Mexico in 2019. Doniol-Valcroze mentioned that the number of strandings off Canada and the US in 2019 was also higher than most years. Given that these numbers might be an early indicator of a broader population-level mortality event as occurred in 1999-2000, Rojas-Bracho suggested that organisations in Mexico, the US and Canada take proactive measures now to ensure they are prepared to respond if the magnitude of this event increases and continues into 2020.

6.1.3.2.4 USA

SC/68A/CMP/17 presented results of shore-based visual counts of eastern North Pacific gray whale calves during their northward migration have been conducted between late March and early June off central California each year from 1994-2018. Estimates of the number of northbound calves showed a high degree of inter-annual variability, ranging from a high of 1,528 in 2004 to a low of 254 in 2010. Calf production was consistently high (exceeding >1,000 calves annually) between 2012-17, when more than 7,500 calves were estimated. The 2016 estimate of 1,351 calves was about 5% of the most recently reported total abundance of 26,960 (in 2016) for the eastern North Pacific population. In 2018, calf production declined to 867, a level similar to 2011 (858 calves). The particularly high calf production observed during the 2012-17 period suggests that gray whales have been experiencing a period of favourable feeding conditions in the Arctic. This hypothesis is further supported by the recent increase in abundance (26,960 in 2016) of the eastern North Pacific gray whale population (Durban *et al.*, 2017).

Attention: CG-R, SC, G, I, CC

*The sub-committee **reiterated** the importance of long-term monitoring of gray whales, **recommended** that range states support such work and **welcomes** the information provided this year. In particular, the sub-committee:*

(1) ***commended*** *the joint work of the IWC and IUCN, including efforts related to the CMP, and urges its continuation;*
(2) ***encouraged*** *the continued efforts to facilitate a common/shared western gray whale photo-identification catalogue and database under the auspices of the IWC;*
(3) ***emphasised*** *the value of the ocean basin photo-identification catalogue comparisons;*
(4) ***commended*** *the work on the feeding ground off Russia by the Russian Gray Whale Project and urges its continuation;*
(5) ***expressed its concern*** *about the decline in benthic biomass on the nearshore feeding area off Sakhalin Island, Russia and the lack of benthic monitoring since 2016;*
(6) ***welcomed*** *the continued provision of information from Japan and encourages researchers to continue to collect as much information on sightings as possible, including, if feasible, attempting to obtain biopsy samples and photographs;*
(7) ***commended*** *the work in the breeding lagoons of Mexico and urges its continuation;*
(8) ***expressed its concern*** *about the high number of strandings, poor body condition, and low calf counts observed off Mexico in 2019 and encouraged range states to take proactive measures to prepare for a future die-off; and*
(9) ***welcomed*** *the continued provision of information from Japan and* ***encouraged*** *researchers to continue to collect as much information on sightings as possible, including, if feasible, attempting to obtain biopsy samples and photographs.*

6.1.4 Franciscana

SC/68A/CMP/19 reports on the actions developed under the Conservation Management Plan for Franciscana between May 2018 and April 2019. The IWC adopted this CMP submitted by Argentina, Brazil and Uruguay (Government of Argentina *et al.*, 2016) at IWC/67. The overall objective of the CMP is to protect franciscana habitat and minimise anthropogenic threats, in particular bycatch. The CMP developed seven high priority actions, ranging from public awareness and capacity building through research to mitigation. At SC/68B a new review of franciscana will be conducted. This CMP is funded by the IWC, Whale and Dolphin Conservation and Kleinwort Fund.

In discussion, it was highlighted that the last in-depth review was conducted in 2004 (IWC, 2005) and preparing for the in-depth review in 2019 was identified as a priority in SC/67a, although it was not completed. Given the extent of new data available (e.g. on stock structure and abundance estimates) an updated review is timely and will be useful to inform conservation and management decisions. Surveys have been carried out in Franciscana Management Area (FMA) 1a and 1b, and in FMA 2 funding has been secured and survey design is being prepared. It was a recognised priority that synoptic surveys be conducted along the coasts of Brazil, Uruguay, and Argentina to encompass the full range of the population. It was noted that continuation of aerial surveys from southern Brazil into Uruguay, using the same plane and methodology would be needed to compute stock-wide abundance estimates. The range of the stock extends from southern Brazil into Uruguay (FMA III) so a full abundance estimates of the stock is not possible if only one range state conducts a survey. As it was done in the past, there is a possibility for Brazilian and Uruguayan scientists to coordinate this synoptic survey but it remains logistically challenging. There is currently no funding to support surveys or data analyses for such a survey, even though Uruguay is engaged in the CMP process. It is unlikely that information on the abundance of franciscana from Uruguay will be presented at the next Scientific Committee meeting without the joint aerial survey, but abundance estimates generated from data collected in the northern and southern portion of the range, off southeastern and southern Brazil and Argentina should be available.

Attention: CG-R
The Committee ***reiterated*** *the importance of the CMP for the conservation of franciscana in the waters of Argentina, Uruguay and Brazil and* ***encouraged*** *presentation of new information at the next Scientific Committee meeting. The Committee therefore:*

(1) ***stressed*** *the value of the actions included in the CMP towards future assessments of the status of franciscana, which is imperative for determining the effectiveness of conservation efforts;*
(2) ***reiterated*** *the recommendation that research be undertaken to conduct a synoptic survey and estimate the abundance of franciscana dolphin across its range, especially off Uruguay; and*
(3) ***encouraged*** *collection and analyses of genetics samples especially off Uruguay and Argentina to inform questions on stock structure and that researchers in Brazil provide an update on genetic analyses at the next SC meeting. Further, the Scientific Committee offered the services of the SDDNA group to review the genetics work.*

6.2 Progress with identified priorities

6.2.1 Humpback whales in the northern Indian Ocean including the Arabian Sea

SC/68A/CMP/07 summarised sightings of whales documented by crew based observers trained by WWF Pakistan to document sightings, entanglements and bycatch while operating on tuna gillnet vessels along Pakistan's coast. The origins and operational methods of the crew-based observer programme are presented in more detail in SC/68A/HIM/12, as well as reports presented to the CMP sub-committee in 2017 and 2018. Overall fewer sightings were reported for the 2018 (n=35) fishing season than in the 2017 (n=95) season. This decrease in sightings is attributed to a later start of the season (September rather than August) and the early closure of fishing season in late April 2018 due to the low market prices of tuna. Nonetheless the programme documented a total of 13 sightings of Arabian Sea humpback whales, one sighting of a Bryde's whale, four sightings of sperm whales and 15 sightings of baleen whales that could not be identified to species level (due to lack of adequate photographic or video evidence) but may have included some humpback whales. As in past years, humpback whale sightings were concentrated on the shelf and slope areas of the Balochistan and Sindh coast, with a few sightings documented in deeper waters of the Arabian Sea.

SC/68A/HIM/12 documented entanglements and bycatch reported by the crew-based observer programme. Small cetaceans are predominantly affected, but the reports also occasionally include large whales. A change in the way that tuna gillnets were positioned in the water column from 2015 onward was associated with a statistically significant reduction in bycatch/entanglement rates of small cetaceans, and data are being analysed in more detail in preparation for a peer reviewed publication.

In discussion, it was clarified that in recent years the observer program has been funded through the Common Oceans Areas Beyond National Jurisdiction (ABNJ) Tuna Project. This project is coming to the end of its term, and is now uncertain how it will continue, as funding is required to compensate the participating fishing vessel captains for their services.

The sub-committee **suggested** that the sightings positions be used to guide future directed cetacean research, especially for humpback whales.

Attention: SC, SC-HIM, I, R,
The sub-committee, in particular:

(1) ***recommended*** *that the work of the observer programme be continued, and where possible, replicated throughout the region, especially in areas where it is not feasible to conduct cetacean surveys;*
(2) ***encouraged*** *sightings and entanglement data continue to be collected, and urges the proponents to consider future data collection and analysis protocols that include measures of effort;*
(3) ***recommended*** *use of passive acoustic monitoring to document (seasonal) whale presence with lower security risks and logistical challenges than boat-based surveys off the Sindh and Balochistan coasts (Pakistan);*
(4) ***encouraged*** *collaboration between the crew-based observer programme and the IWC Bycatch Mitigation Imitative (BMI), so that lessons learned can be shared with other countries tackling bycatch in similar circumstances, and so that trials with sub-surface nets can be conducted to help mitigate the risk of entanglement in other ASHW range states; and*
(5) ***recommended*** *that the IWC Large Whale Entanglement Response Team and the BMI provide advice and/or training on safe handling and disentanglement of both small and large cetaceans entangled live in fishing gear, and that training and advice also be provided to enable crew-based observers to collect genetic samples from entangled animals – particularly humpback whales and other large whale species, to help clarify taxonomy and stock structure in the region.*

SC/68A/CMP/10 provided information on 12 baleen whale sightings that were documented off the west coast of India between June 2018 and May 2019. Of these seven were of live sightings reported by participatory fisher and diver networks along the coast, including two Bryde's whale groups. There were also two single humpback whale sightings. The rest were unidentified baleen whale sightings. Five 'hotspot areas' off the west coast were identified, where information was gathered by interviewing fishers and inviting them to be part of a growing participatory reporting network. The author proposes to continue research in 2019-20 with passive acoustic monitoring using SoundTraps in two of the five identified hotspots. At the national level the Ministry of Environment, Forests and Climate Change, New Delhi has listed the Arabian Sea humpback whale as a Priority Species for Conservation and is in the process of developing a National Arabian Sea Humpback Whale Research and Recovery Program. National and state-level programs are being developed, with support from the author and a wider research network in India. The authors recommend dedicated baleen whale surveys and collaborative efforts with local teams, to carry out long-term research and conservation, including a net disentanglement workshop.

In discussion, it was noted that the collection of samples for genetics was historically difficult in this region for a number of reasons, for example, the advanced state of decomposition of specimens, challenges with sample collection, personnel training, and access to exportation permits. It was noted that similar challenges used to occur in Oman, but dedicated efforts by research teams in collaboration with the Ministry of Environment to build capacity and increase the number of of responders helped attain more viable samples. Examples of successful training for simple sample collection were noted for New Zealand and Australia. The National Centre for Biological Sciences, Bangalore, was highlighted for its ability to conduct genetics analysis within India (Jayasankar *et al.*, 2007; Jayasankar *et al.*, 2008), which could present an opportunity for capacity building within the country in light of difficulties with exporting samples. Additionally, it was brought to the sub-committee's attention that SDDNA was working on an international protocol for genetics sampling of highly degraded carcasses and that application of this protocol could support collection of valuable samples from specimens that may not otherwise be sampled due to an advanced state of decomposition.

It was further noted that the need for capacity building on strandings in this region had been discussed during the BMI workshop (7-8 May), and that progress on engagement with CITES on transboundary movement of samples would be reported in the sub-committee on Environmental Concerns.

The sub-committee **commended** the efforts of the author and her colleagues in India and **recognised** the substantial effort involved in the coordination of research activities under logistically difficult circumstances.

Attention: SC, S, R
The sub-committee ***endorsed*** *the suggestion to use the remaining funds from an IWC research grant to purchase and deploy sound traps off the southwest coast of India to obtain more data on humpback whale presence and song samples for comparison with other sites in the Indian Ocean, and:*

(1) ***encouraged*** *the continued dialogue on Arabian Sea humpback whales among range states;*
(2) ***recommended*** *the continuance of this work and particularly urged the collection of genetic samples where possible as the population identity and structuring of many of these species is unknown;*
(3) ***recommended*** *that the IWC Bycatch Mitigation Initiative and Stranding Initiative work with the relative focal points in India to support capacity development in stranding response and sample collection. The Scientific Committee offered to extend support to geneticists and labs in India to analyse samples should CITES export requirements prevent analysis in labs outside of India where other Arabian Sea humpback whales samples have been analysed to date; and*
(4) ***recommended*** *that the Secretariat write to India to offer scientific support to the workshop and in taking these discussions forward.*

SC/68A/CMP/08rev1 documented survey work conducted in the Hallaniyats Bay, Southern Oman, between March 2018 and April 2019. Over approximately 17 days of field effort, only seven sightings of four individual humpback whales were documented. All four individuals were previously identified in the Oman humpback whale photo-identification catalogue, with three of the four individuals

having been observed on 10 or more occasions from 2000 onward. The limited number of individual humpback whales, their re-sighting frequency, and the high rate of site fidelity illustrated in the document's figures, supports previous evidence of a small population of conservation concern. More detail on this paper is presented under Item 6.2.2 below.

The sub-committee **welcomed** this new information on Arabian Sea humpback whales off Oman and **recommended** photo-identification, genetic sampling and use of drones to collect aerial photographs to provide continuation of the health assessment work funded by IWC/SC in 2018.

SC/68A/CMP/09rev1 provided an update on regional aspects of work related to humpback whale research and conservation efforts in the Arabian Sea. National and project-level on-the-ground research and conservation work was conducted by individual members or organisations that are part of the Arabian Sea Whale Network (ASWN), as reflected in other papers presented to this meeting (SC/68A/CMP/07, SC/68A/HIM/12, SC/68A/CMP/08rev1, SC/68A/CMP/10). The informal network provides a means to promote communication and information exchange between members, and to identify and help implement any actions that can be taken at regional level to support national and project-based initiatives. Work undertaken at the regional level in past years has included communication between members and with external organisations through a website, email distribution list and newsletter, which was submitted to the Scientific Committee as a For Information paper, Arabian Sea Whale Network (2018).

The Network launched a regional online data platform with Flukebook.org, that facilitates standardised data archiving in the region, and matching of photo-identification catalogues between research projects in the Arabian Sea. Data uploaded to the regional platform to date include all of the data from the Indian Marine Mammal Network's database, humpback whale photos obtained from opportunistic and third party reports in Sri Lanka, sightings reported through the Pakistan fishing crew-based observer programme, and the long-term sightings and photo-identification databases held by the Environment Society of Oman. Members have started to use this platform to conduct data comparisons and analyses. Development of the Arabian Sea platform has taken place in close collaboration with the Indian Ocean Network for Cetacean Research (Indocet), which will facilitate cross-regional collaboration and matching of photo-identification catalogues. More detail on both general and ASWN-specific aspects of the Flukebook data platform is presented in SC/68A/SH/07.

The IWC-funded research project examining photographs of humpback whales from Oman and other ASHW range states for indications of health status and anthropogenic scarring was delayed but will commence on June 24-25 2019, when the principal investigators will meet to establish the protocol for examining and scoring photos on a number of indexes. Results will be presented next year to SC/68B.

Many ASWN members helped to identify Important Marine Mammal Areas (IMMAs) by writing proposals and participating in the IMMA workshop held in Oman in March 2019. The proposed candidate IMMAs are now undergoing review and are expected to be included in the 'e-Atlas' before the end of 2019. A number of the proposed IMMAs have been specifically designed to include important habitat for the Arabian Sea humpback whales of the coasts of Oman, Pakistan and India. SC/68A/CMP/09rev1 also highlights national/project level work conducted by members in the UAE and Oman, and provides an overview of progress against the actions set forth in the CMS Concerted Action for Arabian Sea humpback whales. The latter includes three general categories of actions – addressing knowledge gaps, information sharing and awareness-raising, and capacity building and development and implementation of threat mitigation measures. This progress will be formally reported to the CMS Scientific Council in October 2019, and to the CMS Conference of Parties, which will be held in India in February 2020.

At the direction of the Commission, the Secretariat has continued to be in communication with Oman and India regarding the possibility of a CMP for Arabian Sea Humpback Whales. The response from the Indian Government has been very enthusiastic. India has made Arabian Sea humpback whales a priority species for conservation and has also indicated that it is planning a workshop in late 2019 to address Arabian Sea humpback whales. They would like to invite Oman to this workshop, along with the IWC and CMS. This is highly relevant for CMS in the context of its Concerted Action Plan for Arabian Sea humpback whales.

Collins and Minton reported on the progress of the intersessional group (Collins, Minton, Willson, Jackson, Zerbini, Cooke, and Corkeron) to support the use of photo-identification to generate new abundance estimates for the population of ASHW off the coast of Oman. While some correspondence between group members has resulted in some preliminary models and estimates, it was felt that the results were not yet ready to present to the Scientific Committee, and that importantly, further consultation with local stakeholders in Oman is required before any numbers are published. The intersessional group will meet before the end of SC/68A to discuss methods and a timeline for completion of the work. Given the importance of this new estimate the Scientific Committee **strongly urged** the completion of this work in a timely manner working toward a peer-reviewed publication that will be ready in time for ASI to review it at the next Scientific Committee meeting in 2020.

The sub-committee **commended** the work performed by researchers focusing on Arabian Sea humpback whales, noting the expansion of research topics and recognising the difficulty of establishing and maintaining such a network, which it recognised as important for the conservation and management of this highly endangered population. As in past years, the sub-committee **welcomed** the efforts to coordinate work at a regional level and promote exchange of experience both within the network and with others in the conservation community. The sub-committee **encouraged** Arabian Sea range states to continue supporting regional coordination and utilise the new data platform in order to facilitate regional comparisons and analyses. The sub-committee **encouraged** continued collaboration at a regional level to promote cross-boundary research, threat mitigation, and dialogue with Arabian Sea humpback whale range states.

Attention: S, CG

*The sub-committee **welcomed** the efforts to initiate range state collaboration within the region and especially the efforts of India including the proposed workshop. It **suggested** that the IWC Secretariat offer scientific support for the workshop. It also notes that the BMI and Large Whale Entanglement Response teams can provide advice on safe handling and mitigation techniques and perhaps the collection of genetic samples associated with bycatch.*

6.2.2 Blue whales from the northern Indian Ocean

SC/68A/CMP/08rev1 documents survey work conducted in Hallaniyats Bay, Southern Oman, between March 2018 and April 2019. Although multi-disciplinary research in the area since 2000 has been focused on Arabian Sea humpback whales, surveys have documented 18 other cetacean species in the area. Limited surveys conducted over the last year resulted in sightings of 12 cetacean species, with Bryde's whales being the most frequently observed; humpback whales, common dolphins and blue whales are also regularly documented.

Blue whales encountered over a three-day period in April 2019 exhibited diving behaviour similar to that reported from southern Sri Lanka (de Vos *et al.*, 2013). The dorsal fin and tail fluke photos, five genetic samples, and two fecal samples are expected to help resolve questions related to taxonomy and population structure for blue whales in the northern Indian Ocean. Detection of putative blue whale song in the study area between November 2011 and April 2012 (Cerchio *et al.*, 2018), blue whale catch positions documented during Soviet whaling in the Arabian Sea (Mikhalev, 2000), and habitat suitability modelling (Redfern *et al.*, 2017), as well as these recent sightings, indicate that blue whale presence in the area during recent surveys was not exceptional and further investigations on blue whales off the Oman coast should be considered as a research priority. SC/68A/CMP/07 additionally reported two sightings of blue whales along the coast of Pakistan. Research from the study area has assisted with the nomination of the study site as a candidate Important Marine Mammal Area (IMMA) and in designing of Special Planning Zones for the Oman National Spatial Strategy. The cumulative evidence for the abundance and diversity of cetacean species in the area should continue to be used to support the implementation of conservation and management measures. Any measures implemented at the study site will benefit a number of cetacean species as well as blue and humpback whales.

Attention: CG, G

*The sub-committee **welcomed** this new information on northern Indian Ocean blue whales off the coast of Oman, which presents an opportunity to resolve population identity and status in the region. In light of this new information and what has been presented to the Scientific Committee previously on blue whales off the coasts of Sri Lanka, India, and Madagascar the sub-committee **encouraged** researchers and range states to address the following research priorities:*

(a) continued photo-identification and genetic sampling of blue whales off the coast of Oman;
(b) passive acoustic monitoring to determine seasonal presence, population abundance and trends;
(c) comparison of blue whale photographic catalogues with other blue whale catalogues in Oman, India, Sri Lanka and any others available in the Indian Ocean (and possibly the Antarctic); and
(d) conduct genetic analysis of samples that have been collected to better understand the taxonomy and stock structure of blue whales in the Arabian Sea.

*The sub-committee **recommended** member country and non-member country Governments and regulatory bodies support these important research priorities and adopt management measures in core areas of habitat for blue whales in the Arabian Sea. In Oman these areas include the Hallnaiyats Bay and the Gulf of Masirah.*

6.2.3 Amazon River dolphins

No new papers on Amazon River dolphins were presented. Iñíguez provided an update on the development of a CMP for Amazon River dolphins. In June 2019, a workshop with the main stakeholders will be hosted in Bogota by the Government of Colombia to begin the process of developing a CMP for both species of river dolphins (*Inia* and *Sotalia*). A workshop report will be presented at the next Scientific Committee meeting in 2020 (SC/68B).

The sub-committee welcomed an update on the progress of CMP development for Amazon River dolphins and looks forward to reviewing the workshop report in 2020.

Attention: CG-A

*The sub-committee **advised** that the applicable range states work towards developing a draft CMP for presentation at SC/68a.*

6.2.4 Mediterranean fin whales

Panigada presented a working paper outlining an ACCOBAMS/IWC CMP for Mediterranean fin whales (*Balaenoptera physalus*). The overall goal of the Mediterranean Fin Whale CMP is to manage human activities that affect fin whales in the Mediterranean Sea in order to maintain a favourable conservation status throughout their historical range, based on the best available scientific knowledge. The CMP includes eight sections, of which the first three provide background information including biology and status of the Mediterranean fin whale population. Section 4 reviews actual and potential anthropogenic threats and ranks these as low, moderate or high priority. Section 5 describes mitigation measures for those threats that have been accorded moderate or high priority. Section 6 deals with public awareness and education, while Section 7 outlines the actions called for and includes sub-sections on monitoring, on implementation and coordination of the CMP, and on the involvement of stakeholders. Section 8 describes in detail the high priority actions identified at this stage. They fall under the following five headings: Co-ordination, Capacity building and public awareness, Research essential for providing adequate management advice, Monitoring, and Mitigation measures.

The most critical and urgent action is the implementation of the Mediterranean Fin Whale CMP (CORD-01). Funding must be found for this action at the earliest opportunity to appoint a Co-ordinator and set up the Steering Group to ensure that the CMP moves ahead in a timely fashion. This document is a draft outline intended to facilitate discussion and it does not represent a final draft version of the CMP, particularly as contributions from key players in the ACCOBAMS area are still missing and could not be integrated during this preliminary draft. A drafting workshop has been organised for September 2019, to which scientists involved in fin whale research in the Mediterranean will be invited and will be able to collaborate towards a draft final CMP. The document will be presented to the ACCOBAMS Meeting of Parties in November 2019 and the IWC Scientific Committee in 2020 for consideration.

In discussion, SC/68A/CMP/03 was recalled to reaffirm the changes in the CMP process and the sub-committee looks forward to reviewing the draft CMP at SC/68B.

Table 1
Summary of the work plan for the Sub-committee on Conservation Management Plans (CMPs).

Item	Intersessional 2019/20	2020 Annual Meeting (SC/68B)	2021 Annual Meeting (SC/69a)
Southeast Pacific right whale	Workshop on whale watching and research permits	Review progress on scientific aspects of CMP	Review progress on scientific aspects of CMP
South Atlantic right whale	Entanglement workshop (June 2019)	Review progress on scientific aspects of CMP	Review progress on scientific aspects of CMP
Gray whale	Tokyo workshop (late 2019 or early 2020)	Review progress on scientific aspects of CMP	Review progress on scientific aspects of CMP
Franciscana	Preparation for review	Review new information	In-depth review
Arabian Sea humpback whale	Abundance estimates (email)	Review progress on identified priorities for research and conservation	Review progress on identified priorities for research and conservation
Mediterranean fin whale	CMP workshop (September 2019)	Review progress on scientific aspects of CMP	Review progress on scientific aspects of CMP
Mediterranean sperm whale		Review progress on scientific aspects	Review progress on scientific aspects of CMP
South American river dolphin	Bogota workshop (June 2019)	Review progress on scientific aspects of CMP	Review progress on scientific aspects of CMP
Central American humpback whale	CMP strategic planning (email)	Review progress on research priorities	If available discuss draft CMP

Attention: CG
*The Scientific Committee **considered** that the Mediterranean fin whales would benefit from the development of a CMP, and:*

*(1) **recommended** that the SWG-CMP treat the Mediterranean fin whale subpopulation as a 'priority species/population' for the purpose of the CMP development process. In making this recommendation, the Scientific Committee **acknowledged** that a nomination would not be required for this sub-population, and the Scientific Committee **encouraged** the SWG-CMP to commence outreach to relevant range states and stakeholders to encourage and support the development of a CMP; and*
*(2) **advised** that the applicable range states work towards developing a draft CMP for presentation at SC/68B.*

6.2.5 Sperm whales in the Mediterranean
Panigada reported that ACCOBAMS are interested in sperm whales in the Mediterranean Sea, but noted they have not yet acted to develop a CMP. This sperm whale subpopulation has been assessed in the IUCN Red List as Endangered and it faces several anthropogenic threats, including but not limited to ship strike and bycatch. ACCOBAMS is in the process of drafting CMPs for other Mediterranean cetaceans and will consider a CMP for this species in the near future. On 15 May 2019, at least four sperm whales stranded together on the coast of Tigzirt, Algeria and at least two of them were entangled in fishing gear. In discussion, it was noted that a CMP could help better manage human activities that affect sperm whales throughout the Mediterranean region in order to maintain a favourable conservation status.

Attention: SC, ACCOBAMS
*The sub-committee **agreed** that this population would benefit from the development of a CMP and **recommended** that the process to draft a CMP for this population be **recognised** as a priority by ACCOBAMS.*

6.3 Other potential CMP(s)
6.3.1 Central American humpback whales
Brownell presented information on the endangered Central American humpback whale population, which has a minimum estimate of 411 (CV=0.30) individuals (Wade *et al.*, 2016). Therefore, this small population is particularly vulnerable to anthropogenic threats (Brownell and Mallette, 2018). These humpback whales are taken as bycatch on their feeding ground off California. This bycatch occurs mainly in the Dungeness crab fishery and poses a major threat to the conservation of this depleted population. Vessel strikes also pose an additional threat on the west coast of the US and to this population as it traverses some of the busiest ports along the west coast (Carretta *et al.*, 2018). Off the west coast of Baja California, Mexico and the mainland coast of Mexico there were 95 records of entanglement between 2004 and 2017 (Urbán R. *et al.*, 2017). At least one quarter of these (n=23) were confirmed deaths attributed to entanglement (Urbán, pers. comm.).

In Central American waters, the main threats to these humpback whales is ship strikes, mainly off Panama. Guzman *et al.* (2013) noted that Panamanian waters are one of the 20 most transited regions in the world and that in the Gulf of Panama during winter, humpback whales are at risk from ship strike due to the heavy maritime traffic. A 65 n. mile Traffic Separation Scheme (TSS) and a 10 knot maximum speed for vessels routed through the Gulf of Panama from August to November was approved in May 2014. Starting 1 January 2018, an international area to be avoided (ATBA) off the Peninsula de Osa, Costa Rica, was implemented. Other threats to these whales throughout their range include: anthropogenic noise (acute and chronic), micro- and nano-plastics, physical disturbance, and climate change. Considering all of the above human related threats that this population is facing, a CMP could help better manage human activities that affect humpback whales throughout their range in order to maintain a favourable conservation status using the best available scientific knowledge.

In discussion, it was noted that three humpback populations (Central American, Mexico and a small number from Hawaii) mix in summer while feeding in Californian waters. Therefore, knowing the mixing proportion of the feeding stocks of humpback whales is important to estimate the mortality rate of the Central American stock. Therefore, priority areas of research included the need for systematic matching among existing photo-identification collections, matching (flukes) of dead stranded whales, analyses of genetics samples to help better determine stock structure, quantifying mortalities and injury for threat assessment.

The sub-committee **encouraged** additional research on priority topics identified in the discussion of Central American humpback whales (e.g. increased photo-identification, sample collection for genetic analyses) including developing mixing matrices to determine stock identity.

Attention: SC, C
*The sub-committee **agreed** that this population would benefit from the development of a CMP and **recommended** continuation of, and increased collaborative research among, groups focused on identified priorities for research and conservation with range states.*

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7. WORK PLAN AND BUDGET REQUESTS FOR 2019-20

7.1 Intersessional groups

The sub-committee's work plan is found in Table 1. Intersessional correspondence groups can be found in Annex T.

7.2 Budget requests

No budget requests were received by the sub-committee, but SC/68A/RP/04 was referred to the CMP sub-committee from the SH sub-committee for endorsement and the group agreed that it was a project of high importance for the conservation status of South Atlantic right whales.

An independent review of the proposed budgets ranked this proposal as the top priority among four proposals that were presented.

8. ADOPTION OF REPORT

The report was adopted at 18:14 on 17 May 2019.

REFERENCES

Arabian Sea Whale Network. 2018. October 2018 Newsletter. 7pp. [Available at: *https://arabianseawhalenetworkdotorg.files.wordpress.com/2018/10/aswn-2018_10-newsletter_final.pdf*].

Bradford, A.L., Weller, D.W., Punt, A.E., Ivashchenko, Y.V., Burdin, A.M., VanBlaricom, G.R. and Brownell, R.L., Jr. 2012. Leaner leviathans: body condition variance in a critically endangered whale population. *J. Mammal.* 93(1): 251-66.

Brownell, J., R.L. and Mallette, S.D. 2018. Global baleen whale bycatch: the most threatened populations. Paper SC/67b/HIM09rev1 presented to the IWC Scientific Committee, April-May 2018, Bled, Slovenia (unpublished). 18pp. [Paper available from the Office of this Journal].

Carretta, J.V., Forney, K.A., Oleson, E.M., Weller, D.W., Lang, A.R., Baker, J., Muto, M.M., Hanson, B., Orr, A.J., Huber, H., Lowry, M.S., Barlow, J., Moore, J.E., Lynch, D., Carswell, L. and Brownell, R.L., Jr. 2018. US Pacific Marine Mammal Stock Assessments: 2017. *NOAA Tech. Mem. NOAA-TM-NMFS-SWFSC*- 602: 161pp. [Available at: https://doi.org/10.7289/V5/TM-SWFSC-602].

Cerchio, S., Willson, A., Muirhead, C., Al Harthi, S., Baldwin, R., Cholewiak, D., Collins, T., Minton, G., Rasoloarijao, T. and Willson, M.S. 2018. A new baleen whale song type described for the West Indian Ocean off Oman and northwest Madagascar. Paper SC/67b/SH24rev1 presented to the IWC Scientific Committee, April-May 2018, Bled, Slovenia (unpublished). 8pp. [Paper available from the Office of this Journal].

Cooke, J.G. 2018. Abundance estimates for western North Pacific gray whales for use with stock structure hypotheses of the Range-wide Review of the Population Structure and Status of North Pacific gray whales. Paper SC/67b/ASI02 presented to the IWC Scientific Committee, April-May 2018, Bled, Slovenia (unpublished). 15pp. [Paper available from the Office of this Journal].

de Vos, A., Christansen, F., Harcourt, R.G. and Pattiaratchi, C.B. 2013. Surfacing characteristics and diving behaviour of blue whales in Sri Lankan waters. *J. Exp. Mar. Biol. Ecol.* 449: 149-53.

Durban, J.W., Weller, D.W. and Perryman, W.L. 2017. Gray whale abundance estimates from shore-based counts off California in 2014/15 and 2015/16. Paper SC/A17/GW06 presented to the Fourth Workshop on the Rangewide Review of the Population Structure and Status of North Pacific Gray Whales, April 2017, La Jolla, CA, USA (unpublished). 5pp. [Paper available from the Office of this Journal].

Government of Argentina, Government of Brazil and Government of Uruguay. 2016. A Conservation Management Plan for Franciscana (*Pontoporia blainvillei*). Paper IWC/66/CC11 presented to the 66th Meeting of the International Whaling Commission, 24-28 October 2016, Portoroz, Slovenia (unpublished). 22pp. [Paper available from the Office of this Journal].

Guzman, H.M., Gomez, C.G. and Guivara, C.A. 2013. Potential vessel collisions with Southern Hemisphere humpback whales wintering off Pacific Panama. *Mar. Mamm. Sci.* 29(4): 629-42.

International Whaling Commission. 2005. Report of the Scientific Committee. *J. Cetacean Res. Manage. (Suppl.)* 7:23-24.

Jayasankar, P., Anoop, B., Reynold, P., Afsal, V.V. and Rajagopalan, M. 2007. Species of a whale and an unknown fish sample identified using molecular taxonomy. *Indian J. Fisheries* 54(3): 339-43.

Jayasankar, P., Anoop, B., Vivekanandan, Rajagopalan, M., Yousuf, K.M.M., Reynold, P., Krishnakumar, P.K., Kumaran, P.L., Afsal, V.V. and Krishnan, A.A. 2008. Molecular identification of delphinids and finless porpoise (Cetacea) from the Arabian Sea and Bay of Bengal. *Zootaxa* 1853: 57-67.

Kim, H.Y., Sohn, H. and Imai, Y. 2018. Possible occurrence of a gray whale off Korea in 2015. Paper SC/67b/CMP11rev1 presented to the IWC Scientific Committee, April-May 2018, Bled, Slovenia (unpublished). 6pp. [Paper available from the Office of this Journal].

Mate, B.R., Ilyashenko, V.Y., Bradford, A.L., Vertyankin, V.V., Tsidulko, G.A., Rozhnov, V.V. and Irvine, L.M. 2015. Critically endangered western gray whalesmigrate to the eastern North Pacific. *Biol. Lett.* 11: 20150071. 4pp.

Mikhalev, Y.A. 2000. Whaling in the Arabian Sea by the whaling fleets *Slava* and *Sovetskaya Ukraina*. pp.141-81. *In*: Yablokov, A.V., Zemsky, V.A. and Tormosov, D.D. (eds). *Soviet Whaling Data (1949-1979)*. Centre for Russian Environmental Policy, Moscow. 408pp.

Redfern, J.V., Moore, T.J., Fiedler, P.C., De Vos, A., Brownell Jr, R.L., Forney, K.A., Becker, E.A. and Ballance, L.T. 2017. Predicting cetacean distributions in data-poor marine ecosystems. *Divers. Distrib.* 23: 394-408. [Available at: *http://www.wileyonlinelibrary.com*].

Urbán R., J., Frisch, J. and Martinez-Aguilar, S. 2017. Report on the humpback whale entanglements in the Mexican Pacific (2004-2017). Paper SC/A17/NP16 presented to the Workshop on the Comprehensive Assessment of North Pacific Humpback Whales, 18-21 April 2017, Seattle, USA (unpublished). 3pp. [Paper available from the Office of this Journal].

Wade, P.R., Quinn, T.J., II, Barlow, J., Baker, C.S., Burdin, A.M., Calambokidis, J., Clapham, P.J., Falcone, E.A., Ford, J.K.B., Gabriele, C.M., Mattila, D.K., Rojas-Bracho, L., Straley, J.M., Taylor, B.L., Urbán R., J., Weller, D., Witteveen, B.H. and Yamaguchi, M. 2016. Estimates of abundance and migratory destination for North Pacific humpback whales in both summer feeding areas and winter mating and calving areas. Paper SC/66b/IA21 presented to the IWC Scientific Committee, June 2016, Bled, Slovenia (unpublished). 42pp. [Paper available from the Office of this Journal].

Appendix 1

AGENDA

1. Convenor's opening remarks
2. Election of Chair
3. Appointment of rapporteurs
4. Adoption of Agenda
5. Review of available documents
6. Stocks that are or might be the subject of Conservation Management Plans (CMP)
    - 6.1 Stocks with existing CMPs
        - 6.1.1 Southeastern Pacific southern right whales
            - 6.1.1.1 New information
        - 6.1.2 Southwestern Atlantic southern right whales
            - 6.1.2.1 New information
        - 6.1.3 North Pacific gray whales
            - 6.1.3.1 Rangewide assessment
            - 6.1.3.2 Regional studies
                - 6.1.3.2.1 Russia
                - 6.1.3.2.2 Japan
                - 6.1.3.2.3 Mexico
                - 6.1.3.2.4 USA
            - 6.1.3.3 Other studies
        - 6.1.4 Franciscana
            - 6.1.4.1 New information
    - 6.2 Progress with identified priorities
        - 6.2.1 Humpback whales in the northern Indian Ocean including the Arabian Sea
        - 6.2.2 Blue whales from the northern Indian Ocean
        - 6.2.3 Amazon River dolphins
        - 6.2.4 Mediterranean fin whales
        - 6.2.5 Sperm whales in the Mediterranean
    - 6.3 Other potential CMP(s)
        - 6.3.1 Central American humpback whales
7. Work plan
8. Adoption of Report

Appendix 2

REPORT ON IUCN WESTERN GRAY WHALE ADVISORY PANEL (WGWAP) WORK FROM JUNE 2018 TO MAY 2019

R. Reeves, D. Weller, J. Cooke and G. Donovan

The Western Gray Whale Advisory Panel (WGWAP)[1], which is convened by the International Union for Conservation of Nature (IUCN), has continued to provide advice to various parties, but particularly to the Sakhalin Energy Investment Company (Sakhalin Energy), concerning the gray whales that feed each summer off Sakhalin Island and southern Kamchatka, Russia. Since SC/67b, the Panel's composition has changed. Its Terms of Reference remain as previously, despite major reductions in budgetary support. Although the contractual arrangement between Sakhalin Energy and IUCN extends through 2021, the severe cutbacks experienced in 2018 and again in 2019 call into question whether, and for how long, the Panel can continue to function beyond 2019.

Reeves and Donovan remain as co-Chairs and Cooke and Weller as members of the 10-person Panel. Other current members re-appointed or appointed in early 2019 are Doug Nowacek (USA), Alexander Vedenev (Russia), Leslie New (USA), Olga Shpak (Russia), Greg Silber (USA) and Leigh Torres (USA). In addition, Associate Scientists under contract to IUCN for specific Panel tasks this year include Lars Bejder (USA), Alexander Burdin and Olga Sychenko (Russia), and Brian Dicks (UK).

Five formal meetings took place between June 2018 and May 2019, as follows:

(1) 15th meeting of the Noise Task Force (NTF-15), November 2018 in Moscow;
(2) 19th meeting of the Panel (WGWAP-19), November 2018 in Moscow;
(3) 16th meeting of the Noise Task Force (NTF-16), April 2019 in Gland, Switzerland;
(4) 1st meeting of a Photo-ID/New Technologies Task Force (PHID/NT TF-1) in Gland; and
(5) 1st meeting of a Cumulative Effects Task Force (CETF-1) in Gland.

Final reports of Panel and Task Force (TF) meetings are available on the WGWAP website (it may be several months before those for the TF meetings in late April 2019 are posted). In addition, all recommendations made by the WGWAP and its predecessor IUCN Western Gray Whale Panels can be viewed on a searchable database[2].

The main subject of the NTF-15 meeting last November was to carry out a retrospective evaluation of the gray whale Monitoring and Mitigation Plan (MMP) associated

[1]*http://www.iucn.org/western-gray-whale-advisory-panel.*

[2]*http://www.iucn.org/western-gray-whale-advisorypanel/recommendations*.

with Sakhalin Energy's large-scale Piltun-Astokh seismic survey in summer 2018 (as described in last year's progress report; Reeves *et al.*, 2019). An unforeseen problem arose late in the spring of 2018 when Russian authorities denied permission to conduct any form of acoustic monitoring on the Sakhalin Shelf during the 2018 open-water season. Because such monitoring was a key component of the MMP that had been developed collaboratively and agreed by the Panel and Sakhalin Energy, last-minute *ad hoc* consultations were required to assess options. A public statement by the Panel on the outcome of those consultations was posted on the WGWAP website on 17 May 2018 summarising and expressing the Panel's concern about the implications of the lack of acoustic monitoring[3]. In this statement, the Panel recommended that the Company make every effort 'to ensure that acoustic monitoring takes place at the required level or at least at a minimal level to allow some degree of model verification during the survey.' In addition, it noted that if the Company decided to proceed with no acoustic monitoring and depended on model predictions as the sole indicators of sound levels in and near the whale feeding area, this would mean that the agreed MMP was not fully implemented. The survey was completed between 24 June and the first week of August. As often happens in this region, visibility was poor for extended periods and therefore the effectiveness of visibility-dependent mitigation measures was compromised.

At WGWAP-19, the Panel again expressed disappointment at how the Sakhalin Energy-Exxon Neftegas Limited (ENL) Joint Program of gray whale monitoring has been scaled back and narrowed in scope in recent years. The companies have abandoned three of what were once key annual elements of this program: (i) behaviour monitoring; (ii) acoustic monitoring; and (iii) benthic sampling in the near-shore (Piltun) gray whale feeding area. This leaves only two remaining program elements ongoing – photo-identification and distribution monitoring. Within those components, effort levels and methodologies have been modified in recent years (e.g. photo-identification work is now conducted only from shore, drones have been introduced to both photo-identification and distribution monitoring). This has led the Panel to recommend that closer attention be given to how such changes will affect the relatively long time-series of data that the companies have collected since 2002.

As noted in last year's progress report, the Panel is concerned that benthic sampling was discontinued after 2016, despite an apparently steep decline in amphipod biomass in the Piltun (nearshore) feeding area from 2013. Reported changes in the abundance and distribution patterns of gray whales in the Piltun and offshore feeding areas are broadly coincident with this apparent trend in what is assumed to be the whales' main source of prey (particularly for mothers and their calves). The results of a major industry-sponsored study, the stated goal of which was to evaluate the ecological carrying capacity of the Sakhalin feeding areas, were presented to the WGWAP-19 meeting (Labay *et al.*, 2018). The authors' proposed hypothesis to explain the decline in amphipod biomass was the predation on the amphipods by an increasing number of foraging gray whales together with predation by bottom-feeding fish.

Although the Panel welcomed this effort to synthesise and analyse the large dataset on benthos collected by company scientists since 2002 – 'a unique dataset of great scientific value' - it noted that the method used for calculating ecological carrying capacity had some weaknesses and did not make full use of the extensive dataset available. The Panel recommended that more advanced (e.g. bioenergetics) models be applied that take into consideration factors such as age and sex of the whales (Villegas-Amtmann *et al.*, 2017; Villegas *et al.*, 2015) and would result in a much more robust estimation of the carrying capacity of both the nearshore and offshore feeding areas.

No new information has become available on gray whale interactions with fisheries in the Russian Far East. However, the review of this issue mentioned in last year's progress report was published in late 2018 (Lowry *et al.*, 2018).

No progress was made over the past year to implement the Panel's long-standing recommendation (repeatedly endorsed by the Scientific Committee) for a combined photo-identification catalogue and related database, inclusive of information from Sakhalin and Kamchatka collected by both the Russia Gray Whale Program (RGWP) and the industry Joint Program, to be held under the auspices of the IWC using the Commission's data-sharing agreement and following the guidelines for databases and catalogues. The Panel was pleased to learn in late April 2019 that the International Fund for Animal Welfare, which has provided financial support for the RGWP for many years, has confirmed its support for the 2019 field season.

The ongoing collaboration between the IWC and IUCN to update and promote implementation of the Western Gray Whale Conservation Management Plan (CMP) was aided in 2018 by a drafting session in Gland immediately before the WGWAP-19 meeting in Moscow. In Moscow, the drafting group of Donovan, Weller and Reeves engaged in discussions with Hidehiro Kato, coordinator of the Memorandum of Cooperation Concerning Conservation Measures for the Western Gray Whale, regarding the CMP and a planned stakeholder workshop tentatively planned for late 2019 or early 2020 in Tokyo.

REFERENCES

Labay, V.S., Kim, S.T., Smirnov, A.V., Chastikov, V.N., Shevchenko, G.V. and Tskhay, Z.R. 2018. Assessment of environmental capacity of the gray whale (*Eschrichtius robustus*) in known feeding areas off northeast coast of Sakhalin Island. Abstracts of the X International Conference of Marine Mammals of the Holarctic: 172.

Lowry, L.F., Burkanov, V.N., Altukhov, A., Weller, D.W. and Reeves, R. 2018. Entanglement risk to western gray whales from commercial fisheries in the Russian Far East. *Endang. Spec. Res.* 37: 133-48.

Reeves, R., Weller, D., Cooke, J. and Donovan, G. 2019. Report of the Scientific Committee. Annex O. Report of the Sub-Committee on Cetacean Stocks that Are or Might Be the Subject of Conservation Management Plans (CMPs). Appendix 3. Progress report on IUCN Western Gray Whale Advisory Panel work from June 2017 to May 2018. *J. Cetacean Res. Manage. (Suppl.)* 20: 378-79.

Villegas-Amtmann, S., Schwarz, L.K., Gailey, G., Sychenko, O. and Costa, D.P. 2017. East or west: the energetic cost of being a gray whale and the consequence of losing energy to disturbance. *Endang. Spec. Res.* 34: 167-83.

Villegas, S., Schwartz, L.K., Sumich, J.L. and Costa, D.P. 2015. A bioenergetics model to evaluate demographic consequences of disturbance in marine mammals applied to gray whales. *Ecosphere* 6 (10, art. 183): 1-19.

[3]*https://www.iucn.org/sites/dev/files/panel_statement_2018_seismic_survey_en_ru.pdf.*