Annex F

Report of the Subcommittee on Conservation Management Plans

Participants: Brownell and Weller (Convenors), Agrelo, Aguilar Arakaki, Aguilar de Soto, Al Jabri, Andriolo, Aranha, Atkinson, Babey, Balletto, Banga, Barreto, Barros, Bell, C., Bell, E., Bellido, Bernus, Bickham, Botta, Brandon, Buss, Butterworth, Campbell, Cassani, Castro, Cerchio, Cisternino, Charlton, Chauca Huánuco, Choi, Cholewiak, Cipriano, Clarke, Collins, Collier, Cooke, Coscarella, Cremer, Crespo, Cunha, Danilewicz, DeMaster, De Groes, Diallo, Dolman, Domit, Donovan, Evangelista, Fernandez, Ferreira, Findlay, Fiogbe, Fortuna, Fruet, Fyfe, Frias , Gallego, Galletti, Germishuizen, Givens, Goetz, Griffin, Haelters, Heinemann, Hielscher, Hines, Iñíguez Bessega, Jaramillo Legorreta, Jimenez, M., Jiménez, S., Johnson, Katara, Kelly, Kema, Khan, Kolesnikovas, Kreb, Lang, Leal, Leaper, Lee, Li, Khan, Kyung Lee, Lokar, Luna, Lundquist, Lysenko, Maldonado, Mallette, Marcondes, Marmontel, Mattila, Minton, Miranda, Moazzam Khan, Moiz, Natoli, Nelson, O'Loughlin, Olson, Palka, Palazzo, Panigada, Parsons, Passadore, Peltier, Porter, Punt, Reeves, R., Reeves, S., Ridoux, Robson, Rogan, Rojas-Bracho, Rojas Urrego , Romeo, Rosa, Rose, Rowles, Schubert, Scordino, Siciliano, Simmonds, Stachowitsch, Stack, Staniland, Sutaria, Svoboda, Tai, Thomas, Trejos, Trujillo, Urbán, Van Waerebeek, Vermeulen, Viloria, Vrooman, Wade, Wang, Webster, Weinrich, Weir, Willson, Zerbini.

1. INTRODUCTORY ITEMS

1.1 Opening remarks

Weller welcomed the participants to the Subcommittee on Conservation Management Plans (CMP).

1.2 Election of Chair

Brownell was elected as Convenor and Weller as Co-Convenor.

1.3 Appointment of Rapporteurs

Mallette was appointed as Rapporteur.

1.4 Adoption of agenda

The adopted agenda is given as Appendix 1.

1.5 Documents available

CMP Handbook, SC/69B/CMP/01-20, SC/69B/REP/03Rev1, SC/69B/SH/09; SC/69B/ForInfo/54, SC/69B/ForInfo/05 and SC/69B/ForInfo/27.

1.6 Opening remarks

SC/69B/CMP/06 provided an update on the status and progress of the CMP Standing Working Group (SWG-CMP). The SWG-CMP has continued to implement the actions in the CMP Work Plan that was endorsed by the Commission at IWC68. The IWC's CMP programme continues to develop and remains a unique and effective model for generating and maintaining range state support for at-risk cetacean populations globally. Five existing CMPs that continue to progress include: Western North Pacific gray whale (established in 2010), Eastern South Pacific southern right whale (2012), Western South Atlantic southern right whale (2012), Franciscana dolphin (2016) and South American river dolphins (2021).

Populations considered high priority for CMP development due to their conservation status (of the population or species), and knowledge of threats can be recommended by the Scientific Committee. When such recommendations are made, range states and those drafting the CMP can progress development of a draft CMP without first preparing a CMP nomination. SC made this recommendation for the following four populations: Arabian Sea humpback whale, Central American humpback whale, Mediterranean sperm whale and Mediterranean fin whale.

During SC69A (IWC, 2024; Annex F), a recommendation was made to liaise with other intergovernmental bodies (e.g., CMS) regarding development and endorsement of joint CMPs. In support of that recommendation, proposals were developed to extend the Concerted Action for the franciscana dolphin and for Arabian Sea humpback whales, which were adopted at the CMS Conference of Parties in February 2024.

During SC69B, updates were received on the five existing CMPs and those high priority populations proposed by SC (IWC, 2024). Furthermore, four new CMP proposals were received and reviewed including: Central American humpback whales, Guiana dolphins, Lahille's bottlenose dolphins and freshwater subpopulations of Irrawaddy dolphins.

Continuing the discussion of the CMP process of SC69A (IWC, 2024), the Subcommittee also reviewed developments of a CMP Handbook, presented by the SWG-CMP, which will serve as the primary source of the CMP programme information and provide guidance for IWC members and stakeholders. In 2020, the Conservation Committee agreed that a CMP Handbook should be developed to capture the various requirements and processes involved in developing and implementing a CMP. The workplan endorsed at IWC68 has been used to guide this development along with a review of relevant SC and CC recommendations concerning CMPs. It was noted that the current workplan is due to expire this year and a new 2025-2028 workplan, along with the Handbook, will be presented by the Conservation Committee to the Commission for endorsement at IWC69.

The SWG-CMP **requested** advice from the SC on the CMP review process, timeline and prioritisation considering the biennial Committee meetings, and the growing number of CMPs. Developing a list of priorities and potential issues for future CMPs was emphasized as an important step in the process. Further considerations about the CMP process were noted, including guidance on the development of regional CMPs (for example Regional CMP for several species in the Mediterranean Sea). The SWG-CMP also **requested** a review of the incomplete draft action plan 2024-28 (Annex 2) and any advice on the format as well as any activities that should be included.

While any institution can submit a CMP proposal, it was noted that governments (whether member or non-member to the IWC) need to be involved in the process, as they assume responsibilities for the development and progress of a CMP.

***Attention**: SC, CC*

*The Subcommittee **reiterated** support for the establishment of CMPs for all priority populations. The Subcommittee **welcomed** and **endorsed** the CMP Handbook (Annex 2).*

2. STOCKS WITH EXISTING CMPs: NEW INFORMATION AND PROGRESS WITH PREVIOUS RECOMMENDATIONS

2.1 SE Pacific southern right whales

SC/69B/CMP/02 reports on advances of the Chile-Peru Southern Right Whale CMP. An updated CMP version was adopted in SC69A. Acoustic recording and data analysis have been completed from the Antofagasta region. No calls were found, despite the sighting of a southern right whale female-calf pair in August 2022. This lack of evidence for right whale presence in the acoustic recordings may have resulted from: (1) the acoustic recorder could not detect whales at the distance they occurred, (2) the whales were not vocal at that time; and/or (3) the acoustic recorder failed to capture whale calls. Manual processing of the acoustic records will be needed to further assess the presence or absence of whales. Specialists from Instituto del Mar del Peru were trained on hydrophone maintenance. The report further highlights that a CMP coordination meeting will take place in Chile and a disentanglement training workshop in Peru during 2024.

In discussion, it was mentioned that plans to deploy passive acoustic devices off southern Peru have been delayed due to the lack of a deck unit for which funds would be required. The Subcommittee **recognised** that, due to the scarcity of visual sightings, the collection of PAM data on the SE Pacific southern right whales is of critical importance to assess higher density areas. Therefore, the Subcommittee invited a funding proposal to progress with this work.

SC/69B/CMP/11Rev2 provided detailed information on two southern right whales calves stranded in 2023 including one in southern Chile and the other in northern Ecuador. The latter is the new northernmost record for this population and crossed the equator to 6ºN. Photographs, measurements, and samples were collected, and evidence of human interactions was documented. The calf from southern Chile was severely entangled around the mouth carrying several meters of monofilament gill net (likely associated with hake fisheries operations) and part of the headrope around the tongue, baleen, and flippers. The calf from Ecuador also had entanglement marks on the peduncle and tail. A deep rounded hole was found on the dorsal side of this calf, possibly associated to a gunshot. Samples will be analysed for genetics and hormones. These observations represent two of the four reported mortalities for this population since the end of commercial whaling, all of which had evidence of human interactions, suggesting anthropogenic threats may be hampering the recovery of the population. It was indicated that priority should be given to identifying type of fishing gear, adopting mandatory fishing regulations on the use of cetacean-friendly gear and limiting vessel speed within areas of seasonal aggregation.

SC/69B/CMP/10 describes four sightings of cow-calf pairs of southern right whales in the southeast Pacific Ocean (Chile-Peru). Information on body condition of two SRWs sighted in northern Chile suggests that these individuals are in good condition, consistent with those of whales from relatively healthy and recovering populations in Argentina and Australia. Mitochondrial DNA haplotypes documented in Argentina were detected in tissue samples from one sighting in Peru and another in Chile. The rare occurrence of a SRW cow-calf pair in the Pitcairn Islands (~25ºS) in 2023 was reported. All opportunistic data obtained from SRWs in the Central and Southeast Pacific are important to help better understand the status of the critically endangered Chile-Peru population.

In discussion it was suggested that the same methods and protocols for genetic analyses used by Carrol *et al*. (2018) for the Chile-Peru, Australia and New Zealand right whales should be used for comparison. The value of pooling data across southern right whale distribution was highlighted in the context of changing distributions and climate change. The Subcommittee **encouraged** re-running samples from that study alongside those from other regions to inform population structure for assessment purposes.

2.2 Statement of Rationale for Biopsy Sampling Summary (see Appendix 2)

Galletti presented a Statement of Rationale for biopsy sampling southern right whales with

particular focus on cow-calf pairs. At SC69A, the CMP Subcommittee recommended that such a statement be prepared given the difficulty to obtain related permits. The statement indicated the importance of collecting biopsy samples from southern right whales, including cow-calf pairs, to improve understanding on conservation status, particularly for populations with limited knowledge such as the Critically Endangered Chile-Peru southern right whale. Furthermore, it serves as guidance on protocols for the collections of biopsy samples of southern right whales. The statement calls on research groups to apply for research permits and advises range states to give high priority to issuing related permits, including for cow-calf pairs.

The Subcommittee **welcomed** the statement. In discussion, it was noted that collecting sloughed skin is another technique for genetic sampling although it is not always successful, therefore while useful it is not intended to replace biopsy collection. It was also suggested that if the issue of biopsy sampling permitting is overcome, it may be worth developing a coordination network of experienced researchers to be available to respond to right whale sightings given the extensive coastline, small population and value of information and samples that can be obtained in such instances.

The Subcommittee **reiterated** the importance of the CMP for the conservation of the critically endangered Southeast Pacific southern right whale population and **welcomed** the progress made. The Subcommittee **encouraged** the continuation of the collection of these data noting the value it provides for improved management of this Critically Endangered population. The Subcommittee **congratulated** the author and colleagues for the progress made.

***Attention**: SC, CC, CG, R*

*The Subcommittee **expressed great concern** for the potential of increased anthropogenic related mortality, and **urged** the adoption of prevention and mitigations measures, such as vessel speed limits and time-area fishing closures.*

The Subcommittee also:

1. ***commended** the scientific work and international cooperation being undertaken for the PAM (passive acoustic monitoring) project, and **congratulated** the researchers for the obtained results, which will assist in designing future sighting surveys and providing baseline information on the potential location of breeding and feeding grounds. It **encouraged** further monitoring off Peru (including PAM) and the continuation of data analyses and **recommended** the related proposal for funding.*
2. ***agreed** the statement of rationale for the collection of biopsy samples of southern right whales, including calves, can be used as guidance for other range states and researchers.*
3. ***advised** range states to facilitate the process for the issuance of research permits to collect biopsy samples for southern right whales, including cow-calf pairs.*
4. ***encouraged** comparison of photo-ID data and genetic markers across Indo-Pacific and Southwest Atlantic southern right whales to better understand population connectivity between the two regions.*
5. ***encouraged** range states to facilitate the process for the issuance of research permits for deployment of satellite transmitters following best practices guidelines to better assess eastern South Pacific southern right whale movements, habitat use and exposure to threats (Andrews et al., 2019).*

The Subcommittee welcomes an update at SC70.

2.3 SW Atlantic southern right whales

SC/69B/SH/09Rev1 presented a multi-state analysis to assess dispersion rates of southern right whales between the Argentinian and Brazilian calving grounds. The analysis combined photo-identification data from the Southern Right Whale Program (ICB – Ocean Alliance) in Argentina and from ProFRANCA (Instituto Australis) in Brazil, with catalogues consolidated up to 2017. The study estimated survival, site- specific recapture, and movement probabilities, while also testing biological hypotheses on movement probabilities. Dispersion rates between calving grounds were found to not be influenced by the number of whales in the area but were affected by breeding success. Preliminary findings suggest a larger rate of growth of the Brazilian population, likely driven by a gradual dispersion from the Argentinean population into the Brazil calving ground. Further work is needed to take into account the reproductive cycle in the population for more robust results, which has financial implications. In discussion, the Subcommittee **recognised** the need for this work to be conducted to progress with agenda items as well as those of the SH Subcommittee. It therefore invited a funding proposal.

The Subcommittee **commended** this highly collaborative work and **highlighted** its importance for understanding population trends and estimating the abundance of southern right whales in the Southwest Atlantic. The importance of increasing efforts to conduct multi-population level assessments for global assessments was **noted**, considering the wide-ranging movement of southern right whales along the coastline between different calving grounds. This report was discussed in detail by the Subcommittee on the other Southern Hemisphere whale stocks under Annex P, Agenda Item 4.2.3 southern right whales.

SC/69B/CMP/01Rev1 described the migratory movements of 10 southern right whales instrumented with consolidated satellite transmitters in a wintering aggregation along the northeast coast of a Patagonian Shelf archipelago (PSA; 51°46'S 59°23'W) situated ~500 km north-east of Tierra del Fuego. The region comprises a breeding area in which courtship and mating predominate, evidenced by observations of mating groups and recordings of gunshot song. Location only and archival tags were deployed in July 2022 and transmitted for 27-261 days (mean=137.8 days). Six individuals spent prolonged periods of 33–57 days in the PSA following tagging, with high and sustained use of the exposed north coast of the easternmost island. Six SRWs moved from the PSA to the Peninsula Valdés (PV) calving ground, where they remained for up to 84 days. The Patagonian Shelf (70–120 m depth) was a high to intermediate-use habitat visited by most of the whales whose tags were still transmitting during the austral spring. Three SRWs travelled south from the PSA, and their combined movements included time spent at a southwest Atlantic sub-Antarctic Island located at 54°15’S 36°45’W, South Orkney and South Shetland. One whale spent three weeks at the Antarctic Peninsula during winter, before migrating back to the Patagonian Shelf. Another individual foraged in the Argentine Basin (~5,000 m depth) for two months. The results confirm the PSA as a high-use winter habitat for SRWs and reveal marked inter-individual variation in subsequent movements but with high linkage to PV.

SC/69B/CMP/03 provides a description of the migratory movement of a Southeast Atlantic southern right whale towards the SE Pacific Ocean, the region inhabited by the critically endangered SE Pacific southern right whale. This individual, named Atenea, was a cow accompanied by her calf at the time of tagging. Atenea was tagged on 25 October 2023 in Golfo Nuevo, Peninsula Valdés, Argentina, with a new ‘blubber- only’ tag (Zerbini *et al.*, 2023). The whale remained along the northeastern shore of Golfo Nuevo until 28 October, when she left Golfo and initiated her migration. On 7 November, she reached the southernmost tip of South America (~56°S, 1,560 km south PV), then she moved around Cape Horn and migrated northwest close to Pacific coast of South America moving into deeper waters beyond the continental slope. The last location (~50 °S) was received on 19 November 2023, 24.5 days after tag deployment. The recorded journey spanned 2,767 km. Atenea’s journey represents the first documented movement of a SRW from the western South Atlantic population

into the range of the endangered Chile-Peru SRW population in the eastern South Pacific. Movement across the two ocean basins by a mature female suggests potential genetic and demographic connectivity between these two populations, suggesting that the stock identity of SRWs along the eastern and western coasts of South America must be investigated further.

Both SC/69B/CMP/03 and SC/69B/CMP/10 suggest some whales from Argentina are migrating to the southeast Pacific and there is potential for mixing of these two populations. Further studies including photo-ID, genetics, and tagging would benefit understanding of population structure and will help inform both southern right whale CMPs and advance research targets for both. In consideration of cross ocean basin movements, it was noted that the satellite tagging programme off Argentina is expected to continue over the next few years and that this programme has been very effective in tracking long-distance migrations. It was also noted that satellite tracking of the southeast Pacific should be considered. Even though this population is small, there is evidence to suggest that tagging of healthy southern right whales can be done safely, with minimal health effects to individual whales (Zerbini *et al.*, 2023). Photo-ID is another useful tool to assess inter-ocean exchange and comparison of catalogues from the southeast Pacific and the southwest Atlantic was **encouraged**. In discussion it was also noted that while observations are scarce, in recent years there have been increasing numbers of sightings, particularly in southern Chile where the largest aggregations have been documented. Hypotheses regarding the recent increase in sightings in southern Chile included the potential of recolonization by the southwest Atlantic population, the possibility of a different population using the area, populations mixing or a combination of these hypotheses occurring. Further discussion on cross basin movements occurred under Item 4 (Annex P). It was noted that any movement and genetic information from these populations is key to gather information toward an assessment of southern right whale populations by the Committee.

SC/69B/CMP/15 provided an update of the estimated increase rate of the population around Península Valdés based on aerial surveys which started in 1999. The survey area was defined as a coastal strip of 620km long (from the mouth of the Chubut River to Puerto Lobos) and 1.5 km wide (Crespo *et al.*, 2019). Abundance was estimated by counting the total number of SRWs within the monitoring area, which gives a relative measure of abundance. Eighty-seven flights were performed up to September 2023. Data were analysed using a Generalized Linear Model (GLM) framework, using a negative binomial regression. 'Year', 'Julian day' and 'Julian day^2' were used as predictor variables. Models were selected using Akaike Information Criteria (AIC). Four response variables were modelled: (a) the total number of whales, (b) the number of calves, (c) the number of solitary individuals, and (d) mating groups using the package MASS in R software (R Core Team, 2022). The AIC-most supported model for the total number of SRWs in PV indicates that the estimated rate of increase is 0.08%/year (95% CI = -0.10% – 2.65%), suggesting that the number of whales in the survey area appears to be stable. For calves, the best-supported model includes the year as a covariate and resulted in an estimated increasing rate of 2.99%/year (95% CI = 1.02% - 4.96%) in the production of calves, which may imply an increase rate for the population. The model for solitary individuals suggests a decreasing trend at a -5%/year (95% CI = -2.62% – 0.1%) while the trend for mating groups is also decreasing (-8.96%/year (95% CI = -12.95% – -4.1%). Although the number of whales in the surveyed area can vary each year, in the last eight years the abundance of all groups combined (all whales) has been stable. It appears that SRW has expanded their distribution into deeper waters and to adjacent areas (i.e., Golfo San Matías) during the last decade (Crespo *et al.*, 2019). The groups using new areas are predominately solitary individuals and mating groups, which explains the decreasing rate in the coastal area. In addition, mothers with calves are still increasing in the area, although mortality rates have been growing since the early 1970s (Crespo *et al*., 2015). All these facts together are consistent with a density- dependence response.

Considering SRWs are expanding distribution outside Peninsula Valdes (Arias *et al.*, 2018),

SC/69B/CMP/04 reviewed the temporal dynamics of SRWs studied in Peninsula Valdés (PV) and Golfo San Matías (GSM). A set of GLMs was built using data collected during aerial surveys in both areas using the same methodology. The response variable was the total number of SRWs including calves, and the predictive variables were the Year, the Julian Day and the area flown. The selected model implies a temporal variability in arrival time at PV (Year * Julian day) for both locations, indicating that whales tend to be earlier in the area each year. Although the coefficient is small -5.905x10-4 (95% CI -8.506x10-4 - - 3.296x10-4) it is highly significant. Also, the first-order interaction between the area flown and the Julian day (Area * Julian day) indicates that the whales arrive at Golfo San Matías later in the season (0.487; 95% CI 0.265 - 0.719).

The model also describes the earlier arrival of the majority of SRWs at PV. Since the censuses started in 1999, the model back calculated that the maximum number of SRWs in PV was attained at least 20 days early (15 August). In the same manner, the whales appear to leave PV earlier. Considering an arbitrary estimate of 50 whales remaining in the area predicted by the model, the whales leave the area 14 days earlier than in 1999 (18 November). Concomitantly, using the same threshold, the first whales arrive approximately 25 days earlier in PV (5 May), compared to 25 years ago. These changes pose a challenge to the management of the whale-watching industry in the area since the season could be opened earlier (now is from 15 June) and be extended for 10 more days (from 180 days a year to 190). This information needs to be evaluated by government agencies and may lead to a new scheme of commercialisation of the tourist product.

SC/69B/CMP/08 presents a comprehensive work on the number of landed catches in the western south Atlantic, including data from pelagic and shore-based pre-modern and modern catches, as well as illegal pelagic operations. For oil production data, a conversion ratio of 60 barrels of oil per whale (as indicated in Du Pasquier (1986)) was required. Additionally, in some cases, catch datasets included catches reported as 'whale' rather than by species. These unspecified whale catches were used to develop aggregated minimum and maximum estimates. The Bayesian state-space surplus production model used to assess the status of southwest Atlantic right whales by Romero *et al.* (2022) was updated to include additional years of aerial-survey data collected in 2021-2023. Demographic parameters were derived from a model averaged ensemble of 11 model sensitivities described in Romero *et al.* (2022). The population trajectory indicated that the pre-exploitation abundance was close to 55,000 individuals (median = 54,991; 95% CI = 32,358–93,381). The abundance dropped to its lowest abundance levels in the 1830s when fewer than 2,000 individuals remained. The current median population abundance in 2023 was estimated at 5,159 whales (95% CI = 4,126–6,585). This suggests that while the southwest Atlantic SRW population remains small relative to its pre-exploitation abundance (median depletion P2023 = 9.9%), it continues to recover. In discussion, the Subcommittee noted the relevance of the southern right whale catch review (SC/69B/REP05) for this work.

SC/69B/REP/03 is the Report of the Workshop on the CMP for the Southern Right Whale Southwest Atlantic Population which was hosted in Santos, Brazil, in March 2024. The aim of the workshop was to review new information on SRWs from this CMP and to revise and update the CMP actions. An extensive body of information was presented and discussed at the workshop including: (a) determination of migratory routes and feeding destinations; (b) comparison of photo-identification catalogues; (c) development of a GIS (meta) database on human activities that might have an adverse impact on whales; (d) other research relevant to the CMP (distribution, population structure, habitat use, feeding ecology); (e) health monitoring programmes; (f) regional entanglement response, and (g) efforts to increase public awareness. The synergies between the Southern Right Whale Consortium, the SWA SRW CMP and the possibility of mutual support was also discussed. Finally, the CMP actions were reviewed and updated.

The Subcommittee welcomed the extensive report and **congratulated** the organisers and workshop participants for their effort. The Subcommittee noted that this is a good example of how effective CMPs can be when they involve multi-national collaboration and state governments. The Subcommittee **reiterated** the importance of the Southwest Atlantic southern right whale CMP, **welcomed** the progress made since its implementation and **commended** the Governments of Argentina, Brazil, Chile and Uruguay for their commitment to conservation efforts. The Subcommittee further thanked the USA for providing funds for the workshop and their continued support for the Subcommittee's work.

Attention *SC, CC, CG, R*

*The Subcommittee **welcomed** the report of the Workshop on the Conservation Management Plan for the Southern Right Whale Southwest Atlantic Population (SC/69B/Rep/03) and **endorsed** its recommendations.*

*The Subcommittee recognised that research to understand the impact of reproductive failure on whale dispersal between Argentina and Brazil is needed to progress with the assessment of southern right whales. It therefore **recommended** funding the proposal received to conduct this work.*

*The Subcommittee **welcomes** updates at SC70.*

2.4 North Pacific gray whales

SC/69B/E/01 reported on the 2019-2023 Unusual Mortality Event (UME) of eastern North Pacific (ENP) gray whales. The primary discussion of this paper occurred in the E Subcommittee (Annex G). Between 17 December 2018 and 09 November 2023, a total of 690 ENP gray whales stranded along the Pacific coast of North America across three countries (Canada, Mexico and USA) including 216 in 2019 (two of which were in December 2018), 172 in 2020, 115 in 2021, 105 in 2022 and 82 in 2023.

SC/69B/ForInfo/05 and SC/69B/ForInfo/27 provided an update of the shore-based surveys conducted by the NOAA US Southwest Fisheries Science Center (SWFSC) to estimate abundance (1967-2024) and calf production (1994-2024) of ENP gray whales. In 2016 abundance was estimated at 27,450 (95% CI: 24,885-30,180) whales, indicating that the population had roughly doubled since 1967. However, after 2016, the population declined continuously to 20,630 (95% CI: 18,840-22,711) in 2020, 17,430 (95% CI: 15,800-19,220) in 2022, 14,530 (95% CI: 13,235-15,690) in 2023 and 19,260 (95% CI 17,400-21,300) in 2024. These abundance estimates were endorsed by the ASI Subcommittee (Annex D, Table 1).

SC/69B/ForInfo/28 presented ENP gray whale estimates of calf production between 1994-2023. The estimate in 2022 was 217 (SE 33.4, 95% CI 159-290), representing the lowest calf production estimates on record, although this increased to 412 calves (95% CI 321 - 524) in 2024. The Subcommittee **welcomed** this updated information and **highlighted** the importance of these data to the ASW and ASI subcommittees.

SC/69B/CMP/13 provided information on body condition estimates of ENP gray whales in Laguna San Ignacio, Baja California Sur, Mexico. Evaluating a total of 655 single adult whales (male or female without a calf) and 22 females with calves, results showed an overall improvement in gray whales body condition but noted a significant decrease in the number of females with calves.

SC/69B/CMP/14 reported on the 2024 surveys to monitor seasonal abundance and habitat use of ENP gray whales in Laguna San Ignacio. The maximum count of 201 single adult whales (breeding males and females without calves) was obtained on the 25 February survey, lower to those observed in previous winters. It was furthermore noted that calf counts were the lowest recorded since the surveys began in 2006, with a maximum of 15 cow-calf pairs counted in March 2024. In Bahía Magdalena, a maximum of 243 adult whales were counted in the southerly aggregation area in February 2024, with no observations of cow-calf pairs. In central Bahía Magdalena, a maximum of 35 adult whales were counted on 23 February, whereas in Canal de Santo Domingo, a maximum of 17 single whales and 2 female-calf pairs were counted on 19 February.

The Subcommittee **commended** the research in the wintering areas in Baja California, Mexico and **expressed concern**, over the very low number of calves observed in 2024. It furthermore **urged** continued work and **welcomes** information about the decrease in the numbers of strandings and improvements in body condition in SC70. In discussion, it was queried if cow-calf pairs may have remained outside of the lagoon(s) accounting for the low numbers observed. In response it was highlighted that it is unlikely for females to give birth along the outer coast of the lagoons due to increased risks for the calves.

SC/69B/CMP/07 reported on the absence of sightings and strandings of anthropogenic mortalities of WNP gray whales off Japan during 2024. The report further provides information on the excavation and storage at Tokyo University of Marine Science and Technology of a gray whale skeleton that stranded at Wadaura, Minamiboso, Chiba Prefecture in 2016.

The Subcommittee **welcomed** the continued provision of information from Japan and **encouraged** continued collection of data on sightings and strandings, as well as samples and photographs where possible.

SC/69B/CMP/09 informs on the work conducted by the Russian Gray Whale Project (RGWP) on gray whales in 2023 off northeastern Sakhalin Island. Results indicate a dramatic decrease in the number of gray whales feeding in the nearshore waters off northeastern Sakhalin.

The Subcommittee **welcomed** the report, **expressed concern** about the trend of declining numbers and looks forward to a deeper investigation regarding possible underlying factors.

In discussion, the Subcommittee was reminded that in tandem with the work of the RGWP, a similar but separate photo-ID programme was initiated off Sakhalin in 2002 funded and directed by industry. The status of this research effort is presently unknown as a result of limited information exchange following the onset of the Russian invasion of Ukraine. Given this lack of information, the Subcommittee recommended at SC69A that the IWC secretariat contact the Russian Federation to determine the status of industry funded research on WNP gray whales. This task was completed with no response from the Russian Federation. Although the Scientific Committee has highlighted the importance of combining the RGWP and industry-supported photo-ID (and genetic) data holdings for more than a decade, this has never been accomplished. To date, the most up-to-data catalogue maintained by the RGWP (Dr Alexander Burdin, PI) is archived with the IWC Secretariat and is openly available.

The Subcommittee **commended** the RGWP for making its 30-year photo-ID catalogue openly available, providing access for Scientific Committee members and conservation science practitioners in general. It furthermore **expressed concern** about consequences of the geopolitical conflict in Russia on the ability of researchers to continue fieldwork, including gray whales, in Russia.

At SC69A the Subcommittee was updated on the IUCN Western Gray Whale Advisory Panel (WGWAP), defunct as of March 2022. When the WGWAP completed its work, it was expected that the dedicated website (hosted and managed by IUCN Headquarters), which housed a large body of documentation on western gray whales (including all reports and recommendations from the panels and their task forces), would remain available. This is relevant to SC which has come to rely upon the IUCN panels to track the status of western gray whales, communicate and liaise with Russian government agencies, one of the major oil and gas companies operating on the Sakhalin Shelf, and both Russian and international NGOs with strong interest in gray whale conservation. The Subcommittee recommended at SC69A that the IWC Secretariat liaise with the Deputy Director General, Programme at IUCN Headquarters in this regard. This task was completed with no response from IUCN.

In discussion, it was noted that the NP gray whale CMP was envisioned to be reviewed and updated in relevant workshops for consideration at IWC68. Such process however has not yet taken place. It was highlighted that the geopolitical consequences of the Russian invasion of Ukraine is hampering conservation actions and collaborative international scientific studies in Russia, as well as an agreed update to the CMP with input from all range states. Similarly, the existing 'Memorandum of Cooperation" concerning conservation measures for western gray whales and signed by the IWC Commissioners of five of the eight or nine range states (Japan, Republic of Korea, Russian Federation, USA and Mexico), is seemingly no longer viable.

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

*The Committee **reiterated** the importance of long-term monitoring of gray whales and strongly **recommended** that range states support this work and **welcomed** the new information provided by Mexico, USA, Russian Federation and Japan. Considering the inability to update the CMP as a result of limited range state engagement due, in part, to the Russian invasion of Ukraine, the Committee **reiterated** the following recommendations made at SC69A until it is possible to convene a meeting of the necessary range states:*

1. ***recommended** that every effort be undertaken to enable continuation of the Russian Gray Whale Project in order to maintain the decades-long time-series upon which assessment of the population relies, and to monitor the concerning decline in whale numbers at the nearshore feeding area off Sakhalin;*
2. ***recommended** that NOAA/SWFSC continue their surveys of ENP gray whale abundance and calf production on a regular basis, recognising the associated data is critical to the ASW and ASI Subcommittees;*
3. ***recommended** that other research programmes focused on WNP gray whales (e.g., the industry funded programme initiated in 2002 off Sakhalin) follow the example set by the Russia Gray Whale Project and make their photo-ID catalogues and related data available via the IWC.*

*The Subcommittee **welcomes** an update at SC70.*

2.5 Franciscana

The CMP for the franciscana dolphin was established in 2016 (IWC/66/CC11). At SC69A, the SC completed a review of the status of the species, including the activities developed by this CMP. While a thorough review of stock structure, abundance estimates, threats, and biological parameters was conducted, the Committee agreed that further work should be done to evaluate bycatch estimates, especially because of the continued and unsustainable incidental take of franciscana in most Franciscana Management Areas (FMAs). A review of bycatch estimates was considered key

should the Committee move towards a Comprehensive Assessment of the franciscana.

SC/69B/SM/09 which provided new information on abundance and mortality estimates of franciscana in FMA Babitonga, southern Brazil was discussed in Annex Q, Item 5.9. In addition, SC/69A/HIM/24 which provided a review of bycatch estimates of franciscana for each of the 11 recognised FMAs was discussed in Annex J, item 12.8.3. Iñiguez provided a progress report on the activities of the CMP for the franciscana. Material from the public awareness campaign 'My neighbour the Franciscana,' published in Spanish and English has been widely distributed and will soon be translated into Portuguese. The Subcommittee was further informed that a Concerted Action for the franciscana was adopted at the 14th CMS meeting in February 2024 in Ubekitan. The Concerted Action will allow CMS and the IWC to work together to further protect this species. Developing the Concerted Action was identified as a priority since implementation of the franciscana CMP.

***Attention**: SC, R, CC, CG-Argentina, Brazil and Uruguay*

*The Subcommittee **recommended** to:*

1. *continue evaluating bycatch estimates, especially given the continued and likely unsustainable incidental take of fransiscanas in most Franciscana Management Areas (FMAs);*
2. *develop new surveys to estimate abundance of franciscana in FMA IV; and*
3. *review estimates of bycatch for franciscana in order to conduct a Comprehensive Assessment of the franciscana.*

*The Subcommittee **welcomes** an update at SC70.*

The government of Brazil is currently considering the establishment of the Albardão National Marine Park, encompassing an area of approximately 16,000 sq. km, an important area for biodiversity, including franciscana and Lahille's bottlenose dolphin. The creation of this Marine Protected Area was identified as one of the priority actions under the CMP (IWC/66/CC11; 2016).

The Committee **welcomed** the progress made for the proposal for this new Albardão National Marine Park and **commended** the joint efforts of the Government of Brazil and relevant stakeholders to create and establish the National Marine Park.

***Attention**: SC, CC, CG-Brazil*

*The Subcommittee **welcomed** the progress made for the proposal for this new Albardão National Marine Park and **recommended** that the Government of Brazil continue the formal process of creating the Albardão National Marine Park as a relevant measure to protect the franciscana, while also providing a refuge to enhance the survival of Lahille's dolphins.*

2.6 South American river dolphins

The Governments of Brazil, Colombia, Ecuador and Peru presented a progress update on the South American River dolphin (SARD) CMP. Progress, which was prioritised and coordinated between governments and civil society, was made on 30 of the 32 CMP actions. The contribution of the South American River Dolphin Initiative (SARDI) to advance these actions was highlighted. Estimation of

population trends showed apparent declines of up to 52% for *Inia geoffrensis* in some regions of the Colombian Amazon River (see also SC/69B/SM/06). In June 2023, the Ministries of Fisheries and Aquaculture and Environment and Climate Change of Brazil enacted the Inter-ministerial ordinance MPA/MMA N. 4 to create a permanent ban on the fishing, landing, transport and commercialization of the piracatinga fish. In addition, a follow-up and monitoring forum was created with representatives of the fishing sector, the scientific community and civil society. The governments of the SARD CMP have progressed in implementing measures to control deforestation and reduce mercury use and emissions under the Minamata Convention.

The Committee noted that during September and October 2023, the Amazon experienced one of the most extreme droughts in the last 100 years, which was exacerbated by the El Niño phenomenon. The death of more than 300 dolphins in Lake Tefé and Coari (Brazil) was documented. This high mortality is unprecedented in the region and highlights the need for an early warning system and for protocols to deal with these climate crises.

The Committee was also informed that, on a political level, the CMP was recognised as a transboundary cooperation tool by the presidents of range countries in the Amazon region during the Belem Summit (2023) and that a Global Declaration for the conservation of dolphins and their habitats was signed by 11 countries from Asia and South America (Bangladesh, Bolivia, Brazil, Cambodia, Colombia, Ecuador, Indonesia, Nepal, Pakistan, Peru and Venezuela) as an example of regional coordination to ensure the survival of these species.

The Subcommittee **welcomed** the update on progress and **commended** the engagement, commitment and extensive collaborations among the stakeholders and governments. Furthermore, the Subcommittee commended the multi-disciplinary outreach that highlights the threats as a global, societal, and cultural problem especially as it relates to bycatch, habitat degradation and protection. There is a need to consider habitat protection at a larger scale given the extent of the threats affecting the Amazon River. The Subcommittee **congratulated** the CMP coordinator for the leadership in advancing progress of the CMP.

In discussion, it was noted that, at least in Brazil, fishers do not like *Inia*, and the question arose whether there was a component within the CMP that addressed attitudes towards dolphins locally. In response, the complexity of the situation was discussed including the general idea that the issue is not competition between fishers and dolphins, but it is rather related to poor fisheries management strategies. Considering bycatch and the perception of local fishers, an option that is being explored is responsible tourism as an incentive to reduce bycatch. Another effort includes hosting a workshop to engage more than 300 local fishers to address bycatch, discuss solutions and mitigations measures such as use of pingers as acoustic deterrents. To address the fisheries bycatch issues, different approaches are being taken and at different scales, including fishery management, aquaculture and monitoring mercury concentrations in fish.

The Subcommittee **noted** that there is evidence of stock sub-structure and a need for finer scale genetic analyses to better understand which populations are at greater risk. In some areas, dolphins are isolated due to dams and there is a need to better understand variation in density in these regions. In accordance with previous recommendations, significant advances have been made in the standardisation of methodologies for estimating river dolphin abundance to improve comparability. Further research is needed to understand the apparent decline. The Subcommittee **encouraged** research studies on stock structure at the basin level.

***Attention**: SC, CC, CG*

*The Subcommittee is **concerned** about the apparent decline of river dolphins (Inia geoffrensis and Sotalia fluviatilis) in the Amazon and **encourages** further research into population and stock structure for more accurate assessment.*

*Considering the serious climate situation in the central Amazon in 2023 and the possibility that it will continue to occur, the Subcommittee **recommends** a new line of work be included in the CMP focused on climate impacts on river dolphins, including the generation of an early warning system, management protocols, and the training of fishers, veterinarians and biologists.*

The Subcommittee reiterates the following, including:

1. ***recommend** coordinated monitoring of compliance with the piracatinga moratorium in border areas between Venezuela and Colombia;*
2. ***recommend** developing awareness and environmental education workshops to discourage the hunting and use of dolphins;*
3. ***recommend** taxonomic revision in order to be able to interpret the impact of the population decline across the extent of the distributions.*

*The Subcommittee **welcomes** an update at SC70.*

3. PROGRESS WITH IDENTIFIED PRIORITIES

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

SC/69B/CMP/05Rev1 summarised the activities and progress of the Arabian Sea Whale Network (ASWN) and its members since SC69A. The ASWN is an informal collaboration of researchers and conservation bodies interested in the conservation of whale populations throughout the Northern Indian Ocean. The group was formed in 2015, in part, to help advance a regional Conservation Management Plan for the Endangered ASHW, first recommended by the SC in 2010. This report includes updates on collaborative activities undertaken between May 2023 and April 2024, as well as updates on project or national level activities undertaken by partners in the region.

At a regional level, funding to support part-time coordination and communication has allowed the ASWN to meet virtually, collaborate to achieve an extension of the Convention on Migratory Species'(CMS) Concerted Action for ASHW, expand membership with more range-country scientists, revitalize the ASWN website, and launch social media accounts. Furthermore, the sample from the type specimen of *Megaptera indica*, which was obtained from the Paris Museum in May 2019 is now at the Genomics lab of the American Museum of Natural History, where DNA extraction has been completed. PCR amplification, DNA sequencing and analyses is underway. It is expected that a final report or peer- reviewed publication will be completed by 2025.

In parallel to regional-level activities, members of the ASWN have made progress in documenting cetacean sightings and strandings through dedicated research and citizen science networks and increasing the in-country capacity for cetacean research and conservation management. The report further highlighted that some government stakeholders in the region are investing more in cetacean research and conservation. For example, the Ministry of Environment, Forest and Climate Change, Government of India and the Wildlife Institute of India are collaborating with the Pondicherry University to study ASHW and their habitats in India and have explicitly stated that they would welcome IWC advice and guidance on this effort. Similarly, the Oman Environment Authority funded the recent ASHW fieldwork and satellite tagging efforts described in SC/69B/CMP/16Rev_1. The Oman Environment Authority has also recently confirmed that they will establish a cross-government agency committee to implement a national ASHW management plan. The same body will also take the lead on Oman's role in the development of a regional CMP. Despite increased

reporting and survey effort, ASHW records are limited, especially in comparison to Bryde's whales (*Balaenoptera sp.*). It is hoped that the increased involvement from government stakeholders, together with the ongoing efforts of ASWN members and the three-year extension of the CMS Concerted Action will provide the enabling conditions for the design and adoption of the long-hoped- for joint IWC-CMS regional Conservation Management Plan for ASHW. This will require continued investment for coordination and communication.

The Subcommittee **welcomed** the update and **commended** the ASWN members, the Oman Environment Authority and other involved government officials and stakeholders on the work conducted, collaborations fostered, and scientific information produced over the last two decades. Coordination with CMS on the Concerted Action continues to make forward progress and is an important step towards formalising a CMP for ASHWs. The Subcommittee further **commended** the work of the new Communications focal point of ASWN and progress on developing a regional plan. The Subcommittee **welcomed** the progress made from multi-platform studies in the Arabian Sea and on genetic analysis of the *Megaptera indica* holotype and looks forward to a report on the results in SC70. Further, the Subcommittee **commended** increasing support of ASHW range-country governments (particularly Oman and India) and Oman's intention to form a cross-government agency committee to draft a national ASHW Action plan and to steer Oman's participation in a regional CMP process.

***Attention**: SC, CG, G, CC, IGO*

*The Subcommittee **reiterated** its support of the work towards a joint CMS-IWC CMP for Arabian Sea humpback whales and **welcomed** the extension of the CMS Concerted Action.*

*The Subcommittee **recommended** the continued involvement of at least one range-country scientist in regional communications and coordination with an understanding of the need for a full-time CMP Coordination role when a CMP is approved.*

SC/69B/CMP/16Rev1 provided a status update of research completed in Oman during 2023-24. Vessel-based research funded by the Oman Environment Authority was conducted during a 17-day period in November-December 2023 in the Gulf of Masirah. Sightings included 16 observations of 10 individual ASHWs, two Bryde's whales (*Balaenoptera edeni*) and two of Indian Ocean humpback dolphins (*Sousa plumbea*). Drones were used to collect aerial images of ASHW to assess body condition as well as to deploy biologging devices (DTAG and CATS), both contributing to understanding of bioenergetics and behaviour of ASHW within critical habitat.

During observations, whales were unusually elusive, limiting opportunities to deploy Type C Argos satellite transmitters as envisioned. Therefore, only one Type C Argos Wildlife Computers Mk10 Splash tag satellite transmitter was deployed. The tagged whale remained within the core home range of ASHWs in the Gulf of Masirah (Oman) for the duration of the tag transmission period (89 days, 9 December 2023 to 7 March 2024). Combined with other observations of foraging and reproductive behaviour, these new data continue to support the hypothesis that the Gulf of Masirah may be the most important habitat for ASHW. Whilst the evidence justifies the need for focused management efforts in this area, the continuation of satellite tagging work, endorsed during SC69A, is considered important to support broader spatial risk assessments of escalating regional threats to the population.

The Subcommittee **welcomed** the provided information. In discussion, the elusive behaviour of the whales during fieldwork was noted. While the whales are known to be elusive in this area, the

behaviour observed in 2023 was described as particularly evasive. The authors hypothesised this to be related to greater sensitivity to disturbance during the start of the breeding season (singing whales were recorded) and that future tagging efforts may prove more successful if directed at different seasons or later in the breeding season. The same research vessel was used, and careful approaches were employed, as was the case during previous tagging efforts, ruling these out as explanatory factors. Groups of whales that included an individual that had been previously tagged seemed especially evasive. Researchers especially experienced in tagging indicated that attempts to retag the same in other locations across the world elicited little to no response and that this was not likely the explanation for the observed behaviour. A suggestion was made to assess body condition of those whales exhibiting the evasive behaviour to determine if health or physiological metrics may be related. Also, an assessment of the levels of artisanal fishing vessel traffic and fishing nets may be relevant to assess causes of evasive behaviour. In discussion of other areas that could be targeted to more easily access and tag whales it was noted that previous tagging efforts in southern Oman yielded no ASHW encounters. As such, until the tagging itself and/or passive acoustic studies reveal an alternative 'hotspot', the Gulf of Masirah remains the most logical place to base tagging and photo-ID efforts.

Records of humpback whales have been found elsewhere in the Arabian Sea including a stranded whale in the Arabian Gulf, re-sighting of a known Omani individual off the coast of Pakistan, telemetry tracks recording an ASHW off Yemen, acoustic detections off the coast of India, all of which highlight the need to better understand movement and habitat use using multiple platforms.

A mark-recapture analysis of photo-ID records (supplemented by genetic sex determinations for some animals) collected in Omani waters during the period 2000-18 was used to estimate abundance and trend of ASHWs (SC/69B/CMP/12). The intersessional group that started in 2018 guided the development of the estimates. The group agreed that independent estimates would be developed by different scientists with appropriate statistical experience. This provided necessary independence for the research team, as well as ensuring that resulting estimates were produced impartially. The available data from Oman (photo-IDs, genetics, telemetry, acoustics, strandings and effort) were made available as needed and resultant estimates were developed independently, with no contact made between modellers. Initial estimates were produced in 2019 and 2020 and the modellers and research team agreed to preferentially use estimates produced by Cooke, but to retain other analyses as annexes or supplementary material in an associated paper. Release of the estimates has been delayed pending approvals from relevant authorities in Oman, but appropriate permissions were provided for review at SC69B.

The analysis was complicated by the fact that not all photo-ID records could be assigned to a definite individual. In view of the low population size, an individual-based model was fitted. The estimated non- calf population size in 2018 from the Bayesian analysis was 50-75 animals (90% credibility range) with a median of 62 animals, and a maximum-likelihood estimate of 61 (SE 7). The birth rate was estimated to be low: 0.02-0.13 calves per female per year (or 0.04-0.21 calves per adult female if the population is assumed to be 60% adult). This is consistent with the very low number (4) of observed calves in the period. The ratio of the population size in 2018 to that in 2000 is estimated to be less than one with probability greater than 95%, which indicates that the population is likely to have declined over the period. Although the data were collected mainly in Omani coastal waters, the authors considered, in the light of long-range movements observed for some of the identified individuals, that the results are probably indicative of the status of the whole ASHW population.

The Committee **welcomed** this analysis and agreed that it demonstrated the value of continued photo-ID data collection. In discussion it was highlighted that it is important to update the analysis with the data collected since 2018 to see whether the apparent declining trend is confirmed. The

population estimate will be reviewed under the ASI process in the coming intersessional period. In this regard, it was noted that estimates provided in SC/69B/CMP/12 are provisional and likely to change with the addition of more recent data, and as such should not be cited prior to completion of new analyses.

SC/69B/HIM/21 provides a bycatch risk assessment of ASHWs within their core home range (Gulf of Masirah, Oman) through integration of satellite imagery to detect vessels and satellite telemetry data to define whale habitat. The high-risk bycatch score modelled for this area flags it as a priority concern to be addressed within a CMP, whilst the method demonstrates potential to be applied across the broader part of the population's range as a regional scale conservation management tool. This paper was discussed in detail in Item 12.3, Annex J.

***Attention**: SC, CG, G, R*

*The Subcommittee **reiterated** previous recommendations to continue the broad suite of research activities in Oman, including satellite telemetry and biologging, with particular emphasis on:*

- *Fisheries and ship strike risk assessments and work with stakeholders for mitigation of threats within the most important known habitat for ASHW; the Gulf of Masirah and Offshore waters IMMA.*
- *Collection of photo-ID and genetic data from ASHW. If possible, the sampling should be expanded to encompass wider temporal (and possibly spatial) coverage to increase sample sizes for revised abundance and trend modelling.*
- *Data collected from 2019 onwards should be used to revise models of abundance and trends, and to update the visual health assessment.*

*The SC **recommended** that the abundance estimates presented in SC/69B/CMP/12 (or an update thereof) be formally **reviewed** by ASI/ASG. However, given the duration of this process, and the need to make estimates available for management and a revision of the IUCN Red List Assessment, the authors are **encouraged** to explore options for making estimates available through a parallel submission to a reputable peer-reviewed journal.*

*The Subcommittee **welcomes** updates at SC70.*

SC/69B/ForInfo/54 reported on a study funded in 2015 by IWC (71481Res) to conduct exploratory surveys for humpback whales along the western (eastern Arabian Sea) coast of India. Between 2016 and 2021, the research activities included interview surveys, participatory informant network (PIN) formation and PAM. Based on the social interviews and participatory network response, five areas were identified where the species has been reported offshore along the west coast of India (coasts of Saurashtra, Goa, central Karnataka, southern Kerala and Kanyakumari district of Tamil Nadu).

Given the rare encounters described by PIN members, PAM was initiated off Netrani island, Karnataka in November 2019 and off Poovar, Kerala in March 2021. Since then, ASHW, blue whales and a potentially unknown call, have been recorded by the PAM programme. A total of 1,415 files generating 707 hours of usable recordings were collected from Netrani Island; and a total of 4,715 files, generated 1,179 hours of usable recordings were collected from Poovar.

Humpback whale vocalisations were detected in the recordings off Netrani Island, corresponding to nearly four days of singing activity. It is envisioned that regional comparison of humpback whale songs will be conducted at times when concurrent recordings take place in Oman and India.

The Subcommittee **commended** the work conducted and **welcomed** the new information. In discussion, it was noted that a dramatic reduction in the occurrence of humpback whale song off Hasik, Oman, between 2012 and 2022 combined with three additional seasons of low sighting rates off Hasik suggests humpback whales may have abandoned the area during this period. Furthermore, the data reported off India to date has indicated only sparse occurrence of song over relatively long periods suggesting that ASHW are not resident in these locations.

***Attention**: SC, CG, G, R*

The Subcommittee **commended** *the passive acoustic monitoring work conducted in India, and particularly* **welcomed** *investments in the work by Indian government agencies, complementing the funding provided by the SC.*

The Subcommittee ***recommended*** *continued passive acoustic monitoring off the coasts of India and Oman and* ***encouraged*** *passive acoustic monitoring to be implemented in other areas of historical or potential ASHW distribution. An area of particular interest surrounds the Indus canyon region off the coast of Pakistan, although the SC* ***recognises*** *potential geopolitical challenges with implementing work in this region. Where possible deployments in different regions should be simultaneous to enable detection of whale presence (and thus possible distribution shifts) and comparison of song between areas.*

The Subcommittee ***welcomes*** *updates at SC70.*

3.2 Central American humpback whale

The Commissioner for Panama presented on the CMP for Central American humpback whales (CAHWs; SC/69B/CMP/17). The Central American population of humpback whales is considered 'Endangered' under the US Endangered Species Act (ESA) (16 U.S.C. §§ 1531 et seq.) due to the small population size and potentially harmful interactions with human activities like fishing, ship traffic, and whale-watching (Bettridge *et al.* 2015). The governments of Costa Rica, Guatemala, El Salvador, Mexico, Nicaragua, Panama, and the USA agreed to develop a CMP for the Central American humpback whales.

The main objective is to conserve the humpback whales and their habitat through collaborative regional actions by reducing anthropogenic threats across this population's range. The CMP will define the main actions to evaluate the humpback whale population in their range from Panama to the USA, identify the threats quantitatively and promote its conservation in the short, medium, and long term. The CAHW CMP will allow for articulating research and conservation actions among the countries where this population lives, defining national and other regional actions. Likewise, it will focus on generating mechanisms for joint work among researchers, organisations, and governments that will provide a foundation for influencing and informing management policies across the range of this population. Public awareness of governance and environmental agencies depends directly on how effectively and efficiently scientific information is shared and on the quality of the shared data. Much technical expertise is needed for designing, planning, fieldwork, analysis, and obtaining data on biological and ecological aspects of the species. Capacity building is crucial to ensure the quality and reliability of the information produced and to standardize methods that allow robust comparison among areas and studies.

Since 2019, there has been substantial progress and coordination among scientists and officials from range states, including three international workshops to develop the CMP proposal. Next steps for this CMP will be to conduct a fourth workshop, with a focus on threats and mitigation measures. The

proponent of the CMP proposal requested the endorsement so that it can be adopted at IWC69 in Lima, Peru.

The Subcommittee **commended** the efforts of the proponent range states for their efforts in developing the proposal and **commended** the range state governments for their support for the development and implementation of the CMP.

***Attention**: SC, CC, CG, G*

*The Central American humpback whale population was identified by the Commission as a priority for a CMP. The Subcommittee **endorsed** the scientific and technical aspects of this proposal. The Subcommittee **noted** that there is support by the governments of each of the range states and **agreed** that the proposal followed the CMP proposal template.*

*The Subcommittee **welcomes** an update on progress at SC70.*

3.3 Mediterranean species/populations

The Subcommittee was informed that in accordance with ACCOBAMS Resolution 6.21, the ACCOBAMS Scientific Committee has devoted significant effort to developing draft CMPs for several species in the Mediterranean (e.g., Risso's, bottlenose and common dolphins, Cuvier's beaked whales, fin whales). ACCOBAMS Resolution 8.14 provides that other species within the ACCOBAMS region should be considered for dedicated CMPs in the future. These are sperm whales (as has also been noted by the IWC) and Cuvier's beaked whale within the Mediterranean Sea, as well as the three Black Sea cetacean species. It was also noted that the value of developing a CMP for Iberian killer whales is discussed under Item 3.1, Annex Q. It was recognised that there must be support from range states to propose a CMP, whether or not they are members of the IWC and/or ACCOBAMS.

The Subcommittee was informed of a project by Duke University researchers (North Carolina, USA) to conduct density surface modelling for the three species in the Black Sea and the eight regularly occurring species in the Mediterranean. Most researchers within the region with long-term datasets have already sent spatial data to include the analyses. This exercise includes multi-platform analyses and the use of correction factors (availability and perception biases) for all platforms. The project will be finished by November 2024 and the report will be made available to all collaborators, and interested parties, and will provide input for the CMPs for these species. The Subcommittee **welcomed** this work that will be of benefit to existing and future CMPs in the region.

Information on the individual candidate populations is given below.

3.3.1 Mediterranean fin whales

For several years, the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS) and the IWC have stressed the importance of, and worked on developing, a CMP for Mediterranean Sea fin whales. This included the holding of an initial drafting workshop in December 2019. Subsequent work to update and refine this draft was inhibited by the COVID- 19 pandemic. However, on 8 April 2024, a full-day expert workshop was held ahead of the 35th European Cetacean Society conference in Catania, Sicily. The workshop focused on reviewing recent studies (after 2019) on Mediterranean Sea fin whales with discussions on knowledge gaps and future directions.

The objective of the workshop was not to revise the draft CMP but rather to review the most recent

research on Mediterranean fin whales to ensure that, if necessary, IWC/ACCOBAMS can update the scientific background to the draft CMP and any consequential amendments to proposed actions prior to the stakeholder workshop. The primary focus of the workshop was on population structure and movements, seasonal distribution, abundance, and identifying important remaining knowledge gaps (i.e., stock structure).

The dedicated stakeholder workshop to review and finalise the CMP was delayed *inter alia* due to COVID- 19, but efforts are ongoing to secure funds to organize this workshop in the near future.

***Attention**: SC, R*

The draft work on the fin whale CMP has identified the need to clarify the relationships between fin whales in the Mediterranean and adjacent North Atlantic waters. Although other approaches also provide insights (e.g., telemetry, sightings and acoustics data), the need to complete genetic analyses on the many existing tissue samples from a variety of locations in the region has been highlighted.

*The Committee **recommended** that every effort be made to complete the laboratory and analytical work by the end of 2025. This will facilitate the work to finalise the joint ACCOBAMS/IWC CMP at the forthcoming stakeholder workshop.*

3.3.2 Other Mediterranean species for which drafts are almost complete

ACCOBAMS has been developing draft CMPs for three other species, namely bottlenose dolphins, common dolphins and Risso's dolphins. During the development process it was noted that in some cases there were several commonalities (e.g., background information, threats, range states and in some cases stakeholders). The possibility of combining multiple species into a single plan is under consideration but in the interim where there are commonalities, the drafting groups have ensured consistent wording and cross-referencing with other draft plans. Irrespective of a final decision to merge two or more draft plans, the organisation of a single stakeholder workshop is being considered.

In discussion, the Subcommittee noted that whilst existing CMPs are single species/population focused, the general guidance for CMP development allows for threat-based or regional based CMPs. The advantages and disadvantages of such CMP styles will need to be reviewed on a case-by-case basis and in conjunction with stakeholders. A co-Chair of the Conservation Committee's SWG-CMP agreed to bring this topic to the working group, and report back at SC70.

***Attention**: SC, R, CG, CC*

CMPs form a valuable component of the conservation work of both the IWC and ACCOBAMS. The work in the Mediterranean Sea and elsewhere has shown that the science underlying conservation efforts is immeasurably enhanced by the collaboration (both with data and analyses) of all research groups operating within the region.

*The Subcommittee **recommended** that every effort is made by CMP coordinators to use the framework of CMPs to facilitate such collaboration; such efforts must recognise the need to develop data sharing agreements that build trust and improved cooperation.*

3.3.3 Mediterranean Sperm whales

Mediterranean sperm whales are listed as 'Endangered' in the IUCN Red List (Notarbartolo di Sciara

et al., 2012). In recent years, the Scientific Committee has identified this species as a 'priority population' for CMP development, as has ACCOBAMS. In addition to ship strikes, anthropogenic noise and bycatch, it was noted that Mediterranean sperm whales are particularly vulnerable to marine litter.

***Attention**: CG, CC, IGO*

The Committee reiterated the recommendation from SC68C (SC2149) that the Mediterranean sperm whale be treated as a 'priority population' for the purpose of the CMP development process. It welcomes the news that ACCOBAMS is giving priority to the development of a CMP for sperm whales and agrees that consideration should be given to this being a joint ACCOBAMS/IWC CMP with ACCOBAMS taking the development lead.

3.4 Guiana dolphin

At SC69A, the Guiana dolphin (*Sotalia guianensis*) was nominated for the development of a CMP (CMP; SC23147).

Brazil presented the CMP proposal for the Guiana dolphin (SC/69B/CMP/18Rev1). The Guiana dolphin inhabits coastal areas and estuaries from Honduras to southern Brazil, displaying a broad but fragmented distribution. There are gaps in genetic data and population structure, but it is evident that their habitat overlaps with human activities, exposing them to threats such as bycatch, contamination, and disease. These impacts, compounded by climate change, have elevated their conservation status regionally, with Brazil, Colombia, and France listing them nationally as 'Vulnerable' or 'Endangered' (Regulation nº 148 from the Brazilian Ministry of Environment and Climate Change in 2022 and Resolution 1912 of 2017 from the Colombian Ministry of Environment and Sustainable Development). Over the past four years, more than 50 scientists from six countries (Brazil, Colombia, Costa Rica, France, Panama, and Venezuela) and government representatives have come together to underscore the urgent need for coordinated conservation actions. The CMP will involve international cooperation and strategic research aims to mitigate threats, enhance monitoring, and raise public awareness. The CMP proposal includes ten strategic scientific actions, four monitoring measures, three mitigation measures, and four actions engaging education, capacity building, and public awareness. It aims to enhance global cooperation, develop sustainable solutions for reducing mortality and habitat degradation, and align international initiatives with national action plans. Supported by the governments of Brazil, Costa Rica, France and Panama, the Guiana dolphin CMP aligns with global initiatives like the Ocean Decade and Sustainable Development Goal 14 (IOC, 2018), emphasising the species' importance as an indicator of ocean health.

The Subcommittee **commended** the efforts of the proponent range states to draft the CMP proposal and to support the development and implementation of the CMP.

***Attention**: SC, CC, C, CG, G, R, IGO*

*The Guiana dolphin was identified by the Commission as a priority for a CMP. The Subcommittee **endorsed** the scientific and technical aspects of this proposal. The Subcommittee **noted** that there is support by the governments of several range states and **agreed** that the proposal followed the CMP proposal template.*

*The Subcommittee **welcomes** an update on progress at SC70.*

3.5 Lahille's bottlenose dolphin

The Lahille's bottlenose dolphin (*Tursiops truncatus gephyreus*) was identified by the Commission as a priority for a CMP at SC69A (IWC, 2024; Annex Q). The range states of the proposed CMP are Argentina, Brazil and Uruguay.

SC/69B/CMP/19 reviewed a CMP proposal for Lahille's bottlenose dolphins which are coastal dolphins, endemic to Argentina, southern Brazil, and Uruguay. With an estimated total population size of 500 individuals and a declining population trend observed in at least some parts of their range, the conservation status of these dolphins is listed as 'Vulnerable' by the IUCN Red List (Vermeulen *et al.*, 2019). The CMP proposal was built based on the experience of researchers and the recommendations endorsed by the Scientific Committee in past years. The proposal is science-driven and focuses on practical management actions that have the greatest chance of achieving improvements for the conservation and recovery of Lahille's bottlenose dolphins. Importantly, it considers a framework for Argentina, Brazil, and Uruguay to work together to address the threats that impact the subspecies along its entire distribution. The document was built and endorsed by more than 40 researchers and government representatives from the three range states during a workshop carried out in Brazil in March 2024. The CMP proposal includes four main strategic actions 1) scientific research for management advice and filling knowledge gaps; 2) mitigation measures; 3) monitoring; 4) public awareness and capacity building. Each of these strategic actions contain short and medium-term specific actions that were outlined for certain regions/locations/management units, a ranking of priority levels and an estimated budget for each of them. In total, 24 actions were listed for the four strategic lines, of which seven are listed as high priority.

The Subcommittee **commended** the efforts of the proponent range states to draft the CMP proposal, and the range state governments for supporting the development and implementation of the CMP. The coordination among researchers and managers in Argentina, Brazil, and Uruguay as well as with the IWC provide a good example of what can be achieved through dedicated long-term research and regional collaboration.

***Attention**: SC, CC, C, CG, G, R, IGO*

*The Lahille's bottlenose dolphin was identified by the Commission as a priority for a CMP. The Subcommittee **endorsed** the scientific and technical aspects of this proposal. The Subcommittee **noted** that there is support by the governments of each of the range states and **agreed** that the proposal followed the CMP proposal template.*

*The Subcommittee **welcomes** an update on progress at SC70.*

3.6 Riverine populations of Irrawaddy dolphins

SC/69B/CMP/20Rev1 summarised a proposal collaboratively developed by the Fisheries Administration Department of the Government of Cambodia, WWF International, and Yayasan Konservasi RASI of Indonesia. The IUCN Red List includes three 'Critically Endangered' riverine subpopulations of the Irrawaddy dolphin (*Orcaella brevirostris*) in the Ayeyarwaddy River (Smith, 2004), Mekong River (Smith *et al.*, 2023) and Mahakam River (Jefferson *et al.*, 2008). These subpopulations are small (all less than 100 individuals) and declining primarily because of fishing practices, mostly illegal. In the Mahakam River, Indonesia the annual mortality between 1995 and 2022 was four dolphins/year and 70% were attributed to interactions with fishing nets. In the Mekong, 11 dolphins died in 2022 (seven calves, four adults), six in 2023 and three (two calves and one adult) in 2024. Electric fishing gear, gillnets and multi-hook long line contributed to approximately 42% of total mortality between 2020-2023. There are additional threats specific to rivers, for example palm oil related deforestation increasing sediments causing range decline in the

Mahakam and vessel collision in the Mahakam and Mekong and gold mining and rare earth mining in Ayeyarwady River (Smith *et al*., 2023).

This CMP aims to build on existing collaboration between the three range countries. This will, inter alia, support implementing actions to strengthen legal framework, research actions and awareness. The CMP will continue monitoring population trends and causes of mortality. Cambodia, Indonesia, and Myanmar are supportive of a collaborative effort to better understand the status of Irrawaddy dolphins in their waters. Cambodia and Indonesia agreed in Islamabad, Pakistan, to address fisheries-related threats (2022) and to continue the development of the Asian river dolphin CMP. The CMP proposed in SC/69B/CMP/20Rev1 focuses on the freshwater subpopulations of the Irrawaddy dolphin in three countries. The Subcommittee was informed that the Government of Cambodia is planning to form a bilateral agreement with the Government of Indonesia and will work in Myanmar through partners such as WWF.

The Subcommittee **welcomed** the presentation and **commended** the proponents for the extensive work conducted. In discussion, concerns were raised on the commitment of at least two governments. Therefore, the CMP and SM subcommittees **endorsed** the scientific and technical aspects of this proposal but noted that this endorsement is provisional with the understanding that the government of the proponent country and at least one other range state demonstrates a formal commitment to this CMP proposal, before IWC69 in Lima, Peru.

Further, an intersessional correspondence group under Porter was established to track progress on acquiring the necessary documentation representing formal agreement by the range state governments to sign on to the CMP before IWC69.

***Attention**: SC, CC, CG, G,*

*The Subcommittee **commended** the efforts of the proponent range state for their efforts in developing the proposal and **commended** the effort of the range states for their support for the development and implementation of the CMP.*

*The Subcommittee in concert with the Small Cetaceans Subcommittee **endorsed** the scientific and technical aspects of this proposal but **noted** that this endorsement is provisional with the understanding that the government of the proponent country and at least one other range state demonstrate a formal commitment to this CMP proposal.*

*The Subcommittee **welcomes** an update on progress at SC70.*

4. WORKPLAN

In discussion of the workplan, the Subcommittee noted the increase in the number of CMPs proposed within South America and considered the need for regional intersessional meetings to advance the Subcommittee's agenda now that the SC is transitioning into a biennial schedule.

A regional intersessional meeting could be cost-effective given the synergies across many South American CMPs. It would reduce travel distance and time, increase participation of CMP stakeholders, including greater engagement of local governments. The Subcommittee noted that a regional intersessional meeting focused on the South American CMPs could reduce the workload of the group, which could then focus on non-South American CMPs during the biennial SC meeting. The potential trade-offs of intersessional meetings were also discussed. For example, regional meetings may result in less Latin American representation at SC, which could impact expertise available for other discussions, including other Subcommittees such as SM and SH. The Subcommittee **noted** that

this would have financial implications and invited a funding proposal at this meeting.

***Attention**: SC, CC, CG, R*

*The Subcommittee **agreed** that a regional intersessional meeting would significantly advance the CMP agenda and would contribute with information for other Subcommittees, including HIM, SM, and SH. Therefore, the Subcommittee reviewed the funding proposal for the development of the intersessional meeting and **recommended** it for funding, as well as the establishment of an ICG under Barros/Luna of the Brazilian Government to organise it.*

Further discussion highlighted the need to host a second in-person workshop in Oman to progress CMP development for ASHW, both to support the development of the national ASHW conservation framework in Oman, and to hold multilateral exchanges required to initiate the formal CMP proposal process. The Subcommittee agreed that such an in-person workshop is needed, noted that this would have financial implications and invited a funding proposal at this meeting.

***Attention**: SC, CC, CG, R*

*The Subcommittee **agreed** that an in-person workshop in Oman would significantly advance the development of a CMP for Arabian Sea humpback whale. Therefore, the Subcommittee reviewed the funding proposal for the development of the intersessional meeting and **recommended** it for funding, as well as the establishment of an ICG under Wilson to organise it.*

In continued discussion on the workplan, a fourth workshop on threats and mitigation actions for CAHW to advance the development of the proposed CMP was highlighted. It was suggested that such a workshop be held in California, USA, rather than Central America to reduce costs and facilitate travel visas, given that many researchers are based in the USA. It was further noted that the meeting could be held as a hybrid event to allow the participation of people who would not be able to travel. Noting that this would have financial implications, the Subcommittee invited a funding proposal at this meeting.

***Attention**: SC, CC, CG, ICG, R*

*The Subcommittee **agreed** that an intersessional workshop on the threats and mitigation measures of Central American humpback whales would assist advancing the goals of the CMP and **recommended** proposal for funding, and the development of an ICG under Urban to organise it.*

It was noted that overall, the Subcommittee regarded workshop proposals as having a higher priority to proceed with their agenda items compared to the received research proposals.

5. OTHER ITEMS

The Subcommittee took note of the discussion in HIM regarding ship strikes of sperm whales around the Canary Island (Annex J, Item 13.2.1.1) and the suggestion that a CMP could be developed if another range state joined the project.

Table 1
CMP Intersessional Correspondence Groups

SC Agenda Item/ Sub-Committee	Type	Group (short name)	Terms of Reference	Members

CMP	ICG	Latin American CMP workshop	Develop a workshop in Latin America to progress with agenda items related to the CMP for species that occur in Latin America.	Barros (Convenor), convenors of relevant subcommittees, Andriolo, Brownell, Cassani, Iniguez Bessega, Mallette, Ridoux, Sucunza, Trejos, Zerbini
CMP	ICG	4th CAHWP workshop	Assess threats and mitigation of the CAHW population for the further development of a CMP	Brownell (Convenor), Trejos, Jaramillo, Mallette, Rojas-Bracho, Urbán,
CMP	ICG	ASHW workshop	Develop a workshop in Oman to progress with the development of a CMP proposal for ASHW	Wilson (Convenor), Aamari, Collins, Minton, Moiz, Iniguez Bessega
CMP	ICG	CMP on Riverine populations of Irrawaddy dolphins	Track progress on acquiring the necessary documentation representing formal agreement by the range state governments to sign on to the CMP before the September 2024, Lima Peru Commission meeting	Porter (Convenor), Brownell, Lang, Weller, Zerbini

Table 2
Proposed workplan

Item	Intersessional 2024-26	Annual Meeting (SC70)
Latin American CMP workshop	Develop the workshop and produce a report	Review intersessional meeting report
Central American Humpback Whale workshop	Develop the 4th CAHW workshop to assess threats and mitigation measures and produce a report	Review workshop report
Southeast Pacific southern right whale	Continue PAM off Peru, photo-ID matching and VHR analyses of larger areas off Isla de Chiloe and Golfo de Penas	Progress report on scientific aspects of CMP
Arabian Sea humpback whales	Complete the review of abundance and trend estimated Continue the broad suite of research activities in Oman, including satellite telemetry and biologging Complete the genetic analyses to provide clarity on the taxonomic status of ASHW Continue passive acoustic monitoring off the coasts of India and Oman and other areas of historical or potential ASHW distribution Organise an in-person workshop in Oman to progress with the development of a CMP	Review abundance and trend estimates and general progress on identified priorities for research and conservation. Review report of the CMP workshop held during the intersessional period.
SWA southern right whales	Apply multi-state capture-recapture models to the consolidated photo-ID catalogue up to 2019, considering different reproductive states.	Progress report
Gray whale	Continue surveys of ENP gray whale abundance and calf production	Review new information including any workshops held during the intersessional period
Franciscana	Continue evaluating bycatch estimates, develop new surveys to estimate abundance of franciscana in FMA IV Review estimates of bycatch for franciscana to conduct a Comprehensive Assessment.	Review new information including any workshops held during the intersessional period
Mediterranean fin whale	Coordinate with ACCOBAMS to organize stakeholders' workshop before SC70 and present final CMP	Review new information including any workshops held during the intersessional period
Mediterranean sperm whale & Cuvier's beaked whale	Coordinate work with ACCOBAMS to identify drafting working group and streamline the development process, including assessing research priorities and actions for initial email review by range states and others	Review new information including any workshops held during the intersessional period
Other Mediterranean cetacean species: Rissos, common and bottlenose dolphin	Coordinate work with ACCOBAMS. Receive final draft at SC70	Progress reports

South American river dolphins	Monitor compliance with the piracatinga moratorium in border areas between Venezuela and Colombia; Develop awareness and environmental education workshops to discourage the hunting and use of dolphins; Revise taxonomy to be able to interpret the impact of the population decline across the extent of the distributions.	Review new information including any workshops held during the intersessional period
Guiana dolphin	Coordinate initiatives and cooperative work, sharing knowledge among a range of states and others Integrate the CMP proposal working group and streamline the development process, including assessing research prioriries and actions Improve knowledge on population structure (refine the RMUs in collaboration with SD DNA ICG) Communicate with BMI in HIM; Diseases ICG and Pollutants ICG in E Subcommitee to integrate the CMP action plan and assess impacts on the Guiana dolphin	Review new information, including any workshops held during the intersessional period; and review information discussed by the stock structure ICG
Lahille's bottlenose dolphin	Continue collecting mark-recapture data across various sampling sites to enhance the accuracy of population parameter estimation and assess the extinction risk of LBD, while accounting for the impacts of bycatch, pollution and emergent diseases. CMP actions (SC/69A/CMP19)	Review new information including any workshops held during the intersessional period
Riverine populations of Irrawaddy dolphin	Pending CMP endorsement. Track progress of formal agreement of range state governments before IWC69	Review new information including any workshops held during the intersessional period

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Appendix 1

Agenda

1. Opening Remarks
    - 1.1 Election of Chair
    - 1.2 Appointment of Rapporteurs
    - 1.3 Adoption of the Agenda
    - 1.4 Documents available
2. Stocks with existing CMPs: new information and progress with previous recommendations
    - 2.1 SE Pacific southern right
    - 2.2 SW Atlantic southern right whales
    - 2.3 North Pacific gray whales
    - 2.4 Franciscana
    - 2.5 South American river dolphins
3. Progress with identified priorities
    - 3.1 Humpback whales in the northern Indian Ocean including the Arabian Sea
    - 3.2 Central American humpback whales
    - 3.3 Mediterranean Species/Populations
        - 3.3.1 Mediterranean fin whales
        - 3.3.2 Other Mediterranean species for which drafts are almost complete
        - 3.3.3 Mediterranean sperm whales
    - 3.4 Guiana dolphins
    - 3.5 Lahille's bottlenose dolphin
    - 3.6 Riverine populations of Irrawaddy dolphins
5. Biennial workplan
6. Other Items

Appendix 2

STATEMENT OF RATIONALE FOR BIOPSY SAMPLING SOUTHERN RIGHT WHALES WITH PARTICULAR FOCUS ON MOTHER-CALF PAIRS

INTRODUCTION

At the Expert Workshop on the Six-Year Review of the Eastern South Pacific Southern Right Whale Conservation Management Plan, which took place virtually in August 2022 (IWC, 2022a), skin and blubber samples from live cow-calf pairs were identified as priority samples to be collected. However, it was noted that Peruvian and Chilean permitting authorities do not issue research permits to biopsy individuals within cow-calf pairs (IWC, 2022a), and in some cases for any southern right whale regardless of age, sex or reproductive state.

The identified research priorities for biopsy samples, as well as concerns on restrictions on issuance of permits to obtain such samples were discussed at the governmental workshop on experience exchange held in Peru in 2022 which reviewed the regulatory aspects and made progress towards establishing consistent procedures throughout the range of southern right whales (IWC, 2022b). In relation to the biopsy sampling, the respective governments required a statement of rationale when considering whether to approve permit applications and requested advice from the IWC Scientific Committee (IWC, 2022b).

At the SC69A meeting in 2023, it was agreed that an IWC SC statement of rationale, including information on sampling protocols and the need for biological samples of live southern right whales (and particularly cow-calf pairs), would be helpful to facilitate the issuance of research permits. The SC also noted that developing such statement of rational would benefit both Chile-Peru southern right whale population and the Southwest Atlantic right whales (IWC, 2023). Therefore, the SC **recommended** that a statement of rationale be prepared for SC69B to facilitate the issuance of permits to collect biopsy samples from cow-calf pairs (IWC, 2023) to contribute to the CMP objectives.

The present document is the collective effort from the SC to provide the requested statement of rationale and advice.

BIOPSY SAMPLING OF SOUTHERN RIGHT WHALES

The benefits of biopsy sampling of live cetaceans stem from the vast amount of information that can be obtained from a small sample of skin and blubber. Examples of such data include, among others, a complete genetic profile (to assess topics like population structure and connectivity, effective population size, etc), information on foraging ecology and migratory patterns, toxicology, health, endocrine profiles, epigenetic age markers etc. Because the technique used to obtain these samples is considered minimally invasive, it has an enormous potential to contribute significant information to enhance conservation efforts. Under many ethics frameworks (e.g., Canadian Council on Animal Care, 1991; NZ Animal Welfare Act, 1999), remote biopsy sampling of cetaceans is considered a minor impact, causing little or momentary pain or discomfort, that is typically of short duration. As no animals are removed from the population, temporarily or permanently, considerations of minimum sample size are not applicable in an ethical context. Obtaining an adequate sample size for statistical validity will be beneficial to long-term conservation management.

Information gained from skin and blubber samples of cow-calf pairs:

Overall, biopsy sampling of cow-calf pairs can provide important information on population structure and connectivity, stress, and survival, and when done by experienced field researchers, typically elicits a low or moderate short term behavioural response with no evidence of long-term effects (e.g., Best *et al.*, 2005).

Information from skin and blubber samples of live cow-calf pairs has proved valuable in several

southern right whale populations, including:

1. understanding the mating system of the species through genetics (Carroll *et al.*, 2012)
2. understanding a population's demographic closure through genetics, that is, whether recruitment within the population is more important than emigration from other populations (Carroll *et al.*, 2012)
3. evaluating the stress level within and between southern right whale populations using stable isotopes (Carroll *et al.*, 2021)
4. estimating survival through the genotype mark-recapture of calves in their year of birth and subsequent years. The unique physical markings or callosities on southern right whales do not stabilize until 6-12 months of age, often when the calf has left the wintering ground, so genetics offers a way of identifying and recapturing young whales (Carroll *et al.*, 2016).
5. understanding foraging ecology and migratory patterns of southern right whales (van den Berg *et al.*, 2021; Derville *et al.*, 2023)

Furthermore, when data obtained from biopsy samples can be coupled with photo-ID, it can provide valuable information linked to individual.

Effects of biopsy sampling

Remote biopsy sampling of marine mammals with a remote biopsy system is considered minimally invasive because it does not involve capturing or handling the animals (Carroll *et al.*, 2018). The strike of the dart is also very quick (<1sec). A lengthy review of cetacean biopsy sampling concluded that biopsy sampling is relatively benign, causing only minor and short-lived responses (Noren and Mocklin, 2012).

The risk associated with biopsy sampling may relate to localised infection and short-term behavioural disturbance. To minimise the likelihood of infection, the biopsy tip is sterilised prior to its use and washed in water to prevent any contamination or infection of the animal, and the sample collected. Physical injury to the animal is minimal. There is only one record reported where biopsy site on one neonate haemorrhaged ('thin spray of blood'). Bleeding stopped within several minutes following the biopsy and the animal's behaviour returned to normal. However, this event occurred when using a rectangular stainless-steel punch with a bevelled edge and internal barb delivered by a 9m pole (Noren and Mocklin, 2012). Bleeding has never been observed using biopsy dart and crossbow methods (Noren and Mocklin, 2012), and the internal organs are well protected by a thick blubber layer.

Underwater noise of the approaching vessel may be a potential risk but is likely minimal. Collection of biopsy samples typically involves a close approach within 15-50m of the whales, and close approaches may last between 5-20 minutes meaning a very short disturbance to the whales. For example, in the Auckland Islands, these close approaches lasted 5.5 mins (+/- SE 0.3 mins) (Carroll *et al.*, 2022) and in South Africa research groups protocols limit the approach to the whales to 20 min if no samples have been collected (Vermeulen, pers. comm. 2023).

Reactions to the biopsy sampling varies on the species, group size, age class and reproductive state (Noren and Mocklin, 2012). The technique of biopsy sampling free-ranging marine mammals, and specifically southern right whales, has been used globally for several years (e.g., Best *et al.*, 2005; van den Berg *et al.*, 2021; Carroll *et al.*, 2012, 2018, 2021, etc.). Short term low-level behavioural responses to biopsy sampling have been reported globally (e.g. Best *et al.*, 2010; Kizka *et al.*, 2010; Noren and Mocklin, 2012), however, no physiological complications have been reported nor effects on reproductive success (e.g., Weller *et al.,* 1997; Best *et al.,* 2005; Gimenez *et al.,* 2011).

Meta-analyses shows that baleen whales like southern right whales show no behavioural response to biopsy about 40% of the time (Noren and Mocklin, 2012). Of the whales that do show a response,

most (>90%) showed a low or moderate response (Noren and Mocklin, 2012). Southern right whale calves are ~4m at birth and grow at a rate of ~1m per month. They are born larger than many marine mammals routinely biopsied (e.g., dolphins). Based on a study in South Africa, calves and adult whales do not show statistically different response to biopsies (Best *et al.*, 2005).Females with calves, on the other hand, had a significantly higher proportion of moderate responses (tail fluke move) compared with unaccompanied females (more likely to show no response or a startle response), although biopsying of females was not associated to any adverse effects on the proportion of successful reproductive cycles (Best *et al.*, 2005). In contrast, research from New Zealand found that males had a stronger behavioural response to biopsy sampling than cows or calves (Riekkola *et al*., in review). In both the New Zealand and South African populations, calves responses were not more intense than those of adults.

Biopsying specifically cows as well as their associated calves is justified scientifically because it supplies information about paternity and sex ratios in the population, as well as the nutritional condition of the cow and calf. It is important to re-emphasise that follow-up studies of biopsied southern right whale cow- calf pairs showed that no long-term consequences were recorded for reproduction or calf survival (Best *et al*., 2005). A recent analysis showed that there was no increase in response to biopsy sampling when southern right whales were biopsy sampled multiple times within a season or across seasons (Riekkola *et al*., in review), with similar results seen in humpback whales (Garrigue & Derville, 2022).

RECOMMENDED METHODS TO COLLECT BIOPSY

Biopsy samples are most commonly obtained using a crossbow of about 120-175lb draw for whales, while a 70lb draw crossbow is generally used to biopsy sample medium-sized delphinids. Biopsy darts fired from the crossbow are fitted with a hollow curing tip that removes a skin sample and sometimes blubber (approx. <20mm l x 10mm w). This tip is made of surgical-quality stainless steel and fitted with a stopper (approx. 40mm diameter) to prevent the tip from penetrating more than 20mm. In practice, penetration is usually less than this as the angle of impact is rarely 90 degrees. Small barbs inside the tip retain the sample until it is retrieved. Sometimes, whales and dolphins are also biopsy darted using a biopsy riffle (e.g., Paxarms system©). This system uses a small biopsy dart fired from a modified 22-caliber veterinary rifle equipped with a variable pressure valve (Oremus *et al*., 2011; Harcourt *et al*., 2022).

To reduce the impact of the sampling on the behaviour of the animals, target animals are approached slowly and cautiously. When biopsying, the animals are approached sideways at a slow speed (1-4 knots) up to a minimum distance of 5-50m for large whales, or less for small delphinids, to ensure the best chance of hitting the target while disturbing their natural behaviour the least as possible. At all times, the sampling is done by experienced researchers. Once the animal is struck and the bolt rebounds and floats on the water, the boat stops, and the animal is allowed to move off after which the bolt and sample can be collected. Subsequently, the tip (with the biopsy sample inside) is carefully removed from the bolt and the sample put into a sterile tube and stored immediately until back in the lab where the sample can be processed. At all times when handling the tip and/or sample, the researchers should be wearing surgical gloves to avoid cross-contamination. The biopsy tip is sterilised prior to and after its use to prevent any contamination or infection of the animal and the sample.

To reduce the impact of the nearby vessel, no more than 3 attempts should be made to biopsy sample an individual. If no samples are obtained after 3 attempts or 20min of approaches (whichever is first), the animal should be left alone, and a new attempt could only be made the following day. At the same time, duplicate sampling of the same individual should be avoided using photo- identification techniques where possible.

Therefore, coupling photo-identification with biopsy sampling procedures is valuable, although noting it is often possible to get a biopsy sample when photo-identification is challenging e.g., during

rain or when the whale displays back but not the lip line.

Considering the important data provided by skin and blubber samples of calves, Argentinean and South African research groups target first the calf and then the cow, in case the cow-calf pair is missed after first attempt. The calf can also provide information on the cow but the sample from the cow does not provide information on the calf. It is important to note also that when the calf is targeted first, it usually elicits no response from the cow. In contrast, when sampling the cow, she may (or may not) respond which often elicits a response from the calf as well (Sironi and Vermeulen, pers. comm 2024).

On the assumption that the disturbance due to the boat approach is a more important stressor than the biopsy collection itself, and the recognition that cow-calf pairs are potentially the most likely affected by such disturbance, biopsying cow-calf pairs may be attempted but terminated immediately if or when the pair shows signs of increasing boat-avoidance.

The remote biopsy sampling using the proposed equipment has also been endorsed by the Society of Marine Mammalogy as well as the International Whaling Commission.

ADVICE FROM THE SCIENTIFIC COMMITTEE

Considering the importance of collecting biopsy samples for southern right whales, including cow-calf pairs, particularly from populations with limited knowledge such as the 'Critically Endangered' (Cooke, 2018) Chile-Peru southern right whale, the Scientific Committee:

- considers the current statement of rational as guidance on protocols for the collections of biopsy samples but acknowledges there may be various slight modifications to the equipment or approach methods depending on the sea conditions, available equipment, etc.
- calls on research groups to apply for research permits to collect biopsy samples to significantly increase our understanding of genetic population structure, effective population size, foraging ecology, migratory behaviour, health, etc.
- advise range states national authorities to give high priority to collect biopsy samples and facilitate the process for the issuance of permits to collect biopsy samples for southern right whales, including cow- calf pairs.

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