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Report of the Intersessional Workshop on the IWC Conservation Management Plan for the Southwest Atlantic Southern Right Whale Population (SWA-RW)

Juan Pablo Torres-Florez (Chair)

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1. WELLCOME

The workshop was held during the 14-16 of April 2021. The coordinator Juan Pablo Torres-Florez, opened the meeting, welcoming the participants to the SWA-SRW CMP workshop and acknowledging the steering committee, the Scientific Committee CMP/SH subcommittees and the Conservation Committee. He clarified that original plans were to have an in person workshop, due to covid situation it was decided to do this virtual meeting and hopefully an in person meeting by the end of the year if conditions allow.

1.1. APPOINTMENT OF CHAIR AND RAPPORTEURS

Juan Pablo Torres-Florez, acted as chair. Cecilia Passadore was appointed rapporteur for the first day of the workshop. Karina Groch and Els Vermeulen acted as rapporteurs for the second and third days.

1.2. REVIEW AND ADOPTION OF AGENDA

The agenda was reviewed and adopted (Annex A). Schedule was established (Annex B).

2. WORKSHOP OBJECTIVES AND OUTPUT

The chair presented the objectives of the meeting, which were to: review of research CMP lines in order to establish the actual status of the action; evaluate the next steps in order to accomplish those actions not completed yet; evaluate the continuity of accomplished actions and establishment of new actions if necessary; move forward with the commitment of the range states to strengthen the databases.

3. CHAIRS SUMMARY

In 2009 (IWC/61) the Conservation Committee endorsed the formation of a small, specialist group (SSG) to construct a list of candidate conservation management plans (CMPs). The SSG reported to the IWC/62 (2010) providing a draft framework for producing CMPs. At IWC/62 a number of CMP candidates were suggested, which included all the South American Right whales (Chile-Peru and SouthWest Atlantic). At the same IWC/62, members of the Conservation Committee proposed that a workshop should be held in order to consider the first CMP proposal for the South West Atlantic Right whale population, immediately after the Scientific Committee Right Whale Assessment Workshop that would take place in Argentina. The IWC agreed to nominate the South West Atlantic Southern Right whale population for a Conservation management Plan (SWA-SRW CMP) (IWC/63/CC4). A workshop to begin the development of the SWA SRW CMP was held in Buenos Aires, Argentina from 19 – 20 September 2011.

In 2012, following the recommendations of the IWC and particularly considering the SRW recent and unexplained die-off of right whale calves in Argentinean waters, a Conservation Management Plan (CMP) drafted by Argentina, Brazil, Chile and Uruguay was endorsed by the IWC64 (IWC/64/CC7 Rev 1). This plan started to be implemented after a first workshop held in Buenos Aires, 2013 (IWC65/2014).

Nine high priority actions were originally identified for this CMP (IWC/64/CC7 Rev 1).

1. Implementation of the CMP;
2. Development of a strategy to increase public awareness and build capacity in range states;
3. Determination of movements, migration routes and location of feeding ground(s) through satellite telemetry.

4. Development of a GIS database on information on human activities that might have an adverse impact on whales;
5. Ensuring long-term monitoring of abundance, trends and biological parameters through photo-identification and biopsy sampling;
6. Enhancing the existing stranding networks including the capacity for undertaking post-mortems;
7. Development of a regional entanglement response strategy;
8. Development and implementation of a strategy to minimise kelp gull harassment; and
9. Establishment of an expert advisory panel.

In a second workshop held in Puerto Madryn, Argentina the 12th of September 2016 (IWC/66/CC12), the actions previously established were reviewed and updated.

Considering that no CMP should be regarded as a definitive and unalterable document. It is rather a document that covers a temporal phase within the framework of the efforts for the conservation of a species, and therefore needs to be reviewed periodically to adjust the actions to the diverse changes that can occur, either in response to the results of the monitoring of the CMP actions themselves or to changing external factors.

In the conception of the SWA-SRW CMP, it was proposed that this CMP should be reviewed annually and updated as needed but that a major review of work, including the possibility of updating the CMP should occur every four-six years (depending on the timetable of actions within the plan).

Bearing in mind that previously the workshop was proposed to be held during the 2020 year in the city of Santos, Brazil. However, due to the COVID-19 pandemic, this workshop could not be held in person, so it was decided to hold a shorter workshop virtually during April 14-16, 2021. The main objective of the workshop was to discuss the progress in some research, monitoring and mitigation actions established for this CMP.

The actions discussed and reviewed during this workshop were the following:

RES-01: Determine movements, migration routes and location of feeding ground(s).

RES-02: Development of a GIS (meta) database on information on human activities that might have an adverse impact on whales.

MON-01: Ensure long-term monitoring of abundance, trends and biological parameters.

MON-02: Enhance existing strandings networks including the capacity for undertaking post-mortems.

MIT-01: Development of a regional entanglement response strategy.

Invited participants presented a series of investigations on the different actions mentioned above. Each presentation was discussed in light of the existing bibliography and latest advances in knowledge regarding this population. Finally a document spreadsheet with the priorities for these actions or new actions, was filled by the participants after the review of the actions.

4. ABSTRACT PRESENTATIONS AND NEW RESULTS

4.1. Determine movements, migration routes and location of feeding ground(s).

4.1.1. Satellite tracking

I. Update on satellite tracking of Western South Atlantic southern right whales from Península Valdés and adjacent areas, Argentina
Alex Zerbini, Santiago Fernandez

Satellite tracking of Southern right whales wintering near Península Valdés, Argentina, began in 2014 (Zerbini et al., 2016, 2018) and corresponds to one of the scientific actions of the western South Atlantic right whale CMP (CMP Res-01). The original goal of this study was to describe the movements, diving

whales and to record their vocalisations. In 2018, 26 sonobuoys were deployed in the western approaches to SG/GS and in locations around the northern coastline and shelf, comprising 83 hours of recordings. In 2020, 31 sonobuoys were deployed all around the island comprising 114 hours of recordings. In 2018, there were 15 southern right whale visual encounters comprising 31 individuals; in 2020 there were 10 southern right whale visual encounters comprising 11 individuals. In 2018, there were five acoustic encounters which we were confident were associated with sightings of southern right whales, and in 2020 there were two of these events.

All the calls determined to be from southern right whales during these encounters were simple upcalls or gunshot-type calls. We neither observed large aggregations of right whales, nor extensive surface-active group behaviours in either year of our study, which might partly explain the lack of variation in call-type. We also analysed a sample of humpback whale calls to identify characteristics which could be used to distinguish between the two species where they co-occur. There were no upcalls amongst these visually confirmed humpback whale calls. Call repertoire comprised simple tonal calls with little variation in frequency during the call, and harmonics apparent in most. In all cases humpback whale calls had higher frequency with peak energy, and in most cases they were longer duration than those of southern right whales.

Average frequency and duration of southern right whale upcalls recorded at SG/GS were broadly similar to calls of whales recorded in Argentina and Auckland Islands (but lower frequency than those of North Atlantic right whales). Southern right whales at SG/GS did not vocalise frequently or reliably, but the ability to detect upcalls and differentiate them from humpback calls shows potential for long-term acoustic studies using moored acoustic recorders at SG/GS and elsewhere.

Acoustics questions and comments:
Dombroski: —asked Calderan when the sensors were deployed and for how long does she listen? *Calderan*: can be listened for up to 6 hours as long as you're close to the range other recorder. *Torres-Florez:*— asked if Iñíguez and colleagues have PAM recordings from the Antarctic Peninsula, *Iñíguez:*— answered that the harp was deployed from 2014 to 2017 close to Elephant Island, and another year was recorded in the west of Antarctic Peninsula. They have the data, the human resources but not the funds for the analysis. *Renata Sousa-Lima*:— are interested in data from Iñíguez and offered him human resources to analyze the data if they're interested.

4.1.4. Distribution, habitat selection, trophic ecology

I. Habitat selection of Southern Right Whales (Eubalaena australis) in the breeding ground Península Valdés.
Nicolás Sueyro, Maria Grazia Pennino, Enrique A. Crespo, Mariano A. Coscarella

The Southern Right Whale (*Eubalaena australis*) was object of a commercial exploitation until the mid of the XX century, that brought this species to the brink of extinction. The species was protected globally in 1986 and since this moratorium entered into force, populations throughout the southern hemisphere have been recovering at an 8% annual rate. Even so, in Peninsula Valdés (Argentina) it has been observed that the growth rate is decreasing in recent years from near 7% in 2007 to a 0.06% for 2016. In this breeding ground also changes in distribution and group composition have been reported, with mother and calves remaining close to the shore and solitary individuals relocating to deeper waters or to other coastal areas outside Península Valdés. We use SDMs to predict the SRW distribution in the Peninsula Valdés incorporating environmental data and records collected by the CENPAT Marine Mammal Laboratory in four different periods: 1999-2000, 2004-2007, 2008-2012 and 2013-2016. Predictions maps were then used to assess if there was a shift of the SRW distribution in the Peninsula Valdés trough the time and if it was related to population growth. Roughness of the seabed, bathymetry and wave energy were used as potential predictors for selection of Southern Right Whales. Bayesian hierarchical spatial model (BHSM) were applied to identify which environmental variables mostly affect their distribution in northern Patagonia and to predict their probability of occurrence in un-sampled locations.

Among all the variables combination tested, the selected model included the roughness, wave energy and spatial effect, with bathymetry being highly correlated to roughness and hence was excluded from the models. The selected model was then used to perform the analysis in each period. Overall, roughness showed a positive relationship with the SWR occurrence, preferring consolidated seabed. The wave energy showed a

negative relationship with the SWR occurrence, indicating that whales prefer low wave energy areas. Looking at the magnitude of the estimated effects, it is suggested that wave energy is more relevant for the SWR occurrence than the roughness of the seabed.

Along the examined periods, there is a tendency of SRW to restrict their distribution mainly to coastal areas with consolidated seabed and low wave energy. This is explained by the fact that mothers with calves replaced other types of groups in the near shore strip. The results are congruent with a density-dependent process, in which the coastal breeding areas of Peninsula Valdes could be reaching their carrying capacity, so it is expected that in the coming years an increase in the number of mothers with young will be observed in other areas, such as the Bay of San Antonio in the Gulf San Matias.

II. Density-dependent changes in the distribution of Southern Right Whales (Eubalaena australis) in the breeding ground Peninsula Valdés

Nicolas Sueyro, Enrique A. Crespo, Magdalena Arias, Mariano A. Coscarella

Right Whale (*Eubalaena australis*) population of the South–western Atlantic Ocean is recovering. In the breeding ground of Peninsula Valdés, because of the population growth, expansion to new areas by some types of groups and a change in the habitat use patterns at the coastal area were recorded.
We analysed information gathered from aerial surveys conducted along the coast of Peninsula Valdés in 15 years of effective sampling in a 19-year span. These surveys were divided into four periods (1999–2000; 2004–2007; 2008–2012 and 2013–2016) and estimated the density of whales in a 620 km of coast divided into segments of five km. Information on the group composition was recorded, including Mother-calf pairs, Solitary Individuals or Breeding groups. For the analysis in this work Solitary Individuals and Breeding groups were pooled in Other groups, as a group category opposite to the Mother-calf pairs.
Preliminary examination of data led us to define two high densities zones, one inside Golfo Nuevo and other inside Golfo San José, defining the low-density zones as those outside the high-density zones. The density of the whales increased to near three whales per km^2 (averaged over each period) in the high-density areas. When this mean density was reached, significant changes in density in the adjacent areas were detected in the following period. These changes were a decrease in density in the high-density areas and an increase of density in the low-density areas.

We propose that a threshold in density elicits a response in habitat use, with the Mother-calf pairs remaining in the area, while the other groups are displaced to new areas.

III. Diving behaviour of Southern Right Whale in Golfo Nuevo, Peninsula Valdes, before starting feeding migration

Santiago J. Fernández, Mariano A .Coscarella, Enrique A. Crespo, Federico Sucunza, Alexandre Zerbini.

Whales, at the end of the breeding season, can follow different strategies before they initiate their migration. However, their main objective is similar: finding food or mating. Southern right whales (*Eubalaena australis*) that reproduce in the Peninsula Valdés area are among the best studied whale populations. Information about the location of their migratory destinations and feeding grounds is increasing, but their diving behaviour is poorly understood. In this paper we analyse the diving patterns towards the end of the breeding season and the beginning of the migration using data from archival satellite tags within Golfo Nuevo. We used the dive shape manufacture's classification of the dives: "Square" (associated with feeding activities), "V-Shape" (attributed to non-foraging dives as travelling) and "U-shaped" (attributed to feeding and search behaviours or social activity). Shallower and shorter dives were performed by mothers with calves as opposed to solitary individuals. A significant change in the proportion of the water column used during the Square shape dives developed by mother with calf, could be significate a change from coastal areas to deeper ones. Probably this change is seized by the mother to test if the calf is ready to start migration. This change occurs approximately four weeks before the mother calf pairs leave Golfo Nuevo.

IV. Southern Right Whale Eubalaena australis in the Golfo San Matías (Patagonia, Argentina): evidences of recolonization

Magdalena Arias, Mariano A. Coscarella, Enrique A. Crespo, Raúl A. González