



**CONVENTION ON
MIGRATORY
SPECIES**

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Agenda Item 28.1

**REPORT ON THE IMPLEMENTATION OF THE
CONCERTED ACTION
FOR THE
SPERM WHALES (*Physeter macrocephalus*)
OF THE EASTERN TROPICAL PACIFIC ***

*(Prepared by the Expert Working Group on Culture and Social Complexity,
established by the Scientific Council,)*

Summary:

The Expert Working Group on Culture and Social Complexity, established by the Scientific Council, has submitted the attached report on the implementation of the Concerted Action for the Sperm Whales (*Physeter macrocephalus*) of the Eastern Tropical Pacific UNEP/CMS/ Concerted Action 12.2.

*The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CMS Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author

**REPORT ON THE IMPLEMENTATION OF THE
CONCERTED ACTION
FOR THE
SPERM WHALES (*Physeter macrocephalus*)
OF THE EASTERN TROPICAL PACIFIC**

UNEP/CMS/ CONCERTED ACTION 12.2

Background

1. Sperm Whales (*Physeter macrocephalus*) are a highly migratory marine species, listed on Appendix I and II and have been included on the list of CMS Concerted Action species since 2002. They are listed globally as Vulnerable on the IUCN Red-List, with the Mediterranean sub-population categorized as endangered.
2. A proposal for Concerted Action (UNEP/CMS/COP12/Doc.26.2.2) which focused specifically on four clans of Sperm Whales that have been identified in the eastern tropical Pacific (etP) (Rendell and Whitehead, 2003; Cantor et al. 2016) was adopted at COP12 (CA 12.2). Decades of research have revealed a complex social structure within the etP Sperm Whales, where clans can be identified by their unique acoustic click patterns or codas, but the clans also differ in their movement patterns, feeding success and other attributes (e.g. Whitehead & Rendell, 2004). The clans in this region are known as the Regular, Plus-one, Short and Four-plus clans.
3. Figure 1 provides insights into the challenges associated with managing culturally-structured populations across multiple Range States. The coloured lines indicate individuals of known clans moving across jurisdictional boundaries.
4. These large clan structures are often sympatric, with two or three clans using a given area. The geographic distributions of the clans are also dynamic so that the clans using a sea area can change over years or decades (Cantor et al. 2016), representing large-scale population shifts that are not readily detectable from basic sighting surveys, which record only the presence of whales without respect to clan membership. However, these clans show little or no differences in their nuclear DNA and the primary differences between them are socially learned and, therefore, cultural (Whitehead, 2003).
5. Since social learning is understood to be the major driver for the clan structure within this species and there is important interplay between social structure and the transmission of social learning within these social systems (Whitehead and Lusseau, 2012), the clan structure presents unique conservation challenges. For example, there is compelling evidence for differential responses between clans to environmental variability (either natural or anthropogenic), which may have important management implications for Sperm Whale cultural units in this region (see UNEP/CMS/COP12/Doc.26.2.2) and more recent analyses reveals fine-scale within region spatial partitioning between the clans (Eguiguren et al. 2019)



Figure 1. Sperm Whale vocal clans of the eastern tropical Pacific, extracted from Brakes et al. 2019 (conceptual map, not to scale).

Discussion and analysis

6. Partial funding has been received for a renewed field season in 2020 and 2021 (and applications are underway for additional funding), which will focus on the relationships and interactions between the cultural clans in the region.
7. As with all the previous research in this area since 1991, researchers will use a 12-metre sailing vessel (*Balaena*), with a multinational scientific crew, including crew from the region.
8. In a recent analysis, researchers discovered that very useful information on clan interactions is embedded in previously collected data, suggesting that more observational, photographic and acoustic data may be a more productive (and economically efficient) way forward than playback experiments and satellite tags (which had been considered to help further elucidate vocal clans segregation). This is particularly the case around the Galápagos Islands where the logistics of data collection via these methods are challenging.

Action

9. To facilitate better collaboration, it is proposed that a regional workshop be convened (perhaps virtually, to save costs) with the goal of establishing protocols and data sharing between research groups across the Range States. The new results outlined from the analysis above emphasize that quite simple data (acoustic and photographic records) may be enormously revealing if analysed carefully and collaboratively.

References

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