Proposal for the Extension of the CMS Concerted Action for Arabian Sea Humpback Whales (*Megaptera novaeangliae*)

A. Target species/population(s), and their status in CMS Appendices

Target Species/Population:
Humpback whale (*Megaptera novaeangliae*) Arabian Sea (sub)population

CMS Appendix:
CMS Appendix I lists 15 cetacean species, including the humpback whale. The Arabian Sea humpback whale population has been designated for Concerted Action since COP 12 in 2017.

Range description:
See the original Concerted Action document: https://www.cms.int/en/document/concerted-action-humpback-whales-megaptera-novaeangliae-arabian-sea.

Confirmed range states: India; Islamic Republic of Iran; Iraq; Kuwait; Sultanate of Oman; Pakistan; Qatar; Sri Lanka; United Arab Emirates; Yemen

Possible additional range states: Bahrain, Maldives, Somalia, The Kingdom of Saudi Arabia

B. The case for continued action

The original Concerted Action document makes a clear case for the conservation priority, relevance, and absence of better remedies for this population, as well as the readiness and feasibility, likelihood of success, and magnitude of the likely impact. While the progress report submitted the CMS Scientific Council in November 2019 (UNEP/CMS/COP13/Doc.28.1.4), reflects a number of concrete actions that have been taken toward achieving the goals of the Concerted action, a number of these goals have not yet been obtained, in part, because the original timeline indicated in the Concerted Acton proposal extended through 2022. The focus for the next triennium will be working to achieve these remaining objectives, especially that of greater participation of government and industry stakeholders in conservation measures for this endangered population.

C. Activities and expected outcomes

The table below summarizes the progress made on each of the originally proposed activities and outcomes for the Arabian Sea Humpback Whale Concerted Action as of December 2019, with a fourth column indicting the required follow-up in the next triennium of 2020 to 2023.

Arabian Sea Humpback Whale Concerted Action: Priority Activities Outcomes and gaps			
Activity	**Expected Outcome**	**Progress as of December 2019**	**Activity for 2020-2023**
Addressing knowledge gaps			
The development of a marine mammal reporting **smartphone App** and citizen science tools, to allow the crews of fishing, coast guard and whale-watch vessels and ferries to record and report whale and dolphin observations.	Improved data and models of current humpback whale distribution throughout the Arabian Sea	ASWN members in Oman are testing apps that can be used by shipping companies, and other members are investigating and testing other Apps that can be used by tourism companies and members of the public, as well as for research (e.g. Spotter Pro, Whale Alert, Seafari). However, none are yet in regular use, or translated into the languages used by range states. Funding would be required to make these more widely accessible and in use, and may be ideal for the WWF-Pakistan-trained fisheries observers.	Finalize data collection apps and put into use by relevant stakeholders in the region
Collaborative **boat-based research** to continue photo-identification studies, collects genetic samples, and identify critical habitat. The involvement of local scientists in this research will build capacity for future conservation in the region.	Improved data on whale distribution, habitat use, population identity and connectivity between regions, and increased number of qualified cetacean researchers in the region.	Boat-based research has continued in Oman, and in some instances involves participants from other range states. However, funding has not yet been obtained for large-scale collaborative research efforts.	Fund raise and implement regional research, with a priority for acoustic research in the Eastern Arabian Sea.
Use of **passive acoustic recorders** to detect the presence of whales and monitor human introduced noise in areas that are logistically difficult or dangerous to survey.	Improved understanding of whale distribution in Eastern Arabian Sea (e.g. Gujarat and Rann of Kutch)	Recordings made in Oman in 2012-13 have been analyzed and the valuable results have presented at the IWC (Cerchio et al., 2018; Cerchio et al., 2016). Opportunistic recordings have also been analyzed from India (Madhusudhana, Chakraborty, & Latha, 2018; Mahanty, Latha, & Thirunavukkarasu, 2015). Funding and logistics have not yet been in place to conduct larger scale passive acoustic surveys off of Pakistan or India. However, plans are under way to purchase and place units off the Southwest coast of India.	Support ongoing acoustic work off the West coast of India, look for opportunities to deploy recorders in Pakistan, and analyze and publish results.
Genetic analysis of samples collected from strandings and during dedicated whale surveys to determine whether Arabian Sea humpback whales comprise a new sub-species.	Likely designation of ASHW as new species or sub-species, understanding of kinship and relatedness of sampled whales	This is still underway with Howard Rosenbaum and his lab, using samples collected in Oman through 2015.	Analyse new samples collected in 2017 and 2019 and publish results with possible new subspecies designation.

		Although not listed as one of the targeted activities in the Concerted Action, the rationale refers to the need to study humpback whale health and threats, and the International Whaling Commission has provided a grant that will allow researchers to examine and score all photos of humpback whales from Oman for evidence of disease and human-induced scarring/injury. This work will commence in May 2019, and is expected to be completed by December 2019.	Continue studies on visual health assessment and body condition in Oman, and publish results.
		Regional ASHW ecological niche modeling work previously presented to the IWC (Willson et al. 2017) has been updated with results of more recent satellite telemetry work and a refined method. The habitat suitability layers are currently being prepared for a ship strike risk assessment by looking at co-occurrence between identified whale habitat together with shipping traffic density mapping (derived from satellite based AIS data). Completion of this study is expected by late 2019.	Publish results of niche modelling and co-occurrence of whales and shipping.
Information sharing and awareness raising			
The development of a **regional shared online data platform** to promote standardization, comparability and timely analyses of data collected throughout the region. This will be used to facilitate the creation of sensitivity maps and assist stakeholders in the design of local, national and regional conservation strategies, including protected areas	Improved understanding of ASHW distribution and connectivity between study areas.	Two years of collaborative development between ASWN members, Flukebook, and Indocet, have resulted in the completion of an ASWN online database that uses the Flukebook Platform. This new data platform allows uploading, archiving, and analysis of cetacean sightings data, as well as use of 'computer vision' to conduct automated matching of humpback whale tail flukes within, and between research projects in the Arabian Sea and wider Western Indian Ocean.	Work toward greater uptake and usage of the online platform among members. Refine data upload and analysis methods in collaboration with Indocet and Flukebook designers.
An improved **website** that provides a portal to the shared database (see above), informs the general public of whale conservation needs, and provides members with a range of **outreach tools** to engage governments and other stakeholders in their region and involve them in Whale conservation efforts	Increased awareness of ASHW conservation needs among stakeholders	The Arabian Sea Whale Network website has undergone some improvements, and is maintained with updates and news items, as well as a page dedicated to the new data platform. The ASWN has produced an infographic to use in reaching out to stakeholders, as well as three issues of a newsletter. However, more could be done to create a wider variety of outreach tools, including power-point presentations, videos, or other tools in multiple languages.	Develop further outreach and awareness raising tools, based on results of research and analysis.

Capacity building and development and implementation of mitigation strategies			
Organization of targeted **regional workshops, meetings and training** opportunities that will involve local and national government agencies as well as young scientists, build capacity and develop multi-stakeholder mitigation strategies and conservation measures in key range states.	More effective stranding/entanglement response leading to better survival of affected cetaceans, improved data on bycatch/entanglement rates throughout the region, increased government participation	A workshop was held in Oman, in January 2018, focusing on the final stages of development of the ASWN Flukebook data platform, as well as the issue of data collection from fisheries in the region. This workshop involved ASWN members and a number of representatives of Oman governmental agencies responsible for cetacean management and conservation. The full workshop report can be downloaded here. Many of the researchers working with Arabian Sea humpback whales were also involved in the IUCN Important Marine Mammal Areas workshop for the Western Indian Ocean and Arabian Seas. While organized with different aims, it also involved opportunities for regional capacity building and stakeholder engagement particularly with the Oman government representatives who were present.	Organize a regional workshop or series of country-based visits to build awareness and capacity of government stakeholders to engage in effective conservation measures.
Replication of ship strike mitigation strategies from Oman, and by-catch mitigation from Pakistan to other parts of the Arabian Sea.	Reduced risk of ship strike throughout region, improved chance of survival of entanglement	Two of the main proponents of the Pakistan crew-based bycatch observer programme presented their work at an IWC-hosted workshop on bycatch mitigation in the Indian Ocean in May 2019. Development of a region- wide approach to ship strike mitigation is expected to be partly informed by the ship strike risk assessment currently in progress (and discussed in the section on addressing knowledge gaps above).	Continue work with the Indian Ocean Tuna Commission, as to support/facilitate the amplification of the Pakistan crew-based observer and bycatch mitigation work in the region.
Development of a range-state endorsed regional ASHW Conservation and Management Plan	Regional Conservation and Management Plan to promote long-term coordinated and collaborative conservation and management across the ASHW range participation	Ongoing discussions between representatives of the International Whaling Commission, the CMS Councilor for Cetaceans, members of the Arabian Sea Whale Network and other parties have resulted in concrete plans and secured funding to host a regional workshop in the second half of 2020 to begin planning the framework for a regional conservation management plan.	Organize workshop in second half of 2020 to plan framework for government-led conservation management plan, supported by outreach and capacity building for government stakeholders. Follow this up with the actual

			drafting of a conservation management plan and targeted support for range states to implement effective policies and mitigation measures.

ANTICIPATED OUTPUTS

- A fully functional, active regional network with multi-stakeholder participation and the capacity to exchange information and collaborate on measures to improve the conservation status and mitigate of threats affecting Arabian Sea humpback whales across their range.
- An innovative, open access online data platform tailor made to facilitate regional analysis of whale stranding, sighting, genetic, acoustic and photo-identification data.
- New insight into humpback whale distribution in the Arabian Sea through passive acoustic detection and noise exposure in areas where boat surveys have not yet, or cannot be conducted.
- Improved understanding of the stock identity and status of Arabian Sea humpback whales throughout their range.
- Improved research capacity in ASWN member states through training workshops and cross-country collaboration on acoustic and boat surveys.
- Scientific publications as well as popular media coverage of all that is learned about the Arabian Sea Whale population through the collaborative data analysis and new research initiatives.
- Increased awareness in coastal fishing communities and fishing captains who know how to report and mitigate accidental entanglement of whales or dolphins in fishing gear.
- A range state endorsed regional ASHW Conservation and Management Plan.

D. Revised Timeframe

The Timelines for the development of an Arabian Sea Humpback Whale Concerted Action Plan is tabled below. Reporting points have been built into the timelines, to ensure that the CMS Scientific Council remains appraised of the Arabian Sea Humpback Whale initiative progress.

Arabian Sea Humpback Whale Concerted Action Plan: Timeline

Activity	Year 1 (2020)	2021	2022	Expected milestone achieved	CMS reporting points
Addressing knowledge gaps					
The development of a marine mammal reporting **smartphone App** and citizen science tools, to allow the crews of fishing, coast guard and whale-watch vessels and ferries to record and report whale and dolphin observations.	Development	Testing in 2-3 range states	Use throughout range states and further - collected data contributes to Conservation Plan	December-20	Progress reported to CMS Scientific Council Sessional Committee 2021
Collaborative **boat-based research** to continue photo-identification studies, collect genetic samples, and identify critical habitat. The involvement of local scientists in this research will build capacity for future conservation in the region.	Research in Oman and India	Research in Oman and India and Iran	Research continues- data used to draft Action Plan	December-21	
Use of **passive acoustic recorders** to detect the presence of whales and monitor human introduced noise in areas that are logistically difficult or dangerous to survey.	Units placed off coasts of Pakistan and India	Units continue to collect data, analysis begins	Acoustic data used to identify areas of focus for mitigation measures in Action plan	December-21	
Genetic analysis of samples collected from strandings and during dedicated whale surveys to determine whether Arabian Sea humpback whales taxonomic identity and evaluate connectivity range-wide	Sample Collection	Sample analysis	Results of genetic analysis applied to Action Plan	December-20	
Information sharing and awareness raising					
The development of a **regional shared online data platform** to promote standardization, comparability and timely analyses of data collected throughout the region. This will be used to facilitate the creation of sensitivity maps and assist stakeholders in the design of local, national and regional conservation strategies, including protected areas	Development and upload of data from Oman, Pakistan and India	Testing and upload and analysis of data from other range states	continual contribution of data from range states and results of analysis used in development of Action Plan	December-20	Progress reported to CMS Scientific Council Sessional Committee 2021

An improved **website** that provides a portal to the shared database (see above), informs the general public of whale conservation needs, and provides members with a range of **outreach tools** to engage governments and other stakeholders in their region and involve them in Whale conservation efforts	Linking of website to Online data platform, dissemination of infographic	Development of outreach tools for fishing communities	Continual update of website and translation and dissemination of tools as part of Action Plan communication strategy	December-21	
Capacity building and development and implementation of mitigation strategies					
Organization of targeted **regional workshops, meetings and training** opportunities that will involve local and national government agencies as well as young scientists, build capacity and develop multi-stakeholder mitigation strategies and conservation measures in key range states.	IWC disentanglement workshop in Pakistan, India	Meeting of ASWN team in conjunction with Indian Ocean meeting in Maldives	Meetings to draft and launch Action Plan	December-20	Progress reported to CMS Scientific Council Sessional Committee 5 (likely mid 2022)
Replication of ship strike mitigation strategies from Oman, and by-catch mitigation from Pakistan to other parts of the Arabian Sea.	Workshops in Oman Pakistan to demonstrate and train other range states	Implementation of programme in other range states and data contributions	Evaluation of programme effectiveness and use of data to draft plan	July-21	
Development of a range state endorsed regional ASHW Conservation and Management Plan	Identification of drafting team	Collaborators correspond regularly	Draft completed by July 2020 , refined and endorsed by range states December 2020	December-21	

References

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