Statement in support of CMS resolution "Conservation Implications of Cetacean Culture"

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We write in support of the initiative to bring advances in knowledge concerning the influence of cultural transmission and complex social structure on the behavioural biology of not only cetaceans but of other species within the purview of the CMS. One of us (HW) is a University Research Professor, and has been researching cultural transmission in cetaceans since 1998, the other (LR) is a lecturer funded by the Marine Alliance for Science and Technology in Scotland, who has been studying these issues since starting a PhD with HW also in 1998. In 2001 we published together the first review of the evidence in cetaceans for cultural transmission¹ – by which we mean the acquisition of knowledge through learning from other individuals (rather than carrying it in genes). This article has since been cited by other scientists 297 times, more than 99% of behaviour papers published the same year. It has helped broaden the study of cultural transmission in animals beyond the investigation of the primate origins of human culture, and started to change the way whale and dolphin behaviour is understood. At the time, over a decade ago, we concluded that the evidence for cultural processes in cetaceans was strong - this evidence has since only become stronger. We also realised early on that understanding the huge influence cultural transmission had on cetacean behaviour would have conservation implications², because behaviour mediates almost all interactions these animals have with humans.

Since then, we have seen evidence accumulate on how new foraging behaviours³, some of which involve fishery interactions⁴, are spread by cultural transmission. We have begun to understand how the fact that some individuals in a population are more knowledgeable than others, or have specific social roles, means that not all deaths are equal within a small cetacean population, since the loss of these individuals and their knowledge can have disproportionately large impacts on those left behind⁵. We can understand certain behaviours that appear suddenly not as some new response to an unseen threat but as ephemeral fads, resulting from rapid cultural transmission rather than the expression of a previously unknown instinct². We are starting to understand how cultural transmission can sometimes increase the behavioural flexibility, and by implication the resilience, of populations faced with new human activities⁶, but also how cultural conservatism can produce adverse effects, such as reluctance to re-occupy habitat⁷. New research has broadened the spatial scales at which we see cetacean culture operating. Cetacean cultures typically operate across national boundaries, and that of the blue whales is global⁸.

Cultural transmission in cetacean reaches to the heart of CMS's purpose, as more evidence emerges that migration routes between the locations of feeding and breeding grounds are part of the core knowledge whales pass onto their offspring⁹. The knowledge is not held in the species genome, but passed on by learning to each new generation – meaning it can be easily lost, and very difficult to recover¹⁰. Range recovery cannot be guaranteed once particular habitat knowledge is lost, which means keeping that knowledge alive, even in only a handful of individuals, may be crucial.

Our knowledge has not just expanded with respect to cetaceans however, since our colleagues in other fields have in the last decade and a half learned about how the knowledge embodied in elephant matriarchs is central to the prosperity of their bond groups^{11,12}, how cultural norms influence primate behaviour¹³, and how birds like New Caledonian crows construct tools that show evidence of a cultural history¹⁴. Scientists continue to debate what our new knowledge about animal culture means for our understanding of human culture, the most extraordinary example of the phenomenon on the planet. But there has been a unidirectional movement in the last fifteen years toward acceptance of the crucial role of culture in the lives of many non-human animals, no matter how different in form that culture is to our own. We strongly believe there is now sufficient scientific consensus that the time has come for major international conservation bodies to take this new science on board in developing effective conservation strategies, and so we whole-heartedly endorse the proposed resolution.

References

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