Study: 17K marine species unprotected

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supporting formal marine protected areas (MPAs) that could safeguard marine biodiversity.

The study, which is the first comprehensive assessment of protected areas coverage on marine life, appears in the international journal *Scientific Reports*. Authors include scientists from University of Queensland, the Australian Research Council Centre of Excellence for Environmental Decisions (CEED), UC Santa Barbara, the National Center for Ecological Analysis and Synthesis, Imperial College London and the Wildlife Conservation Society.

The authors looked at the ranges of some 17,348 species of marine life, including whales, sharks rays and fish, and found that 97.4 percent have less than 10 percent of their range represented in marine protected areas. Nations with the largest number of "gap species" or species whose range lie entirely outside of protected areas include the U.S., Canada, and Brazil.

Despite these dismal results, the authors say the study underscores opportunities to achieve goals set by the Convention on Biological Diversity to protect 10 percent of marine biodiversity by 2020. For example, the majority of species that were considered very poorly represented (less than two percent of their range found in marine protected areas) are found in exclusive economic zones. This suggests an important role for particular nations to better protect biodiversity.

"The process of establishing MPAs is not trivial as they impact livelihoods. It is essential that new MPAs protect biodiversity whilst minimizing negative social and economic impacts. The results of this study offer strategic guidance on where MPAs could be placed to better protect marine biodiversity." said the study's lead author Dr Carissa Klein of the University of Queensland and CEED.

The authors say that it is imperative that new MPAs are systematically identified and take into account what has already been protected in other places, in addition to socioeconomic costs of implementation, feasibility of success, other aspects driving biodiversity.

"The increase in the number MPAs in recent years is encouraging, but most of this increase has come from a few very large MPAs," said Dr. Ben Halpern of UC Santa Barbara and NCEAS. "Those very large MPAs provide important value, but they can be misleading in thinking that biodiversity is being well protected because of them. Species all around the planet need protection, not just those in some locations. Our results point out where the protection gaps exist."

Said co-author Dr. James Watson of WCS and the University of Queensland: "As most marine biodiversity remains extremely poorly represented, the task of implementing an effective network of MPAs is urgent. Achieving this goal is imperative for not just for nature but for humanity, as millions of people depend on marine biodiversity for important and valuable services."

More information: Carissa J. Klein et al. Shortfalls in the global protected area network at representing marine biodiversity, *Scientific Reports* (2015). DOI: 10.1038/srep17539

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