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Archimer
<http://archimer.ifremer.fr>**The True Challenge of Giant Marine Reserves—Response**

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A recent News Focus (1) misrepresents several aspects of the potential role of large marine reserves in conserving pelagic species, three of which are addressed here. Tropical tuna stocks in the Indian Ocean are described as “depleted”, implying that they are severely overexploited (2). Fishery overcapacity is certainly worrisome, but the available scientific evidence demonstrates that these stocks are not currently overexploited (3). While this clarification by no means precludes appropriate use of area-based management, stock status is central to weighing different management options.

The claim that “mainstream marine biologists are more optimistic” about the efficacy of the Chagos Islands reserve because “tuna there don’t necessarily swim vast distances” is also misinformed. We note that: 1) juvenile tuna are rarely caught in the Chagos, indicating that Chagos tuna originate elsewhere (4, 5); 2) an Indian Ocean mark-recapture project (6, 7) found average juvenile tuna displacements of over 1150 km, exceeding distances observed in other oceans (4, 6); and 3)

“mainstream” scientists with significant publication histories have recently authored independent modeling studies integrating habitat variability and observed movement rates showing that Chagos-sized reserves have little impact on tuna populations(8, 9).

Finally, monitoring is a major challenge, but the example provided – Chagos-only camera surveys – is highly unlikely to identify reserve effects. Control sites and reliable fish movement data are necessary, but will require much larger surveys. Without these, it will be impossible to unequivocally identify as reserve effects observed trends that may well be due to other changes in fishing activity, such as Somali piracy impacts(10, 11) and the Indian Ocean time-area closure(12).

Decisions to create large oceanic MPAs for managing pelagic species should use evidence-based evaluations of potential benefits prior to implementation followed by careful estimation of their efficacy rather than relying on square kilometers tallies(13). That is the true “challenge” of giant marine reserves.

References:

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