Australian Marine Parks Management Planning Comments
Department of the Environment and Energy
Reply Paid 787
Canberra ACT 2601

19 Sep 2017

Dear Ms Sally Barnes

With respect to your request for comments on Australian Marine Parks (AMP) Draft Management Plans, I am writing to update you on recent studies that were not available when planning the AMP network. These studies indicate that the current zoning system is badly flawed because it is based on an incorrect assumption: that sustainable fishing practices have little biodiversity impact and thus should generally be allowed within AMPs.

I have just led a continent-wide fisheries-independent survey of populations of large fishes at 533 sites distributed around Australia, which indicates that the biomass of large fishes is declining rapidly outside MPAs (by 21% over the last decade), regardless that fisheries for these species are suggested to be world's best practice (see attached manuscript, in review). Over the same period, Australian wild fisheries catches declined by 31% across 213 stocks reported by ABARES. The biomass of large fishes is not declining in no-take MPAs, indicating that this management strategy is effective in safeguarding biodiversity values related to large fishes and associated ecosystem functions.

In our paper, we identify a number of potential reasons for ongoing declines in fish biomass and fish catches:

- Little or no catch or discard data are available for most species affected by fishing, including species caught as bycatch, or which are difficult to identify to species level and grouped in logbooks, for analysis or reporting
- Little or no fishery-independent data are available on populations trends
- Comparable no-take scientific reference areas are rarely available for analytical partitioning of the contribution of fishing to declining stocks relative to impacts of climate change or other broad-scale pressures
- Detailed stock assessments are too expensive for widespread application, so are generally applied only in a few high value fisheries
- Assessments are generally conducted using an black box approach that precludes replication and independent scrutiny

- Models generally ignore interspecific interactions, regardless that fisheries are increasingly framed within ecosystem-based management systems
- Models and quota setting processes are rarely subjected to independent audit or scrutiny, and are held from the public domain
- With changing climate, models extrapolate outside known environmental bounds
- Technological improvements that incrementally alter fishery characteristics and increase capture efficiency, biasing catch-per-unit-effort calculations, are often ignored in models
- Fishery metrics used for reporting frequently change through time, complicating longitudinal comparisons
- Decisions prioritise short-term catch maximization over precaution
- Modellers and managers both tend towards optimism when dealing with uncertainty
- Decisions in co-managed fisheries are generally made by committees dominated by industry-aligned members
- Scientists with ecological expertise contribute little to committees and decisions
- Benchmarks (e.g. total allowable catch) are often set at irrelevant levels
- Lessons learnt from poor decision-making can be obscured by revisionary history
- Large-bodied individuals of target species are deliberately fished down as a specific management goal, contrary to ecological sustainability goals
- Wider ecosystem effects of fishing are overlooked

The second recent study involves an analysis of coral reef data worldwide on differences in fish biomass between no-take MPAs, open fishing zones, and MPAs with particular sets of restrictions on fishing (attached manuscript by Campbell et al entitled “Fishing gear restrictions provide intermediate biomass gains for coral reef fishes in the absence of no-take MPAs”). This analysis indicates that allowing any types of fishing compromises biodiversity values, although impacts for line fishing are less than when additional fishing gears are allowed. Locations that allow fishing gears additional to lines, such as spearfishing as proposed for Habitat Protection Zones in the AMP network, generate biodiversity outcomes indistinguishable from fished areas. Basically, very slight fishing pressure is sufficient to remove the large biomass species (e.g. sharks, groupers, emperors) from reef ecosystems (as also evident in Edgar GJ, et al. (2014) Global conservation outcomes depend on marine protected areas with five key features. Nature 506:216-220).

This second paper has been accepted for publication in the journal “Conservation Biology”, but with a minor change in title from the copy provided here (to “Fishing-gear restrictions and biomass gains for coral reef fishes in marine protected areas”).

Given the above and other relevant scientific studies, it is now evident that the proposed Australian Marine Park network has virtually no conservation value. Extensive no-fishing zones are required to safeguard biodiversity heritage values, particularly in the continental shelf and upper slope regions where threats are most intense, and where no-take zones have almost completely been excluded from the AMP network.

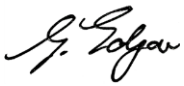
For the AMP network to be an effective conservation tool, sufficient no-fishing National Park Zones (IUCN II) are needed to encompass a representative selection of shelf, upper slope and offshore reef regions. Further, the Habitat Protection Zones do not represent high conservation areas (and

thus should not be labelled IUCN IV) as they are unlikely to result in detectable conservation benefits.

I believe that I have some authority to comment on these matters. My expertise is recognised internationally to the extent that I was the sole speaker invited to address OECD Ministers of the Environment at their four-yearly summit held in Paris, France (28-29 Sep 2016) on the topic of "Effective Management of Marine Protected Areas" (http://www.oecd.org/environment/ministerial/agenda/).

I have attached the two manuscripts discussed here. Could you please keep these documents confidential until published, as one is currently in journal review and the other in press. Editorial policy is to embargo public distribution of content until published online (which should happen anytime for the Conservation Biology manuscript).

Best regards



Graham Edgar

Prof Graham Edgar

Institute for Marine and Antarctic Studies (IMAS)
University of Tasmania
Nubeena Crescent, TAROONA TAS 7053
Mail: University of Tasmania, Private Bag 49, HOBART TAS 7001
T +61 427 811 699
imas.utas.edu.au