



***Capacity shortfalls and performance of
Marine Protected areas***

Jonas Geldmann

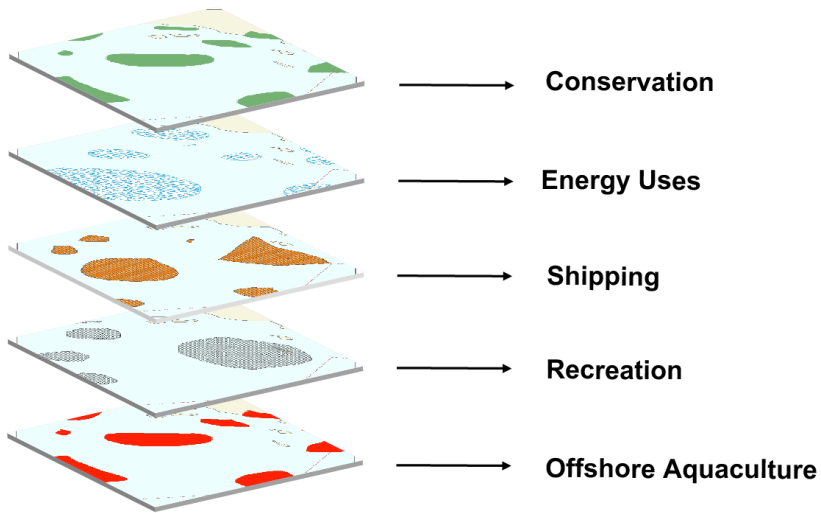
Capacity shortfalls hinder the performance of marine protected areas globally

David A. Gill^{1,2†}, Michael B. Mascia³, Gabby N. Ahmadi⁴, Louise Glew⁴, Sarah E. Lester⁵, Megan Barnes^{6,7}, Ian Craigie⁸, Emily S. Darling⁹, Christopher M. Free¹⁰, Jonas Geldmann^{11,12}, Susie Holst¹³, Olaf P. Jensen¹⁰, Alan T. White¹⁴, Xavier Basurto¹⁵, Lauren Coad^{16,17}, Ruth D. Gates¹⁸, Greg Guannel¹⁹, Peter J. Mumby²⁰, Hannah Thomas²¹, Sarah Whitmee²², Stephen Woodley²³ & Helen E. Fox^{4,24}

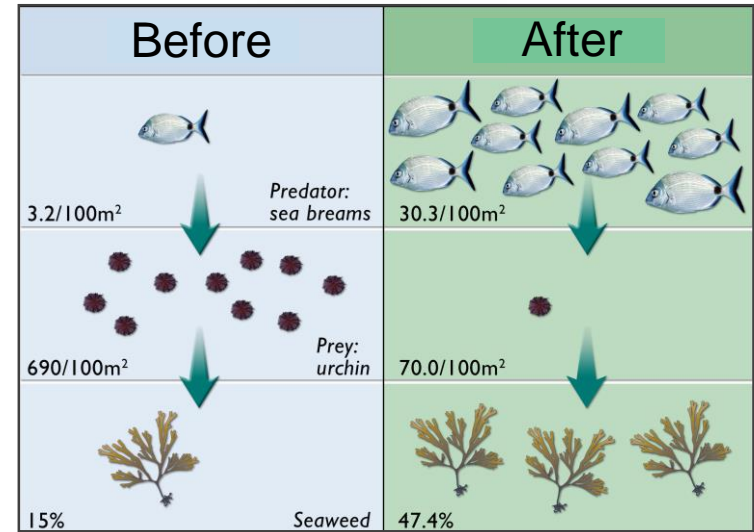


Effectiveness of protected areas

Planning



Performance



The important stuff

Most of the MPAs had ineffective and potentially inequitable management processes

Ecological performance strongly correlated with available staff and financial capacity

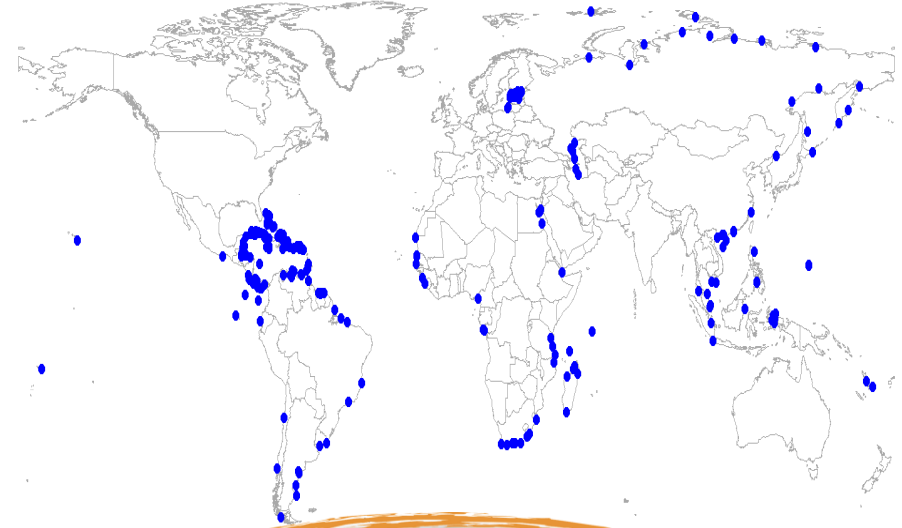
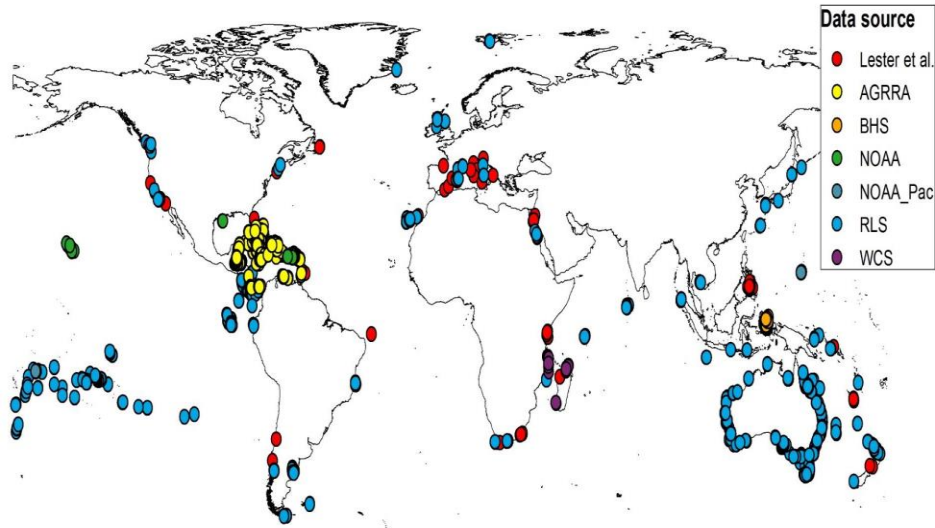
Our ability to assess effectiveness depends on understanding what would have happened in the absence of protection



Protection as a treatment



Data coverage



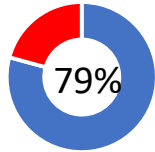
16,000 fish surveys
218 MPAs

Management
433 MPAs

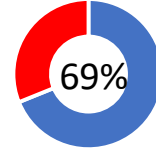
Overlap: 62 MPAs



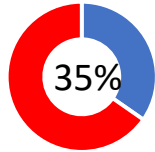
We are not there



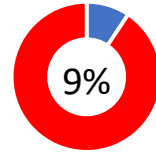
Legally gazetted



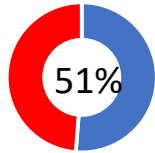
Appropriate regulations



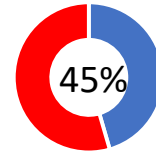
Acceptable budget



Adequate staff capacity



Direct stakeholder involvement



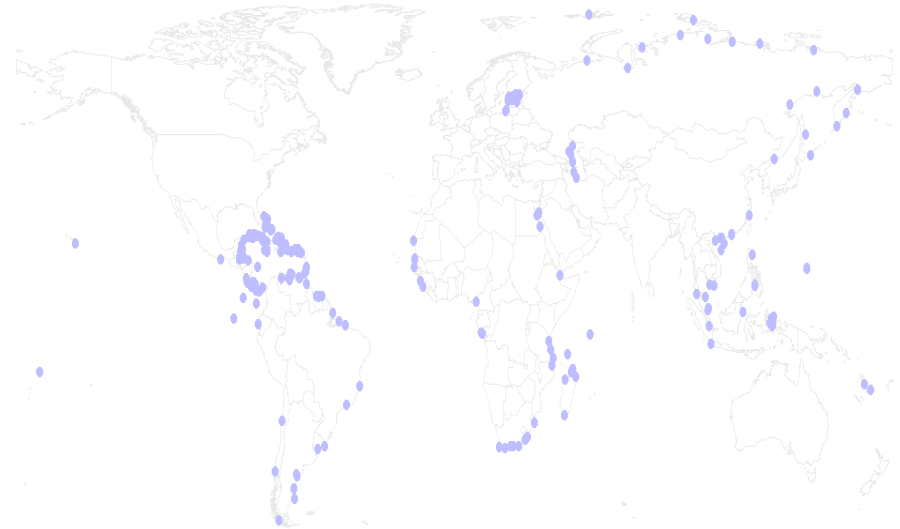
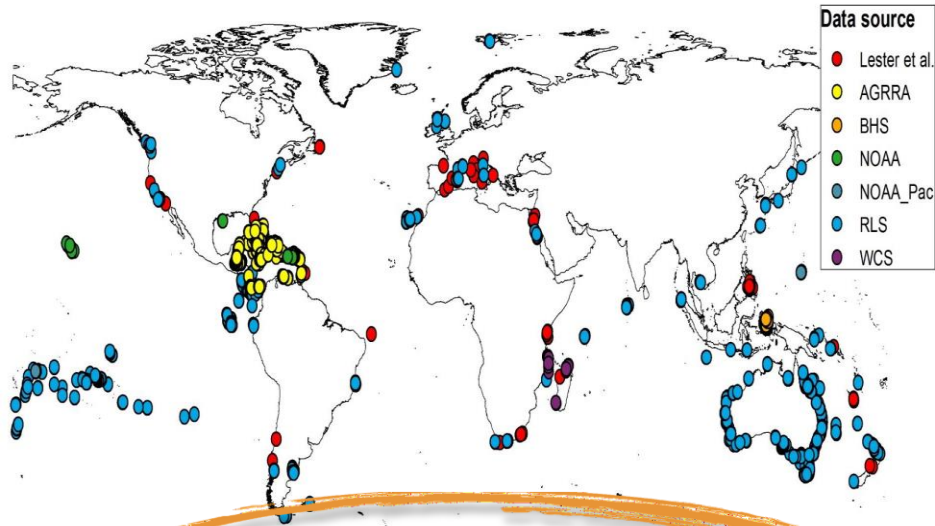
Acceptable enforcement cap.

Blue = adequate

Red = inadequate



Data



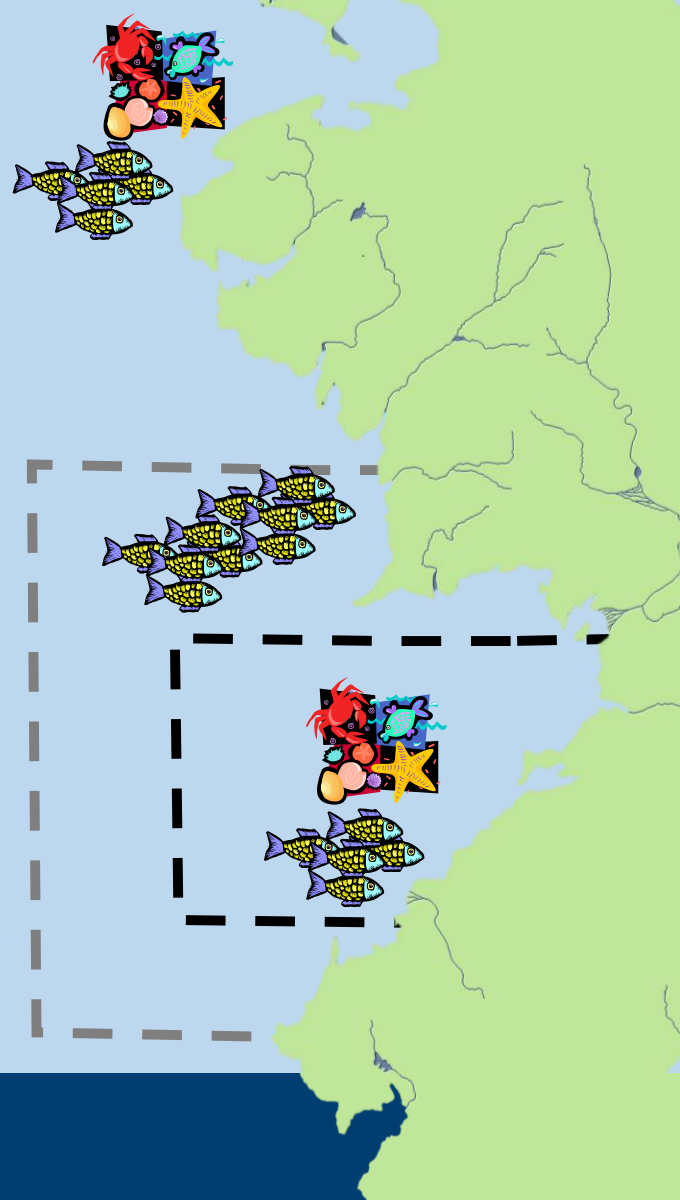
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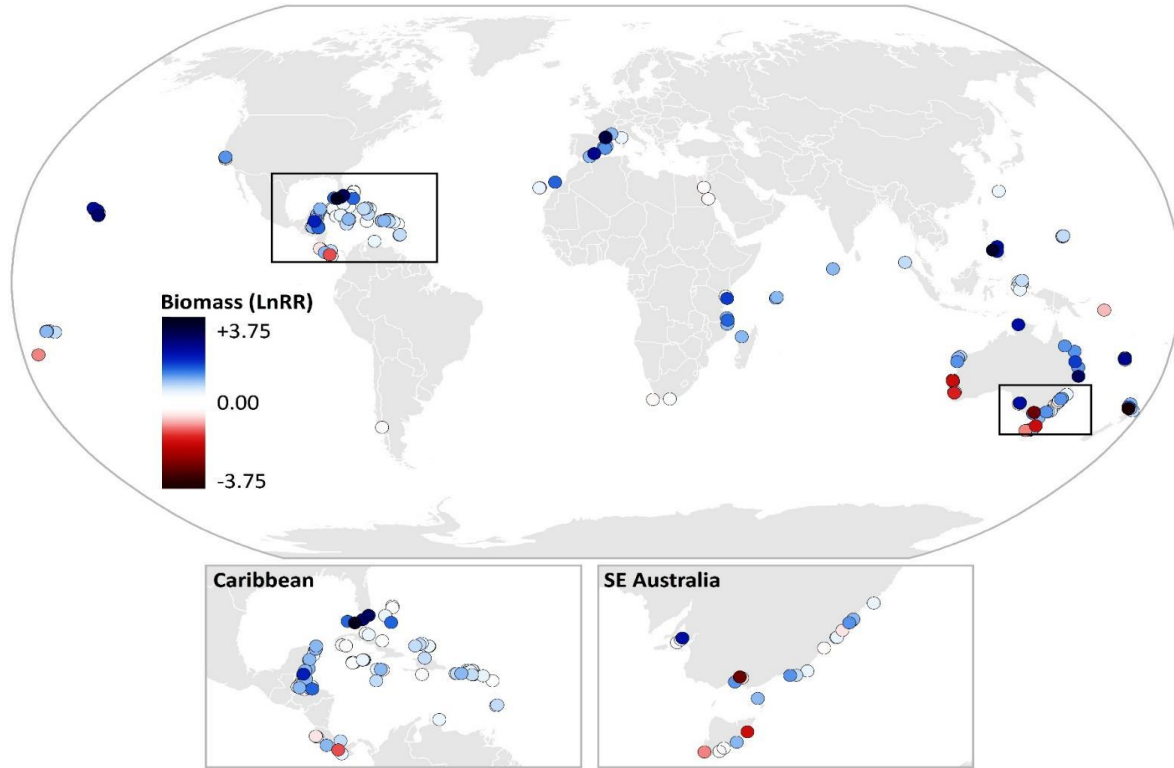
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BACI vs. counterfactuals

1. Protected areas are not located at random
2. Context influence baseline and performance



Most MPAs are doing better than outside!

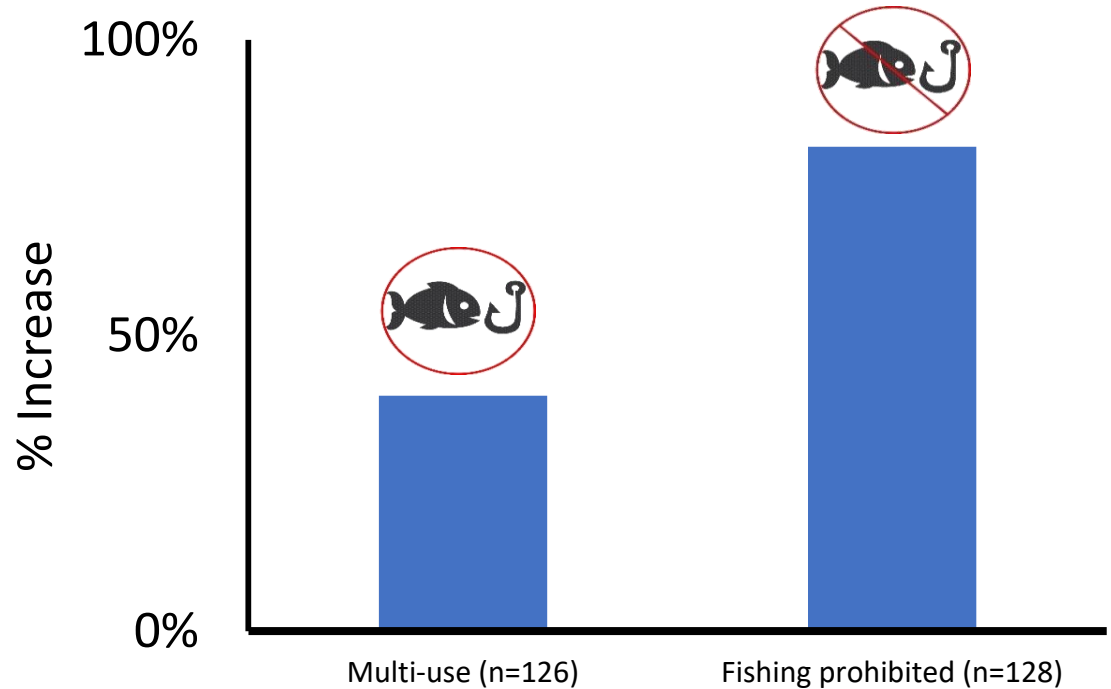


- Positive (blue) MPA better than *matched* outside
- Zero (white) MPA same as *matched* outside
- Negative (red) MPA worse than *matched* outside



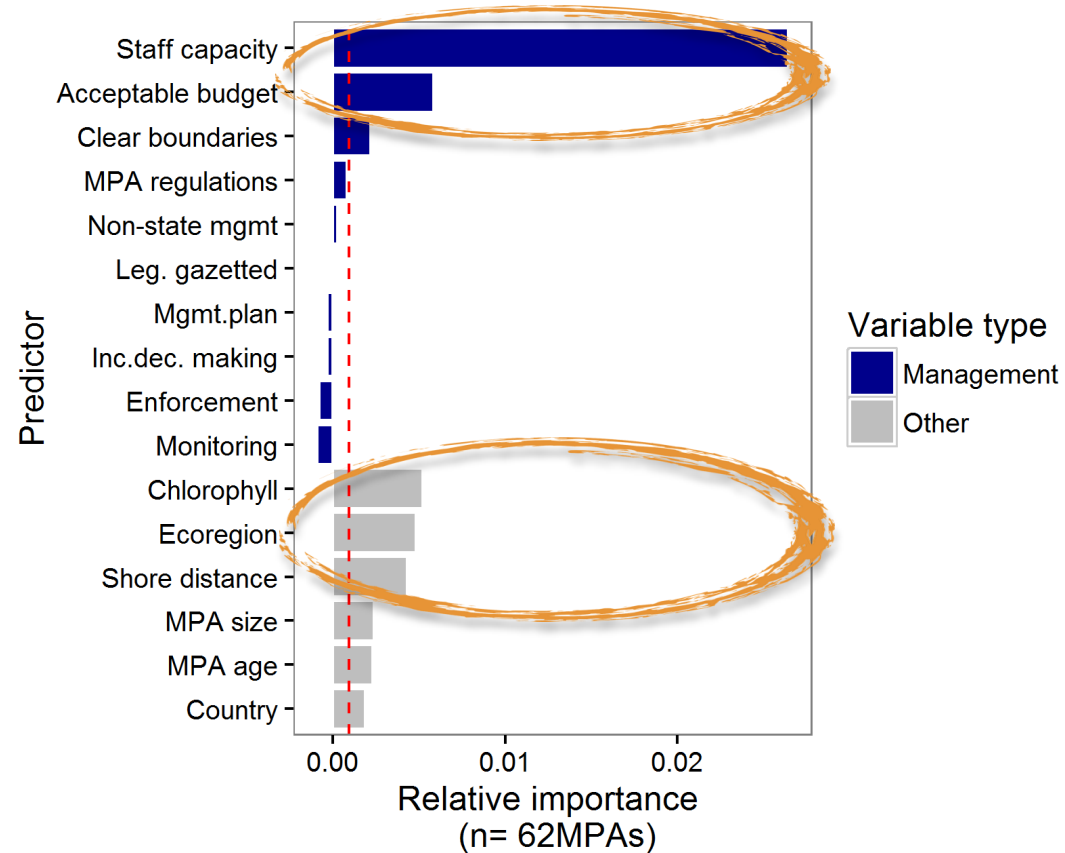
Predictors of outcome

- Both no-take and multiuse MPAs were better than outside
- *But* no-take were best



Predictors of outcomes

- Adequate Staffing followed by budget were most important predictors
- Also chlorophyll (waves), geography and distance to shore were important



Perspectives

- Most of our MPAs are lacking the essential management component needed to secure their performance
 - *When resources and staff is present they make a difference*
- If we want to understand if our MPAs are working we need to measure outcomes
 - *This require baseline data and/or measures in comparable outside setting*





RESEARCH & INNOVATION

Marie Skłodowska-Curie actions



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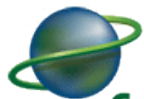
Thank you



UNEP



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INVESTING IN OUR PLANET



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