

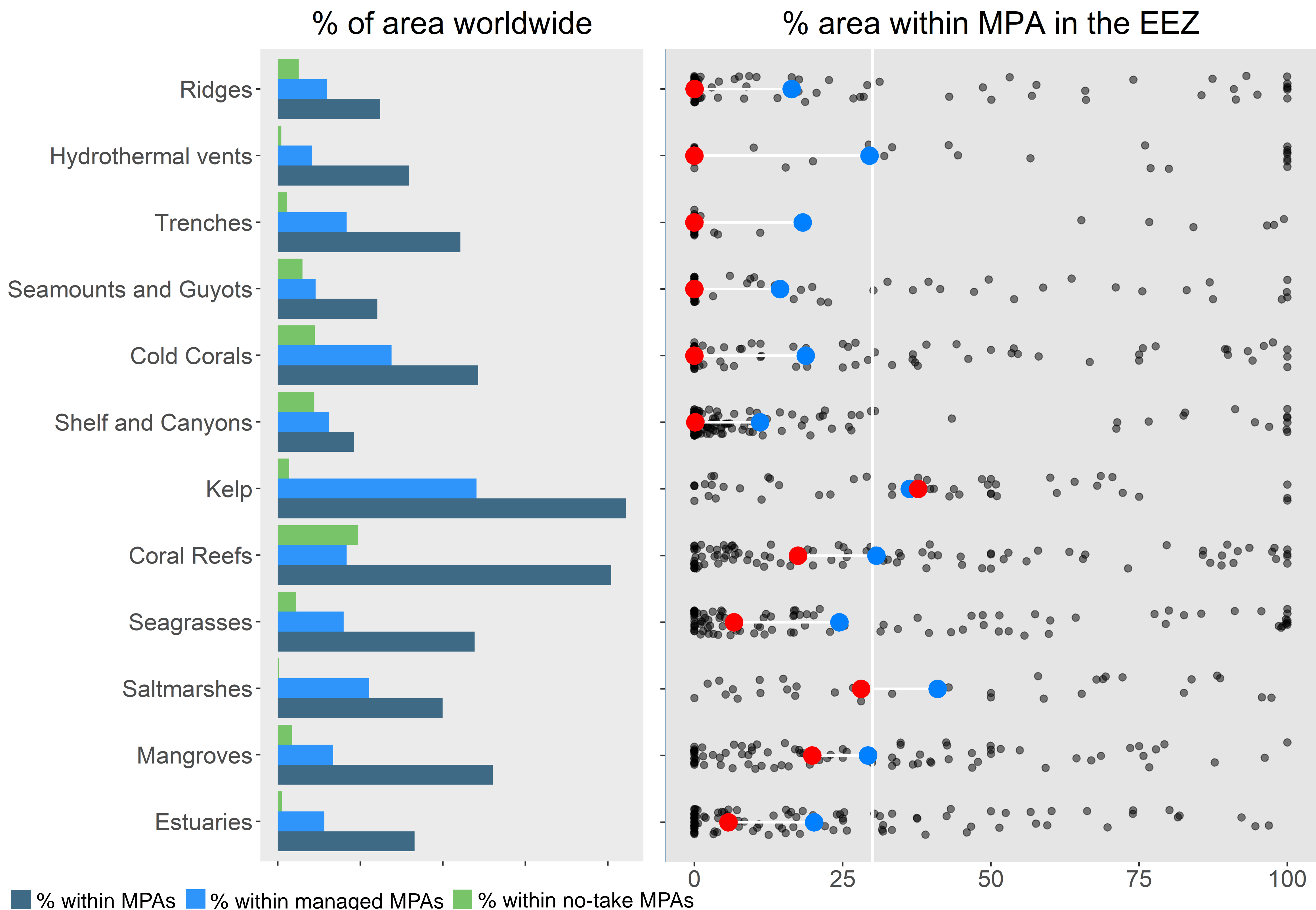
The “Effort Gap” metric: Assessing Countries’ uneven conservation effort towards habitats and biodiversity protection

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Abstract

The establishment of Marine Protected Areas (MPAs) have become a common conservation measure worldwide. The percent of global marine area protected is used an indicator to assess progress toward habitat protection, but this indicator does not consider the nuances of the distribution of these protected areas. **Here, we propose a novel indicator to evaluate conservation efforts across marine habitats by using measurements of central tendency, the mean and the median, to describe the percentage of habitats protected globally.** The gap between these measures highlights the differences in effort countries put towards habitat protection, we define this as the Effort Gap. We discovered that there is an uneven distribution in conservation efforts. In all the habitats assessed there is a large Effort Gap revealing how even though some countries are contributing towards achieving a “total conservation target”, the majority of countries are under-performing. **Additionally, we found that biodiversity is not a significant factor in predicting MPA coverage and the wealth of the country (GDP) is a weak predictor of MPA area.** Overall, a solution to fill this Effort Gap is for wealthier countries to cooperate with, and compensate for, less wealthy countries. To reach international goals and properly protect habitats and biodiversity strong international cooperation through capacity building, financial support, and creation of economically viable alternatives for employment are urgently needed.

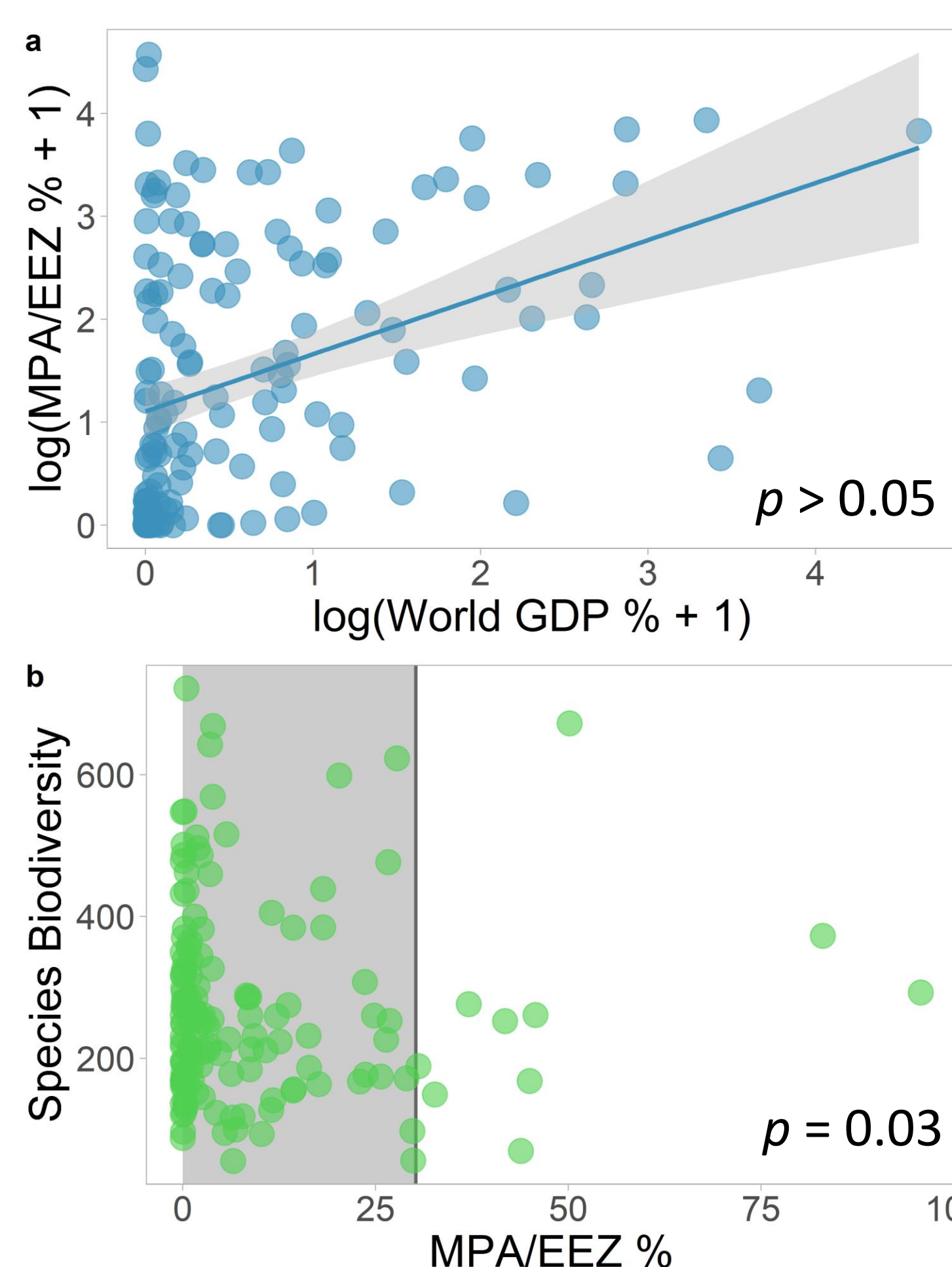
Protection Results



Research Questions:

1. What percent of twelve key marine habitats are within protected areas?
2. What is the distribution of marine conservation effort between countries?

Biodiversity and GDP Results



Methodology

Data Selection

- UNEP-WCMC March 2020 Marine Protected Areas Dataset
- 12 Habitats:
 - Global spatial data layer
 - Sufficient scientific recognition
- EEZ / Land Combined Boundaries
 - Sala et al. 2018 supplementary data
- Biodiversity is from Reygondeau et al. 2019

Spatial Analysis (ArcGIS Pro)

- Converted all datasets into 1km rasters
- Counted pixels of each habitat for
 - Protected areas
 - Country

Effort Gap Analysis (R)

- Calculated the mean and median of the % of protected habitat across countries
- Linear Regression for GDP and Biodiversity

Conclusion

- Perspective: Country not Global
- Representative biodiversity protected
- Increase No-take protection
- “Fair” distribution of protected areas
- Strong International cooperation to reach goals and build capacity

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2. Rogers A, Aburto-Oropeza O, et al. 2020. Critical Habitats and Biodiversity: Inventory, Thresholds and Governance. Washington, DC: World Resources Institute.

