Ocean Evidence Gap Map & Synthesis (2022-2023)

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Background

- Evidence Synthesis is a growing field to take the studies that have been done and summarize the interventions and outcomes so decision-makers can make evidence-informed policies and researchers can direct resources to where there might be gaps in the field and where more studies are needed.

- Funding and attention to conservation interventions for ecological and socio-economic development has increased, particularly in tropical coastal marine ecosystems (TCMEs) due to their biodiversity, population growth and vulnerability, but incorporating this evidence into decision-making has been difficult.

- This study takes a systematic mapping approach to identify and 'code' articles that examine the ecological and social outcomes associated with conservation interventions in TCMEs; specifically in coral reef, mangrove, & seagrass habitats.

- As this project has continued it came to light that the coding was inconsistent so our team spent time doing quality assurance/quality control work to ensure that the final map would be a good resource.

Research Question & PICO

What are the social and ecological impacts of conservation interventions in tropical coastal marine ecosystems (TCMEs)?
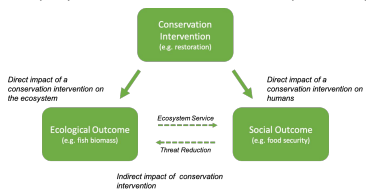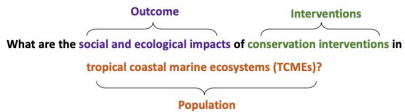
Our research examines literature that focuses on the following four elements or PICO.

PICO stands for…

Population – tropical coastal-marine habitats

Intervention – conservation interventions

Comparator – a counterfactual scenario for comparison

Outcome – ecological or social outcomes

Methods

- Search Strategy: A comprehensive search string was created to search the literature for all potentially relevant studies. We searched four literature databases: Web of Science, Scopus, CAB Abstracts, and Aquatic Sciences and Fisheries Abstracts for articles. All articles identified were compiled.

- Eligibility Criteria: Articles must include all elements of our PICO, must be English-language, must be peer-reviewed, must have appropriate study design.

- Screening: Due to the large volume of articles, a 10% random sample was screened for this project. Articles were first screened at the title and abstract level using Colandr, a machine learning program that aids in evidence syntheses. Articles were then screened at the full text level by two independent screeners. If all eligibility criteria were met, the articles then had data extracted.

- Data Extraction: Data such as bibliographic information, general study information, intervention information (e.g. restoration), and outcome information (e.g. ecological or social outcomes) from all eligible articles were extracted.

Results
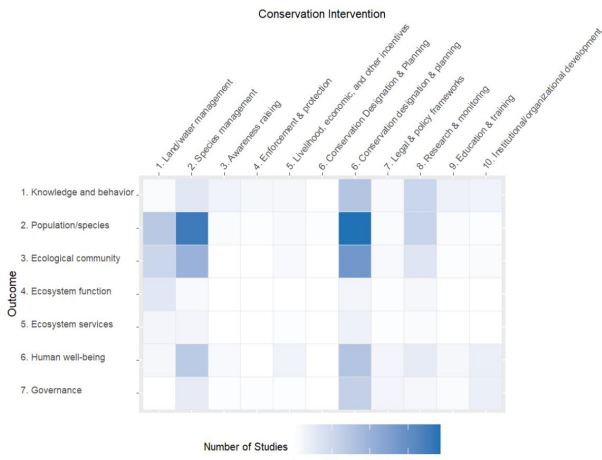
This is a gap map from the current version of the evidence synthesis, as it is still in progress this gap map is biased towards ecological outcomes.

Results cont.

- Our work is still in progress, but thus far we have seen that papers discussing ecological outcomes are highly represented compared to others—this could be bias, given the ongoing research.

- In addition, we saw trends in article clarity by type of interventions and outcomes, and there, too, ecological impacts were better represented.
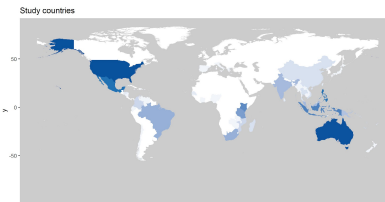
This map represents where the studies were conducted and is from a prior version of the evidence synthesis.

Challenges

- Broad Scope: The research encompasses interventions in three distinct tropical ecosystems, namely mangroves, seagrass and coral reefs, thereby creating a broad scope that requires extensive coverage.

- Issues with Screenings: The data collected during initial screenings, along with the causal and linkage relations established, were found to contain errors. This necessitated re-doing the screening to correct the errors.

- Difficulties in Finding Causal-Linkage Relationships: The papers reviewed have different contexts, interventions, and outcomes, making it difficult to clearly define causal-linkage. The interventions and outcomes for ecological impacts are more clear compared to interventions and outcomes for social impacts.

- Regular Quality Assurance and Quality Control: Ensuring robust, accurate and reliable data requires consistent quality assurance and quality control measures. However, this process can be time consuming.

References & Acknowledgements