

Creating Effective No-Take Marine Reserves: Systematizing the Steps Needed for Success

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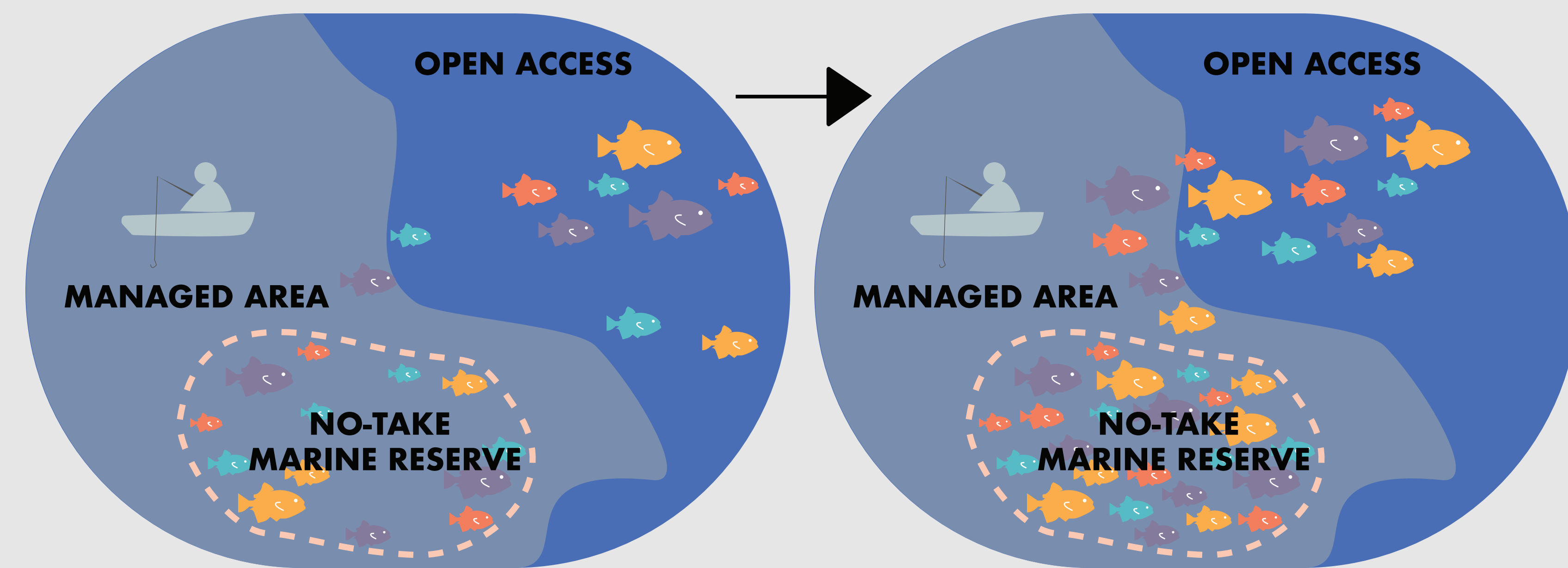
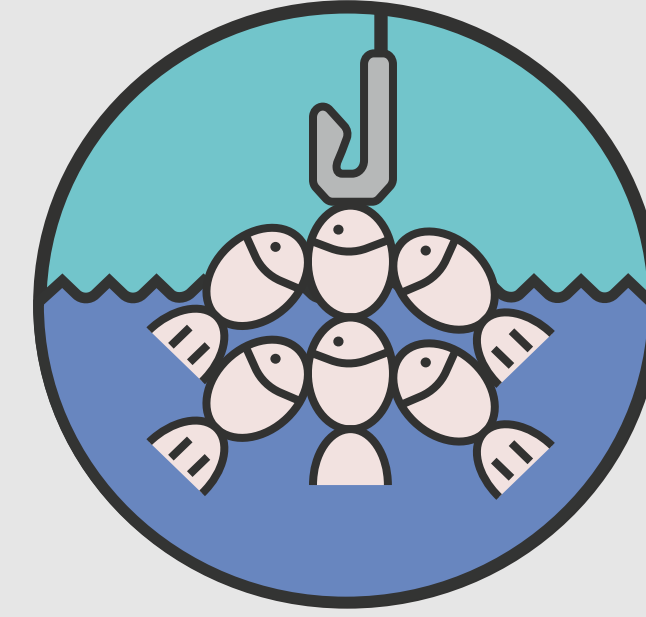
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1 Background

What is a No-take Marine Reserve?

No-take marine reserves are expanses of water that restrict extraction activities, such as fishing, to combat overfishing and habitat degradation. Over the last decade marine reserves have been used as fisheries management tools to mitigate these threats. By limiting use in marine reserves the local ecosystem is able to recover and eventually create benefits such as spillover and increased biodiversity.



What is the problem?

Throughout the world there has been an array of strategies, practices, and design principles that have led to varying success of marine reserves. Currently, there is no easy way to access the insights that can be gained from all these experiments. Our project will make this information accessible by creating a user-friendly web-based hub—streamlining the design process of a no-take marine reserve.



2 Methods

What is the Solution?

Based on literature and the analysis of a case study of marine reserves in Quintana Roo, Mexico, we have synthesized some of the best experiences, knowledge, and tools for implementing a successful no-take marine reserve. We have also created a user-friendly web-based hub that institutions or organizations that want to implement marine reserves can easily access and use.

Analyze and synthesize current marine reserve creation and implementation strategies.



Assess marine reserve process and status in Quintana Roo, Mexico.

Web-based Hub to guide no-take marine reserves design.

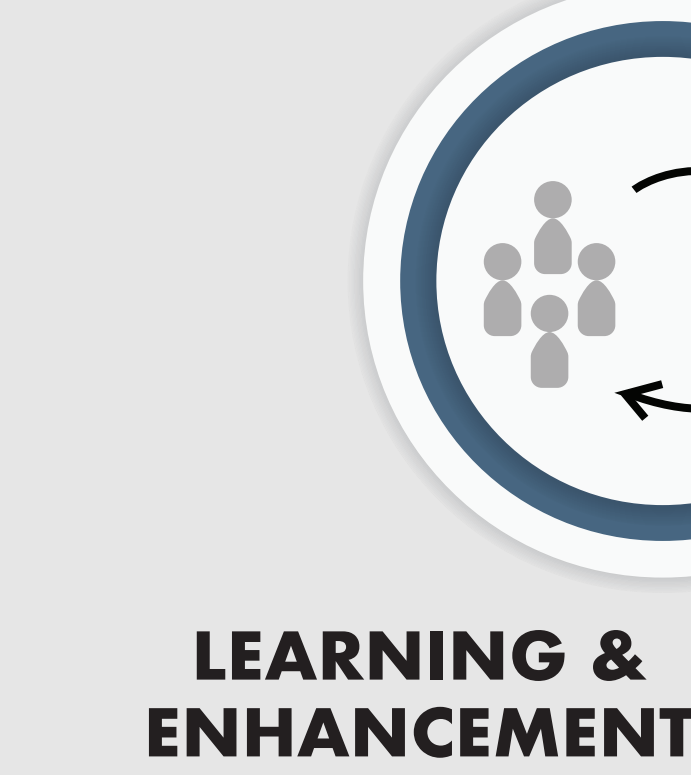


3 Design Approach

LEARNING & ENHANCEMENT: Provide opportunities to exchange knowledge and experience among communities. Identify areas of improvement, where barriers still exist.



ENGAGEMENT: Interact with local communities and assess social structure. Determine needs and create trusted relationships and gather necessary baseline data.



What are the design phases?
We identified a dynamic process that is divided into four distinct phases; Engagement, Creation, Implementation, and Learning & Enhancement.



CREATION: Design the no-take marine reserve through a participatory approach using local knowledge and scientific analyses.



IMPLEMENTATION: Employ monitoring, surveillance, and evaluation methods and apply appropriate financial strategies to overcome short-term costs.

What are the design components?

These phases are then subdivided into four components; ecological, governance, social, and economic. The user is able to easily navigate through the design process knowing what data, tools, and considerations are needed throughout the entire design of a marine reserve.



ECOLOGICAL: The biology and ecology of the target species and the biophysical parameters of the no-take marine reserve. The status and biology of the target ecosystem and/or species will help determine the size, location, duration, and connectivity of no-take marine reserves that are critical to their effectiveness.



GOVERNANCE: The rules, regulations, institutions, and power relationships among actors involved in the process of creating a marine reserve. No-take marine reserves require effective governance supported by legal framework.



SOCIAL: The social structure, needs, and motivations of resource-users and communities directly affected by a no-take marine reserve. Each group of coastal resource users and community is different, and their leadership and organization structures will influence success.



ECONOMIC: The economic strategies that can serve as incentives for resource-users and communities. Parties implementing no-take marine reserves should incentivize the process by: (1) financing the creation of the marine reserve, (2) reducing costs attributable to no-take marine reserves, and (3) enhancing the benefits the reserves provide—in the short and long term.

4 Toolkit Guide

What is a Toolkit Guide?

The user is able to identify what toolkits are available and data are needed for each phase and component of the design process. This helps make the complex design process easier to navigate.

No-take Marine Reserve	ENGAGEMENT	CREATION	IMPLEMENTATION	LEARNING & ENHANCEMENT
ECOLOGICAL				
GOVERNANCE				
SOCIAL				
ECONOMIC				

5 Conclusion

Creating a no-take marine reserve is a dynamic and complex process that requires constant reevaluation of management strategies. Our project incorporates scientific, empirical, and theoretical material supported by associated tools to provide a platform that eases the access to users wanting to adopt no-take marine reserves as a management tool. Our web-based hub ensures users are moving toward establishing successful no-take marine reserves.

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7 References

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