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Developing An Ecosystem Services Framework for Prioritizing and Implementing Surf Protected Areas

PROPOSERS

Sachiko Lamen |MESM 2023 | sachikolamen@bren.ucsb.edu
Conner Smith |MESM 2023| connersmith@bren.ucsb.edu

CLIENT

Scott Atkinson | Project Director, Surf Conservation Partnership
Conservation International | satkinson@conservation.org |808-244-2679

OBJECTIVES

This project aims to design an ecosystem service framework for the planning and implementation of Surf Protected Areas (SPAs) in Costa Rica, Fiji, and Indonesia. The framework will provide a systematic method for prioritizing potential SPA locations and provide criteria for defining their boundaries. This work will enhance current efforts by Conservation International and Save the Waves' Surf Conservation Partnership to promote community-based resource management and conservation of popular surf destinations. Specific objectives include:

1) Assess the social, ecological, and economic benefits associated with surf conservation through a comprehensive review of literature, community surveys and available data.
2) Identify essential differences and similarities between SPA and traditional MPA design and management rationales.
3) Consolidate research and findings into a comprehensive ecosystem services framework for prioritizing SPA locations and defining their boundaries.
4) Utilize framework to assess potential SPA locations in Costa Rica, Fiji, or Indonesia (dependent on client need at the time of project implementation)

SIGNIFICANCE

The Post-2020 Global Biodiversity Framework drafted by the United Nations Convention on Biodiversity outlines the target of conserving 30 percent of the global ocean by 2030.[2] To reach these targets, significant global investment to increase the number and size of MPAs and Locally Managed Marine Areas (LMMAs) is required. The SCP seeks to contribute to these efforts by creating a global network of SPAs.

Surf ecosystems – the land-to-sea interface that creates conditions for breaking, rideable waves, as well as the flora, fauna, and human communities that depend on it[14] – have long been an under-appreciated class of ocean resources. These spaces hold significant value for multiple stakeholders across environmental, economic, social and cultural dimensions.[4, 7] Recent study of internationally recognized surf locations and MPAs found that roughly 26 percent of surf breaks are within a five kilometer radius of a key biodiversity area (KBA), and 63 percent of surf spots are located in areas with no formal protections.[1, 11] This overlap of surfing resources and priority conservation sites presents significant opportunities to protect marine biodiversity and fuel sustainable local economies through the creation of SPAs.

Effective management strategies are needed to ensure that surfing areas are preserved and benefits for both local communities and surfers are maximized. Studies estimate that there are over 34 million people who engage in surfing activities, with global annual surf tourism expenditures estimated between 31.5 to 64.9 billion USD.6 Coastal and marine environments surrounding surf breaks also represent important cultural value to surfing communities.[4, 10]

Protection of surf ecosystems is both ecologically and socially important as millions of people living in coastal communities depend on surf tourism and other marine resources for their income and livelihoods.7, 2 The stewardship of surfing resources is an investment in natural capital that has been shown to yield significant and sustainable environmental, economic, and social returns. While the importance of protecting surf breaks for the present and future prosperity of local communities is clear, these resources are increasingly under threat from human-driven changes to the environment.[5, 12, 13]
Further, policy specifically designed to protect surf ecosystems is rare. The majority of MPA and LMMA designations do not include surfing resources within their protection criteria and management plans.[12] This is a missed opportunity to promote local management of natural capital in a way that benefits both the ecosystem and economy.

To date, the SCP has used the Open Standards for the Practice of Conservation as their framework for developing SPAs.9 However, this planning approach does not sufficiently incorporate surf resources and their

corresponding ecosystem services as a natural resource element to be considered in the conservation planning process. This project will provide SCP with a systematic approach for evaluating surf ecosystems and determining boundaries for SPAs. The approach will consider the spatial distribution of ecological and surf features, as well as the economic, social, and cultural benefits that surf ecosystems provide.

BACKGROUND

Conservation International and Save the Waves' SCP was formed on the basis of a shared understanding of the environmental, economic, social, and cultural value of surf ecosystems. The idea of surf conservation was founded on the belief that surfing could drive broader coastal conservation efforts. It recognizes that surfing communities possess valuable knowledge of the state of coastal environments and a passion for stewardship and activism. Protecting surf ecosystems can yield benefits for conservation, stimulate the blue economy, and safeguard the livelihoods of local communities.

The partnership focuses on three main strategies: Protected Area Creation, Stewardship, and Grassroots Mobilization. The Surf Protected Area Networks (SPANs) initiative looks to systematically SPAs that can operate cooperatively within a variety of legal mechanisms enforced by government officials and local communities. There are currently SPANs in 7 countries with goals to expand to 23 additional countries by 2030. SCP has partnered with Patagonia, A Liquid Future, Surfline, and multiple professional surfers to raise awareness for surf conservation and threats to marine environments.

EQUITY

The ocean is a source of immense economic, social, and cultural value for more than a third of the global population.[7, 2] Coastal communities are often among the most vulnerable to the impacts of climate change and unchecked development. Premier surf locations attract tourists, driving an increased demand for investment in infrastructure and services that does not always prioritize the needs of the local community or environment. Unchecked development can lead to displacement of coastal communities, exacerbate poverty, and deepen both economic and environmental vulnerabilities.[8] SCP is developing a long-term strategy focused on engaging and empowering communities through active participation in conservation planning and long-term management to ensure future prosperity. By designing a framework centered around community values, conservation, and ecosystem services, this project contributes to marine conservation that will directly benefit vulnerable coastal communities.

DATA

This project will make use of the following publicly available data:

- Resilience Atlas (Conservation International): Collection of global data on stressors affecting rural livelihoods, production systems, and ecosystems. Spatial data on biodiversity hot spots, and marine ecosystems.
- World Database on Protected Areas (WDPA): location and extent of MPAs and other effective area-based conservation measures.
- Global Database on Protected Area Management Effectiveness (GDPAME) UNEP-WCMC management effectiveness assessments for protected areas.
- MPAtlas (Marine Conservation Institute): Global data on level of protection/implementation of MPAs

CI will provide the following internal and partner data:

- Surf Features (Liquid Future/Surfline/Wavetrak): database of surf break locations including bathymetric features (shoals, sandbars, reefs, etc.), currents, tidal range, wave type, etc.
- Biodiversity conservation priority areas (KBA Partnership): comprehensive GIS and quantitative data on global biodiversity metrics, ecosystems, environmental stressors, manageability, etc.
- GIS data on national/regional boundaries and jurisdiction
- Surfonomics Reports (Save the Waves): Surf level, influence on visiting, number of visits, average length of stay, environmental concerns, tourism expenditure data.

- Regional Profiles and Surf Conservation Index for key regions where the Surf Conservation Partnership is considering development of SPAs

APPROACH

1) Assess the benefits of SPAs:
    - Analyze scientific literature, community surveys, and interviews with STW CEO, SPAN Manager, and CI SCP Director to identify important features (e.g. clean water) that create a good surf break and assess the ecological, economic, and social impact of protection.
2) Compare SPA and traditional MPA design and management rationales:
    - Conduct a literature review of SPA, MPA and LMMA design and implementation and compare to existing surf conservation initiatives.
    - Categorize unique elements of surf-oriented conservation and risks facing specific features (e.g. reefs, sandbars) that contribute to the creation of rideable waves.
3) Develop prioritization framework:
    - Perform multivariate analysis of surf and ecological features, tourism, environmental impacts, and threat level to inform prioritization model.
    - Assess the performance of existing SPAs based on ecological (e.g. fish stocks, water quality), economic (e.g. tourism), and social indicators (e.g. community feedback) to identify important features of SPAs.
    - Spatial analysis to identify key aspects impacting the success or shortcomings of established SPAs to understand to provide recommendations zoning recommendations.
4) Apply framework to potential SPA sites:
    - Apply framework using combination of analytical and spatial analysis to prioritize candidate sites and determine their boundaries.
5) Strategic Communication Materials:
    - Develop education materials (e.g. brochure) to be disseminated in surfing communities to raise awareness of SPANs and provide information on how to recommend new SPA locations

DELIVERABLES

- Ecosystem services framework that incorporates surf resources as important natural resources to be protected
- Recommendations on a systematic approach for prioritizing and defining the location and boundary of SPAs
- Spatial analysis of potential SPA location(s), identifying key factors in protecting the surf break and surrounding ecosystem and providing recommendations for protected area zoning.
- Communication materials to increase public involvement and raise awareness of SPAs.

INTERNSHIP

Conservation International will provide an internship for Summer 2022 focused primarily on advancing the goals of the group project. The internship will be un-paid, although funding for the position is being requested to provide a stipend that covers travel and living expenses. The internship may be offered remotely or located in Costa Rica, Fiji, or Indonesia dependent on client need at the time of the project's implementation.

BUDGET AND JUSTIFICATION

Conservation International does not anticipate the need for funding beyond the $1,300 from the Bren School.

CITATIONS

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2011 Crystal Drive, Suite 600, Arlington, VA 22202, USA
Tel: +1 703 341.2400
Fax: +1 703 553.4817
www.conservation.org

CONSERVATION INTERNATIONAL

Group Project Committee
Bren School of Environmental Science & Management 2400 Bren Hall
UC Santa Barbara, CA 93106-5131

January 20, 2022

Dear Group Project Committee:

I am writing to offer my support for the group project proposal "Developing An Ecosystem Services Framework for Prioritizing and Implementing Surf Protected Areas." The proposal was written in partnership with the Surf Conservation Partnership (SCP), which is a collaboration between Conservation International and Save The Wave Coalition to greatly expand marine conservation through the power of surfing. The SCP has developed the Surf Protected Area approach to advance the role of surfing in marine and coastal conservation. Similar to how SCUBA diving has been applied as a focal point for marine conservation, surfing is proving to be an incredible rallying point for advancing marine conservation. In Surf Protected Areas, surfing waves serve an anchor and motivator for the conservation of much larger surrounding ecosystems, including reefs, seagrass and mangroves, beaches, and coastal forests.

The SCP has worked with local communities in Indonesia to successfully establish 10 Surf Protected Areas and 15 more are under development. We are also expanding to Costa Rica and Fiji this year. While we have a planning approach that is largely based on the Open Standards for Conservation Planning, we need a more in depth way in which to consider the roll of ecosystem services in determining the boundaries and key interventions of Surf Protected Areas. The work proposed under this project will provide a much needed framework for better integrating consideration of ecosystem services in the Surf Protected Area planning approaches. This will provide a much more robust framework for planning and result in greater conservation and social outcomes as the boundaries and interventions of Surf Protected Areas will be better aligned with and help to protect key ecosystems services that are critical to local communities. The work proposed by this project will contribute to addressing real world conservation needs and will be applied in current and planned Surf Protected Area networks across the globe.

As the client for this project, we enthusiastically commit to provide access to relevant data, as well as necessary consultation and supervision throughout the year-long project in recognition of the mutual academic objectives of the student team. Furthermore, the Surf Conservation Partnership and Conservation International commit to hosting an intern to primarily advance the project over the summer of 2022. This internship will be un-paid, although funding for the position is being requested to provide a stipend that covers travel and living expenses. Regarding all other expenses related to the project, we expect that it will not require more funding than the budget provided to group project by the Bren School. We understand however, that should special opportunities to advance the impact of the project arise, the Surf Conservation Partnership will seek and provide support as needed.

Please don't hesitate to contact me should you need more information.

Sincerely,

Scott Atkinson
Director, Surf Conservation Partnership
Cell: +1 808-224-2679
satkinson@conservation.org
www.conservation.org/surf