Science Without Borders®
Conservation the Tropics

A United Nations Ocean Decade Endorsed Project

Khaled bin Sultan
Living Oceans
Foundation

ABOUT THE PROJECT

The Science Without Borders®: Conserving the Tropics project was established to help address the United Nations Ocean Decade Challenge to "understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions." Our project focuses primarily on conserving tropical marine ecosystems, including coral reefs, seagrass meadows, and mangrove forests, as well as incorporating measurable actions that communities can use to reach their conservation goals.

Conserving Tropical Marine Ecosystems

Tropical marine ecosystems provide food, coastal protection, and income to 1 billion people around the world. But coral reefs are being lost at an astounding rate. In order to address the coral reef crisis, the Khaled Bin Sultan Living Oceans Foundation (KSLOF), the lead partner on this project, embarked on the Global Reef Expedition (GRE), the largest coral reef survey and mapping research mission in history. It involved over 200 scientists who worked closely with coastal communities in 16 countries to assess the state of their reefs at a critical point in time. The GRE resulted in the creation of over 65,000 km^2 of high-resolution coral reef maps, over 16,000 benthic and fish surveys, and hundreds of scientific publications. KSLOF also conducted extensive outreach and education programs to share our findings with communities we worked in and brought ocean awareness to people in nearly every country on earth. But we know there is more to be done.

Providing Science-Based Solutions

To help communities access science-based management solutions, the project will work with local scientists, conservationists, and marine managers to incorporate low- and no-cost products into their conservation plans. Currently, two of the partners on this project, the University of Miami and Pacific Blue Foundation are working with KSLOF, using the data collected on the GRE to develop products that can be easily incorporated into tropical marine monitoring and management plans. The University of Miami, with help from KSLOF scientists, is developing a novel coral reef resilience model that will provide insight into which reefs are most likely to survive in a rapidly changing world. By bringing this model to communities, we can incorporate historic and newly collected local data to guide marine spatial planning and use monitoring information to improve its accuracy. Our partners at the Pacific Blue Foundation have been working to develop CoralNET, a computer-based learning program that allows for fast, accurate analysis of photo transects, a common method used for rapid reef assessments. This program has been trained using data collected on the GRE to provide fast, accurate assessments of benthic habitats. These tools will provide managers with useful data and information that can help communities better manage their coral reefs.

Improving Ocean Literacy

On the Global Reef Expedition, we saw that nearly everywhere we went, there was not only a lack of scientific information, but also a lack of ocean literacy. This was an especially relevant issue in Small Island Developing States (SIDS) and Least Developed Countries (LDC), where coastal communities depend upon their local marine ecosystems for food and income. We have already developed a Mangrove Education and Restoration program that has been implemented in Jamaica in partnership with the Alligator Head Foundation and in The Bahamas. We also developed an online Coral Reef Ecology curriculum that is being used by students and teachers in nearly every country on Earth. The Science Without Borders® project will allow our team and partners to expand these programs and create new ones that target community members of all ages and to raise awareness about science-based conservation. Though helping to raise a new generation of ocean advocates is critical to the longevity of conservation, there is a lack of information being shared at the community level. By reaching all generations, we will be able to inspire conservation action and encourage measurable behavior change that will benefit coastal communities for years to come.

Helping Coastal Communities Preserve their Marine Resources

From our experience, we know that using a co-designed approach is critical in achieving successful conservation, as we saw this first-hand on the Global Reef Expedition. The Science Without Borders®: Conserving the Tropics project will leverage our existing scientific data and outreach programs, and partner with universities, non-profit organizations, governments, and communities to raise awareness and conserve these fragile marine ecosystems. We will not only be addressing the lack of scientific knowledge, but also use outreach programs to improve ocean literacy and influence behavior change in vulnerable coastal communities.

OBJECTIVES

PROTECTING CORAL REEFS, MANGROVE FORESTS, AND SEAGRASS MEADOWS

1. **Identify priority sites for conservation and help communities develop management plans to protect coral reefs, mangrove forests, and seagrass meadows.** Through our previous work, we have strong working relationships with many coastal communities. Our data has been used to establish protected areas in the Cook Islands, Fiji, and The Bahamas. This project will advance this work globally, especially in SIDS and LDCs, by sharing ocean knowledge, incorporating traditional practices, and working directly with community leaders and governments to develop and implement adaptive marine management plans.
2. **Improve ocean literacy of mangroves, seagrasses, and coral reefs.** KSLOF has numerous education and outreach programs that improve ocean literacy, including a coral reef ecology curriculum and a mangrove education and restoration program. This project will support the expansion of these resources into more communities and schools, and expand it for seagrasses, sharing knowledge about the importance of conservation of these tropical marine habitats.
3. **Train communities to use new and existing datasets and technologies to advance ocean knowledge.** KSLOF is working with partners, such as NASA, to develop quality habitat maps and tools. This project will bring these tools to ocean users, teaching them how to apply this knowledge in management and monitoring plans. We will also teach communities how to collect data and use low-cost technologies to monitor changes in their reef landscape. This will empower the communities to use the latest technologies, ocean knowledge, and scientific data in conserving their marine resources.
4. **Inspire conservation action and behavior change.** The program will host meetings, webinars, and visit communities to inspire people to conserve coral reefs, mangrove forests, and seagrass beds. We will work with communities to develop adaptive management plans, catered to each location, and apply new technologies to management and monitoring practices.

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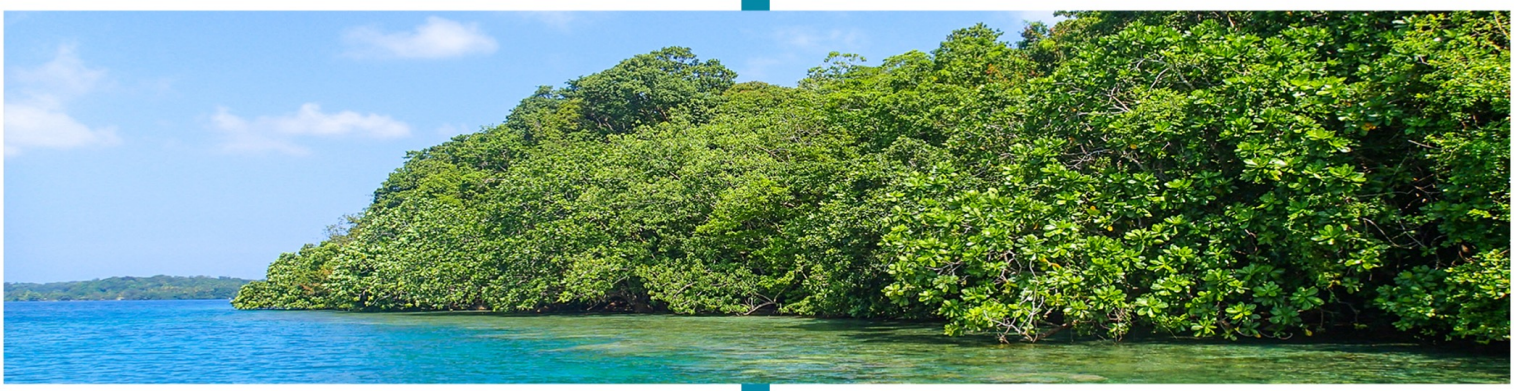

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The Science Without Borders® project brings a co-designed approach to the conservation of coral reefs, mangrove forests, and seagrass meadows. By working closely with in-country partners, this project will engage communities, improve ocean literacy, and use the latest technology to provide science-based solutions to conserve tropical marine ecosystems.

The Khaled bin Sultan Living Oceans Foundation is actively looking for partners to work with us on the Science Without Borders®: Conserving the Tropics project. We are particularly interested in working with local conservation organizations in Fiji, Tonga, Bahamas, and the Red Sea. Join us in our efforts to preserve these critical marine ecosystems— before it's too late.

This project has been endorsed by the United Nations Decade of Ocean Science for Sustainable Development

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

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