

2016

ANNUAL REPORT



Khaled bin Sultan
Living Oceans
Foundation



MESSAGE FROM THE EXECUTIVE DIRECTOR

This past year was a very different year for the Foundation’s staff, it was the first year in many that we were not occupied with field work aboard our research vessel in some far-flung corner of the world. Having completed an intensive five years of field work for the Global Reef Expedition in 2015, it was time to roll up our sleeves for the challenging analytical work ahead. I think the Pareto principle holds true in science, in that if 20% of your effort goes into data collection then 80% of effort is needed for data analyses, producing reports and driving outcomes (in our case that means influencing conservation of coral reef ecosystems).

To assist us in this endeavor, we hired two new staff members. Professor Sam Purkis joined our Foundation as our Interim Chief Scientist. Sam is affiliated with the Rosenstiel School of Marine and Atmospheric Science at the University of Miami and he is no stranger to the Living Oceans Foundation. Sam managed all the remote sensing and habitat map production activities throughout the entire Global Reef Expedition. Renee Carlton also joined the Foundation’s staff in 2016 to manage the production of our final reports for each country we surveyed throughout the expedition. Renee participated in much of the expedition as part of the ocean acidification data collection team. Welcome aboard, Sam and Renee!

Our Education Department had an amazingly successful year conducting mangrove education and restoration projects in The Bahamas and Jamaica. Amy also launched our exciting Education Portal featuring a world-class curriculum on coral reef ecology. This new Education Portal has been recognized as one of the best new education resources on coral reefs. Congratulations, Amy!

The Communications team also had a great year. They co-produced a film with the Smithsonian Channel. The film, *An Ocean Mystery: The Missing Catch*, was selected as a finalist in the Blue Ocean Film Festival and went on to win the Conservation Award at the San Francisco International Ocean Film Festival. This film clearly reveals that fish stocks are collapsing worldwide and that much of the catch is never reported due to illegal, unreported, and unregulated (IUU) fishing, resulting in mismanagement of crucial fisheries. We also completed a six-part series about the Global Reef Expedition that highlights many of the threats facing coral reefs and what is being done to save them.

Perhaps the most exciting event of the year was the announcement by our Chairman, His Royal Highness Prince Khaled bin Sultan, that his daughter, Princess Hala was joining our Board of Directors! She brings a passion for the ocean, a love of scuba diving, and legal skills to our organization. Welcome Aboard, Princess Hala!

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SCIENCE

As the field work for the Global Reef Expedition (GRE) came to an end last year, the Science team has had a productive year analyzing the large and incredibly fascinating GRE dataset. To date, 99% of the entire GRE rapid reef assessment dataset has been prepared for analysis. We are now just starting to see how valuable the data from the GRE is, as it is one of the most extensive standardized and comprehensive coral reef assessments that has ever been completed.

With the addition of Renée Carlton and Dr. Sam Purkis, the science team has begun the challenging process of analyzing the GRE data.

Renée has been drafting the final reports for the countries visited on the GRE. This includes doing thorough scientific literature review to understand applicable research that has already been done in the region and gathering any information that can aid in interpreting the data for both benthic and fish communities, exploring trends in the data to understand the reef health, and writing up the findings in the report for publication. The reports will include findings from our survey data and recommendations for local marine managers to use in creating best policy practices for protection of local marine communities. The final report for French Polynesia has been written and will be ready for print in February 2017.

While most of the year has been spent analyzing GRE data, our Coral Reef Ecologist Alexandra Dempsey attended two conferences. In June 2016, Alexandra attended the 13th International Coral Reef Symposium in Honolulu, Hawai'i. The theme of the conference was Bridging Science to Policy, specifically addressing the disconnect between scientists and policymakers. The conference allowed Alexandra to meet with other scientists and learn new methods of sharing our findings with scientists and policymakers in each host country.

In October 2016, Alexandra was invited to be the keynote speaker at the Red Sea Biodiversity Conference in Wilhelmshaven, Germany. She presented the Foundation's research on the Red Sea as well as preliminary findings from the Foundation's Global Reef Expedition, a five-year mission to assess the health and resiliency of coral reefs around the globe. The

conference was sponsored by the two primary partners in the Red Sea Biodiversity Project, Senckenberg Research Institute and King Abdulaziz University (KAU). It brought together experts from many fields to discuss findings from the first phase of research from the Red Sea Biodiversity

Project, plan for the next phase of research, and discuss how to best involve other organizations and incorporate interdisciplinary research into their assessments of Red Sea biodiversity.

This year, KSLOF launched a partnership with the International Union for Conservation of Nature (IUCN) to inform marine spatial planning in Fiji, Tonga, and the Solomon Islands using data collected on the Global Reef Expedition. IUCN's Oceania Regional Office has been working with countries to implement marine spatial planning as part of their Marine and Coastal Biodiversity Management in Pacific Island Countries (MACBIO) project. Alexandra worked closely with scientists from MACBIO to create a modeled reef fish species richness map which will be used to help marine spatial planning efforts in Fiji, specifically the Lau Providence.

We have also partnered with the University of Queensland (UQ) to analyze and publish GRE data from the very remote northern Great Barrier Reef. Alexandra and other scientists from the UQ Marine Spatial Ecology Lab worked on analysis and publication efforts evaluating the success of zonation of no-entry, no-fishing, and open fishing areas in the Great Barrier Reef Marine Park.

To date, 99% of the entire GRE rapid reef assessment dataset has been prepared for analysis.



COMMUNICATIONS

FILM

This year, the Communications team completed *An Ocean Mystery: The Missing Catch*, co-produced with the Smithsonian Channel. The film follows the journey of Dr. Daniel Pauly, a fisheries scientist at the Sea Around Us project, as he calculates the total amount of fish caught since the dawn of industrial fishing. This film reveals that we have caught more fish than we thought, and that fish catches are declining three times faster than previously known. This film was selected as a finalist in the Blue Ocean Film Festival and won the Conservation Award at the San Francisco International Ocean Film Festival.

We also completed a six-part series about the Global Reef Expedition that documents our coral reef research in the Bahamas, Cook Islands, Galapagos, Great Barrier Reef, Indian Ocean, and Jamaica. Scheduled for release next year, the series highlights many of the threats facing coral reefs and what is being done to save them.

Working in conjunction with the Education department's mangrove education and restoration program, we completed a short film that explains the inner workings of a pristine mangrove ecosystem.



EVENTS

We celebrated World Oceans Day with our 3rd annual film screening at the Annapolis Maritime Museum. This year we premiered *Coral Reefs: Trouble in Paradise*, which was also a finalist at the BLUE Ocean Film Festival. This film featured our research on the Global Reef Expedition in the Chagos Archipelago in the Indian Ocean and highlighted the devastating effects of coral bleaching. The screening was followed by a discussion with Dr. Charles Sheppard, Chairman of the Chagos Conservation Trust.

Executive Director, Captain Philip G. Renaud, presented a lecture at the National Aquarium as part of the Marjorie Lynn Bank Lecture Series, "Creative Conservation: Sharing New Perspectives on Nature." His talk, *Coral Reefs Through the Lens*, took attendees on a tour of the world, showcasing magnificent coral reefs, informing us of their relevance and illustrating the Foundation's creative use of film and media arts to inspire and educate.

PUBLICATIONS

We launched the first interactive atlas of the coral reefs and shallow-water marine ecosystems of The Bahamas. Our new interactive Bahamas Atlas is the result of months of underwater research to survey and map the seafloor. The atlas combines advanced satellite imagery, aerial photography, and data from hundreds of research dives into the first high-resolution coral reef ecosystem maps of many Bahamian reefs. This atlas and associated GIS maps can help people understand the value and distribution of coral reefs.

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PARTNERS

We supported the publication of a game-changing report by UNESCO and IUCN that illustrates how the World Heritage Convention can be used to protect special places on the High Seas. The resulting report, *World Heritage in the High Seas: An Idea Whose Time has Come*, not only identified how the World Heritage Convention could be used to protect places on the High Seas, but also suggested five possible sites for inscription.

UNESCO invited us to participate at the World Heritage Marine Site Managers conference in the Galapagos Islands. The conference brought together managers of the most special marine places that we have on the planet. We were there to premiere our film *An Ocean Mystery: The Missing Catch* to this prestigious audience.



EDUCATION

CORAL REEF ECOLOGY CURRICULUM

In 2016, the Foundation launched the [Education Portal](#) which hosts our *Coral Reef Ecology Curriculum*. It won a W3 Award for Environmental Awareness, a website competition that received nearly 5,000 entries. The Foundation is honored to win such a prestigious award; it encourages us to continue developing coral reef educational materials for students and teachers. Currently, the Portal includes 12 units related to coral reefs with another 12 units planned for development. To date, over 1,400 users have registered for the online learning platform.

In June, the Foundation partnered with the National Aquarium to provide professional development to teachers in a workshop called *Corals in the Classroom*. The training provided teachers an opportunity to learn about coral reefs and the wide variety of materials included in the Foundation's Education Portal.

Education Portal wins
W3 Silver Award
for Environmental Awareness.



MANGROVE EDUCATION & RESTORATION PROGRAMS

During the 2015-2016 school year, the Foundation successfully implemented our Mangrove Education & Restoration Programs in the Caribbean. The Bahamas Awareness of Mangroves (B.A.M.) and the Jamaica Awareness of Mangroves in Nature (J.A.M.I.N.) programs provide an immersive, yearlong experiential education that engages high school students and teachers to learn about and restore mangroves through project-based learning.

In September 2016, the Foundation expanded the Mangrove Education Restoration Program to include an additional year of programming. Students participating in the program for a second year will expand their knowledge by monitoring mangrove forests using some of the same techniques scientists use. The program will be implemented in three different installments. In the first installment, students will set-up mangrove plots and collect

some initial environmental factors data from their plot, such as salinity, dissolved oxygen, soil texture, temperature, and pH. In the other two installments, students will collect data on environmental factors and information about each individual mangrove tree in their plot. At the end of the project, students will use the data that they collected to determine what is happening in their mangrove ecosystem and come up with a management plan.

The Mangrove Education and Restoration Program is designed to strengthen STEAM (Science, Technology, Engineering, Art, and Math) education and increase ocean literacy, while adhering to each country's education standards. Generating behavior change and inspiring youth to become environmental stewards are two main outcomes expected from this program.



EDUCATION

SCIENCE WITHOUT BORDERS CHALLENGE

The *Science Without Borders® Challenge* was developed to get students and teachers around the world more involved and interested in ocean conservation through various forms of art. This annual international contest inspires students to be creative while promoting public awareness of the need to preserve, protect, and restore the world's oceans and aquatic resources.

The theme for the 2016 *Science Without Borders® Challenge* was "Fishing Under the Radar." The Challenge is open to all middle and high school students 11-19 years old. Overall, the Foundation received 163 submissions from 18 different countries and 22 U.S. states.

Middle School Winners:

1



First Place: *Fishing Disaster* by Supratik Das, Age 14; Jharkhand, India

Second Place: *Grief* by Alexandra Jin, Age 14; British Columbia, Canada

Third Place: *We Protect our Oceans Resource For Us* by Dharunigsa Naguleshwaran, Age 11; Eastern Province, Sri Lanka



2



3

High School Winners:

1



2



First Place: *What Goes On Your Plate* by Ruofei Rao, Age 17; Auckland, New Zealand

Second Place: *Bled Out Depths* by Stephanie Tian, Age 16; Georgia, USA

Third Place: *Hurting the Nature is Hurting Ourselves as Well* by Yeon Soo Park, Age 16; Seoul, South Korea



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