

An underwater photograph of a vibrant coral reef. The water is clear and blue. In the foreground, there is a large, branching coral structure with a yellowish-orange hue. To the right, a large, flat, fan-shaped coral structure is visible. Numerous small fish, including yellow and blue ones, are swimming around the coral. The seabed is sandy and visible in the lower right corner.

2019

ANNUAL REPORT



Khaled bin Sultan
Living Oceans
Foundation

The image is a split-view photograph. The top half shows a landscape with rolling hills and a clear blue sky. The bottom half shows an underwater scene with a diverse coral reef. The text is overlaid on the right side of the image.

TABLE OF CONTENTS

02 SCIENCE

04 COMMUNICATIONS

06 EDUCATION

08 FINANCIAL STATEMENT

10 BOARD & ADVISORS

12 STAFF

SCIENCE

This year was a productive one for the Science Department with a primary focus on the Global Reef Expedition (GRE) data modeling, the composition of final country reports, external projects with our collaborations, and of course, peer-review publications. In 2019 we authored four peer-reviewed scientific journal publications with several other manuscripts currently under review. These publications were written in partnership with former Living Oceans Foundation Fellows and scientific collaborators from all over the world.

Fueled by the incredible dataset collected on the Global Reef Expedition (GRE), the Foundation's Science Team has achieved much in the past year. Led by the Foundation's Chief Scientist, Professor Sam Purkis, the team published the full compendium of the GRE-mapping initiative in the journal *'Coral Reefs'*, with an article entitled "High-resolution habitat and bathymetry maps for 65,000 sq. km of Earth's remotest coral reefs". The aim of this paper, which received ample media attention, including being profiled by the prestigious periodical 'Science,' was to advertise the existence of KSLOF's vast mapping database to the community. A key step to kick-starting local management actions that have the potential to drastically enhance the resilience of the world's reefs.

Leading forwards from this aim, Ms. Anna Bakker, a doctoral student at the University of Miami who is supported by a grant from the National Science Foundation, and also a member of the KSLOF Science Team, initiated a 5-year Ph.D. project to examine the resilience of the global portfolio of reefs visited during the GRE.

In parallel to Anna's efforts, Dr. Art Gleason, a Research Associate Professor, also at the University of Miami, is working to decipher the relative importance of local versus global-scale stressors on coral reef health. Together with the Foundation's Science Team, Art is addressing this question by probing the GRE data for global-scale evidence of human impacts on reefs.

Renée Carlton, Marine Ecologist for the Foundation, continued analysis and writing of the final country reports for the Global Reef Expedition. In 2019 she successfully

finished reports for New Caledonia, Cook Islands, and completed the first draft of the Solomon Islands report. In December 2019, the Science and Communications Departments teamed up to release the first of a series of reports from the South Pacific – the *Global Reef Expedition French Polynesia Final Report*. The report was well received by in-country partners, ministries, and international press, resulting in numerous articles highlighting the findings from the report and the importance of the Global Reef Expedition.

Alex Dempsey, the Director of Science Management, spear-headed two projects with King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. The first project Alex undertook was analyzing photo transects of benthic communities from the Red Sea coastline for the Saudi Aramco-KAUST Center for Marine Environmental Observations (SAKMEO). Several reports and publications resulting from this research are in the process of publication, and are currently out for peer-review. The second project Alex is supervising is a re-mapping endeavor of the shallow water habitats of the Farasan Banks for the Red Sea Research Center, focusing on possible shifts in seagrass and algae habitats from the Foundation's maps in 2009. The project is on-going and we will continue to collaborate with our partners at SAKMEO on this project through 2020. As the Foundation is recognized as a world leader in expertise for both photo transect analysis and habitat mapping, we are well poised for these types of projects to be completed in the future.



PUBLICATIONS

Mayfield, Anderson, A. Dempsey, and C. Chen. (2019). Modeling environmentally-mediated variation in reef coral physiology. *Journal of Sea Research*. 145: 44-54.

Purkis, S.J., Gleason, A.C.R., Purkis, C.R., Dempsey, A.C., Renaud, P.G., Faisal, M., Saul, S., Kerr, J.M. (2019). High-resolution habitat and bathymetry maps for 65,000 sq. km of Earth's remotest coral reefs. *Coral Reefs* 38: 467.

Purkis, S., Dempsey, A., Carlton, R., Lubarsky, K., Andréfouët, S. and Faisal, M. (2019). Global Reef Expedition: New Caledonia. Final Report. Khaled bin Sultan Living Oceans Foundation, Annapolis, MD. Vol 10.

Johnson, Garrett B., Brett M. Taylor, William D. Robbins, Erik C. Franklin, Rob Toonen, Brian Bowen, and J. Howard Choat. (2019). Diversity and Structure of Parrotfish Assemblages across the Northern Great Barrier Reef. *Diversity*. 11. 14.

COMMUNICATIONS

A key component of the Foundation's conservation program is media relations and outreach. The Foundation communicates our scientific findings to government officials, stakeholders, and decision-makers so they can understand the value of their marine resources and what they can do to protect them. The Foundation also publishes articles to showcase our work, share our knowledge, and inspire others to care about the ocean.

In 2019, the Communications Department returned to our roots and focused on communicating our scientific findings and promoting our education programs. This year, the Khaled bin Sultan Living Oceans Foundation published their findings from the largest coral reef survey and mapping expedition ever conducted in French Polynesia. The *Global Reef Expedition: French Polynesia Final Report* provides a comprehensive summary of the research findings from the expedition, an assessment of the health and resiliency of French Polynesia's coral reefs, and recommendations for preserving French Polynesia's coral reefs into the future. The Foundation had the report translated into French, and shared the publication widely with government officials, park managers, stakeholders, and conservation organizations in French Polynesia so it could be used for marine conservation. The Communications Department also shared the report with the media, where news of the Foundation's findings was shared in news outlets around the world—including the prestigious *Science* magazine.

The Foundation's
Communications Department
developed a new **media
relations** strategy to
showcase our findings
and **promote our work.**

Science magazine also covered another big story for the Foundation this year, a paper in the journal *Coral Reefs* on how we created the largest collection of coral reef maps ever made. The Communications Team was wildly successful in getting international news coverage for this scientific publication, had had stories about our work featured in dozens of news outlets, including *National Public Radio*, *Popular Mechanics*, and *Science Daily*.

In addition to working more closely with the media, the Living Oceans Foundation re-engaged with our followers online through numerous blogs, social media posts, and articles about our work. This included a lovely series celebrating the 5-year anniversary of our Jamaican mangrove education and restoration program, another on our coral reef mapping portal, and another highlighting specific findings from our French Polynesia Final Report.

The Communications Department also updated the Foundation's website and expanded it to include new sections for the Global Reef Expedition Final Reports as well as the Global Reef Expedition TV series. This six-part series follows Living Oceans scientists as they explore some of the most remote coral reefs on Earth. For the first time, people can now view all of these 30-min videos on the Foundation's website and YouTube channel.



EDUCATION

MANGROVE EDUCATION & RESTORATION PROGRAMS

During the 2018-2019 school year, the Foundation successfully implemented our Mangrove Education and 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 a two-year immersive, experiential education that engages high school students and teachers to learn about, restore, and monitor mangroves through project-based learning.

The Foundation celebrated its five-year anniversary of the J.A.M.I.N. program. In this fifth year, the Foundation partnered with Alligator Head Foundation to expand the J.A.M.I.N. program to the Portland, Jamaica. This expansion brought mangrove education to students at Port Antonio and Titchfield High Schools.

The Foundation also partnered with EarthEcho International to bring B.A.M. and J.A.M.I.N. students the opportunity to participate in the EarthEcho Water Challenge. Through this program, students are able to contribute to citizen science by sharing their water quality data with other students around the world.



MANGROVE DETECTIVES

The Foundation is always working to expand and improve their already existing programs. In 2016, they partnered with Dr. Ryann Rossi to bring citizen science to their B.A.M. and J.A.M.I.N. students. This year, the Foundation partnered once again with Dr. Rossi, obtaining a National Geographic grant to create a program called *Mangrove Detectives*.

Mangrove Detectives is a new citizen science program that teaches students valuable laboratory and field skills while they document mangrove disease and insect communities in their local mangrove forest. The project provides teachers, non-profit organizations, and environmental educators with free lesson plans, field kits, and laboratory materials to help their students study threats to their local mangrove forest and become part of an international community of Mangrove Detectives. The program was launched in November 2019. For more information, please visit: <https://mangrovedetectives.org/>.



High School Winner:



THE BIKE WE RIDE

by Lesya Antoshkina
Age 16, Ukraine

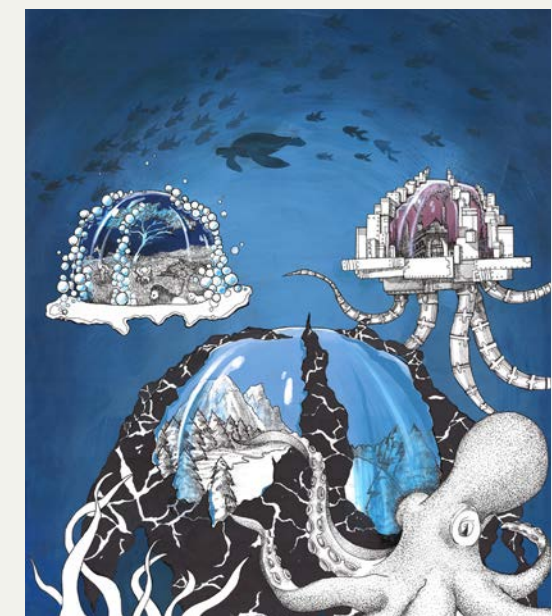
Middle School Winner:

SCIENCE WITHOUT BORDERS® CHALLENGE

The *Science without Borders® Challenge* contest 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 using different types of media to promote public awareness of the need to preserve, protect, and restore the world's oceans and aquatic resources; thus, contributing to the overarching motto of the Foundation—Science without Borders®.

The theme for the 2019 competition was *Connected Ocean: No Barriers, No Boundaries, and No Borders*. Students were asked to create a piece of artwork that shows how the oceans are connected.

The Challenge is judged in two categories: middle school students (ages 11-14) and high school students (ages 15-19). Overall, the Foundation received 350 submissions from 30 different countries.



THE PLACE WHERE FISH ARE FREE TO ROAM

by Zeno Park,
Age 12, New Jersey, USA

FINANCIAL STATEMENT

KHALED BIN SULTAN LIVING OCEANS FOUNDATION

STATEMENT OF FINANCIAL POSITION

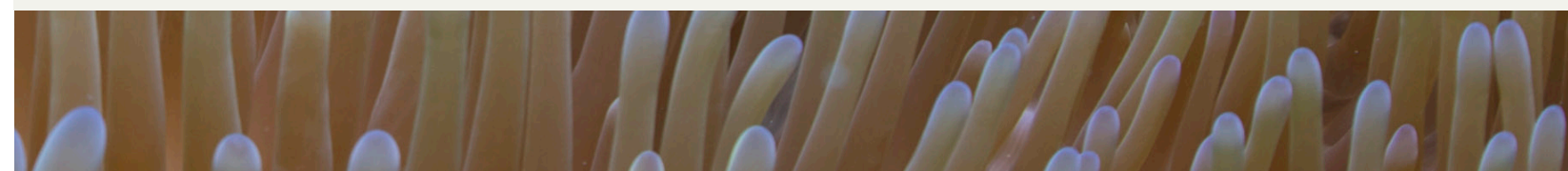
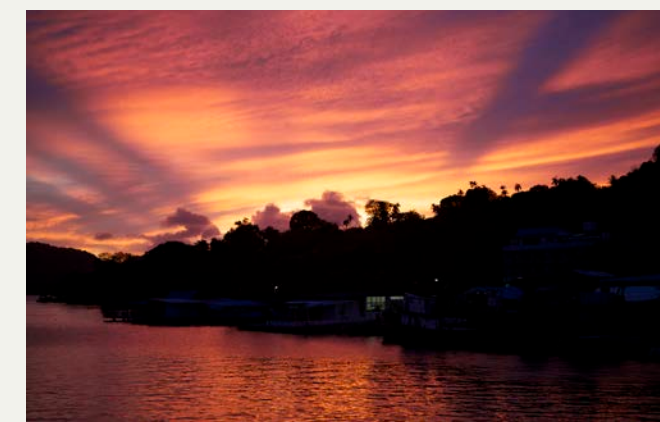
As of December 31, 2019

	TOTAL
ASSETS	
Current Assets	
Cash and cash equivalents	\$153,227
Prepaid Expenses	\$2,006
Contributions receivable	\$600
Total Current Assets	\$155,833
Furniture, equipment and improvements, net	\$156,058
Other Assets	
Deposits	\$2,644
Total Other Assets	\$2,644
TOTAL ASSETS	\$314,535
LIABILITIES AND EQUITY	
Current Liabilities	
Accounts payable and accrued expenses	\$40,423
Grants payable	\$56,673
Total Current Liabilities	\$97,096
TOTAL LIABILITIES	\$97,096
Net Assets	
Undesignated	\$199,169
3001 Temporary Restricted Assets	\$18,270
Total Equity	\$217,439
TOTAL LIABILITIES AND EQUITY	\$314,535



MANY THANKS TO OUR DONORS

PRINCE KHALED BIN SULTAN
 PRINCESS HALA BINT KHALED BIN SULTAN
 MR. IAN FAIR
 PROFESSOR MOHAMED FAISAL
 THE JEROME AND GRACE MURRAY FOUNDATION
 NATIONAL GEOGRAPHIC



BOARD & ADVISORS

BOARD OF DIRECTORS



**HIS ROYAL HIGHNESS
PRINCE KHALED BIN SULTAN**
Chairman and President

**HER ROYAL HIGHNESS
HALA BINT KHALED**
Director

**GENERAL CHARLES HORNER,
USAF (RET.)**
Vice Chairman

IAN FAIR
Chief Financial Officer

**MOHAMED FAISAL,
D.V.M., PH.D.**
Lead Scientist

SHAWN MCLAUGHLIN, PH.D.
Secretary

**PROFESSOR ABDULAZIZ
ABUZINADA**
Director

SCIENTIFIC ADVISORY COUNCIL

- SYLVIA EARLE, PH.D.
- JOHN MCMANUS, PH.D.
- PETER MUMBY, PH.D.
- BERNHARD RIEGL, PH.D.
- MOHAMED FAISAL, D.V.M., PH.D.
- SHAWN MCLAUGHLIN, PH.D.
- SAM PURKIS, PH.D.



STAFF

STAFF



SAM PURKIS, PH.D.
Chief Scientist



ALEXANDRA DEMPSEY
Director of Science Management



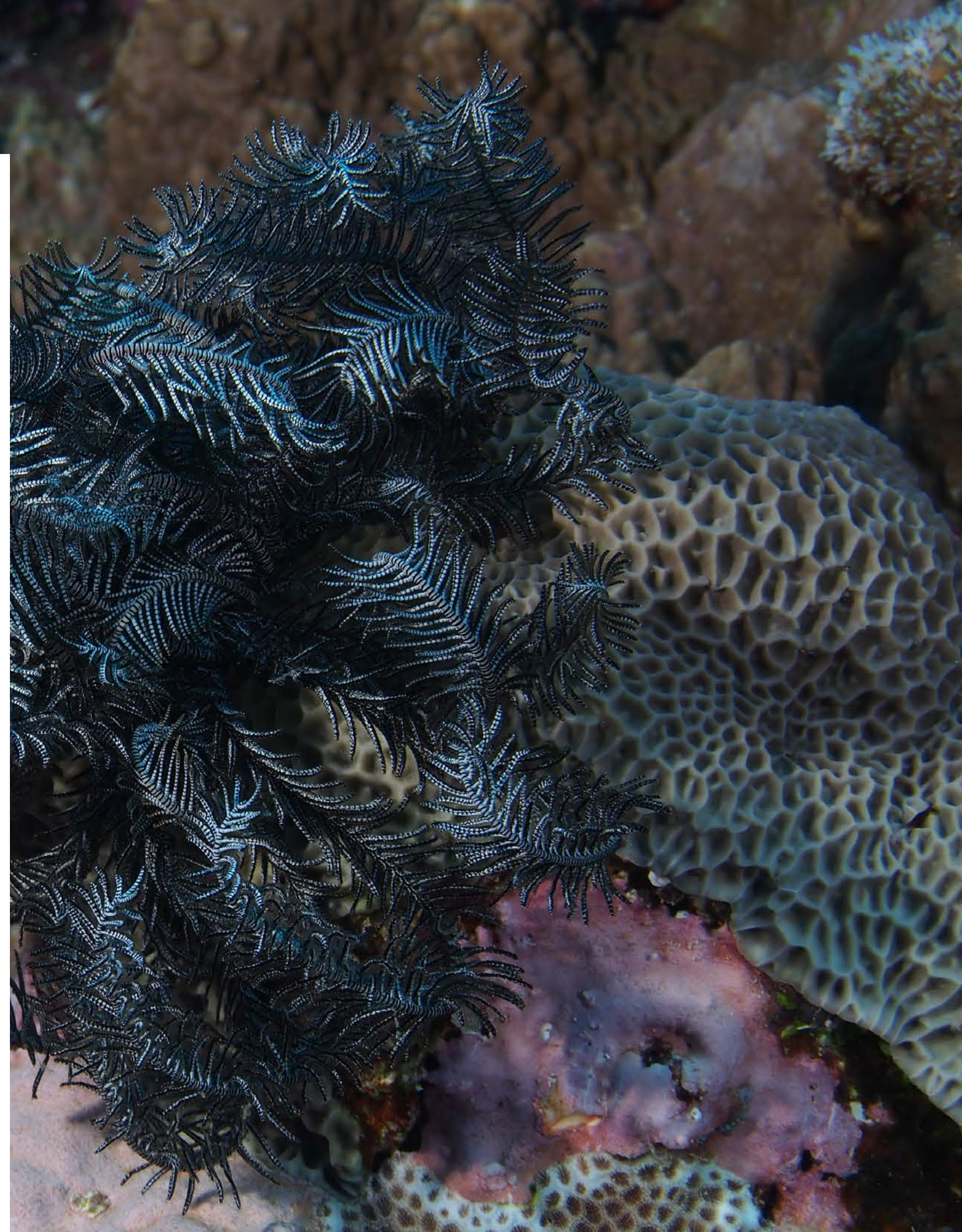
AMY HEEMSOTH
Director of Education



RENÉE CARLTON
Marine Ecologist



LIZ THOMPSON
Director of Communications





Khaled bin Sultan
Living Oceans
Foundation