



**BENEATH THE WAVES**

**2023**  
**IMPACT**  
**REPORT**



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# **BENEATH THE WAVES**

Beneath The Waves is a nonprofit,  
tax-exempt charitable organization  
under Section 501(c)(3) of the  
Internal Revenue Code.



# MISSION

Beneath The Waves is dedicated to promoting ocean health and using science and technology to catalyze ocean policy, with a focus on threatened species (such as sharks) conservation, marine protected areas, and nature-based solutions to climate change.

# APPROACH

Beneath The Waves has focused on three core pillars of research to achieve this mission:

## **OCEAN GIANTS**

Partnering with the largest species to accelerate marine conservation efforts

## **BLUE CARBON**

Mapping links between climate and biodiversity

## **DEEP-SEA CONSERVATION**

Forging new discoveries in the depths of our planet



# LETTER FROM THE CEO

As we close the book on 2023, I am excited to share the remarkable strides our organization has made in this pivotal year. As we approach our 10th anniversary, this year has been one of completion, reflection, and preparation for the next phase of our journey as an organization.

A key outcome of our efforts in 2023 was the completion of two expansive deep-sea research surveys throughout the Caribbean. These surveys were comprised of three years of exploration and field work, which saw our teams working tirelessly to map the biodiversity of fish and sharks in previously uncharted areas, discover new behaviors and records of species, and identify critical habitats that are essential to the health and resilience of the ocean. The findings from these surveys have already provided us several 'firsts' for science, and have created new conservation evidence for the protection of these fragile and overlooked ecosystems. This milestone also signifies our group's ability to administrate, advance and complete multiple prestigious grants (from the Darwin Initiative, UK Government) which funded this work.

This year also marked the conclusion of several long-term projects that have been at the core of our

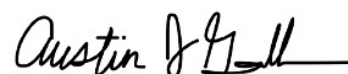
mission since the early days of our organization. From a 5-year shark monitoring effort in The Bahamas to nearly 6 years of tracking the movements of ocean giants off New England, these projects have delivered significant new insights in these core research areas, and provided lasting impacts on the ecosystems and communities we serve. As we wrap up these specific efforts, we are filled with a deep sense of accomplishment and pride in the tangible outcomes we have achieved together. This year, we also explored new horizons by conducting pilot work on blue carbon and sharks in Europe (UK and Ireland).

Looking ahead, this has also been a year of transition as we cycle into the development of new and revised strategies for our programs, and the teams we build to execute on our vision for impact. The completion of several long-term projects will provide us with the opportunity to reassess our goals, refine our approaches, and lay the groundwork for the next decade of innovation. Our focus will be on scaling up our most successful initiatives and approaches, exploring new frontiers in the ocean space, and using our platform to use data to address several global challenges in addition to those focused on biodiversity and climate.

As we near our 10th anniversary, I am reminded of how far we have come since our founding. What began as a small, passionate team with a vision to study sharks has grown into an established entity, brand, and leading force in several areas of marine conservation. Most NGOs and organizations in the space never make it to 10 years, and many struggle to perform work at a level that bridges the gap between science and real-world impact. I am proud to confidently reflect on our ability to break the mold in this regard, which would not have been possible without the unwavering support of our partners and donors.

As we embark on the next decade of our journey, I am more confident than ever in our ability to achieve even greater impact. The challenges ahead will be daunting, but with your continued support, we will continue innovate the space, evolve our group, and inspire global audiences.

Thank you for standing with us every step of the way.



Austin Gallagher, PhD  
Founder & CEO





# MEET THE TEAM



## CORE STAFF

Austin Gallagher, PhD  
Founder & Chief Science Officer

Carlos Duarte, PhD  
Director of Research Innovation

Rosemary Mann  
Director of Strategic  
Initiatives & Partnerships

Shannon Aldridge  
Operations Manager

Olivia Dixon, MSc  
Research Coordinator

Kathryn Ayres, PhD  
Research Scientist

Monica Moritsch, PhD  
Research Scientist

Tadzio Bervoets, MSc  
Regional Expert

Brendan Shea, MSc  
Research Associate

Wells Howe  
Subject Expert

Christine de Silva  
Research Associate

## BOARD OF DIRECTORS

Maria Damanaki

Wendy Benchley

Marko Dimitrijević

Pamela Lindberg

Rosemary Mann

Jeffrey Pankey

Malik Adunni

Steven Feron

## STRATEGIC ADVISORS

Cristina Mittermeier

Rashid Sumaila, PhD

Paul Nicklen

Kristin Lindblad

James Sternlicht

Keith Myrick, MD

Don Donovan

Jim Williams

Melissa Márquez

Hanan Atia, MD

Jeff Todd

Jon Lake

## SUPPORTING STAFF

Brennan Phillips, PhD, Senior Research Associate

Lisa Lester, Research Assistant

Nicholas Payne, PhD, Senior Research Associate

Caroline Hornfeck, Research Assistant

Alexis Janosik, PhD, Research Associate

Anne Haley, Research Assistant

Beckah Campbell, Research Assistant

Ramon Munroe, Field Technician

Diego Camejo, Photographer



# BY THE NUMBERS

## MARINE RESEARCH



**14**

MARINE RESEARCH  
EXPEDITIONS



**68**

DAYS ON THE WATER  
CONDUCTING RESEARCH



**12**

PEER REVIEWED  
PAPERS PUBLISHED

## GLOBAL AWARENESS & POLICY



**4**

CONFERENCES  
ATTENDED



**8**

MAJOR PRESS ARTICLES  
FEATURING OUR WORK



**8**

BTW RADIO  
EPISODES



**65,000**

PEOPLE ENGAGED ON  
SOCIAL MEDIA PER WEEK



**2**

INTERNATIONAL ARTIST  
COLLABORATIONS

## PROGRAM CAPACITY



**1**

MAJOR CHEMISTRY  
ANALYZER INSTALLED



**1**

NEW RESEARCH  
PROJECT LAUNCHED



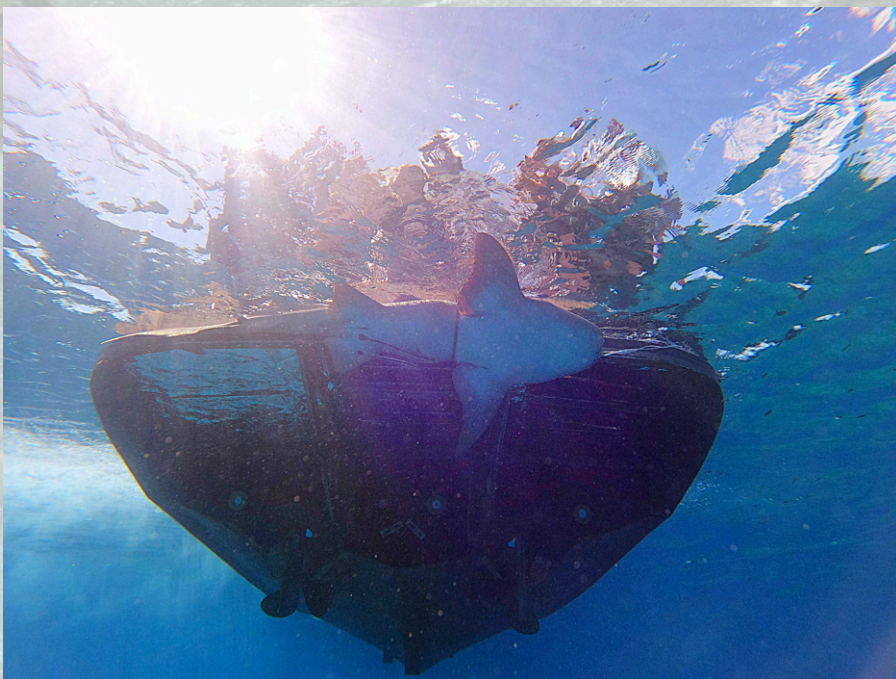
**2**

SCHOOL GROUP  
RESEARCH EXPEDITIONS



# PROGRAM FOCUS: OCEAN GIANTS

Beneath The Waves continued research for our Ocean Giants program throughout the year. Not only did our team continue our shark tagging projects and BRUV surveys, we continued building capacity for our Mola mola program that was launched in summer 2022. A major goal for 2023 was to build connectivity between our three core research pillars, particularly using Ocean Giants as our guides.



We are proud to be driving a positive impact forward for our blue planet everywhere we go.



# PROGRAM FOCUS: OCEAN GIANTS (CONT'D)



**44**  
SHARKS  
WORKED UP



**4**  
MOLA MOLA  
WORKED UP



**1** **3**  
ACOUSTIC TAG SATELLITE  
TAG TAGS

DEPLOYED ON  
OCEAN GIANTS



**1**  
NEW OCEAN  
GIANTS PROGRAM



**20**  
NEW ACOUSTIC  
RECEIVERS DEPLOYED



**20**  
SHALLOW BRUV  
DEPLOYMENTS





# PARTNER FOCUS:

## BACARDI

Part of our vision is focused on making ocean conservation accessible to everyone, and in order to do so, we encourage fostering partnerships outside of the direct science space.

The Bacardi Legacy is rooted in The Caribbean, therefore aligning with the outcomes of the research at Beneath The Waves, which seek to support marine protected areas, inspire biodiversity conservation, and create nature-based solutions to climate change in the region.

Our initial work in Blue Carbon helped create a shared vision for the partnership. In addition to continuing our work of mapping and monitoring seagrass meadows, we are leveraging the behavior of Ocean Giants to animate the carbon cycle.

Partnering with Bacardi allowed us to reach new audiences while simultaneously supporting the Bacardi team in achieving their sustainability goals.



**BACARDÍ**  
**BENEATH THE WAVES**



# FEATURE FOCUS: NORA EN PURE

In May of 2022, Beneath The Waves partnered with DJ Nora en Pure to do a live stream from R/V Tigress as a fundraiser for Beneath The Waves, but the work didn't stop there.

Throughout the end of 2022 and the first quarter of 2023, we brought an immersive video series with DJ Nora En Pure to our collective followers. The recipe was simple: combining incredible music with ocean awareness and conservation. The collaboration brought together our two followings, expanded our global awareness, and raised over \$10,000 for our critical research.





# PERSONNEL SPOTLIGHT:

## KATHRYN AYRES, PhD

### **Please give an overview of your background and work before BTW:**

I have a Bachelor's degree in Marine Vertebrate Zoology, a Master's degree in Marine Environmental Management and I recently finished my PhD studying Blacktip shark aggregations in Baja California Sur, Mexico. I still run a research project which involves aerial drone surveys to count and record shark species that form aggregations close to the shoreline in a marine protected area. I also work as a shark safety diver and tour guide for marine life expeditions with Latitude Encounters. Before my PhD, I worked for NGOs and non-profits in Fiji, New Zealand, and The Galapagos.

### **What was your first project for BTW when you joined the team?**

My first project was analyzing telemetry data for shark species tagged in The Bahamas, particularly Tiger sharks and Caribbean Reef sharks. I have been focusing on creating network graphs that display their connective movements and comparing how Tiger shark presence influences shark species at lower trophic levels. This project also compares differences in habitat use and movements across ontogeny for tagged Tiger sharks.

### **What is a fun fact about you?**

That I have been obsessed with sharks ever since I was three years old! They first terrified me and I even worried they would be in the swimming pool, but as I grew up my gear turned into fascination once I realised how at threat these important and misunderstood creatures are to extinction.

### **What are you looking forward to in 2024 with BTW?**

I am looking forward to more Orca and shark research!





# PILOT EXPEDITION: EUROPE EXPANSION

Building off the momentum of the discovery of the largest seagrass meadow in 2022, the Beneath The Waves team looked "across the pond" as a potential opportunity to expand our Ocean Giants X Blue Carbon work. The team set out for Europe with multiple goals.

## SCIENTIFIC RESEARCH:

- Baseline research to determine if Basking Sharks may be a viable Ocean Giants partner.
- Baseline sediment core sampling to understand how transferrable techniques from The Bahamas are to other locations.

## COLLABORATION:

- Meet with potential partners, collaborators, and investors.





# PROGRAM FOCUS: BLUE CARBON

With all eyes on the Blue Economy and Carbon Credits, it is essential that the Beneath The Waves team continues to conduct the necessary scientific research to validate the projected values of Blue Carbon Credits. By standardizing and validating our field methods in areas we work, we are ensuring those techniques are applicable on other locations is key.

We take Blue Carbon research seriously - from the hard work on (and under) the water, to the collaborations and partnerships that help translate scientific data into conservation policy.





# PROGRAM FOCUS: BLUE CARBON (CONT'D)



77

SEDIMENT CORES  
TAKEN



2

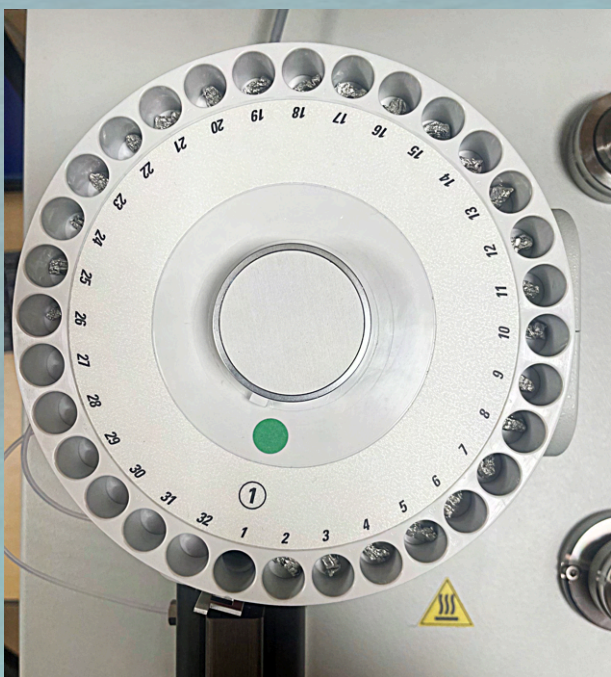
NEW SAMPLING  
LOCATIONS



# FEATURE FOCUS: CARBON ELEMENT ANALYZER

In June the Beneath The Waves Laboratory (in Partnership with Thayer Academy, MA), welcomed the newest team member - the Carbon Element Analyzer. With the Blue Carbon program rapidly expanding and hundreds of sediment cores we collected from all over the world to analyze, this machine is an essential part of our long-term goals for building capacity and scaling the program.

The team spent several days in training to learn the ins and outs of operating the machine before hitting the ground running and beginning to process samples.





## PROGRAM FOCUS:

# CARBON ELEMENT ANALYZER (CONT'D)

The entire analysis of each sediment sample takes several days to complete, in order to ensure consistency and accuracy.

### ANALYSIS OVERVIEW:

1. Sample preparation: drying and weighing the samples
2. Homogenization: grinding the dried samples into a powder
3. Acidification: treating the sample gently to remove carbonate
4. Systems check
5. Calibration
6. Load a sample
7. Analyze a sample
8. Results for the organic carbon in each sample





# PILOT EVENT: THE BLUE CARBON OPEN

In May, the Beneath The Waves team hosted The Blue Carbon Open: a one-of-a-kind experience to support ocean conservation and raise awareness. With support from Bacardi, Grand Isle Resort, Lennox Paton, BDG Global Sports, and Lucid Project, we provided guests with an unforgettable five days in The Exumas.

The week was filled with excursions highlighting the scientific research that is the backbone of our organization, a golf tournament to raise funds for conservation, climate conversations, and DJ curated beats.





# PERSONNEL SPOTLIGHT:

## MONICA MORITSCH, PhD

### **Please give an overview of your background and work before BTW:**

I'm a marine ecologist with a background in GIS analysis and modeling impacts of climate change on ecosystem services. Prior to joining BTW, I worked for the Environmental Defense Fund and the US Geological Survey. I focused on modeling future carbon sequestration in marshes, mangroves, and seagrasses, and I examined how sea level rise could impact their ability to continue doing that. I also assisted with coral reef bleaching recovery efforts by identifying locations where reefs could best support proposed management strategies. Most recently, I specialized in supplying information needed for government agencies and non-profits to make ecosystem management decisions.

### **What was your first project for BTW when you joined the team?**

My first project was to model carbon sequestration in seagrass meadows of The Bahamas.

### **What is a fun fact about you?**

I love swing dancing and I choreographed a dance about my PhD thesis topic (sea star die offs on the US Pacific Coast). It was loads of fun to film. I entered it into a contest and it won an award!

### **What are you looking forward to in 2024 with BTW?**

We have lots of exciting work planned for Blue Carbon in The Bahamas and beyond, and I'm looking forward to what grows out of our existing seagrass mapping and modeling work.

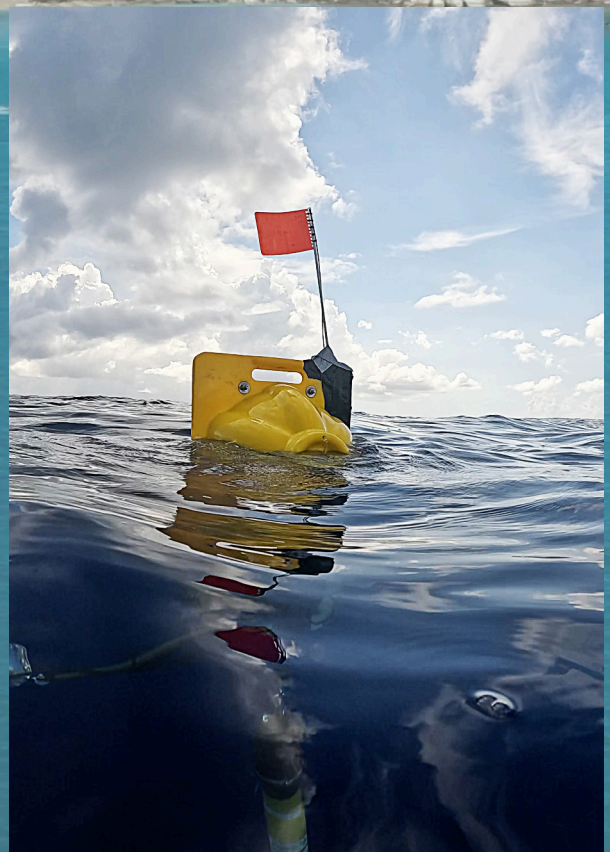
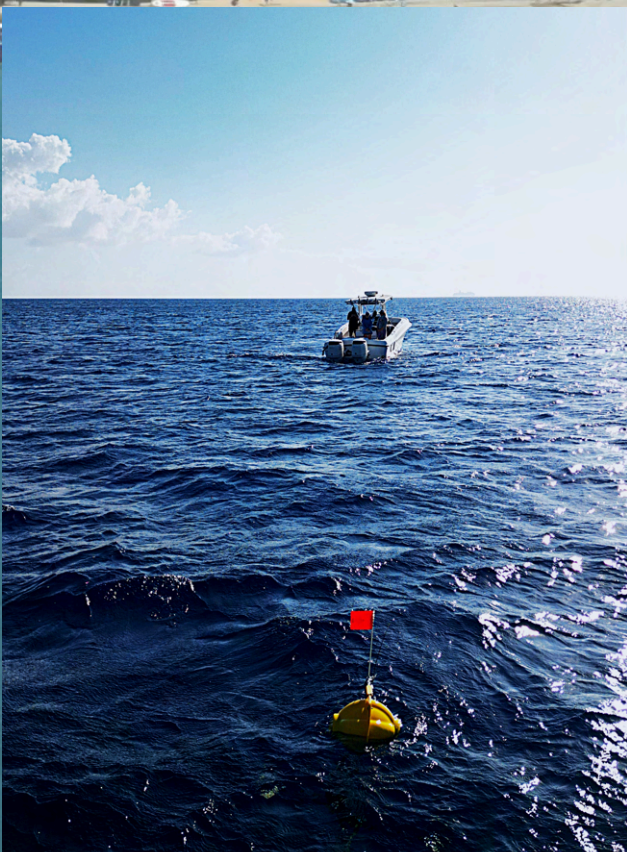




# PROGRAM FOCUS: DEEP-SEA

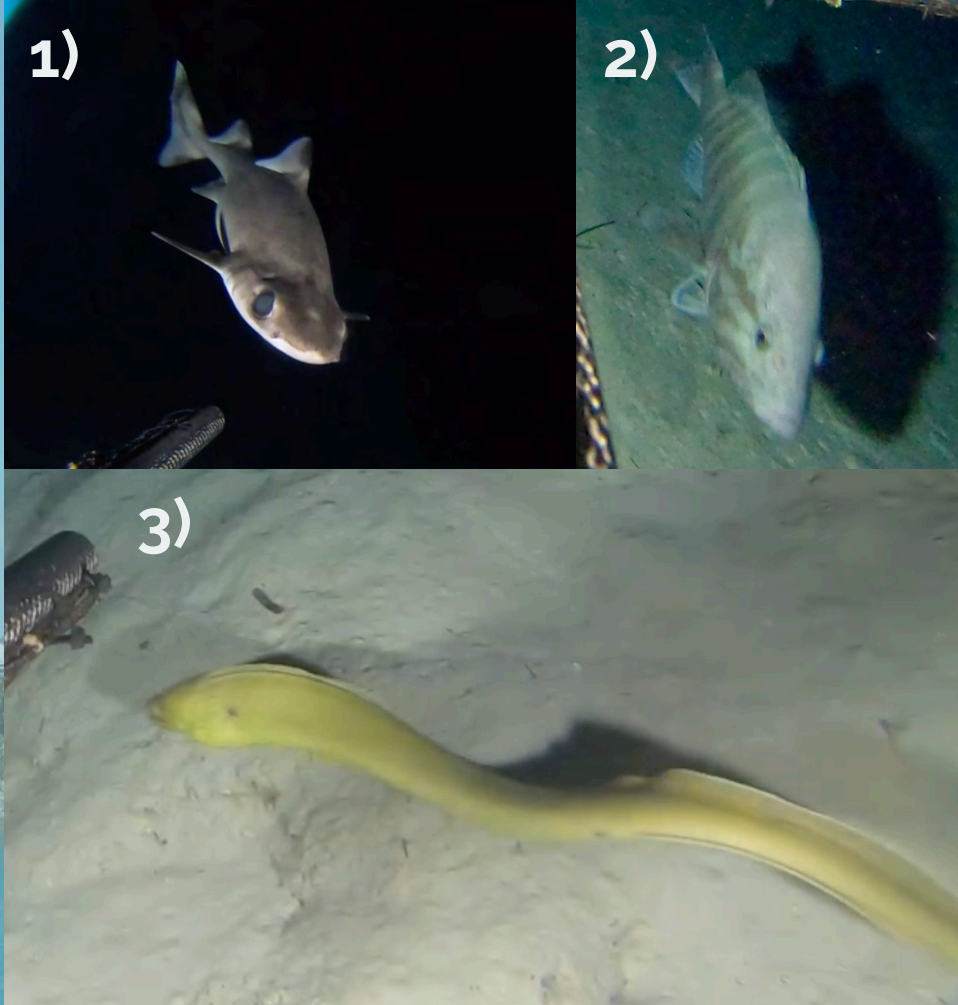
The past few years, the Beneath The Waves team and collaborators have highlighted importance of and interest in the deep-sea continues, as do looming threats of exploitation of these fragile ecosystems. With this in mind, now, more than ever, surveying deep-sea biodiversity is critical for understanding the importance of protecting it from exploitation.

This year, the Beneath The Waves team completed two multi-year studies of deep sea biodiversity, in collaboration with the Cayman Islands Department of Environment and Bermuda Government, as part of two Darwin Grants to survey deep-sea biology throughout UK Oversea Territories. Several articles have already been published from opportunistic sitings and broader results will be published in 2024.





# PROGRAM FOCUS: DEEP-SEA (CONT'D)



1) Gulper Shark  
(*Centrophorus granulosus*)

2) Misty Grouper  
(*Hyporthodus mystacinus*)

3) Green Moray  
(*Gymnothorax funebris*)



27

DBRUV  
DEPLOYMENTS



# SCIENTIFIC PUBLICATIONS

## BLUE CARBON ECOSYSTEMS

- Blue carbon ecosystems and shark behaviour: an overview of key relationships, network interactions, climate impacts, and future research needs.  
<https://doi.org/10.3389/fmars.2023.1202972>
- Substantial blue carbon sequestration in the world's largest seagrass meadow.  
<https://doi.org/10.1038/s43247-023-01154-0>

## DEEP-SEA BIODIVERSITY

- First records of the blurred lantern shark *Etmopterus bigelowi* from the Cayman Islands, Western Atlantic.  
<https://doi.org/10.3389/fmars.2023.1165207>
- Linking vertical movements of large pelagic predators with distribution patterns of biomass in the open ocean.  
<https://doi.org/10.1073/pnas.2306357120>

## POLICY & CONSERVATION

- Effects of anthropogenic activities on scavenger communities in freshwater riparian zones of eastern Ontario, Canada.  
<https://doi.org/10.1007/s10452-022-09993-3>
- Quantifying longline bycatch mortality for pelagic sharks in western Pacific shark sanctuaries. DOI: 10.1126/sciadv.adg3527

## OCEAN GIANTS

- Detecting Mediterranean White Sharks with Environmental DNA.  
<https://doi.org/10.5670/oceanog.2023.s1.28>
- Energetic connectivity of diverse elasmobranch populations – implications for ecological resilience.  
<https://doi.org/10.1098/rspb.2023.0262>
- Global tracking of shark movements, behaviour and ecology: A review of the renaissance years of satellite tagging studies, 2010–2020.  
<https://doi.org/10.1016/j.jjembe.2022.151841>
- Novel aerial observations of a group of killer whales *Orcinus orca* in The Bahamas.  
<https://doi.org/10.3389/fmars.2023.1265064>
- Observations of hypomelanosis in the nurse shark *Ginglymostoma cirratum*.  
<https://doi.org/10.1111/jfb.15238>
- Opportunistic camera surveys provide insight into discrete foraging behaviours in nurse sharks (*Ginglymostoma cirratum*).  
<https://doi.org/10.1007/s10641-022-01366-x>



# PRESS MENTIONS

Media stations that featured our work throughout 2023 are highlighted below.

**alive**

**ThePrint**

**SCIENTIFIC  
AMERICAN**

 **NATIONAL  
GEOGRAPHIC**

**WIRED**

**SR**

**EYEWITNESS  
NEWS**

**Tribune 242**



# MAJOR SUPPORTERS & PARTNERS

## FOUNDATIONS & DONORS

- Roger Sant & Doris Matsui
- Wanderlust Fund
- Pictet Foundation
- Sternlicht Family Foundation
- Mary O'Malley and Lupo Dion Trust
- WCPD Foundation
- Bob Coughlin

## CORPORATE SPONSORS

- Grand Isle Resort
- JDL, Inc
- GoPro
- Lumitec
- Garmin
- Warner Bros. Discovery
- ScubaPro
- BACARDÍ

## GRANTS

- Disney Conservation Fund
- Thayer Academy

## INSTITUTIONAL PARTNERS

- Government of The Bahamas
- Government of the Turks & Caicos Islands
- U.S. Congressional Committee on Science, Space, and Technology
- U.S. Congressional House Ocean Caucus
- The Bahamas Department of Marine Resources
- Deep-Sea Conservation Coalition
- Deep-Ocean Stewardship Initiative
- Cayman Islands Department of Environment
- Government of Bermuda

## OPERATIONAL PARTNERS

- Paul Hastings
- Dutch Caribbean Nature Alliance
- Dive Exuma
- Bimini Scuba Center
- Big Blue Collective
- Caribbean Shark Coalition
- Hexagon R-evolution

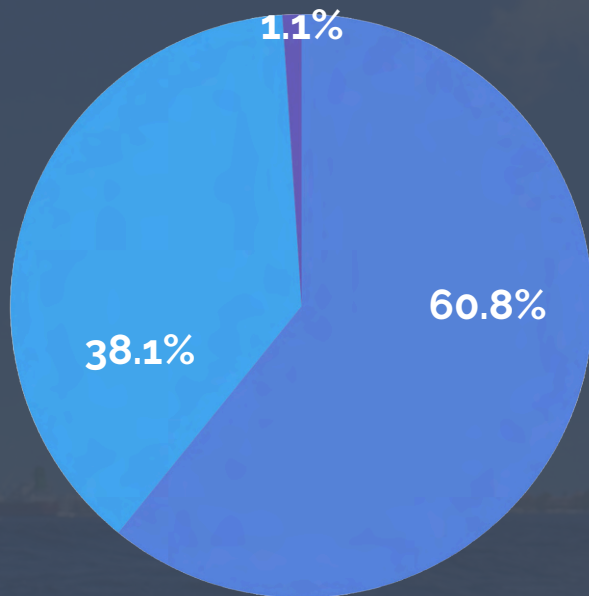
## KEY MEDIA PARTNERS

- Discovery Channel
- Figmnet Design
- Diego Camejo Studios



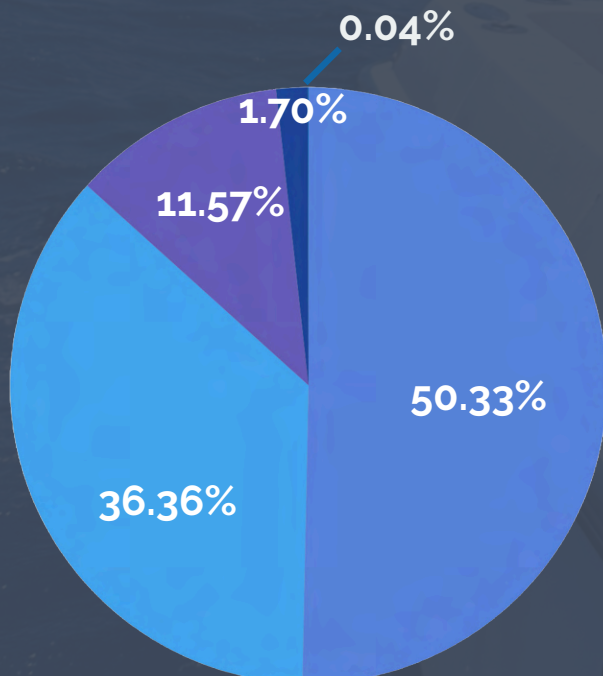
# FINANCIALS

## REVENUE:



Donations & Gifts	\$822,473
Sponsorships	\$515,000
Grants	\$14,285
Total Revenue	\$1,351,758

## EXPENSES:



Program Services	\$620,668
General Administration	\$448,429
Professional Services	\$142,693
Fundraising	\$20,951
Charitable Contributions	\$500
Total Expenses	\$1,233,241





## PHOTO CREDITS

DIEGO CAMEJO  
AUSTIN GALLAGHER  
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OLIVIA DIXON  
ANDRÉ MUSGROVE  
SAMI KATTAN  
ELIZABETH SIDES  
KELSEY WILLIAMSON





# BENEATH THE WAVES

Beneath The Waves is dedicated to promoting ocean health and using science and technology to catalyze ocean policy, with a focus on highly mobile species conservation and climate-based solutions.

[www.beneaththewaves.org](http://www.beneaththewaves.org)







**BENEATH THE WAVES**