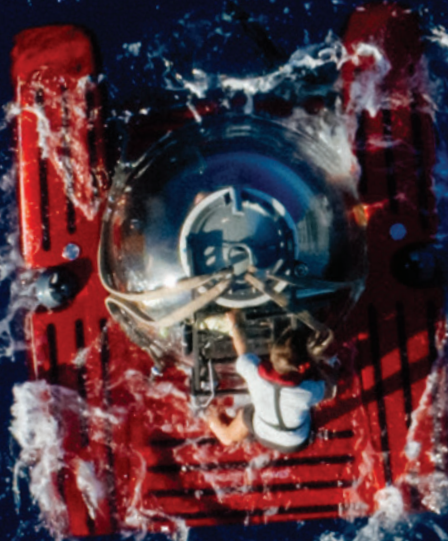




BENEATH THE WAVES

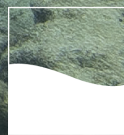


2019

**ANNUAL
REPORT**

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BENEATH THE WAVES

A full-page background image of a person diving underwater. The diver is seen from the side, wearing a white long-sleeved shirt, patterned leggings, and black fins. They are swimming upwards towards the surface, where bright sunlight creates a shimmering effect. Bubbles are visible around the diver's head. The water is a deep blue-green color.

MISSION

Beneath the Waves is dedicated to promoting ocean health and using science and technology to catalyze ocean policy, with a focus on shark conservation and marine protected areas. Our research creates the conservation evidence needed to inform broad-scale and region-specific ocean policies, while also providing solutions to new or emerging conservation challenges.

APPROACH

STRATEGY

Beneath the Waves has made a strategic decision to focus its programs and resources in the following timely conservation areas:

MARINE PROTECTED AREAS

Collecting baseline data on the importance of marine habitats and how keystone species use them, and working with governments and partners to integrate this information into legislation to advance ocean protection.

THREATENED SPECIES

Filling critical knowledge gaps to bolster arguments for local, national and international conservation plans and management for sharks and their prey.

DEEP SEA CONSERVATION

Mapping biodiversity throughout the largest ecosystem on our planet ahead of harmful extractive activities.

IMPACT GOAL

We will be successful if the following is accomplished on the species and regions in which we work:

- ▶ Increased establishment of marine protected areas and reserves
- ▶ Sustaining and strengthening of existing protected areas
- ▶ Improved conservation status and sustainable management of marine resources
- ▶ Increased production of science to accelerate discovery in our oceans



BENEATH THE WAVES

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



FROM THE CEO

This year Beneath the Waves expanded the footprint of its programs and impact at the global scale.

The most exciting moment for our teams this year was obtaining the incredible, first-ever footage of our tiger sharks diving into the twilight zone in the Caribbean, where we now believe they are using for critical life history events. So, it is only appropriate that the theme of “diving deeper” really summarized our year

Our work in the Bahamas has continued to innovate and grow, underscored by the formal launch of our partnership with the Grand Isle Resort in the Exumas. I am particularly proud of this collaboration, as it links our marine conservation work with local and international public engagement, as well as private sector buy-in. This year we spent over 30 days on site, growing our long-term shark monitoring program while exposing over 100 donors and local community members to our work.

The impact of our work for threatened species conservation was highlighted when two species of mako sharks earned new global conservation measures on the CITES treaty. We provided expertise and policy briefs that were used among delegates before and during the meeting. Our marine protected area work expanded into four new key regions in the Caribbean, where we will be working with governments and other NGOs over the next several years to create

meaningful spatial protections for highly migratory marine species.

We launched our new deep-sea conservation program this year, alongside some new partners and stunning new technologies for our group such as submersibles, drop cameras, and ROVs. The deep sea is our planet’s largest and most unexplored ecosystem, and it represents a rich area for us to develop programs and studies that have a high potential for new discoveries and informing policy.

Finally, due to the incredible generosity and support of our donors and partners, we achieved new milestones in terms of capacity building and development, raising over \$1.5 million to help study and protect sharks and our oceans.

There is an incredible energy around us right now, and a shared feeling of trust, excitement, and determination throughout the organization. On behalf of the entire Beneath the Waves team, I want to extend our gratitude for your support and inspiration.

Sincerely,

Austin Gallagher, PhD

CEO & CHIEF SCIENTIST

BOARD & STAFF

BOARD OF DIRECTORS

- Austin Gallagher, PhD
- Rosemary Mann
- Malik Adunni
- Wendy Benchley
- Steve Feron
- Jeff King
- Jeffrey Pankey

STRATEGIC ADVISORY BOARD

- James Sternlicht
- Kristin Hettermann
- Jason Halvorsen
- Andi Cross
- Filipe DeAndrade
- Tony Gilbert
- Jeff Todd

SCIENCE & POLICY ADVISORY BOARD

- Carlos Duarte, PhD
- Rashid Sumaila, PhD
- Diva Amon, PhD
- Tadzio Bervoets

SCIENCE

- Brennan Phillips, PhD, **RESEARCH ASSOCIATE**
- Nicholas Payne, PhD, **RESEARCH ASSOCIATE**
- Shaili Johri, PhD, **RESEARCH ASSOCIATE**
- Erica Staatterman, PhD, **RESEARCH ASSOCIATE**
- Camrin Braun, PhD, **RESEARCH ASSOCIATE**
- Judith Bakker, PhD, **RESEARCH ASSOCIATE**
- Oliver Shipley, **RESEARCH ASSOCIATE**
- Brendan Shea, **RESEARCH ASSOCIATE**
- Christine de Silva, **RESEARCH ASSOCIATE**
- Enrique Quintero, **MARINE TECHNICIAN**
- Robert Carmichael, **SUBMARINE OPERATIONS**
- Cali Capela, **RESEARCH ASSISTANT**
- Lea Breistroff, **RESEARCH ASSISTANT**

COMMUNICATIONS

- Jamie Fitzgerald, **MEDIA & COMMUNICATIONS MANAGER**
- Sami Kattan, **DIRECTOR OF DIGITAL MEDIA**
- Diego Camejo, **DIGITAL MEDIA PRODUCER**

OUR IMPACT

We measure our impact in a variety of ways – from our time in the field, our output generation, how we impact or inform policy, and our ability to reach the masses with our work.

Below are some of the most significant highlights from this year.

CATALYZING OCEAN POLICY

Mako sharks receive international conservation:

We were part of an international team of researchers, policy-makers, and advocacy groups that successfully worked to list two species of mako sharks on the Convention of International Trade of Endangered Species (CITES). We created policy briefs synthesizing new data which were used by governments and delegates at the 2019 meeting in Geneva, Switzerland.

Marine Protected Area Legislation:

Received invitations from 4 local governments and NGO stakeholders from 4 Caribbean nations interested in creating marine protected areas for threatened species such as sharks, rays, and grouper. Current projects include Turks and Caicos, The Dutch Caribbean, and Grand Cayman.

ENGAGING THE PRIVATE SECTOR

Launching innovative conservation business model to support research:

Working with a luxury resort in the Bahamas and a handful of philanthropists, we launched a conservation experience for visiting hotel guests with the Grand Isle Resort and Spa in Great Exuma, Bahamas. Participants observe shark tagging and biodiversity sampling up-close, and their donations create an economic engine to empower future research efforts. Over \$300,000 of cash and sponsored funds have been raised.

High visibility press in 4-part series in Forbes:

“Can the Can Scientists, Entrepreneurs, And The Private Sector Come Together To Save Sharks?” with interviews from leading entrepreneurs, investors, and strategists.

INCREASED GLOBAL AWARENESS THROUGH EDUCATION

Earned Media:

Online press and media resulting from partnerships garnered over 2 billion impressions in 2019.

Owned Media:

Social media posts on Instagram reached ~20,000 accounts per week, resulting in ~135,000 engagements per month.

Speaking:

Members of our team delivered 16 presentations and keynote lectures to universities and groups around the world.

Film & TV:

Featured on the leading show on Discovery Channel’s Shark Week in 2019.



9

RESEARCH
EXPEDITIONS



123

DAYS ON THE WATER
DOING RESEARCH



800,000

SQUARE KILOMETERS OF
PROTECTED AREAS UNDER STUDY



2

SPECIES OF SHARKS'
GLOBAL CONSERVATION PROGRAMS



9

SCIENTIFIC PUBLICATIONS



54

COLLABORATING SCIENTISTS
& POLICY MAKERS



2 BILLION

IMPRESSIONS IN THE PRESS





PROGRAM FOCUS: MARINE PROTECTED AREAS

In 2019, the UN declared a need to protect 30% of our planet by 2030. We are rising to meet this challenge, and calling for 30% of the world's oceans to be protected by 2030; a crucial step to ensure a safe, healthy, and sustainable future for our planet.

We spent 2019 building our long-term monitoring of our shark sanctuary initiative, which was founded in the Bahamas. Our ongoing goal is to use this information and approach as a catalyst to assist legislation to create more Marine Protected Areas (MPAs) in the Greater Caribbean region in the years to come.

This year, we conducted 4 successful long-range expeditions to study shark movements and residency in The Bahamas. Much of this work was successfully done with our partner the Grand Isle Resort in the Exumas. The resort serves as an operational base for our team, and also a platform for engaging key members of our team, donors, and also hotel guests on board to experience our conservation work first-hand. We believe the outreach and education derived from this program is also a critical component in driving awareness and building capacity for real conservation impact.

In the spring, we had an extended 5-week expedition to Nassau on the M/Y Sharkwater, where we invited collaborative teams from the Cape Eleuthera Institute, Perry Institute for Marine Science, Florida International University, and Trinity College in Dublin.





A large female tiger shark is safely tagged and released by our team in The Bahamas in May 2019. This shark, which we know as ‘Mabel’ has been tagged and released on 3 separate occasions by our team from 2018-2019, an incredible feat underscoring the value of The Bahamas shark sanctuary. Through this opportunistic, repeated sampling, we have gained new insights into the life history and survival of this species in the Greater Caribbean.

PROGRAM FOCUS: MARINE PROTECTED AREAS (CONT'D)

RESEARCH OUTPUT:

In total, we tagged and released 110 sharks in 2019 from 8 species across New Providence and Great Exuma, and installed 31 receivers in the water listening for tagged sharks all year. A total of 41 sharks were implanted with 10-year acoustic transmitters, 210 biological tissue samples were taken, and 50 hours of BRUV footage was captured.





(Left) Our team had the opportunity to work aboard the M/Y Sharkwater for 5 weeks during 2019, which was a force multiplier in advancing our research in the region while also hosting a National Geographic film team. A map of New Providence Island, The Bahamas (bottom left), with the push pins designating where our acoustic receivers are moored into the seafloor (right), where they will listen for sharks after they are tagged with internal transmitters (top right).

DISCOVERY FOCUS:

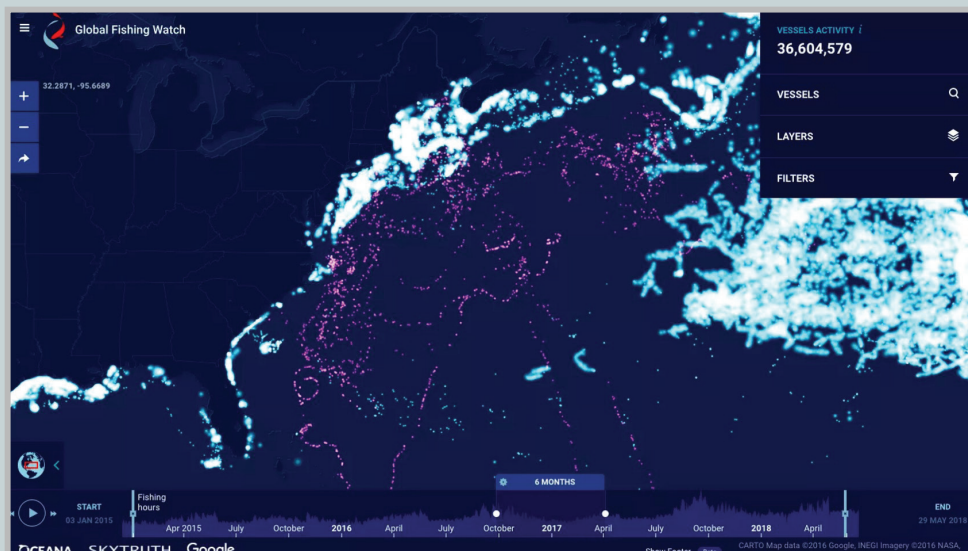
PUBLICATION ON SHARK VULNERABILITY IN *NATURE*

In 2019 we were part of an international team of researchers who came together to produce one of the most significant scientific publications on sharks in recent years. Published in the world's leading journal *Nature*, “Global spatial risk assessment of sharks under the footprint of fisheries” was a collaborative effort between over 150 scientists, representing 26 different countries, where shark movements were overlaid with fishing boat activity.

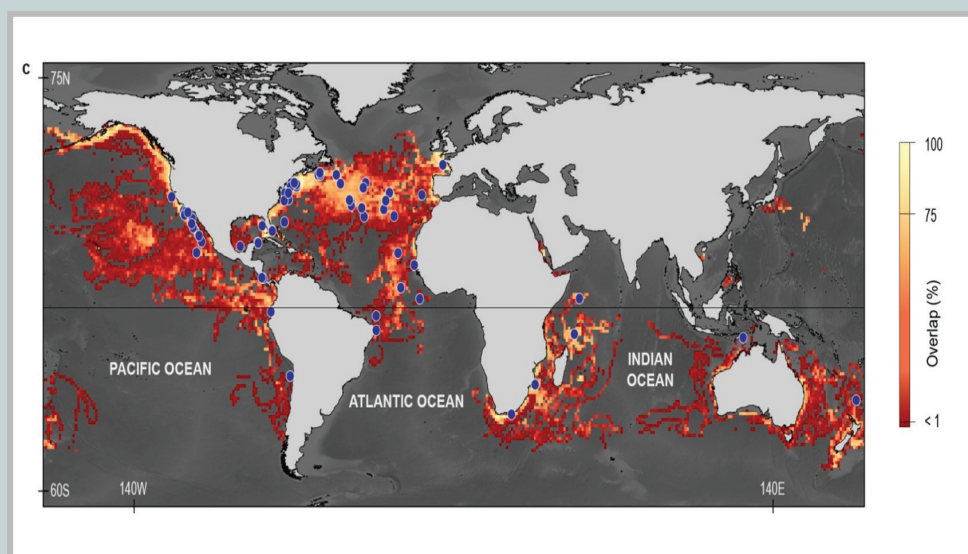
The study compiled long-term data on the movements of 1,680 sharks from 23 different species, all obtained from 2002 and 2017, to identify the overlap between shark distributions and global fisheries. This big-data approach found that 24% of the monthly space use of open ocean sharks overlapped with the footprint of pelagic longline fisheries. These fishing activities target sharks for fins and meat, thus contributing to their imperiled status. Alarming, we found that the greatest overlap with longlines was in several ‘hotspots’ of activity for commercially valuable species such as blue and mako sharks.

Satellite tracking and long-term habitat monitoring are key components of our research, and we were proud to contribute our data to the study, namely, our previous tracks from blue sharks in the Atlantic and hammerhead sharks in the Pacific Ocean. Both of these species are among the most threatened due to the shark fin trade.

The findings of this study demonstrate an urgent need for conservation and management measures in the high-seas, particularly around the ‘hotspots’ of shark activity. This study also illustrated the value in leveraging big data and technology to survey the risks facing highly migratory species, which could become a tool for near-real-time, dynamic management. More broadly, this study also demonstrated a global commitment to scientific collaboration to scale the impact of the work we do.



Since 2016, we have been involved in collaborative projects utilizing the incredible big-data platform that is the Global Fishing Watch. The platform collects boat-based GPS signals captured and processed by Earth-orbiting satellites, and creates layered maps over time and fishing fleet to illustrate where and when legal/illegal fishing activity occurs in our global oceans. Fundamental to this collaboration has been overlaying our shark tracks (pink dots) with fishing boat positions (blue dots).



A global map displaying the integration of over 1,600 shark tracks and fishing boats, with warmer colors representing areas of heavy overlap. Blue dots represent biological ‘hotspots’ of shark activity. This publication continues to have a ripple effect in the marine conservation and policy worlds.



A real-time satellite tag is gently attached to a porbeagle shark off New England, in cooperation with tuna fishermen. Porbeagle sharks are currently threatened in the region due to overfishing and data on the movement from this animal and others can contribute to larger conservation plans.

PROGRAM FOCUS: DEEP SEA CONSERVATION

This year, we expanded our deep-sea work to go further than we've ever gone before. Catalyzed by our pilot work and findings in 2018 with Dr. Brennan Phillips, an engineer and deep-sea imaging expert from the University of Rhode Island, we partnered with Dr. Nicholas Payne of Trinity College Dublin on our extended expedition in May 2019.

Dr. Payne and his team used pop-off bio-logging tag packages during our shark-tagging work, which gave us incredible insights into how large tiger sharks connect the vertical water column, and how they may be using these environments. Equipped with sensors for depth, temperature, accelerations, and a video camera, these packages capture every move and the sharks' point-of-view continuously for 24-48 hours, until it is released and floats back to the surface.

We learned that the tiger sharks we've been tracking in The Bahamas were diving to great depths –over 1,5000 feet – and spending significant time there. These findings reinforced the need to expand our deep-sea work to understand why these areas might be so important for these animals.

Through a new partnership with Global Sub Dive and the team at Project Baseline, we have begun using 2-person, manned Triton submersibles (named Nemo and Nomad), to test out our research methodologies to make refinements for future work. In late 2019 we were able to pilot this work with the generous donation of the M/Y Marcato, which served as the mothership for the submersibles and team during a trip to the Northern Bahamas. We see massive potential for discovery and impact with this program as we look forward to the future.



ABOVE:
Advisory Board Member
Captain Jason Halvorsen (left)
inside Nomad, a 2-person
manned submersible piloted
by Randy Holt (right). Through
a partnership with Global
Sub Dive, we are able to get
eyes on deep-water habitats,
driving forward and refining
our research questions about
threatened species and the
conservation importance of
deep-sea habitats.



RIGHT:
A view through the dome of the Nomad submersible, viewing the continental slope and wall at around 400 feet off the Northern Bahamas. Video data, in addition to water samples, are taken along each underwater dive.



PERSONNEL SPOTLIGHTS:



JEFF PANKEY

WHERE DOES YOUR PASSION FOR THE OCEAN COME FROM?

My passion for the ocean originally started in the center of Georgia, where there is no ocean. When my mom would take us to the library, I would always find books on the ocean inhabitants, reefs, tropical fish and sharks. When I was 9 years old, my dad decided we were moving to Miami, and he would take me out fishing all the time. By the time I was 10 years old, I was the captain and the GPS. The ocean was natural to me, and I felt comfortable on the water as well as underneath it. Through

my professional career, I focused on my second passion: design and marketing. I secured my first real job as Director of Marketing with one of the largest Caribbean travel companies of that time, and while I traveled from island to island, I spent my down time diving and snorkeling at every opportunity. Seeing the variety of reef systems and comparing them from destination to destination, and watching the different animals interact with the ecosystem around them just fascinated me.

My passion for the ocean has only strengthened over the years. I often tell my friends and family that the only reason I work is so that I can afford to spend the rest of my time in the water. I have been blessed that I enjoy my work with all my heart, and that it continues to send me to the Caribbean and the ocean. I think that long after my bones are too weak and I can't walk anymore, I will still be swimming. Count on it!

WHAT DO YOU ENJOY MOST ABOUT BEING A BOARD MEMBER?

Being a Board Member of an ocean focused nonprofit has given me a sense of responsibility to take my passion even further. While I have always been charitable, it was always an arms-length away. Being a Board Member has given me the opportunity to provide connections to players throughout the Caribbean, as well as my expertise and marketing resources. For me, I most enjoy seeing the projects we create come together, and then to witness the tangible impact they have on the public the oceans more broadly.



JAMIE FITZGERALD

WHERE DOES YOUR PASSION FOR THE OCEAN COME FROM?

I grew up on Cape Cod, and I can't remember a time when I didn't love the sea. When I was a little girl, I didn't want to be a teacher, or a doctor, or an astronaut - I wanted to be a marine biologist. In one of my first 'jobs', I volunteered with the Provincetown Center for Coastal Studies, helping with data collection for their ongoing population studies on migratory whales. I loved being on the water and seeing these incredible species in their natural environments, but I equally loved being able to share this experience with others. It was so empowering to witness the connection and joy people had when they saw their first whale spouts or open mouths of baleen, and then hearing their questions: How do whales communicate? What do they eat? Are they afraid of sharks?

I also saw the incredible importance of education, awareness, and communication about ocean conservation. The saying 'people want to protect what they know' is so true. While not everyone is able to visit the beach or see breaching humpbacks, through the media we are able to share these experiences with others, bringing the world beneath the waves to the surface.

WHAT DO YOU ENJOY MOST ABOUT YOUR JOB AS COMMUNICATIONS MANAGER?

I love that no matter where I am, I'm actively connected to the ocean everyday by communicating about our work. Engaging with our followers on our social networks, or with our team, collaborators, or partners, I'm constantly surrounded by individuals who are learning, discovering, leading, and pioneering the field ocean conservation. I'll always be tethered to the sea, and to share this passion and connection with others is endlessly inspiring and motivating.

SCIENTIFIC PUBLICATIONS

THREATENED SPECIES CONSERVATION

- Queiroz N, Humphries NE, Couto A, Vedor M, da Costa I, Sequeira AMM, Mucientes G, Santos AM... Gallagher AJ...Harcourt R, Hays GC, Meekan MG, Thums M, Irigoien X, Eguiluz VM, Duarte CM, Sousa LL, Simpson SJ, Southall EJ, Sims DW. (2019) Global spatial risk assessment of sharks under the footprint of fisheries. *Nature* 572: 461–466
- Gallagher AJ, Meyer L, Pethybridge H, Huveneers C, Butcher PA (2019) The effects of short-term capture on the physiology of white sharks (*Carcharodon carcharias*): amino acids and fatty acids. *Endangered Species Research* 40:297-308.
- Gonzalez C, Gallagher AJ, Caballero S. (2019) Conservation genetics of the bonnethead shark *Sphyrna tiburo* in Bocas del Toro, Panama: preliminary evidence of a unique stock. *PLoS ONE* 14(8): eo220737
- Hammerschlag N, Schimtz OJ, Flecker AS, Laffery K, Sih A, Atwood TB, Gallagher AJ, Irschick DJ, Skubel R, Cooke SJ. (2019) Ecosystem function and services of aquatic predators in the Anthropocene. *Trends in Ecology and Evolution* 34:369-383.

BIODIVERSITY

- Bakker J, Wangenstein O, Baillie C, Buddo D, Chapman D, Gallagher AJ, Guttridge T, Hertler H, Mariani S. (2019) Biodiversity assessment of tropical shelf eukaryotic communities via pelagic eDNA metabarcoding. *Ecology and Evolution* 9:14341–14355
- Phillips BT, Shipley ON, Halvorsen J, Sternlicht JK, Gallagher AJ. (2019) First in situ observations of the sharpnose sevengill shark (*Hepttranchias perlo*), from the Tongue of the Ocean, Bahamas. *Journal of the Ocean Science Foundation* 32:17-32.

ECOLOGY

- Benson C, Shea B, de Silva C, Donovan D, Holder P, Cooke SJ, Gallagher AJ (2019) Physiological consequences of varying shark exposure on a large teleost species. *Canadian Journal of Zoology* 97:1195-1202.
- Shipley ON, Gallagher AJ, Shiffman DS, Hammerschlag N. (2019) Diverse resource-use strategies in a large-bodied marine predator guild: evidence from differential use of resource subsidies and intraspecific isotopic variation. *Marine Ecology Progress Series* 623:71-83.

MAJOR PRESS

Coverage of our research across 16 major press outlets generated over 2 billion impressions.

Below are a sample of some of the media outlets that covered our work:

Forbes



TRAVEL WEEKLY



BARRON'S
THE DOW JONES BUSINESS AND FINANCIAL WEEKLY



SCIENTIFIC
AMERICAN

THE MANUAL
The Essential Guide for Men



Tripadvisor



LUXURY
TRAVEL ADVISOR

BUSINESS
INSIDER

The
Washington
Post

IT THE IRISH TIMES



MAJOR SUPPORTERS & PARTNERS

FOUNDATIONS & TRUSTS

- The Wanderlust Fund
- Jeffrey King & Family
- Sternlicht Family Foundation
- Robert Saad
- Mary O'Malley and Lupo Dion
- De Silva Family Foundation
- Linda Cabot
- The WCPD Foundation
- Jennifer Nolan
- Rockefeller Philanthropy Advisors
- Karo Family Trust

GRANTS

- National Geographic
- Thayer Academy
- SeaWorld Busch Gardens Conservation Fund
- Maverick

CORPORATE SPONSORS

- Southern Tide
- Grand Isle Resort and Spa
- Lush
- Cape Clasp
- 36Pix
- JDL, Inc
- WeWork
- Anomaly Entertainment
- Paralenz
- IMV Imagining

OPERATIONAL PARTNERS

- International Seakeepers Society
- Paul Hastings, LLC
- Figment Design
- Global Sub Dive
- Stuart Coves
- Dive Exuma
- Exuma Foundation
- M/Y Marcato
- Fleet Miami
- Goose Hummock
- Hindsight Sportfishing
- Bahamas Dive Guides

KEY INSTITUTIONAL PARTNERS

- Nature Conservancy Caribbean
- Bahamas National Trust
- Bahamas Dept. Marine Resources
- Turks & Caicos Dept. of Environment
- Northeastern University
- University of Miami
- University of Rhode Island
- Stony Brook University
- Florida International University
- Trinity College in Dublin
- University of Washington

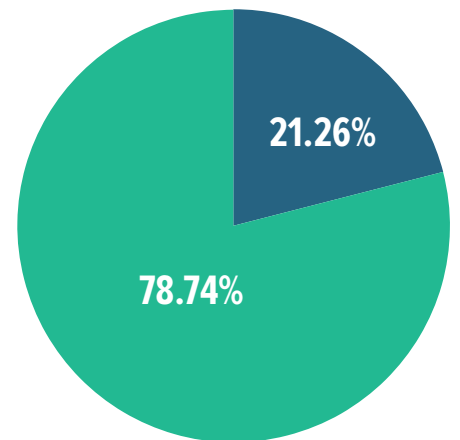
KEY MEDIA PARTNERS

- Discovery Channel
- Anomaly Entertainment
- National Geographic
- Nomad Creative
- Diego Camejo Studios
- Comfort Theory

FINANCIALS

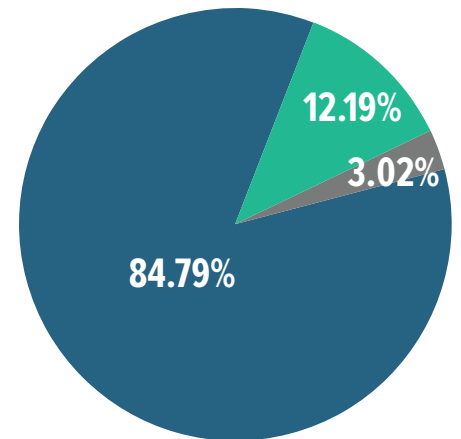
REVENUE:

| | |
|----------------------|--------------------|
| DONATIONS & GRANTS | \$334,796 |
| SPONSORSHIPS | \$1,239,861 |
| TOTAL REVENUE | \$1,574,657 |

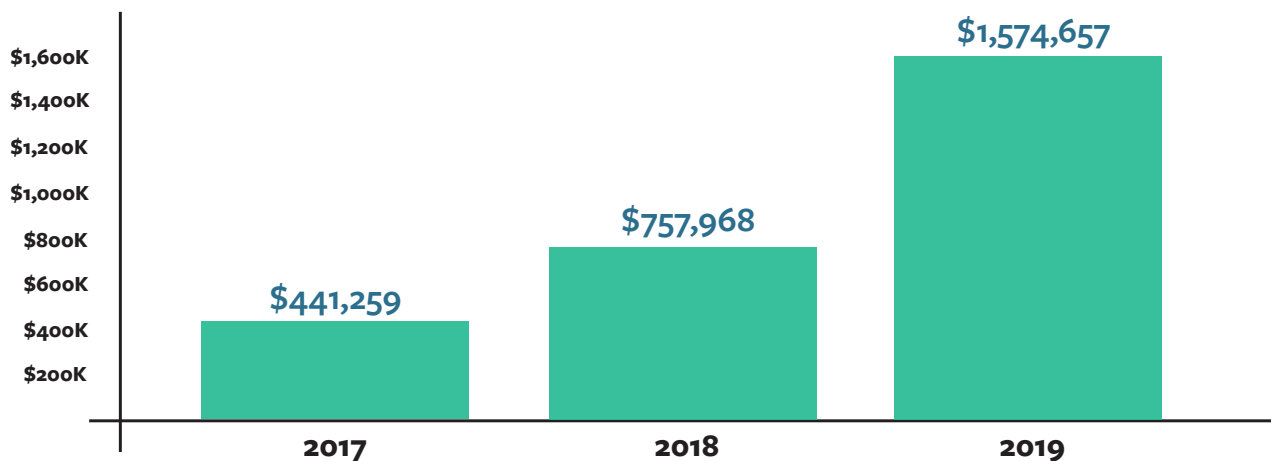


EXPENSES:

| | |
|------------------------|--------------------|
| PROGRAM SERVICES | \$1,302,441 |
| GENERAL ADMINISTRATION | \$187,253 |
| FUNDRAISING | \$46,353 |
| TOTAL EXPENSES | \$1,536,047 |



REVENUE YEAR OVER YEAR:



108% average growth rate from 2018-2019







PHOTO CREDITS

Sami Kattan

Diego Camejo

Brian Moghari

Josh Liberman



BENEATH THE WAVES

Beneath the Waves is a global NGO working to conserve sharks and the habitats they occupy through cutting-edge scientific research.

www.beneaththewaves.org

