Bermuda Institute of Ocean Sciences

Annual Report 2021

Contents

Bermuda Institute of Ocean Sciences

Cover photo by Eric Hochberg

BIOS

Letter from the Chair & the President

One year ago, we reported on how the BIOS community met the challenges of the COVID-19 pandemic head-on. One significant challenge was the need to maintain international cross-disciplinary collaborations to address some of the most pressing issues in ocean and atmospheric sciences, including climate change and human impacts on the marine environment.

In this year's report we share an exciting inflection point for our Institution, one that will give us the opportunity to help shape the dynamic landscape of ocean futures while embracing our core goals. We also focus on the successes of our research faculty and education staff in contributing to the understanding of global issues while providing the next generation of scientists with key skills and research training.

In October 2021, to deepen the understanding of the role that the ocean plays in climate science, Arizona State University (ASU) President Michael Crow announced the establishment of a new relationship with BIOS, working specifically with the university's Julie Ann Wrigley Global Futures Laboratory. The goal of the union is to marry programs and scientific study within both organizations, strengthening them with experts in various fields who can learn from each other and share research ideas and results.

For example, for more than 100 years, BIOS researchers, visiting scientists, and students have worked to explore the Atlantic Ocean and address the global and environmental issues it faces. We do this, in part, by operating several of the longest ocean observing time-series programs: Hydrostation 'S,' the Bermuda Atlantic Time-series Study, and the Oceanic Flux Program. These records provide insights on how the ocean carbon cycle, ocean physics, and biology are changing naturally and as a result of rising pressures from human activities, such as the increase of atmospheric carbon dioxide over time.

At the same time, since 2004, dedicated scientists and scholars at the Global Futures Laboratory have worked to understand the current state of the planet and the impacts of its inhabitants. They are developing new ways of acquiring and analyzing data on a range of topics, from food systems to human economies to future cities. The Global Futures Laboratory provides space for scientists, educators, and leaders across ASU and around the world to address critical issues related to the future of planet Earth. Their lab

operates with the mindset that "rather than solving problems after they arise, we seek to design a future in which humanity not only survives, but thrives."

Together, BIOS and the ASU Global Futures Laboratory will advance the understanding of the ocean's contributions to Earth's overall health. The new alliance will provide scientists at both institutions the opportunity to develop collaborative, transdisciplinary research projects. There will also be new experiential training and research opportunities for undergraduate and graduate students in global environmental and climate science at both institutes, as well as through BIOS's suite of local education programs.

In this report, we share the successes of our faculty and education staff, highlighting the strengths they bring to this partnership. BIOS scientists addressed increasingly complex questions about the global ocean by focusing on some of its smallest organisms: microbes, including marine plankton. From international research initiatives designed to understand the role marine microbes play in the global carbon cycle, to multi-year, multi-institutional programs aimed at answering fundamental questions about the ocean's biogeochemical cycles, BIOS faculty and research scientists contributed to a growing body of knowledge about the changing ocean.

BIOS education staff leveraged this research to provide valuable scientific training to the next generation, while working closely with local partners to highlight issues of immediate concern. BIOS's University Programs Department provided undergraduate and graduate-level mentorship and hands-on field and laboratory experiences in genetics, microbiology, and biogeochemical oceanography. At the same time, the Institute's Ocean Academy served local students and educators through its suite of progressive education programs, and its citizen science program offered residents and visiting students a chance to learn more about the impact of ocean microplastics on the local marine environment.

History has shown that innovation comes from collaboration, and in 2021 BIOS expanded our capacity to bring scientists, students, and educators together in meaningful ways. Our partnership with the ASU Global Futures Laboratory will add new dimensions of study and expertise to BIOS's strong research program, allowing us to gain a clearer picture of ocean dynamics and health.

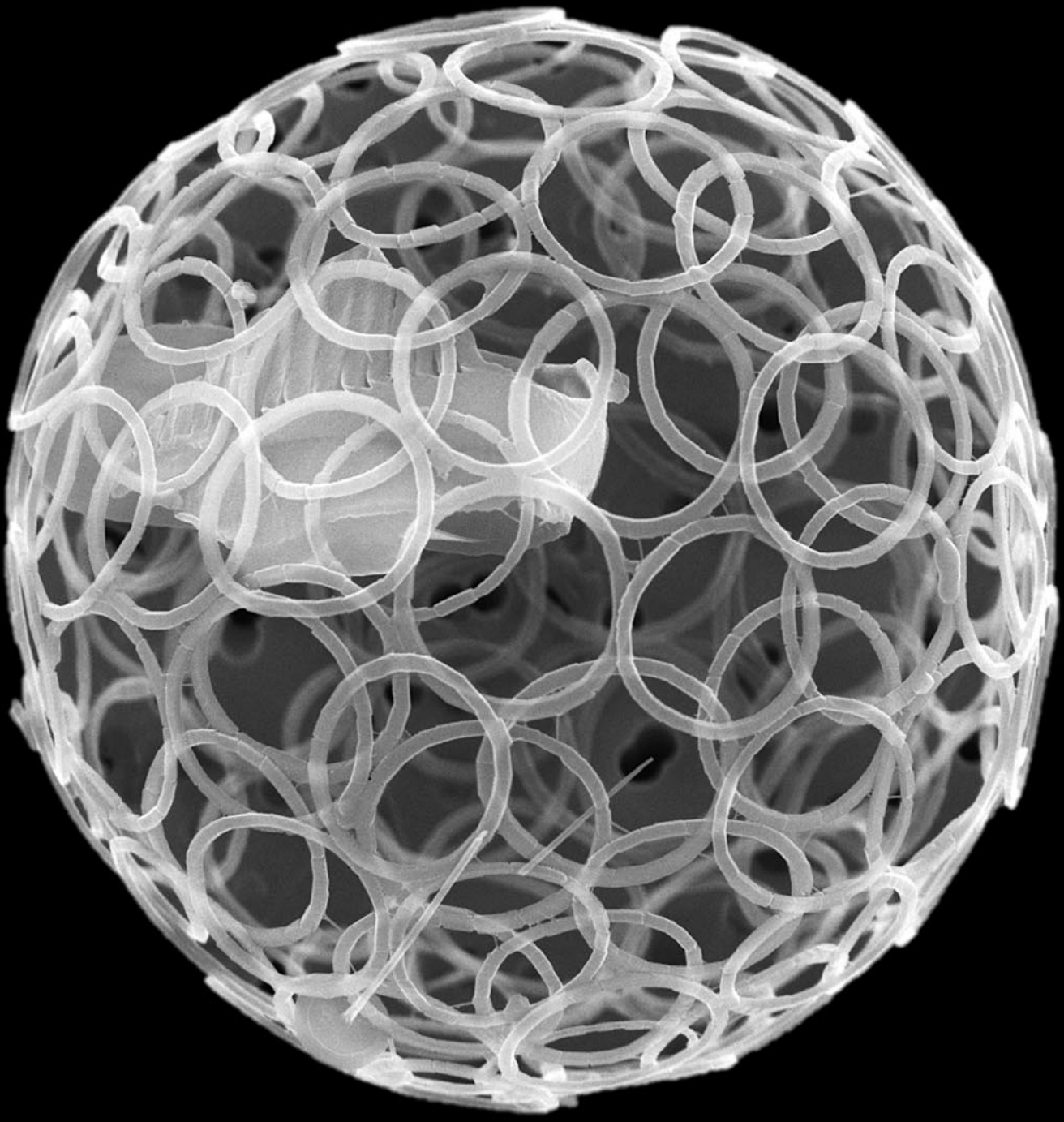
We welcome your continued support and interest in BIOS as we embark on this next phase of our mission. With you, we are excited to see what the future holds.

J. William Charrier
Chair of the Board of Trustees

William B. Curry
President & CEO

BIOS

Research



Research specialists Becky Garley and Matt Enright took part in a multi-week scientific cruise to the Southern Ocean as part of a collaborative project funded by NSF to study coccolithophores, microscopic shell-building plankton that are of particular interest in climate change studies.
Previous page: *Ceratolithus cristatus,* photographed at 12,900x magnification, collected from a depth of 65 feet (20 meters) in Bermuda. Image by Josué G. Millán

For decades, research at BIOS has spanned topics in the ocean and atmospheric sciences. These have ranged from locally-relevant issues concerning coral health and fish biodiversity to globally-relevant, and increasingly complex, questions about the ocean's biogeochemical cycles and climate change. Scientists are finding that answers to these big questions might lie with some of the ocean's smallest and most abundant organisms: microbes, including marine plankton. In 2021, BIOS faculty and scientific staff participated in international collaborations, and announced exciting long-term partnerships, designed to further our understanding of the role marine microbes play in the global carbon cycle and marine ecosystem dynamics.

In January 2021, BIOS research specialists Becky Garley and Matt Enright took part in a multi-week scientific cruise to the Southern Ocean aboard research vessel Roger Revelle as part of a collaborative project funded by the U.S. National Science Foundation (NSF). In the open ocean between New Zealand and South America, more than three dozen scientists advanced their studies of coccolithophores, microscopic shell-building plankton that are of particular interest in climate change studies.

Coccolithophores, unicellular algae covered in miniscule plates of the mineral calcite, bloom near the sea surface in the Southern Ocean in austral summertime (December through February)—a phenomenon known as "the Great Calcite Belt." Estimates show these microscopic organisms produce more than 1.5 million tons of calcite each year, making them the ocean's leading producer of calcite and a potentially significant influence on the global carbon cycle.

In September NSF announced that BIOS will be one of 13 institutions participating in the Center for Chemical and Currencies of a Microbial Planet (C-CoMP). The STC will be based at the Woods Hole Oceanographic Institution on Cape Cod and the STC will offer research opportunities to faculty and a suite of new educational programs for local students. Photo by James Doughty

As ocean acidity increases, their outer shells, called coccoliths, may become more important as a carbon sink, or reservoir, for carbon-containing chemical compounds. Unfortunately, the calcite coccoliths also make the coccolithophores susceptible to ocean acidification. Changing ocean pH may dissolve the coccoliths or make it more difficult for the coccolithophores to build their plates.

A new NSF Science and Technology Center (STC) is intended to develop a deeper understanding of the role marine microbes, such as coccolithophores, play in changing ocean conditions and the global carbon cycle. In September 2021, NSF announced that BIOS will be one of 13 institutions participating in the Center for Chemical and Currencies of a Microbial Planet (C-CoMP). The STC will be based at the Woods Hole Oceanographic Institution on Cape Cod in Massachusetts and co-directed by the University of Georgia in Athens, Georgia.

Over the next five years, the C-CoMP will leverage recent scientific advances, incorporate new technologies, and engage educators and policymakers to promote a deeper understanding of the chemicals and chemical processes that underpin ocean ecosystems. For BIOS, the STC will offer research opportunities to faculty and a suite of new educational programs for local students.

Nick Bates, BIOS senior scientist and director of research, led the Institute's involvement with the project, a planning process that began in 2019. "The STC

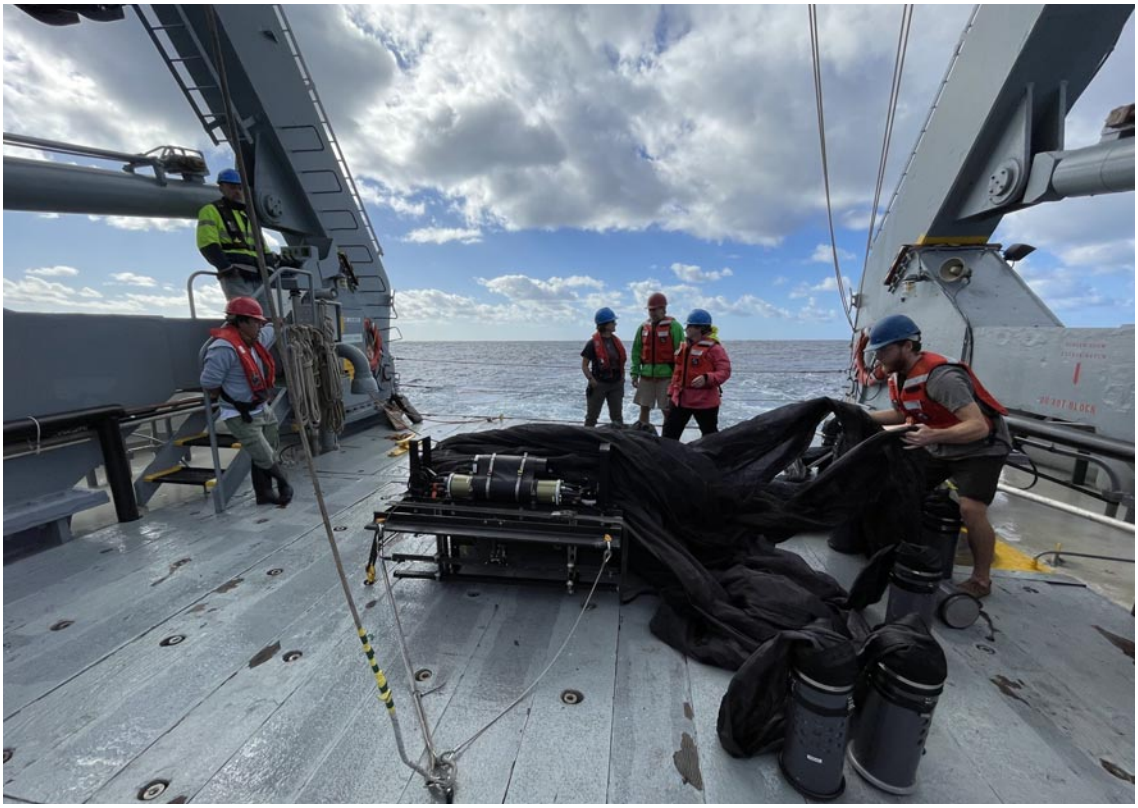
In November 2021, the eighth BIOS-SCOPE research cruise took place, with more than a dozen scientists spending four days at sea aboard the BIOS-operated research vessel *Atlantic Explorer*.

will use the Bermuda Atlantic Time-series Study (BATS) as a site for sampling, and leverage new and novel approaches to understand how ocean biology, and the microbial ocean world, recycles organic carbon back to carbon dioxide, and if this is changing," Bates said.

Since 2015, scientists from Bermuda, Germany, the United Kingdom, and the United States have converged at BIOS to investigate the microbial ecology of the Sargasso Sea as part of the multi-year, multi-institutional BIOS-SCOPE (Bermuda Institute of Ocean Sciences - Simons Collaboration on Ocean Processes and Ecology) project. BIOS-SCOPE, which received a five-year renewal in 2020, aims to answer fundamental questions about the ocean's biogeochemical cycles, the structure of the phytoplankton community, and how this affects the cycling of dissolved organic matter (DOM).

In ecosystems such as the Sargasso Sea, where nutrients are limited, DOM is efficiently recycled, at various times incorporated, oxidized, and transformed by zooplankton and microbial communities throughout the water column. Linking DOM dynamics with microbial activity is key to understanding carbon fluxes across the food web.

In November 2021, the eighth BIOS-SCOPE research cruise took place, with more than a dozen scientists spending four days at sea aboard the BIOS-operated research vessel *Atlantic Explorer*. Fabian Wittmers, a doctoral student in the lab of BIOS-SCOPE investigator Alexandra Worden, GEOMAR professor of ocean ecosystems biology, was among the cruise participants. Together, Wittmers and Worden are using the information they obtain from BIOS-SCOPE research cruises and pair-



Faculty and research staff successfully initiated and maintained international collaborations that brought into focus the role that microbes play in marine ecosystems and global biogeochemical cycles. These partnerships will continue to add to the growing knowledge base required to help us understand and protect a changing ocean.

ing it with data from BATS. By combining these two data streams into larger data sets, or "big data," Wittmers and Worden hope to understand what they refer to as "agents of mortality."

As they explain, the way an individual phytoplankton meets its demise impacts the way an atom of carbon moves up the food chain. If the phytoplankton is grazed on by another plankton, such as zooplankton or protists, the carbon moves up the food chain. However, if the phytoplankton is infected by a marine virus, the former organism can burst, releasing dissolved and particulate carbon back into the water column, fueling growth of other organisms such as bacteria.

Their research will answer one small part of the larger questions posed by BIOS-SCOPE scientists. What is the fate of organic matter in the water column? What organisms, or mechanisms, transform the organic matter (a process that changes it into other compounds and affects its quality, or how valuable it is to other organisms)? And which mechanisms are responsible for recycling it or moving it up the food web?

During 2021, BIOS faculty and research staff successfully initiated and maintained international collaborations that brought into focus the role that microbes play in marine ecosystems and global biogeochemical cycles. Over the coming years, these partnerships will continue to add to the growing knowledge base required to help us understand and protect a changing ocean.

Education

BIOS

In 2021, almost 1,000 educators and local Bermudian students ages eight to 22 received experiential training at BIOS, while more than 85 international students took part in novel scientific training under the in-person or virtual guidance of BIOS educators and researchers.

The scale of the scientific research conducted at BIOS, and the impact of our educational activities, is vast. From studying large-scale ocean processes over many decades to deciphering the genetic code for a fish from a single skin cell, BIOS researchers work to find answers to pressing scientific questions while training the next generation of scientists. In 2021, almost 1,000 educators and local Bermudian students ages eight to 22 received experiential training at BIOS, while more than 85 international students took part in novel scientific training under the in-person or virtual guidance of BIOS educators and researchers.

The year 2021 marked the 30th anniversary of BIOS becoming a site for the competitive and prestigious National Science Foundation (NSF) Research Experiences for Undergraduates (REU) program. The REU program provides U.S. participants with the opportunity to work alongside the Institute's faculty and staff on research projects exploring a variety of topics in ocean sciences. The 2021 cohort of nine undergraduate students represented universities in eight states and Puerto Rico, with majors including biochemistry, biological sciences, engineering, environmental sciences, geosciences, and physics.

The BIOS NSF REU program operated in a new format in 2021. Participants conducted collaborative research projects in groups within three broad research themes: biological production and exports, coral reef systems ecology, and plastics

The BIOS NSF REU participants conducted collaborative research projects in groups. Each intern's project addressed one aspect of a larger research question, allowing the students to work closely with other group members, as well as their faculty mentors.

in the marine environment. Each intern's project addressed one aspect of a larger research question, allowing the students to work closely with other group members, as well as their faculty mentors, throughout the duration of the 12-week program.

Margaret Lockwood, a physics student at the University of Kansas in Lawrence, Kansas, worked with microbial oceanographer Rachel Parsons and environmental chemist Andrew Peters. Her REU project investigated the microbes that live on marine microplastics, pulverized pieces of plastic smaller than cupcake sprinkles. She used microscopy techniques to investigate the impact of light on microbes, as previous studies indicated that light breaks down marine microplastics and impacts the microbial community. "I learned an incredible amount through my project, speaking to my peers, and talking to BIOS staff," Lockwood said.

Plastics in the marine and coastal environment have a substantial impact locally and around the world. These seemingly harmless multicolored bits of plastic, which take hundreds or thousands of years to decompose, can be mistaken for food by marine life. Additionally, their chemical components can make their way into the food chain, potentially harming people who rely on fish, shellfish, and other marine organisms for food. In 2021, BIOS educators offered local residents and the Institute's visiting international students a chance to learn more about ocean microplastics by participating in a citizen science program.

BIOS educators offered local residents and the Institute's visiting international students a chance to learn more about ocean microplastics by participating in a citizen science program sifting debris from tidal points at a number of Bermuda's beaches. Participants ranged from local middle school students to retirees and REU students.

Participants in the program ranged from local middle school students to retirees and REU students. Each earned the title of "citizen scientist" by sifting debris from tidal points at a number of Bermuda's beaches. After shaking sand through sieves, volunteers swept the accumulated bits of confetti-like green, blue, orange, and white microplastics into a container, then carefully poured the contents into clear bags. Afterward, the bagged debris was brought back to the lab at BIOS where it was dried, sorted, and categorized by size. During one such microplastics training day, the volunteers sieved a total of 2,800 gallons (10,800 liters) of sand, collecting valuable data to better understand the impact of these tiny pieces of plastic on the local environment.

BIOS's educational curriculum spans the breadth of our scientific research. In 2021, molecular biologist Julius Barsi hosted three interns on a project that focused on genetic "big-picture" concepts while engaging the students in detailed cell-level scientific analysis. Working remotely with Barsi as a pandemic-related precaution, the interns from Bermuda, Canada, and the Netherlands undertook research on purple sea urchin embryos. Through their analysis, Barsi and the interns pinpointed certain genes involved in the specialization of gut cells while advancing basic knowledge and understanding of animal development on a genome-wide scale.

One of Barsi's interns, Anik Grearson, completed her undergraduate degree in molecular biology and genetics at McMaster University in Ontario, Canada, and received scholarship support from the Canadian Associates of BIOS (CABIOS) to take part in the 11-week internship. CABIOS provides support for Canadian students, as well as students studying at Canadian universities and colleges, to participate in educational programs at

"Science opens up endless questions, and every step forward in this project made me realize there is so much more out there to learn and research. It has made me excited for my future education and career." Said Matthew Nagel, a Bermudian and 2021 graduate of the college preparatory Oakham School in England

BIOS. "I used statistical analysis to narrow a list of 20,973 genes down to a single transcription factor that was the most likely to be key to the development of the gut," Grearson said. She added, "My experience helped clarify my goals as a scientist and establish connections with new peers and mentors."

Matthew Nagel, a Bermudian and 2021 graduate of the college preparatory Oakham School in England, joined Barsi's intern cohort for eight weeks as a participant of BIOS's Bermuda Program. The program pairs local students with research mentors for intensive internships ranging in length from two to eight weeks, and offers hands-on laboratory and field experiences as students investigate advanced ocean and atmospheric science topics. "Taking part in this project vastly improved my research and analysis skills and taught me much more about genetics at a level I could not have reached elsewhere," Nagel said. He added, "Science opens up endless questions, and every step forward in this project made me realize there is so much more out there to learn and research. It has made me excited for my future education and career."

Throughout 2021, BIOS's Education Department continued to adapt to the changing landscape of the COVID-19 pandemic and delivered novel, hands-on training to a socioeconomically diverse group of students. Local and international participants benefited from the expertise of BIOS scientists, both in-person and virtually, and focused on bolstering the skill sets that will be essential for their future academic success.

Financial Summary

2021 was a turning point for BIOS with growth and change on the horizon. We were starting to feel the return to normalcy after the challenges presented by the pandemic in 2020, with borders reopening and travel requirements easing to give a healthy outlook on recovery, prosperity, and strategic advantages.

In late 2021 BIOS joined Arizona State University's (ASU) Global Futures Laboratory as partners to further our mission and together create greater understanding of the role the ocean plays in climate control. This is a tremendous opportunity for students, scientists, and both institutions to expand their presence in ocean sciences globally while working towards a shared vision. The vision in which life thrives on a healthy planet.

BIOS is immensely grateful to its donors, dedicated trustees, management team, faculty, and operational teams who supported BIOS to achieve this milestone partnership.

SELECTED HIGHLIGHTS AND ACCOUNTING BASIS CHANGE:

- BIOS adopted a change in accounting standards in 2021 as a result of the affiliation agreement with ASU. The presented statements are prepared in conformity to GASB (prior was FASB). Financial presentation changes include the classification of assets and liabilities as current or noncurrent and revenues and expenses as operating or non operating. Nonoperating activity include transactions that are longer term in nature or indirectly relate to the core mission.

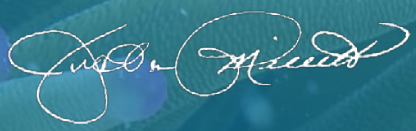
- The change in basis of accounting did not result in any adjustment to net position.

- BIOS ended fiscal year 2021 with a favorable change in net position of $1.6M while reporting an operating loss of $4.9M. Operating revenues increased by $0.7M with growth in research and educational support. Under GASB, donations, affiliation fees, and investment performance are not classified as operating support.

- Cash and investments increased by nearly $2M and BIOS paid down $3M in debt at December 31, 2021. Operational support from BIOS endowment totaled $727K for the year. The distributed earnings from the endowment touches all areas of BIOS and is utilized in accordance with donor instruction.

- Total operating expenses increased by $1.7M over the prior year due to programmatic growth. Nonoperating expenses included a loss on disposals of $0.1M as BIOS wrote off fixed assets which were no longer in use or without current value to operations.

We look forward to building strength through our strategic alliance with ASU, and working as partners in the pursuit of a healthier earth. Our talented teams and pooled resources will allow for knowledge creation, innovation, and exploration in the realm of climate change today and for years to come. The combination of mutual talent and aligned synergies are suited for future success.



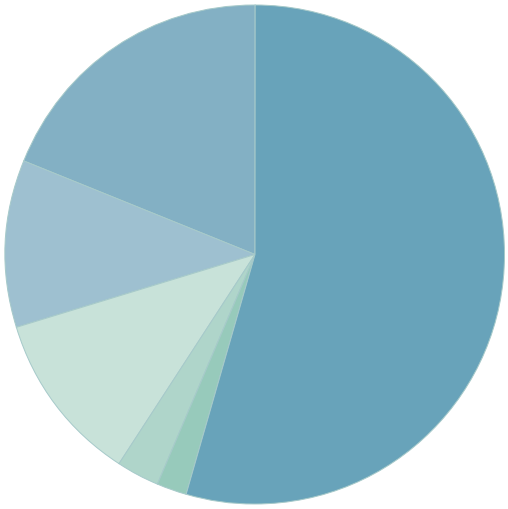
Victoria Millett, CPA
Treasurer and Controller

Summary Financial Highlights

December 31, 2021

2021 REVENUES & SUPPORT

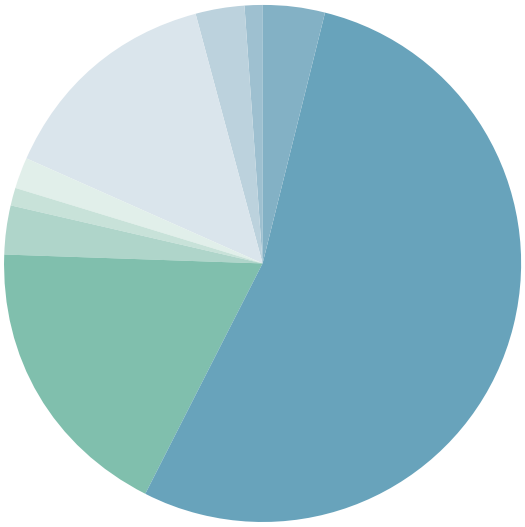
Operating revenue is derived from research grants and contracts (54%), tuition and fees (2%), and auxiliary enterprises (3%). All other sources of revenue are considered as nonoperating revenues.



- Research Grants and Contracts **(54%)** $ 9,401,465
- Tuition and Fees **(2%)** $ 317,481
- Auxiliary Enterprises **(3%)** $ 463,478
- Contributions **(11%)** $ 1,960,861
- Investment Return $ 1,854,949 (11%)
- Affiliation and Services Revenues **(19%)** $ 3,200,000

2021 EXPENSES

Operating expenses include research (54%), instruction (4%), institutional support (18%), operation and maintenance of plant (3%), auxiliary enterprises (1%), academic support (2%), and depreciation (14%). All other expenses are considered nonoperating.



- Instruction **(4%)** $ 667,162
- Research **(54%)** $ 8,348,918
- Institutional Support **(18%)** $ 2,865,889
- Operation and Maintenance of Plant **(3%)** $ 530,505
- Auxiliary Enterprises **(1%)** $ 215,484
- Academic Support **(2%)** $ 331,149
- Depreciation **(14%)** $ 2,163,788
- Interest on Debt **(3%)** $ 412,360
- Loss on Disposals $ 96,261 (1%)

Summary Financial Highlights

December 31, 2021

Statements of Net Position

	2021	2020
Assets		
Current Assets	$ 8,436,524	$ 7,356,088
Noncurrent Assets	24,536,123	25,196,975
Noncurrent capital assets, net	15,171,949	17,043,269
Total Assets	**48,144,596**	**49,596,333**
Liabilities		
Current liabilities	$ 7,027,399	$ 4,560,655
Noncurrent long-term obligations	869,445	6,359,213
Total Liabilities	**7,896,844**	**10,919,868**
Net Position		
Net Investment in Capital Assets	$ 8,812,736	$ 7,712,620
Restricted:		
Nonexpendable	10,169,141	10,142,641
Expendable	18,538,978	19,010,760
Unrestricted	2,726,897	1,810,443
Total Net Position	**$ 40,247,752**	**$ 38,676,464**

Statements of Revenues, Expenses and Changes in Net Position

Operating Revenues		
Research Grants and Contracts	$ 9,401,465	$ 8,889,673
Tuition and Fees	317,481	193,036
Auxiliary Enterprises	463,478	397,437
Total operating revenues	10,182,424	**9,480,145**
Operating Expenses	**$ 15,122,895**	**$ 13,457,413**
Operating Loss	(4,940,471)	(3,977,268)
Net nonoperating revenues (expenses)		
Nonoperating revenues	7,020,380	14,531,851
Nonoperating expenses	(508,621)	(459,363)
Net nonoperating revenue	6,511,759	14,072,488
Increase in net position	1,571,288	10,095,220
Net position at beginning of the year	**38,676,464**	**28,581,244**
Net position at end of the year	**$ 40,247,752**	**$ 38,676,464**

BIOS

Summary Financial Highlights

December 31, 2021

	2021	2020
Investments		
Global Multi-Asset Fund	$ 17,829,059	$ 16,677,016
Treasury Money Market Fund	2,412,513	2,412,202
Common Stock	-	50,717
Total	$ **20,241,572**	$ **19,139,935**

Endowment Funds		
Balance on January 1	$ 16,702,617	$ 15,685,985
Received during the year	26,500	25,600
Investment return during the year		
Net appreciation	$ 1,923,750	$ 1,772,362
Investment fees	(69,349)	(59,265)
Distributed during the year	(727,958)	(722,065)
Balance on December 31	$ **17,855,560**	$ **16,702,617**
Represented on the Balance Sheet as:		
Restricted		
Nonexpendable	$ 10,169,141	$ 10,142,641
Expendable	5,713,393	4,788,617
Unrestricted	1,973,026	1,771,359
Balance on December 31	$ **17,855,560**	$ **16,702,617**

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Faculty & Staff

BIOS

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Research Technician

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Assistant Scientist

Nicholas R. Bates, PhD
Senior Scientist and Associate Director of Research

Leocadio Blanco-Bercial, PhD
Assistant Scientist

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Senior Lecturer and Associate Scientist

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Matt Enright
Research Specialist

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Research Specialist

Jessica Godfrey
Research Technician

Hannah Gossner
Research Technician

Damian Grundle, PhD
Assistant Scientist

Matt Hayden
Research Technician

Ali Hochberg
Research Technician

Eric J. Hochberg, PhD
Associate Scientist

Rodney J. Johnson, PhD
Assistant Scientist

Amy Maas, PhD
Assistant Scientist

Claire Medley
Research Technician

Sheryl Murdock, PhD
Postdoctoral Researcher

Tim Noyes
Research Specialist

Rachel J. Parsons
Microbial Observatory Lab Manager

Andrew J. Peters, PhD
Associate Scientist

Yvonne Sawall, PhD
Research Fellow

Dom Smith
Research Technician

Kevin Yongblah
Research Technician

Adjunct Faculty

Andreas J. Andersson, PhD
Scripps Institution of Oceanography

Craig Carlson, PhD
University of California, Santa Barbara

Steven Giovannoni, PhD
Oregon State University

Gretchen Goodbody-Gringley, PhD
Assistant Scientist

Michael W. Lomas, PhD
Bigelow Laboratory for Ocean Sciences

Christa Marandino
Asst Prof, GEOMAR Helmholtz Centre for Ocean Research Kiel

Philippe Rouja, PhD
Custodian of Historic Wrecks, Bermuda Government

Samia Sarkis, PhD
Senior Marine Researcher, Department of Conservation Services

Struan R. Smith, PhD
Bermuda Natural History Museum

Hans Christian Steen-Larsen, PhD
Researcher, Geophysical Institute, University of Bergen

Deborah Steinberg, PhD
Virginia Institute of Marine Science

Simon J. Ussher, PhD
Plymouth University Scientific Technical Staff

BIOS

Education

Samantha de Putron, PhD
Assistant Director of University Programs and Senior Lecturer

Kaitlin M. Noyes
Director of Education and Community Engagement

Andrew Peters, PhD
Director of University Programs & Associate Scientist

Audrey Pope
University Programs Internship Coordinator, Communications and Data Manager

Claire Fox
Science Education Officer

Marine Operations

Captain & Marine Superintendent
Quentin Lewis

Captain
George Gunther

Port Captain
Richard Verlini, III

Marine Operations Coordinator
Deborah Moran

Marine Consultant (Volunteer)
Captain John Moore

Oceanographic Technical Services Manager
Kent Larsen

Senior Marine Technician
Rory O'Connell

Marine Technician
Ella Cedarholm

Marine Technician
Lydia Sgouros

R/V Atlantic Explorer

Relief Chief Mate
Chris Sheridan

Relief Chief Mate
Larry Morris

Relief Chief Mate
Patrick Redmond

Relief Chief Mate
Emily Jarris

Relief Second Mate
Paul Carty

Relief Second Mate
Emily Jarris

Relief Chief Engineer
Jens (Mike) Kierkegaard

Relief Chief Engineer
Eric Hahn

R/V Atlantic Explorer Crew,
Bernhard Schulte Ship-Management Co

Relief Second Mate
Jeorge Yu

Cook
Dexer Ojano

Cook
Carlos Calayo

Cook
Riggie Sanqui

Bosun
Jojo Paitone
Bosun
Ronnie De Leon

Motorman 1
Berlin Jamelo

Motorman 1
Rodney Jumeras

Motorman 1
Al Soliva

Able Seaman
Jhun Mutas

Able Seaman
Raymund Laureano

Able Seaman
Joven De Guzman

Ordinary Seaman
Henderson Cabading

UNOLS Tech Pool

Marine Technician
Tony D'Aoust

Operations

Jane Burrows
Accommodation and Catering Manager

Tracey Byron
Human Resources Generalist

Chris Flook
Small Boats and Docks Supervisor

Ruth M. Heron-Watts
Accountant

Kevin Hollis
Facilities Manager and Safety Officer

Malika Hughey
Accounting Assistant

Mukesh Kumar
Head Chef

Michael Lee
IT Manager

BIOS

Faculty & Staff

Charlene Millett
Kitchen Assistant

Victoria Millett
CPA Treasurer and Controller

Donika O'Mara
Office/Room Attendant

Carol Pitcher
Office/Room Attendant

Helena Simoes
Chef

Kyla Smith
Dive Safety Officer

Antar Smith
Network and Systems Administrator

Warren Smith
Electrician/Plumber

Kenneth Trott
Truck/Bus Driver

LeeAnn Tuzo
Accounts Payable Clerk

Gregory Wade
General Maintenance

Georgianna White
Laboratory Attendant

Bruce Williams
Laboratory Operations Technician

Development, Communications & Marketing

Pamela Amaral
Development Officer

Ali Hochberg
Science Writer and Webmaster

Tiffany Wardman
Marketing and Media Relations Manager

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