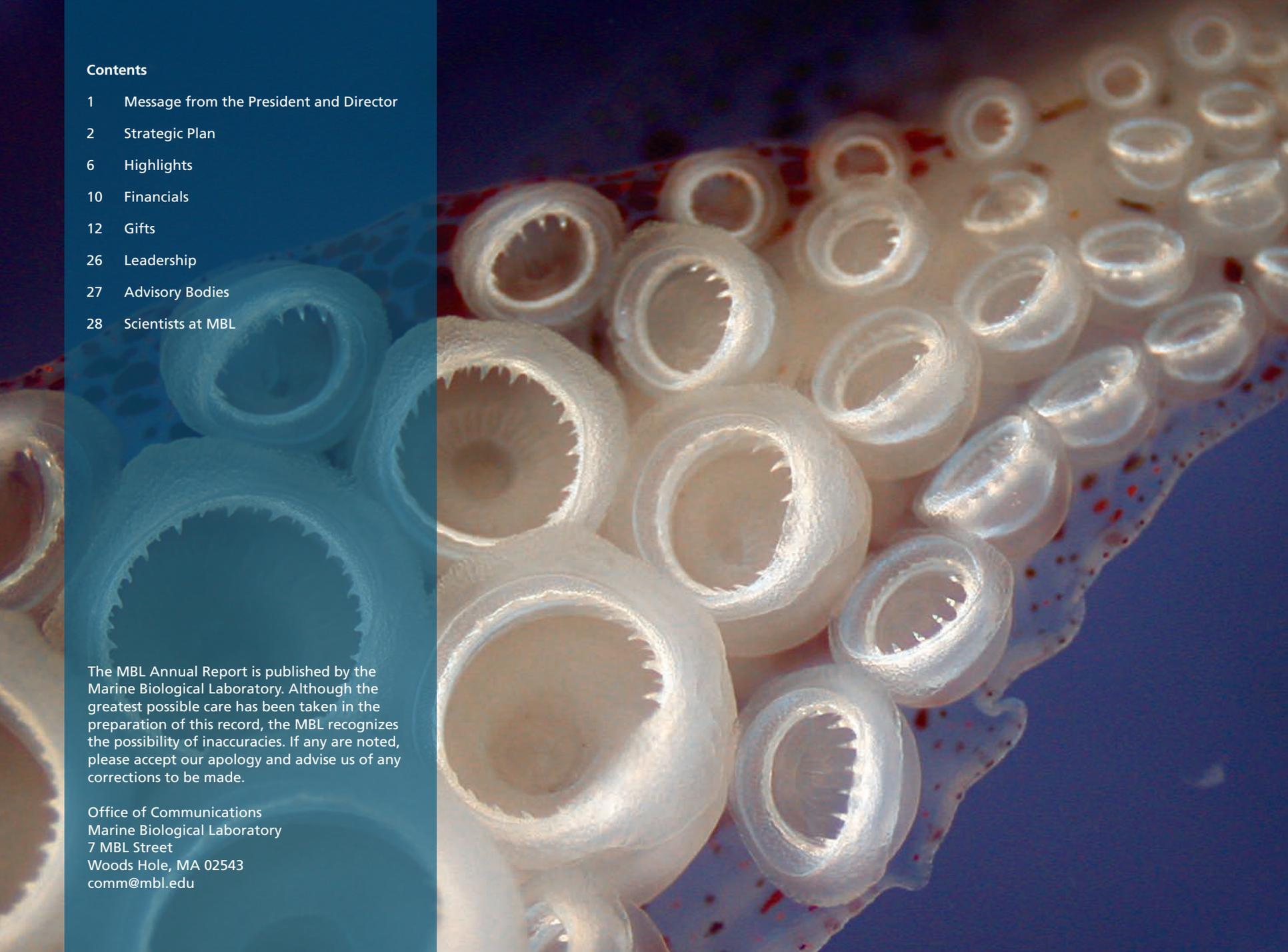


Marine Biological Laboratory



THE UNIVERSITY OF
CHICAGO

2015-2016 ANNUAL REPORT

A detailed microscopic image of biological tissue, likely a cross-section of a sponge or similar organism. The image shows numerous circular, ring-like structures with serrated inner edges, arranged in a somewhat regular pattern. The color palette is primarily blue and white, with some reddish-brown spots scattered throughout. The lighting is dramatic, highlighting the textures and three-dimensional nature of the structures.

Contents

- 1 Message from the President and Director
- 2 Strategic Plan
- 6 Highlights
- 10 Financials
- 12 Gifts
- 26 Leadership
- 27 Advisory Bodies
- 28 Scientists at MBL

The MBL Annual Report is published by the Marine Biological Laboratory. Although the greatest possible care has been taken in the preparation of this record, the MBL recognizes the possibility of inaccuracies. If any are noted, please accept our apology and advise us of any corrections to be made.

Office of Communications
Marine Biological Laboratory
7 MBL Street
Woods Hole, MA 02543
comm@mbi.edu

From the President and Director



The 2015-2016 year was marked by continuing progress towards best positioning the Marine Biological Laboratory for dramatic discovery and impact in the coming years and beyond.

Dedicated and energetic engagement among scientists across the full breadth of the MBL has shaped our new strategic plan (highlighted in the next pages of this Report), added strength to new programs with our University of Chicago colleagues and students, explored new approaches to deepen the interactions of our 'Faculty of 500' throughout the year, and attracted an expanding cadre of investigators to Woods Hole, especially those early in their scientific careers.

This fiscal year saw the creation of a new Microbiome Center that draws on the combined faculty at UChicago, Argonne National Laboratory, and MBL; celebrations of new advances emerging from our resident scientist and Whitman Center laboratories; the appointment of new directors for the Division of Education and our Ecosystems Center; and initial steps towards development of the first programs to emerge from the strategic plan.

As always, this progress could not be possible without the efforts and unique contributions of the full MBL community—our alumni, our generous and loyal supporters, our corporate and foundation partners, our Woods Hole neighbors, the committed leadership from UChicago and on our Board, and, first and foremost, our staff, students, and scientists.

Sincerely,
Huntington F. Willard
President and Director
Marine Biological Laboratory

Strategic Plan



A Vision for the Future of the MBL

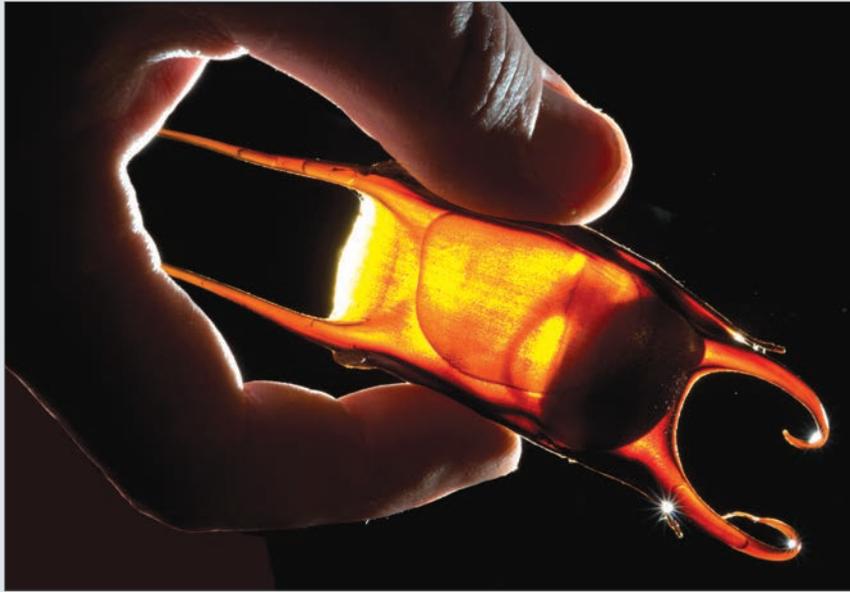
Following an extensive strategic planning process that engaged hundreds of MBL scientists and leading experts from around the country and the globe, the MBL has developed a new Strategic Plan defined by research themes that represent the MBL's greatest opportunities for distinction in the years ahead.

This vision for the MBL builds on its essential strengths—a strong year-round resident

scientist program, a vibrant Whitman Center that comes alive each summer, and an immersive, inspiring, and transformative educational program. The plan capitalizes on the MBL's storied convening power, with its centerpiece a proposed Institute for Advanced Discovery at MBL. The MBL Institute would complement and synergize with the Whitman Center and resident scientist programs and would be the world's leading year-round convening institute

in the life sciences—one focused on the biology and ecology of marine organisms, life in the oceans, and the science of global climate change. The Institute would assemble multidisciplinary teams of scientists and students at times throughout the year to focus on novel questions in key areas of research, to synthesize new information, and to set agendas for both established and emerging fields in life sciences and biomedical research.

The Strategic Plan centers around four key areas of opportunity:



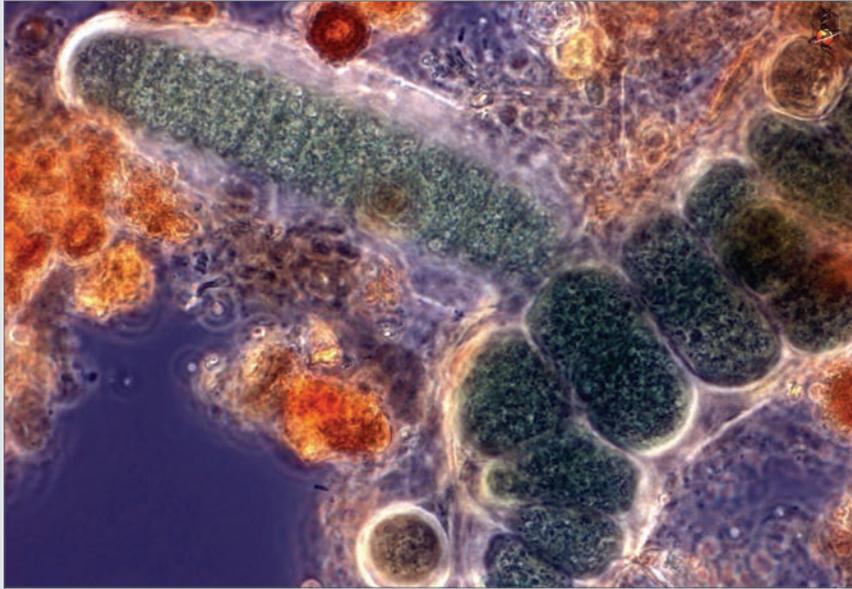
Biological Discovery in Marine Organisms

Using the rich marine life at our doorstep and coupling the study of novel aquatic organisms with emerging technologies in genetics, imaging, and computation, the MBL is a center for discovery of basic mechanisms of life at many levels—from genomes, cells, and tissues to organisms, populations, and species—with research in genetics and genomics, neuroscience, development, complex behavior, cell biology, and novel models of human disease. The MBL's unique resources place it in a special position to become a leader in discovering new biology and in establishing a new crop of organisms to address fundamental problems of biomedical research not readily accessible in the few and stochastically selected organisms currently in use.



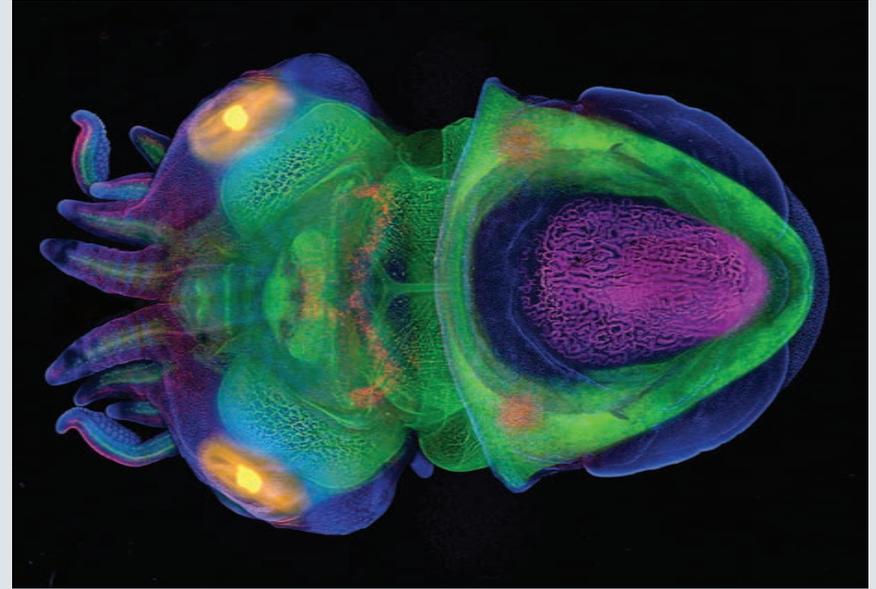
Ecosystems in Action and Reaction: the Past and Future of Ocean Life

A major frontier across all science in the 21st century is one of systems, and ecosystems are among the most complex systems around. To understand the interplay of organisms and changing environments over a wide range of time-scales and habitats, the MBL drives research at the nexus of the biological and geophysical sciences, evolution, and ecology—shaping our understanding of the causes and impact of climate change, species dynamics, and the diversity of life. From coastal ecosystems to rapidly changing polar regions, MBL scientists and their teams address the challenge of understanding life in a period of rapid climate change—an approach that compares ocean and terrestrial habitats and spans extensive field work, laboratory investigation, and mathematical modeling.



Microbial Keys to Ocean, Planet, and Human Health

Scientists at MBL delve into a molecular and spatial understanding of microbial diversity and communities. These dynamic and heterogeneous communities of microorganisms orchestrate major biogeochemical cycles that sustain life on Earth and shape the evolution, development, and health of all multicellular life, including that of our own species. MBL will convene worldwide experts to discover fundamental principles that underlie the function of microbial systems across spatial and temporal scales. Identification of these principles will ultimately catalyze innovative solutions to problems of ecosystem and human health.



Seeing the Invisible

Discovering invisible worlds that no one knew existed is a driver for discovery at the MBL—whether exploring the diversity of life in oceans and coastal marshes or uncovering the molecular details in a variety of organisms, from microbes to ourselves. From the development of novel optical technology to new computational applications for large data sets, MBL scientists dissect the spatial and temporal dimensions within which complex biology takes place. Our approach fosters integration—often in real-time—among life scientists, computer scientists, and academic and commercial microscope developers. Using next-generation instrumentation and computation to foster year-round biological discovery, the MBL will make the invisible visible for a new set of questions, the nature of which were unfathomable only a decade ago.

The Institute for Biological Discovery at MBL

The great scientific discoveries that fundamentally alter our understanding of ourselves and the world around us are driven by two essential principles—the ability to see what will be important before others are able to do so, paired with the willingness and drive to undertake research that may be uncertain with risk of failure but is forged in the possibility of immense reward.

Such discoveries require the exceptional talents of the world's most original and creative scientists. But they also benefit disproportionately from those rare institutions that provide the special environments needed to enable the best scientists to carry out their most innovative and impactful work.

With the creation of The Institute for Biological Discovery at MBL, the Marine Biological Laboratory will be one such place, continuing and reaffirming its tradition of convening the world's leading scientists to engage in fundamental and transformative research to advance our understanding of living systems in a changing world, attracted to and inspired by the informal, collaborative, and interactive culture that is a hallmark of MBL and Woods Hole. The potential for new biological understanding that will arise from this initiative will attract a new generation of scientists who are

fearless in their efforts to address complex and difficult questions and who are committed to pursuing some of the most challenging questions that stem from and impact our understanding of the diversity of life, the health of our oceans, and the ecology and ecosystems science of our changing planet.

The MBL Institute will build on the historical success of the MBL as a convener of biologists, bringing many of the world's most accomplished scientists to Woods Hole in the summer months to carry out some of their most creative and far-reaching work. The new Institute's distinction will lie in the ability to combine this traditional convening power of the MBL with the proven model of institutes in other fields such as physics and mathematics, to attract leading experts and to achieve disproportionate impact on those fields. The MBL Institute will extend this model to experimental biology throughout the year, attracting groups of scientists and scholars to explore particular questions of enormous significance, by gathering for conferences and workshops and by performing collaborative research at MBL.

Access to MBL's facilities—including special resources such as the Marine Resources Center, the National *Xenopus* Resource, and MBL's Plum Island field site—and access to

courses and workshops that are themselves unique in their style of learning, are distinctive features of the institute model that separate MBL from virtually all other marine science laboratories around the world.

Building on MBL's rich history and tradition in both research and education, this innovative and ambitious model of an institute for convening biologists promises a new era of discovery into the diversity and health of life in the Earth's oceans and beyond in a period of unprecedented global change.

The MBL Institute will drive progress across a range of thematic areas that represent distinctive opportunities at the MBL to leverage both our century-old tradition of convening biologists in Woods Hole and our strong scientific assets and resources. The MBL Strategic Plan process outlined four areas of opportunity, each of which has the potential to attract a wide range of colleagues to MBL. Over time, themes will evolve in response to changing opportunities, and subsequent areas of focus will be driven by the scientific community for their potential to catalyze new programmatic connections and synergies in the life sciences and in biomedical research.

Highlights



***A Celebration of Discovery* Highlights MBL's Achievements, Opportunities, and Partnerships in Research and Education**

In July 2015, the MBL held *A Celebration of Discovery*, a three-day program that encompassed MBL's broad community of scientists, faculty and instructors, scholars and students, and loyal supporters. Through plenary talks and panel discussions, poster sessions and social events, the weekend highlighted many of the MBL's key areas of strength as a convener of science. The program also celebrated and explored the opportunities emanating from MBL partnerships in research and education, including, in particular, those with the University of Chicago and Argonne National Laboratory.



Affiliation Inspires New Programs at MBL for UChicago Students

A series of new initiatives inspired by the MBL-UChicago affiliation attracted more than 150 students from the University of Chicago for educational and research programs at the MBL in 2015. New programs included the "Quantitative Approaches Bootcamp" for graduate students in UChicago's Biological Sciences Division and "The Whale: Biology, Culture and Evolution on Nantucket Sound," a Fall Quarter interdisciplinary program for UChicago undergraduates. UChicago students conducted research at MBL through the Jeff Metcalf Summer Undergraduate Research Fellows program and through UChicago Graduate Student Research Awards, while others enrolled in the MBL's 15-week Semester in Environmental Science program. And high-schoolers from the UChicago Laboratory Schools explored the Woods Hole environment and learned about research with marine organisms at the MBL.



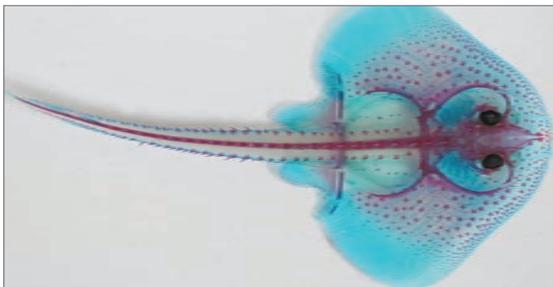
Marine Biological Laboratory Announces First MBL Fellows

Nine faculty members from around the country were appointed to the new position of MBL Fellows – scientists and scholars who come to Woods Hole at times throughout the year to pursue collaborative research on key topics related to the MBL's strategic plan. Each Fellow holds a primary appointment at another U.S. or global institution while also carrying out significant, ongoing research and educational commitments at the MBL. Appointed MBL Fellows were: Maureen Conte, Bermuda Institute of Ocean Sciences; Jack Gilbert, University of Chicago and Argonne National Laboratory; Melina Hale, University of Chicago; Patrick LaRivière, University of Chicago; Jane Maienschein, Arizona State University; Clifton Ragsdale, University of Chicago; Loretta Roberson, University of Puerto Rico; Joshua Rosenthal, University of Puerto Rico; and Alejandro Sánchez Alvarado, Stowers Institute and Howard Hughes Medical Institute.



New Microbiome Center Combines MBL, UChicago, Argonne Expertise

The University of Chicago, the MBL, and Argonne National Laboratory launched a new partnership called The Microbiome Center to combine and strengthen their efforts to understand the identity and function of microbes across environments. The Center will build on the tradition of excellence in microbiome research at all three institutions, train a new generation of students to take on fundamental questions about microbial communities, and enable rapid translation of results to private and clinical sectors. "A greater understanding of microbial communities could affect everything from medicine to agriculture to marine systems and urban development," said the Microbiome Center's director, Jack Gilbert, a UChicago faculty member with appointments at both MBL and Argonne.



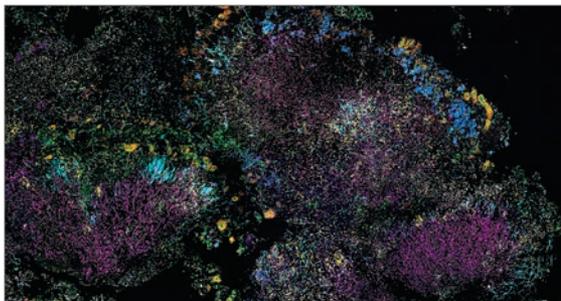
Study Traces Evolution of Human Limbs to Gill Arches in Fish

Studying embryos of the little skate, Whitman Center early career scientist Andrew Gillis provided evidence that paired appendages, such as human arms and legs, evolved from the gill arches of fish, small cradles of bones that support the gills. Gillis showed that the gene Sonic hedgehog plays a strikingly similar role in patterning the mammalian limb and the gill-arch appendages (called branchial rays). In addition to his appointment at the MBL, Gillis is a Royal Society University Research Fellow at the University of Cambridge, U.K.



Scientists Recreate an Immune Cell Signaling Pathway

A collaborative team of Whitman Center scientists successfully created a chain of protein signals that activates an immune cell to respond to a foreign invader. By reconstituting a T-cell receptor signaling pathway independent of the cell itself, the scientists gained novel insights into how protein signaling works in a complex cellular process. "This reconstitution was a complicated undertaking that was beyond what any single lab could do. At the MBL, we could bring all these labs together with different expertise to make it work," said co-author Ron Vale, a Howard Hughes Medical Institute Investigator at the University of California, San Francisco, and convenor of the HHMI Summer Institute at MBL.



Scientists Discover Highly Organized Structures in Microbial Communities with Novel Imaging Approach

Using an imaging approach developed at MBL that reveals the spatial structure of microbial communities, MBL scientists described distinct bacterial assemblages living in human dental plaque. Seeing such assemblages offers valuable information on how the bacterial members function that can't be gleaned from genomic analysis, which specifies what microbes are present in a community, but not how they are organized. Led by Jessica Mark Welch of the MBL and Gary Borisy of the Forsythe Institute, the team proposed a model for how plaque on teeth develops, using their spectral fluorescence imaging observations and plaque sequencing data from the Human Microbiome Project.



Rae Nishi Named Director of Education

Rae Nishi, Professor of Neurological Sciences at the University of Vermont, was named the Burroughs Wellcome Director of Education at the MBL in January 2016. In this role, Nishi administers and coordinates the MBL's Discovery Courses and Special Topics Courses; workshops and conferences; and various programs with an eye toward continued expansion into year-round activities, particularly in the context of the MBL's partnership with the University of Chicago. Nishi has had a long association with the MBL, particularly with the Neurobiology course. Her new title recognizes a gift to the MBL from the Burroughs Wellcome Fund.



Anne Giblin Appointed Interim Director of Ecosystems Center

MBL Senior Scientist Anne Giblin was named interim director of the Ecosystems Center in June 2016, succeeding Chris Neill, who served as director since 2012. Giblin has been a member of the MBL faculty for more than three decades. Her research focuses on the cycling of elements in the environment and the response of coastal ecosystems to high nutrient inputs. Giblin leads the National Science Foundation's Long-Term Ecological Research project at Plum Island, Massachusetts. She also conducts research in marshes in the Gulf of Mexico and on the New England continental shelf and studies lake ecology in arctic Alaska.



Report of the Treasurer

We are pleased to present our financial statements for the fiscal year ended June 30, 2016. Amidst the challenging federal funding climate, the Marine Biological Laboratory was able to maintain its sponsored research funding at a level comparable to the previous two fiscal periods comprising 18 months. The affiliation with the University of Chicago continues to provide the stimulus for new programs and initiatives, along with essential funding for operations during this time of strategic transition. Operating expense management is an ongoing priority, and we not only met but in some cases outperformed our budget targets in keeping expenditures constrained in fiscal year 2016. Considerable efforts have been undertaken to expand philanthropy, resulting in notable successes in support of MBL's strategic initiatives.

MBL's balance sheet remains strong. As of June 30, 2016, total assets were \$208.5 million, total liabilities were \$43 million, and total net assets were \$165.5 million. Total net assets are an important measure of the accumulated financial results of a non-profit organization and provide the basis for fiscal strength and future growth. MBL's endowment assets were \$76.3 million as of June 30, 2016, representing 36% of its total assets and a decrease of 7% from the prior fiscal year as a result of market losses and endowment draws for operations.

Total operating revenue for the fiscal year was \$43.2 million, of which \$20.6 million was sponsored project revenue. MBL realized a \$763 thousand loss from operating activities for the year ended June 30, 2016, after including the University's support, down from a \$2 million loss from operating activities in the previous year. Expansion of revenues, from grant sources as well as philanthropy, is critical for MBL's ongoing fiscal health and for decreasing reliance on University support.

MBL is committed to the pursuit of excellence in our scientific and educational programs while exercising prudent fiscal management. We remain grateful for the continuing support of our donors, the MBL Board of Trustees, and the University of Chicago, and we look forward to working closely with them in advancing our mission in the coming year.

Mary S. Harrington, Treasurer

The financial statements of the Marine Biological Laboratory for the fiscal year ending June 30, 2016 were audited by KPMG. Complete financial statements are available on request from:

Financial Services
Marine Biological Laboratory
7 MBL Street
Woods Hole, MA 02543

Statement of Financial Position as of June 30, 2016

Statement of Activities For the Year Ended June 30, 2016

		Unrestricted	Temporarily restricted	Permanently restricted	Total	
ASSETS		OPERATING SUPPORT AND REVENUES:				
Cash and cash equivalents	\$ 2,544,236	\$ 14,812,459	\$ —	\$ —	\$ 14,812,459	
Cash held for others	660,979	5,830,915	—	—	5,830,915	
Accounts receivable, net of allowance for doubtful accounts of \$35,000	1,011,733	9,009,667	—	—	9,009,667	
Receivables due for costs incurred on grants and contracts	3,189,319	4,472,979	—	—	4,472,979	
Prepaid expenses	484,324	1,202,451	3,696,465	3,075,639	7,974,555	
Contributions receivable, net	4,708,280	615,386	3,630,882	—	4,246,268	
Investments, at fair value	84,601,131	485,236	—	—	485,236	
Charitable remainder trusts	1,217,415	838,563	—	—	838,563	
Plant assets, net	108,726,597	642,837	—	—	642,837	
Other assets	1,393,627	Investment loss (590)	—	—	(590)	
		Net assets released from restrictions and reclassifications	5,279,543	(5,281,233)	1,690	—
		Total operating support and revenues	43,189,446	2,046,114	3,077,329	48,312,889
Total assets	\$ <u>208,537,641</u>					
LIABILITIES AND NET ASSETS		EXPENSES:				
Accounts payable and accrued expenses	\$ 3,214,378	Resident research	24,276,937	—	—	24,276,937
Future program resources	660,978	Education	11,197,507	—	—	11,197,507
Deferred income	4,355,335	Whitman research	4,092,538	—	—	4,092,538
Annuities and trusts payable	559,068	MBL Institute	81,776	—	—	81,776
Interest rate swap	6,274,869	Conferences, housing, and dining	2,419,788	—	—	2,419,788
Long-term debt, net accrued issuance costs	27,982,701	Other Programs	1,884,114	—	—	1,884,114
		Total expenses	43,952,660	—	—	43,952,660
Total liabilities	<u>43,047,329</u>	Change in net assets before non-operating activities	(763,214)	2,046,114	3,077,329	4,360,229
		NON-OPERATING REVENUE (EXPENSE):				
Unrestricted	88,337,742	Change in value of interest rate swap	(1,819,139)	—	—	(1,819,139)
Temporarily restricted	21,060,222	Change in value of annuities	(57,140)	5,904	2,697	(48,539)
Permanently restricted	56,092,348	Post retirement – related charges other than periodic pension costs	(87,092)	—	—	(87,092)
		Income from affiliate, non-operating	400,000	—	—	400,000
Total net assets	<u>165,490,312</u>	Contributions for plant	189,000	—	—	189,000
		Net assets released from restriction for nonoperating activities	134,713	(134,713)	—	—
Total liabilities and net assets	\$ <u>208,537,641</u>	Change in net assets from non-operating activities	(1,239,658)	(128,809)	2,697	(1,365,770)
		INVESTMENT INCOME AND GAINS (LOSSES):				
		Net investment income and gains	(234,249)	(1,670,092)	—	(1,904,341)
		Less investment earnings used for operations	(615,386)	(3,630,882)	—	(4,246,268)
		Deficiencies in historical values	(76,499)	76,499	—	—
		Investment income and gains	(926,134)	(5,224,475)	—	(6,150,609)
		Changes in net assets	(2,929,006)	(3,307,170)	3,080,026	(3,156,150)
		NET ASSETS, JUNE 30, 2015	<u>91,266,748</u>	<u>24,367,392</u>	<u>53,012,322</u>	<u>168,646,462</u>
		NET ASSETS, JUNE 30, 2016	\$ <u>88,337,742</u>	\$ <u>21,060,222</u>	\$ <u>56,092,348</u>	\$ <u>165,490,312</u>

Report of the Development Committee



I am pleased to report on the Marine Biological Laboratory's development progress for the 2016 Fiscal Year: July 1, 2015 through June 30, 2016. This time period saw the MBL's strategic vision continue to develop. This vision for the future remains our roadmap as we strive to reinforce and grow the MBL's capacity to deliver on its mission of research and education by strengthening our fundraising on every front.

In FY16 we raised a total of \$13,479,206 in new private support for MBL's research and educational programs from over 1,000 individuals, foundations, and companies. This impressive figure is a testament to the MBL's history of scientific excellence, our powerful impact on biological research, and the vision of an equally impactful and sustainable future.

Funds raised during this time include several major gifts in support of MBL programs and initiatives, including: a pledge of \$4 million from an anonymous donor to fund a Chair of Marine Organism Research, an important new position in a major area of research at the MBL; the Howard Hughes Medical Institute for \$3 million in support of MBL courses; and the Alfred P. Sloan Foundation for \$1.25 million in support of The Bay Paul Center's Deep Carbon Project, which studies the diversity of subsurface marine microorganisms. Please see a full list of our supporters in the pages that follow.

In FY16, we raised \$1,093,334 in Annual Giving—unrestricted funds that were immediately available to meet operational needs. We continued to expand the ways we reach out to new donors, including the addition of a 'Giving Day,' a joint fundraising effort with the University of Chicago, a redoubling of efforts to reach our alumni, and introductions to the MBL to potential new supporters through outreach events and by leveraging relationships with our board. Whether a gift is \$5 or \$5,000,000, we all can have a tremendous impact if we give as a community and help grow the community of people that recognize the importance of supporting this singular institution that plays an irreplaceable role in biological discovery.

I am grateful to our Trustees, MBL Council and Society members, scientists, alumni, friends, staff, and to every one of our extraordinary donors. This community's belief in the MBL and commitment to scientific inquiry is truly inspiring! On behalf of the Development Committee, the Board of Trustees, and the staff of the MBL, thank you for your generosity.

A handwritten signature in black ink, appearing to read 'JP', written in a cursive style.

Gratefully,
Jeffery Pierce, Chair

MAJOR GIFTS

The Marine Biological Laboratory gratefully acknowledges the generous contributions and pledges of the individuals, foundations, and companies who supported our programs and operations. This report covers the period January 1, 2015 – June 30, 2016.

\$4,000,000 - \$4,999,999

Anonymous

\$3,000,000 - \$3,999,999

Howard Hughes Medical Institute

\$1,000,000 - \$2,999,999

Alfred P. Sloan Foundation

\$500,000 - \$999,999

Burroughs Wellcome Fund

\$100,000 - \$499,999

Anonymous (2)
 Patrick Gage and Irina Wilson Gage
 The Grass Foundation
 The G. Unger Vetlesen Foundation
 J. Woodland Hastings*
 H.F. and Marguerite Lenfest
 Brien M. O'Brien and Mary Hasten
 Saul Pannell and Sally Currier
 Jeffrey and Margaret Pierce
 Promega Corporation
 George and Kathy Putnam
 Charles M. and Phyllis Rosenthal
 Simons Foundation
 Waksman Foundation for Microbiology

RESTRICTED GIFTS

\$50,000 - \$99,999

Anonymous (2)
 James S. McDonnell Foundation

\$10,000 - \$49,999

Anonymous (2)
In honor of Pamela C. Hinkle
 The Agouron Institute
 The Lawrence Ellison Medical Foundation
 Margaret and Timothy Fofonoff
In honor of Pamela C. Hinkle
 The Groff Foundation
 Norma J. Lang
 Nikon Instruments, Inc.
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 Dyann and Peter K. Wirth

\$5,000 - \$9,999

Anonymous (2)
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 John E. and Sally S. Burris
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 Elaine Pierson-Mastroianni
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In honor of Pamela C. Hinkle

\$1,000 - \$4,999

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 Porter W. Anderson and Hortense Gerardo
 Peter Atkinson and Valerie Baule
 Molly Bang
 Bio-Techne
 Neil G. Bluhm
In memory of Harold E. Foreman
 Gloria S. Borgese
In memory of Thomas A. Borgese
In memory of Joseph V. Giglio
In memory of Art Rickey
In memory of Claire Rickey

Gary G. Borisy and Sally M. Casper
In honor of Pamela C. Hinkle
 Paul N. Chervin
 Bradley and Katie Cohen
In honor of Kobe Foreman
In memory of Harold E. Foreman
 David and Patty Cohen
 Lawrence B. Cohen
 Marion Cohen
In memory of William D. Cohen
 J. Richard Creath and Jane Maiserschein
In honor of Pamela C. Hinkle
 Pamela H. Davidson
 Linda A. Deegan and Christopher Neill
 Stephen and Lois Eisen
In memory of Harold E. Foreman
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In memory of Andrew G. Szent-Györgyi
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 Carmela J. Huettner
 Barbara Woll Jones
 Freda Kaminer
 Hans Laufer
 Jon Mills
In memory of Harold E. Foreman
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 Judith and Thoru Pederson
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 Huntington and Vicki Willard
In honor of Pamela C. Hinkle

Up to \$999

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Aquaneering, Inc.
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In honor of Pamela C. Hinkle
Sarah Erskine
Andrew and Amy Feinberg
James and Catherine Galbraith
Sallyann Garner and John Shea
Mark Gasarch
Robert D. and Anne E. Goldman
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Bruce and Mary Goodman
In memory of Harold E. Foreman
Gustav Grosch and Jane Kulesza
Richard Hallberg
James and Martha Hartmann
Gina and Edmund A. Hebert
In honor of Pamela C. Hinkle
Janet Hering
In memory of Edward R. Leadbetter
Ellen Hertzmark
Richard and Michelle Hicks
Samuel and Nancy Hipsher
Richard Holt
David Isenberg and Paula Blumenthal
Kenneth Jackson
Erik M. Jorgensen
Edna S. Kaneshiro
Frank S. and Nancy Karger
In memory of Harold E. Foreman

Richard F. Karger
In memory of Harold E. Foreman
Morris J. and Shirley Karnovsky
John and Kristen Keenan
Doreen R. Kelly
Chien-Ping Ko
George M. and Sylvia T. Langford
In honor of Pamela C. Hinkle
Richard Leapman
Jack and Francine Levin
Thomas E. Lovejoy
William K. and Winnie C. Mackey
In memory of Andrew G. Szent-Györgyi
Walter E. and Shirley A. Massey
In honor of Pamela C. Hinkle
Steven Miano
Mid-American Water of Wauconda, Inc.
In memory of Harold E. Foreman
David A. and Virginia I. Miller
James Morrell
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Rae Nishi
Amy Nobu
Michael Norton
In memory of Catherine N. Norton
Alexander Notopoulos and Alexis Anderson
Stephanie M. Parker
Gulcin Pekkurnaz
Robert H. and Pamela D. Pelletreau
In memory of Andrew G. Szent-Györgyi
Elizabeth Pennisi
Harmony Glazebrook Pittet
Allan Poole and Nancy Winship-Poole
Gordon and Claire Prussian
In memory of Harold E. Foreman
Fred and Gloria Rhoades
Rex R. Robinson
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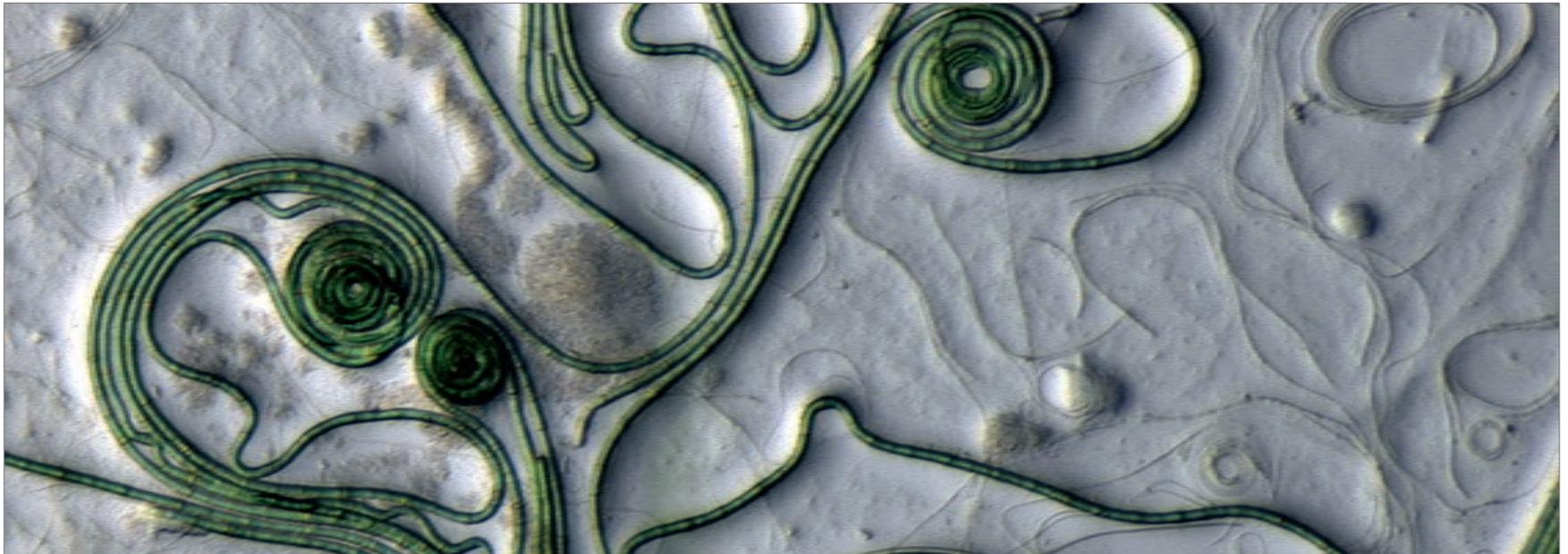
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Photos

Cover: Longfin inshore squid *Doryteuthis pealeii* chromatophore confocal image (George Bell)

Inside front cover: Longfin inshore squid *Doryteuthis pealeii* tentacle (Karen Crawford)

P1: President and Director Huntington F. Willard (Tom Kleindinst)

P2: MBL Campus from Eel Pond (Megan Costello)

P3: L to R: Skate egg case (Tom Kleindinst); West Creek in the Plum Island Estuary, MA (David S. Johnson)

P4: L to R: Cyanobacteria: Filamentous blue-green algae with several morphologies (Michelle Bahr and David Patterson, micro*scope); Embryo of the dwarf cuttlefish, *Sepia bandensis* (Maggie Rigney and Nipam H. Patel)

P6: L to R: A Celebration of Discovery photo composite (MBL); University of Chicago Whale Course students Luiza Gundim and Alexander Okamoto (Tom Kleindinst); Hari Shroff, Whitman Center Scientist and Patrick La Rivière, MBL Fellow (Megan Costello)

P7: L to R: Microbiome Center logo (University of Chicago); Skeletal preparation of a late-stage skate *Leucoraja erinacea* embryo (J. Andrew Gillis); HHMI Summer Institute in the Whitman Center (Tom Kleindinst)

P8: L to R: A "hedgehog" structure in dental plaque (Jessica Mark Welch); Rae Nishi (Tom Kleindinst); Anne Giblin (Tom Kleindinst)

P9: Gemma and Eel Pond (Megan Costello)

P10: Jellyfish Lake, Palau (John H. Costello)

P12: Jeffery Pierce (Dan Cutrona)

P31: Filamentous Cyanobacteria from a Little Sippewissett (Falmouth, MA) tidal pond (S. Emil Ruff)

Inside Back Cover: Isa Alvarez, UChicago Metcalf Fellow and mentor MBL Senior Scientist David Mark Welch (Megan Costello)



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