WOODS HOLE OCEANOGRAPHIC INSTITUTION

2016 Self Study Report

R/V Atlantis, 1931

Submitted to the Commission on Institutions of Higher Education
New England Association of Schools and Colleges
February 5, 2016

Woods Hole Oceanographic Institution
360 Wood Hole Road
Woods Hole, Massachusetts 02543
508-457-2000

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Institutional Characteristics Form

This form is to be completed and placed at the beginning of the self-study report:

Date February 1, 2016

1. Corporate name of institution: Woods Hole Oceanographic Institution
2. Date institution was chartered or authorized: 1930; to confer degrees, 1968
3. Date institution enrolled first students in degree programs: 1968
4. Date institution awarded first degrees: 1969
5. Type of control:

Public	Private
☐ State	☒ Independent, not-for-profit
☐ City	☐ Religious Group
☐ Other	(Name of Church) _____
(Specify) _____	☐ Proprietary
	☐ Other: (Specify) _____

6. By what agency is the institution legally authorized to provide a program of education beyond high school, and what degrees is it authorized to grant?

Secretary of the Commonwealth of Massachusetts; "to confer graduate degrees and such honorary degrees as are usually conferred by colleges or universities in this Commonwealth, including joint graduate degrees conferred in conjunction with any other university, college, or institution having the authority to confer graduate degrees."

7. Level of postsecondary offering (check all that apply)

☐ Less than one year of work	☐ First professional degree
☐ At least one but less than two years	☒ Master's and/or work beyond the first professional degree
☐ Diploma or certificate programs of at least two but less than four years	☒ Work beyond the master's level but not at the doctoral level (e.g., Specialist in Education)
☐ Associate degree granting program of at least two years	☒ A doctor of philosophy or equivalent degree
☐ Four- or five-year baccalaureate degree granting program	☐ Other doctoral programs _____
	☐ Other (Specify)

8. Type of undergraduate programs (check all that apply)

☐	Occupational training at the crafts/clerical level (certificate or diploma)	☐	Liberal arts and general
☐	Occupational training at the technical or semi-professional level (degree)	☐	Teacher preparatory
☐	Two-year programs designed for full transfer to a baccalaureate degree	☐	Professional
		☒	Other_Semester at WHOI__

9. The calendar system at the institution is:

☒ Semester ☐ Quarter ☐ Trimester ☐ Other _____

10. What constitutes the credit hour load for a full-time equivalent (FTE) student each semester?

a) Undergraduate ___12____ credit hours

b) Graduate ___12*____ credit hours

c) Professional _____ credit hours

* For graduate courses, WHOI uses "units." One unit is approximately 14 hours of work per term; three units equal approximately one credit hour.

11. Student population:

a) Degree-seeking students:

	Undergraduate	Graduate	Total
Full-time student headcount	0	122	122
Part-time student headcount	0	0	0
FTE	0	122	122

b) Number of students (headcount) in non-credit, short-term courses: 0

12. List all programs accredited by a nationally recognized, specialized accrediting agency.

Program	Agency	Accredited since	Last Reviewed	Next Review
Not Applicable				

13. Off-campus Locations. List all instructional locations other than the main campus. For each site, indicate whether the location offers full-degree programs or 50% or more of one or more degree programs. Record the full-time equivalent enrollment (FTE) for the most recent year. Add more rows as needed.

	Full degree	50%-99%	FTE
A. In-state Locations			
Not Applicable			
B. Out-of-state Locations			
Not Applicable			

14. International Locations: For each overseas instructional location, indicate the name of the program, the location, and the headcount of students enrolled for the most recent year. An overseas instructional location is defined as "any overseas location of an institution, other than the main campus, at which the institution matriculates students to whom it offers any portion of a degree program or offers on-site instruction or instructional support for students enrolled in a predominantly or totally on-line program." **Do not include study abroad locations**.

Name of program(s)	Location	Headcount
Not Applicable		

15. Degrees and certificates offered 50% or more electronically: For each degree or Title IV-eligible certificate, indicate the level (certificate, associate's, baccalaureate, master's, professional, doctoral), the percentage of credits that may be completed on-line, and the FTE of matriculated students for the most recent year. Enter more rows as needed.

Name of program	Degree level	% on-line	FTE
Not Applicable			

16. Instruction offered through contractual relationships: For each contractual relationship through which instruction is offered for a Title IV-eligible degree or certificate, indicate the name of the contractor, the location of instruction, the program name, and degree or certificate, and the number of credits that may be completed through the contractual relationship. Enter more rows as needed.

Name of contractor	Location	Name of program	Degree or certificate	# of credits
Not Applicable				

17. List by name and title the chief administrative officers of the institution.

CHIEF INSTITUTIONAL OFFICERS

Function or Office	Name	Exact Title	Year of Appointment
Chair Board of Trustees	David B. Scully	Chairman of the Board of Trustees	2015
President/CEO	Mark R. Abbott	President and Director	2015
Executive Vice President	Laurence P. Madin	Executive Vice President and Director of Research	2008 (acting since 2006)
Chief Academic Officer	James A. Yoder	Vice President for Academic Programs and Dean	2005
Deans of Schools and Colleges	James A. Yoder	Vice President for Academic Programs and Dean	2005
Chief Financial Officer	Jeffrey Fernandez	Vice President for Operations and Chief Financial Officer	2012
Chief Student Services Officer	Lea Fraser	Graduate Admissions and Student Affairs Officer	2012
Planning			
Institutional Research			
Assessment			
Development	Charles Gauvin	Chief Development Officer	2016
Library	Lisa Raymond	Co-Director, MBLWHOI Library	2011
Chief Information Officer	Keith Glavin	Senior Director of Information Services	2015
Continuing Education			
Grants/Research	David Stephens	Director of Grants and Contracts Services and Large Project Support	2011
Admissions	Margaret K. Tivey	Associate Dean	2010
Registrar	Julia G. Westwater	Registrar/Graduate and Undergraduate Admin.	2001

Financial Aid			
Public Relations	Stephanie Murphy	Manager of Public Information and Internal Communications	2003
Alumni Association	Julia Westwater	Executive Director, Joint Program Alumni Association	2006
Marine Facilities and Operations	Robert Munier	Vice President for Marine Facilities and Operations	2010
Legal Affairs	Christopher Land	Vice President for Legal Affairs and General Council	2014

18. Supply a table of organization for the institution. While the organization of any institution will depend on its purpose, size and scope of operation, institutional organization usually includes four areas. Although every institution may not have a major administrative division for these areas, the following outline may be helpful in charting and describing the overall administrative organization:

    a) Organization of academic affairs, showing a line of responsibility to president for each department, school division, library, admissions office, and other units assigned to this area;

    b) Organization of student affairs, including health services, student government, intercollegiate activities, and other units assigned to this area;

    c) Organization of finances and business management, including plant operations and maintenance, non-academic personnel administration, IT, auxiliary enterprises, and other units assigned to this area;

    d) Organization of institutional advancement, including fund development, public relations, alumni office and other units assigned to this area.

(See attached)

19. Record briefly the central elements in the history of the institution:

1930: Woods Hole Oceanographic Institution founded
1937: Cooperative work with the US Navy started to support defense-related research during World War II
1955: Creation of Summer Student Fellow Program for undergraduates
1959: Summer Geophysical Fluid Dynamics Program established
1960: Establishment of Postdoctoral Scholar Program
1968: MIT-WHOI Joint Program in Oceanography created
1974: Expansion to 200-acre Quissett campus
2001: Accreditation by the New England Association of Schools and Colleges
2006: Re-accreditation by the New England Association of Schools and Colleges
2015: Creation of Semester at WHOI program

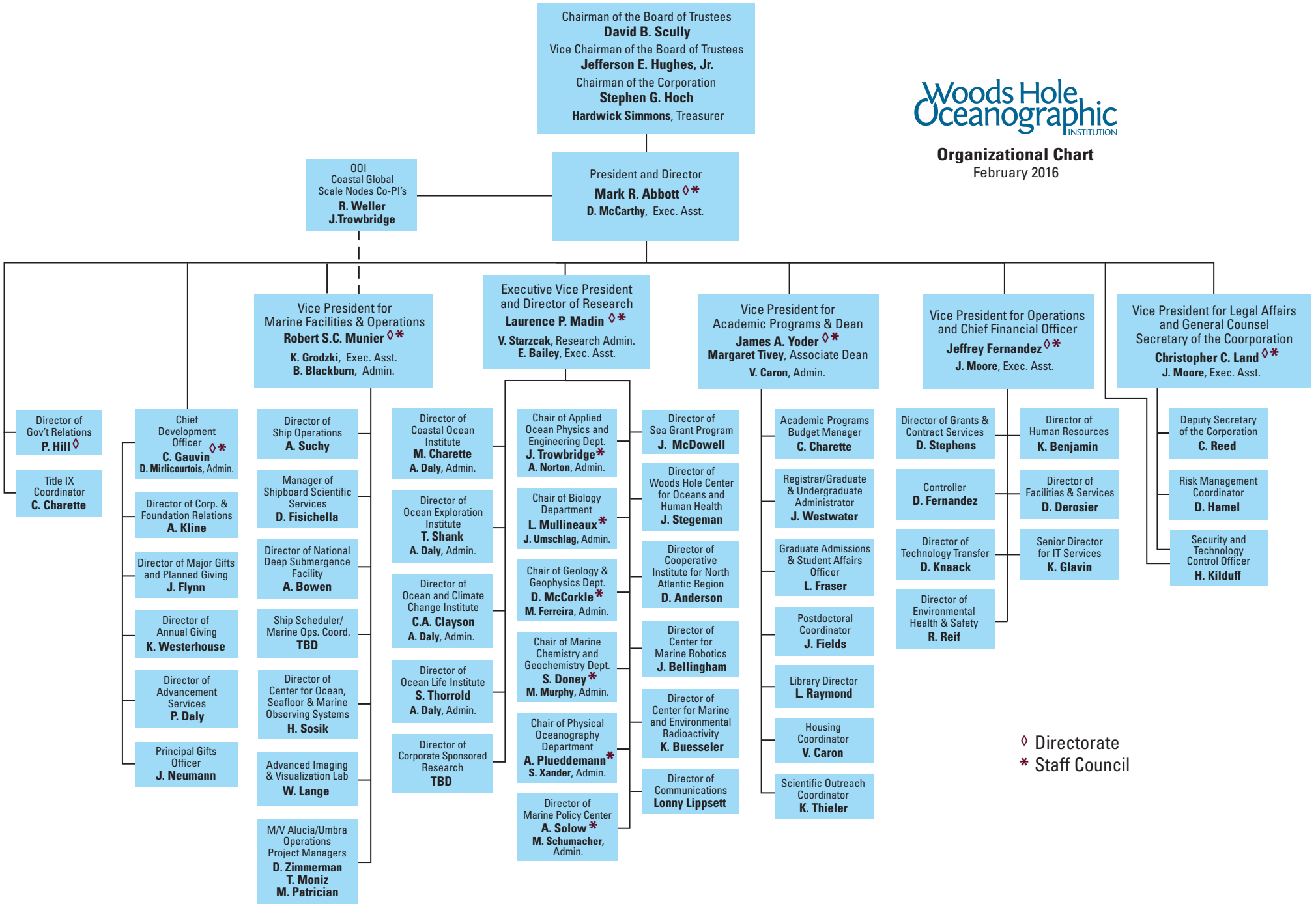

Chairman of the Board of Trustees
David B. Scully
Vice Chairman of the Board of Trustees
Jefferson E. Hughes, Jr.
Chairman of the Corporation
Stephen G. Hoch
Hardwick Simmons, Treasurer
Woods Hole Oceanographic Institution
Organizational Chart
February 2016
OOI – Coastal Global Scale Nodes Co-PI's
R. Weller
J.Trowbridge
President and Director
Mark R. Abbott ◊ *
D. McCarthy, Exec. Asst.
Director of Gov't Relations
P. Hill ◊
Title IX Coordinator
C. Charette
Chief Development Officer ◊ *
C. Gauvin
D. Mirlicourtois, Admin.
Director of Corp. & Foundation Relations
A. Kline
Director of Major Gifts and Planned Giving
J. Flynn
Director of Annual Giving
K. Westerhouse
Director of Advancement Services
P. Daly
Principal Gifts Officer
J. Neumann
Vice President for Marine Facilities & Operations
Robert S.C. Munier ◊ *
K. Grodzki, Exec. Asst.
B. Blackburn, Admin.
Director of Ship Operations
A. Suchy
Manager of Shipboard Scientific Services
D. Fisichella
Director of National Deep Submergence Facility
A. Bowen
Ship Scheduler/ Marine Ops. Coord.
TBD
Director of Center for Ocean, Seafloor & Marine Observing Systems
H. Sosik
Advanced Imaging & Visualization Lab
W. Lange
M/V Alucia/Umbra Operations Project Managers
D. Zimmerman
T. Moniz
M. Patrician
Executive Vice President and Director of Research
Laurence P. Madin ◊ *
V. Starzcak, Research Admin.
E. Bailey, Exec. Asst.
Director of Coastal Ocean Institute
M. Charette
A. Daly, Admin.
Director of Ocean Exploration Institute
T. Shank
A. Daly, Admin.
Director of Ocean and Climate Change Institute
C.A. Clayson
A. Daly, Admin.
Director of Ocean Life Institute
S. Thorrold
A. Daly, Admin.
Director of Corporate Sponsored Research
TBD
Chair of Applied Ocean Physics and Engineering Dept.
J. Trowbridge *
A. Norton, Admin.
Chair of Biology Department
L. Mullineaux *
J. Umschlag, Admin.
Chair of Geology & Geophysics Dept.
D. McCorkle *
M. Ferreira, Admin.
Chair of Marine Chemistry and Geochemistry Dept.
S. Doney *
M. Murphy, Admin.
Chair of Physical Oceanography Department
A. Plueddemann *
S. Xander, Admin.
Director of Marine Policy Center
A. Solow *
M. Schumacher, Admin.
Director of Sea Grant Program
J. McDowell
Director of Woods Hole Center for Oceans and Human Health
J. Stegeman
Director of Cooperative Institute for North Atlantic Region
D. Anderson
Director of Center for Marine Robotics
J. Bellingham
Director of Center for Marine and Environmental Radioactivity
K. Buesseler
Director of Communications
Lonny Lippsett
Vice President for Academic Programs & Dean
James A. Yoder ◊ *
Margaret Tivey, Associate Dean
V. Caron, Admin.
Academic Programs Budget Manager
C. Charette
Registrar/Graduate & Undergraduate Administrator
J. Westwater
Graduate Admissions & Student Affairs Officer
L. Fraser
Postdoctoral Coordinator
J. Fields
Library Director
L. Raymond
Housing Coordinator
V. Caron
Scientific Outreach Coordinator
K. Thieler
Vice President for Operations and Chief Financial Officer
Jeffrey Fernandez ◊ *
J. Moore, Exec. Asst.
Director of Grants & Contract Services
D. Stephens
Controller
D. Fernandez
Director of Technology Transfer
D. Knaack
Director of Environmental Health & Safety
R. Reif
Director of Human Resources
K. Benjamin
Director of Facilities & Services
D. Derosier
Senior Director for IT Services
K. Glavin
Vice President for Legal Affairs and General Counsel Secretary of the Coorporation
Christopher C. Land ◊ *
J. Moore, Exec. Asst.
Deputy Secretary of the Corporation
C. Reed
Risk Management Coordinator
D. Hamel
Security and Technology Control Officer
H. Kilduff
◊ Directorate
* Staff Council

Table of Items Included for Emphasis in the Self-Study
as Requested by CIHE in the April 6, 2011
Acceptance of the Institution's Fifth-Year Interim Report

Item	Study Location
Addressing goals for diversity of students and faculty through collaborations with other oceanographic institutions that face similar challenges	Standard 6, pp. 64-66
Progress in strengthening financial position with new revenue streams, increasing net assets and addressing pension and post-retirement costs	Standard 9, pp. 89-95
Developing, implementing, and determining the effectiveness of the 2007 Strategic Plan and financial planning instituted following the 2011 Strategic Plan exercise	Standard 2, pp. 3-5 Standard 9, pp. 89-93

INTRODUCTION

The Woods Hole Oceanographic Institution (WHOI) has undertaken this self-study and written this Self-Study Report in preparation for the 2016 re-accreditation visit of the Commission for Higher Education (CIHE) of the New England Association of Schools and Colleges (NEASC). The report builds on the compilation of information in the 2011 fifth-year interim report and the 2006 and 2001 Self-Study Reports, and reflects upon progress made since 2011. Emphasis is given to the Institution's success in addressing recommendations made by (1) the CIHE in response to the 2011 fifth-year interim report, (2) internal evaluations including progress resulting from the 2007 Strategic Plan and related financial evaluation done in response to a strategic planning exercise in 2011, and (3) evaluations of the External Review Committee for the MIT-WHOI Joint Program in Oceanography conducted during 2014 and the External Review by the WHOI Department Visiting Committee conducted during 2015. The overall goal of the process has been to assess and enhance the quality of our Academic Programs, particularly the learning and scholarly experience integral to our graduate degree and postdoctoral experience.

Following the recommendations of the Commission in response to the 2011 fifth-year interim report, this self-study report gives emphasis to Woods Hole Oceanographic Institution's success in:

(1) addressing its goals for diversity of students and faculty through collaborations with other oceanographic institutions that face similar challenges (Appraisal section of Standard Six);

(2) continuing to strengthen its financial position with new revenue streams, increasing its net assets and addressing pension and post-retirement costs (Appraisal section of Standard Nine);

(3) developing, implementing, and determining the effectiveness of the 2007 Strategic Plan and financial planning instituted following the 2011 Strategic Plan exercise (Appraisal section of Standards Two and Nine).

The self-study was carried out as follows:

1. The Associate Dean attended the October 2013 NEASC CIHE Self-Study Workshop (October 17-18, 2013).

2. A committee, chaired by Associate Dean Margaret K. Tivey, was put together to compile information, review progress, and prepare the report, with committee members:

Jim Yoder (Vice President for Academic Programs and Dean)

Tom Nemmers (Office of the Director)

Chris Land (Vice President of Legal Affairs and General Council)

Vicke Starczak (Office of the Director of Research)

Kathi Benjamin, Jodi Nickinello, Taylor Mello, and Susan Darmofalski (Human Resources)

Julia Westwater, Lea Fraser, Valerie Caron, Christine Charette, Janet Fields, Linda Cannata, Kama Thieler (Academic Programs Office)

Andone Lavery (Applied Oceanography, Physics and Engineering (AOPE) Department)

Rebecca Gast (Biology Department)

Delia Oppo (Geology and Geophysics Department)

Bernhard Peucker-Ehrenbrink (Marine Chemistry and Geochemistry Department)

Fiamma Straneo (Physical Oceanography Department)
Bryce Corlett and Gabriela Farfan (MIT/WHOI Joint Program Student Representatives)
Holly Moeller (Postdoctoral Association Representative)
Rick Chandler (Marine Operations)
John Trowbridge (OOI – Coastal Global Scale Nodes co-PI and AOPE Department Chair)
Lisa Raymond (Library)
Keith Glavin, Nanci Pacheco, Art Gaylord (Information Systems)
Dina Pandya (Graphics)
Dave Derosier (Director of Facilities)
Dana Fernandez and Dave McLean (Office of VP for Finance).
Jeffrey Fernandez (Vice President for Finance and Administration and CFO)
Peggy Daly (Director of Advancement Services)
Dick Pittenger (Interim Chief Development Officer)

3. Data First Forms and E-series and S-series forms were completed.

4. Progress related to areas of emphasis and to each standard was reviewed, and each section of the report was written, compiled, and then reviewed and modified by the appropriate committee members.

5. A draft of the full report was completed by the Associate Dean and personnel within the Academic Programs Office and circulated to the committee, Staff Council, and two members of the Board of Trustees for final comments.

6. The final report was completed taking into account all comments.

7. An invitation for public comments regarding the institution to be submitted to the Commission on Institutions of Higher Education was published electronically on the Institution's website on February 3, 2016.

INSTITUTIONAL OVERVIEW

The Woods Hole Oceanographic Institution was founded in 1930, with a $3 million grant from the Rockefeller Foundation, to fill the need for an independent research institution on the East Coast committed to the comprehensive study of the ocean. This need was identified by a committee, chaired by marine biologist Henry Bryant Bigelow (then of Harvard University), and charged by the President of the National Academy of Science to consider the role of the United States in a worldwide program of oceanographic research.

WHOI grew substantially to support significant defense-related research during World War II, and later began steady growth in staff, research fleet, and scientific stature. Today WHOI is the largest private institution in the world that is focused exclusively on ocean research. Federal grants are the primary source of research funding with the National Science Foundation being the single largest source. Since the last accreditation review, WHOI sponsored research revenue has grown from $114.5M in CY2006 to $211.2M in CY2014.

The Institution is organized into five departments covering primary scientific disciplines, a marine policy center, and four Ocean Institutes, plus marine operations and academic programs. The five science departments, Applied Ocean Physics and Engineering, Biology, Geology and Geophysics, Marine Chemistry and Geochemistry, and Physical Oceanography, are responsible for initiating the recruiting and hiring process for research staff, and for the promotion and tenure process. Within the Marine Policy Center, research is conducted that integrates economics, policy analysis and law with the Institution's basic research in ocean sciences. WHOI currently has a total scientific and technical staff of about 350 researchers and engineers.

The Ocean Institutes are virtual entities to encourage cross-disciplinary and high-risk research. Marine Operations oversees operation of vessels and vehicles, and coordinates sea-going operations.

The Academic Programs Office coordinates educational activities in marine science and engineering for graduate students and postdoctoral scholars, fellows and investigators, as well as summer research activities for undergraduates, and information education for K-12 students. The Academic Programs Office also coordinates a new (fall 2015) "Semester at WHOI" program for undergraduate students that includes a for-credit research experience and course work.

Since WHOI's inception, education of ocean scientists has been an essential part of its overall program. In the late 1950's and early 1960's under Director Paul Fye, WHOI undertook a thorough examination and evaluation of its existing educational programs in light of the post-World War II growth of oceanographic research and knowledge. In 1964, a special Trustee Education Committee was appointed to consider the role that educational activities should play within the Institution. This committee consisted initially of Dr. James S. Coles, President of Bowdoin College, Dr. Arnold B. Arons, Professor of Physics, Amherst College, and Professor Carroll L. Wilson of the Massachusetts Institute of Technology, with Dr. Detlev W. Bronk, President of Rockefeller University, and Dr. Jerome B. Wiesner, Provost of the Massachusetts Institute of Technology, added later. In their final June 1966 report the Committee concluded that "the process of graduate education and the process of basic research belong together, and that the two activities reinforce each other in a great variety of ways." The Committee

recommended that the Institution establish cooperative Ph.D. programs with one or more universities.

In May 1968, Howard W. Johnson, President of MIT and Paul M. Fye, Director of WHOI signed a Memorandum of Agreement approving the creation of the MIT/WHOI Joint Graduate Program in Oceanography. Soon after in September 1968, Dr. H. Burr Steinbach, former Director of the Marine Biological Laboratory in Woods Hole, was named the first official Dean of Graduate Studies at WHOI.

In partnership with MIT, WHOI's major education effort is focused at the graduate level with the majority of the degrees earned at the doctoral level. The number of students in the graduate program has averaged 125 in recent years and the 1000th degree will be awarded in 2016. The Institution's guiding philosophy is that the primary requirement for a doctoral degree is a significant new contribution to the field of study by the candidate for the degree. Candidates for the degree are provided the most effective learning environment by conducting their research within a community of front rank scholars. Those teaching, advising, mentoring, and evaluating the degree candidate's contributions must be scholars at the forefront of their fields of specialization. Furthermore, the Institution has a strong commitment to the various technologies that afford access to the sea for purposes of observing and measuring natural phenomena of the oceans and associated with the oceans and ocean basins. This includes a wide range of activities from research vessel operations to specialized equipment design, construction and operation. Opportunities for learning and research involving theory, experimentation, and observation are at the heart of graduate education at WHOI. In addition to the graduate program, each summer WHOI scientists host 30 undergraduates as Summer Student Fellows. WHOI also hosts on average 85 postdoctoral scholars, fellows, and investigators. WHOI also provides opportunities for more than 100 guest students each year who make their own arrangements with their WHOI scientific host.

Governance of the Institution resides in a Corporation, the legal owner, and a Board of Trustees. The 32 Trustees of the Board are led by an Executive Committee that meets regularly during the year. The WHOI Administration is relatively small, comprising the President and Director, five Vice-Presidents, a Chief Development Officer and managers of operational units including Information Systems (IS), Human Resources, and Grants & Contracts. Detailed information about the Institution can be found on its web page www.whoi.edu including an Organizational Chart (below) and at www.whoi.edu/main/organization-chart.

Significant changes since the last Commission fifth-year interim review in 2011 include turnover in leadership positions, addition of positions to address identified issues, construction of two new buildings, and introduction of a new semester-long program for serious science, technology, engineering, and mathematics (STEM) undergraduates. New President and Director, Dr. Mark Abbott, arrived at WHOI on October 1, 2015, replacing Dr. Susan Avery who stepped down in July 2015 after seven years in her position. Leadership on the Board of Trustees also changed in October 2015 as prior terms expired. Newly elected officials include Chair of the Board of Trustees, David Scully, Chairman of the Corporation, Stephen Hoch, Treasurer, Hardwick Simmons, and Vice-Chair of the Board, Jeff Hughes. The Board is currently conducting a review of governance practices with a focus on maintaining the proper balance between fiduciary oversight and institutional management. A new position, Vice President for

Legal Affairs, was created in 2014 and a new Information Systems (IS) Director position was created to integrate all IS functions.

Recent construction projects on campus include the LOSOS building and a new dormitory. The LOSOS building, an 18,400 square foot interdisciplinary center for scientists and engineers developing the next generation of sensors and supporting technology for ocean observation, was completed in 2012. This center helps to support WHOI's involvement in the Ocean Observatories Initiative (OOI), funded by the National Science Foundation (NSF). Since 2009, WHOI has been funded to design, fabricate, install, operate, and maintain the Coastal and Global Scale Nodes (CGSN) component of OOI, a network that spans global, regional and coastal scales, and is linked by a system-wide cyberinfrastructure. The second new building is a 9,750 square-foot dormitory being constructed to replace student housing that will be lost with the sale of old, expensive-to-maintain buildings. It will be completed in spring 2016. WHOI also recently took delivery of the new research vessel *Armstrong*, owned by the Navy, to be operated by WHOI. After a period of outfitting, its first science mission is scheduled to begin during the second quarter of 2016.

A very recent addition to WHOI's academic programs is the Semester at WHOI program. Started in fall, 2015, Semester at WHOI is a tuition-supported non-degree program for serious juniors and seniors majoring in science, engineering or mathematics. The curriculum emphasizes a research project for course credit as well as ocean science courses designed specifically for this program and/or select graduate courses that are also offered for undergraduate credit. The combination of the research project and course work provides a full semester of credit transferable back to the student's home institution.

A major emphasis of this self-study, and of planning and evaluation activities over the past five years, has been on examining the Institution's success with respect to its mission of research and education in financially difficult times. Despite constraints in federal research funding, WHOI has continued to be successful with a healthy endowment and operating revenue that has shown consistent growth reflecting its success in obtaining scientific sponsored research revenue. However the Institution does rely heavily on revenue from federal government agencies and has taken several steps toward becoming more financially secure. WHOI has and will continue to look for ways to diversify its funding base and continue its efforts at cost efficiencies. For example, the new Information Systems (IS) Director has begun to create a unified IS organization and a plan for all WHOI IS activities, and an underway Strategic Facilities Planning Process is being used to set priorities for deferred maintenance, renovation and construction. WHOI is also continuing to deal with is its financial support of the closed Defined Benefit (DB) retirement plan that has a gap between assets and liabilities. This gap and its sensitivity to interest rates is being watched closely by a Board of Trustees committee. WHOI has also taken a step to bring its indirect cost recovery model into line with that of most other not-for-profit research universities and institutions, a Modified Total Direct Cost (MTDC) model. The switch to MTDC will occur in 2017, and, while it will affect WHOI's finances in ways difficult to project, it will make budgets from WHOI more straightforward for peer reviewers, who also use MTDC, to understand.

The self-study has also reviewed planning and evaluation exercises that have occurred over the last five years, including two external reviews, one of the MIT/WHOI Joint Program (JP) in Oceanography and Applied Ocean Science and Engineering carried out in 2014, and the

recent review by the 2015 External Department Visiting Committee. New President and Director Mark Abbott has already responded to the recommendation of the 2015 Visiting Committee that WHOI consider mechanisms to involve Staff more directly in decision-making. Dr. Abbott has proposed the establishment of a charter that would make Staff Council, a group that includes the Chairs of each Department, the deliberative body for the strategic management of WHOI. This change would allow for broader input during the development of policy changes given that the Chairs of the Departments represent the majority of the staff and so have the closer connection to the WHOI community. Addressing other recommendations, Dr. Abbott has scheduled a retreat for the end of March 2016 involving Staff Council and others to identify future research priorities for the Institution. Discussion will focus on where the field of oceanography is going, and where WHOI can lead both nationally and internationally. The goal of the retreat is to begin development of a strategic science framework for the Institution that would guide efforts in hiring and education, and be used to align institutional governance, development and communications efforts and facilities to support the science framework.

WHOI, along with its graduate program partner, MIT, is also in the process of addressing recommendations of the 2014 External JP Review. Graduates of the program continue to have successful outcomes with 62% employed by research institutions and universities, 19% by private companies or corporations, 10% by government agencies, and 3% by other academic institutions. WHOI and MIT have already begun to address the major concerns raised about enrollment and about jointness between the two institutions. To address the former, greater risks were taken during admissions in 2015, resulting in a healthy class size, and similar efforts are planned for 2016. To address the latter, WHOI has invested funds in a program to promote collaboration between WHOI and MIT faculty. To further efforts at maintaining a healthy and more stable enrollment, the WHOI Academic Programs Office is recommending that fellowships for graduate students be made a priority for WHOI development efforts.

An issue within all ocean science graduate programs, not just the MIT/WHOI JP, is difficulty attracting well-qualified students from underrepresented groups. To address this WHOI has been playing a leadership role in cross-institution efforts to increase the diversity of STEM undergraduate students interested in pursuing ocean science careers. WHOI also is continuing its support for its own undergraduate programs, each of which includes a significant research component. These include the Summer Student Fellow program, Partnership Education Program (PEP), Ocean Research Experience (ORE) program and the new (as of fall 2015) Semester at WHOI program. WHOI plans to grow the Semester at WHOI program from two students in fall 2015, to four-to-five students in fall 2016, with a long-term goal of 20 students.

WHOI is also in the process of looking at its Title IX policies, with a review being conducted by the Academic Programs Office, Human Resources and WHOI's General Counsel. The Title IX Coordinator attended a week-long Title IX Coordinator and Administrator Training and Certification Course given by the Association of Title IX Administrators (atIXa) in January 2016. To examine the climate for women employees and students at WHOI, an outside consultant has been hired to conduct a survey. The survey will be distributed in July 2016, and results will be used to identify issues and corrective actions.

This self-study gives emphasis to WHOI's success in addressing its goals for diversity, for continuing to strengthen its financial position, and for developing and implementing recommendations of past planning exercises. It lists projections that will enhance the

Institution's strengths, address areas of concern, and guide planning processes. The overall goal is to enhance the quality of WHOI's Academic Programs and advance WHOI's mission of "research and education to advance understanding of the ocean and its interaction with the Earth system, and to communicating this understanding for the benefit of society."

"DATA FIRST" FORMS

GENERAL INFORMATION

Institution Name:	Woods Hole Oceanographic Institution		
OPE ID:	? N/A		
		Annual Audit	
	?	Certified:	Qualified
Financial Results for Year Ending:	? 12/31	to be certified	to be unqualified
Most Recent Year	? 2014	Yes	Unqualified
1 Year Prior	2013	Yes	Unqualified
2 Years Prior	2012	Yes	Unqualified
Fiscal Year Ends on:	(Dec/31)	(month/day)	
Budget / Plans			
Current Year	2015		
Next Year	2016		
Contact Person:	? James A. Yoder		
Title:	Vice President for Academic Programs and Dean		
Telephone No:	508-289-2200		
E-mail address	jyoder@whoi.edu		

STANDARD ONE: MISSION AND PURPOSE

The Institution's mission and purposes are appropriate to higher education, consistent with its charter or other operating authority, and implemented in a manner that complies with the Standards of the Commission on Institutions of Higher Education. The Institution's mission gives direction to its activities and provides a basis for the assessment and enhancement of the institution's effectiveness.

Description

The WHOI mission statement reads, "The Woods Hole Oceanographic Institution is dedicated to research and education to advance understanding of the ocean and its interaction with the Earth system, and to communicating this understanding for the benefit of society."

Appraisal

WHOI's commitment to education is explicitly confirmed in this mission statement. The mission statement is purposely succinct for strength and clarity, and was last revised in 2007 in response to a recommendation of the 2007 Strategic Plan. The Board of Trustees endorsed this clarified mission statement on January 12, 2007 and the full corporation approved it as part of the approval of revised corporation bylaws in May 2009. One role of the Board of Trustees is to periodically review the Mission Statement to, as noted in June 1998 by Chair of the Board of Trustees, James E. Moltz, *"ensure they are continuing to carry out the wishes of the founders while at the same time adjusting to changes in governmental and environmental conditions."*

WHOI's mission to understand the ocean and its interaction with the planet and society encompasses a broad portfolio of discovery and problem oriented research into (1) the physics, chemistry, biology, and marine geology of the ocean; (2) engineering science and innovative tool development; and (3) marine policy and decision-support. This research portfolio is supported by the operational skills needed to work on, in, and under the ocean.

Throughout its history, WHOI's capabilities have also turned to applications, including military R&D during and after WW II, and more recent intersections with ocean engineering, offshore industry, fisheries management, pollution response and ocean conservation. Some recent applications have had very high profiles, including locating the remains of Air France 447, responding to the *Deepwater Horizon* oil spill, and tracking radioisotopes from Fukushima.

Projection

The mission statement is consistent with WHOI's major product being knowledge generation, measured primarily in discoveries, publications, patents, and leadership or participation in most of the major national and international oceanographic research programs of the last 50 years. Education is a key part of the Institution and fully integrated with research activities. Over the years WHOI has helped train generations of ocean scientists and engineers through its Postdoctoral Scholar program, programs for undergraduates, and graduate program - the MIT/WHOI Joint Program in Oceanography/Applied Ocean Science and Engineering.

Institutional Effectiveness

The Board of Trustees and the Institution periodically re-evaluate the content and pertinence of its mission to *"ensure they are continuing to carry out the wishes of the founders while at the same time adjusting to changes in governmental and environmental conditions."*

Standard 1: Mission and Purposes

Attach a copy of the current mission statement.

Document		URL		Date Approved by the Governing Board
Institutional Mission Statement	?	http://www.whoi.edu/main/vision-mission	?	May 15, 2009

	Mission Statement published		URL	Print Publication
?	Corporation Bylaws	?	www.whoi.edu/page.do?pid=26726	Online only
	Member Orientation - A Reference Guide for Trustees and Corporation Members		http://www.whoi.edu/trustees/reference-guide	Print and online

	Related statements		URL	Print Publication
?	N/A	?		
	2			
	3			

STANDARD TWO: PLANNING AND EVALUATION

The Institution undertakes planning and evaluation to accomplish and improve the achievement of its mission and purposes. It identifies its planning and evaluation priorities and pursues them effectively.

Description

Woods Hole Oceanographic Institution carries out planning and evaluation of the functions articulated in its mission statement by external committees at regular intervals (e.g., an external review of the MIT/WHOI Joint Program is done every five years; external visiting committees evaluate WHOI science departments every five to ten years). Other functions are reviewed at less regular intervals. Results of internal planning and evaluation are communicated in a number of ways: to the Chairs of each Department and Vice Presidents at biweekly Staff Council meetings, on the web site (both on the Director's and Director of Research web pages – http://www.whoi.edu/main/president-director, http://www.whoi.edu/DoR/page.do?pid=15515) accessible to all employees, and in periodic (twice annually) open state-of-the-institution presentations by the President. Results of the two external evaluations are communicated to the appropriate constituencies with the report from the External Review Committee of the MIT/WHOI Joint Program sent (via e-mail) to faculty and current students and to the board of trustees and corporation members, and with the report of the external department visiting committee posted on the WHOI internal web page, accessible to all employees and board and corporation members **(**http://www.whoi.edu/DoR/visiting-committee).

Appraisal

Planning

WHOI carried out its last complete strategic planning exercise in 2006, which led to the 2007 Strategic Plan and revised mission statement (see Standard One). This Strategic Plan was revisited in 2011 with an initial goal of carrying out a new strategic planning exercise. That exercise resulted in a reaffirmation of the content of the 2007 Strategic Plan with respect to research and education, but with concerns about the Institution's ability to respond to financial contingencies. As a result, and in view of the federal budget sequester and increasing uncertainty about the federal funding outlook, efforts were focused on revenue growth and diversification as well as on cost management. Internal planning exercises that resulted from this during the last five years include one involving the Ocean Institutes (carried out in 2013 to examine how to better integrate Ocean Institute functions with Institution operations), and an on-going Strategic Facilities Planning process, using an outside firm, to develop a more formal approach for addressing deferred maintenance issues. The report on the Strategic Facilities Planning process is not due until spring 2016. The Ocean Institute Ad Hoc Committee (OIAHC) report was completed in 2013 and made several recommendations that have been acted on:

* Establishing a new advisory group, the Institutional Strategy Council (ISC), that will supersede the Institutes Oversight Committee (IOC).
* Maintaining the valuable contributions to WHOI that are currently provided by the Institutes.
* Maintaining funding levels for OIs to support projects and fellowships, but the level of unrestricted support should be evaluated by the DoR and ISC in the context of funds available to the broader Institution and allocated by the President/Director.

* Changing the mandate of the OIs to include development of large-scale, cross-departmental themes and projects. The WHOI Directorate and Development and Communications teams can then adopt these themes and projects to focus fund-raising efforts.

* Maintaining the educational support but this support should be moved back to Academic Programs office. The OIs and Departments should continue to provide guidance on postdoctoral and graduate student fellowships as part of the normal process.

Its full report is at http://www.whoi.edu/DoR/policies-resources/reports

Strategic Planning

In June 2006 Acting WHOI President and Director Jim Luyten established a committee to develop a Strategic Plan for the Institution with an overall goal to identify ways in which the Institution could strengthen its ability to pursue its mission, increase the competitiveness of its research staff, and adapt to on-going changes in funding for ocean research and education. Input to the Strategic Plan came from a retreat of WHOI Vice Presidents and Department Chairs held in February 2006, strategic planning discussions in the science departments, a retreat of administrators and facility managers in July 2006, and meetings of the committee with various groups within the Institution. A draft of the Strategic Plan was circulated to the WHOI community in early October 2006 for review and comment, and open meetings held to solicit input. The draft Strategic Plan was also presented to the Trustees at their October 2006 meeting. Based on feedback received from WHOI staff, Trustees and Corporation members the Strategic Plan was revised and submitted to the Trustees for approval in January 2007.

The 2007 Strategic Plan identified six strategic goals for the Institution, and, to pursue the six strategic goals, shorter-term priorities were recommended. The goals and sub-goals from the 2007 Strategic Plan, reaffirmed in 2011, and progress on implementation as of 2015, are described in Appendix I of the WHOI Visiting Committee 2015 Brief that was submitted to the 2015 Visiting Committee (at http://www.whoi.edu/DoR/visiting-committee and a copy will be in the Team Room). Some changes instituted as part of the 2007 Strategic Plan include:

<u>Maintain WHOI as world leader - recruitment/retention of highly qualified staff</u>

- Since 2007 WHOI has had a hiring process in which Departments identify strategic disciplinary needs and bring these to Staff Council for cross-Department discussion of priorities. This has led to directed ‘cluster hires’ in coastal processes and climate change research, and has been used to set targets for number and disciplinary distribution of hires in a given year.

- Bridge/ISP support costs to the unrestricted budget have increased since 2007, and been subject to several analyses of ways to manage or contain the costs. In limited cases, bridge use due to performance issues has been identified, and negative salary adjustments made. In general however, the principle that bridge support is necessary to the continued health and productivity of the Institution has been reaffirmed. Beginning in 2015, bridge was replaced by a combination of Institution Research and Development (IR&D) funding (from overhead), and Investment in Science Program (ISP) support (from new fund-raising by Trustees and the unrestricted budget).

- Clarifications to criteria for Scientific Staff promotions, including tenure, were made in the Appointments and Promotions Procedures Manual (the Blue Book). High-level promotions on the Technical staff have focused attention on appropriate metrics for applied or engineering work. Several off-ladder positions have been created since 2007 on the Technical Staff to

describe and accommodate project management and operations supervisor roles. The position of Emeritus Research Scholar was created for Emeriti receiving post-retirement salary support.

Strengthen and diversify WHOI's funding base

- The Office of Applied Oceanography was replaced in 2013 with the Office of Technology Transfer, under new hire David Knaack. It has received philanthropic commitments of approximately $130,000 since 2013. License revenue almost doubled from $341,720 in 2007 to $656,778 in 2014. These funds are applied to translational research for incentivizing applied research with the potential to grow royalty income. The Office of Technology Transfer has strengthened its ability to identify, grow and market technology by strategic hiring of a patent liaison, and a technical marketing specialist, while reducing the Office budget by approximately 10%.

- The Center for Marine Robotics (CMR) was created, and Director Jim Bellingham was hired in March 2014. The goal of the CMR is to advance the state of the art of marine robotics, foster a thriving marine robotics industry, and apply new robotic technologies to scientific challenges. The CMR is inviting companies to become industry members at $50-75K annually. It was granted $5M in matching funds from the Mass Technology Collaborative in 2014 for infrastructure supporting underwater robotics development.

- Funding from private foundations has increased from $5.2M (4.0% of total sponsored research) in 2007 to $9.3M (4.8% of total sponsored research) in 2014. Major new funding has come from the Moore, Simon, and Dalio Foundations.

- Ocean Institutes have continued to function as sources of internal funds and homes for broader multidisciplinary Initiatives.

Maintain and enhance shore-based and sea-going expertise

- WHOI maintains both the National Ocean Sciences Accelerator Mass Spectrometer (NOSAMS) facility and the Northeast National Ion Microprobe Facility (NENIMF). NOSAMS was successfully re-competed at NSF in 2014, and recently identified WHOI Senior Scientist Mark Kurz as the next Director, succeeding William Jenkins. NENIMF has made major improvements in equipment and services and recently received NSF facilities support. Several other analytical facilities have been improved or updated in recent years.

- HROV *Nereus*, designed and built at WHOI, completed successful dives to the Challenger Deep in 2009, and was used on other expeditions until lost at 10,000 m in the Kermadec Trench in March 2014. Autonomous underwater vehicle *Sentry* was adopted into NDSF in 2008, and has been heavily subscribed ever since. The human-occupied vehicle *Alvin* upgrade was completed and science activities were resumed in 2014. The *Nereid* under-ice vehicle completed successful trials under Arctic ice in 2014. Autonomous *Jetyak* has been used for several research operations, including Arctic. Capability for telepresence from *Jason* and *Nereus* was established, with a remote operations center in the LOSOS building.

- WHOI established and operates, with NSF support, the Biological and Chemical Oceanographic Data Management Office (BCO-DMO), which serves major oceanographic research programs nationally.

Improve fiscal and operational management

- A study to determine the resulting financial implications of moving to a Modified Total Direct Cost (MTDC) overhead model was developed and a decision was made to move to this structure. The cost recovery change was approved in 2015 and will go into effect in 2017.

- A Strategic Facilities Planning process has been initiated to aid in development of multi-year financial projections (in progress with anticipated spring 2016 completion).

- A Senior Director of Information Technology and Services, Keith Glavin, was hired in 2015 to create one integrated IT presence with an emphasis on scientific computing and identifying an ultimate solution for administrative and financial management and reporting.

Increase communication/transparency across Institution

- In 2014, as recommended by the Ocean Institute Adhoc Committee, the Institution developed and created a new Institutional Strategy Council (ISC) comprised of Department Chairs, Ocean Institute Directors, the President and members of the Directorate, and the Development and Communications Departments. The ISC is a monthly forum to keep major constituents throughout the Institution informed about Institutional strategies and initiatives.

Educate and train ocean scientists and engineers

- WHOI continues to educate and train the next generation of ocean scientists and engineers. Programs for undergraduates include the Summer Student Fellow program (that hosts 30 students each year) and a new (as of fall 2015) Semester-At-WHOI program that includes a for-credit research experience and course work. Since 2007, the annual average number of postdoctoral investigators, fellows, and scholars in residence at WHOI is around 85 with eight to twelve Postdoctoral Scholars selected each year. The number of graduate students enrolled in the MIT/WHOI Joint Program (JP) in Oceanography/Applied Ocean Science and Engineering has been stable at about 125 for the last five years. A JP Strategic Plan was developed following the 2009 External Review of the JP, with a report given in March 2011. Implementation of this strategic plan is described below.

Evaluation

During the past five years, regularly scheduled external evaluations were carried out. A review of WHOI science departments by an external visiting committee was carried out in June 2015, and an External Review of the MIT/WHOI Joint Program was done in December 2014. These formal external reviews supplement regular internal evaluations that occur as part of twice annual reports to the Board of Trustees Research and Education Committee in May and October, and annual reviews carried out within each discipline of the MIT/WHOI Joint Program that consider feedback from students (e.g., from course evaluations, annual progress reports, the annual meeting with the WHOI Dean and MIT JP Director) and student outcomes (e.g., results of general examinations, defenses, and student placement after graduation).

External Reviews

2015 External Department Visiting Committee Review

The External Department Visiting Committee Review for 2015 was conducted in a slightly different manner than previously, with one committee tasked with reviewing all of the

departments. The single committee included disciplinary specialists and 'generalists' to collectively learn about and provide guidance on the research activity in the five science departments and Marine Policy Center (MPC). The visit began on Tuesday, June 2 and concluded at noon on Friday, June 5. During that time the committee heard presentations from then President Susan Avery, Executive Vice President Larry Madin, the Department Chairs and MPC Director, Vice President for Marine Facilities and Operations Rob Munier and others. On Wednesday, June 3, members of the committee visited each of the Departments and MPC to meet with scientific and technical staff members. The committee provided a verbal summary of its findings and recommendations the evening of June 4 and issued its formal report in July (can be found at http://www.whoi.edu/DoR/visiting-committee).

Committee Members:

Deborah A. Bronk (Chair), Virginia Institute of Marine Science, Gloucester Point, VA
Colleen M. Cavanaugh, Harvard University, Cambridge, MA
H. Lawrence Clark, WHOI Corporation
Peter R. Girguis, Harvard University, Cambridge, MA
Guillermo E. Herrera, Bowdoin College, Brunswick, ME
Charles H. Langmuir, Harvard University, Cambridge, MA
Roberta L. Marinelli, Wrigley Institute for Environmental Studies, University of Southern California, Los Angeles, CA
Patricia A. Matrai, Bigelow Laboratory for Ocean Sciences, East Boothbay, ME
Larry A. Mayer, University of New Hampshire, Durham, NH
Roger M. Samelson, Oregon State University, Corvallis, OR
David A. Siegel, University of California, Santa Barbara, CA
Louis L. Whitcomb, Johns Hopkins University, Baltimore, MD

The committee report provided 40 recommendations that have been distilled below to fourteen (the committee report will be available in the Team Room):

1. It is essential to maintain the salary guarantee (ISP) for scientific staff
2. Streamline allocation of other internal support, and allow for wider range of activities
3. Work to minimize imbalances of gender and diversity
4. Improve mechanisms to support and train Technical Staff
5. Review workload and training needs for Administrative Staff, particularly Department Administrators
6. Consider mechanisms to involve Staff more directly in decision-making, via Chairs and otherwise
7. Provide greater recognition and voice for engineering staff
8. Review the Marine Policy Center with respect to research priorities and leadership succession
9. Provide internal support for scientists to develop large, interdisciplinary research programs
10. Seek to enhance Ocean Institute grants that foster interdisciplinary research
11. Clarify the goals of the Center for Marine Robotics and encourage it to develop internal funding opportunities
12. Support development of interdisciplinary science plans that use OOI capabilities
13. Suggest focusing Development effort on student support and salary support for Sci/Tech staff
14. The Director should engage staff in an extensive strategic planning process

Despite the very recent (October 1, 2015) arrival of the new President and Director, progress has already been made on several of the recommendations. Specifically:

- The new Director and the new Board Chair support the scientific staff salary guarantee and a new source of internal funds for salary support was created in the overhead account in 2015 (Institution Research and Development – IR&D) for scientific staff to use to pursue new and, in some cases, risky ideas based on short proposals.
- Steps are being taken to streamline the allocation of internal support.
- The Staff Council is discussing gender diversity issues in relation to hiring, retention and WHOI leadership positions.
- WHOI has contracted with an outside consultant to conduct a survey of employees and students on the WHOI "climate", including the climate for women employees and students.
- A draft of a new Charter for the Staff Council (which includes the VPs and the Department Chairs) is being considered and discussed within each department. The Charter, once approved, will make Staff Council the primary body for providing advice to the Director rather than the Directorate (now the "Senior Administration").

<u>2009 External Review of the MIT-WHOI Joint Program (JP) in Oceanography/Applied Ocean Science and Engineering</u>

In response to the main recommendation coming out of the 2009 JP External Review, a committee was formed of faculty from MIT and WHOI to develop a JP Strategic Plan. The committee's report was issued on March 29, 2011. It echoed findings of the external review committee, identifying two major challenges to address within the MIT/WHOI JP: how to "bridge the widening gap between WHOI and MIT researchers," and how best to "promote and facilitate interdisciplinary (multi-disciplinary, cross-disciplinary) research while maintaining a foundation of disciplinary excellence." JP Strategic Plan recommendations to the MIT JP Director and WHOI Dean were 1) to create a Joint Program Education Council, 2) establish a Joint Program Faculty, 3) create an engaging and effective JP web site, and 4) take steps to facilitate interdisciplinary science (including moving to a more uniform general exam structure). With the exception of the Joint Program Education Council, significant progress was made on each of these recommendations:

1) The suggestion of creating a Joint Program Education Council is viewed as an excellent idea, however arranging a joint meeting of five MIT Department Heads and five WHOI Department Chairs is logistically unrealistic. Instead, high-level program oversight is provided in other ways. The WHOI Dean (currently Jim Yoder) meets regularly with the WHOI President, attends WHOI's Staff Council that also involves all WHOI Department Chairs, and meets regularly with MIT's Rob van der Hilst, Department Head of Earth, Atmosphere and Planetary Science, who is the high level point of contact for the Joint Program at MIT. The WHOI Dean and MIT JP Program Director (currently Ed Boyle) meet regularly to discuss Joint Program issues.

2) Protocols were established for being identified and listed as JP faculty, with the WHOI Dean responsible for approving JP faculty membership and overseeing periodic review of

WHOI JP faculty (all faculty are reviewed every four years), and the MIT Director responsible for approving JP faculty membership and review at MIT. JP faculty members are listed on the JP web site. JP faculty meetings (mini-retreats) are held annually or bi-annually at either WHOI or MIT and include discussions of JP issues as well as short research presentations from WHOI- and MIT-based faculty. Meetings were held on September 27, 2011 at WHOI, and November 19, 2012, and November 13, 2014 at MIT. In addition a JP Committee (WHOI Dean, MIT JP Director, and Chairs of each disciplinary Joint Committee) meeting was held to discuss implementation of the JP Strategic Plan on January 25, 2012, and another was held September 10, 2015 to discuss progress on addressing recommendations of the 2014 External JP Review (see below).

3) The JP web site has been updated, and detailed information about interdisciplinary and cross-disciplinary research in climate variability and impacts has been added, and procedures for pursuing an interdisciplinary focus are highlighted.

4) The JP aims to be an ocean science program in the broadest sense. Between MIT and WHOI, JP students can find the faculty expertise and the resources to pursue thesis research into areas including earth science, hydrology, glaciology, marine conservation, environmental chemistry, etc. There are no administrative or bureaucratic obstacles in the way of forming thesis committees consisting of faculty representing multiple Joint Committees, and from 2010-2014, between twelve and fourteen JP students each year have been advised by faculty normally affiliated with a different discipline (e.g., a student within the Biological Oceanography discipline with an advisor normally affiliated with Physical Oceanography). Additionally, a concerted effort has been made to make disciplinary requirements more similar. In 2011, in response to a request from WHOI Dean Jim Yoder and MIT JP Director Ed Boyle, each discipline re-examined its general exam and curriculum. Significant and moderate changes were made to the Biological and Physical Oceanography general exams and course requirements, respectively, and less drastic changes were made to the Chemical Oceanography general exam. Following these revisions the general exams in all but the AOSE discipline have similar elements, with each requiring a report (or two reports in the case of Marine Geology and Geophysics) on research conducted by the student, and an exam, written and/or oral, that tests both specific and general knowledge.

The JP Strategic Plan also included recommendations to MIT and WHOI administrations to provide first-year fellowships for JP students, raise the visibility of the JP at MIT, broaden the scope of the JP by establishing cooperative links with other programs, and include the JP in strategic planning at MIT and WHOI. Some progress has been made on these recommendations. Perhaps of greatest significance is the renovation of the 8th floor of the Green Building at MIT, which now includes the MIT/WHOI Joint Program Office, a large student office that has desks for twelve JP students, a visitor's office for WHOI's President and the WHOI Dean, and a classroom with video-conference capabilities (MIT 54-827). This floor now serves as a home at MIT for JP students, and the renovation has provided much needed desk space for JP students. The MIT/WHOI Joint Program in Oceanography is also visible on the relatively new *Oceans at MIT* web page (http://oceans.mit.edu/).

There have also been efforts aimed at increasing numbers of first-year fellowships for JP students and including the JP in strategic planning at MIT and WHOI, but these have met with less success. In late 2011 there was a joint meeting of Development and Philanthropic Officers from WHOI and MIT to discuss possible cooperative approaches to industry and other donors, though this meeting did not result in cooperative fundraising for the JP. While the MIT/WHOI JP is far from having first-year fellowships for all entering students, there have been a few new ones made available to the JP. These include a nine-month MIT Energy Initiative Fellowship that has been made available for an incoming JP student in each of the past two years (2013-2014 and 2014-2015), and an endowed 12-month first-year fellowship from the WHOI Ocean Ridge Initiative (beginning in 2011). These are in addition to other MIT and WHOI first-year fellowships.

2014 External Review of the MIT-WHOI Joint Program

In December 2014, in keeping with the regular five-year schedule of external review of the JP, a committee was convened to review all aspects of the MIT/WHOI Joint Program in Oceanography/Applied Ocean Science and Engineering. The summary of progress made in response to the JP Strategic Plan that came out of the 2009 external review was included in materials provided to the committee. Committee composition was:

Daniel Rudnick, Scripps Institution of Oceanography, Chair
Sonya Legg, GFDL/Princeton, Principal Reviewer for Joint Committee Physical Oceanography (JCPO)
Jess Adkins, CalTech, Principal Reviewer for Joint Committee Chemical Oceanography (JCCO)
Kathy Gillis, University of Victoria, Principal Reviewer for Joint Committee Marine Geology and Geophysics (JCMGG)
Ruth Preller, Naval Research Lab, Principal Reviewer for Joint Committee Applied Ocean Science and Engineering (JCAOSE)
Bess Ward, Princeton University, Principal Reviewer for Joint Committee Biological Oceanography (JCBO)
Emmanuel Boss, University of Maine, Principal Reviewer for Interdisciplinary/Joint Committee Crosscuts
Mike Roman, University of Maryland Horn Point Laboratory, Principal Reviewer for Interdisciplinary/Joint Committee Crosscuts
Ted Dengler, Risk Strategies, L.L.C. WHOI Trustee representative

The Charge to the Committee was to review the Joint Program (JP) in general and to address the following points in particular:

- Content, breadth and quality of the curriculum.
- Does the curriculum include new advances in ocean science graduate education, e.g. the role of the ocean in the Earth system?
- Quality of the student research program and its products.
- Opportunity for student interdisciplinary research across the fields of ocean science.
- Preparation of JP students for post-graduation opportunities, including adequacy of student mentoring activities.
- Quality of teaching and advising (student input and review of teaching evaluations).
- Adequacy of student financial support.
- Quality of student life, including housing, logistical support and the climate for women,

international students and minorities.
- Health of the MIT and WHOI partnership, and opportunities for growth, such as inclusion of additional MIT departments and the possibilities of adding external partners (e.g. closer relations with Harvard).
- Management of the program including institutional commitments, committee structure and contribution of each institution. Is the program organized appropriately?

The Review Committee issued its report February 20, 2015, and had the following findings (in italics) and recommendations (in bold italics), focusing both on areas of excellence and areas of concern. Progress or plans for addressing recommendations are in regular font.

Areas of excellence

-The JP continues to be recognized as one of the strongest programs in the country and the world.
-Efforts to encourage interdisciplinary research by JP students have been successful.
-We recommend that the JP enhance its website to provide more examples of interdisciplinary opportunities and encourage the JP to emphasize its offerings in marine policy and marine resource management to its students and applicants.

This is a priority for the Associate Dean in 2016. Content related to coastal research and biophysical interactions and other topics will be solicited from relevant faculty and students in a similar manner as was done when developing the web content on Climate Variability and Impacts.

-The JP has taken several steps toward improving student life.
-The JP has paid close attention to the professional development of its students, including tracking them as they proceed in their careers.
-In order to improve preparation for careers in education, a recommendation is to provide more opportunities for students to teach, perhaps through TAing undergraduate classes. As part of the efforts to keep the JP at the forefront of the field, we recommend that the JP poll its alumni regarding the adequacy of their training and potential ways to improve it.

A poll of the alums who graduated since 2004 will be conducted in 2016.

-The JP has made changes to the general exams to create a more uniform format across the disciplines. On the whole these changes have been for the good.
-Our recommendation is to proceed carefully with the new general exams, with due consideration for the effects of new requirements on students.

Each year following the general exams, outcomes are reviewed at the annual meeting of that discipline's Joint Committee. Pros and cons of the new general exams are being discussed within each of the JCs where general exams were modified (JCBO, JCCO, and JCPO).

-The academic training of the JP remains excellent.
-In an effort to maintain academic excellence, we recommend that faculty be encouraged to participate in mentoring programs, and that the JP provide support for faculty to improve their teaching skills.

Several steps have been taken to address this concern. The web site has been updated to provide information on student and faculty resources and responsibilities (e.g.,

http://mit.whoi.edu/faculty). Annual mentoring sessions for students and faculty are planned for 2016 and will use the 2006 Burroughs Wellcome Fund, Howard Hughes Medical Institute publication "Making the Right Moves: A Practical Guide to Scientific Management" (http://www.hhmi.org/labmanagement) as a guide. To improve teaching skills, an option now available for new instructors, and/or those with issues related to teaching quality, is to participate in training at the MIT Teaching and Learning Laboratory (TLL, see http://tll.mit.edu/). The quality of teaching and education involvement is explicitly considered in the promotion discussion.

-WHOI scientific staff greatly value the JP and are committed to its success. [MIT] EAPS leadership cares about the JP, and is committed to its continued success.
-We recommend that the [MIT] EAPS chair be given some measure of authority commensurate with the responsibility of running a JP that spans several departments at MIT.

Department Heads at MIT have a lot of authority and control significant resources. As of 2013 the MIT EAPS department head is the principal MIT point of contact for the Joint Program (instead of the MIT Vice President for Research). This change has proven to be a very positive development for the WHOI and MIT partnership of the Joint Program. Recently, in response to the 2014 External review, an informal agreement was made to involve a JP faculty member from within the MIT Mechanical Engineering Department and a JP faculty member from within the MIT Civil and Environmental Engineering Department in the JP administration. It is hoped that this agreement will be formalized by a request to MIT Vice President for Research Maria Zuber in the next budget cycle.

Areas of concern

Jointness between WHOI and MIT within the JP:

-The decreasing "jointness" of the JP threatens the very existence of the program.
-… the Committee believes that both institutions must take steps immediately to ensure the continued existence of the JP.
-Issues of jointness exist in all disciplines, although these issues vary in type and severity.
-It is incumbent upon WHOI to improve relations with MIT with regards to the JP. As the future of the JP at MIT depends on a rejuvenation of personnel, WHOI should work to develop productive relationships with young MIT faculty.

WHOI initiated a new program offering $20K to junior WHOI scientists to interact with a student and an MIT faculty member. So far, two WHOI scientists have taken advantage of this program, but there is enough budgeted to cover additional participation.

WHOI already has a designated MIT/WHOI Joint Program Guest appointment for MIT faculty who are involved with the JP. It provides official status at WHOI, parking accessibility, and access to the MBL/WHOI Library (described on p. 55 of the Appointments and Procedures Manual).

-The JP should make special efforts to be involved in MIT initiatives.
-MIT and WHOI should develop reciprocal efforts in hiring.

Recently, MIT and WHOI have emphasized the MIT/WHOI Joint Program in faculty position advertisements and some WHOI departments have sought to engage MIT colleagues in WHOI candidate interviews.

-The JP should focus on improving communications and interactions between MIT and WHOI faculty and students.

Enrollment:

-In recent years, there has been a troublesome downward trend in enrollment.
-The JP should consider yield more carefully in deciding how many students to be offered admission.

Greater risks were taken in 2015 during admissions with a total of 35 offers made (vs 29 in the previous year). The ability to make more offers reflected not only a willingness to take some risk, but also an increase in the number of first-year fellowships made available for students who would be advised within the MIT EAPS Department, as well as less stringent requirements at WHOI for in-hand funds needed to admit a student (the previous year had required 1.5 yrs funding in hand to admit students, but this year only 1.0 yr of funding in hand was required). The result was a class of 25 compared to the class of 14 in 2014.

-The budget of the WHOI Academic Program Office should be structured so that higher enrollment is incentivized.

While technically true that it is slightly more expensive to have greater numbers of students within the Joint Program at WHOI, the effect is so small that it has never influenced Academic Program Office decisions. The major issue is whether those enrolled are covered by external fellowships or GRAs. The Academic Programs Office picks up funding of students who fall off of grant or external fellowship support, and it is important for the APO budget to maintain the number of students requiring APO support at a manageable number.

-Fellowship funding at MIT should be structured, as much as possible, not to disadvantage the JP.

In 2015 the MIT EAPS Department Head allowed EAPS first-year fellowships to be awarded to incoming Joint Program students provided that they would be advised by an MIT EAPS JP faculty member. The hope is that this policy will continue, but it is not something that WHOI has control over.

-First-year fellowships for graduate students should be made a priority for development efforts.

This suggestion has been brought to the attention of the new President of WHOI and the incoming Chief Development Officer.

Assessment of student success

Assessment of graduate student progress and achievement of goals within the graduate program is made on at least an annual basis. The progress of each student is reviewed at an annual meeting and feedback is provided in the form of a written memo. General Exams are taken at the end of the second year, a thesis proposal presented or defended during the early part of the third year, and a thesis defended at the end of year five or within year six. Exit interviews

are held with all students. Every five years, as part of the regularly scheduled external review of the program, student outcome (retention and job placement) is compiled and reviewed. The compiled data on alumni destinations are posted on the web page (http://mit.whoi.edu/statistics).

Projection

WHOI has benefitted from both internal and external planning and evaluation processes and will be using information that has come out of these evaluations to further its mission. Recent emphasis of this planning and evaluation has been on fulfilling the Institution's mission of research and education in financially difficult times.

WHOI has responded to recommendations made in the review report for the Ocean Institutes (e.g., has established the ISC), and has enacted recommendations of the 2011 Joint Program Strategic Plan.

WHOI and MIT are in the process of addressing recommendations of the 2014 External JP Review. Mentoring workshops will be carried out for both students and faculty in early 2016. Content related to interdisciplinary topics will be solicited to develop content for the JP web site.

The Strategic Facilities Planning process is near completion. The results will be used to set near-, mid- and long-term priorities for allocation of current space, as well as construction of new buildings and rehabilitation of existing structures.

The new President and Director Mark Abbott, having just arrived October 1, 2015, will continue to respond to recommendations of the 2015 External Department Visiting Committee. As part of this response he has scheduled a retreat for the end of March involving VPs, Department Chairs and others to identify future research priorities for the Institution. Discussion will focus on where the field of oceanography is going, and where WHOI can lead both nationally and internationally. Building on the recent National Academy Sea Change report, a focus will be on important new areas within both science and engineering. The goal of the retreat is to begin development of a science framework for the Institution that looks three-to-five years into the future. The strategic science framework, which would be revisited every two-to-three years, would guide efforts in hiring and education, and be used to align institutional governance, development and communications efforts and facilities to support the science framework.

Institutional Effectiveness

The institution determines the effectiveness of its planning and evaluation activities on an ongoing basis:

- The process of developing the annual budget involves considerable discussion between the VPs, Department Chairs and the financial group that includes analyses of what is going well and what is not. The Board of Trustees is also involved in these discussions, since the Board is responsible for approving the annual budget.

- The Director provides an overview of WHOI activities (Research, Operations, Engineering and Education) to the Board and Corporation twice per year.

- The Executive Committee of the Board meets via telcon or in person with the Director, Director of Research, and VP for Finance every month to discuss important issues, including budget and challenges.

- Each year, each VP provides to the Director a list of objectives for the coming year as well as a brief report on the objectives of the preceding year. Beginning in 2015, WHOI adopted a "360 Review" process for the VPs that includes an opportunity for each VP as well as Department Chairs to comment on past accomplishments of each VP and the Director, and on the objectives for the coming year.

Results of these and other more formal planning and evaluation activities are used to further enhance the institution's implementation of its purposes and objectives.

Standard 2: Planning and Evaluation

PLANS

	Year of Completion	Effective Dates	URL or Folder Number
Strategic Plans			
Immediately prior Strategic Plan	N/A		
Current Strategic Plan	2007	2007-present	http://www.whoi.edu/fileserver.do?id=101824&pt=2&p=16666
Next Strategic Plan	2016	TBD	
Other institution-wide plans			
Master plan			
Academic plan			
Financial plan			
Technology plan			
Enrollment plan			
Development plan	2010	2010-2014	
(Add rows for additional institution-wide plans, as needed.)			
Plans for major units (e.g.,departments, library)			
1			
2			
3			
4			
(Add rows for additional plans, as needed.)			

EVALUATION

	URL or Folder Number
Academic program review	
Program review system (colleges and departments). System last updated:	
Program review schedule (e.g., every 5 years)	Every 5 years
Sample program review reports (name of unit or program)	
1 External Review of MIT/WHOI Joint Program 2014	http://www.whoi.edu/main/apo/2014-mit-whoi-joint-program-review-materials
2	http://www.whoi.edu/main/apo/2014-mit-whoi-joint-program-external-review-report
3	
(Insert additional rows, as appropriate.)	
System to review other functions and units	
Program review schedule (every X years or URL of schedule)	Every 5-10 years
Sample program review reports (name of unit or program)	
1 Department Visiting Committtee Report (2015)	http://www.whoi.edu/DoR/visiting-committee
2	(only available on internal web site)
3	
(Insert additional rows, as appropriate.)	

Other significant evaluation reports (Name and URL or Location)	Date
Example: Advising: www.notrealcollege.edu/advising	*1995*
1 Ocean Institutes Review: www.whoi.edu/page.do?pid=44895	2010
2 Ocean Institute Ad Hoc Committee Report: http://www.whoi.edu/DoR/reports/report-of-ocean-institute-review-2013	2013
3 Landscape Diagnostic Study by Bridgespan	2010
(Insert additional rows, as appropriate.)	

STANDARD THREE: ORGANIZATION AND GOVERNANCE

The institution has a system of governance that facilitates the accomplishment of its mission and purposes and supports institutional effectiveness and integrity. Through its organizational design and governance structure, the institution creates and sustains an environment that encourages research, creative activity, teaching, learning, service, and scholarship. It assures provision of support adequate for the appropriate functioning of each organizational component. The institution has sufficient independence from any sponsoring entity to be held accountable for meeting the Commission's *Standards for Accreditation*.

Description

The WHOI Board of Trustees and Members of the Corporation web site http://www.whoi.edu/trustees/about contains the Bylaws of the Corporation, names of the Officers of the Board, a listing of the Board of Trustees, a listing of Members of the Corporation, and an organizational chart that displays the working order of the institution. Article II.1 of the Bylaws describes the management responsibilities of the Board of Trustees. Currently, there are six officers of the corporation, 27 Trustees and 41 Honorary Trustees. The Trustees have met three times a year, in February, May and October, and plan to meet four times a year in 2016 and going forward (in February, May, July, and October).

The bylaws of the Corporation assign the Trustees the fiduciary responsibility for the Institution. According to the bylaws, "The Board shall consist of not less than twenty (20) or more than thirty-two (32) elected Trustees, and such ex officio Trustees as are hereinafter provided." There is no formal statement in the bylaws requiring no familial financial interest by at least half of the Trustees. However, all Trustees are required to file an annual conflict of interest statement that includes disclosure of any familial or financial interest with any vendor doing business with the Institution. In the case of such disclosure, the Audit and Risk Committee determines whether such interest constitutes a conflict of interest to an extent that requires either surrender of such financial interest or resignation from the Board.

There is an Executive Committee of the Board of Trustees (Article IV.2.6 of the bylaws): *The Executive Committee shall be composed of the Chairman of the Board of Trustees; Vice Chairman of the Board of Trustees; Chairman of the Corporation; the President and Director; the Treasurer; the chairs of the Business Development and Technology Transfer Committee, Compensation Committee, Committee on the Board, Development Committee, Investment Committee, Research and Education Committee; and other Trustees and Life Trustees, for a total committee membership of not more than fifteen. The Chairman of the Board of Trustees shall serve as the Chair of the Executive Committee.*

The Executive Committee:

* Reviews and advises the Director and President and Vice Presidents on management activities and plans for Institution initiatives

* Reviews and approves scientific and senior technical staff appointments

* Acts on appointments to chairs and other positions of honor as required by Institution policy or by terms of endowments or other funding sources

* Reviews and advises on Institution business matters including the submission of annual budgets to the Board and the submission of proposals as required by Institution policy, funding agency regulations, or law

* Reviews and approves degrees granted by the Institution as required by Institution policy and/or by law

* Sets Corporation compensation policy and executive compensation for senior staff executives.

Following the election in May of new officers, the Board is currently conducting a review of governance practices. The Committee on the Board conducts end-of-term interviews of Trustees and Corporation Members, and this practice will carry forward. In addition, the governance review will likely institute a practice of periodic self-evaluation by individual Trustees, a process for regular Board retreats, and periodic whole-Board performance evaluation.

One of the Committees of the Board of Trustees is the Research and Education Committee that (bylaw Article IV.2.10) *provides advice and guidance to the Board of Trustees and the President and Director on policy for the Institution's research and academic programs.*

The Committee shall: 1) periodically review research and academic policies to ensure consistency with Institution mission and strategic goals; 2) receive periodic briefings on developing trends in ocean science research, education, and funding, and their implications for Institution strategy; 3) receive periodic updates from the Directorate on implementation of Institution strategic plans; 4) receive annual updates from the Directorate on appointments and promotions to the Scientific and Senior Technical staffs to ensure consistency with Institution procedures and strategic goals; 5) meet annually with the Dean and Educational Council to review policies and the status of the Joint Program, undergraduate programs, cooperative programs with other institutions, and postdoctoral programs; 6) participate in visiting committee review process of departments, centers, and institutes; 7) recommend strategies for increasing financial resources available to support research and academic programs, including an optimal mix of ancillary educational efforts; and 8) provide advice to the Executive Committee, Board of Trustees, and President, on the above matters, as appropriate.

The Research and Education Committee meets twice a year in conjunction with the Spring and Fall Board of Trustees and the annual Corporation spring meeting. The Committee receives reports from the VP for Academic Programs and Dean regarding important issues pertaining to the Institution's Education Programs. The chair of the Committee, Dr. Alfred T. Dengler, is a member of the Executive Committee of the Board of Trustees.

Article I of the Bylaws pertains to the duties and responsibilities of Members of the Corporation that currently numbers 114. In general the Corporation Members are responsible for the health and well being of the Institution by assisting in identifying new prospective members of the corporation, and by providing financial support and advice in their area of expertise.

The Executive Committee of the Board reviews annually the performance of the President and Director and reports any concerns or recommendations to the full Board. As of 2016 a defined annual process has been established. Each year, the Trustees, in consultation with Staff Council, develop a performance plan for the Director which sets annual and longer range priorities for the Institution over the next three to five years. This is a consultative process with significant input from the Director and Staff Council. The performance plan becomes the

template for reviewing the Director's achievements each year and over the longer term. Additionally, the Compensation Committee annually reviews the compensation of the President and Director in accordance with the terms of the President and Director's employment contract.

Mark Abbott is the current President and Director of the Woods Hole Oceanographic Institution and his full-time responsibility is to direct the affairs of the Institution. Dr. Abbott is the tenth director and president of Woods Hole Oceanographic Institution and has served in this capacity since October 1, 2015. Article V.7 of the Bylaws pertains to the duties of the Director which include: execute all contracts and agreements on behalf of the Corporation; carry out the general orders and votes of the Board of Trustees; exercise general management and supervision over the properties and facilities of the Corporation; report on his/her activities at the annual meeting of the Corporation and Trustees; and prepare budgets for the approval of the Boards of Trustees for the proposed operations of the corporation.

Prior to coming to WHOI, Dr. Abbott was dean of College of Earth, Ocean, and Atmospheric Sciences (CEOAS) at Oregon State University. He worked with faculty and with the dean of the College of Science to create the new CEOAS, restructuring the college graduate degree curricula to reflect an integrated approach to Earth sciences. The new college has 200 graduate students, more than 600 undergraduates, 98 faculty, more than 150 technical and administrative staff, and a budget of more than $50 million.

As dean since 2001, Dr. Abbott implemented a comprehensive faculty hiring plan that brought in more than 25 new faculty, established a regular assessment and mentoring program for faculty, developed a college-funded postdoctoral research program that helps bridge the gap between graduate student life and a faculty career, restructured the college budgeting process to reflect strategic priorities, and helped lead the college to greatly exceed its strategic goals in the university's first-ever capital campaign.

Dr. Abbott holds a B.S. in conservation of natural resources from the University of California, Berkeley, and a Ph.D. in ecology from the University of California, Davis. His research focuses on the interaction of biological and physical processes in the upper ocean and relies on both remote sensing and field observations. He has advised the Office of Naval Research and the National Science Foundation on issues regarding advanced computer technology and oceanography, was a member of MEDEA, which advised the federal government on issues of national security and climate change, and, in 2006, was appointed by the President to a six-year term on the National Science Board, which oversees the National Science Foundation and provides scientific advice to the White House and to Congress.

Dr. Abbott's management team consists of one Executive Vice President and Director of Research (Dr. Larry Madin) and four Vice Presidents in the following areas: Academic Programs and Dean (Dr. James Yoder), Marine Facilities and Operations (Mr. Robert Munier), Operations and Chief Financial Officer (Mr. Jeffrey Fernandez), and Legal Affairs and General Counsel Secretary of the Corporation (Mr. Christopher Land). (See p. viii for an organizational chart for the Woods Hole Oceanographic Institution). Collectively this group is The Directorate, or soon-to-be called Senior Administration of the Institution. The Directorate meets weekly (travel schedules permitting) for an hour to exchange important information, discuss important issues, and provide advice to the Director regarding governance of the Institution.

Dr. Abbott's primary advisory team includes the Senior Administration as well as the Department Chairs and the Marine Policy Center Director. Collectively this group is the Staff Council. Dr. Abbott's decision to consider the Staff Council, not just the Directorate, as his primary advisory team was based on several factors including that the Chairs of the Departments represent the majority of the staff and so have the closer connection to the whole community, and by including the Chairs in all deliberations there will be an increase in transparency, and broader input during the development of policy changes. As noted in the manual for Appointments and Promotion Procedures for the Scientific and Technical Staffs and Departmental Assistants (also known as the Blue Book):

It is the responsibility of the Staff Council to help the Director of Research and the President and Director in making appointment and promotion decisions or recommendations to the Executive Committee to the ranks of Senior Departmental Assistant and to the Technical and Scientific Staffs. The Staff Council's primary task is to ensure objectivity, rigor, and equity of the appointments and promotions process, both overall and on a case-by-case basis.

The Staff Council meets fortnightly to discuss appointments and promotions and other important issues associated with the research and education activities of the Institution, as well as ship operations, communications and development, administrative and support services. Each year during late January- early February this group has a two-day retreat off campus for purposes of annual and multi year strategic discussions pertaining to the external and internal issues of importance to the Institution.

Another advisory body, established in 2014 *to improve coordination and communication among the Directorate, Science Department Chairs, Ocean Institutes, and Development and Communication Departments, and to enhance the Institution's ability to evaluate options, determine priorities, and make strategic long-term decisions about science directions and fund-raising* is the Institutional Strategy Council (ISC http://www.whoi.edu/main/institutional-strategy-council). Members of the ISC are Staff Council plus the four Institute Directors, the Chief Development Officer and Special Projects Director, the Director of Communications, and a WHOI Trustee. The committee meets bi-weekly following Staff Council meetings.

The five Science Departments typically convene a one to two hour meeting of the Scientific Staff (and in some cases Senior Technical Staff) every one or two weeks for the purposes of the Department Chair conducting department business, communicating important policy matters discussed at the Department Chairs and Directorate meetings, and seeking advice and input from the Scientific Staff.

There is also a Scientific Staff Executive Committee (SciSEC), an elected representative body of the WHOI scientific staff. Its objective is to provide input to the decision making process on matters of strategic importance to the Institution. SciSEC requests meetings with the President-Director, the Executive Vice President, the Department Chairs and/or the other Vice Presidents on an as needed basis. Reports, minutes, membership, and other resources are on the SciSEC webpage http://www.whoi.edu/page.do?pid=39076.

The Executive Vice President meets annually with each of the following groups – tenured scientists, non-tenured Associate Scientists, Assistant Scientists, and Postdoctoral appointees - to discuss matters of importance to these groups in a responsive manner to any concerns raised by these groups, especially those that pertain to careers.

The President-Director presents a one-hour "State of the Institution" type presentation with time for discussion and feedback to all institution employees, postdocs and students twice each year. These presentations are usually made in conjunction with the Fall and Spring meetings of the Board of Trustees and incorporate communication of important actions or discussions of the Board and the President-Director pertaining to matters of interest to the entire Institution.

The Institution has a Graded and Marine Personnel Committee elected by members of the Graded and Marine Personnel (hourly wage employees), a Staff Committee elected by members of the Exempt Staff of the Institution, and a Women's Committee elected by all women at WHOI. Each committee provides advice to the President-Director and Institution management concerning matters of interest to these groups in both an initiative and responsive mode of operation. Copies of the Policies establishing these committees will be among the Policies of the Institution available in the Team Room.

There is also a WHOI Headlines posted electronically on a weekly basis to inform all at WHOI of upcoming seminars, benefits information, and employment opportunities.

The Vice President for Academic Programs and Dean reports directly to the President-Director (Figure III-1) and in concert with the faculty/education assembly is responsible for the quality of the academic program.

EDUCATIONAL ASSEMBLY - THE FACULTY

The faculty of the Institution is all WHOI scientific and technical staff members of Educational Assembly. The Educational Assembly is chartered by the Board of Trustees of the Institution. All members of the Scientific Staff of the Institution are members of Educational Assembly. In addition, members of the Technical Staff may become members of Educational Assembly if they have an interest involvement in Education Programs, are nominated by their Department Chair after review of their qualifications, and approved by Educational Council. Presently there are 158 WHOI faculty members on the Educational Assembly. (A list of the current members of the Educational Assembly will be available in the Team Room. Members of the MIT-WHOI Joint Program faculty are listed on the web page http://mit.whoi.edu).

In April 1975 the Executive Committee of the Board of Trustees of Woods Hole Oceanographic Institution established the Educational Assembly and in its Charter assigned it the authority and responsibility to regulate the Institution's educational programs. The charter is reviewed periodically by WHOI's Board of Trustees' Executive Committee and appropriate changes are incorporated.

The Educational Assembly's Charter states its purpose as follows:

The Educational Assembly is established in order to ensure full and responsible staff participation in determining the policies and practices which guide the Institution's educational programs. Analogous to a faculty in a university, the Educational Assembly is a deliberative body through which the staff members for the conduct of the educational programs attempt to attain common agreement regarding educational philosophy and objectives. In order to enforce these agreements on its own members, the Educational Assembly, like a faculty, is also a legislative body in that it is responsible for determining standards for admissions, educational

content, counseling and degree requirements. The Educational Assembly operates under authority which is delegated by the President and Board of Trustees.

The Charter further states the responsibilities of the Educational Assembly with respect to the Institution's degree-granting programs as:

a) To determine admissions requirements and policies

b) To determine degree requirements

c) To approve all courses offered by WHOI

d) To determine the advising system and its policies

e) To set general standards and requirements for general and qualifying examinations and the thesis

f) To recommend the awarding of degrees to candidates who have met degree requirements

g) To set criteria for awarding financial aid

In addition to Scientific and some Technical Staff, there are eight representatives elected by the graduate students and seven representatives elected by WHOI's postdoctoral constituency who are also members of the Educational Assembly. In principal, the Assembly operates primarily through a fifteen member executive committee called the Educational Council which consists of the Vice President for Academic Programs and Dean (Chairperson), the Associate Dean, the Education Coordinator from each of the five scientific departments, an elected member from each of the five scientific departments, one member elected by the Assembly at large, one student member elected by and from the student members of the Educational Assembly, and one postdoctoral member elected by and from the postdoctoral association members. Recent practice has moved away from using the Educational Council. For the past few years, the Dean and Associate Dean meet monthly with the five Education Coordinators, and most recently that meeting also includes those Joint Committee Chairs based at WHOI, to discuss the annual WHOI education budget and other routine education issues. Meetings of the Education Assembly are called to request approval of new courses, new programs, and other significant changes to the academic programs as specified in the Education Assembly charter. Challenges facing the WHOI education program are also discussed within the Directorate (now called Senior Administration) and the Staff Council.

Education issues affecting Joint Program graduate students are often on the agenda of the annual "winter" meeting of the Joint Program students, which includes the attendance of the WHOI Dean, Associate Dean, the MIT Joint Program Director and WHOI staff involved with the Joint Program. Academic Programs staff meet regularly with the Graduate Student Representatives (see below), and the Dean and/or Associate Dean will attend these meetings, or meet separately with the student reps, when there is some significant issue to be discussed.

The graduate degree program is organized into five areas of concentration that currently coincide with the five scientific departments at WHOI: 1. Applied Ocean Science and Engineering, 2. Biological Oceanography, 3. Chemical Oceanography, 4. Marine Geology & Geophysics, and 5. Physical Oceanography. Each of these areas of concentration is overseen by a faculty committee consisting of at least two to three faculty members from MIT departments participating in the discipline curriculum, and two to three individuals from the Scientific Staff or other Educational Assembly member of the participating WHOI department. The five

committees are: Joint Committee for Applied Ocean Science and Engineering (JCAOSE); Joint Committee for Biological Oceanography (JCBO); Joint Committee for Chemical Oceanography (JCCO); Joint Committee for Marine Geology and Geophysics (JCMG&G); and Joint Committee for Physical Oceanography (JCPO). The Department Chair and the Dean jointly appoint WHOI members. At MIT the Department Head and the Director of the Joint Program jointly appoint the members. In order to maintain balance, the policy is to have the five faculty committees' chairs split two/three between the two institutions.

These committees are responsible for all major decisions regarding a student's academic progress from admissions to the final recommendation for a graduate degree. Separate informational handbooks exist for each of the five sub-disciplines. Further information on program objectives and curricula, guidance activities, and grading/evaluation procedures can be found in the handbooks.

The WHOI Dean and MIT's Director of the Joint Program co-chair the Joint Program Committee (JPC), which consists of the WHOI Associate Dean and the five Joint Committee Chairs. This committee is responsible for oversight and recommendations for all academic aspects of the Joint Program. JPC meets at least once per year during the admission process to provide final approval for admissions decisions and to provide input for the allocation of fellowship resources for newly admitted and continuing Joint Program students. It also meets as needed to discuss issues and effors are made to schedule all JP faculty meetings when all JPC members are available.

In those situations where a WHOI only graduate degree is appropriate, the WHOI Department Chair and the Education Coordinator for the appropriate department meet with the WHOI department members of the corresponding sub-discipline Joint Committee to provide oversight for the program of study. These individuals assess academic progress, and recommend the final acceptance of the thesis to the Dean of Graduate Studies at WHOI and the Educational Assembly who also need to approve the awarding of the degree before sending the recommendation to the Executive Committee of WHOI's Board of Trustees for approval.

J. Seward Johnson Chairs/Education Coordinators

There is an Education Coordinator for each department, formally designated as the J. Seward Johnson Chair for Education in each Department. They are tenured Associate Scientists or Senior Scientists jointly recommended to the Director for appointment by the Department Chair and the Vice President for Academic Programs and Dean. They serve for a three-year term and can be reappointed for a second three year term. They receive three months support for their leadership role, acting in effect as an Associate Department Chair for Education and interacting closely with Departmental faculty in coordination with the Department Chair in all matters that pertain to educational activities. Their support comes from an endowment designated for that purpose and the Chair is named for the donor, J. Seward Johnson.

The description of the J. Seward Johnson Chair/Education Coordinator position is as follows:

A major function of these Chairs is to strengthen the departmental education efforts in the various disciplines, and to provide continuity in the programs within each department. There are specific tasks that have emerged as being very important from the viewpoint of the students,

the postdoctoral researchers, the present J. Seward Johnson Chairs, the Education Council and the Vice President for Academic Programs/Dean. The J. Seward Johnson Chairs should:

1. Be regularly available to students during office hours, and keep the WHOI Dean, Associate Dean, and Academic Programs Staff informed on significant issues or problems involving Joint Program students and WHOI postdocs.

2. Be regularly available as a principal advisor to the Vice President for Academic Programs and Dean and their Department Chair for all matters related to Academic Programs and educational activities at WHOI.

3. Be regularly available to Scientific and Senior Technical Staff in their departments for consultation on issues related to the Institution's Academic Programs. In particular, the J. Seward Johnson Chairs will be the authoritative source for Scientific Staff and Senior Technical Staff for matters related to teaching and advising within their departments- especially for those staff new to the Institution. Advise the WHOI Dean, Associate Dean and the MIT/WHOI Joint Committees with respect to teaching assignments and advising assignments for WHOI Scientific and Senior Technical Staff.

4. Participate in departmental and Institution educational committees, in particular the appropriate MIT-WHOI Joint Committee, the WHOI Admissions Advisory Committee and the WHOI Educational Council.

5. Consult with the WHOI Dean, Associate Dean, Academic Programs Staff and WHOI Department Administrators to be certain that appropriate information about student support and advising responsibilities is properly recorded and communicated to students and advisors as appropriate and that teaching schedules are properly arranged.

6. Assist the Joint Committees and WHOI Principal Advisors in monitoring student progress in cooperation with the Academic Programs Office.

7. Assist the WHOI Dean, Associate Dean and Academic Programs Office staff in assessing and improving where needed the quality of teaching and advising at WHOI.

8. Be available for consultation with Postdoctoral Scholars, Postdoctoral Fellows, and Postdoctoral Investigators in their departments about postdoctoral life and career related issues.

9. Serve on special committees at the Dean's request.

10. Be involved in the teaching program and principal advising of students as appropriate to their scholarly and educational interests. Teaching and advising will be compensated according to the regular Academic Programs compensation schedule and is not included in the compensation for the appointment as J. Seward Johnson Chair.

<u>Graduate Student Representatives</u>

Each year, the graduate students elect eight representatives, three at large, and one each from each of the disciplinary Joint Committees. All eight elected representatives are members of the WHOI Educational Assembly and two are selected by the eight representatives to be members of Educational Council (one member as representative and the other as an alternate). The students meet monthly as a group. At least twice a year the Dean and/or the Associate Dean of WHOI meets with the student representatives to discuss issues of mutual concern. At least

once a year, the Dean and Associate Dean and the Director of the JP at MIT meet with all of the Joint Program students for exchange of information and discussion of issues important to the learning environment and student life. In 2015 issues included gym access and logistics, the bus schedule, queries about video-linking WHOI and MIT department seminars to the other institution, desk space at MIT, and the disconnect that students in Applied Science and Engineering feel relative to students in other disciplines of the program. Steps have been made to address these. (For example, videoconferencing equipment will soon be put in Clark 507, students were polled about the bus schedule, and students were asked about desk space and efforts have been made to ensure that all students needing one have a desk at MIT).

The Dean and Associate Dean maintain an open door policy for the students for urgent matters and rapidly schedule meetings on less urgent matters at the request of the students. The Graduate Admissions/Student Affairs Officer attends the monthly meetings of the student representative to discuss policy implementation and general student life matters.

Postdoctoral Association

A Postdoctoral Association (PDA) was formed at WHOI and officially approved by Educational Assembly in April 2005. The charge of the WHOI-PDA is:

- To provide advice about matters pertaining to the WHOI Postdoctoral Program, postdoctoral professional activities, and postdoctoral life at WHOI;
- To represent the interests of the postdocs on different committees at WHOI;
- To work with the Academic Program Office to organize activities and informational resources for postdocs;
- To further participation in regional, national, and international activities or organizations related to postdoctoral interests.

The WHOI-PDA is governed by a group of seven representatives elected from among the WHOI Postdoctoral Scholars, Postdoctoral Fellows and Postdoctoral Investigators (the electorate) in an election conducted by the Postdoctoral Coordinator of the Academic Programs Office in September of each year. Elected representatives are chosen such that each of the five science departments is represented, with the Marine Policy Center also given the opportunity to provide a representative. The remaining representatives are elected at large from amongst all the eligible voters. The seven elected members of the WHOI-PDA are representatives to Educational Assembly. The postdoctoral members of Educational Assembly select a representative and an alternate representative to Educational Council from among themselves.

Appraisal

Several changes have and are being made to organization and governance of WHOI based on internal and external review.

The Corporations by-laws are periodically reviewed and were last updated at the October 2015 meeting. Changes include the addition of a Vice-Chairman of the Board. The Board felt that, given its desire to engage all Trustees more closely in the activities and financial issues of the Institution, especially pressure on funding and the need to diversify funding sources, and the desire to bring governance in compliance with best practices, a vice-chair would be an extra hand in helping the chair to fulfill oversight duties. For example, the vice-chair is now heading the comprehensive governance review, and also serves as the Board liaison to the Institution

Strategy Council. Another more minor change made in October was in terminology of "Clerk" of the Corporation to "Secretary" of the Corporation to accord with more standard usage.

The establishment of the Institution Strategy Council was a result of internal evaluation. This advisory body was established in 2014 in response to a recommendation of the 2013 review of the Ocean Institutes "*to improve coordination and communication among the Directorate, Science Department Chairs, Ocean Institutes, and Development and Communication Departments, and to enhance the Institution's ability to evaluate options, determine priorities, and make strategic long-term decisions about science directions and fund-raising.*"

Changes to the organization chart since 2011 primarily reflect changes in personnel with there having been significant turnover in the last five years. In October 2015 terms of several of the leaders of the Board of Trustees were up resulting in election of a new Chair of the Board of Trustees, David Scully, new Chairman of the Corporation, Stephen Hoch, new Treasurer, Hardwick Simmons, and the aforementioned new Vice-Chair of the Board, Jeff Hughes. President and Director Susan Avery retired in July 2015 after seven years in her position, and Dr. Abbott assumed his position as President and Director on October 1, 2015. Other significant changes in the organizational chart include: the current VP of Operations and CFO Jeffrey Fernandez assumed his position July 23, 2012; a new position, Vice President for Legal Affairs, was created with Chris Land taking on the position in March 2014; a new IS Director position to integrate all IS functions was created and Keith Glavin hired to fill the position in 2015; a new Human Resources Director, Kathi Benjamin, arrived November 16, 2015 and a new Chief Development Officer, Charles Gauvin, arrived February 1, 2016.

Other changes in the organizational chart since 2011 include two changes in reporting lines. Grants and Contract Services now reports to the VP of Operations and CFO, not the Executive Vice President, and with all Informational Services under one Director, all of IS now reports to the CFO (Computer Information Services used to report to the Executive VP).

Both the Board of Trustees and the new President have already made efforts to review governance and respond to recommendations of internal and external evaluations. One significant change made recently by the Board was the procedure followed in the search for a new director. A significant effort was made to both make the process as transparent as possible and also to more fully include WHOI staff representation on the search committee, with Senior Scientist Jeff Seewald, a former department chair, a co-chair of the President Search Committee along with incoming Board Chair David Scully.

Projection

Following the election in May 2015 of new officers, the Board is currently conducting a review of governance practices. A Governance Review Task Force developed a set of recommendations in late 2015 for submittal to the Board of Trustees regarding changes in the structure and functioning of the Board to align it with current best practices. The Task Force sought to build on recommendations of an earlier governance review undertaken by the Board in 2007, with a focus on maintaining the proper balance between fiduciary oversight and institutional management.

The 2015 recommendations center on 1) consolidating the number of standing (charter) committees to better reflect the direct governance and fiduciary responsibilities of the Board; 2) increasing the number of Board meetings from three per year to four in order to facilitate more

timely Board oversight and advice on key Institution initiatives and decisions; and 3) restructuring the Committee on the Board to support a more rigorous process of identifying, recruiting, engaging, and retaining the best qualified candidates for membership on both the Board and the Corporation. These recommendations will be the primary agenda item for discussion and a vote at the February 12, 2016 meeting of the Board of Trustees. Bylaws are being systematically reviewed, with plans for them to be updated at the May 2016 meeting.

New President and Director Mark Abbott is in the process of establishing a charter for Staff Council as the deliberative body for the strategic management of WHOI Affairs. This action is in response to the recommendation of the 2015 Visiting Committee that WHOI consider mechanisms to involve Staff more directly in decision-making. Having Staff Council, not just the Directorate (to be termed the Senior Administration), as the primary advisory team will increase transparency, and allow for broader input during the development of policy changes given that the Chairs of the Departments represent the majority of the staff and so have the closer connection to the WHOI community.

Institutional Effectiveness

Periodic and systematic review has and is leading to improvements in the effectiveness of the institution's organizational structure and system of governance. Efforts are currently being made to increase communication and transparency in governance processes.

Standard 3: Organization and Governance

Please attach to this form:

1) **A copy of the institution's organization chart(s).**

2) **A copy of the by-laws, enabling legislation, and/or other appropriate documentation to establish the legal authority of the institution to award degrees in accordance with applicable requirements.**

If there is a "related entity," such as a church or religious congregation, a state system, or a corporation, describe and document the relationship with the accredited institution.

Name of the related entity	
URL of documentation of relationship	

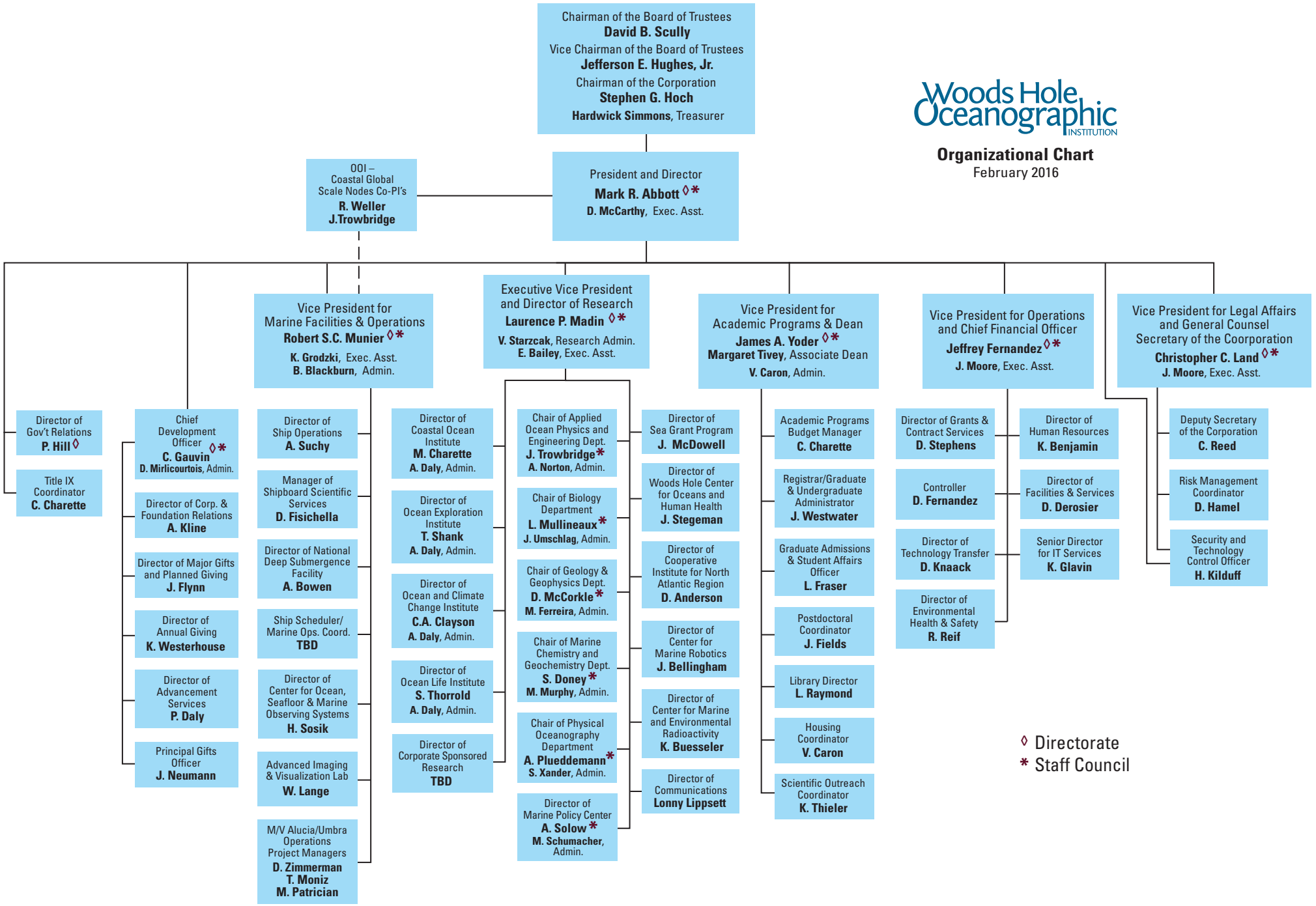
Governing Board	**URL**
By-laws	http://www.whoi.edu/page.do?pid=26726
Board members' names and affiliations	http://www.whoi.edu/page.do?pid=27616

Board committees	URL or document name for meeting minutes
Audit and Risk Committee (charter)	http://www.whoi.edu/page.do?pid=27496
Executive Committee (charter)	http://www.whoi.edu/page.do?pid=27496
Finance Committee (charter)	http://www.whoi.edu/page.do?pid=27496
Investment Committee (charter)	http://www.whoi.edu/page.do?pid=27496
Employee Retirement Trust (charter)	http://www.whoi.edu/page.do?pid=27496
Committee on the Board (charter)	http://www.whoi.edu/page.do?pid=27496
Compensation Committee (charter)	http://www.whoi.edu/page.do?pid=27496
Research and Education Committee (charter)	http://www.whoi.edu/page.do?pid=27496
Access to the Sea Committee (advisory)	http://www.whoi.edu/page.do?pid=27497
Business Development and Technology Transfer Committee (charter)	http://www.whoi.edu/page.do?pid=27497
Development Committee (charter)	http://www.whoi.edu/page.do?pid=27497
Ocean Institute Committees (4 - advisory)	http://www.whoi.edu/page.do?pid=27497

(Insert additional rows as appropriate.)

Major institutional committees or governance groups*^	URL or document name for meeting minutes
Adminstrative Professionals Evaluation Council	www.whoi.edu/committees/APEC/internal/
Administrative Professionals Forum	www.whoi.edu/page.do?pid=32876
Diversity Committee	www.whoi.edu/page.do?pid=16003
Education Assembly	www.whoi.edu/page.do?pid=13137
Education Council	www.whoi.edu/page.do?pid=13158
Graded and Marine Personnel Committee	www.whoi.edu/page.do?pid=15645
International Committee	www.whoi.edu/page.do?pid=15715
J. Seward Johnson Chairs in Oceanography (Ed Coordinator)	www.whoi.edu/page.do?pid=13161
MIT/WHOI Joint Program Committee	www.whoi.edu/page.do?pid=13164
MIT/WHOI Joint Program Curriculum Committee	www.whoi.edu/page.do?pid=13175
MIT/WHOI Joint Program Admissions Advisory Committee	www.whoi.edu/page.do?pid=13177
Postdoctoral Association	www.whoi.edu/page.do?pid=13198
Postdoctoral Scholar Fellowship Committee	www.whoi.edu/page.do?pid=13183
Scientific Staff Executive Committee	www.whoi.edu/page.do?pid=39075
Summer Student/Minority Fellowship Committee	www.whoi.edu/page.do?pid=13203
Staff Committee	www.whoi.edu/committees/staff-comm/internal/
Technical Staff Evaluation Council	www.whoi.edu/committees/TSEC/internal/
Women's Committee	www.whoi.edu/page.do?pid=36355

*Include faculty, staff, and student groups.^Some urls are internal WHOI sites and inaccessible from outside.


Chairman of the Board of Trustees
David B. Scully
Vice Chairman of the Board of Trustees
Jefferson E. Hughes, Jr.
Chairman of the Corporation
Stephen G. Hoch
Hardwick Simmons, Treasurer
Woods Hole Oceanographic Institution
Organizational Chart
February 2016
OOI – Coastal Global Scale Nodes Co-PI's
R. Weller
J.Trowbridge
President and Director
Mark R. Abbott ◊ *
D. McCarthy, Exec. Asst.
Director of Gov't Relations
P. Hill ◊
Title IX Coordinator
C. Charette
Chief Development Officer ◊ *
C. Gauvin
D. Mirlicourtois, Admin.
Director of Corp. & Foundation Relations
A. Kline
Director of Major Gifts and Planned Giving
J. Flynn
Director of Annual Giving
K. Westerhouse
Director of Advancement Services
P. Daly
Principal Gifts Officer
J. Neumann
Vice President for Marine Facilities & Operations
Robert S.C. Munier ◊ *
K. Grodzki, Exec. Asst.
B. Blackburn, Admin.
Director of Ship Operations
A. Suchy
Manager of Shipboard Scientific Services
D. Fisichella
Director of National Deep Submergence Facility
A. Bowen
Ship Scheduler/ Marine Ops. Coord.
TBD
Director of Center for Ocean, Seafloor & Marine Observing Systems
H. Sosik
Advanced Imaging & Visualization Lab
W. Lange
M/V Alucia/Umbra Operations Project Managers
D. Zimmerman
T. Moniz
M. Patrician
Executive Vice President and Director of Research
Laurence P. Madin ◊ *
V. Starzcak, Research Admin.
E. Bailey, Exec. Asst.
Director of Coastal Ocean Institute
M. Charette
A. Daly, Admin.
Director of Ocean Exploration Institute
T. Shank
A. Daly, Admin.
Director of Ocean and Climate Change Institute
C.A. Clayson
A. Daly, Admin.
Director of Ocean Life Institute
S. Thorrold
A. Daly, Admin.
Director of Corporate Sponsored Research
TBD
Chair of Applied Ocean Physics and Engineering Dept.
J. Trowbridge *
A. Norton, Admin.
Chair of Biology Department
L. Mullineaux *
J. Umschlag, Admin.
Chair of Geology & Geophysics Dept.
D. McCorkle *
M. Ferreira, Admin.
Chair of Marine Chemistry and Geochemistry Dept.
S. Doney *
M. Murphy, Admin.
Chair of Physical Oceanography Department
A. Plueddemann *
S. Xander, Admin.
Director of Marine Policy Center
A. Solow *
M. Schumacher, Admin.
Director of Sea Grant Program
J. McDowell
Director of Woods Hole Center for Oceans and Human Health
J. Stegeman
Director of Cooperative Institute for North Atlantic Region
D. Anderson
Director of Center for Marine Robotics
J. Bellingham
Director of Center for Marine and Environmental Radioactivity
K. Buesseler
Director of Communications
Lonny Lippsett
Vice President for Academic Programs & Dean
James A. Yoder ◊ *
Margaret Tivey, Associate Dean
V. Caron, Admin.
Academic Programs Budget Manager
C. Charette
Registrar/Graduate & Undergraduate Administrator
J. Westwater
Graduate Admissions & Student Affairs Officer
L. Fraser
Postdoctoral Coordinator
J. Fields
Library Director
L. Raymond
Housing Coordinator
V. Caron
Scientific Outreach Coordinator
K. Thieler
Vice President for Operations and Chief Financial Officer
Jeffrey Fernandez ◊ *
J. Moore, Exec. Asst.
Director of Grants & Contract Services
D. Stephens
Controller
D. Fernandez
Director of Technology Transfer
D. Knaack
Director of Environmental Health & Safety
R. Reif
Director of Human Resources
K. Benjamin
Director of Facilities & Services
D. Derosier
Senior Director for IT Services
K. Glavin
Vice President for Legal Affairs and General Counsel Secretary of the Coorporation
Christopher C. Land ◊ *
J. Moore, Exec. Asst.
Deputy Secretary of the Corporation
C. Reed
Risk Management Coordinator
D. Hamel
Security and Technology Control Officer
H. Kilduff
◊ Directorate
* Staff Council

The Commonwealth of Massachusetts

KEVIN H. WHITE
Secretary of the Commonwealth
STATE HOUSE BOSTON, MASS.

ARTICLES OF AMENDMENT

For

☐ Change of Name ☒ Change of Purpose ☐ Change of Location

This certificate must be filed within thirty days of the date of the vote.

We, Paul M. Fye President Edwin D. Brooks,
Treasurer, Mary Sears Clerk and Hudson Hoagland, Noel B. McLean, Harvey Brooks, Carroll L. Wilson, John P. Chase, Lawrason Riggs III, Milford R. Lawrence, Edwin A. Link, W. Van Alan Clark, Jr., James S. Coles, Charles W. Cole, J. Seward Johnson, E. Bright Wilson, Jr., Arnold Arons, Francis C. Welch, and Henry A. Morss, Jr.
Trustees
being a majority of the ~~Directors~~ of Woods Hole Oceanographic Institution
Name of Corporation

Woods Hole
City or Town

in compliance with the provisions of Section 10, Chapter 155 and or Section 10, Chapter 180 of the General Laws as amended, do hereby certify that at a meeting of the members of said corporation, duly called for the purpose held 11 January 1967,
Day Month Year

and by the affirmative vote of 64 Members of said corporation, being at least two-thirds
members

of the members of said corporation legally entitled to vote, it was voted to petition the State Secretary to change its Purpose to read
Name Purpose Location

To prosecute the study of oceanography in all its branches, to maintain a laboratory or laboratories, together with boats and equipment and a school for instruction in oceanography and allied subjects, and in connection therewith to confer graduate degrees and such honorary degrees as are usually conferred by colleges or universities in this Commonwealth, including joint graduate degrees conferred in conjunction with any other university, college or institution having the authority to confer graduate degrees; to accept and hold money, and property of any kind whatsoever, and wherever situated, and whether received through bequest, devise, gift or otherwise; and to apply from time to time and at any time to the purposes of the corporation, or to any of them, all or any part of the income and/or principal of any funds and/or property held by the corporation.

IN WITNESS WHEREOF, we have hereunto signed our names under the penalties of perjury this 11th day of January in the year 1967.

Edwin D. Brooks Treasurer
Hudson Hoagland Clerk

Paul M. Fye, Pres.
Mary Sears, Clerk
Noel B. McLean
Edwin A. Link
Harvey Brooks
W. Van Alan Clark, Jr.
Carroll L. Wilson
James S. Coles
John P. Chase
Charles W. Cole
Lawrason Riggs III
J. Seward Johnson
Milford R. Lawrence
E. Bright Wilson, Jr.
Arnold Arons
Francis C. Welch
Henry A. Morss

Approved by
Board of Higher Education
11-1-67

RECEIVED
$5 CK
NOV 3 1967
CORPORATION DIVISION
SECRETARY'S OFFICE

I hereby approve the within certificate and cause the same to be recorded and filed when validated.

Kevin H. White
Secretary of the Commonwealth

BYLAWS
of the Woods Hole Oceanographic Institution

(adopted August 10, 1950, and amended August 14, 1952; August 13, 1953; August 16, 1956; August 15, 1957; August 16, 1962; June 18, 1964; June 18, 1971; June 20, 1974; June 22, 1978; June 22, 1984; June 14, 1985; December 4, 1987; June 16,m 1989; June 18, 1993; October 15, 1993; October 13, 1995; April 12, 2001; May 19, 2006; October 17, 2008; May 15, 2009; February 9, 2012; and October 8, 2015)

ARTICLE I

Name, Corporate Office and Mission

1.1 Name. The name of this Corporation shall be the Woods Hole Oceanographic Institution.

1.2 Corporate Office. The principal office of this Corporation shall be in the Town of Falmouth, Barnstable County in the Commonwealth of Massachusetts.

1.3 Mission. The Woods Hole Oceanographic Institution is a private, independent, not-for-profit corporation dedicated to research and education to advance understanding of the ocean and its interaction with the Earth system, and to communicating this understanding for the benefit of society.

The President and Director shall have a statement of policies to accomplish this mission published annually in the **Board of Trustees and Corporation Handbook** or similar publication.

ARTICLE II

Members of the Corporation

2.1 Powers of Members. The Members of the Corporation are responsible to assure that the Corporation accomplishes its mission in the public interest. The Members shall have and exercise all rights and powers conferred upon members, generally, pursuant to Chapter 180 of the Massachusetts General Laws and such other powers and rights as are vested in them pursuant to the Articles of Organization of the Corporation or these Bylaws, including, without limitation, the right to elect the Trustees from time to time pursuant to Section 3.3 below.

2.2 Number, Election and Qualifications of Members. The Board of Trustees may from time to time elect Members to the Corporation upon such terms, conditions and qualifications as it deems best. There shall be not more than one hundred twenty elected Members of the Corporation at any one time.

2.3 Term. All new members shall be elected for an initial term of membership specified by the Board of Trustees, which shall not exceed three years. At any time following

the expiration of his or her initial term, the Member may be elected for an additional six-year term. If election occurs at a time other than at the Annual Meeting the counting of service years will begin at the next Annual Meeting, although the appointment is effective upon election. At the expiration of a Member's six-year term of membership, he or she shall be eligible for re-election as a Member for one or more additional six year terms, either immediately following the last term's expiration or at anytime thereafter.

2.4 Term Limitations. Notwithstanding the term for which he or she is elected, a Member's term shall expire at the first Annual Meeting following such Member's seventy-fifth birthday. At that time, such person shall become eligible to be elected an Honorary Member.

2.5 Honorary Membership. In addition to electing Members of the Corporation, the Board of Trustees may from time to time elect Honorary Members upon such terms, conditions and qualifications as the Board of Trustees deems best. Honorary Members shall not be counted in the number of Members. At any meeting at which Honorary Members are present, they shall be non-voting participants and shall not be counted in the determination of a quorum. No person who is a member of the Scientific Staff of the Institution shall be elected as an Honorary Member if at that time there are at least five Honorary Members who are, or have been, members of such staff.

2.6 Ex officio Members. The following shall be ex officio Members of the corporation: (a) officers of the Corporation (the Chairman of the Board of Trustees, Chairman of the Corporation, the President and Director, the Treasurer, the Secretary (also known as the Clerk), and such other officers as the Board of Trustees may from time to time establish), for so long as they hold their respective offices; and (b) persons occupying such positions in the management of the Corporation as are designated by the Executive Committee to be ex officio Members. Ex officio Members shall have all of the rights and privileges of elected Members, including the right to vote.

2.7 Annual Meetings and Regular Meetings. The Spring Meeting of the Members, which shall be the Annual Meeting of the Members, shall be held in Woods Hole, Massachusetts, or at such other place in the Commonwealth of Massachusetts as the Trustees may designate, on the Thursday before Memorial Day in May, but if the Annual Meeting is not then held, a meeting may be held in lieu thereof on such other date as the Trustees may designate, and any business transacted or election held at such meeting shall be as valid as if transacted or held at an Annual Meeting. At each Annual Meeting of the members, they shall fix the number of Trustees. If the Members at any Annual Meeting shall not fix the number of Trustees, the number in effect at the commencement of such meeting shall remain in effect. The Autumn Meeting of the Members shall be held at the office of the Corporation at Woods Hole, Massachusetts, or at such other place in the Commonwealth of Massachusetts as the Trustees may designate, on the Friday of the second full week in October, or such other date as the Trustees may designate.

2.8 Special Meetings. Special meetings of the Members may be called by the Chairman of the Corporation or, upon the written request of Members representing at least ten percent (10%) of a quorum of the Members required for a meeting, by the President and

Director or the Secretary, to be held in Woods Hole, Massachusetts, or at such other place in the Commonwealth of Massachusetts as the Trustees may designate, at such time and place as the call or notice thereof shall indicate.

2.9 Notices. Notice of all meetings of Members shall be given to each Member and, at the request of the Chairman of the Corporation, to each Honorary Member, by the President and Director, the Secretary, or any other officer directed to do so by the Trustees, indicating the time and place of each meeting. Notice shall be in written, printed, electronic, facsimile or telegraphic form and shall be personally delivered, electronically transmitted, faxed, mailed or sent, postage or fee prepaid, to each Member at his or her address last shown on the records of the Corporation. Notices of regular meetings shall be given no less than fourteen days before the day of the meeting. Notices of special meetings shall be given no less than seven days in advance of the meeting. Notices of special meetings shall also state the purposes thereof.

Where a Member or Honorary Member has registered an electronic mail or facsimile address on the books of the Corporation, valid notice may be provided in such form. Notices sent by the Corporation to a Member or Honorary Member via electronic mail or facsimile to either the electronic mail address or facsimile telephone number for such person on record with the Corporation, with transmission confirmed by the sending machine or device, shall be deemed to have been sent and delivered as of the date and time transmitted.

2.10 Waiver of Notice. The presence of any Member at a meeting of the Corporation shall be the equivalent of due and sufficient notice to him or her, and of the business to be transacted thereat, unless objection is made by him or her prior to, or at the commencement of, the meeting and noted in the records of the meeting. No notice of a meeting shall be required as to such Members who themselves, or by their attorneys, shall, by a writing to be filed with the minutes of the meeting, waive notice thereof either before or after the holding of the meeting.

2.11 Quorum. At any meeting, one third (1/3) of the total combined number of elected and ex-officio Members shall constitute a quorum, and a majority of those present may conduct business. If a quorum is not present, a majority of the Members present may adjourn the meeting from time to time, without notice other than by announcement at said meeting, until a quorum is present.

2.12 Voting and Proxies. In all matters to be acted upon at any meeting, each Member shall be entitled to only one vote. When a quorum is present at any meeting, a majority of the votes properly cast by Members present in person or by proxy shall decide any question, including election of any office, unless otherwise provided by law, by the Articles of Organization or by these Bylaws.

Members may vote either in person or by written proxy dated not more than six months before the meeting named therein, which proxies shall be filed before being voted with the Secretary or other person responsible for recording the proceedings of the meeting. Unless otherwise specifically limited by their terms, such proxies shall entitle the holders thereof to

vote at any adjournment of the meeting but such proxies shall terminate after the final adjournment of such meeting.

ARTICLE III

The Board of Trustees

3.1 Management. The government, control and general management of the affairs, funds and property of the Corporation and all its powers shall, except as otherwise provided by law, the Articles of Organization or by these Bylaws, be vested in the Board of Trustees. To this end and without limitation of the foregoing or of the powers expressly conferred by law, the Articles of Organization or by these Bylaws, the Board of Trustees shall have the power to: (i) authorize actions on behalf of the Corporation; (ii) make rules or regulations for the management of the Corporation; (iii) create additional offices; (iv) select, employ, or remove agents or employees; (v) establish and fill vacancies in, change the membership of and dissolve the committees constituted by it; and (vi) amend the Bylaws. In addition to its other powers and responsibilities, the Board shall review and approve an annual budget for the Corporation, and shall adopt such policies as it deems appropriate for the distribution of income or principal for the use by the Corporation for operating or capital purposes.

3.2 Composition of the Board of Trustees. The Board shall consist of not less than twenty (20) or more than thirty-two (32) elected Trustees, and such ex officio Trustees as are hereinafter provided. In any case where an elected Trustee or ex officio Trustee is not already an elected Member of the Corporation, he or she shall also be elected a Member at the earliest opportunity permitted under these Bylaws.

3.3 Election and Term of Office. Trustees shall be elected by the Members of the Corporation at the Annual Meeting of Members of the Corporation to hold office for terms of six years. If election occurs at a time other than the Annual Meeting the counting of service years will begin at the next Annual Meeting, although the appointment is effective upon election. At the expiration of a Trustee's six-year term of membership, he or she shall be eligible for re-election as a Trustee for one or more additional six-year terms, either immediately following the last term's expiration or at anytime thereafter. Notwithstanding the term for which he or she is elected, a Trustee's term shall expire at the first Annual Meeting following such Trustee's seventy-fifth birthday. At that time such person shall become eligible to be elected a Life Trustee.

3.4 Ex officio Trustees. The Chairman of the Board of Trustees, the Vice Chairman of the Board of Trustees, the Chairman of the Corporation, the President and Director, the Treasurer, and the Secretary shall each be an ex officio member of the Board of Trustees and shall serve as a Trustee for so long as they hold their respective offices. Ex officio Trustees shall have all of the rights and privileges of elected Trustees, including the right to vote.

3.5 Life Trustees. Members of the Corporation may elect Life Trustees upon such terms and conditions as the Members deem best. Life Trustees shall not be counted in the number of Trustees. At any meeting in which Life Trustees are present, they shall be non-

voting participants and shall not be counted in the determination of a quorum. No person who is or was a member of the Scientific Staff of the Institution shall be elected as a Life Trustee if at that time there are at least five Life Trustees who are or have been members of such staff.

3.6 Meetings. The Annual Meeting of the Board of Trustees shall be held within one week before or after the Annual Meeting of the Members in each year. The Autumn Meeting of the Board of Trustees shall be held within one week before or after the Autumn Meeting of the Members. At least one additional meeting of the Board of Trustees shall be held on the second Friday of February or such other date as may be set by the Trustees at the Autumn Meeting of the Board of Trustees. All meetings of the Board of Trustees, including special meetings of the Board of Trustees, shall be held at such time and place within or without Massachusetts as may from time to time be fixed by the Board or as may be specified in the call of any meeting. Meetings may be called by the Chairman of the Board of Trustees, by the Chairman of the Corporation or by any eight (8) or more elected Trustees. During every meeting of the Board, there shall be an executive session.

3.7 Notices. Notice of all meetings of Trustees shall be given to each Trustee and, at the request of the Chairman of the Board, to each Life Trustee, by the President and Director, the Secretary or any other officer directed to do so by the Trustees, indicating the time and place of each meeting. Notice shall be in written, printed, electronic, facsimile or telegraphic form and shall be personally delivered, electronically transmitted, faxed, mailed or sent, postage or fee prepaid, to each Trustee at his or her address last shown on the records of the Corporation. Notices of regular meetings shall be given no less than fourteen days before the day of the meeting. Notices of special meetings shall be given no less than seven days in advance of the meeting. Notices of special meetings shall also state the purposes thereof.

Where a Trustee or Life Trustee has registered an electronic mail address or facsimile telephone number on the books of the Corporation, valid notice may be provided in such form. Notices sent by the Corporation to a Trustee via electronic mail or facsimile to either the electronic mail address or facsimile telephone number for such person on record with the Corporation, with transmission confirmed by the sending machine or device, shall be deemed to have been sent and delivered as of the date and time transmitted.

3.8 Waiver of Notice. The presence of any Trustee at a meeting of the Board shall be the equivalent of due and sufficient notice to him or her, and of the business to be transacted thereat unless objection is made by him or her prior to or at the commencement of the meeting and noted in the records of the meeting. No notice of a meeting shall be required as to any Trustee who personally, or by their attorney, shall, by a writing filed with the records of the meeting, waive notice thereof either before or after the holding of the meeting.

3.9 Quorum. One third (1/3) of the total number of elected and ex officio Trustees shall constitute a quorum for the transaction of business, unless a greater number is required.

3.10 Action by Vote. When a quorum is present at any meeting, a majority of the Trustees present and voting shall decide any question, including election of officers, unless otherwise provided by law, by the Articles of Organization or by these Bylaws.

3.11 Action by Writing. Any action required or permitted to be taken at any meeting of the Trustees may be taken without a meeting if all the Trustees consent in writing to a specific action described in the notice and the written consents are filed with the records of the meetings of the Trustees. Such consents shall be treated for all purposes as a vote at a meeting.

ARTICLE IV

Committees

4.1 General. The Board of Trustees may form committees and may delegate to such committees any or all of their powers, provided that any committee to which powers of the Trustees are delegated shall take action only by vote of the Trustees serving on such committee. The Board, or alternatively, the Executive Committee (described below) or the Chairman of the Board, may also form committees that shall not have the powers of the Trustees, but rather, that shall report to and advise the Trustees.

Unless the Trustees otherwise designate, committees shall conduct their affairs in the same manner as is provided in these Bylaws for the Trustees. Except as otherwise set forth in these Bylaws or as otherwise designated by the Board, committees shall remain in existence and committee members shall serve at the pleasure of the Trustees.

The Board of Trustees, the Executive Committee, or the Chairman of the Board may also appoint temporary task forces to address a specific issue in a focused manner and for a defined time period. The term of a task force is generally expected to be no longer than one year.

4.2 Charter Committees. In addition to the other committees that the Board of Trustees may establish from time to time, the Audit and Risk, Business Development and Technology Transfer, Committee on the Board, Compensation, Development, Employee Retirement Trust, Executive, Finance, Investment, and Research and Education Committees shall be designated charter committees, the duties of which are described below.

Subject to conditions particular to an individual committee as noted below, the Chairman of the Board of Trustees annually shall recommend the persons to serve as chair (who must be a Trustee) and as members of each charter committee, for election by the Board of Trustees. Members of charter committees shall be selected from Members, Honorary Members, Trustees and Life Trustees, provided, however, that in matters where such committee is exercising powers of the Board of Trustees, only those persons who are Trustees with voting rights shall vote or otherwise act upon such matters. Each member of a charter committee shall normally serve for a three-year term, with the power given to the Chairman of the Board of Trustees to recommend members for additional three-year terms. In formulating his or her recommendations, the Chairman of the Board of Trustees shall take account of the desirability of rotation of committee members and chairs, the need for specific skills or experience, and the value of continuity of practice.

4.2.1 Audit and Risk Committee. The Audit and Risk Committee shall consist of not less than three members who may be elected Trustees, Life Trustees, Members or Honorary Members, provided that no appointee may be an officer or employee of the Corporation, a member of either the Finance Committee or the Investment Committee, or any person that receives any material commercial benefit from the Corporation. At least a majority of the members of the Audit and Risk Committee shall be Trustees. At least one member of the Audit and Risk Committee shall have a meaningful background in accounting or finance.

The Audit and Risk Committee shall be responsible for: 1) selecting and appointing annually the independent certified public accountants who shall provide auditing and related services to the Corporation (the "Auditors"); 2) setting the scope of and compensation for such services by the Auditors; and 3) overseeing the performance of such services by the Auditors, including the resolution of any disputes between the Auditors and management regarding the adequacy of internal accounting and fiscal controls and the fair and accurate presentation of the financial statements of the Corporation. The Audit and Risk Committee shall have such other responsibilities and duties as are set forth in the Audit and Risk Committee Charter as adopted by the Board of Trustees, as it may be amended from time to time.

The Audit and Risk Committee shall meet at least two (2) times annually – once before the Auditors are engaged to commence their work, and once the audit for that year is completed and before the Auditors's final report regarding the financial statements of the Corporation for the year have been issued. The Chairman of the Audit and Risk Committee shall report to the Board of Trustees at least once each year, such report to be shared with the Corporation.

4.2.2 Business Development and Technology Transfer Committee. The Committee will assist in positioning the Institution with government, research, academic, and commercial clients and partners or key influencers to expand science, technology, and business opportunities to create, deliver, and maintain immediate and long lasting Institution value.

Business Development Group: Assist in positioning the Institution with government, research, academic, and commercial clients and partners or key influencers by utilizing their unique combination of skills, approaches, assets and tools to help develop and operate scalable, efficient and agile business development platforms to create and deliver immediate and long lasting value. Committee members should understand the Institution's capabilities and resources; partners and clients – both current and target; and cost structure.

- Review opportunity pipeline
- Review target clients
- Review partner and channel management
- Review effectiveness of BD resources

Technology Transfer Group: Assist the Institution in building a robust technology transfer platform to deliver technology and IP to the ocean research and science community, technology community, and humankind by positioning the Institution with external investors and companies to accelerate development of technology and generate licensing revenue.

Committee members would encourage, educate, and enable the WHOI community to realize the scientific and commercial potential of their ideas.

- Review disclosures
- Review licensing agreements (new and existing)
- Review investor relations and outreach
- Review TTO Institution programs (catalyst program, ignition grants, launch grants)

4.2.3 Committee on the Board. The Committee on the Board shall consist of not less than five members who may be elected Trustees, Life Trustees, Members or Honorary Members, in addition to the Chairman of the Board and Chairman of the Corporation as ex officio members. The Committee on the Board shall solicit from all officers, Trustees, Life Trustees, Members, and Honorary Members, and from any other source available to its members, recommendations for persons to be considered as possible Trustees, Life Trustees, Members and Honorary Members. The Committee on the Board shall evaluate potential candidates for suitability for election or reelection in light of general guidelines from the Executive Committee concerning the desirable balance of experience, skills and capabilities among Members and Trustees and in light of the existing and prospective vacancies among the Members of the Corporation and Board of Trustees. The Committee on the Board shall make its nominations for persons to be elected as Members at a meeting of the Board of Trustees, and its nominations for elected Trustees as a meeting of the Members of the Corporation.

The Committee on the Board shall evaluate the service of Members of the Corporation and Trustees who are retiring by reason of age and make appropriate nomination for election as Honorary Members or Life Trustees.

The Committee on the Board shall from time to time recommend to the Chairman of the Board of Trustees individual Members or Trustees who should be considered for committee service in order to build the potential strength of the Membership or the Board of Trustees to serve the needs of the Institution.

4.2.4 Compensation Committee. The Compensation Committee shall be composed of the Chairman of the Board, Chairman of the Corporation, the Treasurer, and at least two elected or Life Trustees. No person serving on the Compensation Committee shall receive remuneration or other commercial benefit from the Corporation.

The Compensation Committee shall review and administer the policies, programs, and major changes in remuneration opportunities that are available from the Institution to the members of the Directorate of the Institution in accordance with the Directorate Compensation Philosophy of the Board of Trustees. The Compensation Committee shall annually review the full compensation of the President and Director, including benefits, and report their findings to the Executive Committee each year. The Compensation Committee shall periodically review the full compensation of other highly compensated executives of the Corporation and recommend adjustments to the Executive Committee as deemed necessary or advisable.

In connection with these efforts, the Compensation Committee shall analyze the compensation paid to its executives and other employees in comparison to other organizations generally similar in size and nature. The Compensation Committee is authorized to engage independent compensation consultants to assist with its work. It is the intention of this provision of the Bylaws that the Compensation Committee conduct its work in a manner that creates a presumption of reasonableness regarding the compensation payable to the Corporation's executives and employees under applicable tax and other laws.

4.2.5 Development Committee. The Development Committee leads the WHOI Board and Corporation's participation in fund-raising. The Committee works with the Development Office to develop a business plan for fundraising, and reviews annual operating plans and revenue goals. The Committee provides feedback on proposed fund-raising initiatives and brings new ideas to the table to enhance revenue and build the WHOI donor base. It monitors results on a monthly basis.

The Development Committee is the board's central source of information about the fund-raising climate in general and about the status of WHOI's fund-raising activities, goals and progress toward goals, in particular. The Committee develops and approves a Board and Corporation annual fund goal. It helps educate board members about WHOI's funding priorities and the resources needed to realize those priorities.

Committee members regularly review lists of corporation, foundation and individual prospects and help to identify connections. They also proactively identify and provide entrée to new major gift prospects for WHOI. Committee members help to engage new prospects via one-on-one interaction and small-scale events; and solicit major gifts when appropriate. They provide an example by making their own annual fund and leadership gifts to WHOI. Committee members help to identify and recruit new Committee Members from the Board and Corporation.

The Committee meets either in person or via conference call, quarterly. It reviews monthly progress reports and prospect lists, via e-mail, monthly.

4.2.6 Employee Retirement Trust. The Trustees of the Employee Retirement Trust of the Woods Hole Oceanographic Institution are appointed by the Board of Trustees in accordance with the terms of the Retirement Trust Agreement. Trustees of the Retirement Trust may be members of the Investment Committee. The Investment Committee and the Trustees of the Employee Retirement Trust may meet jointly, with each giving due attention to their separate fiduciary duties.

4.2.7 Executive Committee. The Executive Committee shall be composed of the Chairman of the Board of Trustees; Vice Chairman of the Board of Trustees; Chairman of the Corporation; the President and Director; the Treasurer; the chairs of the Business Development and Technology Transfer Committee, Compensation Committee, Committee on the Board, Development Committee, Investment Committee, Research and Education Committee; and other Trustees and Life Trustees, for a total committee membership of not more than fifteen. The Chairman of the Board of Trustees shall serve as the Chair of the Executive Committee.

The Executive Committee shall have and may exercise, so far as may be permitted by law, all of the powers of the Board during the intervals between meetings of the Board of Trustees except such powers or duties as may have been specifically delegated by the Board to other committees or officers, and shall have power to authorize the seal of the Corporation to be affixed to all papers which may require it, and such other powers as the Board may delegate to it. The Executive Committee may hold meetings and make rules for the conduct of its business as it shall from time to time deem necessary or advisable. The presence of at least five members of the Executive Committee who are Trustees shall constitute a quorum and may take action by majority vote of such quorum. All actions of the Executive Committee shall be reported to the Board in writing or at the next meeting of the Board.

Consistent with the provisions of the Massachusetts General Laws, the Executive Committee shall not have the authority to: (i) change the principal office of the Corporation; (ii) amend the Bylaws; (iii) elect the statutory officers of the Corporation including the President and Director, Treasurer, and Secretary, or fill vacancies in such offices; (iv) (iv) change the number of the Board of Trustees or fill vacancies in the Board of Trustees; or (v) remove officers or Trustees from office.

4.2.8 Finance Committee. The Finance Committee shall consist of not less than three members who may be Trustees, Life Trustees, Members or Honorary Members. The Treasurer shall serve as Chairman of the Finance Committee. The Finance Committee shall monitor the financial affairs and health of the Corporation and report on them to the Board of Trustees, and shall assist in the formulation of financial goals and the evaluation of various alternatives for financial operations.

The Finance Committee shall assist in the development of policies relating to financial management, and shall coordinate with the Audit and Risk Committee on control issues and accounting practices, and with the Investment Committee on issues relating to the management of the endowment. From time to time, the Finance Committee, with due regard for the advice of the Investment Committee, shall make recommendations to the Executive Committee regarding endowment spending policies.

The Finance Committee shall also conduct a review of the Corporation's annual operating budget as proposed by the President and Director and present any comments or recommendations on it to the Executive Committee. Approval of the annual operating budget requires a vote by the full Board. The Chairman of the Finance Committee shall report to the Board of Trustees at least once each year.

4.2.9 Investment Committee. The Investment Committee shall consist of not less than five members who may be Trustees, Life Trustees, Members or Honorary Members, provided that the Chair and a majority of the members are elected Trustees. The Treasurer shall serve as an ex officio member of the Investment Committee and be counted as a regular member.

The Investment Committee shall be responsible for the investment of the endowment funds of the Corporation consistent with general policies and objectives set by the Board of

Trustees. The Investment Committee shall select and retain professional managers to manage some or all of such funds.

The Investment Committee shall meet regularly to review and evaluate the performance of such managers, to consider various policy issues, and to make changes in investment managers if deemed appropriate. The Investment Committee shall regularly review the Investment Policy of the Corporation and recommend revisions thereto as it deems appropriate for adoption by the Board of Trustees. The Chairman of the Investment Committee shall report to the Board of Trustees at least once a year on the status of the endowment funds, and on investment results achieved.

4.2.10 Research and Education Committee. The Research and Education Committee provides advice and guidance to the Board of Trustees and the President and Director on policy for the Institution's research and academic programs.

The Committee shall: 1) periodically review research and academic policies to ensure consistency with Institution mission and strategic goals; 2) receive periodic briefings on developing trends in ocean science research, education, and funding, and their implications for Institution strategy; 3) receive periodic updates from the Directorate on implementation of Institution strategic plans; 4) receive annual updates from the Directorate on appointments and promotions to the Scientific and Senior Technical staffs to ensure consistency with Institution procedures and strategic goals; 5) meet annually with the Dean and Educational Council to review policies and the status of the Joint Program, undergraduate programs, cooperative programs with other institutions, and postdoctoral programs; 6) participate in visiting committee review process of departments, centers, and institutes; 7) recommend strategies for increasing financial resources available to support research and academic programs, including an optimal mix of ancillary educational efforts; and 8) provide advice to the Executive Committee, Board of Trustees, and President, on the above matters, as appropriate.

ARTICLE V

Officers

5.1 Corporate Officers. The officers of the Corporation shall consist of the Chairman of the Board of Trustees, Vice Chairman of the Board of Trustees; Chairman of the Corporation, President and Director, Treasurer, Secretary, and such other officers as the Board of Trustees may from time to time establish. More than one office may be held by the same person, and officers need not be Trustees or Members of the Corporation at the time of their election. The Chairman of the Board of Trustees, Vice Chairman of the Board of Trustees, Chairman of the Corporation, President and Director, Treasurer, and Secretary, and such other designated officers, shall each serve as Trustee for so long as they hold their respective offices.

5.2 Election. The Chairman of the Board of Trustees, the Chairman of the Corporation, and the Treasurer shall be elected by the Board of Trustees at their Annual Meeting for a term of six years. The terms of the Chairman of the Board and Chairman of the Corporation shall be staggered by three years, and the term of the Treasurer and Chairman of the Corporation shall be coterminous. The Vice Chairman of the Board of Trustees shall be

elected by the Board of Trustees at their Annual Meeting for a term of three years, renewable, with a limit of two successive terms. The President and Director, the Secretary, and all other officers and all elected committee members and elected committee chairmen shall be elected annually by the Board of Trustees at their Annual Meeting provided, however, that the President and Director may be elected for a longer term, consistent with his or her term of employment with the Corporation, at the discretion of the Trustees. Notwithstanding the term for which he or she is elected, an officer's term shall expire at the first Annual Meeting following such officer's seventy-fifth birthday. At that time such person shall become eligible to be elected a Life Trustee.

5.3 Terms and Vacancies. Corporate officers shall be eligible for reelection without limit.

In case of a vacancy not to be filled by reelection, the Chairman of the Board of Trustees, or in his or her absence or disability, the Chairman of the Corporation, may appoint an ad hoc committee to identify and recommend a candidate to fill the vacancy. The committee shall be composed of at least three Trustees or Members and may include Life Trustees, Honorary Members or officers among its members. The committee shall make its recommendation to the Board of Trustees in the form of a nomination. The Board of Trustees may appoint a person to fill a vacant office and to perform the duties of such office temporarily until a nomination is received from the ad hoc committee and a replacement duly elected by the Board of Trustees.

In the case of the temporary absence or disability of any officer of the Corporation, the Board of Trustees may appoint some other person to exercise the powers of, and perform the duties of, such office until the absent or disabled officer returns or until such delegation of powers be revoked by the Board of Trustee

5.4 Chairman of the Board of Trustees. The Chairman of the Board of Trustees shall preside at all meetings of the Board and of the Executive Committee. In his or her absence, the Vice Chairman of the Board of Trustees, or any other person chosen by the Board, shall preside at such meetings.

5.5 Vice Chairman of the Board of Trustees. In the absence or inability of the Chair to attend a Board or Executive Committee meeting, the Vice Chair shall have the powers and perform the duties of the Chair. Further, the Vice Chair is the secondary volunteer leader of the organization, and as such, supports the activities of the Chair including sharing responsibilities as appropriate.

5.6 Chairman of the Corporation. The Chairman of the Corporation shall preside at all meetings of the Members of the Corporation. In his or her absence, the Chairman of the Board, or any other person chosen by the Board, shall preside at such meetings. He or she shall advise the Board of Trustees, directly or through the Chairman of the Board of Trustees, of matters requiring its attention and action. He or she may sign any contract on behalf of the Corporation, when so authorized. He or she shall have such other powers and duties, not inconsistent with these Bylaws, as the Board may from time to time assign to him or her.

5.7 President and Director. The President and Director shall be the principal Executive Officer of the Corporation, and, unless authority be given to other officers or agents to do so, he or she shall execute all contracts and agreements on behalf of the Corporation which are either authorized generally, or authorized by specific votes of the Board of Trustees or of its Executive Committee. It shall be his or her duty, insofar as the facilities and funds furnished to him or her by the Corporation permit, and he or she shall have the appropriate power, to see that the orders and votes of the Board of Trustees and of its Executive Committee and the general operative purposes of the Corporation are carried out. In furtherance of these duties and powers he or she shall exercise, subject to the control of the Board of Trustees, general management and supervision over the properties and facilities of the Corporation, and he or she may delegate and assign his or her duties to other officers or employees under his or her control as he or she shall deem best. He or she shall make and submit to the Members of the Corporation and to the Board of Trustees at their Annual Meetings a report of his or her activities. Such reports may be made at more frequent intervals or at other times if so directed by the Board of Trustees, by the Chairman of the Board of Trustees or by the Chairman of the Corporation.

The President and Director shall prepare budgets for the approval of the Board of Trustees for the proposed operations of the corporation.

5.8 Treasurer. The Treasurer shall assist the Trustees by providing oversight of the financial affairs of the Corporation. The Treasurer shall serve as a coordinating link between the Investment Committee, the Audit Committee, and the Finance and Budget Committee. The Treasurer, along with the Finance and Budget Committee, shall serve as a resource to management in the development of financial policies of the Institution. The Treasurer shall report to the Board of Trustees at least once each year.

5.9 Secretary. The Secretary, who may also be known as Secretary, shall at all times be a resident of the Commonwealth of Massachusetts and shall be sworn to the faithful performance of his or her duties. He or she shall keep a true record of all meetings of the Board of Trustees and of the Members at which he or she is present. He or she shall keep a true record of any amendments to the Articles of Organization or Agreement of Association or Bylaws. In his or her absence from any meetings, a Secretary pro tempore shall be chosen and need not be sworn. The Secretary shall maintain a list of all Trustees, Members of the Corporation, and Life Trustees and Members of the Corporation, and have and perform such other duties as are customary for a Secretary of a corporation of this type and such as may be assigned to him or her from time to time by the Board of Trustees.

5.10 Compensation of Officers. The Board of Trustees and the Executive Committee each shall have the power to fix and determine the compensation and fees payable to officers for services rendered to the Corporation, provided, however, that no Trustee (whether elected or ex officio) who received any compensation shall be entitled to vote upon the amount of compensation or fees payable to any Trustee or officer. The Corporation may reimburse any officers or Trustees for the amount of authorized expenses incurred by them in performing duties assigned to them by the Board.

ARTICLE VI

Resignations and Removals

6.1 Resignations. Any Member, Trustee, Life Trustee, Honorary Member or officer may resign at any time by delivering his or her resignation in writing to the Chairman of the Board, the Chairman of the Corporation, the President and Director, or the Secretary at the principal office of the Corporation. Such resignation shall be effective upon notification to the Secretary unless specified to be effective at some other time.

6.2 Removals. A Member or Honorary Member may be removed with or without cause by the vote of a majority of the Trustees then in office. A Trustee or Life Trustee may be removed with or without cause by a vote of a majority of the Members, or with cause by a vote of a majority of the Trustees then in office. An officer may be removed with or without cause by the vote of a majority of the Trustees or Executive Committee members who are Trustees, then in office. The notice of any meeting called for the purpose of removing any person from his or her office shall so state that purpose.

ARTICLE VII

General Provisions

7.1 Indemnification. The Corporation shall, to the extent legally permissible, indemnify each of its Trustees, Life Trustees, officers and members of any committee, and former Trustees, Life Trustees, officers and members of any committee (and the heirs, executors and administrators of any such person) against all expenses and liabilities, including counsel fees and any amount reasonably paid in settlement of a proceeding, which expenses and liabilities are imposed upon him or her or reasonably incurred by him or her in connection with any proceeding to which he or she may be made a party, or in which he or she may become involved, by reason of his or her being or having been a Trustee, Life Trustee or officer of the Corporation or member of any committee, or having served at the request of the Corporation as a director, officer, employee or other agent of any other organization or having served at the request of the Corporation in a capacity with respect to any employee benefit plan. To the extent authorized by the Board of Trustees or the Executive Committee, the Corporation may pay indemnification (including for expenses) in advance of final disposition of a proceeding, upon receipt of an undertaking by the person indemnified to repay such payment if he or she shall be determined to be ineligible for indemnification as hereinafter provided. A person shall be ineligible for indemnification with respect to a matter (i) as to which he or she shall have been finally adjudicated not to have acted in good faith in the reasonable belief that his or her action was in the best interests of the Corporation, or (ii) as to which the Corporation has received an opinion of counsel for the Corporation that with respect to such matter said person did not act in good faith in the belief that his or her action as in the best interest of the Corporation, or (iii) as to which he or she shall have been finally adjudicated not to have acted in the best interests of the participants or beneficiaries of such employee benefit plan. In the event of a settlement, the indemnification herein shall apply only when the Board of Trustees

or the Executive Committee approves such settlement and reimbursement. The foregoing right of indemnification shall be in addition to and not exclusive of all other rights to which such person may be entitled. The Board of Trustees or the Executive Committee may authorize indemnification of persons who are not Trustees, Life Trustees, officers or members of any committee, or former Trustees, Life Trustees, or members of any committee.

7.2 Conflict of Interest Policy and Other Policies. The Corporation has adopted a Conflicts of Interest Policy which is contained in the Board of Trustees and Corporation Handbook and which is applicable to all Members, Honorary Members, Trustees, Life Trustees, officers and employees of the Corporation. The Corporation may adopt other policies and revise its policies from time to time. Copies of the policies adopted by the Corporation shall be contained in the Board of Trustees and Corporation Handbook and otherwise be made available to the Members, Honorary Members, Trustees, Life Trustees, officers and employees of the Corporation as appropriate. All such policies as adopted by the Corporation shall be considered part of these Bylaws.

7.3 Fiscal Year. The fiscal year of the Corporation shall be from the first day of January to the thirty-first day of December, inclusive, in each year.

7.3 Corporate Seal. The corporate seal shall be circular in form and have inscribed therein the following: Woods Hole Oceanographic Institution, Massachusetts, 1930.

7.4 Amendments. These Bylaws, except insofar as they embody requirements of law or provisions of the Corporation's Articles of Organization, may be from time to time altered, amended or repealed by majority vote of the Members of the Corporation at any Annual or Special Meeting thereof, provided that notice of the proposed alteration, amendment or repeal is given in the call of such meeting. The Board of Trustees shall also have the power to make and amend Bylaws by vote of a majority of Trustees then serving. Notice and explanation of any amendments to the Bylaws made by the Board of Trustees shall be given to the Members of the Corporation before their next meeting following the adoption of such amendments by the Board of Trustees. Any amendments to the Bylaws adopted by the Board of Trustees may be further amended or repealed by majority vote of the Members of the Corporation.

(Revised October 8, 2015)

Standard 3: Organization and Governance
(Locations and Modalities)

Campuses, Branches, Locations, and Modalities Currently in Operation (See definitions, below)

(Insert additional rows as appropriate.)

	City	State or Country	Date Initiated	Enrollment*
Main campus	Woods Hole	MA	1930; degrees 1968	122
Other principal campuses				
Branch campuses				
Other instructional locations				

Distance Learning, e-learning	Date Initiated	Enrollment*
First on-line course		
First program 50% or more on-line		
First program 100% on-line		

		Date Initiated	Enrollment*
Distance Learning, other Modality			
Correspondence Education			
Low-Residency Programs Program Name			

Definitions

Main campus: primary campus, including the principal office of the chief executive officer.

Other principal campus: a campus away from the main campus that either houses a portion or portions of the institution's academic program (e.g., the medical school) or a permanent location offering 100% of the degree requirements of one or more of the academic programs offered on the main campus and otherwise meets the definition of the branch campus (below).

Branch campus (federal definition): a location of an institution that is geographically apart and independent of the main campus which meets all of the following criteria: a) offers 50% or more of an academic program leading to a degree, certificate, or other recognized credential, or at which a degree may be completed; b) is permanent in nature; c) has its own faculty and administrative or supervisory organization; d) has its own budgetary and hiring authority.

Instructional location: a location away from the main campus where 50% or more of a degree or Title-IV eligible certificate can be completed.

Distance Learning, e-learning: A degree or Title-IV eligible certificate for which 50% or more of the courses can be completed entirely on-line.

Distance Learning, other: A degree or Title IV certificate in which 50% or more of the courses can be completed entirely through a distance learning modality other than e-learning.

Correspondence Education (federal definition): Education provided through one or more courses by an institution under which the institution provides instructional materials, by mail or electronic transmission, including examinations on the materials, to students who are separated from the instructor. Interaction between the instructor and the student is limited, is not regular and substantive, and is primarily initiated by the student. Correspondence courses are typically self-paced. Correspondence education is not distance education.

* Report here the annual unduplicated headcount for the most recently completed year.

STANDARD FOUR – THE ACADEMIC PROGRAM

The Institution's academic programs are consistent with and serve to fulfill its mission and purposes. The Institution works systematically and effectively to plan, provide, oversee, evaluate, improve, and assure the academic quality and integrity of its academic programs and the credits and degrees awarded. The Institution sets a standard of student achievement appropriate to the degree awarded and develops the systematic means to understand how and what students are learning and to use the evidence obtained to improve the academic program.

Description

Academic Program (general)

Academic Programs at WHOI include the MIT/WHOI Joint Program (JP) in Oceanography/Applied Ocean Science & Engineering (graduate program), Postdoctoral programs (Scholars, Fellows, Investigators), and non-degree one-semester or less graduate and undergraduate programs (the Geophysical Fluid Dynamics (GFD) program, the Summer Student Fellowship Program, the Semester At WHOI (SAW) program, and the Ocean Research Experience (ORE) Fellowship program). Each of these programs includes a significant research experience and is central to the Institution's mission of advancing "understanding of the ocean and its interaction with the Earth system, and to communicating this understanding for the benefit of society."

Graduate programs - MIT-WHOI Joint Program and WHOI Only Program:

A student pursuing a doctoral degree may be admitted to either the MIT-WHOI Joint Program or the Woods Hole Oceanographic Institution Degree Program, both of which require a student to invest a minimum of three years of study and research. Degrees of Doctor of Philosophy (Ph.D.) and Doctor of Science (Sc.D.) are offered in Oceanography and Applied Ocean Science and Engineering jointly by WHOI and MIT. Students may concentrate in one or more of the following areas: chemical oceanography; marine geology and geophysics; physical oceanography; biological oceanography; and applied ocean science and engineering. The Master of Science (S.M.) degree is available primarily as an interim degree for doctoral candidates or for those who have met the S.M. degree requirements and leave the program by personal choice, or for academic reasons. The MIT/WHOI Joint Program also offers a master's degree program for U.S. Naval Officers (and more recently for U.S. Coast Guard Officers), and more than 75 Naval officers and one Coast Guard officer have received this degree dating back to the first award in 1970. With the exception of the U.S. Naval Officers program, students are not admitted to the Joint Program for a Master's degree. Doctoral, engineer's, and master's degrees in oceanographic engineering (the latter two primarily as an interim degree or for those who have met requirements and leave the program by personal choice or for academic reasons) are offered under the Joint Program through the Applied Ocean Physics and Engineering Department at WHOI and any of the following departments at MIT: Chemical, Civil and Environmental, or Mechanical Engineering; Materials Science and Engineering; or Electrical Engineering and Computer Sciences. With the Joint Program, all decisions from admission to the conferring of the degree are made by consensus of joint MIT-WHOI committees for each discipline.

There is an option for qualified students to pursue a Ph.D. degree in oceanography awarded solely by the Woods Hole Oceanographic Institution. Only four such WHOI-only

degrees have been awarded, and none in the past 15 years. In those situations where a WHOI only graduate degree is requested, the WHOI Department Chair and the Education Coordinator for the appropriate department meet with the WHOI department members of the corresponding discipline Joint Committee to provide oversight for the program of study. These individuals assess academic progress, and recommend the final acceptance of the thesis to the Vice President for Academic Programs and Dean at WHOI and the Educational Assembly who also need to approve the awarding of the degree before sending the recommendation to the Executive Committee of WHOI's Board of Trustees for approval.

Non-degree programs:

Postdoctoral scholars, fellows and investigators

On average, 85 postdoctoral scholars, fellows, and investigators are in residence at WHOI supported on WHOI grants, external fellowships and competitively awarded internal funds. With funding from internal funds, the Postdoctoral Scholar Program offers eight to twelve eighteen-month awards annually to recipients of new or recent doctorates in the fields of chemistry, engineering, geology, geophysics, mathematics, meteorology, physics, and biology as well as oceanography. The awards are designed to further the education and training of the applicant with primary emphasis placed on the individual's research promise. Scholars are chosen through a highly competitive process, thus these appointments carry special recognition at the Institution. Each recipient is encouraged to pursue his or her own research interests in association with a member of the Resident Scientific or Senior Technical Staff who acts as an advisor. Each award recipient is provided with Institution scholarship funds for independent research projects in collaboration with his or her advisor(s), and office and laboratory space in close proximity to the advisor(s) throughout the award period.

Postdoctoral Fellows with national or international competitively awarded fellowships may be appointed at WHOI, provided they are able to locate a scientist on the staff willing to act as a sponsor. Once a sponsor has been identified, and the appointment has been approved by the sponsor's Department Chair and the Dean, the recipient is appointed "(official name of award) - Postdoctoral Fellow at Woods Hole Oceanographic Institution." An Official letter of notification of the award from the national or international awarding organization must also be received. The appointment time period is coincident with the fellowship award time period. Postdoctoral Fellows undertake independent research in collaboration with their sponsor(s).

Postdoctoral Investigator positions are available to conduct research and studies in areas directly relevant to existing grants or contracts. Postdoctoral Investigator appointments normally are initially for one year, renewable for an additional year up to a maximum of four years of residence at WHOI, or five years of combined postdoctoral experience. Postdoctoral Investigators are appointed by the Vice President for Academic Programs and Dean on the recommendation of the Department Chair or Center Director and are treated as regular, full-time employees if the initial appointment is for at least one full year. Temporary Postdoctoral Investigators may be appointed for a period of time less than one year. Funding for Investigators is from individual grants and projects.

Support services for postdoctoral scholars, fellows, and investigators include the Postdoctoral Program Coordinator, Janet Fields, a WHOI Postdoctoral Association (PDA; see Standard Three) and the WHOI Dean. A list of resources for postdoctoral researchers is on the

WHOI web page (http://www.whoi.edu/main/postdocs/resources). In addition, the PDA web page lists additional resources including the Postdoc Lounge and information about peer and professional mentoring (http://www.whoi.edu/page.do?pid=17740).

WHOI has a standardized annual review process for Postdoctoral Researchers, based on recommendations provided by the WHOI Postdoctoral Association (PDA). The Vice President for Academic Programs and Dean sends a memo to the five Department Administrators each September outlining the process so that each department will review the Postdoctoral Scholars, Fellows, and Investigators in a similar manner. Each department also has a postdoctoral mentoring committee, and, to meet the postdoctoral mentoring requirement for NSF and NIH proposals that include a postdoctoral investigator, WHOI has a statement describing its mentoring approach. Most WHOI postdocs go on to careers in academia or at research institutions, although increasing numbers are choosing non-academic careers.

The Geophysical Fluid Dynamics (GFD) Program

The GFD Program is a ten-week research and study program, funded by the National Science Foundation and the Office of Naval Research, that brings together eight to ten competitively-selected graduate students with researchers from a variety of backgrounds, providing an intense research experience for the students and a vigorous discussion of concepts that span different disciplines. Initiated in 1959 at WHOI with the aim of introducing a then relatively new topic in mathematical physics, geophysical fluid dynamics, to graduate students in physical sciences, the program has been held each summer since and promotes an exchange of ideas among the many distinct fields that share a common interest in the nonlinear dynamics of rotating, stratified fluids. Graduate students from any university and in any field sharing a common interest in the nonlinear dynamics of rotating, stratified fluids are eligible to apply. More information is at http://www.whoi.edu/main/gfd/fellowships .

Undergraduate Programs

There are no undergraduate degree programs at WHOI, but there are several programs for undergraduates to introduce those in science, technology, engineering, and mathematics (STEM) to the field of oceanography. A goal of each of these programs is to encourage talented STEM students to pursue graduate work in oceanography, either in our graduate program or in any national or international program.

Summer Student Fellowship Program -

Summer Student Fellowships are awarded to approximately 30 undergraduate students annually who will have completed their junior year at colleges or universities by the start of the fellowship period. Funding is provided by the NSF (10 positions at present) with the remaining supported on private and other government funds. Preference is given to students studying in any of the fields of science or engineering including but not limited to the fields of biology, chemistry, engineering, geology, geophysics, mathematics, meteorology, physics, oceanography, and marine policy. Students must have at least a tentative interest in the ocean sciences, oceanographic engineering, mathematics, or marine policy. Through the Summer Student Fellowship program, WHOI's aim is to provide promising students with a meaningful first-hand introduction to research in oceanography, oceanographic engineering, or marine policy. A research project is at the heart of the Summer Student Fellowship program. Other activities include a lecture series designed for undergraduates, a field experience using WHOI’s coastal

vessel, and discussions on ocean careers, scientific ethics and ocean graduate programs. Students from groups under-represented in ocean sciences now make up about 30% of SSF students. Most of our summer student fellows continue on in science graduate programs; seven of our 2015 entering JP class of 25 were former WHOI Summer Student Fellows. More information is at http://www.whoi.edu/main/summer-student-fellowship.

Semester At WHOI program for STEM undergraduates -

Starting in fall, 2015, WHOI introduced a new tuition-supported Semester At WHOI program for serious STEM undergraduates (juniors and seniors). A request was sent to Dr. Barbara Brittingham (Director CIHE/NEASC) dated March 10, 2011 describing the proposed program and the Commission sent a letter dated on May 9, 2011 approving the request to offer a limited number of undergraduate courses. The correspondence will be available in the Team Room. Offered in fall semester to students majoring in science, engineering or mathematics, the program is particularly well suited for students who are planning to obtain an advanced degree in ocean sciences, ocean engineering or related fields in the geosciences. Similar to the Summer Student Fellow program, the curriculum emphasizes a research project, although for course credit. A full course load is considered to be 12 credit hours. (For undergraduate courses, WHOI follows the U.S. Department of Education, Office of Postsecondary Education guidance regarding a credit hour as defined in the final regulations published on October 29, 2010). Courses offered include two classroom courses designed specifically for SAW students, as well as a third research course involving a project supervised by a WHOI scientist or engineer for up to 12 credit hours. WHOI expects an effort of 10 hours per week working in the lab to receive 3 hours of undergraduate research credit. Some of the graduate courses designed for the students in the MIT-WHOI Joint Program in Ocean Science/Engineering are also suitable for undergraduates. The exams and course projects for these graduate courses are adjusted to be appropriate for the undergraduate participants who will receive undergraduate credit. More information is at http://www.whoi.edu/semester-at-whoi/.

Ocean Research Experience (ORE) Fellow Program -

With funding provided by the A.V. Davis Foundation, WHOI initiated a winter-term program in January 2009 for students from liberal arts colleges. Between four and seven undergraduates participated each year from 2009 through 2014, and in January 2016. Potential applicants are identified through faculty contacts at Oberlin, Williams, DePauw, and Skidmore, who encourage applicants to the program. Accepted applicants come to WHOI for three weeks in January, spending most of their time working in the labs of their WHOI hosts. In addition, four to five MIT-WHOI Joint Program graduate students co-teach an informal ocean science course for one hour per day. As of February 2016, a total of 40 ORE Fellows have participated in the program; two former ORE Fellows are now enrolled in the MIT/WHOI JP.

Guest Students -

WHOI offers guest student appointments in its laboratories on a year-round basis for full-time graduate and undergraduate students in conjunction with their studies. Once a potential guest student confirms that he or she has found a sponsor from the faculty, a guest student application can be submitted. As guest students, undergraduate and graduate students have the opportunity to perform research under the sponsorship and guidance of a staff scientist at WHOI. WHOI does not issue academic credit for guest student appointments. Guest students are expected to observe the regular working hours of the Institution and are encouraged to participate

in the many seminars and lecture programs offered by the Woods Hole scientific community. More information is at http://www.whoi.edu/geststudent/ .

Graduate Degree Program

The MIT-WHOI Joint Program (JP) is organized around five basic science disciplines: Biological Oceanography (BO), Chemical Oceanography (CO), Physical Oceanography (PO), Marine Geology and Geophysics (MG&G), and Applied Ocean Science and Engineering (AOSE). Students may be admitted into one or more of these disciplines, but for administrative purposes they must choose a home within one JP discipline. They must also be admitted into and have an affiliation with a department at MIT, and they are affiliated with the department at WHOI that parallels their discipline. Presently, JP students are affiliated at MIT with Earth Atmospheric and Planetary Sciences, the Biology Department or one of the Engineering Departments: Mechanical, Electrical and Computer Science, or Civil and Environmental. JP students are full-fledged MIT graduate students, and are subject to the rules and enjoy the benefits common to all MIT students.

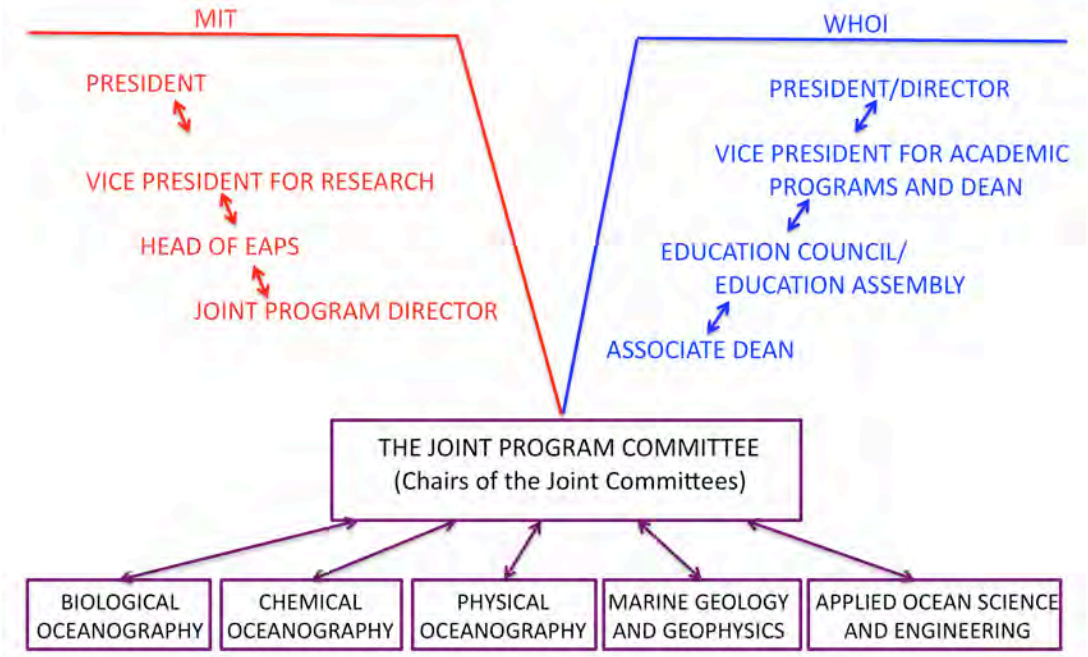
Each of these disciplines is managed and supervised by a Joint Discipline Committee (hereafter referred to as Joint Committee or JC) that is made up of staff nominated by the Head of the Department (MIT) or Department Chair (WHOI) of participating departments from the partner institutions and approved by the WHOI Dean and the MIT Joint Program Director. The five Joint Committees are JCBO, JCCO, JCPO, JCMGG and JCAOSE. These Joint Committees enjoy considerable autonomy insofar as they do not report to an academic department at either institution. They also have the lion's share of responsibility for the day-to-day functioning of the JP: they are responsible for the curriculum, for selecting instructors, for approving thesis committees, for administering general examinations, and for conducting an annual review of the progress of each student in their discipline.

The highest level of oversight of the JP is provided by the Joint Program Committee, which is made up of the Chairs of each of the Joint Committees (see JP organization chart below), WHOI Dean, WHOI Associate Dean, and the MIT Joint Program Director. The Chairs of the Joint Committees are appointed by the Director of the JP at MIT (currently Ed Boyle) and by the Vice President for Academic Programs and Dean at WHOI (currently Jim Yoder). The MIT Director and the WHOI Dean also co-chair the Joint Program Committee.

Admissions into any of the five disciplines of the JP is by a vote of the Joint Program Committee based upon recommendations from the five Joint Committees and supplemented by an Admissions Advisory Committee. For all disciplines requirements for degrees are similar, with requirements published in discipline-specific handbooks (http://mit.whoi.edu/handbooks). In general, the steps to the doctoral degree are: (1) Fulfill core course requirements and take a qualifying or general examination at the end of the second year (discipline and student preparation dependent); (2) Follow an individually designed program of study leading to an area of specialization; (3) Prepare a thesis proposal and demonstrate a thorough knowledge of the subject area before the end of the second or third year; (3) Submit a dissertation of significant original research; (4) Conduct a public oral defense of the thesis.

Incoming students attend two JP orientations, a full day (or two half-day) session at WHOI in mid-July, and a shorter less formal hour-long session at MIT to supplement their MIT department orientation in early September prior to the beginning of classes. These orientations

introduce the students to the resources at each institution, including information about library and technology resources at both WHOI and MIT. Orientation schedules/agendas will be available in the team room.



English proficiency is required of all JP students. To be admitted to the JP, a student must have demonstrated English language proficiency with a score of at least 7.0 on the International English Language Testing System (IELTS) or 100 on the Test of English as a Foreign Language (TOEFL). The MIT Writing and Communication Center provides support to all graduate students, and has specialized help for International students for whom English is a second language (https://odge.mit.edu/development/writing/).

An external review of the MIT/WHOI JP program is carried out every five years, with the WHOI Vice President for Academic Programs and Dean and the MIT JP Director working jointly to address recommendations. Annual JP faculty meetings are held to discuss needed actions. Any resultant changes to the program (e.g., general exam structure) must be approved by the relevant disciplinary Joint Committee. Any significant changes to courses taught at WHOI, or addition of courses taught at WHOI, must be approved first by the relevant Joint Committee, and then by the Education Assembly.

More frequent review of the program is carried out annually as part of each Joint Committee's annual review process. Each JC holds an annual meeting to review student progress and to review any concerns raised by either faculty or students. A number of avenues exist for expressing concerns, including course evaluations, annual review reports that each student and each advisor submit to the relevant JC, and an annual meeting in February at which JP students meet over dinner with the Vice President of Academic Programs and Dean, the MIT Joint Program Director, and the Associate Dean. This meeting (called the "winter" meeting) is held for the express purpose of asking the students to bring up any issues that are of concern to them, recognizing the challenges involved in running a program between two distinct institutions

separated by 75 miles. The meeting is always held on a Tuesday or Thursday at WHOI when the bus that travels from MIT down to WHOI in the morning and back up to MIT in the evening is available so that JP students residing in Cambridge and WHOI can all attend.

Updates about all WHOI academic programs, including the postdoctoral and undergraduate programs as well as the graduate program, are provided every six months to the Research and Education Committee, a Charter Committee (as of October 2008) of the Board of Trustees. Trustee Ted Dengler is currently the Chair of this committee. Written updates about Academic Programs are provided in advance of meetings to Board and Corporation members. The last time that there was a report to the Board from the Chair of the Research and Education Committee was in May 2014.

The goal of the MIT/WHOI Joint Program is to train and mentor the future leaders of ocean sciences. Students admitted to the MIT/WHOI Joint Program have access to the faculty and staff of both institutions and the extensive physical facilities of both institutions. As noted in the Appointments and Promotions Procedures manual *"The key to WHOI's excellence is the quality of its science and engineering, and the principal factor influencing that quality is the caliber of the Scientific Staff. Members of this staff are responsible for conceiving, prosecuting, interpreting, and funding the research programs and they constitute the faculty of the educational programs of the Institution. They thus determine the quality and success of the Institution. To preserve that caliber, appointments and promotions within the Scientific Staff must reflect the highest possible standards."*

The JP program is highly selective, with ~15% of those who applied in 2015 being offered admission. In recent years the program has received between 230 and 300 applications per year. Admissions statistics are published on the JP web site and updated annually (http://mit.whoi.edu/statistics), and the undergraduate preparation that is expected of qualified applicants is also described on the web site (http://mit.whoi.edu/page.do?pid=34395). The admissions process is overseen by the Admissions Advisory Committee, chaired by the WHOI Associate Dean and composed of two members from each discipline who first review all applications to their respective disciplines and produce a short-list of top-tier candidates. All ten members of the Admission Advisory Committee then review and rank the top-tier applicants from all of the disciplines and provide this information to the Joint Committees and the Joint Program Committee. It is significant that admission is offered on behalf of the entire Joint Program, and not just a single discipline or a major advisor. A commitment of five years of stipend and tuition support is made to admitted students, subject to making reasonable progress toward a degree. Like admission, this commitment of financial support comes from the Joint Program, and not from one department or one potential advisor.

Many entering students have interests and academic backgrounds that fit well within a single discipline, but other applicants arrive with research interests that span two or more disciplines. Students are admitted to the discipline that they choose or that the JCs gauge to be most appropriate for their preparation and stated research interests. This ensures that each student has a well-defined administrative (and scientific) home within the JP.

Students are also assigned an initial advisor at around the time of admission based on their stated interests and match with faculty interests and available GRA support or other funding. Students can change their advisor and change their home departments with approval of the Joint Committees that are directly involved. In practice, very few students switch disciplines,

but roughly 10% change their advisor at some stage of their careers, although usually not past the second year. The JP commitment of funding makes it much easier for JP students to change advisors and disciplines as their research interests develop and change during their first two years in the JP. Students who may fall off grant support (GRA support) are also assured of full funding by the JP as long as they are making satisfactory progress toward their degree.

The disciplinary joint committees monitor the academic programs of each student annually. Successful completion of the General Exam and the acceptance of a thesis proposal are critical points in a student's academic studies. The disciplinary Joint Committee has the final responsibility for deciding whether a student has passed the general exam, and each committee takes this responsibility seriously. If a student fails to pass the General Exam, each individual case is thoroughly reviewed and discussed with several outcomes possible. The student may be asked to complete a master's degree; complete a master's degree with subsequent review to continue doctorate studies; undertake remedial study; or be advised to leave the program.

The advisor (or co-advisors) oversees the dissertation research and completion of the dissertation. Assisting in the advisory process is a dissertation guidance (thesis) committee, approved by the appropriate disciplinary Joint Committee. A student has at least one annual meeting of his/her thesis committee. The appropriate disciplinary Joint Committee reviews the student's annual progress report.

When the student, advisor and thesis committee agree that the dissertation is ready for defense, a chair of the dissertation defense is recommended by the student and the advisor, and approved by the disciplinary Joint Committee. This individual must be a JP faculty member (either WHOI-based or MIT-based) who is not a member of the thesis committee. The candidate first makes a public presentation of her/his thesis research and then is examined in a session closed to all but thesis committee members and JP faculty members who have read the thesis. At the conclusion of this examination, the thesis committee deliberates, led by the Chair of the Dissertation Defense, and determines if the candidate passes, has a conditional pass, or fails; and what corrections or additional work are needed prior to acceptance of the thesis. The final acceptable dissertation is submitted to the Chair of the defense, who then notifies in writing the Chair of the disciplinary Joint Committee that the thesis has been accepted. The advisor's signature and the signature of the Chair of the disciplinary Joint Committee on the dissertation constitute a recommendation to the faculty for the awarding of the degree. The candidate's name and degree title are forwarded through the Dean of Graduate Studies at WHOI to the Executive Committee of the WHOI Board of Trustees for final approval of the degree.

Integrity in the Award of Academic Credit

JP degree requirements parallel those of MIT, with a minimum of 66 units of graduate subject credit and a thesis required at the master's level. Units are determined by adding the number of class hours, lab hours and expected homework hours per week.

Two course catalogs are provided as references to JP students, both electronic and easily accessed on the JP web site (http://mit.whoi.edu/courses). The Joint Program catalog is a listing of courses offered at WHOI and at MIT. Many of these courses are specifically for the MIT/WHOI Joint Program, and all are graduate-level courses. This is not a full listing of courses available to Joint Program students; they are encouraged to take other courses listed in the MIT

catalog (lists all graduate and undergraduate courses offered at MIT during the academic year) and also have access, through a cross-registration agreement, to Harvard University courses.

New JP courses or significant modifications to existing courses must be approved by the relevant Joint Committee and Education Assembly. The procedure for introducing a course is provided to WHOI-based faculty on the JP website (https://mit.whoi.edu/page.do?pid=146756).

Grading of courses and research also parallels procedures of MIT. Graduate students who satisfactorily complete the work of a subject by the end of the term receive an A, B, C, or Pass, with grades below B normally considered to be unacceptable as a measure of progress towards degree objectives (see https://odge.mit.edu/gpp/registration/performance/grades/).

The JP also follows MIT graduate policy and procedures for changes in registration, including personal leave, childbirth accommodation, voluntary withdrawal and readmission, medical withdrawal, and denials of further registration (https://odge.mit.edu/gpp/registration/changes/denials-of-further-registration/). For the latter, as noted on the aforementioned web site, "*such an action is preceded by a formal Dean's warning, which demands substantial improvement in performance. The Dean's warning is usually preceded by a "U" grade for thesis research or a pattern of unacceptable academic or/and research performance. A denial of further registration may also be recommended by the Committee on Discipline based on its investigation of a complaint of unacceptable behavior, for example, plagiarism, harassment, or other nonprofessional conduct."*

MIT graduate policy is also followed with respect to transfer credit https://odge.mit.edu/gpp/registration/requirements/credit/ "*Transfer credit: In special cases, advanced subjects completed satisfactorily elsewhere may be accepted for credit toward requirements for an advanced degree (with a recorded grade of "S" for subjects with exact MIT equivalents). If the subject has no MIT equivalent, approved transfer credit should be requested through a petition approved by the appropriate departmental graduate registration officer.*

The student's major department will determine to what extent subjects taken as a special student are acceptable for credit toward the requirements for an advanced degree. Credit received as a special graduate student is considered with all other academic information in reviewing the application and in formulating a degree program."

Assessment of Student Learning

Annual reviews of each student's progress are carried out each year by the appropriate disciplinary Joint Committee. Separate progress/evaluation reports are prepared by the student and by his/her advisor(s) for review at the Joint Committee's annual meeting. Each student then receives a written response from the Joint Committee giving him/her an evaluation of his/her progress and providing guidance on future research and studies. This review supplements semester assessments based on grades in classes and research, and results of qualifying/general exams, thesis proposal presentations/defenses, thesis committee meetings, and thesis defenses. A summary of assessment of student learning is provided in Table IV-1.

Assessment of student success is also done through tracking to the extent possible of JP graduate employment. Exit interviews are held with all JP students. As part of the preparation for External Reviews of the MIT/WHOI Joint Program, data are collected about JP graduate employment for those graduating in preceding years.

Table IV-1: Student Assessment within the MIT/ Woods Hole Oceanographic Institution (WHOI) Joint Program in Oceanography/Applied Ocean Science and Engineering

The MIT/WHOI Joint Program's goal is for students to achieve full intellectual potential in their chosen area of study and research, either within the more traditional disciplines of ocean sciences and engineering or within interdisciplinary studies incorporating two or more disciplines. Students from this program will have excellent career options in academic, industrial, and government settings.

Goals for Student Learning - When students complete the Ph.D. they should be able to:

1. Identify the critical scientific questions in their discipline and have the in-depth knowledge to solve them.

2. Demonstrate a broad knowledge of the context within which their discipline resides.

3. Know and follow ethical guidelines for conducting science.

4. Communicate science effectively both orally and in writing.

5. Identify potential career options.

Program Component	Goals Addressed	Process	Assessment Schedule
Student advising	1,2,3,4,5	In the first two years, students take classes and carry out research prior to taking qualifying or general exams; each student is advised by a committee that includes the student's research advisor and one or more academic advisors. Once a student advances to candidacy s/he is advised by the research mentor who is the primary advisor, with additional feedback provided by a thesis committee. The student meets with the thesis committee at least annually. Thesis committees consist of at least three members, including the student's advisor; the committee must include at least one MIT faculty member and one WHOI faculty member with expertise in the student's area of research. The thesis committee provides advice on research and on career options.	Each disciplinary Joint Committee (JC) holds an annual meeting to review the progress of all students in that discipline using progress reports submitted by students and advisors, grade reports, and any additional information (e.g., reports from thesis committee meetings). Feedback is provided to the student in the form of a written memo, either noting satisfactory progress, or steps that need to be taken in the case of unsatisfactory progress, and the timing for such steps.
Completion of required and elective coursework	1,2	During the first two years, the student's research advisor and advisory committee provide advice on course-work to ensure that the	Review of coursework is carried out by the JC at the annual JC meetings, and by the JC using advice from the exam

		student has the appropriate breadth and depth for his or her educational program. In later years, the student, in collaboration with the thesis advisor and thesis advisory committee, identifies any coursework as needed.	and thesis proposal committees following qualifying or general exams and thesis proposal defenses.
Training in ethical conduct of research	3	All students are required to complete an online training program on Responsible Conduct of Research (RCR) found on the Collaborative Institutional Training Initiative web site (https://www.citiprogram.org/).	Certification of successful completion of the course is valid for four years.
Qualifying-general exam/thesis proposal defense	1,2,3,4	Students proceed to Ph.D. candidacy after successful completion of a qualifying or general exam and thesis proposal defense, typically during the second or third year. The qualifying or general exams differ by discipline, but all include a research component and a knowledge component.	Reports from the exam and thesis proposal committees are submitted to the relevant disciplinary JC for review, with recommendations and requests for action as needed.
Thesis defense	1,2,3,4	The student's thesis research is presented at a public thesis defense followed by a closed session of questioning by the thesis committee and other faculty who have read the entire thesis.	Thesis committee members vote on whether the student has successfully passed the defense. The decision and recommendations for any modifications of the thesis are summarized in a letter to the Chair of the relevant JC.
Exit interviews that ask students about their learning, factors that influenced their learning, and about their future plans.	1,2,3,4,5	Upon graduation, exit interviews are held between the student and the Dean and Associate Dean of WHOI.	Data from interviews are/will be** compiled for review at annual Joint Committee meetings and at external Joint Program reviews that are held every 5 years.

*In the Master's Program for Navy students, students follow a similar process of combined classes and research in the first two years with assessment done by the disciplinary JC (Applied Ocean Science and Engineering). The student's research advisor assesses the Master's Thesis that is completed at the end of the two-year program. Upon graduation the student completes an exit interview as above.

**Currently, information on where students go following graduation (postdoctoral position, academic position, other) is compiled and reported at external Joint Program reviews (last was in 2014). A goal is to compile other information (on courses, advising, other) for review at annual JC meetings.

Appraisal

The MIT/WHOI Joint Program (JP) in Oceanography and Applied Ocean Science and Engineering continues to attract extremely talented graduate students and WHOI continues to play a significant role in training the next generation of ocean scientists. Since 2011 WHOI has implemented recommendations of the JP Strategic Plan, including creating an engaging and effective JP web site, and taking steps to facilitate interdisciplinary science by making the General Exam structures of all but the AOSE discipline more similar to one another (details are in the 2014 External JP Review Committee brief, available in the Team Room). The 2014 External Review of the JP was largely positive (details provided in Standard Two and in the committee report, also available in the Team Room), though concerns were expressed about a downward trend in enrollment (with only 14 new students in 2014 versus the normal 20 to 35), and with jointness between WHOI and MIT. Both of these concerns have been and are being addressed. Greater risks were taken in admitting students in 2015 (resulting in a new class of 25 students). To increase jointness, WHOI has initiated a program offering support for junior WHOI scientists to interact with a student and an MIT faculty member, and MIT and WHOI have emphasized the MIT/WHOI Joint Program in some recent faculty position advertisements.

MIT/WHOI JP graduates continue to have successful outcomes. For the 127 students who graduated between 2009 through 2014, 62% are employed by research institutions or universities, 19% by private companies or corporations, 10% by government agencies, 3% by other academic institutions, with 2% unknown and 4% in other categoriesWHOI has a strong Postdoctoral Scholar Program and has in place resources to support all postdoctoral scholars, fellows and investigators, including mentoring, a comprehensive annual review process, workshops on career development, and an active Postdoctoral Association. The Scientist Magazine ranked WHOI within the top ten places for postdoctoral researchers to work in 2011 (2^{nd} best place) and 2013 (4^{th} best place). The greatest current challenge is in maintaining funding for Postdoctoral Scholar positions. In 2016 there are funds for 11 new 18-month appointments. In 2015 there were funds for nine 18-month appointments.

WHOI continues to attract highly competitive undergraduate Summer Student Fellows. Ten of these fellows are funded by a grant from the National Science Foundation. This grant must be renewed every five years, with the proposal providing an opportunity for internal and external (through peer review) evaluation of the program. Efforts have been made to increase diversity within this program, with the 2015 class being the most diverse to date with over 30% (10/32) of the fellows being members of groups underrepresented in ocean sciences.

The first semester of the new Semester-At-WHOI program was just completed, with two undergraduates completing for-credit coursework and research projects. We hope to increase the number in 2016 to perhaps five students with the long-term goal of growing to about 20 students.

Projection

WHOI and MIT are in the process of addressing recommendations of the 2014 External JP Review. Mentoring workshops will be carried out for both students and faculty in early 2016. Content related to interdisciplinary topics will be solicited to develop content for the JP web site. Efforts again will be made to ensure a healthy class size (~ 20) during 2016 admissions. As always given a graduate program that awards degrees from two very separate institutions, there will need to be a continued focus on maintaining jointness between WHOI and MIT.

Efforts will also be made to maintain and enhance the quality of WHOI's postdoctoral and undergraduate programs, with particular emphasis on mentoring and career development.

WHOI plans to grow the Semester At WHOI program for undergraduates in the fall semester to four-to-five students for fall, 2016, with a long-term goal of 20 students.

The Academic Programs Office will continue to recommend that fellowships for graduate students and for Postdoctoral Scholars be made a priority for development efforts. Every external review of the JP makes this recommendation, and the recent 2014 review was no exception. This suggestion has been brought to the attention of the new President of WHOI and the incoming Chief Development Officer.

Institutional Effectiveness

WHOI has in place effective internal and external evaluations that focus on the quality, integrity, and effectiveness of its academic programs. Systematic assessment and evaluation of all facets of the undergraduate, graduate and postdoctoral programs are demonstrably effective in improving the academic offerings and student learning.

Standard 4: The Academic Program
(Summary - Enrollment and Degrees)

Fall Enrollment* by location and modality, as of Census Date

Degree Level/ Location & Modality	Associate's	Bachelor's	Master's	Clinical doctorates (e.g., Pharm.D., DPT, DNP)	Professional doctorates (e.g., Ed.D., Psy.D., D.B.A.)	M.D., J.D., DDS	Ph.D.	Total Degree-Seeking FTE
Main Campus FTE			2				120	122
Other Campus FTE								0
Branches FTE								0
Other Locations FTE								0
Overseas Locations FTE								0
On-Line FTE								0
Correspondence FTE								0
Low-Residency Programs FTE								0
Total FTE	0	0	2	0	0	0	120	122
Unduplicated Headcount Total								0
Degrees Awarded, Most Recent Year			5				18	23

Student Type/ Location & Modality	Non-Matriculated Students	Visiting Students	Title IV-Eligible Certificates: Students Seeking Certificates
Main Campus FTE			
Other Campus FTE			
Branches FTE			
Other Locations FTE			
Overseas Locations FTE			
On-Line FTE			
Correspondence FTE			
Low-Residency Programs FTE			
Total FTE			
Unduplicated Headcount Total			
Certificates Awarded, Most Recent Year	n.a.	n.a.	

Notes:

1) Enrollment numbers should include all students in the named categories, including students in continuing education and students enrolled through any contractual relationship.

2) Each student should be recorded in only one category, e.g., students enrolled in low-residency programs housed on the main campus should be recorded only in the category "low-residency programs."

3) Please refer to form 3.2, "Locations and Modalities," for definitions of locations and instructional modalities.

* For programs not taught in the fall, report an analogous term's enrollment as of its Census Date.

Standard 4: The Academic Program
(Headcount by UNDERGRADUATE Major)

For Fall Term, as of Census Date	3 Years Prior (FY 2012)	2 Years Prior (FY2013)	1 Year Prior (FY 2014)	Current Year* (FY 2015)	Next Year Forward (goal) (FY 2016)
Certificate					
?					
Total	-	-	-	-	-
Associate					
?					
? Undeclared					
Total	-	-	-	-	-
Baccalaureate					
?					
Undeclared					
Total	-	-	-	-	-
Total Undergraduate	-	-	-	-	-

*"Current Year" refers to 2015.

Standard 4: The Academic Program
(Headcount by GRADUATE Major)

?

For Fall Term, as of Census Date	3 Years Prior (FY 2012)	2 Years Prior (FY2013)	1 Year Prior (FY 2014)	Current Year* (FY 2015)	Next Year Forward (goal) (FY 2016)
Master's					
? Applied Ocean Science & Engineering	3	3	2	2	3
Total	3	3	2	2	3
Doctorate					
? Biological Oceanography	24	25	25	25	20
Chemical Oceanography	33	32	28	27	23
Marine Geology & Geophysics	22	22	25	25	25
Applied Ocean Science & Engineering	20	23	21	18	18
Physical Oceanography	23	21	21	25	21
Total	122	123	120	120	107
First Professional					
?					
Total	-	-	-	-	-
Other					
?					
Total	-	-	-	-	-
Total Graduate	125	126	122	122	110

*"Current Year" refers to 2015.

Standard 4: The Academic Program
(Credit Hours Generated By Department or Comparable Academic Unit)

?
?

	3 Years Prior (FY 2012)	2 Years Prior (FY2013)	1 Year Prior (FY 2014)	Current Year* (FY 2015)	Next Year Forward (goal) (FY 2016)
Undergraduate					
?					
Total	-	-	-	-	-
Graduate					
Biological Oceanography	318	414	384	234	114
Chemical Oceanography	588	681	234	414	72
Marine Geology & Geophysics	309	150	249	186	240
Applied Ocean Science & Engineering	96	48	300	36	120
Physical Oceanography	345	441	264	282	216
Interdisciplinary Studies	159	42	156	81	102
Total	1,815	1,776	1,587	1,233	864

*Course units (equivalent of credit hours): Classes carry a specific # of units which equate to the number of hours spent in classroom plus lab plus learning outside classroom (e.g., 3-0-9=12). Course units generated by discipline were calculated by multiplying enrollment by unit numbers and summing for all classes for each academic year.

*"Current Year" refers to 2015.

STANDARD FIVE – FACULTY

The Institution develops a faculty that is suited to the fulfillment of the Institution's mission. Faculty qualifications, numbers, and performance are sufficient to accomplish the Institution's mission and purposes. Faculty competently offer the institution's academic programs and fulfill those tasks appropriately assigned them.

Description

The faculty of the Institution is all WHOI scientific and technical staff members of Educational Assembly. As of 30 June 2015 the faculty consist of the following numbers in each category, with all current faculty holding either a PhD or DSc (categories of appointments are described in a following section): Senior Scientists - 64*; Associate Scientists (tenured) – 34; Associate Scientists (non-tenured) and members of the technical staff – 39; Assistant Scientists – 17; Total WHOI faculty – 158. (* The President-Director, Executive Vice President, and Vice President for Academic Programs and Dean are Senior Scientists but are not included in the above total). A small number of faculty are part-time. This status, however, does not affect compensation for education activities, which is based on involvement (see below for details). There are no adjunct faculty. The general qualifications of the members of the Scientific and Technical Staff are summarized in the Appointments and Promotion Procedures Manual, included in the Team Room and at http://www.whoi.edu/DoR/staffing/appointments-promotions.

The faculty carries out the duties of teaching and advising the graduate students and other aspects of the Institution's education programs. Approximately 30 courses are taught each year at WHOI within the MIT-WHOI Joint Program. The number of faculty serving as principal academic advisor (pre-thesis) or M.S. or Ph.D thesis supervisor for the period of 2006 to 2015 averaged 19 advisors at MIT and 77 advisors at WHOI. In addition to graduate student teaching and advising, and Academic Programs governance committees, faculty may be involved with advising undergraduate students or postdoctoral researchers.

SCIENTIFIC STAFF APPOINTMENT AND PROMOTION PROCEDURES

The Scientific Staff and a few selected members of the Senior Technical Staff of the Institution provide the key intellectual drive for the Institution and the teaching, advising, and mentoring for the students. WHOI follows a thorough peer review process for the appointment and promotion process of the members of the Scientific Staff and Senior Technical Staff. Because this process has been, and continues to be, critical to the success of the Institution in carrying out its mission **the following is quoted directly from the Appointments and Promotions Procedures**. (Additional information on temporary appointments, leaves of absence, and more detail on emeritus positions are not provided here but are in the Appointments and Promotions Procedures manual - The Blue Book; available in the Team Room):

General Information

WHOI strives for excellence in oceanographic research and education. The research undertaken at the Institution emphasizes seagoing, but not exclusively, and demands world-class expertise both intellectually and operationally. Oceanography often mandates teamwork, so the staff must be uniformly excellent, independent of discipline or task. Staff members at all levels and on all career ladders are carefully selected, annually evaluated, and rigorously screened for promotion. Promotion at all

levels reflects expectation of continuing productivity in addition to documented impact in the Staff member's area of expertise. WHOI standards and expectations are extremely high, and its procedures for appointments and promotions are reevaluated from time to time for fairness and rigor. All recruiting and personnel actions are conducted without regard to age, race, religion, color, gender, national origin, sexual orientation, veteran status, disability or any other unlawful considerations. Not only is this legally required, but it is also important to sustain quality.

The key to WHOI's excellence is the quality of its science and engineering, and the principal factor influencing that quality is the caliber of the Scientific Staff. Members of this staff are responsible for conceiving, prosecuting, interpreting, and funding the research programs and they constitute the faculty of the educational programs of the Institution. They thus determine the quality and success of the Institution. To preserve that caliber, appointments and promotions within the Scientific Staff must reflect the highest possible standards.

Because successful oceanographic research requires not only the formulation of questions about nature but also the testing of these hypotheses, Technical Staff members and Departmental Assistants play a critical role both in the laboratory and at sea. Members of these staffs are primarily involved in developing and employing the means or techniques by which successful research is accomplished. Recognizing the wide range of disciplines, talents, and skills required by oceanography, WHOI currently has three career paths for these staffs: science/research, engineering, and information systems.

Technical Staff members (employees exempt from overtime payment as defined by the Fair Labor Standards Act) and Departmental Assistants (non-exempt) are expected to have superior competence in the application of their skills to problems in marine science. Since oceanographic research requires the development and application of new and challenging methodologies, they are expected to be committed to the continuing growth of their professional skills. Advancement in any of the career ladders, and at all levels, requires the demonstration of sustained superior performance and abilities independent of length of service.

Although Senior Technical Staff members can be sole Principal Investigators on grants and contracts, most members of the Technical Staff and all Departmental Assistants work under supervision of the Scientific Staff, either on a continuing or a project/task basis. A smaller number are supported full- or part-time in operational groups supervised by a scientist, or in Institution service and administration operations that provide basic support to the Scientific Staff. Although the overall course of their research is guided primarily by the members of the Scientific Staff whom they support, Technical and Departmental Assistant Staff are encouraged to participate in educational programs in ways that are appropriate to their skills and the needs of the science. They are encouraged, and in some positions may be required, to go to sea and, if appropriately experienced and qualified, can serve as Chief Scientists on cruises.

To help achieve objectivity in all staff appointments and promotions, each action is based upon review of a file that provides documentary evidence of qualifications, experience, and achievements. Although the contents of the files vary (as described in

more detail below) among and along the career ladders, the basic principle is constant: documented evidence of superior performance, abilities, and impact in research.

The following sections of this manual describe the guidelines for minimum eligibility requirements for each position, and the standards and procedures for the associated file and its review. It must be emphasized that the Institution is seeking the highest standards of excellence in all its activities and that not all who appear to meet the minimum requirements will necessarily be considered eligible. Formal training and degrees do not guarantee excellence nor are they necessary prerequisites for these positions in all cases. These procedures are intended to permit flexibility in the appointment and promotion of individuals who have demonstrated superior promise or performance.

Scientific Staff

The Scientific Staff consists of those employees of the Institution holding appointments as Senior Scientist, Associate Scientist, or Assistant Scientist.

Appointments to the Scientific Staff are based upon recommendations to the President and Director by the Staff Council whose members vote following review and discussion of a confidential file. Appointments to Assistant Scientist are made by the President and Director, and to Associate Scientist and Senior Scientist by the Executive Committee of the Woods Hole Oceanographic Institution Board of Trustees on the recommendation of the President and Director.

The annual hiring cycle begins with Departmental discussions to identify the highest priority areas for hiring, considering both scientific significance and funding sustainability. A description of the position to be filled, or individual to be considered, is first brought to Staff Council by the relevant Department Chair for initial discussion and evaluation of the scientific and financial implications of the appointment. These discussions should be coordinated among all departments early in the annual hiring cycle to provide an Institution-wide hiring strategy. Taking this discussion into consideration, the Director of Research approves or denies posting an advertisement or other further action on the appointment. Departments may also request permission to pursue opportunistic hires of exceptional candidates that fall outside of the approved hiring plan.

The necessary criteria for promotion and appointment within the Scientific Staff are the performance of research of the highest quality and demonstrated impact on the field of choice. Evidence for this is sought in the publications and manuscripts which describe the research, and in the opinions of experts in the candidate's field of expertise. In making such judgments, creativity, innovativeness, originality and impact within the field of research are the important factors.

Although it is not required, the Institution encourages all members of the Scientific Staff to participate, in ways appropriate to their science, in its educational programs. If an individual chooses to participate, success in teaching and/or supervision of graduate students is considered in the evaluation for promotion and these activities are expected to be of the same high quality as for research.

An appointment to the Scientific Staff is made with the expectation that the individual will work for the Institution on a full-time, year-round basis. Any change in this status results in review of the individual's appointment. A member of the Scientific Staff shall not hold a full-time position at another institution or any other formal employment or consulting that requires an excess of one-sixth of his/her time per year. Staff should be aware of separate policies regarding Conflict of Interest and Residency at WHOI.

WHOI is a soft-money institution. A conscientious and consistent effort to secure full funding for salary and other research costs is part of normal and expected performance for Scientific Staff. Because reasonable success in obtaining funding is necessary to develop and sustain a successful research career at WHOI, prospects for extramural funding need to be considered in the hiring and promotion of scientific staff.

In addition, each member of the Scientific Staff is expected to participate in the life of the Institution through the normal activities of his/her department. This might include mentoring of junior staff, selection of department Postdoctoral Scholars, students, and Summer Student Fellows, and participation in the departmental annual merit increase review process. Any exceptions, including extended and/or repeated absences, need the approval of the Department Chair and the Director of Research.

Assistant Scientist

Appointment to the rank of Assistant Scientist may be granted to an individual who:

• holds a Ph.D. or Sc.D. (or equivalent) degree and has sufficient experience to do independent research, or

• regardless of degrees held, has demonstrated the ability to conduct independent research of high quality.

Assistant Scientist is the normal professional entry point for recent doctoral graduates desiring to follow a career in ocean sciences research at WHOI. Recruitment is through advertisement, or by selection from the ranks of WHOI Postdoctoral Scholars and Fellows. The rigorous competitive selection process for WHOI Postdoctoral Scholars is considered equivalent from the standpoint of equal opportunity and affirmative action to evaluation of candidates responding to advertisements for Assistant Scientist positions. Therefore Departments can choose to hire Postdoctoral Scholars (or Fellows who qualified as Scholars) without advertising the position, although it is usually preferable to have Postdoctoral Scholars apply to a posted opening. Assistant Scientists are expected to pursue their research independently or with general supervision and advice from more senior scientific staff, and to develop sufficient research funding. They are expected to take an active interest in the welfare of the Institution by such activities as participation in Department or Center affairs, participation in education, and service on Institution and national committees. It is a term appointment that provides the individual with an opportunity for professional development as an oceanographer, and provides the Institution with information needed to evaluate the individual's promise as a continuing member of the Scientific Staff.

Appointment to the position of Assistant Scientist is for a single four-year term.

When required to meet extenuating personal circumstances that could seriously inhibit professional productivity (e.g., disability of the employee, family illness requiring extended care, child rearing or bearing, or dependent parent care), with a timely written request via the Department Chair to the Director for Research, the term can be extended for up to 12 months (or longer, if legally required as a reasonable accommodation for a disability or to comply with other legal requirements). Using this option does not eliminate the possibility of a Staff member being considered for promotion at any time during the term of appointment. [See 'stopping the clock' in Navigating the Tenure Track Handbook]

Appointment is based upon review of a file prepared by the sponsoring Scientific Department or the Marine Policy Center, and presented by its Chair to Staff Council whose members vote, by secret ballot, on a recommendation for the President and Director's decision, which is final. The file comprises the candidate's curriculum vitae, his or her personal statement of research interests (normally a maximum of three pages), copies of (usually) three recent publications, letters of reference from at least four external reviewers and from internal reviewers who are knowledgeable members of the department (or other Scientific Staff members who may know the candidate), and a cover memo from the Department Chair summarizing the candidate's interests and qualifications, describing why the department desires to appoint this individual, and believes that the candidate will be able to sustain a viable research program at WHOI in his or her chosen field(s). The external letters, from researchers familiar with the candidate's science, are a very important element of the file. They should be from individuals senior to the candidate and should comment on the candidate's originality and independence, ability to identify important areas of research, leadership skills, research quality as demonstrated by publications and presentations, future research potential, likelihood of appointment at the reviewer's institution, and prospects for developing a successful scientific career at WHOI. For Assistant Scientist appointments, the external letters may be seen by internal letter writers prior to preparing their own letters. This is to provide information on candidates who may be unknown to internal reviewers. Internal reviewers' letters should not, however, reference or rebut the content of external letters.

An Assistant Scientist meets with his/her mentoring committee, consisting of the Department Chair and members of the Scientific Staff familiar with the individual's research after the first and second years of the individual's appointment to review progress and gain feedback on his/her research record and other activities. The results of this review are communicated to the Assistant Scientist verbally and in writing, with a copy to the Director of Research. At least six months before the end of the four-year term appointment, the Chair will initiate the process of considering promotion to Associate Scientist without tenure, in consultation with the Associate and Senior Scientists of the candidate's Department. The Chair will discuss the results of the Department's deliberations with the candidate. If the Department or candidate desires to proceed with preparation of the file, the candidate is asked to provide names of individuals familiar with his or her research, and to consent to the solicitation of confidential opinions about his or her work.

Associate Scientist

Appointment as Associate Scientist may be given to an individual who has demonstrated the qualities of superior achievement expected of an established and independent research scientist. These qualities include: the capacity to identify significant and relevant research questions; the ability to formulate and carry out research to answer these questions and to sustain a viable, externally funded program; the ability to exercise superior judgment and discrimination in the interpretation of research results; the motivation to present the results of this research to the judgment of others through lectures, publications and papers; and finally, the recognition of the excellence of research as demonstrated by a national reputation. Associate Scientists are expected to pursue independent research, although this may involve collaboration with other scientists. They are expected to take an active interest in the welfare of the Institution by such activities as the preparation of research proposals, participation in Department or Center affairs, participation in Education programs, service on Institution and national committees, and providing assistance and advice to their colleagues.

Appointment to Associate Scientist occurs via response to a national advertisement or by promotion from Assistant Scientist at any time prior to completion of the initial 4- year term (but almost always near its conclusion). Appointment is normally for a 4- year term, except in certain circumstances when the President and Director may recommend a 5-year term to the Executive Committee. Promotions from Assistant Scientist are normally for a 4-year term, except in certain circumstances when the President and Director may recommend a 5-year term to the Executive Committee. This, and Associate with Tenure, are both ‘up or out’ promotion steps, and failed candidates will normally leave the Institution.

When required to meet extenuating personal circumstances that could seriously inhibit professional productivity (e.g., disability of the employee, family illness requiring extended care, child rearing or bearing, or dependent parent care), with a timely written request via the Department Chair to the Director of Research, the term can be extended for up to 12 months (or longer, if legally required as a reasonable accommodation for a disability or to comply with other legal requirements). Using this option does not eliminate the possibility of a Staff member being considered for promotion at any time during the term of appointment. [See ‘stopping the clock’ in Navigating the Tenure Track Handbook]

Associate Scientist without Tenure

To initiate the process for promotion to this position, the relevant Department Chair or Center Director, with the approval of the Director of Research, forms an internal Ad Hoc Review Committee to consider and prepare the case for promotion. This occurs at least six months prior to the end of the Assistant Scientist's appointment. The Chair of the Ad Hoc Review Committee is from a Department other than the candidate's, and other members consist of the candidate's Department Chair (ex officio) and three others. The Committee is selected by the Department Chair in consultation with the Director of Research. The chair of the Committee should not have had a prior supervisory or working relationship with the candidate. The Ad Hoc Review Committee solicits letters from outside reviewers, interviews Associate and Senior Scientists in the

candidate's Department, and prepares the file. Its Chair presents the case to Staff Council, which advises the President and Director, who presents his or her recommendation to the Executive Committee of the Board of Trustees for its decision, which is final.

The file for Associate Scientist without Tenure comprises an updated curriculum vitae; the candidate's personal research statement (normally four page maximum) and copies of five recent publications; letters from at least six external referees; a statement from the Dean or Associate Dean about the candidate's participation in the Institution's Education Programs; and, in the cases of promotion, the report from the chair of the internal *Ad Hoc* Review Committee. This report should include comments received in interviews of Associate and Senior Scientists in the candidate's Department as well as a summary of the external reviewers' comments. External and internal reviewers should not be identified by name in this memo, but listed on a separate key. In the case of appointment, letters from internal reviewers are included in the file, and internal reviewers may read external letters prior to writing their own provided they do not reference or rebut those letters. The letters from external reviewers are a very significant element of the file. At this stage in the candidate's career they address the significance and influence of the candidate's research, demonstrated independence and originality, judgment and discrimination in interpreting results, comparison to peers, promise for future growth, and likelihood of promotion (or appointment) if at the reviewer's institution. The relevant Chair should provide a written assessment of the sustainability of the candidate's research program, taking into account funding history and future prospects. Information on funding is available only to members of Staff Council and not to external referees or other WHOI staff.

If at any point prior to Staff Council in the process of promotion to Associate Scientist without Tenure, the Department determines it should not proceed with the appointment, the Chair, in consultation with the Director of Research, will discuss all reasons with the candidate. The candidate may then elect either to withdraw the file or have the process completed and the file presented to Staff Council.

If promotion or appointment is recommended by the President and Director and approved by the Executive Committee, the Department Chair will communicate recommendations resulting from the Ad Hoc Review Committee and Staff Council discussion to the candidate verbally and in writing, with a copy to the Director of Research. If promotion is not approved, the Department Chair and Director of Research will meet with the candidate and discuss the decision. The unsuccessful candidate's appointment will usually be extended a reasonable amount of time, normally up to a year, to allow relocation. Individuals who withdraw their files will normally receive similar extensions.

An Associate Scientist without Tenure meets with his/her mentoring committee, consisting of the Department Chair and members of the Scientific Staff familiar with the individual's research, mid-way through the individual's term (at a minimum), to review progress and provide feedback on the individual's research record and other activities. The results of the review are communicated to the Associate Scientist verbally and in writing, with a copy to the Director of Research. Approximately twelve months before

the end of the four-year term appointment, the Chair will initiate the process of considering promotion to Associate Scientist with Tenure, in consultation with the tenured scientists of the candidate's department.

The Chair will discuss the results of the Department's deliberations with the candidate. If the Department or candidate desires to proceed with preparation of the file, the candidate is asked to provide names of individuals familiar with his or her research, and to consent to the solicitation of confidential opinions about his or her work.

Associate Scientist with Tenure

A tenure decision is made prior to the completion of the four-year term of an Associate Scientist, and for all appointments from outside the Institution's Scientific Staff at the tenured Associate Scientist or Senior Scientist level. The fundamental criterion for granting tenure, whether for a promotion or new hire, is strong evidence that the candidate is recognized at an international level as an expert in his or her field of research, and has provided significant contributions and influence to the development of that field. Such evidence would normally include publications that demonstrate the central role of the candidate, letters from national and international experts that attest to the importance of the candidate’s research, and other evidence of innovation, scholarship, integrity and scientific leadership as appropriate to the circumstances.

The transition from a term appointment to tenure implies a significant commitment by the Institution to support the candidate's position and his/her research. Tenure assures a continued appointment on the Scientific Staff until retirement, except in situations described below under Termination of Appointment. Tenure formalizes the Institution's confidence in the person's professional qualities, scientific judgment and ability to sustain a research program, and thus the appointment and promotion process is commensurately rigorous. Tenured scientists are expected to maintain conscientious and consistent efforts to obtain funding for their salary and research expenses.

The tenure process in the case of appointment is initiated by the Department Chair or Center Director once an external candidate has been selected by the Department. In the case of promotion, the process begins at any time during the Associate Scientist's term, but typically twelve months before its completion. A tenure decision involves a four-step review process: 1) Department deliberations and vote of the tenured staff; 2) presentation, discussion and vote on the file at Staff Council; 3) an External Ad Hoc Review Committee of prominent scientists familiar with the field of the candidate's research; 4) presentation of the case and recommendation by the President and Director to the Executive Committee of the Board of Trustees.

The process starts with consultation between the Chair and tenured members of the Department; normally this should occur approximately 12 months before the completion of an Associate Scientist's term. The Chair will discuss the results of the Department's deliberations with the candidate. If the Department or the candidate desires to proceed with preparation of the file, the candidate is asked to provide names of individuals familiar with his or her research, and to consent to the solicitation of confidential opinions about his or her work.

The Department Chair then assembles the candidate's updated curriculum vitae,

research statement (usually five page maximum) and copies of approximately five recent papers, and obtains written opinions from at least six outside national and international scientists expert in the candidate's field. The Chair circulates the file (not including the outside letters) to, and obtains written evaluations of the candidate's research from, the tenured members of the Department, and/or other WHOI Departments who are familiar with the candidate's research. Written comments on the candidate's participation in education from the Dean or Associate Dean are also obtained. The outside letters, which weigh heavily in the evaluation, should address the importance of the research questions the candidate is addressing, the quality of his or her research and its impact on the field, the candidate's ranking with peers and national standing, external impact of participation in education, and qualification for tenure at the reviewer's institution. The Department Chair meets with the tenured staff to review the complete file (including the outside letters). The Department Chair then prepares a written memorandum to Staff Council summarizing the case and recommending for or against tenure, stating the reasons for both majority and any dissenting opinions. External reviewers should not be identified by name in this memo, but listed on a separate key. The Chair's memo should include, on a separate sheet, an assessment of the sustainability of the candidate's research program, taking into account funding history and future prospects. Information on funding is available only to members of Staff Council and not to external referees, external Ad-Hoc Review Committee members, or other WHOI staff.

If at any point in the promotion to tenure process, the Department determines it should not proceed, the Chair, in consultation with the Director of Research, will discuss the reasons with the candidate. The candidate may then elect either to withdraw the file or to have the process completed.

Based upon the discussions and vote at Staff Council, the President and Director will decide whether or not to proceed with an external *Ad Hoc* Review Committee. This Committee consists of four to five scientists from other institutions, who have not written tenure recommendation letters about the candidate. They will review the file that was presented at Staff Council and meet off-campus with the President and Director, Director of Research, and Department Chair to discuss in depth the candidate's contributions and qualifications. At the conclusion of the discussion, the committee members are asked whether they would vote for or against tenure (or nearest equivalent) for the candidate at their institution, and whether they would recommend for or against tenure at WHOI. The Department Chair, with input from the President and Director and Director of Research, prepares a detailed written summary of these deliberations and adds it to the file. Members of the Ad Hoc Review Committee should not be identified in the summary, but only on a separate key. If new information has been brought forward at the external Ad Hoc Review Committee meeting, the Chair, in exceptional circumstances, may elect to review the information with tenured members of the Department, preserving the confidentiality of the names of committee members. The Chair may then add an additional memorandum to the file summarizing the Department's response to the new evidence introduced at the external Ad Hoc meeting. The President and Director may also obtain additional information and advice from internal or external sources if necessary.

Copies of the file, including the external Ad-Hoc Committee notes, are provided to the subcommittee of the Executive Committee for review of the process. This review is discussed with the President and Director and the Director of Research. The views of this subcommittee are advisory to the President and Director, who then reviews the entire file and presents it and his or her recommendation to the Executive Committee for its vote, which is final.

If promotion or appointment is approved by the Executive Committee, the Department Chair will communicate recommendations resulting from the Ad Hoc Review Committee and Staff Council discussion to the candidate verbally and in writing, with a copy to the Director of Research. If promotion or appointment is not approved, the Department Chair and Director of Research will meet with the candidate and discuss the decision. The unsuccessful candidate's appointment will usually be extended a reasonable amount of time, normally up to a year, to allow relocation. Individuals who withdraw their files will normally receive similar extensions. A candidate who was denied tenure is not automatically excluded from applying for future openings at the Institution, although this would be unusual.

Senior Scientist

Appointment as Senior Scientist is awarded to an individual who has shown continued excellence in scientific research and who, through significant original contributions, has gained a respected, and outstanding international reputation. A Senior Scientist is responsible not only for initiating, supporting and conducting independent research but is expected, through leadership, influence and advice, to promote the attainment of the highest scientific standards within the Institution and the field. Senior Scientists are expected to maintain close liaison with their Department Chair to aid and assist the Chair in planning the future development of the Department, to serve on national and international science planning and evaluation committees, and to both serve on and chair Institution committees.

Consideration for promotion to Senior Scientist usually occurs between four and eight years after tenure. The process can be initiated by the Department Chair at any time following tenure (usually following an annual discussion of nominations with the departmental Senior Scientists), or it can be requested by the Associate Scientist candidate after he or she has been tenured for at least four years (or four years after a previous failed Senior Scientist promotion review). If an Associate Scientist has not been considered for promotion by the end of the eighth year after tenure, the Department Chair will explain the circumstances in writing to the candidate and Director of Research.

The file for Senior Scientist consists of an updated curriculum vitae, research statement (normally five page maximum) and usually five recent publications, independent written opinions from Institution Senior Scientists who are familiar with the candidate's research and from the Dean or Associate Dean, letters from at least six knowledgeable outside scientists, at least three of whom did not provide letters for the appointment or promotion to Associate Scientist with Tenure. The reference letters for Senior Scientist appointments should address the candidate's research contributions, international standing, the leadership and influence of his or her work, participation in

national and international programs, editorship or similar duties, concern for the scientific and educational vitality of the Institution and the field, participation in Department and Institution affairs, and involvement in the professional development of junior staff and/or students. As for the process for tenure, written opinions from Institution Senior Scientists are based on a file which does not include the outside letters. Prior to the Department Chair's recommendation, he or she meets with the Department's Senior Scientists to review the complete file (including the external letters). The Chair then prepares a cover memo with a summary of the case and his or her recommendation. External reviewers should not be identified by name in this memo, but listed on a separate key. The memo should include an assessment of the sustainability of the candidate’s research program, taking into account funding history and future prospects. Information on funding is available only to members of Staff Council and not to external reviewers or other WHOI staff.

For promotion from tenured Associate Scientist, the Department Chair presents the case to Staff Council, which advises the President and Director. Following review of the process by the subcommittee of the Executive Committee in conference with the President and Director and the Director of Research, the President and Director presents his or her recommendation to the Executive Committee of the Board of Trustees for its vote, which is final. For outside appointments as Senior Scientist, tenure procedures also are followed (i.e., an external Ad Hoc Review Committee is convened).

Technical Staff - Research Specialist

With increased latitude for unreviewed activity and using a broad view of principles and practices in relevant laboratory or field projects, contributes substantially to the conception, organization, execution, management, and reporting of significant technological projects. A Research Specialist is recognized within the Institution as an authority in his/her field of specialization or in management of complex projects.

Technical Staff - Senior Research Specialist

Recognized as a leader in the field by functioning as an independent researcher or manager. Has full responsibility for project tasks requiring application of management skills and authoritative knowledge of appropriate scientific principles and practices in the laboratory and/or field; uses and creates advanced techniques and instrumentation, and creates modifications and extensions of theories, precepts, and practices relevant to the field in which the incumbent is recognized as a leading authority, and/or provides management and superior leadership of a group of technical staff members.

Emeritus

Scientist Emeritus

Members of the Scientific Staff are eligible for Emeritus status upon retirement. Emeritus status continues the individual’s association with the Institution’s community of scholars, but implies no other commitment. The appointment file consists of the curriculum vitae, a research statement, a recommendation from the Department Chair or Center Director, and letters from at least three Institution scientists who anticipate continuing association with the candidate. The file is forwarded to the Director of

Research for review. At the discretion of the Director of Research, the file may be distributed to the Department Chairs, Vice President of Academic Programs and/or Vice President from Marine Operations for comment. The Director of Research makes the final decision, and the approved appointment is forwarded to the Executive committee of the Board of Trustees for information. The file is then sent to Human Resources for processing.

A Scientist Emeritus is an unpaid and honorary appointment only. This honor is for life, and may not be taken away without just cause. A Scientist Emeritus is not an employee, and therefore, any of the emeritus' efforts or time benefitting the Institution is voluntary and pro bono. As such, independent employment by the Scientist Emeritus with the Institution, or outside of the Institution, does not affect his or her status and honor as an emeritus. If the funding agency allows, a Scientist Emeritus can be a Principal Investigator on a grant or contract with the approval of the Department Chair and Director of Research. A Scientist Emeritus is ineligible for funding for teaching and advising (unless the student was an advisee of the Scientist Emeritus at the time of retirement). (See APO link). A Scientist Emeritus may receive the assistance of department staff in accordance with normal department procedures. A Scientist Emeritus is eligible for a small amount of overhead funds for general purpose costs (see Emeritus Scientists: Support). Institution support for a Scientist Emeritus may include providing space for continued research, either the laboratory or office occupied prior to retirement or other space available in the department. Active Scientific or Technical Staff will normally have priority over Emeritus staff for space.

Emeritus Research Scholar

Scientist Emeritus and Oceanographer Emeritus are eligible for employment as an Emeritus Research Scholar for no more than 912 hours per year. This status requires approval by the Department Chair, and is only available if the Emeritus plans or hopes to acquire salary support from grants, contracts and also then wishes to draw a salary from that grant or contract. (See Re-employment Policy). The process to become an Emeritus Research Scholar requires an Authorization for Personnel Action, a memo from the Department Chair and approval by the Director of Research. Once the appointment is approved, the file is sent to Human Resources.

An Emeritus Research Scholar may receive the assistance of department staff in accordance with normal department procedures. Institution support for an Emeritus Research Scholar may include providing space for continued research, either the laboratory or office occupied prior to retirement or other space available the department. An Emeritus Research Scholar is eligible to supervise employees.

When no further support from grants, contracts, or education activities is expected, an Emeritus Research Scholar status would end.

Staff Council Procedures

It is the responsibility of the Staff Council to help the Director of Research and the President and Director in making appointment and promotion decisions or recommendations to the Executive Committee to the ranks of Senior Departmental Assistant and to the Technical and Scientific Staffs. The Staff Council's primary task is

to ensure objectivity, rigor, and equity of the appointments and promotions process, both overall and on a case-by-case basis.

In the event that a Department Chair is unable to attend a Staff Council meeting, the designated Acting Chair will attend. However, the Department Chair should present the file for appointment/promotion. For consideration of Tenure cases, all Department Chairs should be present. If a Chair is unavoidably absent he/she may submit written comments and a vote in advance to the Director of Research, to be read aloud at the meeting.

All recommendations of Staff Council are based on reviews of confidential files. (See Appendix 1a and Appendix 1b for charts of the file requirements for promotion and appointment, respectively.) All Staff Council discussions and recommendations, and the identities of external Ad Hoc Committee members for tenure and senior technical staff promotions/appointments, are held in confidence.

End quoted sections

Current members of Staff Council:

President and Director (non-voting) Mark Abbott

Exec Vice President and Director of Research Laurence P. Madin

Vice President for Academic Programs and Dean James Yoder

Vice President for Marine Facilities and Operations (non-voting) Robert Munier

Chair, Applied Ocean Physics & Engineering Department John Trowbridge

Chair, Biology Department Lauren Mullineaux

Chair, Marine Chemistry & Geochemistry Department Scott Doney

Chair, Geology & Geophysics Department Dan McCorkle

Chair, Physical Oceanography Department Al Plueddemann

Director, Marine Policy Center (non-voting except when appropriate) Andrew R. Solow

EEO Officer (non-voting) Kathi Benjamin

Vice President for Operations and Chief Financial Officer (non-voting) Jeffrey Fernandez

Chief Development Officer (non-voting) Charles Gauvin

WHOI has a Compensation and Benefit Statement that outlines procedures for recommending salaries and benefit packages for new employees (will be available in the Team Room). It includes information about monitoring the outside market:

Human Resources regularly monitor the outside market to ensure that our compensation and benefit programs are competitive. Annually, market data are collected from reputable surveys covering both higher education and other organizations in the general industry. The data are compiled and analyzed. From this review, Human Resources will make recommendations on its compensation and benefit programs that it offers to its employees balancing market competitiveness and financial affordability.

There is also a clearly described process for annual salary review for all employees (http://www.whoi.edu/HR/page.do?pid=22056&ct=901&cid=143).

As noted in the Appointment and Procedures (Blue Book) manual, *although it is not required, the Institution encourages all members of the Scientific Staff to participate, in ways appropriate to their science, in its educational programs.* Scientific (and Senior Technical Staff) are compensated for their involvement in Institution Academic Programs using the Policy described below:

For teaching, courses are assigned hours based on the number of units in the course with adjustments for new course development and staff division of teaching assignments. A 12-unit course is allocated 456 hours; a 9-unit course is allocated 342 hours; a 6-unit course is allocated 228 hours; and seminars are allocated 152 hours.

For advising, student advising for pre-general exam students is allocated at 50 hours per student per year with adjustments for shared advising or anticipated change to post-general exam status during the year. Student advising for those students who are 'post-general exam' status is allocated at 152 hours per year with adjustments made for shared advising or degree completion before the end of the year. Post-general exam status means that the student has attained candidacy status by passing the general exam and successfully defending a thesis proposal. When a faculty member has more than one post-generals student as an advisee, the total allotment of advising hours is prorated at 75%. Students whose primary advisor has moved to another institution are assigned an advisor in absentia. That advisor is allotted 50 hours per year to assist the primary advisor.

For committees, committee assignments are allocated as follows: 20 hours per year for participation in a sub-discipline Joint Committee; 20 hours per year for participation in Educational Council; 80 hours per year for participation in the Joint Program Admissions Advisory Committee; 50 hours per year for participation in Postdoctoral Scholar/Fellow Selection Committee; 50 hours per year for participation in the Summer Student Fellow/Minority Fellow Selection Committee; 152 hours per year for serving as chair of a discipline joint committee; 456 hours per year for serving as an Education Coordinator; and other assignments as specifically negotiated, such as special committees and tasks. The coordinator of the Summer Student Fellowship Program is allocated 152 hours per year.

Because of the OMB Circular rules governing WHOI's accounting, all salaries and wages at the Institution are accounted for by hours worked and assigned to specific internal, grant or contract control numbers (including those for Academic Programs). Thus there is an accurate record of effort devoted to Academic Programs with the largest percentage allocated to the graduate program. Over the past decade, the average of FTE' s on a calendar year (three academic semester) basis allocated to Academic Programs ranges from 11 to 14. This does not take into account the many informal interactions between the Scientific Staff and graduate students in seminars, "corridor" or laboratory conversations that are also a very important part of the graduate education and research experience. In practice, in any given semester during the past decade, about 112 WHOI faculty were involved in either teaching, formal advising, or formal Education Programs Committee work

Given a total of 121 to a maximum of 144 graduate students registered in the Joint Program over the past decade, and given that no more than 79% of the students are advised at any given time by a WHOI Scientific Staff person as the principal advisor (the others are advised by an MIT faculty member), the ratio of graduate students to faculty is no more than 1. In

practice a few advisors are advising two or more graduate students at a time. The average ratio of graduate students to advisors from 2006 through 2015 was 1.3.

Governance of the academic programs at WHOI rests with the Education Assembly, Education Council, and Vice President for Academic Affairs and Dean (as described in Standards Three and Four).

Annual Reviews of all WHOI employees

Each year in September through early November, the Institution conducts an evaluation of each employee's performance resulting in a recommendation for an annual merit raise. Examples of the forms and procedures for all employees will be available in the Team Room.

The Scientific Staff are asked to provide a summation of their scholarly activities, including publications, educational activities, research grant and contract activities, professional service activities. These are evaluated by the Department Chairs in consultation with appropriate members of the Scientific Staff in each department. During a two-day meeting, chaired by the Executive Vice President, the Vice Presidents, the Equal Opportunity Officer, the Human Resources Manager, and the Department Chairs review all Scientific and Technical Staff performance and recommendations for the annual raise. The President-Director sits in for the discussion for the Scientific Staff. These recommendations are then forwarded to the President-Director for final approval. A synopsis of the feedback from these meetings is communicated to the Scientific Staff by the Department Chair when communicating the annual raise to each Scientific Staff member.

Faculty members also receive feedback on their teaching through evaluations of courses provided by students. Joint Program students complete course evaluations through MIT's course evaluation website during a two-week period at the end of each term. In order to increase the quantity and quality of the evaluations, the WHOI registrar encourages instructors to give students 10 minutes of class time to evaluate the course. Students and instructors are sent notification prior to the evaluation period and receive periodic reminders. Semester-At-WHOI students follow the same procedure as the Joint Program students but access their evaluations through the WHOI course evaluation website. Evaluations are collated and printed for reference in the Academic Programs Office, and the relevant evaluation is sent to each instructor with copies to the Education Coordinator for that discipline. This feedback on both course content and delivery, in concert with student performance in classes as well as, for JP students, performance in the general exams on material related to courses, are used to improve the program. Concerns related to different aspects of teaching and advising within each discipline of the MIT/WHOI Joint Program are discussed annually as part of the process that also reviews student progress.

Professional Development Opportunities

There are several internal financial awards made available to members of the Scientific and Technical Staff to facilitate the development of new ideas and research programs. The majority of internal grant opportunities available to WHOI researchers are listed on the Director of Research web page at http://www.whoi.edu/DoR/funding/internal-funding . They include:

* Independent Research and Development (IR&D)

* Independent Study Award
* Innovative Technology Program
* Interdisciplinary Awards
* Mary Sears Visitor Awards
* Ocean Institutes
* Access to the Sea
* Morss Colloquium Proposals
* Dalio Explore Fund
* Translational Research Funding Program
* Senior Scientist Chairs
* Senior Technical Staff Awards

There is also an internal award specific to education: the WHOI Doherty Chairs in Education (http://www.whoi.edu/page.do?pid=20455&tid=282&cid=37506). The award, approximately $75K/year, is funded through income from the Henry L. and Grace Doherty Professor of Oceanography fund, and is made to a tenured WHOI scientist who proposes a project to make a significant contribution to the WHOI education program.

A final very important source of internal funds, listed on the Director of Research web page, is the Investment in Science Program (ISP). It provides funding to members of the Institution's Scientific Staff when no other funding is available. A limited amount of ISP funding can be used for development of new ideas leading to future funding. Funding may be available for members of the Institution's Technical Staff, but it is not guaranteed and is not available on a long-term basis http://www.whoi.edu/DoR/investment-in-science-program .

Specific details on each of these opportunities will be made available in the Team Room.

WHOI has a stated position that encompasses both research independence and integrity. It is prominently located on WHOI's web site http://www.whoi.edu/main/research-independence-and-integrity.

Teaching and Advising

MIT/WHOI Joint Program classes are often taught over a videolink, allowing students to participate from either the MIT campus or WHOI. Classrooms are equipped with document cameras, smartboards, and projectors, all of which are used extensively by the instructors and maintained by on-site A/V technicians. Video-linked classes are recorded and the recordings are available for viewing through the MIT Stellar course management system by any students who have registered (for credit or as a listener) for the course.

During the first two years in the program, many students choose to live in the Cambridge area. A chartered bus runs from MIT to WHOI on Tuesday and Thursday mornings and returns from WHOI to MIT on Tuesday and Thursday evenings to allow students to participate in person. WHOI also offers transient housing for students living in the Cambridge area so they can attend classes taught at WHOI and/or work on research projects at WHOI during the week.

Participation in JP is not mandatory for MIT and WHOI staff members. The staff who choose to participate as JP faculty take on these tasks willingly and with genuine enthusiasm for the opportunity to interact with JP students. The effectiveness of teaching and advising is

monitored on a regular basis and by several means. First, by the annual reviews at which students are encouraged to express their opinions; of course private communication between students and JP faculty and with the WHOI Academic Programs Office and appropriate offices at MIT are also encouraged. Classroom teaching is also monitored by means of anonymous course evaluations that are conducted at the end of every semester. The summaries of these evaluations are public records, and are duly noted by the WHOI Academic Program Office (APO) and MIT senior staff. Quality of teaching is also a topic during exit interviews that are held with each JP student as s/he exits the program. When problems with teaching quality have become evident, affected faculty member(s) are required take some appropriate action toward improvement. One option now available for new instructors, and/or those with issues related to teaching quality, is to participate in training at the MIT Teaching and Learning Laboratory (TLL, see http://tll.mit.edu/). In serious enough cases where training is not successful, a request is made to the relevant Joint Committee to rotate the faculty member out of that teaching assignment.

Monitoring advising effectiveness is a much less objective process, since it involves an interaction between only two parties. The most candid feedback is acquired through exit interviews with departing JP students. The most variable quality of JP advisors appears to be the level of attention and research guidance. Some advisors are inclined toward fairly close, almost day-to-day supervision, while many other advisors take a much more hands-off approach that works well only with mature and independent students.

The expectations for both students and advisors are summarized on the web site under "Responsibilities" (http://mit.whoi.edu/responsibilities). When assigning advisors to incoming students, what is known about advisor tendencies and the probable needs of the incoming student are considered. The latter is, of course, very hard to evaluate and the deciding factor in assigning advisors is more often the matching of research interests with available resources including funding and time.

Students and advisors are encouraged to revisit documents outlining responsibilities annually (as part of the annual reviews carried out by each Joint Committee). Students are also provided with additional resources (described on the JP web site under current students, WHOI student resources http://mit.whoi.edu/services-resources?tid=1423&cid=187569). In addition to their advisor/research supervisor, students are encouraged to seek out advice from the Education Coordinator in their discipline, from members of the disciplinary Joint Committee, from members of their thesis committee (for post-generals students) or their pre-generals advisory committee, or from Academic Programs Office staff (including the Graduate Admissions and Student Affairs Officer, the Registrar/Graduate and Undergraduate Program Administrator, the Associate Dean, or the Dean). As MIT students, all MIT/WHOI JP students also have access to the resources of the MIT Office of the Dean of Graduate Education (ODGE), and the MIT Ombuds Office (http://ombud.mit.edu/).

Responsible conduct for research (RCR) workshops are held annually for JP students and postdoctoral researchers to supplement the on-line training they receive through the Collaborative Institutional Training Initiative (CITI) web site: https://www.citiprogram.org/ . The workshops cover a range of topics including those surrounding authorship and sharing of credit among research collaborators, plagiarism, and web page ethics.

Scholarship, Research, and Creative Activity

As described in the Appointments and Promotions Procedures Manual, WHOI faculty, largely Scientific Staff members, are regularly evaluated with the primary criteria being their scholarship, research, and creative activity: "The necessary criteria for promotion and appointment within the Scientific Staff are the performance of research of the highest quality and demonstrated impact on the field of choice. Evidence for this is sought in the publications and manuscripts which describe the research, and in the opinions of experts in the candidate's field of expertise. In making such judgments, creativity, innovativeness, originality and impact within the field of research are the important factors." The WHOI faculty, as well as the faculty of MIT, work within the MIT/WHOI Joint Program to train and develop the future leaders within oceanographic research. Students within the program are treated very much as scientific colleagues. As noted in the report of the 2014 External Review Committee "The academic training of the JP remains excellent. The best measure of the JP's success is the quality of the graduates, which is outstanding."

Appraisal

Faculty qualifications, numbers, and performance are all strengths of the Academic Programs at WHOI. As noted in the Appointment and Promotions Procedural Manual, WHOI Scientific Staff "are responsible for conceiving, prosecuting, interpreting, and funding the research programs and they constitute the faculty of the educational programs of the Institution. They thus determine the quality and success of the Institution. To preserve that caliber, appointments and promotions within the Scientific Staff must reflect the highest possible standards." In addition, faculty performance is reviewed annually and feedback on teaching is provided via course evaluations at the end of each semester.

A number of recommendations made by both the 2014 External Review of the MIT-WHOI JP and the 2015 External Department Visiting Committee pertain to the WHOI Scientific Staff/faculty. The 2014 External JP Review report recommended that faculty be encouraged to participate in mentoring programs, and that the JP provide support for faculty to improve their teaching skills. In response, the JP web site has been updated to provide information on student and faculty resources and responsibilities (e.g., http://mit.whoi.edu/faculty); annual mentoring sessions for students and faculty are planned for 2016; to improve teaching skills, an option now available for new instructors, and/or those with issues related to teaching quality, is to participate in training at the MIT Teaching and Learning Laboratory (TLL, see http://tll.mit.edu/).

The 2014 JP External Review report also brought up concerns about jointness with MIT. WHOI, in response, initiated a new program offering $20K to junior WHOI scientists to interact with a student and an MIT faculty member. So far, two WHOI scientists have taken advantage of this program, but there is enough budgeted to cover additional participation. WHOI has also recently emphasized the MIT/WHOI Joint Program in all faculty position advertisements.

Recommendations of the more recent 2015 External Visiting Committee included several recommendations that concern the Scientific Staff/faculty, including that it is essential to maintain the salary guarantee (ISP) for scientific staff. The new Director and the new Board Chair have made it clear that they support the scientific staff salary guarantee.

The formula for compensating scientists for teaching is based on hours per course unit taught. Thus, the highest paid scientists (Senior Scientists) cost more per credit hour than do

more junior scientists. For a number of reasons, teaching costs have grown much faster than income for the JP resulting in a significant Academic Programs Office budget deficit in 2013 and 2014. As a partial solution to a rising budget deficit, the Dean "capped" the amount paid per credit hour in Academic Year 2015/2016. The cap was set at a level to affect only Senior Scientists, with more junior scientists receiving compensation based on the standard formula. This was obviously not a popular decision, and the hope is that the cap can either be lifted or raised to a sufficiently high salary level to limit the impact on teaching compensation for Senior Scientists.

Another recommendation of the Visiting Committee was for WHOI to minimize imbalances of gender and diversity. Snapshots of data compiled for WHOI's Equal Employment Opportunity (EEO) – 1 Workforce Analysis Report Summary (submitted each year to the U.S. Equal Employment Opportunity Commission as a federal contract requirement) document that diversity at WHOI is low, but increasing slightly over time. The 2015 Report Summary (considering all employees, not just US Nationals) shows that for a total of 785 employees, ~8.2% are members of underrepresented groups (64 of 785: 7 Black, 31 Asian/Pacific Islander, 14 Hispanic, 0 American Indian/Alaskan Native, 6 Native Hawaiian, and 6 from two or more groups). For the Scientific Staff the diversity differs somewhat with ~14.1% from under-represented groups (14 Asian/Pacific Islander, 3 Hispanic, 3 Native Hawaiian, and 1 from two or more groups). Gender diversity among faculty is also an issue. In 2015,WHOI faculty consisted of 10 male and 7 female Assistant Scientists, 66 male and 16 female Associate Scientists (plus Technical Staff), and 51 male and 13 female Senior Scientists (Data First Form 5.1).

Of particular concern is the lack of diversity in current WHOI leadership positions (Susan Avery served as President and Director from 2008-2015, Susan Humphris was Chair of the Geology and Geophysics Department from 2004-2008, Judy McDowell was Chair of the Biology Department from 2006-2011, and Lauren Mullineaux is now Chair of the Biology Department). To address these concerns, the Staff Council is discussing gender diversity issues in relation to hiring and retention, and to increasing the number of women in WHOI leadership positions. WHOI has also contracted with an outside consultant to conduct a survey the WHOI "climate," including the climate for women employees and students.

Projection

WHOI will continue to respond to the reports of both the 2014 External JP Review Committee and the 2015 Department Visiting Committee. Recommendations still to consider from the Visiting Committee Report include a suggestion to focus Development efforts on student support and salary support for the Scientific and Technical Staff. The Director has scheduled a retreat for the end of March involving VPs, Department Chairs and others, and this as well as issues of diversity will be discussed as part of this retreat.

Institutional Effectiveness

The institution periodically evaluates the sufficiency of and support for the faculty and the effectiveness of the faculty in teaching and advising, scholarship, service, and as appropriate to institutional mission, research and creative activity. This evaluation is done as part of promotion activities and also as part of the annual merit review. The results of these evaluations are used to enhance fulfillment of the institution's mission.

Standard 5: Faculty
(Rank, Gender, and Salary, Fall Term)

?

		3 Years Prior (FY 2012)		2 Years Prior (FY 2013)		1 Year Prior (FY 2014)		Current Year* (FY 2015)		Next Year Forward (goal) (FY 2016)	
?		FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
Number of Faculty											
Professor	Male	51	5	51	4	50	4	46	5	47	3
	Female	11	1	10	2	9	3	11	2	11	2
Associate	Male	48	1	53	1	51	3	64	2	53	2
	Female	16	1	15	1	16	-	14	2	16	2
Assistant	Male	23	1	18	-	16	-	10	-	12	-
	Female	8	0	10	-	10	-	7	-	8	-
Instructor	Male										
	Female										
Other	Male										
	Female										
Total	Male	122	7	122	5	117	7	120	7	112	5
	Female	35	2	35	3	35	3	32	4	35	4
Total Faculty											
Professor		62	6	61	6	59	7	57	7	58	5
Associate		64	2	68	2	67	3	78	4	69	4
Assistant		31	1	28	-	26	-	17	-	20	-
Instructor		-	-	-	-	-	-	-	-	-	-
Other		-	-	-	-	-	-	-	-	-	-
Total		157	9	157	8	152	10	152	11	147	9

Salary for Academic Year		FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
Professor	Minimum	143	134	142	135	142	135	146	145	147	146
	Mean	167	163	170	160	167	159	171	169	175	173
Associate	Minimum	89	88	92	90	100	102	102	93	102	93
	Mean	117	94	117	96	0	115	0	111	123	113
Assistant	Minimum	86	88	86	n/a	86	n/a	90	n/a	92	n/a
	Mean	89	88	91	n/a	91	n/a	94	n/a	96	n/a
Instructor	Minimum										
	Mean										
Other	Minimum										
	Mean										

*"Current Year" refers to 2015.

Standard 5: Faculty
(Highest Degrees and Teaching Assignments, Fall Term)

	3 Years Prior (FY 2012)		2 Years Prior (FY 2013)		1 Year Prior (FY 2014)		Current Year* (FY 2015)		Next Year Forward (goal) (FY 2016)	
?	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
Highest Degree Earned: Doctorate										
Professor	62	6	61	6	59	7	57	7	58	5
Associate	64	2	68	2	67	3	68	4	69	4
Assistant	31	1	28	-	26	-	17	-	20	-
Instructor										
Other										
Total	157	9	157	8	152	10	142	11	147	9
Highest Degree Earned: Master's										
Professor										
Associate										
Assistant										
Instructor										
Other										
Total	-	-	-	-	-	-	-	-	-	-
Highest Degree Earned: Bachelor's										
Professor										
Associate										
Assistant										
Instructor										
Other										
Total	-	-	-	-	-	-	-	-	-	-
Highest Degree Earned: Professional License										
Professor										
Associate										
Assistant										
Instructor										
Other										
Total	-	-	-	-	-	-	-	-	-	-

?

Fall Teaching Load, in credit hours

Professor	Maximum	456	228	456	228	456	228	408	-	456	228
	Median	228	228	304	228	328	228	228	-	328	228
Associate	Maximum	506	256	378	-	253	253	608	228	253	253
	Median	200	256	228	-	152	253	189	228	152	253
Assistant	Maximum	228	0	253	-	253	-	228	-	253	-
	Median	114	0	228	-	228	-	228	-	228	-
Instructor	Maximum										
	Median										
Other	Maximum										
	Median										

Explanation of Teaching Load (if not measured in credit hours): Teaching load is in faculty hours, calculated as 38 hours times the number of course units (for a 12-unit class taught by a single instructor, 38x12=456).

*"Current Year" refers to 2015.

Standard 5: Faculty
(Appointments, Tenure, Departures, and Retirements, Full Academic Year)

	3 Years Prior (FY 2012)		2 Years Prior (FY 2013)		1 Year Prior (FY 2014)		Current Year* (FY 2015)		Next Year Forward (goal) (FY 2016)	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
# of Faculty Appointed										
Professor										
Associate	1		2				1			
Assistant			4		3				3	
Instructor										
Other										
Total	1	-	6	-	3	-	1	-	3	-
# of Faculty in Tenured Positions										
Professor	62	6	61	6	59	7	57	7	57	7
Associate	36	-	34	-	33	1	34	-	34	-
Assistant										
Instructor										
Other										
Total	98	6	95	6	92	8	91	7	91	7
# of Faculty Departing										
Professor			1						1	
Associate	2	1	1		1		5			
Assistant		1	1							
Instructor										
Other										
Total	2	2	3	-	1	-	5	-	1	-
# of Faculty Retiring										
Professor	1		4		3	1	3		3	
Associate					1		2		1	
Assistant										
Instructor										
Other										
Total	1	-	4	-	4	1	5	-	4	-

*"Current Year" refers to 2015.

Standard 5: Faculty
(Number of Faculty by Department or Comparable Unit, Fall Term)

	3 Years Prior (FY 2012)		2 Years Prior (FY 2013)		1 Year Prior (FY 2014)		Current Year* (FY 2015)		Next Year Forward (goal) (FY 2016)	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
Number of Faculty by Department (or comparable academic unit)										
Biology	29	4	28	4	25	4	23	5	22	5
Marine Chemistry & Geochemistry	26	2	27	2	27	2	22	2	21	2
Geology & Geophysics	38	-	37	1	38	1	38	1	38	1
Applied Ocean Physics & Eng.	27	2	30	-	29	1	27	1	26	1
Physical Oceanography	33	1	31	1	29	2	28	2	27	2
Marine Policy Center	4	-	4	-	4	-	4	-	4	-
Total	157	9	157	8	152	10	142	11	138	11

*"Current Year" refers to 2015.

STANDARD SIX – STUDENTS

Consistent with its mission, the Institution defines the characteristics of the students it seeks to serve and provides an environment that fosters the intellectual and personal development of its students. It recruits, admits, enrolls, and endeavors to ensure the success of its students, offering the resources and services that provide them the opportunity to achieve the goals of their program as specified in institutional publications. The Institution's interactions with students and prospective students are characterized by integrity.

Description

Applicants to the MIT/WHOI Joint Program come from widely varying backgrounds and throughout the world. Admission to the program is highly competitive, with most successful applicants having completed an undergraduate degree or equivalent in a basic science or engineering discipline. One issue facing all graduate oceanography programs is recruiting interested students from these basic science and engineering disciplines when they have had limited exposure to the field of oceanography. WHOI has and continues to address this issue through its non-degree, research experience undergraduate programs that serve as a means of introducing students to the field of oceanography. Goals of these programs are both to recruit into the MIT/WHOI Joint Program, but also to recruit into the overall field. WHOI views its undergraduate programs a success if the students go on to any national or international oceanography graduate program or career. Another issue facing all graduate oceanography programs, not just WHOI or the MIT/WHOI Joint Program, is recruiting and enrolling a diverse student body. To address this issue WHOI has been participating in and leading recent collaborations with other institutions to increase participation of underrepresented minority students in undergraduate and graduate ocean programs. Details on these efforts are provided in the Appraisal section below.

Applications for admission to the Semester At WHOI program and the Ocean Research Experience program are reviewed by the WHOI Dean. Admission is based on academic criteria including GPA, stated interest and letters of recommendation. Applications for Admission to the Summer Student Fellow program are reviewed by a committee consisting of the Summer Student Fellow Coordinator and a faculty member from each WHOI department. Admission is based on academic criteria including GPA, stated interest and letters of recommendation. The Dean also uses incentives to ensure consideration of members of underrepresented minorities as defined by the NSF.

Applications for admission to graduate study in the MIT-WHOI Joint Program are reviewed by faculty at both institutions and admission decisions are made jointly. At WHOI, the Admissions Advisory Committee, chaired by the Associate Dean, has the responsibility for evaluating all applicants to the graduate program, screening out the non-admissible applicants, being especially sensitive to cross-disciplinary applicants, and establishing a priority list according to quality of applicants considered admissible.

Criteria for admission include GRE scores, TOEFL scores, grade transcripts, research statements and letters of recommendation. Concerns about the number of offers of admission, specific advisor assignments, and discipline distribution are taken into consideration by the disciplinary joint committees later in the admission process. The Admissions Advisory

Committee provides an overview of the relative strengths and weaknesses of each applicant. It has helped to maintain consistent quality of entering graduate students throughout the program and has served as a guide in allocating financial resources. This cross-disciplinary evaluation provides assurances that students who are admitted to any part of the graduate program are generally acceptable throughout the program; this is especially important as the program attracts many applicants with cross-disciplinary interest. Final admissions decisions are made by each disciplinary Joint Committee with final approval by the Joint Program Committee. All admitted students are invited to an Open House held during March each year to view the facilities and meet the staff at both MIT and WHOI.

Retention and Graduation

Once a student is admitted to the Joint Program and accepts the offer of admission, s/he is assigned an advisor and an individual plan of study is developed that meets each student's needs. General requirements for each of the five program areas (Applied Ocean Sciences and Engineering, Biological Oceanography, Chemical Oceanography, Marine Geology and Geophysics, and Physical Oceanography) are detailed in the student handbooks. The Joint Committee associated with each focal area provides guidance as to the course of study for incoming students who have strong interests in that focal area and conducts annual reviews of the progress of each student.

Students with Interdisciplinary Interests - Many applicants have interests, academic background, and experience that are appropriate for one focal area and they will be admitted to pursue their degree in that area. It is also likely that some incoming students will have, or develop, interests that span two or more of these focal areas. These students will be admitted to the focal area that is most appropriate for their preparation and stated interests. This ensures that the student has a well defined 'home' within the Joint Program. During the first semester in the Joint Program, as early as practical, each student should assemble and meet with an academic advisory committee to discuss his or her research interests and formulate a tentative individual course of study. The structure of the advisory committee will be defined by the student's primary Joint Committee, but typically the advisory committee will consist of at least the student's primary research advisor (who may or may not be from the 'home' focal area) and a faculty member from the other institution. For those students whose research interests significantly overlap two or more Joint Committee focal areas this advisory committee should, at the request of the student and the principal advisor, include faculty from the related focal area(s) at one or both institutions. The individual course of study will lead to a general examination with a format and scope that are both generally consistent with the requirements of the primary focal area's Joint Committee and flexible enough to recognize the individualized aspects of the course of study. The course of study must be approved by the primary Joint Committee, preferably by the end of the first year. The format of the exam also must be determined by the primary Joint Committee, and will be set no later than early in the semester before the exam. It is expected that the advisory committee will guide the student up to and through the general exam, after which the oversight will move to the student's Ph.D. thesis committee, whose membership must be approved by the home Joint Committee. The home Joint Committee is responsible for monitoring the student's academic progress through the thesis defense.

Assessment of student learning is carried out throughout a student's time in the program through annual reviews, course grades, general exams, thesis proposal defenses/presentations,

and the thesis defense (see Table IV-1 in Standard Four for details). As part of this assessment, rates of retention and graduation are evaluated each year, and quantified every five years as part of the material compiled for periodic external reviews of the Joint Program. For students entering into the PhD program from 2005 through 2009, the percent retention was 76 (and by discipline was 61% (BO), 88% (CO), 80% (MG&G), 77% (AOSE), and 72% (PO)). The average time to PhD in recent years is 5.5 years. Funding within a sixth year is not guaranteed, but has been provided almost routinely following a formal request by the student and approval by the relevant Joint Committee. However, funding of JP students who are beginning a seventh full year in the program is discouraged, and students (and their advisors) who are in peril of a funding cutoff are given warning at least a semester in advance in a written memo from the relevant Joint Committee. Of course, possible extenuating circumstances, e.g., health or unavoidable technical/logistical problems that may have delayed degree completion, are also considered.

Student Services

A wide variety of resources are available to students. WHOI's Academic Programs Office includes a full-time Dean, part-time Associate Dean, a full-time registrar, full-time housing coordinator and a coordinator for undergraduate programs (Semester At WHOI and WHOI's Summer Student Fellow program). The program coordinator has training and experience in ocean science, and with education programs at the K-12 and undergraduate level. MIT/WHOI Joint Program graduate students have an even wider variety of resources including a full-time Graduate Admissions and Student Affairs Officer at WHOI and a full-time Joint Program Administrator at MIT, with information about all resources provided on the current students page of the MIT/WHOI JP web site. This includes information about academic, financial, and health resources, as well as information about student groups at WHOI and MIT.

Many and varied resources are available for students to draw upon should academic or personal problems arise. WHOI provides quarter-time financial support for an Education Coordinator within each discipline, the J. Seward Johnson Chairs in Oceanography. These Education Coordinators are appointed for three-year terms that may be renewed once with approval of the WHOI Dean. These Education Coordinators are Joint Committee members and provide continuity in the education program within each discipline; they also serve as experienced, on-call consultation resources for JP students. The Department Chairs (WHOI), Heads (MIT), WHOI Dean, WHOI Associate Dean, MIT JP Director and the JP support staff at WHOI and MIT are also available to JP students for consultation and advice on any subject affecting student life. Another excellent resource is the MIT Office of the Dean of Graduate Education. Senior Associate Dean Blanche Staton and Assistant Dean Jason McKnight are available to meet with students and provide graduate personal support (http://odge.mit.edu/development/gps/). Professional counseling and other mental health services are available at both institutions. Information about all of these resources is on the web page (http://mit.whoi.edu/current-students) under student resources.

If a Joint Committee determines that a JP student is struggling unduly with PhD degree requirements or if a student performs less than satisfactorily on a general examination, the student may then be directed toward an interim or possibly terminal master's (SM) degree. Research and writing of a project that could result in a SM thesis are usually completed fairly quickly, e.g. within a year. The Joint Committee will then decide whether the successful completion of this research and write-up warrants continuation towards a PhD degree or whether

the best course is to finish with an SM.

JP students have access to many extra-academic activities and opportunities for learning about the practice of science and science careers at both MIT and WHOI. This includes career information and career forums. The expectation has always been that most JP graduates will begin their professional careers as research scientists, either within the academic sector, or within a governmental or industrial research laboratory. This remains largely true today (with 62% of recent graduates employed at a research institution or university) but less so than in the past (pre 90s) because the outlook for tenure-track academic research positions in US universities has declined significantly since about the late 1980s (and this includes the ten original members of the Joint Oceanographic Institutions, Inc.). As a result, PhD graduates of the JP have necessarily considered and have taken career paths involving more than academic research. The second largest employment category for recent graduates is industry (19%), then government (10%).

Advising on possible career paths is now an essential part of mentoring within the JP and at the MIT Career Development center. Specific JP-related career panels and workshops are held at WHOI, and JP students also have access to frequent career events held at MIT. Recent WHOI-based JP-related events have included panels with JP alumni and others with WHOI Corporation and Trustee members on careers other than academia, and a similarly themed Science Café that the MIT/WHOI JP student Broader Impacts Group co-hosted, titled "A Versatile PhD: industry, education, policy, and consulting career paths after graduate school." Workshops have been held on such topics as "Dos and Don'ts of Academic Application" and "Writing a research and teaching statement." A panel discussion and reception, open only to JP students and postdoctoral researchers, has been held annually involving program managers from NSF, NASA and NOAA when they were visiting as part of the summer Ocean Carbon and Biogeochemistry workshop at WHOI. There has also been a private luncheon for Navy students with the Oceanographer of the Navy during the bi-annual Navy visit to MIT and WHOI.

One aspect of career development that differs within the MIT/WHOI Joint Program compared to many other graduate programs is that there are limited opportunities to be a teaching assistant (TA). If a student has an interest in being a TA, s/he is encouraged to make this known to the Academic Programs Office and to course instructors so that s/he may be considered (across all disciplines of the JP there are between two and six TA opportunities available in any semester). JP students who TA, and those who do not but wish to learn best teaching practices, have access to the MIT Teaching and Learning Laboratory (TLL, see http://tll.mit.edu/ which offers classes that are specifically designed to help improve the teaching skills of MIT doctoral students in preparation for academic careers. JP students interested in gaining teaching experience also have other opportunities. Each summer a not-for-credit math refresher course is given by upper level JP students to incoming JP students. Four to five JP students co-teach an informal three-week ocean science course for one hour per day to Ocean Research Experience Fellows (undergraduates) in January. The JP course 'Communicating Ocean Science' aims to provide theory and practice for science teaching at college or secondary school level. The course is open to JP students from all disciplines and is most suitable for post-general exam students. JP students and WHOI postdocs also participate as Science Fellows in an NSF-supported program entitled the National Network for Ocean Climate Change Interpretation (NNOCCI). This program trains approximately 100 interpreters from U.S. aquariums, science centers and zoos on ocean and climate change issues. The program includes eight science fellows per year selected by the WHOI Dean from JP students and WHOI postdocs. The fellows

provide scientific expertise for the interpreters and also receive training from an organization that advises non-profit organizations as to how to deliver complex science and medical information in a way that can be easily understood and retained by non-specialists.

The physical separation of the two JP institutions raises a number of challenges for JP students and efforts have been made to address these. Travel to and from MIT and WHOI is provided by a chartered bus on Tuesdays and Thursdays when classes are in session, and travel costs are reimbursed when the bus is not available. WHOI assigns accommodations in WHOI housing to any JP student who is based at MIT, so that s/he incurs no housing expenses when s/he needs to spend an overnight or longer in Woods Hole visiting co-advisers, committee members, etc. Similarly, MIT provides an apartment in Cambridge for JP students based at WHOI who wish to visit MIT faculty or participate in MIT events.

Several improvements to quality of student life were made in response to the 2009 External Review of the Joint Program. These include increased access to health and fitness services at WHOI. As MIT students, JP students have access to the MIT student health facility and most are covered by MIT health insurance (some have other health care options). However, it is very inconvenient for a JP student based at WHOI to travel to MIT when ill or with a minor injury (serious injury or serious illness is considered as emergency care with treatment covered by MIT insurance at the nearest location). A Health Reimbursement Account (HRA) is now available for WHOI-based students who are covered by the MIT Student Extended Insurance Plan. The HRA reimburses WHOI-based students for urgent or chronic care close to the WHOI campus without having to travel to MIT. WHOI's Academic Programs Office also now offers subsidized access to an exercise facility chosen by the JP students located on Main Street in Falmouth for WHOI-based JP students.

Concerns about WHOI-based students lacking access to student-life benefits available on the MIT Campus were brought to the attention of the MIT Office of the Dean of Graduate Education (ODGE) by WHOI-based JP students in 2012. In response, since 2013 ODGE is providing the MIT/WHOI JP Student Organization with funds to improve student life, hold social events, and increase professional development opportunities in Woods Hole.

Also at the request of the students there is now a student orientation at MIT prior to the beginning of fall semester in addition to the orientation held at WHOI in July. This orientation provides an opportunity for the JP students, who reside in five different MIT departments, to get to know one another and learn about JP resources on the MIT campus.

Orientations for incoming students describe the range of available student resources, and information is also easily accessible on the web site. In addition, e-mail notices go out to all JP students during the semester reminding them of the resources, a JP Newsletter is sent out approximately twice a month during the academic year that includes reminders of bus schedules, holidays/class schedule changes, and seminars at both WHOI and MIT, and the web site is periodically reviewed and updated to make sure that the information is current.

The JP web site also provides information about the many student organizations and opportunities for student leadership. MIT/WHOI JP students have their own WHOI Student Organization with eight student representatives (http://mit_whoi.scripts.mit.edu/)

The purpose of the MIT/WHOI Student Organization is to encourage interaction between MIT students and the Woods Hole community, and to enhance student life in the Massachusetts

Institute of Technology–Woods Hole Oceanographic Institution (MIT-WHOI) Joint Program. The MIT-WHOI Joint Program in Oceanography/Applied Ocean Science and Engineering is a joint venture between the two institutions to pursue excellence in oceanographic research and education. MIT students in this program are often based in Woods Hole, which is over 80 miles from Cambridge. Beyond creating a student community at WHOI, this group will help keep WHOI- based students in touch with each other and with those based at MIT.

Participation in national meetings and workshops is encouraged for all JP students by providing financial support for travel to scientific meetings, conferences, special courses (e.g. during summer at Friday Harbor or at the Marine Biological Laboratory), and to support student research in special circumstances. Students also have the opportunity to invite and host distinguished scholars. The Steinbach visiting scholar program (named after the first WHOI Dean of Graduate Studies, H. Burr Steinbach) brings distinguished scholars from a wide range of fields to WHOI during the summers for visits of three to four days. These visits give JP students an opportunity to meet with the Steinbach Scholars in an informal, relaxed atmosphere where a free exchange of ideas is promoted. The program is run by JP students who choose the Scholars and then host their visits.

Joint Program students also take the initiative to enhance their education and training opportunities. An example is the student *Broader Impacts Group (BIG)*. BIG organizes events that generally fall under the NSF category of Broader Impacts. One of the first BIG programs was the Synergy Project (see summary at http://coseenow.net/blog/2013/02/ocean-stories-a-synergy-of-art-and-science/). BIG projects are student organized and student led, although some financial resources are provided by both MIT and WHOI.

In recent years there has been increasing interest from many students in policy and leadership. Evidence of this is that, in the past five years, seven Joint Program alumni have been awarded and accepted Knauss Fellowships to work for a year in the Congress or the Executive Branch. One is currently serving on the staff of the Senate committee that has authorization authority for the largest federal agencies supporting ocean science including NSF and NOAA.

The Academic Programs Office Staff responsible for student services have both experience and training to address the needs of the students. The Graduate Admissions and Student Affairs Officer, Lea Fraser, has a Masters degree in Organizational Leadership, Strategic Leadership Track, from Quinnipiac University and before taking on this position was a Safety and Health Officer in the WHOI Environmental Health and Safety Office. The Registrar/Graduate & Undergraduate Program Administrator, Julia Westwater, has a BS in Human Services – Counseling Psychology and over 15 years of experience in Academic Programs. The APO and MIT office support staff often know the JP students well since they deal with them on a regular basis for all manner of logistical and administrative tasks. These support staff members are also often the first to learn when problems arise, and will steer students to the assistance they may need. JP students very often express their heartfelt appreciation for this support in the acknowledgments of their thesis.

WHOI has clearly stated ethical standards and policies on student rights and responsibilities. WHOI student resources can be easily accessed on the MIT/WHOI JP web site (http://mit.whoi.edu/services-resources?tid=1423&cid=187569). Additional resources and policies for all WHOI employees, including students, are easily accessed on the WHOI web site, including an A-Z listing of all policies (http://www.whoi.edu/HR/page.do?pid=21736).

Information about all of these resources is provided at the new student orientation, and as part of this orientation each entering JP class participates in a sexual harassment workshop. The workshop includes case studies, briefing on crew training, briefing from the EEO officer at WHOI, and a general discussion of issues. Given recent media attention to universities' responses to accusations of sexual harassment and assault, the WHOI Director asked WHOI Human Resources and its General Counsel to review WHOI's Title IX policies, conduct a survey looking at these issues, and bring forward any recommended corrective actions. The Academic Programs Office is participating in that review, analysis, and discussion. Additionally, Academic Programs and the Director of WHOI appointed a Title XI Coordinator independent of Human Resources who "reports to the President and Director, has primary responsibility for overseeing the Institution's Title IX efforts and will serve as a central resource on the wide range of issues addressed by Title IX and the Clery Act, including but not limited to sexual harassment, sexual violence, intimate partner violence, stalking, and gender-based discrimination." WHOI Academic Programs Office has recently consolidated several documents related to sexual harassment and assault on the Education website (http://www.whoi.edu/main/title-ix-information). MIT has also held recent meetings for those of us who oversee graduate programs to review and discuss MIT policy in this area and make sure it is well understood.

JP students also have access to resources at MIT, including the MIT Office of the Dean of Graduate Education (ODGE), and the MIT Ombuds Office (http://ombud.mit.edu/). There is no longer an Ombudsperson at WHOI. Instead, in addition to the Title IX Coordinator and the Equal Employment Opportunities (EEO) Officer, WHOI employs a whistleblower hotline service, EthicsPoint, to fulfill the need for students and employees to discuss concerns and issues (e.g., about misconduct or harassment) without fear of retaliation. As described on the WHOI webpage: http://www.whoi.edu/HR/page.do?pid=21736&cid=903&c=39&tid=3662#5:0

In situations where an individual prefers to place an anonymous report in confidence, they are encouraged to use the WHOI Ethics Hotline, hosted by a third party hotline provider, EthicsPoint. (WHOI Ethics Hotline: 866-868-0920. Website: www.whoi.ethicspoint.com).

The information provided through the WHOI Ethics Hotline noted above will be shared with the Institution's EEO Officer/Title IX Coordinator by EthicsPoint on a completely confidential and anonymous basis. Unless the individual allows differently, personal contact information will not be shared. Means of communication between individuals filing a report and the Institution's EEO Officer/Title IX Coordinator will be facilitated entirely through EthicsPoint. The WHOI Ethics Hotline noted above should not be used casually or inappropriately.

The Academic Programs has clear guidelines for what goes into a student's file, and what is retained after five years. Records that are retained after five years include application materials, check-in forms (with the SSN redacted), check-out forms, signed patent agreement, financial award notices, and appointment letters. For Postdoctoral Scholars/Fellows and undergraduate students, the sponsor's evaluations are also retained; in the case of graduate students, the student, advisor, and Joint Committee annual progress reports are kept. All material that is only pertinent to the time during which a student is enrolled is removed and shredded after five years (e.g., payroll memos, IRS Form I-9, documents that include a SSN, correspondence other than annual reviews or official memos from the Joint Committees or Dean).

Appraisal

The MIT/WHOI Joint Program (JP) in Oceanography and Applied Ocean Science and Engineering continues to attract extremely talented graduate students and WHOI continues to play a significant role in training the next generation of ocean scientists. Graduates are successful in finding employment dominantly at research institutions and universities but also at private companies or corporations, government agencies, and other academic institutions.

While the JP program continues to attract well-qualified students, it continues to have difficulties attracting well-qualified students from underrepresented groups. This is an issue that is not unique to WHOI, but is common to all national graduate programs in oceanography. To address this, WHOI has participated and led recent collaborations with other institutions to increase participation of underrepresented minority students in ocean programs as listed below:

1. WHOI is a participant in the Woods Hole Partnership Education Program. Since 2009, the Woods Hole Diversity Initiative (WHDI), consisting of the local NOAA-National Marine Fisheries Service (NMFS) laboratory, Marine Biological Laboratory, Woods Hole Research Center, Sea Education Association, U.S.G.S. laboratory and WHOI sponsors a summer course and internship program (Partnership Education Program or PEP) for 16 students from ethnic groups underrepresented in marine sciences. NOAA-NMFS is the lead agency and funder of PEP, and the other participating institutions contribute financial or in-kind support. The PEP students are invited to all the events WHOI sponsors for its own Research Experience for Undergraduates program, and five to six PEP students are generally hosted by WHOI scientists for their summer projects. In addition, WHOI provides instructors for the Physical and Chemical Oceanography components of the for-credit coursework taken by PEP students. The PEP students also participate in the Fellows' field experience on *R.V. Tioga*. WHOI supports up to two PEP alumni who wish to return to WHOI and participate in WHOI's Summer Fellow program.

2. For the past several years, WHOI has collaborated with the University Center for Atmospheric Research (UCAR) SOARS program for minority students. SOARS summer fellows start their summer experience at UCAR in Boulder, Colorado, often following their sophomore year and return to their program for multiple summers. Although the program is focused primarily on atmospheric processes, some of the students also have an interest in ocean science. WHOI now hosts one or more of the more advanced SOARS students who have ocean interests in our summer REU program. This also adds diversity to our summer programs, as most of the SOARS students, including the students hosted by WHOI, are from underrepresented minority groups.

3. WHOI's Dean formed *OceanOpportunities* to encourage underrepresented minority undergraduate students to consider graduate ocean science and engineering programs, as graduate degrees are essential for most careers in those fields. Using funds from a foundation grant, WHOI hosted a highly successful workshop in June 2012. The small workshop (26 attendees) brought together administrators who manage ocean science graduate programs with faculty and others involved in teaching STEM (science, technology, engineering and math) courses and advising STEM undergraduate students at minority-serving institutions and programs. The attendees included graduate program directors from major oceanographic institutions such as Scripps Institution of Oceanography (University of California, San Diego), University of Washington, Oregon State University, Texas A&M, and several smaller

institutions (University of Southern Mississippi and University of Maine). Workshop discussion topics included: (1) How to create a better understanding of ocean science/ocean engineering careers and the graduate programs that train students for these careers; (2) How to articulate the messages about ocean science/engineering graduate programs to make the field, and graduate work in the field, more attractive for underrepresented minorities; and (3) How to develop a strategy and plan to implement the recommendations of the workshop. The major recommendation of the workshop was to create a partnership between ocean science graduate programs and minority-serving institutions to identify, each year, national cohorts of underrepresented minority STEM students beginning early in their sophomore year. There are examples across many different fields demonstrating that various kinds of partnership approaches are an effective way to increase minority participation in graduate programs.

As a result of the workshop, WHOI formed *OceanOpportunities* with an institutionally neutral website (oceanopportunities.org), a small booth, and flyers to distribute from the booth at national and other meetings. The purpose of the organization is to interest undergraduate STEM students in the ocean sciences without promoting the program of any particular institution. The website and flyers point students to resources that they need to find and choose ocean science graduate programs and for writing fellowship proposals. The WHOI Dean also engaged an enthusiastic partner, Dr. Corey Garza from California State University, Monterey Bay. Garza implemented a *Facebook* page for O*ceanOpportunities*, and it gets daily "hits." Garza and Yoder hosted *OceanOpportunities* booths at the SACNAS (sacnas.org) annual meeting in fall, 2012 and at the winter ASLO meeting in January 2013. Yoder hosted the booth at the 2012 AGU meeting and presented a poster promoting the program.

OceanOpportunities initiated a program of regional visits to oceanographic institutions by undergraduate students from minority-serving institutions. It arranged for six minority undergrad STEM students from Dillard University and Xavier University (La.) to visit the Department of Marine Science, Univ. of South Florida in spring, 2013. One of these students was offered and accepted a summer internship at USF. It also arranged for nine undergraduate minority STEM students from Cal. State institutions to visit Scripps in spring, 2013, 2014 and 2015. Several of these students continued in summer REU programs at WHOI and elsewhere. In September, 2013, WHOI hosted ten Howard University undergraduate students (all were African Americans) and a Howard University faculty member for a 1.5 day visit. The students listened to science presentations by WHOI scientists, visited science labs, had lunch with MIT-WHOI JP graduate students and also visited the NOAA-NMFS lab in Woods Hole to learn more about fisheries science. Two of the students returned to WHOI's REU program in summer, 2014.

Corey Garza and one of his students hosted an *OceanOpportunities* booth at the SACNAS (sacnas.org) annual meeting in fall, 2013 and fall, 2014. Garza and Yoder hosted the *OceanOpportunities* booth at the biannual Ocean Sciences meeting in February, 2014. During the meeting, Yoder hosted a luncheon for ten Ocean Science Deans and Associate Deans to discuss efforts to recruit underrepresented minority students into ocean science graduate programs. During the Ocean Sciences meeting, *OceanOpportunities* recruited two students: one to attend the WHOI summer fellow program and the other to attend the summer research program at Monterey State University. Both Garza and Yoder attended the SACNAS meeting in Washington, D.C. in November, 2015.

4. Yoder was recently made Chair of the Consortium for Ocean Leadership (D.C. based group representing ocean sciences) Task Team to increase minority representation in the ocean sciences. The charge to this group is to develop an implementation plan built on successful models to increase the applicant pool of underrepresented minorities to ocean science graduate and postdoc programs, as well as a strategy to retain these students in our programs. This Task Team is charged with choosing an approach that has proved successful in ocean science or other scientific fields and then developing a strategy for Ocean Leadership based on the principle of inter-institution cooperation for recruitment and retention. The Task Team will describe the elements of a successful program for recruitment and retention and recommend possibilities to financially support the program and its activities.

The efforts described above are all focused on increasing diversity within ocean sciences in general, and within all U.S. oceanography graduate programs. Current diversity within the MIT/WHOI JP graduate student population mirrors that of other graduate oceanography programs. In the JP there were slightly greater numbers of female vs. male students enrolled from 2009 through 2014 (55% to 61%), but low numbers of underrepresented minorities enrolled even when including Asian-Americans as minorities (for the past year 31.3% for Summer Student Fellows, 17.2% for JP students and 14.3% for postdocs; Table VI-1).

Table VI-1. WHOI Academic Programs Diversity Data (1st six columns = U.S. citizens), October* 2015

	Native Amer.	Asian/ Pac.Isl.	Black	Hisp-anic	Two or more	White	Inter-national	Total	M	F
Post Docs		1	2	4	1	22	26	56	28	28
JP Students		13	2	6		74	27	122	57	65
SSF		2	1	2	5	15	7	32	14	18

*Data for Summer Student Fellows (SSF) are from July 2015

There is lower gender diversity within AOSE, with lower percentages of female students enrolled from 2009 through 2014 (32- 44%). As with many other oceanography programs, and as commented on during annual reviews by some of the JP students, for all disciplines the diversity within the faculty, particularly at senior levels, is considerably less (see Standard 5, p. 56).

WHOI and MIT have, since 2011, implemented recommendations of the JP Strategic Plan, including creating an engaging and effective JP web site, and taking steps to facilitate interdisciplinary science. Efforts have been made to maintain and enhance the quality of student life within the JP at both WHOI and MIT. WHOI and MIT have also begun to respond to recommendations of the 2014 JP external review. For example greater risks were taken in admitting students in 2015, resulting in a class of 25 students as compared to 14 in 2014.

Projection

WHOI will continue to play a leadership role in efforts to increase the diversity of STEM students interested in pursuing careers in ocean sciences.

WHOI will continue to support opportunities for undergraduates to conduct research and receive training in the ocean sciences and engineering including the summer fellows program, Partnership Education Program (PEP), Ocean Research Experience (ORE) program and the Semester At WHOI (SAW) program.

The Academic Programs Office will continue to work with Human Resources and WHOI's General Counsel to review WHOI's Title IX policies. The Title IX Coordinator

attended a week-long Title IX Coordinator and Administrator Training and Certification Course given by the Association of Title IX Administrators (atIXa) in January 2016. WHOI has contracted with an outside consultant to conduct a survey of employees and students on the WHOI "climate", including the climate for women employees and students. The survey will be distributed in July 2016, and results will be used to identify issues and corrective actions.

WHOI and MIT will continue to respond to the recommendations made by the 2014 review of the JP. Mentoring workshops will be carried out for students in early 2016. Content related to interdisciplinary topics will be solicited to develop content for the JP web site. Efforts again will be made to ensure a healthy class size (~ 20) during 2016 admissions. Efforts to maintain and increase jointness between WHOI and MIT will continue. The Academic Programs Office will continue to suggest that fellowships for graduate students be a priority for development efforts. Every external review of the JP makes this recommendation, and the recent 2014 review was no exception.

Institutional Effectiveness

Through a program of regular and systematic evaluation, including internal annual evaluations and an external review every five years, WHOI assesses its effectiveness in admitting and retaining students and the appropriateness and effectiveness of its student services to advance Institutional purposes. Information obtained through these evaluations is used to revise these goals and services and improve their achievement.

Standard 6: Students
(Admissions, Fall Term)

?

Credit Seeking Students Only - Including Continuing Education

		3 Years Prior (FY 2012)	2 Years Prior (FY 2013)	1 Year Prior (FY 2014)	Current Year* (FY 2015)	Next Year Forward (goal) (FY 2016)
Freshmen - Undergraduate	?					
Completed Applications	?					
Applications Accepted	?					
Applicants Enrolled	?					
% Accepted of Applied		-	-	-	-	-
% Enrolled of Accepted		-	-	-	-	-
Percent Change Year over Year						
Completed Applications		-	-	-	-	-
Applications Accepted		-	-	-	-	-
Applicants Enrolled		-	-	-	-	-
Average of Statistical Indicator of Aptitude of Enrollees: (Define Below)	?					
Transfers - Undergraduate	?					
Completed Applications						
Applications Accepted						
Applications Enrolled						
% Accepted of Applied		-	-	-	-	-
% Enrolled of Accepted		-	-	-	-	-
Master's Degree	?					
Completed Applications		5	5	10	6	2
Applications Accepted		2	2	2	2	1
Applications Enrolled		2	2	1	2	1
% Accepted of Applied		40.0%	40.0%	20.0%	33.3%	50.0%
% Enrolled of Accepted		100.0%	100.0%	50.0%	100.0%	100.0%
First Professional Degree - All Programs	?					
Completed Applications						
Applications Accepted						
Applications Enrolled						
% Accepted of Applied		-	-	-	-	-
% Enrolled of Accepted		-	-	-	-	-
Doctoral Degree	?					
Completed Applications		333	291	283	228	255
Applications Accepted		36	39	27	35	30
Applications Enrolled		18	27	13	23	20
% Accepted of Applied		10.8%	13.4%	9.5%	15.4%	11.8%
% Enrolled of Accepted		50.0%	69.2%	48.1%	65.7%	66.7%

*"Current Year" refers to 2015.

Standard 6: Students
(Enrollment, Fall Census Date)

?

Credit-Seeking Students Only - Including Continuing Education

		3 Years Prior (FY 2012)	2 Years Prior (FY 2013)	1 Year Prior (FY 2014)	Current Year* (FY 2015)	Next Year Forward (goal) (FY 2016)
UNDERGRADUATE						
First Year	Full-Time Headcount					
	Part-Time Headcount					
	Total Headcount	-	-	-	-	-
	Total FTE					
Second Year	Full-Time Headcount					
	Part-Time Headcount					
	Total Headcount	-	-	-	-	-
	Total FTE					
Third Year	Full-Time Headcount					
	Part-Time Headcount					
	Total Headcount	-	-	-	-	-
	Total FTE					
Fourth Year	Full-Time Headcount					
	Part-Time Headcount					
	Total Headcount	-	-	-	-	-
	Total FTE					
Unclassified	Full-Time Headcount					
	Part-Time Headcount					
	Total Headcount	-	-	-	-	-
	Total FTE					
Total Undergraduate Students						
	Full-Time Headcount	-	-	-	-	-
	Part-Time Headcount	-	-	-	-	-
	Total Headcount	-	-	-	-	-
	Total FTE	-	-	-	-	-
% Change FTE Undergraduate		na	-	-	-	-
GRADUATE						
	Full-Time Headcount	125	126	122	122	107
	Part-Time Headcount					
	Total Headcount	125	126	122	122	107
	Total FTE	125.0	126.0	122.0	122.0	107.0
% Change FTE Graduate		na	0.8%	-3.2%	0.0%	-12.3%
GRAND TOTAL						
Grand Total Headcount		125	126	122	122	107
Grand Total FTE		125.0	126.0	122.0	122.0	107.0
% Change Grand Total FTE		na	0.8%	-3.2%	0.0%	-12.3%

*"Current Year" refers to 2015.

Standard 6: Students
(Financial Aid, Debt, and Developmental Courses)

? Where does the institution describe the students it seeks to serve?

http://mit.whoi.edu/apply
http://www.whoi.edu/main/undergraduate-programs

	3 Years Prior	2 Years Prior	Most Recently Completed Year	Current Budget***	Next Year Forward (goal)
	(FY 2012)	(FY 2013)	(FY 2014)	(FY 2015)	(FY 2016)
? Student Financial Aid					
Total Federal Aid					
Grants					
Loans					
Work Study					
Total State Aid					
Total Institutional Aid					
Grants					
Loans					
Total Private Aid					
Grants					
Loans					
Student Debt					
Percent of students graduating with debt*					
Undergraduates					
Graduates					
For students with debt:					
Average amount of debt for students leaving the institution with a degree					
Undergraduates					
Graduates					
Average amount of debt for students leaving the institution without a degree					
Undergraduates					
Graduate Students					
Percent of First-year students in Developmental Courses**					
English as a Second/Other Language					
English (reading, writing, communication skills)					
Math					
Other					

Three-year Cohort Default Rate	(FY 2012)	(FY 2013)	(FY 2014)
Most recent three years			

* All students who graduated should be included in this calculation.

**Courses for which no credit toward a degree is granted.

***"Current Budget" refers to 2015

STANDARD SEVEN – LIBRARY AND OTHER INFORMATION RESOURCES

The Institution provides sufficient and appropriate library and information resources. The Institution provides adequate access to these resources and demonstrates their effectiveness in fulfilling its mission. The Institution provides instructional and information technology sufficient to support its teaching and learning environment.

Description

Resources and Access

For over a century, the MBLWHOI Library has been the intellectual heart of the Woods Hole scientific community. It is a critical scientific resource that is one of the major underpinnings of all educational programs in Woods Hole. The Library is operated jointly by the Marine Biological Laboratory (MBL) and the Woods Hole Oceanographic Institution (WHOI) and provides services to three affiliate organizations, the United States Geological Survey (USGS) Woods Hole Coastal and Marine Science Center, the Sea Education Association (SEA), and the Woods Hole Research Center (WHRC).

The MBLWHOI Library is funded by separate allocations from WHOI, MBL, and the affiliate organizations. This combined effort, coupled with consortial arrangements with other library networks, allows the MBLWHOI Library to provide access to a distributed user population in a cost-effective manner. The Marine Biological Laboratory (MBL) and the Woods Hole Oceanographic Institution (WHOI) maintain a partnership in the day-to-day operation of the Library. In June 2015 the MBL stopped financial support for journal and database subscriptions. WHOI has assumed these expenses and now manages the income from the affiliate organizations. The MBL is currently supporting other services such as Inter-Library Loan (ILL), memberships, service contracts for the Online Public Access Catalog (OPAC), and continues to employ staff.

In addition to serving MBL and WHOI students and scientists, the staff and resources of the MBLWHOI Library are utilized by research and education programs including the MIT-WHOI Joint Program, the Sea Education Association, the Woods Hole Research Center, the NOAA Fisheries Service Woods Hole Laboratory, and the United States Geological Survey Woods Hole Coastal and Marine Science Center. The Library also supports a unique summer population of visiting researchers and students from more than 200 institutions worldwide.

Library facilities include the Main Library that occupies 24,044 sq. ft. in the Lillie Building on the MBL Campus in the village of Woods Hole, and 7661 sq ft at the Library Service Center at Falmouth Technology Park, owned by MBL. This space contains the majority of the monograph collection, WHOI bottom profiles and historical instruments, as well as lesser used serials. Library staff retrieve material as needed by researchers. The WHOI library space on the Quissett Campus includes 5,783 sq. ft. in the McLean building [Data Library and Archives (DLA)]. There are also small reading rooms in WHOI's Clark and Smith buildings and on the ships. The library staff maintain the ships' collections and purchase new books four times per year.

The Library's presence as a portal to trusted information continues to evolve as more interactive services are implemented. In 2004 WHOAS (the Woods Hole Open Access Server) was created. WHOAS is an Institutional Repository (IR) where intellectual/scholarly output of

Woods Hole scientists is stored. The Library was an early adopter of IRs, and assigning DOIs to text and then data. The Library was also involved at an early stage in the development of data publication standards and continues to participate at an international level. Through a collaboration with the Scientific Committee on Oceanic Research and the International Oceanographic Data and Information Exchange came the Ocean Data Publication Cookbook (www.iode.org/mg64). The Library remains on the cutting edge, participating in NSF-funded EarthCube grants, applying semantic technologies to enable knowledge discovery, sharing and integration with Linked Open Data. As of June 1, 2015 there are 7007 items in the repository, including 901 theses.

The MBLWHOI Library has two Co-Directors. Lisa Raymond supervises Library services at WHOI and works with the MBL Co-Director, Diane Rielinger, on overall management of the MBLWHOI Library. Lisa's research focuses on data publication and citation. She reports to the Vice President for Academic Programs and Dean at WHOI. WHOI-based Library staff also include Scott Francis (replacing Ellen Levy in February 2016), the systems/metadata librarian who maintains the library's main software systems including the online catalog and the journals A-Z list, their displays on the library website and mobile applications; Ann Devenish, Publication Services who helps with borrowing materials from a worldwide network of libraries, provides guidance on copyright, open access and persistent identifiers, manages the institutional repository for the Woods Hole scientific community (WHOAS) and some specialty bibliographies, and provides Library orientations to students, faculty and staff; Audrey Mickle, Data Librarian who assists with organizing, managing, and sharing of research data, and has experience in graphic design, web design, and content management system development, including Drupal and Wordpress; and Dave Sherman, the Institution Archivist who is responsible for WHOI's archives and manuscript collections, including the photograph, oral history and historical instrument collections. The MBLWHOI Library is also supported by four additional library staff at MBL: Jennifer Walton, Coordinator of Library Services who assists with issues of library access including access cards and desk/office rentals, and arranges tours of the Library at MBL and instructional presentations; Matthew Person, Technical Services Coordinator who manages the electronic resources including the journal licenses; John Furfey, Senior Automation Services Officer who is the contact for questions or issues regarding remote access to electronic resources and the content of the Library's website, offers support for citation and bibliographic management and operates the systems tracking the research output of the Woods Hole scientific community; and Nancy Stafford, Resource Sharing/Cataloging Librarian who manages the resource sharing systems and provides materials from the MBLWHOI Library to libraries all over the world, and catalogs new books and technical reports for both library locations.

The MBLWHOI Library contains one of the world's most complete collections of biological, ecological and oceanographic literature and is the standard against which others measure the comprehensiveness of their marine science collections. The Library is a member of the Boston Library Consortium (BLC). MBLWHOI Library Co-Director, Lisa Raymond serves on the Board of Directors, and all library staff participate in working groups and communities of interest. In addition to resource sharing, this consortium is active in special collections and digitization projects, as well as training. The Library is also a member of the Eastern Academic Scholars Trust, a BLC managed collaboration among 44 academic libraries to define and manage retention agreements. The continued rising costs of research material puts pressure on all

libraries. At WHOI, the need to do world-class science is balanced with the small size of our organization. Participation in consortia and the growth and availability of digital resources are an important element in WHOI's continued success.

The Library is also a founding member of the Biodiversity Heritage Library (BHL) global collaboration and, as one of the first to begin scanning materials, one of the largest contributors. Thousands of out of copyright volumes are now available online. The Library's uBio tools were used to provide access via taxonomic name. The Library also scanned thousands of oceanography publications that are available through the Internet Archive (IA). Library catalog records contain links to material that the Library contributed to both BHL and IA. The Digital Public Library of America also harvests data from these repositories.

WHOI Data Library & Archives (DLA)

The Institution Archives is part of the jointly operated MBLWHOI Library. As private archives, its direct mission is to document, preserve, and make accessible the history of the Woods Hole Oceanographic Institution in support of administration, teaching, research and service in the Woods Hole scientific community. The WHOI Archives holds a diverse collection of administrative records, photographs, scientists' personal papers, film and video, historical instruments, ship logbooks, diaries, books, blueprints and oral histories, as well as WHOI publications, atlases and technical reports. The Library participates in the Simmons College Library and Information Science (MS) intern program. The Archivist has supervised seven students over the last five years. Holdings in the DLA range from historical oceanographic materials and data, to books and reports, including:

- Archives of the Woods Hole Oceanographic Institution
- Oral History Collection
- Historical photographs and oceanographic instruments
- Scientific data, including underwater imaging from the Alvin submarine, navigational data, seismic profiling, and echo sounding records from WHOI research vessel expeditions
- Technical report collections including WHOI Technical Reports, Memoranda, and MIT-WHOI Joint program theses. The DLA also collects marine science related technical reports produced by other government agencies and research institutions
- Maps, nautical charts, geologic and bathymetric maps, and cruise tracks

The DLA continues to work with the NSF-funded Rolling Deck to Repository project to provide optimal access to the University-National Oceanographic Laboratory System cruise data and to securely transmit data to the national data archives. Data are prepared quarterly and transferred to the repository along with the cruise metadata. A searchable Drupal database of WHOI's data holdings went online in 2011 on our Library website and the database has been continuously updated as new data come in. The Library is collaborating with the Deep Submergence Facility data manager, Scott McCue, to copy Jason data from DVD to a hard drive in an effort to protect the data against degradation and to make it more accessible. The Library Co-Director is an active member of the WHOI Ocean Informatics Working Group, which works to educate and assist researchers with data management resources, tools, and planning.

The Library continues to contribute to WHOI ImageSource, a web based image management system designed to index, organize and make accessible the Institution's visual resources, which includes still photography, illustrations and video. The goal of the project is to consolidate the bulk of the estimated four million images stored in various locations around the Institution; to date, more than 346,000 images have been added. The images document the scientific work conducted at WHOI, as well as other aspects of the Institution's history, and include photographs of scientists and staff, underwater photography, various projects, buildings and Institution facilities, and other events. Work on the project is completed by library volunteers, who scan archival photographs and add metadata to the images for retrieval and access. The Data Library and Archives has contributed nearly 36,000 images to the system. The metadata schema is based on current standards, in particular Dublin Core, and includes location and depth data for the underwater photographs. The data are stored in Oracle and the software interface is designed by iBase Media Services. The full database is available to all WHOI affiliates and a subset of the database is available to the public. The URL is http://www.whoi.edu/main/imagesource .

The MBLWHOI Library is internationally recognized as defining current trends and practices in marine information sciences. Web-based services empower each student and scientist to locate and access content 24 hours per day/7 days per week. The Library continues to build one of the most unique print and electronic literature collections in the biological, biomedical, ecological, and oceanographic sciences by leveraging print collections and investing in digital content (see Data First Form Table 7.1, Collections).

The Main Library that provides access to the main collection of journals and books has a simple security system that requires a programmed Library Access Card, which can be swiped through a card reader for entry after hours and on weekends. Lillie Library hours are 8 am to 5 pm on weekdays, and after-hours use is Monday-Friday 7 am to 8 am and 5pm to 11 pm, and weekends 7 am to 11 pm. Rare books and special collections are secured elsewhere by triple lock entry with separate alarm systems. Films, tapes and videos in the DLA are secured in climate controlled vaults. Classified documents are stored in a secure, air-conditioned vault with only limited, supervised access to those with appropriate security clearance.

Incoming students and post-doctoral investigators are provided information about library and technology resources at WHOI (Summer Student Fellows, Ocean Research Experience Fellows, Semester-At-WHOI students) or at both WHOI and MIT (MIT/WHOI Joint Program graduate students) as part of student orientations. In addition, the library web site http://www.mblwhoilibrary.org/ has in depth information, including an Ask the Librarian link, and over 30 library instruction sessions are provided annually (Table 7.1).

Information and Technological Literacy

Research is a major component of all WHOI student activities, with graduate students working on masters and PhD theses, and research being a major component of all undergraduate programs. Student research projects require use of information resources and technology both during the research process and in the writing of reports, theses, and manuscripts to be submitted for publication. For MIT/WHOI Joint Program graduate students, as outlined in the disciplinary handbooks, demonstration of increasingly sophisticated skills in evaluating the quality of information sources is an integral part of their education.

Appraisal

On an annual basis the Library makes efforts to serve the faculty, staff, and students of the institutions it serves, and to continue to update its resources and technology. Highlights of library services for 2015 include:

* Monthly lunch-time talks open to students and the Woods Hole scientific community on an array of subjects such as library resources, copyright, data management planning, bibliometrics and altmetrics.

* Implementation of Elements, a research information management tool, to replace **BibApp**. The new software has more functionality and will enable superior reporting on bibliometrics.

* Participation in GeoLink, an NSF-funded EarthCube Building Block. The Library component will result in a tool for DSpace IR's to create resolvable linked open data representation of resources. The tools developed will be made freely available to the community of users. There are 257 registered DSpace repositories in the United States and over 1700 worldwide.

* Implementation of Data Management Planning Tool

* Became a founding member of Eastern Academic Scholars Trust (EAST), a collaboration among 44 academic libraries to define and manage retention agreements for infrequently used scholarly publications.

* The Library is in the midst of an in-depth review of the paper journal collection to determine appropriate holdings and shared resources, as well as new opportunities for space utilization to convene science.

A major challenge for the MBLWHOI Library has and continues to be the high cost of electronic subscriptions. Exacerbating this challenge is a recent change in the governance of the MBL. On July 1, 2013 the MBL formed an affiliation with the University of Chicago. Over the last two years MBL has been restructuring and seeking ways to reduce its budget, including the decision in 2015 to no longer participate in any library subscriptions. In the last year some MBL researchers became adjunct at the University of Chicago, giving them access to the University library. While some people may use the electronic resources, most still rely on the MBLWHOI Library for access and we provide bibliometric, ILL and other services to MBL researchers, students and administration.

Projection

WHOI made the commitment to provide the financial resources needed to maintain all current subscriptions for 2016. The budget is supplemented by income from USGS, SEA and WHRC.

WHOI has supported capital budget requests for servers and new software to enhance services.

The Institution supports Library staff participation in professional development activities through various organizations including the Boston Library Consortium.

In 2016 WHOI needs to implement a new MOU with MBL and the other Library partners describing how the Library will be financed and governed in the future.

Institutional Effectiveness

The Library regularly re-evaluates its strategic plan to focus on the current research areas of students and staff as well new trends in information services. The Library conducts surveys of students and researchers regarding electronic resources and has worked with scientists appointed by departments to assess resources and services. The Library Director regularly reviews Standards for Libraries in Higher Education from the Association of College and Research Libraries and, while the Library does not have traditional information literacy programs, it meets other outcomes. The Library also maintains the topped ranked journals in the areas of Oceanography and Marine and Fresh Water Biology.

Standard 7: Library and Other Information Resources
(Library)

	3 Years Prior	2 Years Prior	Most Recently Completed Year	Current Year* (actual or projection)	? Next Year Forward (goal)
	(FY 2012)	(FY 2013)	(FY 2014)	(FY 2015)	(FY 2016)
Expenditures/FTE student					
Materials	$ 602,800	$ 630,686	$ 649,246	$ 660,005	$ 1,102,595
Salaries & Wages	$ 491,530	$ 440,251	$ 448,379	$ 496,644	$ 511,644
Other operating	$ 317,600	$ 77,537	$ 68,612	$ 95,068	$ 145,000
Collections					
Total print volumes	94,793	94,871	94,995	95,082	95,300
Electronic books	4,305	4,306	4,306	4,306	4,306
Print/microform serial subscriptions	76	50	37	37	37
Full text electronic journals	1,064	783	769	764	764
Microforms	299	299	299	299	299
Total media materials	100,461	96,032	96,129	100,488	100,706
Personnel (FTE)					
Librarians -- main campus	11.75(5.75)	10(5)	10(5)	10(5)	10(5)
Librarians -- branch campuses					
Other library personnel -- main campus	8.5	1.5	0.0	0.0	0.0
Other library personnel -- branch campus					
Library Instruction					
? Total sessions -- main campus	36	38	34	35	35
Total attendance - main campus					
Total sessions -- branch campuses					
Total attendance -- branch campuses					
Reference and Reserves					
? In-person reference questions	NA				
? Virtual reference questions	NA				
Traditional Reserves:					
courses supported	0	4	3	2	3
items on reserve	0	23	4	5	4
E-Reserves:					
? courses supported					
? items on e-reserve					
Circulation (do not include reserves)					
? Total/FTE student					
? Total full-text article requests	263725	234270	246791		
Number of hits to library website	124896	85093	61822	50000	45000
Student borrowing through consortia or contracts	1039	801	870	850	850
Availability/attendance					
? Hours of operation/week main campus	40	40	40	40	40
Hours of operation/week branch campuses					
Gate counts/year -- main campus	NA				
? Gate counts/year -- average branch campuses					

URL of most recent library annual report:	http://hdl.handle.net/1912/7313
URL of Information Literacy Reports:	NA

*"Current Year" refers to 2015.

Standard 7: Library and Other Information Resources
(Information Technology)

	3 Years Prior	2 Years Prior	Most Recently Completed Year	Current Year* (actual or projection)	? Next Year Forward (goal)
	(FY 2012)	(FY 2013)	(FY 2014)	(FY 2015)	(FY 2016)
Number (percent) of students with own computers	100%	100%	100%	100%	100%
? **Course management system**	Stellar				
Number of classes using the system					
Classes on the main campus	17	13	21	21	21
Classes offered off-campus					
Distance education courses					
Bandwidth					
On-campus network	1 Gigabit	1 Gigabit	10 and 1 Gb	10 and 1 Gb	10 and 1 Gb
Off-campus access					
? commodity internet (Mbps)	200 Mbps	200 Mbps	400 Mbps	400 Mbps	400 Mbps
? high-performance networks (Mbps)	1 Gbps	1 Gbps	1 Gbps	2 Gbps	4 Gbps
? Wireless protocol(s)	WPA2	WPA2	WPA2	WPA2	WPA2
Network					
Percent of residence halls connected to network					
wired	90%	90%	90%	90%	90%
wireless	100%	100%	100%	100%	100%
Percent of classrooms connected to network					
wired	100%	100%	100%	100%	100%
wireless	100%	100%	100%	100%	100%
Public wireless ports	100%	100%	100%	100%	100%
Multimedia classrooms (percent)					
Main campus	100%	100%	100%	100%	100%
Branches and locations	N/A	N/A	N/A	N/A	N/A
IT Personnel (FTE)					
Main campus	31.0	31.0	31.0	33.0	33.0
Branch campuses	N/A	N/A	N/A	N/A	N/A
Dedicated to distance learning	0.0	0.0	0.0	0.0	0.0

Software systems and versions	
Students	Microsoft Access database
Finances	One Solution, Cognos
Human Resources	One Solution
Advancement	The Raiser's Edge v7.93
Library	Integrated Library System (ILS) is ExLibris Voyager 9.1
Website Management	In house developed CMS, Wordpress, Drupal
Portfolio Management	Proprietary software at Cambridge Associates and State street Bank
Interactive Video Conferencing	Tandberg System
Digital Object Management	D Space v 4.3

*"Current Year" refers to 2015.

STANDARD EIGHT – PHYSICAL AND TECHNOLOGICAL RESOURCES

The institution has sufficient and appropriate physical and technological resources necessary for the achievement of its purposes. It manages and maintains these resources in a manner to sustain and enhance the realization of institutional purposes.

Description

Shore-Based Facilities

The Institution's shore-based facilities encompass 218 acres of land and 60 buildings and laboratories with a total gross square footage of 875,000. There are two campus locations within the village of Woods Hole in the Town of Falmouth, Massachusetts (Figure VIII-1). The first is the original campus location in Woods Hole on the waterfront, commonly called the Village Campus. The second location is the newer, nearby Quissett Campus, initially developed in the early 1970s to provide additional laboratory and classroom/conference room space.

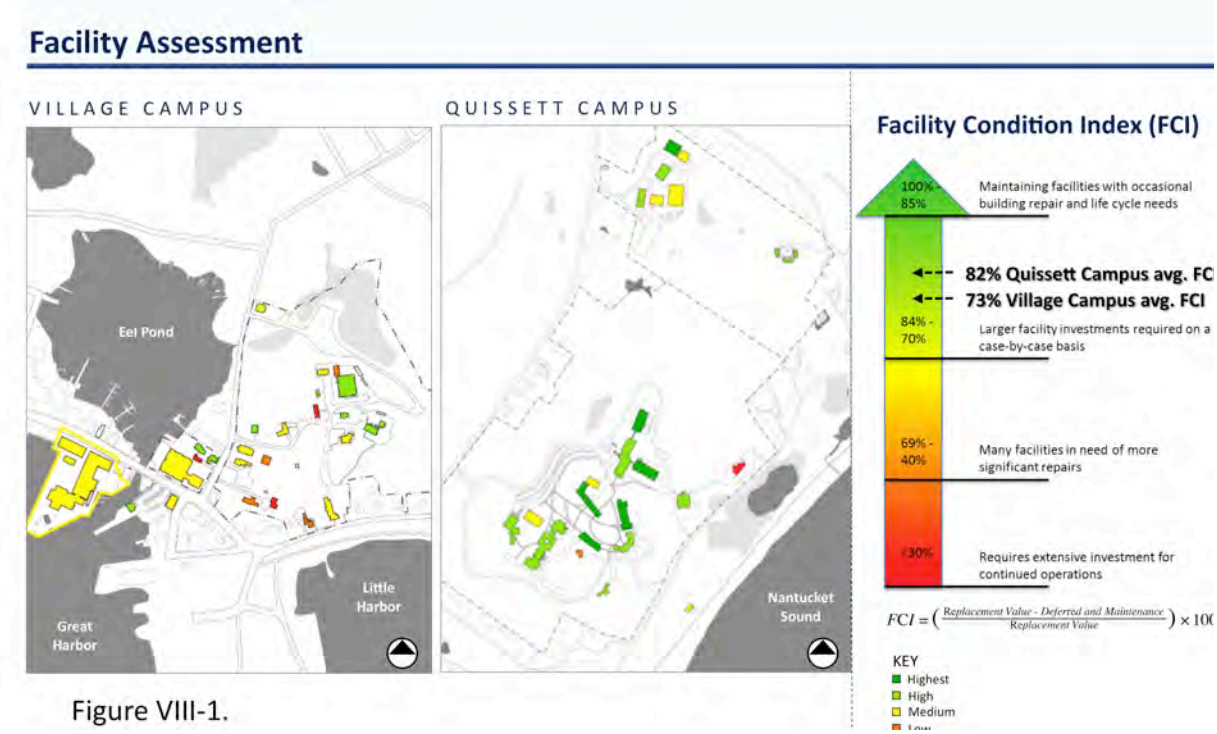


Figure VIII-1.

Presently, the education and research plant comprises several large buildings and a number of smaller buildings, primarily former private residences (Table VIII-1). The smaller buildings lack flexibility, since many are protected historical structures and located within an area where WHOI would want to preserve ownership. The only viable alternative use for these buildings, if not needed for education, research and/or administration, is for market rentals. However, use for this would involve substantial renovation costs, and there is marginal demand for this type of rental space. A few of these buildings that are not contiguous with other properties including 20 acres of undeveloped land, a dormitory building (3 Little Harbor Rd), and the Winding Lane housing units have been sold or will be placed on the market as soon as the new student dormitory is completed. The funds from those sales are being used for deferred maintenance, or applied towards the $3.5M construction cost of a new student dormitory.

TABLE VIII-1. WOODS HOLE OCEANOGRAPHIC INSTITUTION -- PLANT OPERATIONS-				
W.H.O.I. NAME	**ADDRESS**	**Squ Ft**	**Year Built**	**Usage**
HOUSING				
BOWEN HOUSE	6 MAURY LANE	2730	1957	Student Housing
CAROLYN B. MILLER HOUSING	85-A OYSTER POND RD.	5638	1991	Student Housing
CAROLYN B. MILLER HOUSING	85-B OYSTER POND RD.	5638	1991	Student Housing
CAROLYN B. MILLER HOUSING	85-C OYSTER POND RD.	5638	1991	Student Housing
DORMITORY	85-D OYSTER POND RD.	9750	2016	Housing
FRAM COTTAGE	27 CHALLENGER DRIVE	1500	1880	Student Housing
STUDENT BARN	25 CHALLENGER DRIVE	3156	1875	Student Housing
WINDING LANE - 512	512 WOODS HOLE RD.	1400	1885	Student Housing
WINDING LANE - 514	514 WOODS HOLE RD.	2707	1885	Student Housing
WINDING LANE - 514 A	514-A WOODS HOLE RD.		1885	Student Housing
WINDING LANE - 516	516 WOODS HOLE RD.	2014	1885	Student Housing
WINDING LANE - 518	518 WOODS HOLE RD.	1640	1885	Student Housing
U.S.G.S.				
CRAWFORD LABORATORY	360 WOODS HOLE RD.-1	11052	1971	Office/Lab
GOSNOLD LABORATORY	360 WOODS HOLE RD.-2	8208	1972	Office/Lab
INSTITUTION				
METEOR HOUSE	21 CHALLENGER DRIVE	2485	1875	Res - Directors House
WEBSTER HOUSE	264 WOODS HOLE RD.	1707	1915	Res. Rental Prop
Village Campus				
BIGELOW LABORATORY	98 WATER STREET	29182	1930	Office/Research
BLAKE BUILDING	31 CHALLENGER DRIVE	17699	1960	Office/Research
CARYN HOUSE	9 MAURY LANE	3188	1958	Res/Office
CHALLENGER ANNEX	573 WOODS HOLE RD.	2346	1842	Adminstrative/office
CHALLENGER HOUSE	569 WOODS HOLE RD.	5710	1765	Adminstrative/office
CO-OP BUILDING (PUBLIC INFORMATION OFFICE)	93 WATER STREET	2200	1875	Adminstrative/office
CROWELL HOUSE	5 SCHOOL STREET	3432	1871	Adminstrative/office
DRUG STORE	38 WATER STREET	4139	1875	Adminstrative/office
ENDEVOUR HOUSE (EXHIBIT CENTER)	15 SCHOOL STREET	2287	1888	
HANGAR (DYERS DOCK)	50 WATER STREET	1160	1962	Offices
ISELIN MARINE FACILITY (MAIN DOCK)	98-1 WATER STREET	21800	1968	Shop Area
L'HIRONDELLE	24 CHALLENGER DRIVE	1551	1880	Adminstrative/office
NOBSKA HOUSE	14 MAURY LANE	3118	1949	Adminstrative/office
PRESSURE TEST FACILITY	30 CHALLENGER DRIVE	350	1968	Shop Area
REDFIELD LABORATORY	45 WATER STREET	44004	1965	Laboratory
SHIVERICK HOUSE	11 SCHOOL STREET	2643	1974	Adminstrative/office
SMITH LABORATORY	86 WATER STREET	36933	1952	Eng. Labs and offices
SWIFT HOUSE	10 SCHOOL STREET	2120	1834	Adminstrative/office
VEHICLE MAINTENANCE CENTER	31-1 CHALLENGER DRIVE	1080	1980	Shop Area
VINCENT HOUSE	49 SCHOOL STREET	2641	1880	Adminstrative/office
WALSH COTTAGE	28 CHALLENGER DRIVE	1830	1880	Adminstrative/office
Quissett Campus Buildings				
BELL HOUSE	221 OYSTER POND RD.	4092	1925	Adminstrative/office
BIOSPECS WAREHOUSE	266 WOODS HOLE RD.-3	6241	1978	Warehouse
CENTRAL HEATING PLANT	360 WOODS HOLE RD.-4	6915	1972	Mechanical
CLARK LABORATORY	360 WOODS HOLE RD.-5	94913	1972	Lab/office/research
CLARK SOUTH	360 WOODS HOLE RD.-6	38792	1990	Lab/office/research
COASTAL RESEARCH CENTER	193 OYSTER POND RD.	14117	1980	office/warehouse/shop
ENVIRONMENTAL SYSTEMS LABORATORY (ESL)	171 OYSTER POND RD.	5541	1973	research
ESL PUMPHOUSE	171 OYSTER POND RD.	144	1973	Mechanical
FENNO CARRIAGE HOUSE	183 OYSTER POND RD.-1	1805	1901	Adminstrative/office
FENNO HOUSE	183 OYSTER POND RD.	16710	1901	Adminstrative/office
FLAMMABLE LIQUID STORAGE FACILITY	266 WOODS HOLE RD.-2	374	1975	storage
FYE LABORATORY	360 WOODS HOLE RD.-7	16918	1982	Laboratory
GEOSECS WAREHOUSE	266 WOODS HOLE RD.	10777	1972	warehouse/office
MAJOR QUISSETT WAREHOUSE	266 WOODS HOLE RD.-4	21000	1983	warehouse
MCLEAN LABORATORY	360 WOODS HOLE RD.-3	38760	1991	Lab/office/research
QUISSETT WAREHOUSE (DISTRIBUTION CENTER)	266 WOODS HOLE RD.-1	7572	1974	warehouse
SHORE LABORATORY	186 OYSTER POND RD.	1958	1970	lab/research
GRAPHICS/VEHICLE MAINTENANCE	270 WOODS HOLE RD.	7738	2000	adminstrative/mechanical
MRF (Marine Research Facility)	360 Woods Hole Rd.-8	29200	2005	lab/research
Watson Lab	360 Woods Hole Rd.-9	26457	2005	lab/research
Waste Water Treatment Facility	360 Woods Hole Rd.-12	500	2005	Mechanical
LOSOS	360 Woods Hole Road	18400	2012	Eng Labs/Offices
QFB (Quissett Facilities Building)	266 Woods Hole Road	10000	2010	Shops

The lnstitution's land-based physical plant and infrastructure are maintained by the Facilities department (www.whoi.edu/website/facilities/overview). Facilities administrative personnel include Dave Derosier, Director of Facilities and Services, facilities engineers Paul Avery and Rick Galat, and Administrative Professional Janet Uttaro. This group coordinates all Institution capital projects, oversees new laboratory design and construction, coordinates building renovations, is responsible for all infrastructure maintenance, and assists with port security. There is a seven-person Plant Operations group that maintains and repairs the heating, ventilation, air conditioning and plumbing systems of all buildings. There is also a WHOI Housing Office. Its function is to manage the various residential properties owned by WHOI and used by students and guests of the Institution. Housing Coordinator Valerie Caron works closely with housekeeper Lynne Ellsworth and the Facilities department on cleaning and maintenance of all rental properties. During emergencies facilities staff, in conjunction with the Safety Office, are responsible for coordination and response.

The primary classrooms used for MIT/WHOI Joint Program classes are Clark 331 at WHOI and 54-823 at MIT. These rooms are linked using videoconferencing equipment. Other rooms at WHOI used for videolinks to MIT are Clark 271 and Smith conference room. Rooms used at MIT for videolinks vary but most commonly are 54-823, 9-151, and 9-152. All of these rooms are equipped with document cameras, smartboards, and projectors, all of which are used extensively by the instructors and maintained by on-site A/V technicians. Many other rooms at WHOI (Clark 201, 237, 509, Watson 201, MRF 204, McLean conference room on the Quissett campus and Bigelow 217 and Redfield 204 on the Village Campus) are available for classes, but do not have equipment to link to MIT. A new audio-visual system has just been purchased for Clark 271 and will be installed in time for the spring term. There are plans to purchase a new system for Clark 331 in 2016. Videolinked classes are recorded and the recordings are available for viewing through the MIT Stellar course management system by any students who've registered (for credit or as a listener) for the course.

Planning of building or laboratory renovations and new construction takes into consideration safety and sustainability. All renovations and new construction follow all state and federal codes such as the International Building Code, applicable Mass State Code amendments, Mass DEP, OSHA, Mass DPS, ASHRAE, NFPA, ANSI. LEED Building Certification is considered for any new construction. WHOI's recent LOSOS building received LEED Gold Certification. The new dormitory will be using highly efficient heat pump technology for heat and cooling. All projects are also evaluated for energy and water conservation and efficiency, reduction or elimination of harmful substances and waste, efficient use of materials and resources, and recycling and increased use of products with recycled content. In Laboratory design the International Institute for Sustainable Laboratories is referenced. The Environmental Health and Safety (EH&S) Office, overseen by Director of EH&S Ronald Reif, has a mission "to eliminate accident-related illness, injury, property loss, and environmental damage through cost-effective integration of EH&S programs into all Institution activities." One of this office's primary areas of responsibility is occupational health and safety, which includes construction safety as well as emergency response, hazard communication, laboratory safety, indoor air quality, ergonomics and material handling, fire protection, industrial hygiene and chemical safety, industrial safety, fall protection, confined space entry, accident and injury prevention, and incident investigation. More information is at http://ehs.whoi.edu/ehs/DesktopDefault.aspx .

Physical resource planning

WHOI undertakes physical resource planning on annual timeframes (for renovations and maintenance) and as part of strategic planning. A number of very significant changes were made in response to the Strategic Planning process of 1997-1998. This process identified an immediate need to continue and enhance a focus on private sector fund-raising and on informing the national decision makers about the national and international importance of ocean sciences and ocean engineering research and education. To realize this objective, it was necessary to co-locate office space for the Director and the Director's immediate staff and the Media Relations and Development functions of the Institution resulting in the renovation and upgrading of existing Fenno House space (completed April 2001).

The 1997-1998 Strategic Planning process also identified a need for increased laboratory and clean room space to keep pace with modern research needs. These needs were driven mainly by the changing nature of oceanographic scientific research to collection of much larger sets of samples and more detailed analyses of these samples than in the past in order to test hypotheses and answer major scientific questions. While laboratory-based analytical instruments have benefited from miniaturization in their electronic and physical components (as with computers), the numbers of instruments, PCs, and the like, have proliferated significantly. An example of this is that in 1980 there were zero clean rooms and three mass spectrometers at WHOI, and in 2000 there were twelve clean rooms and 26 mass spectrometers, occupying 11,000 square feet.

The Campus Master Planning process that came out of the 1997-1998 Strategic Planning process involved the senior leadership of the Institution. The principal responsibility for the effort resided with the Senior Associate Director/Director of Research (now termed Executive Vice President/Director of Research), the Associate Director for Administration/CFO (now termed Vice President of Operations and CFO) and the Department Chairs who all received input from various sectors of the Institution and advised the Director/President. A special Trustees' Committee provided the connective link to the Trustees for this critical Institution effort. As a result of this process, in 2005 a $55 million re-development of WHOI's Quissett Campus was completed. The major portion of the effort included two new laboratory buildings. The Marine Research Facility houses members of the Biology Department and includes 29,200 square feet. The Watson Laboratory (26,457 square feet) is populated with biologists, chemists, and geologists who share interdisciplinary science interests. In addition to the laboratory construction, major improvements were made in campus utilities. All overhead electrical wiring was replaced with a new system of underground feeders. In addition, a second main feeder was installed with a switch that automatically shifts to the back up feeder if a fault occurs on the primary electrical feed. A pedestrian-only zone was established in the center of the campus to encourage interaction between staff members. At the same time, needed changes and upgrades were made in the Woods Hole Village including extensive renovation of the Blake Building for the Deep Submergence Laboratory, expanding it by 3,500 square feet.

Other identified upgrades were targeted at that time and have been completed as finances permit as part of annual maintenance and renovations. Major renovations are listed in data form 8.1. Major expenditures in 2014 and 2015 include renovations to student housing units on the North Quissett Campus, replacement of the roof on the McLean Laboratory, replacement of the central plant emergency generator, and improvements to the Iselin main dock (see Data First Form Standard 8: Physical and Technological Resources).

During the last decade the most significant addition to the Campus resulted from the 2009 awarding of the Coastal and Global Scale Nodes (CGSN) component of the Ocean Observatories Initiative (OOI) to WHOI. The 5-year design and implementation phase of this NSF-funded project began in September 2009 with first deployments executed in 2013. At the time of the award there was not adequate available space on the WHOI campus to accommodate this project so space was leased off-campus, on Carlson Lane in Falmouth, MA. WHOI was then successful in being awarded an $8.1 million proposal submitted to an ARRA-funded program from the National Institute of Standards and Technology (NIST) for construction of a new building, the Laboratory of Ocean Sensors and Observing Systems (LOSOS). The building was completed and occupied in 2012.

LOSOS, an 18,400 square foot facility, is an interdisciplinary center for scientists and engineers developing the next generation of sensors and supporting technology for ocean observation. It specifically supports two major national programs: the Ocean Observatories Initiative (OOI) and the Ocean Bottom Seismometer Instrument Pool (OBSIP), in addition to the Environmental Sample Processors (ESP) lab. The development and deployment of interdisciplinary ocean sensors and observing systems is essential to the understanding of the multiple and changing interactions of the ocean with earth, atmosphere, climate and human civilization. These ocean data are increasingly critical to NOAA missions in climate, weather, resource management, and earthquake and tsunami prediction. Coordination of these scientific and engineering efforts at LOSOS is accelerating progress and enhancing efficiency in all of these programs. In addition to this relevance to NOAA priorities, the development, testing, calibration and deployment of advanced ocean instrumentation at LOSOS is entirely consistent with the NIST mission.

The site chosen for the LOSOS building was on the Quissett campus. Access to the Ring Road allows direct delivery of raw materials to the facility, as well as transportation of the completed instruments to the WHOI Dock once the instruments are in service. The adjacency to Clark South and the Coastal Research Laboratory (CRL) allows the LOSOS to take advantage of several existing technical features in these buildings such as a saltwater tank for instrument testing, large paint spray booths, and potting facilities. Access to the existing Burn-In area allows the staff to confirm the readiness of the instruments prior to being placed in service by direct exposure to the elements. These adjacencies also foster cross-fertilization of technological developments amongst the staff.

There is also a new dormitory currently being constructed near existing housing on the north part of the Quissett Campus, to replace housing that will be lost with the sale of old, expensive-to-maintain buildings on Winding Lane. The 9,750 square-foot dormitory will be able to house 33 students (compared to 35 student beds currently available Winding Lane) and is scheduled to be completed March 31, 2016.

Sea-Going Facilities

The Woods Hole Oceanographic Institution offers scientists 85 years of seagoing experience. This expertise is currently concentrated in two large and one small research vessel, as well as the submersible *Alvin*, remotely operated and autonomous vehicles and several small surface craft. Scientists from this Institution and many other research laboratories use these vessels and vehicles for exploration and research in all the basic marine disciplines - Biology, Chemistry, Geology, Physics, and Engineering.

WHOI's ships and vehicles carry investigators across the globe for diverse studies that range from tracking large and small currents and investigating coastal pollution to studying the Earth's crust at and beneath the seafloor and examining marine organisms from whales to microbes. The Institution's reputation for excellence in research vessel design and operations continues.

WHOI Research Vessels

The Institution operates two large research vessels for the oceanographic community that are owned by the U.S. Navy. The 274-foot (83 meter) R/V *Atlantis* is specifically outfitted for launching and servicing the newly upgraded *Alvin*, which can dive to 4,500m. WHOI also will soon operate the new 238-foot R/V *Neil Armstrong*, a general-purpose vessel with advanced capabilities to support a wide range of oceanographic research programs. WHOI took delivery of the *Armstrong* on September 23, 2015. After a period of outfitting, its first science mission is scheduled to begin during the second quarter of 2016. WHOI recently retired one older vessel, the 279-foot (84.5-meter) R/V *Knorr*, and the 177-foot (54 meter) R/V *Oceanus* was transferred to Oregon State University.

The National Deep Submergence Facility

WHOI also operates the National Deep Submergence Facility (NDSF) for the United States scientific community. The facility consists of the human occupied vehicle (HOV) *Alvin*, the remotely operated vehicle (ROV) *Jason*, the autonomous underwater vehicle (AUV) *Sentry*, and various support functions. *Alvin* is operated from R/V *Atlantis. Jason* and *Sentry* can be operated from a range of medium to large class research vessels.

In its capacity as the operator of the NDSF, WHOI recently directed and completed a comprehensive overhaul and upgrade of *Alvin*, funded by the National Science Foundation. Completed in 2013, *Alvin's* upgrade added:

* A new, larger personnel sphere (with an ergonomic interior designed to improve comfort on long dives)
* Five viewports (instead of three) to improve visibility and provide overlapping fields of view for the pilot and two observers
* Double the science basket payload
* New lighting and high definition imaging systems
* New syntactic foam providing additional buoyancy
* An improved command and control system

New (compared to old) specifications are:

Length: 23.1 feet (23.3 feet)
Breadth: 8.4 feet (8.1 feet)
Height: 12.1 feet (12.0 feet)
Operating depth: 4,500 meters (4,500 meters)
Normal dive duration: 6-10 hours (6-10 hours)
Gross weight: 45,000 lbs. (35,200 lbs.)
Science basket payload: 400 lbs. (200 lbs.)
Personnel sphere volume: 169.5 cubic feet (144 cubic feet)

Additional upgrades planned for the future will complete modifications needed to allow the HOV to withstand descents to 6,500 meters, allowing access to 98% of the seafloor. Major components yet to be upgraded include batteries, thrusters, the variable ballast system, select instrument housings, and the remainder of the syntactic foam buoyancy modules.

Alvin will continue to be completely disassembled every three to five years to allow engineers to inspect all components and make necessary replacements.

ROV *Jason* and AUV *Sentry* are also upgraded on a regular basis as technological improvements become available. *Jason* recently received a new heave-compensated launch/recovery crane to allow operations in greater sea states, and also an updated navigation and dynamic positioning system. Upgrades to the ROV frame enable routine operation and maintenance of Ocean Observatories Initiative/Regional Scale Node components.

Sentry has a new set of batteries, doubling available power and greatly extending dive times. Plans are also in the works to develop an attending surface vehicle that will relay *Sentry* data to users during missions and allow unattended dives.

User Feedback

WHOI Marine Operations receives written and verbal feedback from scientists using the ships and vehicles and this input informs modifications in operations procedures and capabilities. In the case of the National Deep Submergence Facility, there is a scientific advisory committee within the University National Oceanographic Laboratory System (UNOLS) that reviews and advises on facility operations.

Assessment and Planning for Sea-Going Facilities

Assessment of needs for large research vessel operations is conducted within the UNOLS framework. The Institution has taken a lead in catalyzing an assessment of future fleet needs, since sea-going oceanography is such an important aspect of our mission. The WHOI Marine Operations Committee, with membership from the scientific, technical, and marine operations staff, advises the Vice President for Marine Facilities & Operations, Robert Munier.

Planning for future research vessel and vehicle replacements is an ongoing process at the Institution. Documents describing this process and the vessels involved will be available in the Team room.

WHOI also owns a smaller research vessel. The *Tioga* is an aluminum-hulled research vessel designed and outfitted for coastal oceanographic work. It enables scientists to conduct experiments on a variety of topics, from marine mammals and harmful algal blooms to coastal erosion, storms, and oil spills. It has been used to collect water samples, recover a glider, deploy instruments, tag right whales and for several student education cruises. It has made numerous trips to the Martha's Vineyard Coastal Observatory for maintenance on the climate observatory and for diver operations.

Additional small boats are used to support diving operations and work near shore in local bays and in shallow waters. A description is the small boat fleet is on the WHOI web pages at www.whoi.edu/main/small-boat-fleet.

Ocean Observatories Initiative

Since 2009, WHOI has been funded to design, fabricate, install, operate, and maintain the Coastal and Global Scale Nodes (CGSN) component Ocean Observatories Initiative (OOI), funded by the National Science Foundation (NSF). The OOI Network spans global, regional and coastal scales, and is linked by a system-wide Cyberinfrastructure. WHOI is the Implementing Organization for CGSN, and in that capacity is a subcontractor to the Consortium for Ocean Leadership (COL), the leader, owner, and operator of the OOI and its infrastructure, reporting to and contracting directly with NSF. The current 90-month award will end in April 2017. A Request for Proposals is expected from NSF in 2016 to extend the Operations and Maintenance (O&M) beyond April 2017. The ultimate lifetime of the OOI O&M is planned at 25 years.

CGSN consists of open-ocean arrays in the Northeast Pacific, the Irminger Sea, the Southern Ocean, and the Argentine Basin, in addition to the coastal Pioneer Array, which is currently deployed off New England and planned to be moved to other coastal sites on intervals of five years. All CGSN sites include surface and subsurface moorings as well as autonomous ocean vehicles. The sensor suites on all platforms are multidisciplinary. Near-real-time two-way communication with sensors is achieved by satellite links to surface buoys and wired and acoustic links through the water column. Measurements from all CGSN sensors are collected at WHOI and then transmitted to Rutgers University, the Implementing Organization for the Cyberinfrastructure component of the OOI, for ultimate online delivery to users worldwide. A major goal of the global observatory is to better understand and predict the impact of climate change on the interlinked ocean-atmosphere system, and on marine ecosystems, biodiversity and community structure, especially in remote, poorly sampled parts of the world's oceans. The aim of the coastal arrays is to understand complex coastal ecosystems and their critical role in the ecology and biogeochemistry of the world's oceans, coastal hazards such as storms and harmful algal blooms, and the impact of climate change on the coastal ocean.

Information Services

The Information Services (IS) department is responsible for providing the Institution's IT needs. Groups within IS

* develop, maintain and support IT infrastructure (network, phones, email)
* provide programming support and application development
* support scientific computing hardware and software
* support business and administrative computing hardware and software
* develop, maintain and support High-Performance Computing clusters
* provide hardware and software support across a broad spectrum of platforms

Comprised of about 30 people, the IS department is responsible for maintaining all information technologies including business and scientific applications and databases, computer infrastructure (network, servers, storage, telecom), cybersecurity, and desktop support.

Network and Telecommunications Infrastructure

The network group of IS is responsible for the configuration, maintenance and support of our Cisco network switches, routers and fiber optic & Cat 5e wiring which collectively are known as WHOInet, our internal network. WHOInet is a multiple Gigabit backbone with redundant, spatially diverse paths between the two campuses, Gigabit Ethernet to the desktop,

high bandwidth (up to 2Gbps) Internet connectivity. IS manages connections to the Internet for partners and other Woods Hole institutions such as MBL, WHRC, USGS, NMFS and SEA as well. Wireless access points (802.11 b,g,n) are located in our buildings for restricted-access and guest access. Redundant firewalls and intrusion detection systems allow access to the Internet while limiting in-bound access to only legitimate traffic.

WHOI's telecommunications staff provides operator, receptionist and dispatch service for emergency 911 access to WHOI staff and students. IS maintains a VoIP phone network system.

Computer and network services

IS is responsible for maintaining the centrally administered network services such as enterprise e-mail, web site hosting, authentication, ftp accounts that allow staff and students to share large documents and datasets, file sharing services, a high performance compute cluster and print services. A Legato network-accessible backup service is offered for backup purposes. Remote access is provided using the Cisco VPN client and Radius servers.

Platform support technicians

Members of the IS Systems and desktop teams assist users with Microsoft Windows, Macintosh, and Unix to keep their systems operational, both hardware and software, and updated with security patches. The technicians provide system administration expertise to various labs throughout the Institution, as requested.

Additionally, IS provides access to several application/web developers "for hire". These staffers are available for short-term consultations and for long-term development projects. They have collectively many years of experience developing algorithms for solving problems, designing systems and coding solutions.

Helpdesk

IS staffs a WHOI Helpdesk from 8am until 5pm and provides on-call after hours support for urgent matters. Many students utilize the expertise at the Helpdesk, especially for laptops requiring security updates, anti-virus software and troubleshooting issues. The Helpdesk personnel answer e-mail, phone and in-person questions that are within their knowledgebase. If an issue is presented that exceeds their knowledge, they register the request for service in the IS ticketing system and a technician is assigned to resolve the problem.

Volume and Site-licensed Software

WHOI staff and students have access to numerous volume and site-licensed software titles, such as Microsoft Anti-Virus (data protection), Matlab (scientific data analysis and visualization) and Autodesk (Engineering Computer Aided Design). Microsoft operating systems and its Office suite are available under the Microsoft Enterprise Licensing Agreement. IS loans the commercial software media to individuals for installation and upgrades.

Appraisal

On an annual basis the Institution reviews shored-based, sea-going, and technological infrastructure and plans for necessary upgrades. This planning is done to ensure that WHOI maintains its status as a leader with respect to laboratory and sea-going techniques and facilities

and provides high quality technological support for both administrative and research needs, while staying within a manageable budget.

Recently, due to increased budget pressure, a review and internal evaluation by the CFO and the Directorate focused on infrastructure and concluded that cost efficiencies could be realized. One result was the consolidation of all IT under one director to reduce duplication of effort. The current Information Services department was formed on September 25, 2015 with the merging of the previous Computer Information Systems (CIS) and Management Information Systems (MIS) groups. The Information Services Director Keith Glavin was hired in 2015 and reports to the Vice President of Operations and CFO.

The Institution is currently undergoing a Strategic Facilities Planning process using an outside firm, DSK. This facilities-planning process came out of the strategic planning exercise undertaken in 2011, which recognized a need to focus on financial concerns in the wake of the recession and flat federal funding. The CFO, in concert with the Board, recognized that a more formal approach was needed to more efficiently address deferred maintenance issues by: educating senior leadership on the current state of WHOI facilities; identifying limitations for future Institution growth due to land restrictions; thinking more strategically about future building additions or replacements given land restriction issues; identifying which assets (buildings) should remain part of WHOI for decades to come and which ones might have a different path.

Projection

Results of the Strategic Facilities Planning Process will allow Facilities to identify and address deferred issues more strategically, with a better focus on the future needs of the Institution. With the age of many of the facilities in the 30-40 year range, such an approach is a current necessity. The results will be used to set near-, mid- and long-term priorities for allocation of current space, and construction of new buildings and rehabilitation of structures.

The new IS Director has already begun to create a unified IS organization at WHOI. He is charged with producing a two to five year plan for all WHOI IS activities. The areas of focus are: IS organization, cybersecurity, rationalization/reduction of custom applications and systems, provision of optimal coverage in a complex environment, and scientific and high performance computing support.

In 2013 WHOI completed the comprehensive overhaul and upgrade of *Alvin*, which has since completed 137 dives; there are 150 *Alvin* dives scheduled for 2016. WHOI took delivery of the R/V *Armstrong* on September 23, 2015. After a period of outfitting, its first science mission is scheduled to begin during the second quarter of 2016.

WHOI is continuing its role in the Oceans Observatory Initiative (OOI) to better understand and predict the impact of climate change especially in remote, poorly sampled parts of the world's oceans, and to understand complex coastal ecosystems and their critical role in the ecology and biogeochemistry of the world's oceans. The current 90-month award to WHOI will end in April 2017. A Request for Proposals is expected from NSF in 2016 to extend the Operations and Maintenance beyond April 2017. The ultimate lifetime of the OOI O&M is planned at 25 years.

Institutional Effectiveness

The institution annually evaluates its shore-based and sea-going physical resources, and its technological resources, in light of its mission to maintain and enhance its leadership in oceanography. Capital equipment funds are available each year for repairs, improvements and capital acquisitions. Current needs and plans for the future are annually compiled and are a basis of realistic planning and budget allocation.

Standard 8: Physical and Technological Resources

Campus location	Serviceable Buildings	Assignable Square Feet (000)
Main campus	68	675.2
Other U.S. locations		
International locations		

	3 Years Prior	2 Years Prior	1 Year Prior	Current Year*	Next Year Forward (goal)
	(FY 2012)	(FY 2013)	(FY 2014)	(FY 2015)	(FY 2016)
Revenue ($000)					
Capital appropriations (public institutions)					
Operating budget	$213,511	$216,401	$238,728	$244,057	$225,567
Gifts and grants	$6,151	$7,829	$9,066	$10,054	$8,275
Debt	-$59,119	-$57,561	-$55,942	-$54,253	-$52,499
TOTAL	$160,543	$166,669	$191,852	$199,858	$181,343
Expenditures ($000)					
New Construction	$14,600	$0	$0	$0	$3,300
Renovations, maintenance and equipment	$9,362	$5,337	$4,667	$4,829	$4,600
Technology	$156	$41	$546	$618	$1,607
TOTAL	$24,118	$5,378	$5,213	$5,447	$9,507

Assignable square feet (000)	Main campus	Off-campus	Total
Classroom	21	0	21
Laboratory	146	0	146
Office	173	0	173
Study	3	0	3
Special	39	0	39
General	180	0	180
Support	65	0	65
Residential	47	0	47
Other	1	0	1

Major new buildings, past 10 years (add rows as needed)

Building name	Purpose(s)	Assignable Square Feet (000)	Cost (000)	Year
QFB	Work shops, fabrication, stockr	10.2	$2,400	2010
LOSOS	Ocean sensor Development	18.4	$14,600	2012

New buildings, planned for next 5 years (add rows as needed)

Building name	Purpose(s)	Assignable Square Feet	Cost (000)	Year
Dormitory	Housing	9.8	$3,300	2016

Major Renovations, past 10 years (add rows as needed)

The list below includes renovations costing $100,000 or more

Building name	Purpose(s)	Assignable Square Feet	Cost (000)	Year
Bigelow Boiler Room	Install energy efficient boilers	542	$ 151	2005
Clark roof	Install fume exhaust scrubber	N/A	$ 396	2005
Blake Laboratory	Major renovation all spaces	12461	$ 2,500	2005
Clark ICPMS	Bulk Argon Storage Tank	N/A	$ 107	2005

CRL Addition	Construct Geology lab	600	$ 440	2006
Iselin Instrucment Machine Shop	Support services space renovations	2887	$ 205	2006
CRL	Major renovation	5400	$ 875	2007
Clark 402	Chemistry Clean Laboratory	462	$ 390	2007
Clark South	Construct Instrumentation tank test facility	2500	$ 764	2007
Smith Laboratory	Renovate major conference room	943	$ 480	2008
Redfield 232	Biology Laboratory	618	$ 165	2008
Smith Laboratory	Construct additional office space	1500	$ 660	2008
Iselin Marine Facility Dock	Main research vessel dock	7000	$ 200	2008
Smith 115	AOPE Laboratory	668	$ 322	2009
11 School Street	Science initiative office renovation	1624	$ 197	2009
Shore Laboratory	Biology sea water laboratory	1958	$ 203	2009
ESL	Biology sea water laboratory	5655	$ 330	2009
Mclean AMS Facility	Geology Laboratory	2128	$ 326	2009
Mclean 203	Geology Laboratory	476	$ 153	2009
Clark 442	Chemistry Laboratory	617	$ 287	2009
Pressure Test Facility	Instrumentation testing	609	$ 475	2010
Redfield Lab	Boiler plant replacement	1500	$ 615	2012
Fye Lab	Lab Renovation-new scientist	3000	$ 612	2012
Clark Lab	Lab 405 Renovation -metal free clean lab	1000	$ 1,007	2012
Clark Lab	Lab 403 - new scientist	1500	$ 438	2012
McLean Lab	Lab 207-213, mass spec, new scientist	1800	$ 370	2012
Fye Lab	Lab 114 - new scientist	900	$ 150	2012
Fye Lab	Central UPS system	15000	$ 175	2012
Fye Lab	New HVAC System	15000	$ 840	2012
Fye Lab	Lab 136-138 Renovation, new scientist	1700	$ 612	2012
McLean Lab	Das -20 freezer lab	400	$ 205	2012
Iselin Main Dock	Dock Pile Upgrades	7000	$ 1,400	2013
Blake Lab	Blake 212/214 Optics Lab	800	$ 331	2013
Redfield Lab	Lab Renovation-new scientist	3200	$ 154	2013
McLean Lab	New Electrical service/distribution	1000	$ 741	2013
ESL	Hyperbaric Chamber Installation	1200	$ 193	2013
ESL	New Main Electrical Service/Distribution	4000	$ 213	2013
McLean Lab	Lab 216-mass spec, new scientist	1800	$ 843	2013
Iselin Main Dock	Vessel Sewage System Installation	7000	$ 464	2013
Central Plant	Boiler Upgrades	2500	$ 162	2014

Smith Lab	Lab Renovation-REMUS AUV Lab	2500	$ 523	2014
Bell House	Graphics Renovation	3400	$ 233	2014
McLean Lab	Lab 200A Renovation, new scientist	700	$ 600	2014
Iselin Main Dock	Dock Improvements	7000	$ 735	2014
McLean Lab	Lab Renovation-new scientist	1000	$ 242	2014
McLean Lab	Main Roof replacement	18000	$ 356	2014
Central Plant	Emergency Generator Replacement	2500	$ 420	2015
OYP Housing	Renovation of housing units	15000	$ 491	2015
Bigelow Lab	Reading room, offices, lounge r	1200	$ 215	2015

Renovations planned for next 5 years (add rows as needed)

The list below includes renovations costing $100,000 or more

Building name	Purpose(s)	Assignable Square Feet	Cost (000)	Year
None confirmed				

STANDARD NINE: FINANCIAL SERVICES

Woods Hole Oceanographic Institution is a not-for-profit corporation dedicated to research and higher education in the ocean sciences. The Institution's financial resources are used to sustain and improve the quality of research endeavors and educational programs. The institution has and will continue to have the financial capacity to graduate its entering class. The institution administers its financial resources with integrity as articulated both on the Finance & Accounting web page and in the Corporation's by-laws.

Description

As of December 31, 2014 WHOI's total assets were $602.8 million, total liabilities were $293.4 million, and total net assets, the accumulated financial strength of this not-for-profit organization and an important gauge of its ability to carry out its mission, were $309.4 million (see Data First Form 9.1). Included in the liabilities is the Massachusetts Health and Educational Facilities Authority bond. The total bond issuance was $65.0 million, with an interest rate of 5.32%, and a period of performance through CY 2034. The current outstanding principal for the Series B (2008) bond is $55.9 million.

As of December 31, 2014 the endowment market value was $423.9 million, representing 70% of the total assets. On October 1, 2012 the Institution retained Global Endowment Management (GEM) to manage the Institution's endowment. GEM actively manages client assets in the style of leading endowments and foundations. They pursue varied and non-traditional investment opportunities to provide a long-term oriented, diversified investment program. GEM is the investment office for the Institution and assumes responsibility for asset allocation, manager selection, risk management and investment reporting. GEM's goal is to generate over the long term a minimum 5% real return, enabling the Institution to fund operations and to preserve purchasing power. To accomplish this, the GEM investment team constructs a diversified portfolio. Total market value as of November 30, 2015 was $415.6 million. The assets are managed within two different funds within GEM: GEM Fund II $391.7 million, GEM Short Term Liquidity $21.7 million, and $2.2 million with State Street Global Services, the Institution's endowment custodian.

The Institution's Board of Trustee's Investment Committee is responsible for the prudent and productive investment of the endowment funds for the long run best interests of the Institution. They meet quarterly to review the performance of GEM, as an outsourced CIO, and the portfolio.

In 2014 and 2015 the Institution again received an AA- rating with a stable outlook from Standard & Poor's, based on its strong endowment and position as the world's largest private oceanographic research and higher education institution. WHOI's total operating revenues in 2014 were $238.7 million, an increase of $22.3 million from $216.4 million in 2013, and the Institution's change in net assets from operating activities was $1.1 million. Over the past decade, from CY2004 through CY2014, the Institution's total operating revenue has experienced consistent growth, increasing from $136.5 million to $238.7 million, an average annual increase of 5.0 percent. This increase is primarily attributable to growth in scientific sponsored research. From CY2004 through CY2014, sponsored research revenue has remained steady with an increase of $102.2M or 95.0 percent, increasing from $108.5M to $211.2M, an average annual increase of 6.0 percent. The increase continues to be a direct indication of the Institution's

scientific capabilities. For example, in 2013 WHOI received $55.7 million in National Science Foundation (NSF) Geosciences Funding compared to the next most funded Institution, Scripps Institution of Oceanography at $20.9M. Over the past decade WHOI has consistently received the most NSF oceanographic funding.

In 2014 the Institution had overhead costs of $87.4 million, with approximately 66% of that amount ($57.3 million) recovered from government and non-government research. The remainder was institutional expenses. WHOI paid $4.7 million in interest during 2014 and $1.7 million in principal payments on the $55.9 million outstanding debt. Overall debt levels have remained stable and management anticipates no new money debt. The Institution maintains a swap that is considered an orphan swap associated with the series 2004A bonds and remains a liability, with an almost $9.7 million mark-to-market value as of December 31, 2014. Covenants on the bonds include a requirement to maintain unrestricted and temporarily restricted resources at a market value of at least 75% of all debt. As of fiscal 2014, WHOI had $215.5 million in financial resources compared with $55.9 million in debt. The federal government allows interest and depreciation for real property and equipment in the Institution's overhead rates for reimbursement.

The financial affairs of the Institution are monitored by the Finance Committee, a charter committee of the Board of Trustees, with duties explained in the Institution's by-laws:

The Finance Committee shall monitor the financial affairs and health of the Corporation and report on them to the Board of Trustees, and shall assist in the formulation of financial goals and the evaluation of various alternatives for financial operations.

The Finance committee shall assist in the development of policies relating to financial management, and shall coordinate with the Audit and Risk Committee on control issues and accounting practices, and with the Investment Committee on issues relating to the management of the endowment. From time to time, the Finance Committee, with due regard for the advice of the Investment Committee, shall make recommendations to the Executive Committee regarding endowment spending policies.

The Finance Committee shall also conduct a review of the Corporation's annual operating budget as proposed by the President and Director and present any comments or recommendations on it to the Executive Committee. Approval of the annual operating budget requires a vote by the full Board. The Chairman of the Finance Committee shall report to the Board of Trustees at least once each year.

The Board of Trustees fiduciary responsibility is noted in Article 3.1 of the by-laws: *the Board shall review and approve an annual budget for the Corporation, and shall adopt such policies as it deems appropriate for the distribution of income or principal for the use by the Corporation for operating or capital purposes.*

The Institution has an annual budget process. As part of this process the Academic Program Office creates a 5-year projection based on the final annual budget. This is a proactive approach to assess current and future revenue streams and costs for the Academic Program Office as well as the needs of the WHOI scientific community from an education prospective. This tool is used to help the Academic Programs Office make decisions on its spending, and to help forecast the need for increased income or other adjustments.

Forecasting by Development is done annually. Every December, the Development Office staff produces an operating plan for the upcoming year with a forecasted fundraising total (President and Director approved Executive Summary for 2016 operating plan is in the Team Room). The 2016 projection is $11.2M. This forecast is modified at a mid-course correction meeting in July each year to better reflect the expected actual year end total. Multi-year forecasting is done if in, or planning for, a campaign.

The education program at the Institution is supported by endowment income as well as grants and contracts from the government and private foundations. Funding for the graduate program comes dominantly from endowment and graduate tuition, with students supported by an assortment of grants and contracts, outside fellowships, and institutional funds (e.g., internal fellowships and teaching assistantships). WHOI and the MIT/WHOI Joint Program are committed to providing qualified degree candidates with a stipend and tuition support for five years as long as the student is making satisfactory progress towards his/her degree. In 2014 endowment income for education covered almost 66% of total expenditures for the entire education program, with $17.2 million of endowment income distributed to operations as follows: Education $7.2 million; Research $5.9 million; Unrestricted $4.1 million.

The Institution employs sufficient professionally qualified finance staff. Jeffrey Fernandez, the Vice President for Operations & Chief Financial Officer is responsible for defining and executing the short, medium, and long-term strategic budget financial planning and resource allocation at the Institution. The Vice President for Operations & Chief Financial Officer reports directly to the President and Director. He holds an MPA from George Washington University School of Government and Business Administration, where he concentrated on management, economics, and public finance. He came to WHOI in 2012 after nearly 30 years with the University of California, most recently serving as the Chief Financial Officer of Lawrence Berkeley National Lab (LBNL). Dana Fernandez, the Controller, reports directly to the CFO and oversees the Finance & Accounting Office, which is responsible for WHOI's accounting practices, the maintenance of its fiscal records, and the preparation of its financial reports. She was hired in December 1999 for the position of Manager of Budgets and General Accounting in the Finance & Accounting Office and received a B.S. in Accounting from New Hampshire College.

The Institution's calendar year budget is guided by a budget preparation process overseen by the Vice President for Operations/CFO and the Controller. Guidelines for the process are posted on the Finance & Accounting web page. In 2015 the Institution created a Strategic Committee (the Vice Presidents and the Department Chairs) to help develop budget strategy guidelines to enable efficient delivery of the Institution's objectives. Once detailed budgets were submitted from each department, the Strategic Committee reviewed any guideline exceptions and any significant impacts to each department with the relevant committee member(s). The committee made recommendations based on these discussions, and the VPs and Director provided final approvals. The budget was then reviewed and approved by the Finance Committee before final approval by the Board of Trustees. As always the goal for 2015 was to achieve a balanced budget.

Each year the process is in two stages, Capital Budget and Operational Budget. The process begins in the summer and ends with calendar year budget approval by the Board of Trustees at its fall meeting. On-line tools are available for the budgeting process, which allow

each group within the Institution to enter its various categories of budget data and have these roll-up into an overall Institution budget.

There is opportunity for feedback during the budget process from the various departments of the Institution through the Department Chairs and the appropriate Vice Presidents. Examples of the budget process and announcements will be available in the Team Room. Where appropriate, for example in preventive maintenance, capital procurements, and long term commitments of support for graduate students admitted to the graduate program, annual budgets are evaluated within a multiple year budget process.

In early 2014 the Finance Team worked with the Institution's outside consultants to upgrade the Budget Application, Cognos. This upgrade was a migration to the latest platform, OLAP/multi-dimensional cube database for multi-users read/write, efficient time series and trend analysis reporting. Users now have enhanced version control, ability to reforecast, easy comparative analysis and "vault of truth" for budget data. It includes enhanced reporting and modeling functionality and a new platform. In 2015, this upgrade allowed the Institution to model likely effects of switching to a Modified Total Direct Cost overhead structure (see below), allowing construction of a MTDC budget module needed for "on the fly" modeling with Senior Staff in order to produce a final budget.

Oversight of the financial affairs of the Corporation is provided by the Treasurer. Article 5.8 of the by-laws states:

The Treasurer shall serve as a coordinating link between the Investment Committee, the Audit Committee, and the Finance Committee. The Treasurer, along with the Finance Committee, shall serve as a resource to management in the development of financial policies of the Institution. The Treasurer shall report to the Board of Trustees at least once each year.

Opportunities identified for new sources of revenue are reviewed by the administration and board to ensure the integrity of the institution is maintained and enhanced. For example this is explicitly covered in the Gift Acceptance and Counting Policy (available in the Team Room):

The Institution does not accept gifts that involve discrimination based upon race, religion, gender, age, national origin, sexual orientation or any other basis of exclusion prohibited by federal, state or local laws. WHOI reserves the right to decline gifts that may expose it to adverse publicity, require undue expenditures, or involve the Institution in unexpected responsibilities because of their source, condition or purposes. Gifts will be accepted only for purposes consistent with WHOI's research and educational objectives. No gifts will be accepted which infringe on WHOI's established policies and procedures for appointments, conduct of research and teaching, construction of facilities or other activities, or that expose the Institution to liabilities. When acceptance of a gift is in question, the final authority to accept or reject gifts rests with the Executive Committee of the Board of Trustees.

Ethical oversight of WHOI's financial resources and practices are ensured by Institution and Board practices. The Finance & Accounting Office is responsible for WHOI's accounting practices with procedures in place for adhering to government regulations (2 CFR 200 Uniform Administrative Requirements, Costs Principles, and Audit Requirements for Federal Awards) and Generally Accepted Accounting Principles regulations (GAAP).

Annual audits are carried out, overseen by the Board of Trustees Audit and Risk Committee (from by-laws Article 4.2.1):

The Audit and Risk Committee shall assist the Trustees in discharging their fiduciary responsibilities by providing an independent review of the financial condition of the Institution and of the adequacy of the financial controls and financial reporting. To accomplish this end, the Committee shall annually recommend, for selection by the Board of Trustees, independent auditors, compensated by the Institution, to examine the books, records, and financial management practices for the fiscal year, and to provide both an audit report and a management letter.

The Committee shall meet with the independent auditors at regular intervals for a full and detailed discussion of their findings. The Audit and Risk Committee and its authorized representatives shall have full access to the books and records of the Corporation as necessary for the performance of its duties.
The Committee Chairman shall report to the Board of Trustees at the Annual Meeting.

The latest (2014) audited financial statement will be available in the Team room.

The Institution directs its fund-raising efforts towards the fulfillment of institutional purposes. The Development Committee (a Charter Committee of the Board of Trustees) *works with the Development Office to develop a business plan for fundraising, and reviews annual operating plans and revenue goals. The Committee provides feedback on proposed fund-raising initiatives and brings new ideas to the table to enhance revenue and build the WHOI donor base. It monitors results on a monthly basis…. The Committee meets either in person or via conference call, quarterly. It reviews monthly progress reports and prospect lists, via e-mail, monthly* (Article 4.2.5, By-Laws).

The Institution has clearly stated policies, approved by the Board of Trustees, for accounting of gifts (see Gift Acceptance and Counting Policy in the Team room). Gift processing procedures are stated on the Finance & Accounting web page. Donors receive written reports each year prepared by the Vice President for Operations and CFO as to the financial status of any gifts to the endowment. All foundation grants are reported on annually. All individual gifts of $50k or greater receive timely narrative reports. All endowed fund donors (or their heirs) receive annual financial reports and periodic narrative reports in perpetuity (see financial and narrative report samples provided in the Team Room). These stewardship reports inform donors on the use and impact of their gifts.

Fiscal policies are clearly stated in writing on the Finance & Accounting web page and within the Institution's by-laws.

Appraisal

WHOI's overall finances are healthy with a strong endowment, AA- rating and stable outlook from Standard & Poor's each year, and consistent growth in its operating revenue (averaging 5% over the last decade) largely reflecting its success in obtaining scientific sponsored research revenue, consistent with its mission. However, WHOI also has been facing three financial challenges: (1) limited growth of federal funding sources, (2) limited unrestricted funds within WHOI's budget (operating costs designated as unallowable for recovery via federal grants and contracts through overhead reimbursement or restricted endowment funds) and (3)

pension and post-retirement costs. Over the last ten years WHOI has been taking steps to address each of these.

(1) WHOI has high operational fixed costs and, while it continues to have success in obtaining government grants and contracts, federal science budgets have been either flat or growing much more slowly than in the past. To address this, in 2010, WHOI undertook an analysis of its financial outlook and its potential, both internally and externally, for increasing funding through replacement of declining sources and addition of new sources. This analysis led to two goals: to diversify funding (at that time termed an Expanded Business Model), and to continue cost reductions and initiate structural cost efficiencies.

Progress in diversifying funding

Steps taken since 2011 to diversify funding include:

Establishment of the Center for Marine Robotics -

The Woods Hole Oceanographic Institution has made a major commitment to establish the Center for Marine Robotics (CMR), building on WHOI's pioneering work creating tele-operated and autonomous marine vehicles. The goal of the Center is to advance the state of the art of marine robotics, foster a thriving marine robotics industry, and apply new robotic technologies to scientific challenges. In keeping with WHOI's sea-going tradition, it seeks to transform laboratory innovations into operational systems and capabilities. To accomplish these goals, the Center is building teams to bridge academia, industry, and government. The plan is for interactions with industry to be channeled through the new CMR membership structure. Member companies can participate in numerous member events, and engage in developing study groups and target consortia, the latter of which will carry out high value research activities. A quick summary of the structure is:

- Entry level membership is $50k per year
- Interested US companies can join the undersea defense group for an additional $25k/year
- Membership provides structured access to WHOI, and the right to participate in member-only events, such as an Annual CMR meeting.
- Members have a representative on the CMR Members Committee (different from the CMR Advisory Committee)
- Once a member of CMR, companies can participate in the creation of targeted consortia.

The membership approach is informed by prior experience and discussions with industry. A large part of initial interactions revolves around relationship building and mutual exploration of needs and opportunities. With the new membership framework in place, CMR has begun the process of recruiting members, with three members joining in 2015 (one at $50k, two at $75k).

Although in its infancy, CMR has already brought in a $5.0 million investment in infrastructure from the Commonwealth of Massachusetts. These funds from the Massachusetts Technology Collaborative will augment and renovate WHOI's fabrication and test facilities. The proposal was awarded in fall 2014. The effort adds rapid prototyping capability to WHOI's shop services, renovates the pressure test facility, adds a large test tank for control test of vehicles, and augments the Martha's Vineyard Coastal Observatory to support offshore testing of vehicles. Funding began in fall 2015, and the project will run a total of five years.

Special Ship Operations -

The Institution operates the private research M/V Alucia under a bareboat charter. Operating costs of approximately $800k per month are provided through private donations and third party charters. WHOI provides management services for the operation of the private research vessel M/V Umbra with the expectation of a long-term funding commitment of $150K/month. These agreements bring in a significant amount of funding to WHOI with over 20 WHOI employees allocating time to this project.

Creation of an Investment in Science Program (ISP) –

The Investment in Science Program (ISP) provides funding to members of the Institution's Scientific Staff when no other funding is available. A limited amount of ISP funding can be used for development of new ideas leading to future funding. ISP funds come from two sources, those funded by WHOI's unrestricted funds, and those given primarily by WHOI Trustee and Corporation Members. Through the creation of this fund the Board of Trustees has reaffirmed the need for salary support for scientists who have gaps between funded projects, and its importance for enabling recruitment and retention of the best scientists.

Fundraising Efforts -

WHOI is executing a strategy to pursue high net-worth individuals and foundations with the mission of advancing science and research to improve humankind. For 2015, the Development Office successfully raised over $22 million vs. the original 2015 fundraising goal of $9.1 million, an increase of $12.9 million ($8.5 million designated to unrestricted support). The Institution continues to be successful securing foundation support, raising over $4.7 million in 2015. Of note is that several of these foundations require cost share of 3% to 37% (averaging 20%) that must come out of unrestricted funds (details in Team Room). WHOI received over $17.3 million from individual donors in 2015.

Progress in cost efficiencies

Several steps have been taken to contain and or reduce costs since 2011:

- A VP for Legal Affairs and General Counsel and a Director of Technology Transfer were hired in 2014 resulting in significant decrease in legal costs. Total costs were approximately $0.4 million in 2014 vs $1.6 million in 2012.

- In May 2015, the Institution hired a new Senior Director of Information Services (IS). The IS Director is charged with creating a unified IS organization and a three to five year plan for all WHOI IS activities. The areas of focus are IS organization, Cybersecurity, rationalization/reduction of custom applications and systems, provision of optimal coverage in a complex environment, and scientific and high performance computing support.

- A new reporting and management system is being established by Finance and Administration that includes data stored in a data warehouse ("vault of truth"), which allows users to access data in a view they need/want (dashboard to drill down), ad-hoc or set/standard user views with standard reports (financial statements, etc.) available, and timely and user-defined dashboards.

- The Institution has completed, or is in the process of initiating and defining future Decision Support Systems to leverage investments in developing and integrating financial reporting systems tailored to the needs of the entire Institution. This includes grant proposal

system automation – for electronically routing and approving of grant proposals, ERP- Phase 2 projects - the automation of the "procure to pay" process, a replacement for the module used for the recruiting/hiring process, and automated reimbursements to employees.

- Implementation has begun on a replacement for the donor-facing system used by Development for fundraising. This will improve WHOI's ability for online fundraising and crowd sourcing and provide budget enhancements for the Institutions rate change to MTDC.

- In December 2013 the Procurement and Accounts Payable Departments were re-organized under Finance & Accounting. In conjunction with the Audit and Risk Committee, CBIZ Tofias Audit Firm was engaged to complete an internal review of the procure-to-pay process. The scope of the audit included all types of WHOI purchases and related payments: purchase requisitions, invoicing and credit card policies and procedures. The review was completed in July 2015. WHOI was commended for the robust policies and procedures, and with final review came recommendations for automation, best practices and correcting any compliance issues.

- In 2014, at the request of the Audit and Risk Committee, WHOI conducted an internal enterprise risk mapping exercise that identified specific risk factors for the Institution. The Institution has identified and assessed the enterprise risks for both impact and likelihood, vetted identified risks and risk prioritization, established a leadership team with oversight, identified risk owners for top twelve (12) risks, validated risk ownership and educated risk owners roles and responsibilities, and developed risk response plans for top twelve risks. The next steps are to finalize risk response plans and facilitate adoption of new risk mitigation activities. A plan will be developed for ongoing risk monitoring, adopting a formal governance structure with periodic reviewing and progress reporting to the Audit and Risk Committee and Board of Trustees.

- A current backlog of Institution deferred maintenance is being eliminated over a projected three-year period with an approximate cost of $3.0 to $4.0 million annually, funded through the normal capital budget process. In addition, energy efficiency improvements have been initiated to reduce costs and have/ should result in a savings of $0.5 million for 2014, 2015 and 2016.

- Since 2015, WHOI has been engaged in an Institution-wide Strategic Facilities Plan (SFP). The process includes VP's, Department Chairs, and a cross section of stakeholders from across the Institution. WHOI hired an outside architect and planning consultant to help facilitate the project. The goal of the project is to determine how the Institution uses space, describe how groups are organized, identify organizational barriers, and discover how the Institution manages and can lower overhead costs within this area. A final deliverable and presentation to the Director, which will identify near term, mid-term and long-term implementation opportunities, is estimated for spring 2016 (see Standard 8).

- The Institution continues to review and monitor its real estate holdings. Several properties with high maintenance costs have been sold in the past three years with a total value to date of $5.5M. Remaining properties to be sold have an estimated sales value of $3.0M.

(2) With respect to limited unrestricted funds within WHOI's budget (operating costs designated as unallowable for recovery via federal grants and contracts through overhead reimbursement or restricted endowment funds), the Board of Trustees directed WHOI to eliminate the unrestricted year-end loss, which led to development of plans for dealing with the issue:

Plans for dealing with issues related to unrestricted funds

The Institution's 2014 unrestricted loss was $3.8 million vs $4.2 million budgeted loss, and the projected 2015 year-end loss is $2.9 million vs a budgeted loss of $1.9 million. The Board of Trustees directed WHOI to eliminate the loss in 2016 and beyond, with the Board approving a plan to increase their donations. In addition WHOI reduced its expenses to achieve this goal. Unrestricted expenses are those institutional operating costs designated as unallowable for recovery via our federal grants and contracts through overhead reimbursement, and therefore must be covered via the Institution's endowment or eliminated. The majority of these costs are attributable to communications, philanthropic development, and advanced science and research programs not funded by the Federal Government. It is imperative that the Institution have world-class communications, philanthropy, and science and research in order to maintain its position as a leading science and research organization, advancing ocean and climate research, and executing its mission. Philanthropy, critical to funding science, is positioning the organization to target more high net-worth individuals and Foundations.

In order to develop the balanced budget goal for 2016 a committee was formed which included two Board of Trustee Members, led by the Board's Treasurer, Director, VP of Research, CFO and two Senior Scientists. The committee was charged with identifying options, evaluating potential impacts and developing recommendations for the unrestricted budget. The result of the recommendations eliminated the unrestricted loss for CY 2016 and beyond.

Recommendations include:

- A call on the Board and Corporation Members to increase contributions
- A review of the Institution's restricted endowment to identify opportunities for redirection
- Anticipation of additional work with the Navy from the Center for Marine Robotics; initiative-fee income will increase
- The Institution initiated an Institutional Research and Development (IR& D) Program in 2015, which reduced the Bridge Funding by creating a government-sanctioned program to fund specific projects and thereby invest in scientists. The $2.5M cost will be funded by the government through the Institution's overhead rates. In addition, the Institution initiated an Investment in Science Program (formerly Bridge Support) that provides funding to members of the Institution's Scientific Staff when no other funding is available. ISP funds are for the development of new ideas that will lead to future funding or for the pursuit of scientific objectives. Investment in Science Program is funded by both restricted donor support and unrestricted funding.

Switch to Modified Total Direct Cost (MTDC) indirect cost recovery model

WHOI's current indirect cost recovery model is based on labor, while almost all major competitors use a Modified Total Direct Cost (MTDC) model. On April 15, 2014 the Institution submitted a proposal to the Office of Naval Research (ONR) to change the indirect cost recovery model to MTDC. In August 2015, over a year later, the Defense Contract Audit Agency (DCAA) completed their audit of the Institution's MTDC Proposal and submitted the Independent Audit Report to ONR for their final review. On October 9, 2015 ONR approved the cost recovery change for the Institution.

With this change from an indirect cost recovery model to MTDC, the labor multiplier will drop. This may affect (and possibly reduce) unrestricted expenses (e.g., Investment in Science Program funding that is funded in part by unrestricted funds). Actual MTDC rate calculation will be defined through the audit negotiation process with ONR. The Implementation date is 2017 and various system modifications have been completed or are in process.

(3) A major financial issue for WHOI has been costs associated with its Defined Benefit Plan. This issue was addressed in 2011, but has long-term effects:

Addressing Pension and Post-Retirement Costs

On January 1, 2011 the Institution addressed pension liability challenges by implementing a Defined Contribution Plan to replace the Defined Benefit Plan (traditional pension). Implementing the new DC Plan was not a decision based on cost savings for the Institution but rather to reduce future pension liability under the DB Plan.

The Institution now maintains a Defined Benefit Pension Plan and Post-Retirement Medical Benefit Plan. According to FASB 158, WHOI is required to recognize the *overfunded* or *underfunded* status of these Plans. The recognition of the benefit plan is measured as the difference between plan assets at fair value and the benefit obligation. Based on actuarial calculations, the pension costs in CY 2014 were a negative adjustment, increasing the underfunded status of the plans. This can fluctuate year to year based on discount rates, rate of return on the plan assets, contributions and distributions. In CY 2014 the Congress passed the Highway and Transportation Funding Act (HAFTA), which reduced the minimum funding requirements for Defined Benefit Plans. The legislation does not impact true economic liability, therefore contributing at a reduced minimum level adds to the real funding shortfall over the next few years for the Institution. Although this helps with WHOI's overhead rates and competitiveness currently, the contribution will increase significantly in a few years causing rates to increase.

In September 2012 the Retirement Trust Committee contracted with Cambridge Associates to assume responsibility as the outsourced CIO, for the management of the Trust's investment assets. The objective is to achieve a stable return to assure funding of current commitments while minimizing the variability of the unfunded liability, gearing the portfolio to eliminate it entirely by approximately 2022 with significant help from WHOI and the overhead rate.

Under a Voluntary Employees Beneficiary Association Trust, The Postretirement Benefit Plan provides medical benefits, covering substantially all active and retired employees of the Institution and dependent spouses for those who retired prior to 2000. The Institution may make voluntary contributions to the Plan, and had for many years, but now is with-drawing funds at the discretion of the Board of Trustees and Senior Management to help defray costs for the active group medical insurance. Currently the plan is underfunded (liability is greater than the value of the assets) and there is a potential for utilizing the remaining assets in the future to help defray increasing cost for active group medical insurance. If and when the assets are depleted, the Institution will still maintain the benefit on a pay as you go basis thereafter. From 2013 to 2014, accrued post-retirement liabilities have increased from $30.6M to $38.7M.

Projection

WHOI has been operating successfully over the last several years despite constrained Federal funding. While revenue from federal sources (e.g., from NSF, ONR, and NOAA) has been fairly flat, the WHOI budget has been growing. This has resulted in pressure to use internal funds (primarily Investment in Science Program (ISP) funds that are in part from unrestricted income generated by endowed funds) to support PIs when they do not have grant funding. However in 2016 WHOI is forecasting a stable budget and the demand on ISP funds is projected to be dropping by 10%, towards more historical levels.

WHOI's financial strengths are a healthy ($400M+) endowment and consistent growth in its operating revenue (averaging 5% over the last decade) largely reflecting its success in obtaining scientific-sponsored research revenue, consistent with its mission. However the Institution does rely heavily on revenue from federal government agencies. In 2016 and beyond, WHOI will continue efforts to diversify funding to industry (e.g., through the Center for Marine Robotics and special ship operations) and philanthropy (including foundation as well as individual donor support and specific requests for the Investment in Science Program and unrestricted giving) sources.

WHOI will also continue its efforts at cost efficiencies. With regard to the financial administration and support within WHOI, there will continue to be productive activity in the areas of operating budget review and control, and IT applications designed to cut costs and make life easier for researchers. The Strategic Facilities Planning Process will also be providing recommendations that will be used to set near-, mid- and long-term priorities for deferred maintenance, allocation of current space, as well as construction of new buildings and rehabilitation of existing structures.

WHOI will need to continue its financial support of the closed Defined Benefit (DB) plan, as well as the current Defined Contribution (DC) plan. The DB plan has a gap between assets and liabilities, which is watched closely by a Board Committee. This gap is very sensitive to interest rates, so when interest rates move back to normal levels, much of this gap will be eliminated.

A major change that will affect WHOI's finances in ways difficult to project is the switch to a Modified Total Direct Cost (MTDC) indirect cost recovery system in 2017. This will spread overhead costs more uniformly and reduce the cost of labor, which may favorably affect WHOI's unrestricted expenses if it makes it easier to fully fund salaries using external grant support.

Institutional Effectiveness

The institution has in place appropriate internal and external mechanisms to evaluate its fiscal condition and financial management and to maintain its integrity. The annual budget process is comprehensive and inclusive and is used to maintain balanced budgets from year to year. The institution uses the results of these activities for improvement.

Standard 9: Financial Resources
(Statement of Financial Position/Statement of Net Assets)

		FISCAL YEAR ENDS month &day: (12 / 31)	2 Years Prior 12/31/2012	1 Year Prior 12/31/2013	Most Recent Year 12/31/2014	Percent Change yrs-1 yr prior	2 1 yr-most recent
		ASSETS					
	?	CASH AND SHORT TERM INVESTMENTS	$15,565	$20,000	$29,534	28.5%	47.7%
	?	CASH HELD BY STATE TREASURER				-	-
	?	DEPOSITS HELD BY STATE TREASURER				-	-
	?	ACCOUNTS RECEIVABLE, NET	$21,534	$15,701	$20,265	-27.1%	29.1%
	?	CONTRIBUTIONS RECEIVABLE, NET	$1,864	$1,682	$2,939	-9.8%	74.7%
	?	INVENTORY AND PREPAID EXPENSES	$3,022	$3,654	$3,193	20.9%	-12.6%
	?	LONG-TERM INVESTMENTS	$370,305	$409,037	$423,922	10.5%	3.6%
	?	LOANS TO STUDENTS				-	-
	?	FUNDS HELD UNDER BOND AGREEMENT	$204	$194	$184	-4.9%	-5.2%
	?	PROPERTY, PLANT AND EQUIPMENT, NET	$89,484	$87,336	$84,995	-2.4%	-2.7%
	?	OTHER ASSETS	$37,419	$37,647	$37,803	0.6%	0.4%
		TOTAL ASSETS	**$539,397**	**$575,251**	**$602,835**	6.6%	4.8%
		LIABILITIES					
	?	ACCOUNTS PAYABLE AND ACCRUED LIABILITIES	$202,992	$154,735	$216,321	-23.8%	39.8%
	?	DEFERRED REVENUE & REFUNDABLE ADVANCES	$16,041	$19,411	$21,164	21.0%	9.0%
	?	DUE TO STATE				-	-
	?	DUE TO AFFILIATES				-	-
	?	ANNUITY AND LIFE INCOME OBLIGATIONS				-	-
	?	AMOUNTS HELD ON BEHALF OF OTHERS				-	-
	?	LONG TERM DEBT	$59,119	$57,561	$55,942	-2.6%	-2.8%
	?	REFUNDABLE GOVERNMENT ADVANCES				-	-
	?	OTHER LONG-TERM LIABILITIES				-	-
		TOTAL LIABILITIES	**$278,152**	**$231,707**	**$293,427**	-16.7%	26.6%
		NET ASSETS					
		UNRESTRICTED NET ASSETS					
		INSTITUTIONAL	**($45,254)**	**$6,268**	**($48,448)**	-113.9%	-872.9%
	?	FOUNDATION				-	-
		TOTAL	**($45,254)**	**$6,268**	**($48,448)**	-113.9%	-872.9%
		TEMPORARILY RESTRICTED NET ASSETS					
		INSTITUTIONAL	**$224,192**	**$251,284**	**$267,996**	12.1%	6.7%
	?	FOUNDATION				-	-
		TOTAL	**$224,192**	**$251,284**	**$267,996**	12.1%	6.7%
		PERMANENTLY RESTRICTED NET ASSETS					
		INSTITUTIONAL	**$82,307**	**$85,992**	**$89,860**	4.5%	4.5%
	?	FOUNDATION				-	-
		TOTAL	**$82,307**	**$85,992**	**$89,860**	4.5%	4.5%
		TOTAL NET ASSETS	**$261,245**	**$343,544**	**$309,408**	31.5%	-9.9%
		TOTAL LIABILITIES AND NET ASSETS	**$539,397**	**$575,251**	**$602,835**	6.6%	4.8%

Standard 9: Financial Resources
(Statement of Revenues and Expenses)

		FISCAL YEAR ENDS month &day: (12 /31)	3 Years Prior 12/31/2012	2 Years Prior 12/31/2013	Most Recently Completed Year 12/31/2014	Forecast (12/31/2015)	Next Year Forward (12/31/2016)
		OPERATING REVENUES					
	?	TUITION & FEES	$4,226	$4,041	$4,013	$4,761	$4,548
	?	ROOM AND BOARD					
	?	LESS: FINANCIAL AID					
		NET STUDENT FEES	$4,226	$4,041	$4,013	$4,761	$4,548
	?	GOVERNMENT GRANTS & CONTRACTS	$194,082	$190,574	$211,023	$212,930	$197,440
	?	PRIVATE GIFTS, GRANTS & CONTRACTS	$6,151	$7,829	$9,066	$10,054	$8,275
	?	OTHER AUXILIARY ENTERPRISES	$554	$578	$550	$551	$543
		ENDOWMENT INCOME USED IN OPERATIONS	$9,771	$10,879	$11,306	$11,669	$12,174
	?	OTHER REVENUE (specify): fees, fixed price, inkind donations	$1,725	$2,975	$3,382	$2,953	$2,915
		OTHER REVENUE (specify):Communications and sale of property	$222	$204	$165	$1,639	$172
		NET ASSETS RELEASED FROM RESTRICTIONS	($3,220)	($679)	($777)	($500)	($500)
		TOTAL OPERATING REVENUES	**$213,511**	**$216,401**	**$238,728**	**$244,057**	**$225,567**
		OPERATING EXPENSES					
	?	INSTRUCTION	$4,767	$4,335	$5,069	$4,771	$5,418
	?	RESEARCH	$196,118	$190,009	$211,244	$212,930	$197,440
	?	PUBLIC SERVICE					
	?	ACADEMIC SUPPORT					
	?	STUDENT SERVICES					
	?	INSTITUTIONAL SUPPORT	$10,511	$11,096	$10,250	$6,722	$6,677
		FUNDRAISING AND ALUMNI RELATIONS	$2,390	$2,392	$1,632	$2,316	$2,709
	?	OPERATION, MAINTENANCE OF PLANT (if not allocated)					
	?	SCHOLARSHIPS & FELLOWSHIPS (Cash refunded by public institutions)					
	?	AUXILIARY ENTERPRISES	$312	$292	$402	$327	$338
	?	DEPRECIATION (if not allocated)					
	?	OTHER EXPENSES (specify):student expenses, post doc and other	$5,661	$5,487	$5,921	$4,117	$6,819
		OTHER EXPENSES (specify):Communications, other and pension curtailme	$2,169	$2,805	$3,077	$1,240	$1,400
		TOTAL OPERATING EXPENDITURES	**$221,928**	**$216,416**	**$237,595**	**$232,423**	**$220,801**
		CHANGE IN NET ASSETS FROM OPERATIONS	**($8,417)**	**($15)**	**$1,133**	**$11,634**	**$4,766**
		NON OPERATING REVENUES					
	?	STATE APPROPRIATIONS (NET)					
	?	INVESTMENT RETURN	**$19,401**	**$40,143**	**$18,170**	**$10,000**	**$20,000**
	?	INTEREST EXPENSE (public institutions)					
		GIFTS, BEQUESTS & CONTRIBUTIONS NOT USED IN OPERATIONS					
	?	OTHER (specify):Net periodic pen, other pension adj and pension curtailment	**($16,595)**	**$44,086**	**($55,160)**		
		OTHER (specify):Return on inv for retiree and active medical plans	**$2,416**	**($3,000)**	**$1,737**		
		OTHER (specify):redesignation of gift	**$310**	**$1,085**	**($16)**	**($115)**	
		NET NON OPERATING REVENUES	**$5,532**	**$82,314**	**($35,269)**	**$9,885**	**$20,000**
		INCOME BEFORE OTHER REVENUES EXPENSES, GAINS, OR LOSSES	**($2,885)**	**$82,299**	**($34,136)**	**$21,519**	**$24,766**
	?	CAPITAL APPROPRIATIONS (public institutions)					
	?	OTHER					
		TOTAL INCREASE/DECREASE IN NET ASSETS	**($2,885)**	**$82,299**	**($34,136)**	**$21,519**	**$24,766**

Standard 9: Financial Resources
(Statement of Debt)

		FISCAL YEAR ENDS month & day (12 /31)	3 Years Prior 12/31/2012	2 Years Prior 12/31/2013	Most Recently Completed Year 12/31/2014	Current Budget* 12/31/2015	Next Year Forward 12/31/2016
		DEBT					
		BEGINNING BALANCE	$60,613	$59,119	$57,561	$55,942	$54,253
		ADDITIONS					
	?	REDUCTIONS	($1,494)	($1,558)	($1,619)	($1,689)	($1,754)
		ENDING BALANCE	**$59,119**	**$57,561**	**$55,942**	**$54,253**	**$52,499**
		INTEREST PAID DURING FISCAL YEAR	$4,892	$4,793	$4,686	$4,586	$4,431
		CURRENT PORTION	$1,530,000	$1,595,000	$1,655,000	$1,725,000	$1,790,000
		BOND RATING	AA-	AA-	AA-	AA-	AA-
		DEBT COVENANTS (PLEASE DESCRIBE):					
		See attached document titled Tax Exempt Bond Reporting Requirements The Institution is in compliance with all bond covenants					

*"Current Budget" refers to 2015.

Bond Reporting Deadlines

Due Date	Item	Send To:	Purpose / Required By	Bound Bond Edition Tab #	Paragraph 1 or e-mail text	Paragraph 3
1/29/20XX	Cert of Unrestricted Resources	MBIA	2004 Bond Section 1209, Loan & Trust Agreement; Swap Rate Insurance Policy	20, 26	January 1, 20XX $ & $ from most recent AFS	January 1, 20XX XXX% calc based on & year from most recent AFS
2/14/20XX	Stmt of Fin Pos / Stmt of Ops	MBIA	2004 Bond Insurance and Reimbursement Agreement	22	from most recent IFS	
5/14/20X	Stmt of Fin Pos / Stmt of Ops	MBIA	2004 Bond Insurance and Reimbursement Agreement	22	from most recent IFS	
5/29/20XX	AFS (Draft)	U.S. Bank	Loan and Trust Agreement			
5/29/20XX	AFS (Draft)	MHEFA	2008 Bond Document Section 905 & 2004 Bond Section 1205 Loan & Trust Agreements	22, 20	most recent AFS	
5/29/20XX	AFS (Draft)	MBIA	2004 Bond Insurance and Reimbursement Agreement; Revised as of June 18,2004 Commitment to Issue a Financial Guaranty Insurance Policy and Interest Rate Swap Insurance Policy	22, 26	Date of most recent AFS	
6/29/20XX	No Default Certificate	U.S. Bank	2004 Bond Section 1205, 2008 Bond Section 905 Loan & Trust Agreements	20, 21	12/31/prior CY	
6/29/20XX	No Default Certificate	MHEFA	2004 Bond Section 1205, 2008 Bond Section 905 Loan & Trust Agreements	20, 21	12/31/prior CY	
6/29/20XX	No Default Certificate	MBIA	2004 Bond Insurance and Reimbursement Agreement; Revised as of June 18,2004 Commitment to Issue a Financial Guaranty Insurance Policy and Interest Rate Swap Insurance Policy	22, 26	Date of most recent AFS	
6/29/20XX	Annual Report	U.S. Bank	2008 Bond Continuing Disclosure Section 3(a); Section 905 Loan & Trust Agreement			
7/30/20XX	Cert of Unrestricted Resources	MBIA	2004 Bond Section 1209, Loan & Trust Agreement; Swap Rate Insurance Policy	20, 26	July 1, 20XX $ & $ from most recent AFS	July 1, 20XX XX% calc based on & year from most recent AFS
8/14/20XX	Stmt of Fin Pos / Stmt of Ops	MBIA	2004 Bond Insurance and Reimbursement Agreement	22	from most recent IFS	
8/30/20XX	AFS	U.S. Bank	Loan and Trust Agreement			
8/30/20XX	Annual Report	U.S. Bank	2008 Bond Continuing Disclosure Section 3(a); Section 905 Loan & Trust Agreement			
8/30/20XX	AFS	MHEFA	2008 Bond Section 905 Loan & Trust Agreements	21	most recent AFS	
8/30/20XX	Annual Report	MHEFA	2008 Bond Continuing Disclosure Section 3(a); Section 905 Loan & Trust Agreement	22, 21	Submitting report (prepared by WHOI)	
8/30/20XX	AFS	MBIA	2004 Bond Insurance and Reimbursement Agreement; Revised as of June 18,2004 Commitment to Issue a Financial Guaranty Insurance Policy and Interest Rate Swap Insurance Policy	22, 26	Date of most recent AFS	
11/14/20XX	Stmt of Fin Pos / Stmt of Ops	MBIA	2004 Bond Insurance and Reimbursement Agreement	22	from most recent IFS	
Not Due Every Year	Arbitrage Rebate Report	U.S. Bank	Effective 2013 USBank is requiring use of Rebate Year ending June 30 (under the LTA), instead of previous reports based on Tax Certificate having a Bond Year ending December 3		Submitting report (prepared by WHOI)	
Not Due Every Year	Arbitrage Rebate Report	MHEFA	Effective 2013 USBank is requiring use of Rebate Year ending June 30 (under the LTA), instead of previous reports based on Tax Certificate having a Bond Year ending December 3		Submitting report (prepared by WHOI)	

Standard 9: Financial Resources
(Supplemental Data)

		FISCAL YEAR ENDS month & day (12/31)	3 Years Prior 12/31/2012	2 Years Prior 12/31/2013	Most Recently Completed Year 12/31/2014	Current Budget* Estimated 12/31/2015	Next Year Forward 12/31/2016
		NET ASSETS					
		NET ASSETS BEGINNING OF YEAR	$264,130	$261,245	$343,544	$309,407	$333,926
		TOTAL INCREASE/DECREASE IN NET ASSETS	($2,885)	$82,299	($34,137)	$24,519	$24,766
		NET ASSETS END OF YEAR	**$261,245**	**$343,544**	**$309,407**	**$333,926**	**$358,692**
		FINANCIAL AID					
		SOURCE OF FUNDS					
		UNRESTRICTED INSTITUTIONAL					
		FEDERAL, STATE & PRIVATE GRANTS					
		RESTRICTED FUNDS					
		TOTAL	**$0**	**$0**	**$0**	**$0**	**$0**
		% DISCOUNT OF TUITION & FEES					
?		% UNRESTRICTED DISCOUNT					
		PLEASE INDICATE YOUR INSTITUTION'S ENDOWMENT SPENDING POLICY:					
		See attached document					

*"Current Budget" refers to 2015.

WOODS HOLE OCEANOGRAPHIC INSTITUTION

The Endowment
Statement of Investment Policies and Objectives

Scope

This policy provides guidance for the Investment Policy, Strategy, and Management of the Endowment of the Woods Hole Oceanographic Institution, and the annual Distributions made from the endowment that are required to fund the Institution's Operations.

Compliance will be audited in accordance with WHOI internal audit requirements with oversight provided by The Investment Committee of the Board of Trustees.

1. Introduction

The Woods Hole Oceanographic Institution (WHOI or the Institution) is a non-profit research and educational institution committed to studying the earth's oceans, and providing leadership in initiating groundbreaking oceanographic research and engineering. Because a significant portion of the Institution's income is derived from the Endowment's investments, the Board of Trustees has entrusted the Investment Committee with developing and executing an investment strategy that is designed to assure that the Endowment sustains itself in perpetuity while providing the capacity to fund the Institution's current operations.

The Investment Policy Statement, prepared and approved by the Investment Committee (the Committee) of the Board of Trustees, is designed to provide guidance for the management of the Woods Hole Oceanographic Institution Endowment Portfolio (the Fund or Portfolio). It is to be used as a guide for directing, executing, and communicating activities related to the management and performance of the Endowment. Furthermore, it establishes the long range objectives for management of the Endowment investment program, in turn gearing it to provide the capacity required to fund both the current and future operating activities of the Institution. This policy also provides boundaries within which the Endowment will be managed by specifying what the trustees believe to be prudent risk guidelines and parameters.

The Policy Statement provides information on 1) governance structure, including the responsibilities of those involved in the endowment's management; 2) the goals and objectives of the investment portfolio; and 3) the investment policies used in the implementation of the investment strategy.

2. Committee Composition

The composition of the Investment Committee will be as provided in the WHOI Bylaws as amended from time to time.

The Investment Committee will meet no less than four (4) times per year. Additional meetings may be held at the discretion of the Investment Committee Chair.

Two-thirds of the Investment Committee membership will constitute a quorum for purposes of holding a meeting, and the Investment Committee may act by a vote of a majority of the members present at such meeting.

3. Investment Objectives

The purpose of the Investment Committee is to assure the prudent management of the Institution's Endowment, providing the liquidity needed to fund its current operating requirements, while managing it to support the anticipated growth of the operating budget over an extended period of time.

In managing and investing the Endowment, the following factors, and such other factors as the Investment Committee may in its discretion determine, shall be considered:

1) General economic conditions;
2) The possible effect of inflation or deflation;
3) The expected tax consequences, if any, of investment decisions or strategies;
4) The role that each investment or course of action plays within the overall investment portfolio of the Endowment;
5) The expected total return from income and the appreciation of investments;
6) Other resources of the Institution;
7) The needs of the Institution and the Fund to make distributions and to preserve capital; and
8) An asset's special relationship or special value, if any, to the charitable purposes of the Institution.

The principle financial objectives are to (1) preserve and enhance the Endowment's real (inflation-adjusted) purchasing power in order to support the Institution's future operating requirements; (2) support the Institution's annual operating budget, and (3) provide funding for extraordinary items, which may include, but are not limited to, investment in scientific research and capital investments which will have either a strategic or critical business impact on the Institution. The use of the Endowment to fund extraordinary items would be subject to the approval of the Board of Trustees.

The long-term investment objectives of the Fund are to (1) achieve an average annual real total return of at least 5.0% (net of investment management and custodial fees) over rolling five-year periods; and (2) generate acceptable long-term returns, as determined by measurement against the Fund's custom benchmark and peer performance, without compromising the liquidity and stability required of the Fund to support the Institution's annual operating requirements. The Fund should attempt to achieve these objectives within the bounds of an acceptable risk/reward profile.

Real Return is defined as *the sum of realized and unrealized capital appreciation (or loss) and current income in the form of dividends and interest, adjusted for inflation as measured by the Consumer Price Index.*

4. Spending Policy

The Endowment is managed according to the total return concept, which envisions that the sources of the Endowment draw (i.e., the amount spent or withdrawn from the Endowment to fund the Institution's operations) are derived from interest and dividend income, and capital gains. Expenditures from the Endowment are determined taking into account the following factors and such other factors as the Investment Committee may in its discretion determine:

1) The duration and preservation of the Endowment;
2) The purposes of the Institution and the Endowment;
3) General economic conditions;
4) The possible effect of inflation or deflation;
5) The expected total return from income and the appreciation of investments;
6) Other resources of the Institution; and
7) The investment policy of the Institution.

In the event that capital gains are insufficient to meet the difference between the draw amount and the total of interest and dividends, that difference will be withdrawn from the unrestricted endowment, subject to the provisions of the Uniform Prudent Management of Institutional Funds Act.

The Board of Trustees has determined that the draw required to support the Institution's annual operating budget should not exceed 5.0% of the Fund's trailing 36-month rolling average market value calculated each year as of June 30th.

5. Delegation of Responsibilities

The Board of Trustees has authorized The Investment Committee to act on its behalf in implementing the Institution's Investment Policy. The responsibilities required to execute the policy include, but are not limited to, the following:

A. The Investment Committee

1) Establish and periodically review this Statement of Investment Policies and Objectives, which stipulates eligible investments, asset classes, and policy allocation guidelines.
2) Selection, management, retention, and dismissal of outside professionals (e.g., investment managers, consultants, and custodians).
3) Evaluates performance measurement characteristics against benchmarks.
4) Monitoring manager performance on a formal basis, conforming to a predetermined calendar while staying abreast of manager activities on an informal basis throughout the year.
5) Monitor manager liquidity and risk profiles, and establish appropriate reserves in collaboration with the Finance Committee and WHOI Finance and Administration.
6) Periodic reporting to the Board of Trustees on manager performance, as well as any other substantive matters.
7) Evaluation and approval of deviations from this Statement of Investment Policies and Objectives.

B. WHOI Finance and Administration

1) Administration of investment-related and manager-related actions and implementation of any changes approved by the Investment Committee.
2) Support Investment Committee monitoring of manager performance, liquidity and risk profiles.
3) Periodic reporting to the Investment Committee and the Board of Trustees.

C. Managers

1) **The Core Fund Manager** (CFM) has the following responsibilities, subject to agreements between such CFM and the Institution:

    a. Advise the Investment Committee in reviewing and revising this Statement.
    b. Implement the policy of the Core Fund Manager with respect to asset allocation, rebalancing as necessary to capture strategic and tactical opportunities.
    c. Support the Committee's definition and ongoing evaluation of performance characteristics, and its formulation of appropriate benchmarks.
    d. Independently manage Endowment assets for which as Special Fund Manager or a separate investment manager has not been appointed.
    e. Complete and execute documents required to hire and terminate investment managers.
    f. Establish (and revise as appropriate) manager-specific guidelines for investment managers assigned to manage separately managed accounts. Review the guidelines of commingled investment vehicles managed by investment managers.

g. Determine the amount of assets delegated to each investment manager.
h. Oversee and monitor investment managers, focusing on performance, fulfillment of stated investment objective, organizational strength and stability, and regulatory compliance.
i. Administer the Fund's day-to-day investment activities including the movement of funds within the Fund.
j. Provide reports of Fund performance to the Committee in accordance with Appendix C, with interim communication as required. Provide documentation required to support audit preparation.

2) **Special Fund Managers** (SFMs) have the following responsibilities, subject to agreements between such SFMs and the Institution:

a. Execute programs that support the objectives of those funds not managed by the Core Fund Manager, selecting portfolio holdings in accordance with this statement and manager-specific guidelines.
b. Provide quarterly performance reports to the Committee, supporting interim communication as required.
c. Notify the Committee and appropriate WHOI Manager of Treasury Operations (CFO's or Controller's Office) as soon as practicable of:

- Any Policy guideline that impairs or prevents the achievement of performance objectives.
- New developments or circumstances that warrant a change in this Statement.
- Discovery of material malfeasance by any portfolio manager or senior rank employee associated with the WHOI relationship.
- Any material disciplinary action by any regulatory authority.
- Any significant change in either the Special Fund Manager's investment strategy or portfolio structure.
- A material change in organizational structure and composition, including changes of portfolio managers, analysts, and ownership of the Special Fund Manager.
- Any improvements to the system of internal controls suggested by either the Special Fund Manager's auditors or regulatory authorities that would result in a material change to the Special Fund Manager's business.
- Provide WHOI with a copy of its annual Form ADV, Parts I and II.
- Provide other reports or information consistent with the agreement between the Special Fund Manager and the Committee.

6. Portfolio Management

The following principles will be used by the Investment Committee in its selection of managers and in its evaluation of their performance.

A. Asset Structure

The Fund's policy portfolio structure and composition should reflect market valued weightings of liquid assets, modified to provide for allocations to illiquid (and alternative) investments that the Fund managers believe have a reasonable chance of outperforming their liquid peers and offering higher returns over extended and longer periods of time. The Investment Committee will hire a Core Fund Manager and possibly other managers for task specific purposes. These managers will, in turn, make tactical adjustments to policy asset allocations that reflect their collective assessment of short to medium range risks and opportunities. Both the policy and tactical structures of the endowment will be reviewed at least once each calendar year.

By policy, and as executed by the Core Fund Manager and Special Fund Managers, the Fund's investments shall be diversified by manager, by asset class (e.g. equities, bonds, alternative assets, and real estate) and within asset classes (e.g. within equities by economic sector, industry, quality, and size). The purpose of diversification is to provide reasonable assurance that no manager, class of securities, or individual holding will have a disproportionate impact on the Fund's aggregate results.

To achieve its long-term investment objective, the Fund's assets will be invested in an array of asset classes and investment vehicles, which will attempt to moderate volatility and provide protection against deflationary and inflationary forces. The asset allocation of the Fund should balance WHOI'S need for liquidity to support both ongoing operating requirements and contingencies with its need to enhance the Fund's purchasing power over an extended period of time, all within the collective risk tolerance of the Investment Committee and the Board of Trustees.

In collaboration with the Core and Special Fund Managers, the Investment Committee selects benchmarks for the evaluation of the Fund's performance based on the similarity of the underlying assets, historical rates of return relative to (in most cases) a risk-adjusted risk free rate of return, and underlying statistically defined volatility. The Committee strives to structure the portfolio so that it consistently exceeds the performance indicated by the weighted aggregation of the specified indices.

The historical baseline asset mix and relevant indices as determined by the Investment Committee are presented in **Appendix A**. These are provided to support the Fund's ongoing governance, and for use as a reference point in evaluating the reasonableness of the allocations and performance of the Core and Special Fund Managers over an extended period of time.

B. Implementation

The Committee delegates responsibility for managing the Fund to the Core Fund Manager who exercises total and complete discretion based on the Investment Policy Statement attached as **Appendix B**. The Committee may also select other managers (SFMs) to execute discrete strategies designed to achieve the objectives of other portions of the Fund (e.g., reserves and liquidity buffers).

7. Monitoring and Communications of Objectives and Results

Unless otherwise modified as provided herein objectives and policies described in this Statement are in effect until modified by the Investment Committee and approved by the Board. They will be reviewed at least annually at a meeting of the Committee to assure their ongoing relevance and appropriateness. If at any time a manager believes that a guideline inhibits investment performance, it is the manager's responsibility to clearly communicate this conflict to the Committee.

Each manager's investment process will be monitored by the Committee with that manager's stated investment philosophy, and for portfolio risk and returns relative to objectives, risk management procedures, exposure to extreme economic conditions, and market volatility.

Portfolio results will be reviewed by the Investment Committee on a quarterly basis, and evaluated over rolling three to five-year periods. The Committee will also regularly review the operations and performance of the CFM and the SFMs.

The Endowment's financial objective is to achieve a long-term annual average compound return that is at least equal to the *sum* of the Spending Rate (5.0%) *plus* Inflation (3.0%) *plus* management and administrative expenses. In any given year, the desired real return of the

Endowment (after deducting the effect of inflation), therefore, should exceed an absolute return objective of 6.0%. Each manager of the Fund shall be evaluated on its ability to achieve this objective over time, an evaluation that again will be made in the context of three to five year performance periods. Other considerations affecting the evaluation of manager performance are:

- The Core Fund Manager (CFM) manages the majority of the Endowment and invests across global asset classes and strategies. The dynamic nature of the Core Fund Manager's portfolio allocation complicates determination of an applicable benchmark that replicates the performance of the actual portfolio at any given time.

  In order to assess the quality of the Core Fund Manager's asset allocation and manager selection decisions, the CFM will be expected to outperform the median return of the following peer universe: Cambridge Associates Endowment Composite

- Special Fund Managers (SFMs) will be evaluated using appropriate *established* benchmarks that replicate the performance of the asset class or strategy that most closely characterize those of the SFM. In addition, SFMs may also be evaluated using a group of peer managers that closely resemble the asset class and strategy of the SFM.

The Core Fund Manager will report to the Committee on the schedule and with the reports set forth in **Appendix C**. Special Fund Managers will report the following information at least quarterly: total return net of all commissions and fees and additions and withdrawals from the account. The managers will also provide a list of current holdings at cost and at market value, and purchases and sales for the quarter, within reason. Managers may be required to reconcile records of holdings, transactions, and dividend/interest income with the Fund's custodian on a regular basis. Regular communication concerning investment strategy and outlook is expected.

Additionally, the managers are required to inform the Investment Committee as soon as possible of any material change, as applicable, in firm ownership, acquisitions of other investment managers, changes to organizational structure, subpoenas received from the SEC or any other regulatory or law enforcement agency or official, notice of any disciplinary proceedings against the manager instituted by any regulatory agency, departures of key professional personnel, changes of account structure (e.g., number, asset size and account minimums), or changes in the manager's fundamental investment philosophy.

On an annual basis, each manager will provide WHOI with a copy of its form ADV, Part I and Part II.

The Committee will meet with the Core Fund Manager according to the schedule(s) provided in **Appendix C**. Meetings with Special Fund Managers will be detailed in agreements with those managers.

Each manager shall be provided a copy of this Investment Policy Statement, and any material amendments to it.

8. Miscellaneous Provisions

Conflict of Interest

Trustees, who serve on the Investment Committee, and Institution senior staff involved in investment oversight, are charged with the responsibility for decisions, which in their judgment best serve the long-range interests and objectives of WHOI. From time to time, the Investment

Committee and Staff may consider matters in which members of the Investment Committee, Staff, persons affiliated with them, or persons affiliated with WHOI have a direct or indirect financial interest. In order to resolve any questions of conflict of interest, whether real or apparent, the Investment Committee adopts the following procedures, in addition to and consistent with the Institution's general Conflict of Interest Policy:

- Members of the Investment Committee and Staff shall disclose to the Investment Committee any relevant facts or circumstances that might give rise to a conflict of interest, or perception of a conflict of interest, with respect to matters that come before the Investment Committee. Such facts and circumstances include, but are not limited to, instances where the Investment Committee and/or Staff member, and/or his, or her, immediate family (i) serves as director of, is employed by, or is an equity investor or partner in, a firm managing assets of WHOI, or a firm which has an ownership interest in a firm managing assets of WHOI, (ii) has invested personal or family assets with a firm managing assets of WHOI, or (iii) has knowledge that a principal of a firm managing assets for WHOI is being, or will be, solicited for a major gift to WHOI.
- Individuals so affected shall abstain from Investment Committee discussions of, and any decisions relating to, any such matters. Abstentions shall be recorded in the minutes of the meeting.
- Under normal circumstances members of the Investment Committee or Staff may not be a director of or be employed by firms managing investments of WHOI.

Potential Policy Conflicts

The Committee acknowledges that its investments in mutual funds, limited partnerships, and commingled funds are governed by the agreement executed between WHOI and the Core and Special Fund Managers. To the extent that there are differences between the preceding guidelines and agreements with such manager(s), the manager agreements will control.

Approved and adopted by the Board of Trustees, November 2012.

Steven G. Hoch
Chair
The Investment Committee
Woods Hole Oceanographic Institution

Newton P.S. Merrill
Chairman of the Board of Trustees
Woods Hole Oceanographic Institution

Appendix A

Historical Asset Allocation Targets, Ranges, and Performance Benchmarks
Governance Baseline
The Investment Committee
Woods Hole Oceanographic Institution

Asset Class	Baseline Target	Tactical Range	Benchmark Indices
U.S. Equities	20.0%	15.0% - 25.0%	S&P 500 (91 Day Treasury Bills + 5%)
Global ex U.S. Equities	19.0%	15.0% - 25.0%	MSCI World ex US (91 Day Treasury Bills + 6%)
Emerging Market Equities	6.0%	2.0% - 10.0%	MSCI Emerging Markets Free (91 Day Treasury Bills + 7%)
Marketable Alternative Assets	20.0%	15.0% - 25.0%	91 Day Treasury Bills + 5.0%
Non-Marketable Assets	15.0%	10.0% - 20.0%	91 Day Treasury Bills + 8.0%
Real Assets	10.0%	5.0% - 15.0%	Consumer Price Index + 5.0%
Bonds	10.0%	7.5% - 20.0%	BC Aggregate Bond Index
Cash and Equivalents	0.0%	0.0% - 10.0%	91 Day Treasury Bills

Appendix B

Core Fund Manager Investment Guidelines
Global Endowment Management

Woods Hole Oceanographic Institution (WHOI) is subject to the laws of the State of Massachusetts, and any other forum to the extent such forum's law is applicable in any legal proceeding.

Pursuant to that applicable law, the Board and the Committee have delegated Core Fund investment management responsibility to Global Endowment Management, LP, a Delaware limited partnership and registered investment advisor ("GEM").

The Committee understands and acknowledges that, to the extent that WHOI allocates funds to GEM, it is accepting GEM's Investment Policy Statement ("IPS"), as amended from time to time by GEM in its sole and absolute discretion, as the WHOI investment policy with respect to the Core Fund. Attached to this **Appendix B** is GEM's Investment Policy Statement, current as of the date of this Investment Policy.

The Board of Trustee's decision to engage Global Endowment Management as the Institution's Core Fund Manager is memorialized in a Subscription Agreement with GEM. Furthermore, the rights of WHOI as a GEM fund investor are contained in the Global Endowment Fund II, LP Limited Partnership Agreement dated April 2012. Disclosures concerning the investment are included in the Global Endowment Fund II, LP Confidential Offering Memorandum also dated April 2012.

The Global Endowment Management Investment Policy Statement is provided next, starting on the following page.

INVESTMENT POLICY STATEMENT

Investment Policy Implementation
The Global Endowment Management, LP ("GEM" or the "Company") Investment Committee, chaired by the Chief Investment Officer, has three primary responsibilities:

a) to review the managed funds' (together, the "Fund") Investment Policy Statement against GEM's long-term objectives and to modify it as necessary;
b) to allocate and rebalance assets to capture strategic and tactical opportunities; and
c) to change the roster of external managers, oversee current relationships, manage certain assets directly, and oversee related administrative functions.

GEM allocates capital to different managers/strategies using a conviction-weighted approach that takes into account GEM's views on the current opportunity set and our perception of risk, both quantitatively (e.g., amount of leverage used, volatility and position concentration) and qualitatively (e.g., our assessment of back office operations, financing and prime brokerage relationships). Core positions are typically between 1-3% of the Fund.

Return Objective
The long-term return objective of the Fund is to preserve purchasing power by seeking to generate a 5% return after inflation.

Risk Tolerance
Employing an endowment-style approach to investing requires that the Fund have a long-term horizon and seek diversified, often contrarian opportunities. Therefore, as it focuses on generating meaningful compound real returns over the long term, the Fund can perform quite differently from standard market benchmarks in the short term.

Approach
The Fund is invested for total return; generating current income is not an objective. The long-term, total return objective dictates a significant allocation to asset classes expected to generate equity-like returns. The risks inherent in higher-returning asset classes can normally be reduced through diversification, which is a key principal of GEM's asset allocation approach. Typically, however, assets that diversify risk earn lower expected returns, and this 'return penalty' generally limits the amount of these assets that can be held in a portfolio seeking to achieve a 5% real return.

The first step in building our portfolio is to establish a long-term target asset mix, by balancing high-expected returning assets with diversifying assets. We delineate asset classes by grouping together investments which share similar underlying attributes and drivers, without distinction between public and private investments.[1] Through our strategic policy review process, we assess the return, risk and liquidity characteristics of each asset class and set target allocations as well as implementation ranges with a 10-year horizon. The process centers around a risk-optimization framework that seeks to deliver the highest-returning portfolio within a given set of risk constraints. GEM employs an

[1] Whether a particular investment is 'listed' or 'unlisted,' 'marketable' or 'private,' does not affect its asset classification. Allocating capital between public and private investments is an implementation decision. We invest in private investments based on their risk-adjusted attractiveness relative to comparable marketable investments, subject to the Fund's liquidity management guidelines.

internally-developed optimization model that identifies the highest-returning unlevered portfolio at a given level of CVaR (average loss in the worst five percent of outcomes). We develop forward-looking projections for return, risk (including non-normal probability distributions) and interaction (including non-stationary correlations) for each asset class using various quantitative tools, and incorporating historical data, bottom-up forecasts, and sell side and buy side Wall Street research.

At the asset class level specifically, we would expect Equity to provide a return that exceeds our 5% real return objective; listed equity offers better liquidity than private but is also more volatile. Hedge Funds provide alternative, return-enhancing opportunities and, at times, additional risk diversification. As a structure, Hedge Funds also tend to attract the best investors over time. Real Assets are primarily private, and serve to diversify from financial assets and afford a measure of protection against inflation. Fixed Income is added to the mix to dampen volatility and provide a degree of protection in poor equity environments. To implement exposures within efficient, liquid asset classes, we may employ low-cost, passive instruments such as ETFs, futures and swaps in place of active management. Hedges/Opportunistic positions will primarily seek to mitigate risks that may arise from portfolio concentrations or to enhance returns by taking tactical positions (e.g., currencies, gold, rates, credit defaults). Asset classes are identified and explained in greater detail in Exhibit A.

Target Portfolio and Benchmarks

The Fund's long-term targets are presented in the following table, which lists long-term allocations to each asset category and the permissible ranges of actual investment exposure. GEM reviews these allocations and ranges every 12-18 months. In addition, we employ an interim target allocation for Real Assets reviewed every 12 months, described below.

Asset Class	Target	Range	Benchmark	Strategies
Equity	40%	20-60%	MSCI All Country World Index	Public and private US/developed; international/emerging markets long-only and long-biased
Hedge Funds	25%	10-40%	DJCS Hedge Fund Index	Long/short and short-biased; event-driven; primarily non-investment grade and distressed credit; multi-strategy
Real Assets	25%	10-40%	70% NCREIF (1Q lag) 15% MSCI REIT Index 15% DJUBS Commodity Index	Real estate; power, infrastructure and non-resource real assets; liquid commodities and private natural resources
Fixed Income	10%	5-25%	Barclays Treasury Index	US Treasuries; other sovereign debt; investment grade credit
Hedges/Opportunistic	0%	0-10%	US 3-month T-Bill	Currency; gold; other
Total	100%			

Over the long term, the Fund's average asset allocation should be consistent with the targets listed above. However, over shorter periods, actual asset allocation may vary significantly from long-term targets. The active ranges allow necessary flexibility for both GEM-driven and market-driven divergence from the long-term targets. First, in the course of portfolio management, GEM may shift opportunistically among asset classes to capitalize on disequilibria between markets. The framework

for such tactical allocation is value-based, meaning GEM looks across asset classes in an attempt to determine which present the most compelling risk-reward for the portfolio. We gather information from a number of public and private sources, including frequent dialogue with our active managers regarding their view of the current opportunity set.

A second reason for deviations from long-term targets lies in the nature and management of illiquid alternative assets, *viz.*, the majority of the Real Assets portfolio as well as private/unlisted investments within any of the other asset classes. Private investments are "made" (i.e. cash is invested) only when individual third party funds, or transactions, call capital. As a result, we have less control over, or ability to fine-tune, the exact allocation to private investments. To account for this inability to time actual capital allocations in private investments, we adjust our long-term target asset class weights to reflect our interim allocation for Real Assets. Because GEM's Real Assets are predominantly private, and public market proxies are an inadequate substitute, it is necessary to set an interim target to Real Assets to avoid creating incentives to set a lower target than is appropriate given the long-term goal or to use overvalued public proxies to meet the target in the short-term. GEM sets an interim target level for Real Assets before the start of each calendar year – our best guess as to where our exposure to Real Assets will be on average as we move toward our long-term target, all else being equal. If the interim target is below the long-term target of 25%, the amount of that underweight will be allocated to the other asset classes pro-rata. For example, an interim target of 20% to Real Assets implies an underweight of 5% to long-term target. This 5% underweight would be allocated pro-rata across the other three asset classes such that the adjusted benchmark would, rounded to the nearest 1%, become 43% Equity (i.e., 5% x 40%/75% = 2.7% + 40% ≈ 43%), 27% Hedge Funds, 20% Real Assets, and 10% Fixed Income. In short, these annual adjustments to long-term targets produce a current policy portfolio.

GEM will rebalance the Fund (across liquid asset classes) as needed to keep the asset allocation within active ranges. Rebalancing helps control risk and captures returns originating from excess volatility in the public markets.

The Fund's short- to medium-term performance (periods of one to five years) is judged primarily against its policy portfolio benchmark which is constructed using the target asset class percentage weightings multiplied by the corresponding index return, and rebalanced monthly. This comparison demonstrates the impact from both tactical asset allocation decisions and manager selection.

Liquidity

GEM manages liquidity across two primary dimensions: (i) we assess the liquidity required for short-term cash management, variation margin for derivative instruments, and unfunded commitments to make future investments; and (ii) we target an overall maximum for private investments.

To address the first dimension, we establish a minimum cash reserve, the 'liquidity buffer.' The liquidity buffer represents actual cash reserves, although GEM may 'bondize' or 'equitize' part of this cash to serve as part of our Fixed Income or Equity allocations. For obligations like private investment capital calls or negative variation margin from derivatives contracts outstanding, we estimate 'worst case' cash needs. The liquidity buffer, then, is the sum of the following components:

a) Margin required by the exchange or counterparty to hold specific derivative positions;

b) GEM's excess reserve to meet potential additional margin calls based on the volatility of the derivative instrument, calculated as a multiple of the quarterly standard deviation of the derivative instrument; and
c) Capital call reserves based on GEM's projections of net calls against its unfunded commitments

To address the second dimension, we aim to have no more than 35% of the Fund in private investments and no more than 50% in private investments plus unfunded commitments. In addition, we calibrate future private investments (i.e., those which typically call capital over a period of years) so that new commitments may be made only if, after a 20% drawdown of the Fund's net asset value, each of the following ratios would remain greater than 2x: (i) aggregate marketable assets to aggregate unfunded commitments; and (ii) marketable assets that can be converted to cash within 12 and 24 months to estimated capital calls during those periods.

Leverage

Leverage can be used at the Fund level, with a target of zero percent and a maximum of 20%. Philosophically, we consider leverage negative cash, and, just like positive cash, it can be a useful tool in portfolio management. However, leverage has negatively convex return characteristics (i.e., leverage gets larger as asset prices fall) and thus must be utilized conservatively and at appropriate times – hence our zero percent target and 20% maximum.

While we believe leverage must be used judiciously, it is important to recognize that leverage by itself does not necessarily indicate an increase in the Fund's risk/return profile. Modest leverage applied to lower-returning but diversifying assets may actually improve the Fund's risk/return profile.

We would typically implement leverage by obtaining market exposures through derivatives, which require less than a 100% cash investment, and investing some of the remaining cash elsewhere in the portfolio. We measure our exposures notionally for futures and swaps. Where appropriate, we may also use maximum loss or delta-adjusted exposure in our calculations.

With respect to leverage at the underlying manager level, we monitor levels closely and aggregate underlying third party fund leverage on a regular basis as a separate risk management tool.

Risk Management

GEM employs a combination of quantitative tools and qualitative judgment to assess and manage risk and minimize the probability of permanent capital impairment. The fundamental underpinning of our process is grounded in our fiduciary culture and conservative approach, which comprises frequent monitoring, appropriate position sizing, experience and judgment. We have established a separate risk management policy that is included in the Appendix as Exhibit B.

Currency

The Fund's functional currency is the US dollar, and we manage currency exposure from the perspective of a US dollar investor, although the Fund typically has non-dollar exposure given our focus on finding the most compelling investment opportunities across the globe. We estimate the combined currency exposure of portfolio investments and maintain the flexibility to hedge (or even augment) this exposure at the portfolio level. We consider the potential impact of a portfolio hedge (or portfolio of hedges) in terms of contribution to portfolio efficiency. We consider a hedge's

impact on portfolio return (e.g., transaction costs, expected currency performance and opportunity cost of additional liquidity buffer) and on portfolio volatility. Inputs to this model come from a variety of sources including internal views, historical data and external contacts (predominately currency market participants).

Exhibit A
Asset Class Definitions and Objectives

EQUITY

Definition
Equity includes the equity securities of publicly-traded and private companies in the US, international developed and emerging markets.

Objectives
The primary objectives of Equity are to:

- Provide returns through consistent exposure to equity securities (i.e., compensation for systematic risk);
- Provide returns in excess of appropriate benchmarks; and
- In the case of publicly-traded securities, provide liquidity to the Fund.

The portfolio seeks to exploit the relative inefficiency of small-cap, non-US and private markets over longer periods of time. Small-cap stocks generally provide an enhanced return relative to large-cap stocks, although this relative outperformance tends to occur in cycles. Non-US stocks expand the opportunity set, and at times provide a diversification benefit because their returns tend to be less correlated to the domestic equity market. Capital will be allocated to private investments when the opportunity exists for significant relative excess return (measured on a risk-adjusted basis) over available public equity investment alternatives, commensurate with overall Fund liquidity guidelines.

Benchmarks
Asset Class: MSCI All Country World Index
Managers: Strategy/market specific

HEDGE FUNDS

Definition
Hedge Funds represent an investment style rather than a particular asset class *per se*. Nonetheless, because they typically demonstrate a different risk/return profile than Equity, we treat it as a distinct asset category. The Hedge Funds portfolio may include long/short and short-biased strategies, event-driven strategies, primarily non-investment grade and distressed credit, relative value arbitrage, directional (macro & CTAs) and multi-strategy funds. Our Hedge Fund portfolio tends to have a low market exposure (measured by beta) with a focus on alpha generation. If a GEM fund utilizes a hedge fund structure but has a high exposure to the market, it would be classified as Equity.

Objectives
The portfolio seeks to generate meaningful risk-adjusted excess return and capture some positive exposure to the systematic risks of Equity while mitigating downside risk. The expected variability of returns is less than that of Equity, and liquidity will be moderate (i.e., less than that of Equity).

Benchmarks
Asset Class: DJCS Hedge Fund Index

Managers: Strategy/market specific

REAL ASSETS

Definition
Real Assets may include real estate, commodities, and private natural resources. The real estate allocation comprises primarily private real estate as well as energy and power infrastructure like pipelines and power generation assets, and general infrastructure like toll roads. Public REITs and MLPs are also used opportunistically. Liquid commodities consist primarily of commodity futures, but may also include the common stock of public companies with meaningful underlying commodities exposure. Private natural resources include oil and gas and timber partnerships, private mining companies, and agriculture.

Objectives
The portfolio's principal objective is to realize real returns in excess of 5% and to protect against unexpected inflation by providing positive returns in inflationary environments. A secondary objective is to provide some diversification through exposure to assets whose returns do not correlate directly with other asset classes.

Benchmarks
Asset Class: 70% NCREIF (1Q lag)/15% MSCI REIT Index/15% DJUBS Commodity Index
Managers: Strategy/market specific

FIXED INCOME

Definition
Fixed Income includes US Treasury and agency securities, swaps or futures, inflation-linked bonds, developed market sovereign bonds, investment grade corporate bonds, and asset-backed securities.

Objectives
The primary objectives of Fixed Income investments are to dampen overall volatility of the Fund, provide current income, and provide liquidity.

Benchmarks
Asset Class: Barclays Treasury Index
Managers: Strategy/market specific

HEDGES/OPPORTUNISTIC

Definition
Hedges/Opportunistic includes investments made to enhance returns or to hedge specific risks, or investments that do not fit into a defined asset class.

Objectives

Hedges/Opportunistic positions will primarily seek to enhance returns by taking tactical positions (e.g., currencies, gold, rates, credit defaults) or mitigate risks that may arise from portfolio concentrations.

Benchmarks
Asset Class: NA (zero policy target) or US 3-Month T-Bill
Managers: Strategy/market specific

CASH/LEVERAGE

Definitions
Cash includes liquid bonds, debt obligations, commercial paper, certificates of deposit, bankers' acceptances, and similar instruments with durations generally less than one year. The 0% target portfolio allocation is net of cash required as collateral for any derivatives used in the portfolio.

Leverage is a portfolio level tool we can employ, under appropriate market conditions, to enhance the portfolio's risk-adjusted return characteristics. Our target portfolio allocation to leverage is 0% with an upper range of 20% (i.e., 0.2 times leverage ratio). We create leverage at the portfolio level through derivative contracts (e.g., futures or swaps) on liquid asset classes.

Objectives
Cash and Leverage (in effect, negative cash) are important tactical tools in a long-term, multi-asset portfolio. While the neutral target to both is zero, there are times when each is appropriate to use tactically to raise or lower the risk/return profile of the Fund.

Benchmarks
Asset Class: NA (zero policy target)
Managers: Strategy/market specific

Exhibit B

RISK MANAGEMENT POLICY

This document describes the risk management objectives, processes, and procedures of Global Endowment Management, LP ("GEM" or the "Company"). The key risk we seek to manage in running the GEM managed funds (together, the "Fund") is investment risk, but we also must address liquidity, operational, counterparty and enterprise risks.

Objective:
Our main objective is to establish a framework to manage the risks we incur as we seek to generate attractive investment returns for our investors. An adjunct objective is to inform our investors through external reporting about the risk characteristics of their investments.

Process:
The Risk Committee has monitoring and oversight responsibility for all risk elements. The Chief Operating Officer and the Risk Committee have primary responsibility for our risk management process and for reporting to the Chief Investment Officer ("CIO") and the Investment Committee. We identify, measure and monitor sources of risk inherent in our portfolio and in our business; we review those variables which are shifting in uncharacteristic ways or beyond policy boundaries; and we initiate corrective action as appropriate.

(i) Identifying risk:
As a fund investing with multiple managers, we believe the primary risk inherent in our portfolio relates to investment manager-specific risk: the various investment exposures and operational risks that our external managers incur in running their portfolios and their firms. We work to identify these risks at the specific investment manager level and at the aggregate portfolio level. We are also cognizant of managing business risks within our own firm, which could adversely affect our investment performance and client service. The key risks we seek to identify are:

- Managers' investment exposures: credit, interest rate, currency, equity, volatility, and leverage;
- Managers' operational and business risks: liquidity management, valuation procedures, compliance, error resolution, and compensation;
- GEM total portfolio risks: liquidity, concentration, leverage, and geographic exposure;
- GEM's counterparty risks: exposure limits, execution quality, error rates and resolution (by trade counterparties, custodian bank, fund administrator); and
- GEM's internal business risks: stability and depth of team, investor concentration, business financial liquidity, disaster recovery and contingency planning, valuation, accounting, reporting and trading.

(ii) Modeling and measuring risk:
We seek to quantitatively measure investment risk at the manager, strategy and total portfolio level. We use specific tools tailored to the particular area being assessed: exposure tracking (manager, asset class, marketable/private, currency/region/sector, long/short); performance tracking (including private public market equivalents); liquidity management; risk and factor attribution/monitoring; supplemental risk information reporting; and forward/back testing.

Modeling and measuring risk at the total portfolio level is particularly important, and also very challenging. Returns in financial markets are difficult to model because they are not 'normally distributed,' yet traditional risk management tools assume that they are. We describe below the quantitative techniques we employ to address several shortcomings of the standard mean variance approach to modeling asset allocation. In the end, however, quantitative tools simply cannot capture all of the unknowns and can lead one to "precisely inaccurate" conclusions. Therefore, we apply a healthy dose of qualitative experience and judgment, grounded in our fiduciary culture and conservative approach, to interpret analyses and draw appropriate conclusions.

In setting our long term policy asset mix, we believe CVaR (Conditional Value at Risk) is a generally preferable measure of total portfolio risk than standard deviation for a long-term, endowment-style fund such as GEM's. CVaR is the expected cumulative real loss at the end of ten years in the worst five percent of cases – i.e., the 'tail' of the expected return distribution. Tail risk is a more important risk to long-term investors than annualized volatility (standard deviation), and CVaR better captures this risk. Nonetheless, we still measure and report our portfolio standard deviation, which remains the industry norm and is a more accessible real-time measure. On the other hand, we are not concerned at all with tracking error, another standard industry measure of risk relative to a benchmark. (If anything, we welcome tracking error when we are compensated with active return.)

We employ Monte Carlo simulations as our key policy portfolio modeling tool, using our forward looking capital market assumptions and some non-normal modeling techniques, in order to address several of the shortcomings of traditional mean variance optimization. One of those shortcomings is that mean variance optimization overstates diversification benefits by assuming static correlations. History teaches us, however, that correlations between asset class returns increase during periods of financial stress and extreme market events. Accordingly, we use a type of probability distribution called Student's t-copula to model increased dependence during extreme markets. In addition, since serial correlation causes volatility to be understated when annualizing monthly statistics, we use annual standard deviation to capture the effect of serial correlation, which results in higher but more realistic volatility assumptions. We then use generalized Pareto distributions to better fit observed skew and tails.

Traditional optimizers assume returns and risk are known with certainty and they tend to produce under-diversified portfolios that favor assets where returns have been over-estimated. To reflect uncertainty in estimating return and risk, we use resampling optimization which optimizes using subsets of heterogeneous data with differing characteristics, then averages the resulting weights to produce a more diversified portfolio and reduce model sensitivity to input error.

GEM also evaluates how our policy and actual portfolios could be expected to behave during times of market stress. We have applied policy and actual asset class weights to 15+ years of historical asset class returns to see how our portfolio would have performed, paying special attention to the following crisis periods in markets:

Rising Real Yields (Oct-1979 to Mar-1980)
Stock Market Crash (Oct-1987 to Dec-1987)
Recession/Financial Crisis (Jul-1990 to Sep-1990)
LTCM/Asian Debt Crisis (Jul-1998 to Sep-1998)
Tech Bubble Burst/Recession (Apr-2000 to Sep-2002)

'08 Financial Crisis (Nov-2007 to Feb-2009)

We regress manager and investment level returns against a set of ten market risk premia (US Equity, EM Equity Excess Return, EAFE Equity Excess Return, Large vs. Small Excess Return, Value vs. Growth Excess Return, Treasury Return, High Yield Excess Return, Investment Grade Excess Return, Real Estate Return, Commodities Return) and aggregate those factor exposures at the portfolio level to give us an understanding of portfolio level exposure to different risks. To avoid choosing highly-correlated factors, we use stepwise regression which starts by picking the most explanatory factor and only picks up additional factors if they add explanatory power to the regression.

We also focus on portfolio-level counterparty, leverage, concentration and liquidity risk.

- Counterparty risk: To the extent we employ OTC derivatives or trade securities directly, we transact with investment grade counterparties, who are large, highly-rated broker/dealers/banks. In addition, we arrange monthly settlement where possible to further mitigate our risk. We limit single counterparty exposure to 2% of the Fund. A counterparty concentration exposure report is produced monthly.

- Leverage: We define leverage as gross notional exposure as a percentage of equity for our portfolio. We calculate long exposure, short exposure, total gross exposure and net exposure. We have established a target of zero percent and a maximum of 20%. We consider the Fund to be leveraged if it has over 100% exposure to our underlying asset classes. Typically, notional exposure is used for futures and swaps. Where appropriate, we may also use maximum loss or delta-adjusted exposure in our calculations.

- Concentration risk: Our allocation to each investment manager reflects our level of conviction in the manager, their risk/return profile, and our view about the market opportunity. Our concentration limits are listed in the next section entitled "Monitoring Risk."

- Liquidity risk: We monitor our portfolio liquidity closely and use two reports to measure and manage our liquidity:

  (i) Portfolio Liquidity Report: Using manager-level asset information, combined with our estimates of lock ups, gates and side pockets, we produce and review a monthly report showing how much cash we can liquidate from our portfolio over various time horizons.

  (ii) Liquidity Buffer Report: We produce and review a weekly report to ensure that the portfolio maintains enough cash to meet short-term capital calls for private investment and margin calls for derivative contracts.

As a policy we aim not to have more than 35% of the Fund in private investments and no more than 50% of the Fund in private investments plus unfunded commitments. In addition, we calibrate future private investments (i.e., those which typically call capital over a period of years) so that new commitments may be made only if, after a 20% drawdown of the Fund's net asset value, each of the

following ratios would remain greater than 2x: (i) aggregate marketable assets to aggregate unfunded commitments; and (ii) marketable assets that can be converted to cash within 12 and 24 months to estimated capital calls during those periods.

It is important to note that with private investments, because of their illiquid, non-marketable nature, the value and riskiness of each position is not as easily assessed as for public securities. Intra-year NAVs are not necessarily a good indication of true value, and the lack of a market price may understate or "smooth" volatility. To offset these shortcomings, we look at company and property level detail in certain circumstances to assess the quality and value of our private investment managers' portfolios. In addition, we measure risk in our private investments portfolio overall by assessing diversification across several dimensions:

- Estimated and actual exposure per portfolio company or property
- Vintage year, currency and geography across all third party funds
- Sector and industry for LBOs and Venture Capital
- Property type and U.S. Metropolitan Statistical Area (MSA) for real estate
- Geographic or regional and commodity-type exposures within natural resources

(iii) Monitoring risk:

We have established exposure targets/ranges against which our portfolio risks are monitored.[2]

- Asset allocation long-term target ranges:
  - Equity: 20% to 60%%
  - Hedge Funds: 10% to 40%
  - Real Assets: 10% to 40%
  - Fixed Income: 5% to 25%
  - Hedges/Opportunistic: 0-10%

- Concentration Limits (excluding cash):
  - Maximum position in a single manager (except for cash or US Treasuries): 5%
  - Maximum position in a single third party fund (except for cash or US Treasuries): 3%
  - Maximum position in a private direct or co-investment: 1.5%
  - Maximum position in a single public security directly held: 2%[3]

- Counterparty credit risk limits: Mark to market per counterparty of 2% per Fund

(iv) Controlling and mitigating risk:

Identifying, measuring and monitoring risk are critical portfolio management functions, but in the end, the best protection against unwanted levels or types of risk is diversification. This is particularly true in portfolios of alternative assets, which lack liquidity and transparency. While we like managers

[2] These ranges are guidelines presently in place. GEM in its sole discretion may deem it appropriate to amend the ranges as market conditions warrant.

[3] Note that we would not expect to directly hold individual company securities at this relatively large weighting, but we might hold 'basket' securities (e.g., ETFs) up to this level.

who hold concentrated positions, and thus are individually risky, we seek to diversify broadly across managers and strategies to dampen risk at the portfolio level.

In addition to broad investment diversification, GEM can employ active portfolio hedges (e.g., long options or spread strategies, currency overlays) to shift our risk profile over the short term. In addition, for the illiquid parts of the portfolio, we actively monitor, and, if appropriate, execute secondary market sales. While we invest in private investments with the intention of holding to term, we believe that this component of the portfolio can and should be actively managed if conditions warrant.

(v) Reporting risk:

We use internal risk-management systems to generate risk reports. These systems are fed by data from our investment managers, custodian bank and fund administrator's portfolio accounting system. We dissect the portfolio's market exposures, track our liquidity, cash flows and leverage, and perform stress tests.

(vi) Procedures:

- Daily review of GEM trade blotter, which records all internal trades and cash movements.
- Daily review of asset allocation exposures, liquidity and portfolio level risks.
- Weekly investment team meeting to discuss current roster of managers, internally managed strategies, portfolio exposures and investment opportunities in the pipeline.
- Investment Committee convenes as needed to approve any new investment. Process governed by Investment Committee Charter.
- Monthly meeting by the Risk Committee: to review the Counterparty Liquidity Report, and risk at the investment manager level and Fund level, facilitated with internal risk reports. Certification of compliance and report of noncompliance provided to the CIO and the Investment Committee.
- Regular calls with each investment manager; more frequent ad hoc calls or visits as necessary.
- Annual review of investment managers' financial statements and business profile.

(vii) Sample risk modeling and risk reports:

Available upon request

Appendix C

Core Fund Manager Communication Guidelines
Global Endowment Management

Report	Frequency	Delivery	Contains
Performance flash	Monthly	5th business day after each month end	Flash performance estimate
Performance estimate	Monthly	15th business day after each month end	Estimated performance from Administrator
Estimated capital account balance	Monthly	15th business day after each month end	Estimated Capital Account Statements generated by Administrator
Portfolio report	Monthly	15th business day after each month end	Summary of portfolio positioning and performance
Investor letter	Quarterly	20th business day after each quarter end	Investor letter including market summary, asset allocation, manager commentary and portfolio
Portfolio detail report	Quarterly	20th business day after each quarter end	Detailed analysis and review of portfolio positioning and performance
Investor call	Quarterly	Post distribution of quarterly detail report	Summary commentary on markets, performance and asset allocation; Q&A
Final Capital Account Statements	Quarterly	Last day of each quarter (one quarter lag)	Final Capital Account Statements generated by Administrator
Investor meeting	Annually	Fall	Investor conference hosted by GEM
Investor meeting	Annually	At investor's discretion	GEM team visits investor
K-1	Annually	Prior to September 15 after year end	Tax summary
Financial Statements	Annually	Summer after year end	Audited financial statements

STANDARD TEN – PUBLIC DISCLOSURE

In presenting itself to students, prospective students, and other members of the interested public, the Institution provides information that is complete, accurate, timely, accessible, clear and sufficient for intended audiences to make informed decisions about the Institution.

Description/Appraisal

Up-to-date accurate information on WHOI and its academic programs is provided on WHOI's web site www.whoi.edu, with a link from the academic programs web page to the http://mit.whoi.edu/ Joint Program web page. Contact and accreditation information are noted on the footer of all pages, with all contact information at http://www.whoi.edu/main/contact-us . The News and Media page provides abundant information about the Institution including annual financial reports (http://www.whoi.edu/main/annual-report).

Information about courses available for Semester at WHOI undergraduate students is provided at http://www.whoi.edu/page.do?pid=136816 and course offerings within the MIT/WHOI JP are easily accessible at http://mit.whoi.edu/courses. Archival and print copies of WHOI course catalogs are available from the registrar in the Academic Programs Office.

Information about Academic Programs is nearly 100% electronic. Print materials are produced to distribute at national meetings, updated to be consistent with web-based material.

The WHOI web site www.whoi.edu states WHOI's status as a non-profit independent institution and its mission. Information on education programs is easy to access, with details provided about undergraduate and postdoctoral programs, and a link to the MIT/WHOI JP.

The JP web site http://mit.whoi.edu/ is hosted at WHOI and provides details on all aspects of the graduate program, with links to resources found at WHOI and at MIT. It includes a full list of WHOI and MIT based JP faculty and details about academic governance http://mit.whoi.edu/governance and administrative staff http://mit.whoi.edu/administration. It also includes details about student resources and campus life at both WHOI and MIT. With a program that straddles two institutions, the web page is a major resource and an effective conduit of information (supplemented by e-mails to all JP students). The web site offers statistics of student outcomes, and application/entering student numbers http://mit.whoi.edu/statistics.

Projection

Maintenance of the web sites and keeping them current will continue to be main objectives of WHOI and its Academic Programs Office to facilitate public disclosure.

Institutional Effectiveness

WHOI ensures that its print and electronic publications are complete, accurate, available, and current. WHOI's web sites provide information about its research and education mission.

Standard 10: Public Disclosure

Information	Web Addresses	Print Publications
How can inquiries be made about the institution? Where can questions be addressed?	http://www.whoi.edu/main/contact-us	
Notice of availability of publications and of audited financial statement or fair summary	http://www.whoi.edu/main/annual-report	Annual Report - Communications
Institutional catalog	http://mit.whoi.edu/course-catalog	WHOI Course Catalog 2015-16
Obligations and responsibilities of students and the institution	http://mit.whoi.edu/handbooks	Joint Committee Handbooks
Information on admission and attendance	http://mit.whoi.edu/admissions	
Institutional mission and objectives	http://www.whoi.edu/main/vision-mission	
Expected educational outcomes	http://mit.whoi.edu/handbooks	Joint Committee Handbooks
Status as public or independent institution; status as not-for-profit or for-profit; religious affiliation	http://www.whoi.edu/	
Requirements, procedures and policies re: admissions	http://mit.whoi.edu/apply	
Requirements, procedures and policies re: transfer credit	http://mit.whoi.edu/policies-admissions-transfer	
	https://odge.mit.edu/gpp/registration/requirements/credit/	
A list of institutions with which the institution has an articulation agreement	N/A	
Student fees, charges and refund policies	http://web.mit.edu/registrar/reg/costs/index.html	
	http://www.whoi.edu/page.do?pid=146896	
Rules and regulations for student conduct	http://mit.whoi.edu/handbooks	Joint Committee Handbooks
Procedures for student appeals and complaints	http://www.whoi.edu/page.do?pid=18997&&ct=901&cid=841	
Other information re: attending or withdrawing from the institution	http://odge.mit.edu/gpp/registration/changes/	
Academic programs	http://www.whoi.edu/main/educate	Program postcards
Courses currently offered	http://mit.whoi.edu/classes	WHOI Course Catalog 2015-16
	http://www.whoi.edu/main/semester-at-whoi/course-possibilities	WHOI Course Catalog 2015-16
Other available educational opportunities	http://mit.whoi.edu/whoi-duke-fellowship-program	
Other academic policies and procedures	http://mit.whoi.edu/policies	
Requirements for degrees and other forms of academic recognition	http://mit.whoi.edu/handbooks	Joint Committee Handbooks
List of current faculty, indicating department or program affiliation, distinguishing between full- and part-time, showing degrees held and institutions granting them	http://mit.whoi.edu/faculty-staff	
Names and positions of administrative officers	http://www.whoi.edu/main/organization-chart	Organizational Chart
Names and principal affiliations of members of the governing board	http://www.whoi.edu/main/leadership	

	Locations and programs available at branch campuses, other instructional locations, and overseas operations at which students can enroll for a degree, along with a description of programs and services available at each location	N/A	
	Programs, courses, services, and personnel not available in any given academic year.	N/A	
	Size and characteristics of the student body	http://mit.whoi.edu/student-directory	
	Description of the campus setting	http://mit.whoi.edu/student-life	
	Availability of academic and other support services	http://mit.whoi.edu/student-resources	
	Range of co-curricular and non-academic opportunities available to students	http://mit.whoi.edu/community-resources	
	Institutional learning and physical resources from which a student can reasonably be expected to benefit	http://www.whoi.edu/page.do?pid=7915	
	Institutional goals for students' education	http://mit.whoi.edu/history	
		http://mit.whoi.edu/handbooks	
	Success of students in achieving institutional goals including rates of retention and graduation and other measure of student success appropriate to institutional mission. Passage rates for licensure exams, as appropriate	http://mit.whoi.edu/statistics	
		http://alumni.whoi.edu/	
	Total cost of education, including availability of financial aid and typical length of study	http://mit.whoi.edu/apply	
	Expected amount of student debt upon graduation	N/A	
	Statement about accreditation	http://www.whoi.edu/whoi/accreditation	

STANDARD ELEVEN – INTEGRITY

WHOI subscribes to and advocates high ethical standards in the management of its affairs and in all dealings with students, prospective students, faculty, staff, its governing board, external agencies and organizations, and the general public. Through its policies and practices, WHOI endeavors to exemplify the values articulated in its mission statement.

Description/Appraisal

WHOI has a commitment to research independence and integrity that is compatible with its mission http://www.whoi.edu/main/research-independence-and-integrity. In addition to its statement on research and integrity, WHOI's misconduct policy states that WHOI "finds intolerable any action or conduct on the part of its staff or personnel that comprises scientific misconduct. Specifically… ethically unacceptable behavior that undermines the integrity of research; that is, calls into question the validity of the research." Staff and students are required to acknowledge intellectual property policies and to annually disclose conflicts of interest. WHOI has a Charter granted in 1967 by the Commonwealth of Massachusetts to grant graduate degrees and to undertake research and other activities as a non-profit organization.

The Institution's policies with respect to academic honesty, privacy rights and fairness are available to all employees through the Institution's web site. The Institution's new employee orientation program introduces employees to available materials and identifies key offices and individuals from whom information or clarifications of policies can be sought. The Institution annually reminds employees of key policies with respect to honesty and integrity. Ethics workshops are held annually for students and Postdoctoral researchers.

The Human Resources Director serves as the Institution's Equal Opportunity (EEO)/Affirmative Action Officer and attends Staff Council, including Appointments and Promotions, meetings. WHOI recently has added a separate Title IX Coordinator. In addition to the Title IX Coordinator and the EEO Officer, WHOI employs a whistleblower hotline service, EthicsPoint www.whoi.ethicspoint.com, to fulfill the need for students and employees to discuss concerns and issues (e.g., about misconduct or harassment) without fear of retaliation. Information provided through EthicsPoint is shared with the EEO Officer and Title IX Coordinator on a confidential and anonymous basis. WHOI also has a defined grievance policy. Copies of the Charter, policies and annual reminder letters will be in the Team Room.

WHOI demonstrates honesty and integrity with respect to all standards, and with the Commission on Institutions of Higher Education, and complies with all Commission requests.

Projection

The Academic Programs Office will continue to work with Human Resources and WHOI's General Counsel to review WHOI's Title IX policies and enact any recommendations. Human Resources and the General Counsel have begun a review of all of WHOI's policies, with plans to update all that are still relevant, and archive those that are no longer relevant.

Institutional Effectiveness

WHOI periodically reviews its policies and amends or updates them, as circumstances require, strengthening its commitment to the pursuit of institutional integrity.

Standard 11: Integrity

? Policies	Updated	URL Where Policy is Posted	Responsible Office or Committee
Academic honesty	2012	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=902	Director of Research
Intellectual property rights	2015	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=361	Office of Technology Transfer and the Media Relations Office
Conflict of interest	2015	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=962	Director of Research
Privacy rights	1979	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=121	Human Resources
Fairness for students	2012	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=922	Human Resources
Fairness for faculty	2012	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=922	Human Resources
Fairness for staff	2012	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=922	Human Resources
Academic freedom	2015	http://www.whoi.edu/main/research-independence-and-integrity	President and Director

Director of Research web page only accessible internally at WHOI

Non-discrimination policies

Recruitment and admissions	2015	http://web.mit.edu/referencepubs/nondiscrimination/	HumanRes.WHOI HumanRes.MIT
Employment	2012	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=922	Human Resources
Evaluation	1988	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=223	Human Resources
Disciplinary action	1988	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=222	Human Resources
Advancement	1982	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=163	Human Resources
Harrasment (policy against)	2016	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=903	Human Resources
Respectful workplace	2012	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=905	Human Resources

Resolution of grievances

Students	2011	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=841	Human Resources
Faculty	Same	Same	Same
Staff	Same	Same	Same

Other	Last Updated	Relevant URL or Publication	Responsible Office or Committee
? 1 Policy index	2015	http://www.whoi.edu/page.do?pid=18997	Human Resources

NEW ENGLAND ASSOCIATION OF SCHOOLS AND COLLEGES
COMMISSION ON INSTITUTIONS OF HIGHER EDUCATION
3 Burlington Woods, Suite 100, Burlington, MA 01803-4514
Voice: (781) 425 7785 Fax: (781) 425 1001 Web: http://cihe.neasc.org

AFFIRMATION OF COMPLIANCE WITH FEDERAL REGULATIONS RELATING TO TITLE IV

Periodically, member institutions are asked to affirm their compliance with federal requirements relating to Title IV program participation, including relevant requirements of the Higher Education Opportunity Act.

1. **Credit Hour:** Federal regulation defines a credit hour as an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutional established equivalence that reasonably approximates not less than: (1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or (2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours. (CIHE Policy 111. See also *Standards for Accreditation* 4.34.)

URL	http://mit.whoi.edu/courses http://www.whoi.edu/main/semester-at-whoi/course-possibilities
Print Publications	Woods Hole Oceanographic Institution Course Catalog
Self-study/Fifth-year report Page Reference	p. iv, p. 26, p. 33

2. **Credit Transfer Policies.** The institution's policy on transfer of credit is publicly disclosed through its website and other relevant publications. The institution includes a statement of its criteria for transfer of credit earned at another institution of higher education along with a list of institutions with which it has articulation agreements. (CIHE Policy 95. See also *Standards for Accreditation* 4.44 and 10.5.)

URL	http://mit.whoi.edu/policies-admissions-transfer https://odge.mit.edu/gpp/registration/requirements/credit/
Print Publications	
Self-study/Fifth-year Report Page Reference	p. 34

3. **Student Complaints.** "Policies on student rights and responsibilities, including grievance procedures, are clearly stated, well publicized and readily available, and fairly and consistently administered." (*Standards for Accreditation* 6.18, 10.5, and 11.8.)

URL	http://www.whoi.edu/page.do?pid=18997&ct=901&cid=841 http://www.whoi.edu/page.do?pid=18997&ct=901&cid=903 http://web.mit.edu/ombud/
Print Publications	
Self-study/Fifth-year Report Page Reference	pp. 63-64; p. 98

4. **Distance and Correspondence Education: Verification of Student Identity:** If the institution offers distance education or correspondence education, it has processes in place to establish that the student who registers in a distance education or correspondence education course or program is the same student who participates in and completes the program and receives the academic credit. . . .The institution protects student privacy and notifies students at the time of registration or enrollment of any projected additional student charges associated with the verification of student identity. (CIHE Policy 95. See also *Standards for Accreditation* 4.42.)

Method(s) used for verification	N/A

5. **FOR COMPREHENSIVE EVALUATIONS ONLY: Public Notification of an Evaluation Visit and Opportunity for Public Comment:** The institution has made an appropriate and timely effort to notify the public of an upcoming comprehensive evaluation and to solicit comments. (CIHE Policy 77.)

URL	http://www.whoi.edu/main/accreditation/public-comment
Print Publications	
Self-study Page Reference	p. xi

The undersigned affirms that Woods Hole Oceanographic Institution meets the above federal requirements relating to Title IV program participation, including those enumerated above.

Chief Executive Officer: _____ Date: 3 February, 2016

PART I: MAKING ASSESSMENT MORE EXPLICIT (THE E SERIES)

Here institutions are asked to declare their approach to providing "systematic and broad-based assessment of what and how students are learning" (4.48), and summarize how the information is used for improvement. Four possible alternatives are listed below; if institutions wish to propose another alternative, they are invited to contact Commission staff. In all cases, the Commission expects that the alternative selected will provide the institution with the ability to present its assessment at the program and institutional level. The four alternatives are:

- **E1: Inventory**: In this alternative, the institution completes: Part A, an inventory of how programs assess student learning and use the results, and, as appropriate, Part B, an inventory of specialized accreditation. This alternative is based on a system used by the Western Association of Schools and Colleges (WASC).

- **E2: VSA**: Here, the institution commits to the Voluntary System of Accountability (VSA) plus program review. This alternative builds on the system developed by APLU and AASCU; because the VSA uses institutional level data, it is augmented for Commission purposes by information on program review. While the system was developed by and for public institutions, for the Commission's purposes, it may be selected by any institution.

- **E3: Institutional Claims**: Some institutions may elect a framework in which they state claims for the success or achievement of their students and provide evidence to validate the claim. This audit approach provides the institution great flexibility in stating the claims it makes to the public about student learning and student achievement, and developing credible evidence to support the claims.

- **E4: Peer Comparison**: Many institutions already have complex systems to compare themselves with peer institutions, most often on matters of resources and processes; this alternative provides the opportunity to extend those comparisons to outcomes for student learning and success. Here the institution identifies key measures of student success (e.g., transfer or acceptance to graduate school) and compares its level of performance with that of its peers.

Selecting the method: In the periodic reviews, institutions are asked to declare which of the above four methods they wish to use. Alternatively, institutions may propose a fifth system or combination of the above. Such proposals should be forwarded to the Director of the Commission early in the report-preparation process. The Commission staff will review the proposal and confer with the institution.

Using the information in the forms and integrating information into the self-study: Institutions are encouraged to select their approach and complete the forms early in the report-preparation process so that they can use the information. The Appraisal section of the report provides a useful opportunity for institutions to reflect both on the success and achievement of their students and on their own progress in understanding what and how students are learning. Similarly, the Projection section affords institutions an opportunity to state their commitment for improvement in the area of assessment.

OPTION E1: PART A. INVENTORY OF EDUCATIONAL EFFECTIVENESS INDICATORS

CATEGORY	(1) Have formal learning outcomes been developed?	(2) Where are these learning outcomes published? (please specify) Include URLs where appropriate.	(3) Other than GPA, what data/evidence is used to determine that graduates have achieved the stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	(4) Who interprets the evidence? What is the process? (e.g. annually by the curriculum committee)	(5) What changes have been made as a result of using the data/evidence?	(6) Date of most recent program review (for general education and each degree program)
At the institutional level:					Changes to procedures (as described in handbooks) are made based on feedback from annual reviews of student progress	
List each degree program: 1. Doctoral	Yes	Student and faculty academic handbooks http://mit.whoi.edu/handbooks	1-Fulfill core course requirements; 2-pass general examination; 3-pass thesis proposal; 4-pass thesis defense	1-Joint Committee; 2-general exam committee; 3-thesis proposal exam comm.; 4-thesis comm.		Dec 2-4, 2014
2. Master's	Yes	Student and faculty academic handbooks http://mit.whoi.edu/handbooks	Take courses and write acceptable master's thesis	Thesis advisor and/or committee		Dec 2-4, 2014

Institutions selecting E1a should also include E1b.

OPTION E1: PART B. INVENTORY OF SPECIALIZED AND PROGRAM ACCREDITATION

(1) Professional, specialized, State, or programmatic accreditations currently held by the institution (by agency or program name).	(2) Date of most recent accreditation action by each listed agency.	(3) List key issues for continuing accreditation identified in accreditation action letter or report.	(4) Key performance indicators as required by agency or selected by program (licensure, board, or bar pass rates; employment rates, etc.). *	(6) Date and nature of next scheduled review.
N/A				
.				

*Record results of key performance indicators in form S3.

Institutions selecting E1b should also include E1a.

PART II: DOCUMENTING STUDENT SUCCESS (THE S-SERIES)

The S-series of forms has been devised for institutions to present data on retention and graduation rates and other measures of student success appropriate to the institution's mission. (*Standards for Accreditation*: 6.6, 6.7, 6.8, 6.9, 10.10 and 10.12) Clearly, not every measure listed here is appropriate for every institution. At the same time, some institutions may have multiple instances of a single item (e.g., licensure pass rates). In developing these forms, the Commission recognizes the value of trends in data, and the importance of the institution's own goals for success. Each form provides space for institutions to indicate definitions and the methodology used to calculate measures of student success.

By listing several ways to measure student success and achievement, the Commission encourages institutions to reflect on how they are using data to understand student success. The far right column within each form provides institutions the opportunity to identify their goal for each measure of student success, and the date by which the goal is expected to be attained. As always, the Commission expects that the institution's mission will provide helpful guidance in thinking about which measures of student success are most important and most useful. In brief, the forms are:

S1. Retention and Graduation Rates. Here institutions are asked to provide information on their IPEDS-defined retention and graduation rates, along with their goals for these indicators. Institutions can also provide additional retention and graduation indices, depending on their mission, program mix, student population, locations, and method of program delivery. For example, some baccalaureate institutions may also track 4- and 5-year graduation rates; some community colleges may find 4- and 5-year rates to complete an associate's degree to be helpful in evaluating their success with their student population. Institutions can also track the success of part-time students, transfer students, or students studying at off-campus locations or in programs offered on-line.

S2. Other Measures of Student Achievement and Success. The measures recorded here are likely to be mission-related. For example, some institutions may track the success of students gaining admission into certain graduate- or first-professional degree programs. Community colleges may track the success of their students entering baccalaureate programs. For some institutions, the number of students who enter programs such as Teach for America, the Peace Corps, or public service law may also represent indicators of institutional effectiveness with respect to their mission.

S3. Licensure Passage and Job Placement Rates. Institutions that prepare students for specific careers will find it appropriate to record the success of their students in passing licensure examinations. Also included in this form is the provision to record the success of students – perhaps by their academic major – in finding employment in the field for which they were prepared.

S4. Completion and Placement Rates for Short-Term Vocational Programs. Institutions with such programs in which students are eligible for Title IV federal financial aid should use these forms.

Using the forms: By completing these forms early in the self-study process, institutions will have time to collect and analyze all available information. The Appraisal section of the self-study provides a useful opportunity for institutions to reflect both on the findings recorded in the forms and the extent to which they have developed the systems to collect and use the most important data on student success. Similarly, the Projection section affords institutions an opportunity to state their commitment for improvement in the area of assessment.

Form S1. RETENTION AND GRADUATION RATES						
Student Success Measures/ Prior Performance and Goals		3 Years Prior	2 Years Prior	1 Year Prior	Most Recent Year (2015)	Goal for 2016
IPEDS Retention Data						
Associate degree students						
Bachelors degree students						
IPEDS Graduation Data						
Associate degree students						
Bachelors degree students						
Other Undergraduate Retention Rates (1)						
a						
b						
c						
Other Undergraduate Graduation Rates (2)						
a						
b						
c						
Graduate programs *						
Retention rates first-to-second year (3)		100%	100%	85.7%	100%	100%
Graduation rates @ 150% time (4)		57.7%	84.4%	100%	75%	70%
Distance Education						
Course completion rates (5)						
Retention rates (6)						
Graduation rates (7)						
Branch Campus and Instructional Locations						
Course completion rate (8)						
Retention rates (9)						
Graduation rates (10)						
Definition and Methodology Explanations						
1	Graduation rates for students entering 2005, 2006, and 2007.					
2						
3						
4						
5						
6						
7						
8						
9						
10						
* An institution offering graduate degrees must complete this portion.						

Form S2. OTHER MEASURES OF STUDENT ACHIEVEMENT AND SUCCESS						
Measures of Student Achievement and Success/ Institutional Performance and Goals		3 Years Prior	2 Years Prior	1 Year Prior	Most Recent Year (201_)	Goal for 201_
Success of Students Pursuing Higher Degree						
1						
2						
3						
4						
Definition and Methodology Explanations						
Rates at Which Graduates Pursue Mission-Related Paths (e.g., Peace Corps, Public Service Law)						
1						
2						
3						
4						
Definition and Methodology Explanations						
Rates at Which Students Are Successful in Fields for Which They Were Not Explicitly Prepared						
1						
2						
3						
4						
Definition and Methodology Explanations						
Documented Success of Graduates Achieving Other Mission-Explicit Achievement (e.g., Leadership, Spiritual Formation)						
1						
2						
3						
Definition and Methodology Explanations						
Other (Specify Below)						
1						
2						
Definition and Methodology Explanations						

Form S3. LICENSURE PASSAGE AND JOB PLACEMENT RATES						
		3 Years Prior	2 Years Prior	1 Year Prior	Most Recent Year (201_)	Goal for 201_
State Licensure Passage Rates *						
1						
2						
3						
4						
5						
National Licensure Passage Rates *						
1						
2						
3						
4						
5						
Job Placement Rates **						
1						
2						
3						
4						
5						
6						
7						
8						

* For each licensure exam, give the name of the exam above along with the number of students for whom scores are available and the total number of students eligible to take the examination (e.g. National Podiatric Examination, 12/14). In following columns, report the passage rates for students for whom scores are available, along with the institution's goals for succeeding years.

** For each major for which the institution tracks job placement rates, list the degree and major, and the time period following graduation for which the institution is reporting placement success (e.g., Mechanical Engineer, B.S., six months). In the following columns, report the percent of graduates who have jobs in their fields within the specified time.

Institutional Notes of Explanation	
a	
b	
c	
d	
e	
f	

Form S4. COMPLETION AND PLACEMENT RATES FOR SHORT-TERM VOCATIONAL TRAINING PROGRAMS FOR WHICH STUDENTS ARE ELIGIBLE FOR FEDERAL FINANCIAL AID

		3 Years Prior	2 Years Prior	1 Year Prior	Most Recent Year (201_)	Goal for 201_
Completion Rates *						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
Placement Rates **						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

* List each short-term vocational training program separately. In the following columns indicate the annual weighted average completion rate for the most recent and two prior years. In the final two columns, list institutional goals for the next two years.

** List each short-term vocational training program separately. In the following columns indicate the annual weighted job placement rate for the most recent and two prior years. In the final two columns, list the institutional goals for the next two years.

List of Supporting Documents

**sent to Evaluation Team members as pdfs*
all others will be in Team Room during visit

Institutional Charter – Articles of Amendment
WHOI Annual Reports, 2011 through 2014
Oceanus magazine – latest issues
Next Wave - latest issues
2007 Strategic Plan
Ocean Institutes Review Report (2010)
Ocean Institute Ad Hoc Committee Report (2013)
Landscape Diagnostic Study by Bridgespan
Reference Guide for Trustees and Corporation Members
Board membership and affiliations
Corporation Bylaws (also in report following Standard Three)
*2015 Visiting Committee Brief
*2015 Visiting Committee Report
*2014 External MIT-WHOI Joint Program Review Materials
*2014 External MIT-WHOI Joint Program Committee Report
Education Assembly Charter
*Appointments and Promotions Procedures manual
Navigating the Tenure Track manual
Details on internal funding opportunities for Scientific and Technical Staff
List of the current members of the Educational Assembly
Faculty CVs
*Academic Programs Strategic Plan
Academic Programs brochure and cards summarizing programs
Commission approval letter to offer limited undergraduate courses
Memorandum of Understanding – MIT and WHOI
WHOI Course Catalogs
Course syllabi
MIT-WHOI Joint Program Handbooks
MIT-WHOI Joint Program student orientation schedules/agendas
2011 MIT-WHOI Joint Program Strategic Plan
List of MIT-WHOI Joint Program student alum destinations
WHOI Student Organization Constitution
Postdoctoral Association Charter
WHOI Harrassment Issues Brochure (for when working in the field)
Documents describing research vessel operator selection process

List of Supporting Documents (cont.)

Deferred maintenance list and plan for addressing
Development Office 2016 operating plan – executive summary
Financial and narrative report samples for donors
Gift Acceptance and Counting Policy
Examples of WHOI annual budget process and announcements
2015 unaudited financial statement
Human Resources policies and annual reminder letters
Annual merit raise process - examples of forms and procedures
WHOI Compensation and Benefit Statement

Woods Hole Oceanographic Institution

Financial Statements
December 31, 2014 and 2013

Woods Hole Oceanographic Institution
Index
December 31, 2014 and 2013

Independent Auditor's Report

To the Board of Trustees of
Woods Hole Oceanographic Institution:

We have audited the accompanying financial statements of Woods Hole Oceanographic Institution (the "Institution"), which comprise the statement of financial position as of December 31, 2014 and the related statements of activities and cash flows for the year then ended.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Institution's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institution's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Institution at December 31, 2014, and the changes in its net assets and its cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have previously audited the Institution's 2013 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated July 18, 2014. In our opinion, the summarized comparative information presented herein as of and for the year ended December 31, 2013 is consistent, in all material respects, with the audited financial statements from which it has been derived.

PricewaterhouseCoopers LLP

July 16, 2015

Woods Hole Oceanographic Institution
Statements of Financial Position
December 31, 2014
(with summarized financial information as of December 31, 2013)

	2014	2013
Assets		
Cash and cash equivalents, unrestricted	$ 11,010,279	$ 4,001,627
Cash and cash equivalents, restricted	18,523,887	15,999,175
Reimbursable costs and fees		
Billed (net of allowance for doubtful accounts of $82,991 for 2014 and $87,572 for 2013)	5,321,049	3,971,504
Unbilled	13,888,409	8,617,539
Receivable for investments sold	27,966,317	27,209,044
Other receivables	1,056,749	1,339,285
Pledges receivable, net (Note 5)	2,938,692	1,681,530
Inventory	2,733,210	2,463,237
Deferred charges and prepaid expenses	458,285	1,190,527
Investments, pooled (Note 3)	395,955,579	381,828,394
Investments designated for retiree and active medical plans (Note 10)	14,554,766	13,765,163
Deferred fixed rate variance (Note 7)	-	1,772,893
Supplemental retirement	9,922,383	9,290,422
Other assets	2,336,103	3,605,701
Deferred financing costs	183,654	194,184
	506,849,362	476,930,225
Property, plant and equipment		
Land, buildings and improvements	164,821,690	162,000,071
Vessels and dock facilities	9,222,053	8,388,154
Laboratory and other equipment	36,896,147	34,354,645
Construction in process	353,514	247,660
	211,293,404	204,990,530
Accumulated depreciation	(126,297,946)	(117,654,708)
Net property, plant and equipment	84,995,458	87,335,822
Contributions receivable from remainder trusts, net (Note 6)	10,990,101	10,985,260
Total assets	$ 602,834,921	$ 575,251,307
Liabilities		
Line of credit (Note 8)	$ 25,000,000	$ 25,000,000
Accounts payable and other liabilities (Note 8)	20,271,905	14,555,392
Accrued payroll and related liabilities	8,916,207	8,800,186
Accrued supplemental retirement benefits (Note 9)	9,922,383	9,290,422
Accrued pension liability (Note 9)	112,537,666	66,503,087
Accrued postretirement liability (Note 10)	38,692,629	30,586,416
Deferred fixed rate variances (Note 7)	980,996	-
Deferred revenue and refundable advances	21,163,371	19,410,792
Bonds payable (Note 8)	55,941,613	57,560,542
Total liabilities	$ 293,426,770	$ 231,706,837

	Unrestricted	Temporarily Restricted	Permanently Restricted		
Net assets					
Undesignated and plant	$ (7,559,076)	$ -	$ -	$ (7,559,076)	$ (11,623,660)
Pension	(136,675,529)	-	-	(136,675,529)	(83,324,340)
Designated	2,023,033	9,546,630	-	11,569,663	11,939,504
Pledges and other	-	4,135,739	10,980,581	15,116,320	13,854,754
Education	-	3,034,877	-	3,034,877	3,660,774
Endowment and similar funds	93,763,842	251,279,093	78,878,961	423,921,896	409,037,438
Total net assets	$ (48,447,730)	$ 267,996,339	$ 89,859,542	309,408,151	343,544,470
Total liabilities and net assets				$ 602,834,921	$ 575,251,307

The accompanying notes are an integral part of these financial statements.

Woods Hole Oceanographic Institution
Statements of Activities
Year Ended December 31, 2014
(with summarized financial information for the Year Ended December 31, 2013)

	Unrestricted					
	Operating	Sponsored Research	Temporarily Restricted	Permanently Restricted	2014	2013
Revenues						
Fees	$ 1,306,522	$ -	$ -	$ -	$ 1,306,522	$ 1,541,866
Sponsored research						
Government		96,194,654			96,194,654	97,234,446
Subcontract and nongovernment		78,951,475	5,903,054		84,854,529	68,901,392
Ships and subs operations		29,974,693			29,974,693	24,439,293
Sponsored research assets released to operations	211,245,783	(205,120,822)	(6,124,961)		-	-
Fixed price awards income	417,919				417,919	345,526
Education						
Joint program income	4,013,139				4,013,139	4,040,652
Endowment income			7,169,376		7,169,376	6,869,748
Education funds released from restriction	8,470,471		(8,470,471)		-	-
Investment return designated for current operations	4,136,570				4,136,570	4,008,899
Contributions and gifts	3,587,410		1,600,615	3,878,235	9,066,260	7,828,777
Releases from restrictions			(777,303)		(777,303)	(679,626)
Contributions in kind	289,474				289,474	326,138
Rental income	549,788				549,788	578,223
Communication and publications	165,554				165,554	203,821
Other	559,661				559,661	234,023
Gain on sale of property	807,808				807,808	527,673
Total revenues	235,550,099	-	(699,690)	3,878,235	238,728,644	216,400,851
Expenses						
Sponsored research						
Government	96,194,654				96,194,654	97,234,446
Subcontracts and nongovernment	85,076,436				85,076,436	68,333,028
Ships and subs operations	29,974,693				29,974,693	24,439,293
Education	10,989,228				10,989,228	9,822,088
Rental expenses	401,657				401,657	292,480
Communication, Publications and Development	3,172,734				3,172,734	4,105,580
Unsponsored programs	10,250,639				10,250,639	11,096,728
Other expenses	1,535,651				1,535,651	1,092,482
Total expenses	237,595,692	-	-	-	237,595,692	216,416,125
Change in net assets from operating activities	(2,045,593)	-	(699,690)	3,878,235	1,132,952	(15,274)
Nonoperating revenue and expenses						
Investment return in excess of amounts designated for sponsored research, education and current operations	4,667,643		17,432,458		22,100,101	37,111,449
Return on investments for retiree and active medical plans	1,737,426				1,737,426	319,619
Active medical expenses					-	(3,000,000)
Net realized/unrealized (losses) gains on interest rate swap	(3,929,745)				(3,929,745)	2,714,059
Change in split interest agreements	52,219		(21,011)	(10,842)	20,366	1,219,024
Other nonoperating expenses	(108,804)				(108,804)	(135,244)
Net periodic benefit cost	71,927				71,927	(9,172,870)
Pension related changes other than net periodic pension costs (Note 9)	(55,160,542)				(55,160,542)	53,258,374
Change in net assets from nonoperating activities	(52,669,876)	-	17,411,447	(10,842)	(35,269,271)	82,314,411
Total change in net assets	(54,715,469)	-	16,711,757	3,867,393	(34,136,319)	82,299,137
Net assets at beginning of year	6,267,739	-	251,284,582	85,992,149	343,544,470	261,245,333
Net assets at end of year	$ (48,447,730)	$ -	$ 267,996,339	$ 89,859,542	$ 309,408,151	$ 343,544,470

The accompanying notes are an integral part of these financial statements.

Woods Hole Oceanographic Institution
Statements of Cash Flows
Years Ended December 31, 2014 and 2013

	2014	2013
Cash flows from operating activities		
Total change in net assets	$ (34,136,319)	$ 82,299,137
Adjustments to reconcile (decrease) in net assets		
to net cash used in operating activities		
Depreciation and amortization	9,806,692	9,238,065
Change in split interest agreements	(20,366)	(1,219,024)
Allowance for uncollectible pledges	99,300	(2,000)
Discount on pledges	58,355	(159,771)
Net realized and unrealized gain on investments	(40,368,386)	(54,540,356)
Unrealized loss (gain) loss on interest swap	2,221,689	(4,463,870)
Pension related changes other than net periodic pension costs	55,160,542	(53,258,374)
Contributions to be used for long-term investment	(2,757,354)	(2,142,811)
Gift of property	(500,000)	(1,360,000)
Gain on sale of property	(807,808)	(527,673)
Receipt of contributed securities	(195,372)	(256,547)
Liquidation of contributed securities	325,116	359,478
(Increase) decrease in assets		
Restricted cash	(2,524,712)	(3,805,867)
Reimbursable costs and fees		
Billed	(1,349,545)	1,662,359
Unbilled	(5,270,870)	1,234,144
Other receivables	282,536	122,874
Pledges receivable	(1,414,817)	343,741
Inventory	(269,973)	(269,046)
Deferred charges and prepaid expenses	732,242	(363,360)
Other assets	409,598	(10,009)
Remainder trusts	(4,841)	-
Deferred financing costs	10,530	10,529
Supplemental retirement	(631,961)	(1,467,869)
Deferred fixed rate variance	1,772,893	2,813,584
Increase (decrease) in liabilities		
Accrued pension and postretirement liability	(1,019,750)	8,185,686
Accrued pension liability restoration	-	2,745
Accounts payable and other liabilities	3,012,790	(92,647)
Accrued payroll and related liabilities	116,021	(139,830)
Deferred revenue and refundable advances	1,752,579	3,369,439
Deferred fixed rate variances	980,996	-
Accrued supplemental retirement benefits	631,961	1,467,869
Net cash used in operating activities	(13,898,234)	(12,969,404)
Cash flows from investing activities		
Capital expenditures		
Additions to property and equipment	(7,141,120)	(7,272,386)
Endowment and other		
Purchase of investments	(80,393,496)	(154,325,201)
Sale of investments	104,767,527	191,479,092
Receivable for investments sold	(757,273)	(17,680,706)
Proceeds from the sale of investments designated for retiree and active medical plans	947,823	-
Proceeds from sale of property	2,345,000	815,000
Net cash provided by investing activities	19,768,461	13,015,799
Cash flows from financing activities		
Repayments under debt agreement	(1,618,929)	(1,558,929)
Borrowing under line of credit	27,000,000	31,000,000
Repayments under line of credit	(27,000,000)	(31,000,000)
Contributions to be used for long-term investment	2,757,354	2,142,811
Net cash provided by financing activities	1,138,425	583,882
Net increase in cash and cash equivalents	7,008,652	630,277
Cash and cash equivalents		
Beginning of year	4,001,627	3,371,350
End of year	$ 11,010,279	$ 4,001,627
Supplemental disclosures		
Cash paid for interest	$ 5,125,209	$ 4,801,376
Noncash activity		
Construction in process additions remaining in accounts payable	874,681	372,281
Contributed securities	195,372	256,547
Contributed property	500,000	1,360,000

The accompanying notes are an integral part of these financial statements.

1. Background

Woods Hole Oceanographic Institution (the "Institution") is a private, independent not-for-profit research and educational institution located in Woods Hole, Massachusetts. Founded in 1930, the Institution is dedicated to working and learning at the frontier of ocean science and attaining maximum return on intellectual and material investments in oceanographic research.

The Institution is a qualified tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code as it is organized and operated for education and scientific purposes.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements have been prepared on the accrual basis and in accordance with accounting principles generally accepted in the United States of America.

The financial statements include certain prior-year summarized comparative information in total but not by net asset class. Such information does not include sufficient detail to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the Institution's audited financial statements for the year ended December 31, 2013, from which the summarized information was derived.

Net assets, revenues, and realized and unrealized gains and losses are classified based on the existence or absence of donor-imposed restrictions and legal restrictions imposed under Massachusetts State law. Accordingly, net assets and changes therein are classified as follows:

Permanently Restricted Net Assets

Permanently restricted net assets are subject to donor-imposed stipulations that they be maintained permanently by the Institution. Generally the donors of these assets permit the Institution to use all or part of the income earned and capital appreciation, if any, on related investments for general or specific purposes.

Temporarily Restricted Net Assets

Temporarily restricted net assets are subject to donor-imposed stipulations that may or will be met by actions of the Institution and/or the passage of time. Unspent gains on permanent endowment are classified as temporarily restricted until the Institution appropriates and spends such sums in accordance with the terms of the underlying endowment funds and in accordance with Massachusetts law, at which time they will be released to unrestricted revenues.

Unrestricted Net Assets

Unrestricted net assets are not subject to donor-imposed stipulations. Revenues are reported as increases in unrestricted net assets unless use of the related assets is limited by donor-imposed restrictions. Expenses are reported as decreases in unrestricted net assets. Gains and losses on investments and other assets or liabilities are reported as increases or decreases in unrestricted net assets unless their use is restricted by explicit donor stipulations or law. Expirations of temporary restrictions on net assets, that is, the donor-imposed stipulated purpose has been accomplished and/or the stipulated time period has elapsed, are reported as reclassifications between the applicable classes of net assets. Amounts received for sponsored research (under exchange transactions) are reflected in unrestricted sponsored research revenue and released to

operations when spent for the appropriate purpose, or as deferred revenue if expenditures have yet to be incurred.

Contributions
Contributions, including unconditional promises to give, are recognized as revenues in the period received. Contributions subject to donor-imposed stipulations that are met in the same reporting period are reported as unrestricted support. Promises to give that are scheduled to be received after the balance sheet date are shown as increases in temporarily restricted net assets and are reclassified to unrestricted net assets when the purpose or restriction is met. Promises to give, subject to donor-imposed stipulations that the corpus be maintained permanently, are recognized as increases in permanently restricted net assets. Conditional promises to give are not recognized until they become unconditional, that is, when the conditions on which they depend are substantially met. Contributions other than cash are generally recorded at market value on the date of the gift (or an estimate of fair value); although certain noncash gifts, for which a readily determinable market value cannot be established, are recorded at a nominal value until such time as the value becomes known. Contributed securities are sold immediately upon receipt. Contributions to be received after one year are discounted at the appropriate rate commensurate with risk. Amortization of such discount is recorded as additional contribution revenue in accordance with restrictions imposed by the donor on the original contribution, as applicable. Amounts receivable for contributions are reflected net of an applicable reserve for collectibility.

The Institution reports contributions in the form of land, buildings, or equipment as unrestricted operating support at fair market value when received.

Dividends, interest and net gains on investments of endowment and similar funds are reported as follows:

- As increases in permanently restricted net assets if the terms of the gift require that they be added to the principal of a permanent endowment fund;

- As increases in temporarily restricted net assets if the terms of the gift or relevant state law impose restrictions on the current use of the income or net realized and unrealized gains; and

- As increases in unrestricted net assets in all other cases.

Operations
The statement of activities reports the Institution's operating and nonoperating activities. Operating revenues and expenses consist of those activities attributable to the Institution's current annual research or educational programs, all gifts received and a component of endowment income appropriated for operations (Note 3). Unrestricted endowment investment income, gains and losses over the amount appropriated under the Institution's spending plan are reported as nonoperating revenue (expense) as investment return in excess of amounts designated for sponsored research, education and current operations.

Nonoperating revenues (expenses) also include the change in value of split interest agreements, realized/unrealized (losses) gains on interest rate swaps, and the net periodic pension income (cost) on the noncontributory defined benefit pension plan that is not reimbursed through negotiated fixed rate agreements with the federal government. Additionally, nonoperating activities include redesignation of donor gifts, depreciation on certain government-funded facilities and pension related changes other than net periodic pension costs.

As a result of an amendment to the postretirement health plan, in 2012 and forward, the Institution recognized the return on investments designated for retiree and active medical plan expenses, and actual active and retiree medical expenses as nonoperating activities when these expenses are funded by withdrawals from the postretirement plan (Note 10).

Cash and Cash Equivalents
Cash and cash equivalents consist of cash, money market accounts, certificates of deposit and overnight repurchase agreements with initial maturities of three months or less when purchased which are stated at cost, which approximates market value.

The Institution invests its cash and cash equivalents in money market funds at a financial institution which fully ensures the balances held.

Included in restricted cash at December 31, 2014 and 2013 is $18,268,306 and $15,744,993, respectively, representing advances received from the United States Navy, other U.S. Government and state agencies and others. Such amounts are restricted as to use for research programs. Interest earned on unspent funds from federal agencies is remitted to the federal government.

Also included in restricted cash at December 31, 2014 and 2013 is $255,581 and $254,182, respectively, representing cash restricted by the Massachusetts Radiation Control Program and Department of Environmental Protection. Interest earned on unspent funds is reinvested within the restricted cash account.

Investments
Investment securities are carried at market value and determined as follows: securities traded on a national securities exchange are valued at the last reported sales price on the last business day of the year; securities traded in the over-the-counter market and listed securities for which no sales prices were reported on that day are valued at closing bid prices. The value of publicly traded securities or mutual funds are based upon quoted market prices and net asset values. Other investments, such as private equity funds, venture capital funds and hedge funds for which no such quotations or valuations are readily available, are carried at fair value as estimated by management using values provided by external investment managers. The Institution reviews and evaluates the valuations provided by investment managers and believes that these valuations are a reasonable estimate of fair value as of December 31, 2014 and 2013 but are subject to uncertainty and, therefore, may differ from the value that would have been used had a ready market for the investments existed and such differences could be material.

Purchases and sales of investment securities are recorded on a trade date basis. Realized gains and losses are computed on a specific identification method. Investment income, net of investment expenses, is distributed on the unit method.

The Institution makes investments in funds that make direct investments in public securities, over the counter securities, and other securities which may or may not have readily available market prices. The Institution follows authoritative guidance under generally accepted accounting principles for estimating the fair value of investments in those funds that have calculated net asset value per share in accordance with the specialized accounting guidance for investment companies. Accordingly, the Institution uses the net asset value, (NAV) without further adjustment as a practical expedient to determine the fair value of these funds which (a) do not have a readily determinable fair value and (b) either have the attributes of an investment company or prepare their financial statements consistent with the measurement principles of an investment company. These values are reviewed and approved by the Institution.

Investments which can be redeemed at NAV by the Institution on the measurement date or within 90 days are classified as Level 2. Investments which cannot be redeemed on the measurement date or within 90 days are classified as Level 3.

Investment Income Unitization
The Institution's investments are pooled in an endowment fund and the investments and allocation of income are tracked on a unitized basis. The Institution distributes to operations for each individual fund an amount of investment income earned by each of the fund's proportionate share of investments based on a total return policy.

The Board of Trustees has appropriated all of the income and a specified percentage of the net appreciation (depreciation) to operations as prudent considering the Institution's long- and short-term needs, present and anticipated financial requirements, expected total return on its investments, price level trends, and general economic conditions. Under the Institution's current endowment spending policy, which is within the guidelines specified under state law, the Institution's annual operating budget should not exceed 5.0% of the Fund's trailing 36 month rolling average market value. This amounted to $17,209,000 and $16,548,983 for the years ended December 31, 2014 and 2013, respectively, and is classified in operating revenues (research, education, and operations).

Other Assets
Other assets consist primarily of investments held by various split-interest agreements and donated property.

Inventories
Inventories are stated at the lower of cost or market. Cost is determined using the first-in, first-out method.

Contracts and Grants
Revenues earned on contracts and grants for research are recognized as related costs are incurred.

The Institution received approximately 84% of its sponsored research revenues from government agencies including 30% and 34% of its operating revenues directly from the National Science Foundation and 10% and 10% from the United States Navy in fiscal years 2014 and 2013, respectively. Although applications for research funding to federal agencies historically have been funded, authorizations are subject to annual Congressional appropriations and payment.

Deferred Financing Costs
Costs incurred in connection with the placement of the MassDevelopment, Revenue Bonds, Woods Hole Oceanographic Institution Issue, Series B (2008) (the "Series B Bonds"), have been deferred and are being amortized over the term of the obligation on a straight line basis, which approximates the effective interest method.

Interest Rate Swap
The Institution entered into an interest rate swap agreement on the MassDevelopment, Variable Rate Revenue Bonds, Woods Hole Oceanographic Institution Issue Series A Bonds in order to convert a portion of the variable rate debt to fixed rate, thereby economically hedging against changes in the cash flow requirements of the Institution's variable rate debt obligations. The Series A bonds were retired on January 2, 2009.

Net payments or receipts (difference between variable and fixed rate) under the swap agreement along with the change in fair value of the swap are recorded in nonoperating activities as net realized/unrealized (losses) gains on interest swap.

Property, Plant and Equipment
Property, plant and equipment are stated at cost. Depreciation is provided on a straight-line basis at annual rates of 12 to 39 years on buildings and improvements, 10 to 15 years on vessels and dock facilities and 5 to 10 years on laboratory and other equipment. Depreciation expense on property, plant, and equipment purchased by the Institution in the amounts of $9,694,783 and $9,102,821 in 2014 and 2013, respectively, has been charged to operating activities. Depreciation on certain government-funded facilities (the Laboratory for Marine Science and the dock facility) amounting to $111,909 and $135,244 in 2014 and 2013 has been charged to nonoperating expenses as these assets were gifted by the Government.

Use of Estimates
The preparation of the financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the period. Actual results could differ from those estimates.

Subsequent Events
Management evaluated all events or transactions that occurred after December 31, 2014 through July 16, 2015, the date these financial statements were issued and has concluded that there were no such events or transactions that require adjustment to the audited financial statements or disclosure in the notes to the audited financial statements.

Reclassification of Prior Year Presentation
Certain prior year amounts have been reclassified to conform with current year presentation.

3. Investments

The Institution has retained and outsourced services for manager selection, risk management and asset allocation of endowment assets to a third party. Consequently a systematic liquidation of existing investments held by legacy managers and transfers of proceeds to the new endowment manager followed. The assets transferred for investment under this arrangement, titled “Multi-strategy Investment Fund”, represent holdings in the following classifications; Equity, Long/Short Equity, Real Assets, Commodities/Resources Credit/Special Situations, Absolute return, Fixed Income and Hedges/Opportunistic. These assets represent a concentrated investment in one investment manager. A consequence of this concentration is that the performance may be more favorably or unfavorably affected by the performance of the individual manager. The Institution invests in two separate sub-funds within the Multi-strategy investment fund. One sub-fund allows for annual withdrawals while the other allows for monthly withdrawals. Due to prevailing redemption restrictions not all of the legacy managers were liquidated during 2014.

The following table presents the classification and carrying value of investments at December 31:

	2014		2013	
	Cost	Market	Cost	Market
Assets				
Cash and cash equivalents	$ 5,151,168	$ 5,151,168	$ 7,608,202	$ 7,608,202
Private equity, venture capital and other limited partnerships	36,380,814	45,680,633	40,906,258	48,522,142
Multi-strategy investment funds	262,371,956	345,123,778	275,337,956	325,698,050
Total investments pooled	303,903,938	395,955,579	323,852,416	381,828,394
Investments designated for retiree and active medical plans				
Commingled funds	12,661,858	14,554,766	13,427,504	13,765,163
Total investments designated for retiree and active medical plans	12,661,858	14,554,766	13,427,504	13,765,163
Total assets at fair value	$ 316,565,796	$ 410,510,345	$ 337,279,920	$ 395,593,557

The following schedule summarizes the investment return and its classification in the statement of activities:

	Unrestricted	Temporarily Restricted	2014 Total	2013 Total
Dividend interest and other income	$ 326,570	$ 1,243,389	$ 1,569,959	$ 619,261
Investment management costs	(651,966)	(2,519,852)	(3,171,818)	(3,288,656)
Net realized gains	935,123	3,615,546	4,550,669	6,477,046
Change in unrealized appreciation	8,194,486	28,165,805	36,360,291	49,852,781
Total return on investments	8,804,213	30,504,888	39,309,101	53,660,432
Investment return designated for				
Sponsored research	-	(5,903,054)	(5,903,054)	(5,670,336)
Education	-	(7,169,376)	(7,169,376)	(6,869,748)
Current operations	(4,136,570)	-	(4,136,570)	(4,008,899)
Total distributed to operations	(4,136,570)	(13,072,430)	(17,209,000)	(16,548,983)
Investment return in excess of amounts designated for sponsored research, education and current operations	$ 4,667,643	$ 17,432,458	$ 22,100,101	$ 37,111,449

Realized and unrealized gains attributable to Investments designated for retiree and active medical plans were $1,737,426 and $319,619 for the years ended December 31, 2014 and 2013 respectively.

Investment securities are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investments, it is at least reasonably possible that changes in the value of investment securities will occur in the near term and that such changes could materially affect the market values and the amounts reported in the statement of financial position.

Endowment income is allocated to each individual fund based on a per unit valuation. The value of an investment unit at December 31, 2014 and December 31, 2013 is as follows:

	2014	2013
Unit value, beginning of year	$ 5.2818	$ 4.9337
Unit value, end of year	5.7084	5.2818
Net change for the year	0.4266	0.3481
Investment distribution per unit for the year	(0.0210)	(0.0346)
Total return per unit	$ 0.4056	$ 0.3135

4. Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (also referred to as "exit price"). Therefore, a fair value measurement should be determined based on the assumptions that market participants would use in pricing the asset or liability. In determining fair value, the use of various valuation approaches, including market, income and cost approaches, is permitted.

Fair Value Hierarchy
A fair value hierarchy has been established based on whether the inputs to valuation techniques are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the reporting entity's assumptions about the inputs market participants would use. The fair value hierarchy requires the reporting entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

The hierarchy is described below:

Level 1 Valuations using quoted prices in active markets for identical assets or liabilities. Valuations of these products do not require a significant degree of judgment. Level 1 assets and liabilities primarily include debt and equity securities that are traded in an active exchange market.

Level 2 Valuations using observable inputs other than Level 1 prices such as quoted prices in active markets for similar assets or liabilities; quoted prices for identical or similar assets or liabilities in markets that are not active; broker or dealer quotations; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 Valuations using unobservable inputs that are supported by little or no market activity and are significant to the fair value of the assets or liabilities. Level 3 includes assets and liabilities whose value is determined using pricing models, discounted cash flow methodologies, or similar techniques.

Inputs broadly refer to the assumptions that market participants use to make valuation decisions, including assumptions about risk. As described in Note 2, the Institution generally uses the net asset value per share of the investment (or its equivalent) reported by the investee fund manager as the primary input to its valuation; however adjustments to the reported amount may be made based on various factors.

The following tables summarize fair value measurements at December 31, 2014 and December 31, 2013 for financial assets measured at fair value:

	2014			
	Quoted Prices in Active Markets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3	Total Fair Value
Assets				
Cash and cash equivalents	$ 5,151,168	$ -	$ -	$ 5,151,168
Private equity, venture capital and other limited partnerships	-	-	45,680,633	45,680,633
Multi-strategy investment funds	-	11,225,625	333,898,153	345,123,778
Total pooled	5,151,168	11,225,625	379,578,786	395,955,579
Contributions receivable from remainder trust	-	-	10,990,101	10,990,101
Other assets	-	-	658,101	658,101
Investments designated for retiree and active medical plans				
Commingled funds	-	14,554,766	-	14,554,766
Total investments designated for retiree and active medical plans	-	14,554,766	-	14,554,766
Total assets at fair value	$ 5,151,168	$ 25,780,391	$ 391,226,988	$ 422,158,547
Interest rate swap	-	9,746,978	-	9,746,978
Total liabilities at fair value	$ -	$ 9,746,978	$ -	$ 9,746,978

	2013			
	Quoted Prices in Active Markets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3	Total Fair Value
Assets				
Cash and cash equivalents	$ 7,608,202	$ -	$ -	$ 7,608,202
Private equity, venture capital and other limited partnerships	-	-	48,522,142	48,522,142
Multi-strategy investment funds	-	8,222,955	317,475,095	325,698,050
Total pooled	7,608,202	8,222,955	365,997,237	381,828,394
Contributions receivable from remainder trust	-	-	10,985,260	10,985,260
Other assets	-	-	937,907	937,907
Investments designated for retiree and active medical plans				
Commingled funds	-	13,765,163	-	13,765,163
Total investments designated for retiree and active medical plans	-	13,765,163	-	13,765,163
Total assets at fair value	$ 7,608,202	$ 21,988,118	$ 377,920,404	$ 407,516,724
Interest rate swap	-	7,525,289	-	7,525,289
Total liabilities at fair value	$ -	$ 7,525,289	$ -	$ 7,525,289

The Institution has adopted a policy that defines near-term liquidity as those investments allowing liquidity within 90 days of the reporting period. Included in Level 2 are assets valued at NAV which are redeemable in the near term. Investments offering periodic transparency with opportunities for liquidity within 90 days of the reporting period consist of private equity and hedge funds and are reported in Level 2 at December 31, 2014.

The following table presents the assets and liability carried at fair value as of December 31, 2014 and December 31, 2013 that are classified within Level 3 of the fair value hierarchy defined above:

	2014							
	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)							
	Balance, December 31, 2013	Realized Gains/Losses	Unrealized Gains/Losses	Purchases	Sales	Return of Capital	Transfers in and/or Out of Level 3	Balance, December 31, 2014
Private equity, Venture capital and other limited partnerships	$ 48,522,143	$ 4,550,669	$ 1,619,897	$ 2,762,396	$ (5,460,074)	$ (6,314,398)	$ -	$ 45,680,633
Multi-strategy investment funds	317,475,095	-	32,389,375	12,000,000	(27,966,317)	-	-	333,898,153
Contributions receivable from remainder trust	10,985,260	-	4,841	-	-	-	-	10,990,101
Other assets	937,907	-	(279,806)	-	-	-	-	658,101
	$ 377,920,405	$ 4,550,669	$ 33,734,307	$ 14,762,396	$ (33,426,391)	$ (6,314,398)	$ -	$ 391,226,988

	2013						
	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)						
	Balance, December 31, 2012	Realized Gains/Losses	Unrealized Gains/Losses	Purchases	Sales	Transfers in and/or Out of Level 3	Balance, December 31, 2013
Private equity, Venture capital and other limited partnerships	$ 51,290,962	$ 5,108,411	$ 1,552,178	$ 4,088,586	$ (13,517,995)	$ -	$ 48,522,142
Multi-strategy investment funds	275,468,577	1,283,556	18,963,518	103,843,000	(82,083,556)	-	317,475,095
Contributions receivable from remainder trust	9,828,272	-	1,156,988	-	-	-	10,985,260
Other assets	927,898	-	10,009	-	-	-	937,907
	$ 337,515,709	$ 6,391,967	$ 21,682,693	$ 107,931,586	$ (95,601,551)	$ -	$ 377,920,404

Net cumulative unrealized gains related to the Level 3 investments totaled $65,860,950 and $57,931,464 as of December 31, 2014 and 2013, respectively.

Transfers in and out of Level 3 are driven by events and circumstances affecting terms, conditions, restrictions, and redemption policies of the underlying investments.

ASU 2015-07, Fair Value Measurement (Topic 820), Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent), was issued in May 2015. The amendments in this Update remove the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. The amendments in this Update are effective for the Institution for the fiscal year ending December 31, 2016. Early adoption is permitted; the Institution has not adopted this Update for the year ended December 31, 2014.

The fair market value of the investments described in the table below are based on net asset value per share of the investments as of December 31, 2014.

Assets	Fair Value	Redemption Terms	Redemption Restrictions
Private equity, venture capital and other limited partnerships	$ 45,680,633	Remaining lives up to 10 years	$45,680,633 designated as illiquid
Multi-strategy investment funds	345,123,778	Annual (year end), included is $11,225,625 with monthly redemption terms	
Total investments	$ 390,804,411		

The fair market value of the investments described in the table below are based on net asset value per share of the investments as of December 31, 2013.

Assets	Fair Value	Redemption Terms	Redemption Restrictions
Private equity, venture capital and other limited partnerships	$ 48,522,142	Remaining lives up to 10 years	$48,522,142 designated as illiquid
Multi-strategy investment funds	325,698,050	Annual (year end), included is $8,222,955 with monthly redemption terms	
Total investments	$ 374,220,192		

The Institution had unfunded commitments relating to endowment assets of approximately $6,445,747 and $7,690,951 relating to private equity, venture capital and other limited partnerships as of December 31, 2014 and 2013, respectively.

On January 1, 2015 the Institution's Multi-strategy investment fund shares were transferred at their existing fair value into a newly created limited partnership titled WHOI Investments Holdings LP. The limited partnership entity was created with a third party currently utilized by the Institution for manager selection, risk management and asset allocation for the endowment. During 2015 ownership of the remaining directly held private equity, venture capital and other limited partnerships owned by the Institution will be redeemed and transferred at existing fair value at the time of transfer to WHOI Investments Holdings LP.

5. Pledges Receivable, Net

Pledges that are expected to be collected within one year are recorded at their net realizable value. Pledges that are expected to be collected in future years are recorded at the present value of estimated future cash flows. Discount rates used to calculate the present value of pledges receivable were 2.57% to 2.72% and 2.71% to 2.76% at December 31, 2014 and 2013, respectively.

Pledges receivable consist of the following at December 31:

	2014	2013
Unconditional promises expected to be collected in		
Less than one year	$ 840,065	$ 615,248
One year to five years	2,622,000	1,432,000
Reserve for uncollectible pledges receivable	(242,300)	(143,000)
Unamortized discount	(281,073)	(222,718)
	$ 2,938,692	$ 1,681,530

6. Contribution Receivable from Remainder Trusts, Net

Contributions receivable from remainder trusts at December 31, 2014 and 2013 were $10,990,101 and $10,985,260, respectively. The receivable and related revenue is measured at the present value of estimated future cash flows to be received, net of expected payouts, and recorded in the appropriate net asset category based on donor stipulation. During the term of these agreements, changes in the value are recognized based on amortization of discounts and changes in actuarial assumptions. For the years ended December 31, 2014 and 2013, discount rates ranging from 4.72% to 6.00% were used in these calculations.

7. Deferred Fixed Rate Variance

The Institution receives funding or reimbursement from federal government agencies for sponsored research under government grants and contracts. Revenue is recognized as related costs are incurred. The Institution has negotiated fixed rates with the federal government for the recovery of certain fringe benefits and indirect costs on these grants and contracts. Such recoveries are subject to carryforward provisions that provide for adjustments to be included in the negotiation of future fixed rates. The deferred fixed rate variance accounts represent the cumulative amount owed to or due from the federal government. The Institution's rates are negotiated with the Office of Naval Research (ONR), the Institution's cognizant agency.

The composition of the deferred fixed rate variance is as follows:

Deferred fixed rate variance asset at December 31, 2012	$ 4,586,477
2013 indirect costs	84,428,676
Amounts recovered	(87,215,001)
Submission adjustment 2012	(27,259)
2013 change	(2,813,584)
Deferred fixed rate variance asset at December 31, 2013	1,772,893
2014 indirect costs	85,871,654
Amounts recovered	(88,625,543)
Submission adjustment 2013	-
2014 change	(2,753,889)
Deferred fixed rate variance liability at December 31, 2014	$ (980,996)

As of December 31, 2014, the Institution has expended a cumulative amount less than recovered amounts of $980,996 which will be reflected as a deduction to future year recoveries. This amount has been reported as a liability of the Institution.

8. Line of Credit, Bonds Payable and Interest Rate Swap

Indebtedness at December 31, 2014 and 2013 includes bonds issued through MassDevelopment. Balances of outstanding bonds payable at December 31 consist of the following:

	2014	2013
MassDevelopment, Series B, Fixed Rate Revenue Bonds	$ 56,645,000	$ 58,300,000
Less: Series B unamortized bond discount	(703,387)	(739,458)
Bonds Payable	$ 55,941,613	$ 57,560,542

In fiscal 2004, proceeds were received from the offering of the $54,850,000 MassDevelopment, Variable Rate Revenue Bonds, Woods Hole Oceanographic Institution Issue, Series A (2004), (the "Series A Bonds"), which were used to repay the MassDevelopment B Pool loans and for campus construction completed in December 2007. The bonds contain certain restrictive covenants including limitations on obtaining additional debt, filings of annual financial statements and limitations on the creation of liens. In addition, the Institution agrees that, subject to any governmental restrictions, its fiduciary obligations and limitations imposed by law, it will maintain unrestricted and temporarily restricted resources at a market value equal to at least 75% of all outstanding indebtedness.

On December 1, 2008, the Institution issued $65,000,000 MassDevelopment, Fixed Rate Revenue Bonds, Woods Hole Oceanographic Institution Issue, Series B (2008), (the "Series B Bonds"). The proceeds were used for major maintenance and renovation projects throughout the Institution and were used to retire the Series A Bonds. The Series B Bonds mature in 2034 and bear fixed interest rates from 4.0% to 5.5% payable on June 1 and December 1 beginning in 2009. The Series B Bonds are collateralized by the Institution's unrestricted revenues. The Institution incurred costs of $268,500 associated with the issue which have been capitalized and are being amortized over the life of the bonds. Debt covenants are consistent with the requirements under the Series A bond agreement as long as the interest rate swap agreement is in effect. The fair value of the Series B bond which is based on current traded values for the same or similar issues or on the current rates offered for debt of the same remaining maturities was $63,240,605 at December 31, 2014 (Level 2).

The Institution maintains two uncollateralized lines of credit with two separate banks. The lines of credit in the aggregate allow for a maximum borrowing capacity of $45,000,000. One agreement, with a maximum capacity of $30,000,000, bears interest at 1% below the Wall Street Journal Prime Rate, contains no expiration date but is subject to annual reviews on or about June 30, 2015. The second line of credit, with a maximum capacity of $15,000,000, bears interest at the prevailing LIBOR rate plus .75% per annum and expires September 29, 2015. The agreement requires the loan to be repaid in full for a minimum of thirty consecutive days annually. The Institution had outstanding borrowing on lines of credit $25,000,000 at December 31, 2014 and 2013, respectively.

The aggregate maturities due on the Series B long-term debt at December 31, 2014 are as follows:

Fiscal Year	Principal Amount
2015	$ 1,725,000
2016	1,790,000
2017	1,865,000
2018	1,960,000
2019	2,065,000
Thereafter	47,240,000
	$ 56,645,000

In June 2004, the Institution entered into an interest rate swap agreement on the Series A Bonds (subsequently refinanced to Series B Bonds) in order to convert a portion of the variable rate debt to fixed rate, thereby economically hedging against changes in the cash flow requirements of the Institution's variable rate debt obligations. The term of the swap is through June 1, 2034 and effectively locked in a fixed rate of 3.79% per annum. The agreement has a notional amount of $45,725,000. Interest expense in association with the swap agreement totaled $1,708,056 and $1,749,811 which is reflected as part of the net realized/unrealized losses on interest rate swap at December 31, 2014 and 2013, respectively.

The fair value of the interest rate swap at December 31, 2014 and 2013 is as follows:

	Fair Value	
	2014	2013
Statement of financial position location		
Accounts payable and other liabilities	$ 9,746,978	$ 7,525,289

The effect of the interest rate swap on the statement of activities for 2014 and 2013 is as follows:

	Amount of Loss Recognized in Statement of Activities	
	2014	2013
Location of loss recognized in statement of activities		
Nonoperating income and expenses		
Net realized/unrealized gain (loss) on interest rate swap	$ (3,929,745)	$ 2,714,059

9. Retirement Plans

The Institution maintains a noncontributory defined benefit pension plan covering certain employees of the Institution (Qualified Plan), a Restoration Plan for certain senior employees and a supplemental benefit plan for certain other employees. Pension benefits are earned based on years of service and compensation received. The Institution's policy is to fund at least the minimum required by the Employee Retirement Income Security Act of 1974.

The Institution sponsors a 403(b) Defined Contribution Plan (DC Plan). Contributions for the defined contribution plan totaled $7,725,611 and $7,649,454 for the years ended December 31, 2014 and 2013, respectively. Effective January 1, 2010, no new participants were allowed to enter the Qualified Plan and Restoration Plan but were eligible to participate in the DC Plan. The Qualified Plan and Restoration Plan were placed under a soft freeze for current participants with all future retirement benefits being earned through the new plan and prior benefits adjusted for future salary increases.

The Institution uses a December 31 measurement date for all of its plans.

	Restoration Plan Pension Benefits	
	2014	**2013**
Change in benefit obligation		
Benefit obligation at beginning of year	$ -	$ 13,953
Service cost		
Interest cost	-	297
Actuarial loss		
Benefits paid	-	(14,250)
Benefit obligation at end of year	-	-
Change in plan assets		
Fair value of plan assets at beginning of year	-	-
Employer contributions	-	14,250
Actual return on plan assets		
Benefits paid	-	(14,250)
Fair value of plan assets at end of year	-	-
Funded status	$ -	$ -
Amounts recognized in the statement of financial position consist of		
Accrued benefit liability	$ -	$ -
Net amount recognized	$ -	$ -
Amounts recognized in unrestricted net assets		
Net actuarial loss	$ -	$ -
Information for pension plans with accumulated benefit obligations in excess of plan assets		
Projected benefit obligation	$ -	$ -
Accumulated benefit obligation	-	-
Component of net periodic benefit cost		
Interest cost	$ -	$ 297
Service cost		
Recognized actuarial loss	-	1,053
Settlement cost	-	1,395
Net periodic benefit cost	$ -	$ 2,745
Other changes in benefit obligations recognized in unrestricted net assets		
Amortization of net gain (loss)	$ -	$ (1,053)
Settlement adjustment	-	(1,395)
Net actuarial gain		-
Total recognized in nonoperating expense	$ -	$ (2,448)
Weighted-average assumptions used to determine benefit obligations at December 31		
Discount rate	-	5.20 %
Rate of compensation increase	-	3.50 %
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31		
Discount rate	-	4.30 %
Rate of compensation increase	-	3.50 %

Remaining plan liabilities for benefits due participants under the Restoration Plan were distributed during 2013. No additional benefits due participants have accrued since that time. Accordingly, no further amounts are expected to be amortized from unrestricted net assets into net periodic pension cost for the next fiscal year. In addition, the Institution does not anticipate contributing to the plan or expect future benefit payments to be paid in 2015.

	Qualified Plan Pension Benefits	
	2014	**2013**
Change in benefit obligation		
Benefit obligation at beginning of year	$ 248,961,415	$ 304,394,845
Interest cost	12,438,652	12,638,450
Actuarial loss (gain)	54,199,012	(38,614,184)
Benefits paid	(7,145,024)	(6,895,912)
Settlements	(11,179,881)	(22,561,784)
Transfers from other plans	419,783	-
Benefit obligation at end of year	297,693,957	248,961,415
Change in plan assets		
Fair value of plan assets at beginning of year	182,458,328	198,765,577
Employer contributions	6,166,666	6,780,000
Actual return on plan assets	14,436,419	6,370,447
Benefits paid	(7,145,024)	(6,895,912)
Settlements	(11,179,881)	(22,561,784)
Transfers from other plans	419,783	-
Fair value of plan assets at end of year	185,156,291	182,458,328
Funded status	$ (112,537,666)	$ (66,503,087)
Amounts recognized in the statement of financial position consist of		
Accrued benefit liability	$ 112,537,666	$ 66,503,087
Net amount recognized	$ 112,537,666	$ 66,503,087
Amounts recognized in unrestricted net assets		
Net actuarial loss	$ 78,373,362	$ 30,761,323
Information for pension plans with accumulated benefit obligations in excess of plan assets		
Projected benefit obligation	$ 297,693,957	$ 248,961,415
Accumulated benefit obligation	285,757,087	238,267,666
Components of net periodic benefit cost		
Service cost	$ -	$ -
Interest cost	12,438,652	12,638,450
Expected return on plan assets	(10,963,395)	(10,986,485)
Recognized actuarial loss	3,113,949	11,643,578
Net periodic benefit cost	$ 4,589,206	$ 13,295,543
Other changes in plan assets and benefit obligations recognized in unrestricted net assets		
Amortization of actuarial loss	$ (3,113,949)	$ (11,643,578)
Net actuarial (gain) loss	50,725,988	(33,998,146)
Total recognized in nonoperating expense	$ 47,612,039	$ (45,641,724)

Included in amounts recognized in unrestricted net assets for 2014 was an actuarial loss of approximately $15,900,000 relating to a change in the mortality tables.

The Institution has reflected $6,166,666 and $6,780,000 for the years ended December 31, 2014 and 2013, respectively, in the operating section of the statement of activities which represents employer contributions reimbursed through the employee benefit fixed rate as negotiated with the United States Government. Any difference between the employer contributions and the net periodic benefit cost is recorded in the nonoperating section of the statement of activities. This difference amounted to $1,577,460 and ($6,515,543) for the years ended December 31, 2014 and 2013, respectively.

	Qualified Plan Pension Benefits	
	2014	**2013**
Weighted-average assumptions used to determine benefit obligations at December 31		
Discount rate	4.30 %	5.20 %
Rate of compensation increase	3.50 %	3.50 %
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31		
Discount rate	5.20 %	5.20 %
Expected long-term rate of return on plan assets	7.00 %	6.70 %
Rate of compensation increase	3.50 %	3.50 %

To develop the expected long-term rate of return on assets assumption, the Institution considered the current level of expected returns on risk-free investments (primarily government bonds), the historical level of the risk premium associated with the other asset classes in which the portfolio is invested and the expectations for future returns of each asset class. The expected return for each asset class was then weighted based on the target asset allocation to develop the expected long-term rate of return on assets assumption for the portfolio, net of expenses expected to be paid. This resulted in a 7.00% and 6.70% assumption as of December 31, 2014 and 2013, respectively.

Plan Assets

The long-term investment objectives of the Plan are to (1) achieve an average real total return assessed over rolling five year periods, that is consistent with the Plan's actuarial assumptions; (2) generate acceptable long-term returns, as determined by measurement against the Fund's benchmarks and (3) generate acceptable long-term returns without compromising the liquidity and stability required to support the Plan's annual payments to the Plan's beneficiaries.

The Institution has retained and outsourced services for manager selection, risk management and asset allocation of the Plan's assets to a third party to assist with implementing the Plan's investment policy. In addition, Target Allocations for asset classes have been revised to include two broad categories; (1) Growth and Excess Return Portfolio, (2) Fixed Income/Liability Hedging Portfolio. These categories have been assigned a 60% and 40% Target Allocation, respectively.

Expected amounts amortized from unrestricted net assets into net periodic pension cost for the next fiscal year	
Amortization of net loss	$ 8,460,044

Fair Value Disclosures

The following fair value hierarchy tables present information about the Qualified Plan's financial assets measured at fair value on a recurring basis:

	2014			
	Level 1	**Level 2**	**Level 3**	**Total**
Assets				
Cash and cash equivalents	$ 3,704,068	$ -	$ -	$ 3,704,068
Private equity, venture capital and other limited partnerships	-	-	18,462,806	18,462,806
Commingled funds	-	43,430,183	9,234,702	52,664,885
Hedge funds	-	20,310,428	57,574,004	77,884,432
Mutual funds	17,126,654	-	-	17,126,654
Domestic fixed income	15,487,282	-	-	15,487,282
Total assets at fair value	$ 36,318,004	$ 63,740,611	$ 85,271,512	$ 185,330,127

	2013			
	Level 1	**Level 2**	**Level 3**	**Total**
Assets				
Cash and cash equivalents	$ 5,634,823	$ -	$ -	$ 5,634,823
Private equity, venture capital and other limited partnerships	-	-	19,596,440	19,596,440
Commingled funds		40,297,626	7,624,238	47,921,864
Hedge funds	-	13,154,047	56,205,359	69,359,406
Mutual funds	26,711,003	-	-	26,711,003
Domestic fixed income	12,866,421		-	12,866,421
Total assets at fair value	$ 45,212,247	$ 53,451,673	$ 83,426,037	$ 182,089,957

Included in plan assets at December 31, 2014 is a net investment related payable of $173,836. Included in plan assets at December 31, 2013 is a net investment related receivable of $368,371.

ASU 2015-07, Fair Value Measurement (Topic 820), Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent), was issued in May 2015. The amendments in this Update remove the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. The amendments in this Update are effective for the Institution for the fiscal year ending December 31, 2016. Early adoption is permitted; the Institution has not adopted this Update for the year ended December 31, 2014.

The following table summarizes changes in the fair value of the Qualified Plan's Level 3 assets:

	Private Equity, Venture Capital and Other Limited Partnerships	Hedge Funds	Commingled Funds	Total
Balances at January 1, 2014	$ 19,596,440	$ 56,205,359	$ 7,624,238	$ 83,426,037
Realized gains/losses	378,736	1,188,287	-	1,567,023
Unrealized gains/losses	419,556	(1,509,926)	610,464	(479,906)
Purchases	982,370	22,235,505	1,000,000	24,217,875
Sales	(2,914,296)	(20,545,221)	-	(23,459,517)
Transfers into level 3	-	-	-	-
Balances at December 31, 2014	$ 18,462,806	$ 57,574,004	$ 9,234,702	$ 85,271,512

	Private Equity, Venture Capital and Other Limited Partnerships	Hedge Funds	Commingled Funds	Total
Balances at January 1, 2013	$ 21,879,303	$ 24,782,366	$ -	$ 46,661,669
Realized gains/losses	(1,012,056)	2,703,808	128,121	1,819,873
Unrealized gains/losses	1,544,333	2,092,089	1,148,183	4,784,605
Purchases	1,192,649	14,279,667	4,237,681	19,709,997
Sales	(4,007,789)	(15,703,808)	(4,037,681)	(23,749,278)
Transfers into Level 3	-	28,051,237	6,147,934	34,199,171
Balances at December 31, 2013	$ 19,596,440	$ 56,205,359	$ 7,624,238	$ 83,426,037

There were no transfers between Level 1 and Level 2 investments for the years ended December 31, 2014 and 2013. Transfers in and out of Level 3 are driven by events and circumstances affecting terms, conditions, restrictions, and redemption policies of the underlying investments.

Cumulative unrealized gains/(losses) related to the Level 3 investments totaled $11,248,830 and $11,728,736 for the years ended December 31, 2014 and 2013, respectively.

Expected Contributions

The Institution anticipates contributing $5,340,000 to the Qualified Plan in 2015.

Estimated Future Benefit Payments

The following benefit payments, which reflect expected future service are expected to be paid as follows:

Years	Benefit Payments
2015	$ 21,107,038
2016	20,920,501
2017	22,203,046
2018	20,530,464
2019	20,632,427
2020–2024	92,403,015

	Supplemental Plan Pension Benefits	
	2014	2013
Change in benefit obligation		
Benefit obligation at beginning of year	$ 204,049	$ 274,602
Service cost		
Interest cost	8,529	10,129
Actuarial (gain) loss	432	(463)
Benefits paid	(80,219)	(80,219)
Benefit obligation at end of year	132,791	204,049
Change in obligation for nonreturnable funding		
Obligation at beginning of year	9,086,373	7,547,951
Service cost		
Interest cost	(8,529)	(10,129)
Actuarial gain (loss)	(432)	463
Investment return	712,180	1,548,088
Other obligation at end of year	9,789,592	9,086,373
Total obligation at end of year	$ 9,922,383	$ 9,290,422

The accrued supplemental retirement obligation is matched by a “Rabbi” Trust which is recorded as an asset on the balance sheet. However, the Institution is obligated to use the funds only for the supplemental retirement of similar benefits.

	2014	2013
Change in nonreturnable funding "Rabbi" Trust		
Nonreturnable funding at beginning of year	$ 9,290,422	$ 7,822,553
Investment return	712,180	1,548,088
Benefits paid	(80,219)	(80,219)
Nonreturnable funding "Rabbi" Trust at end of year	$ 9,922,383	$ 9,290,422

	Supplemental Plan Pension Benefits	
	2014	**2013**
Actual return on earmarked reserves	$ 712,180	$ 1,548,088
Weighted-average assumptions used to determine benefit obligations at December 31		
Discount rate	4.30 %	5.20 %
Rate of compensation increase	3.50 %	3.50 %
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31		
Discount rate	5.2 %	4.30 %
Expected long-term rate of return on plan assets	7.0 %	6.70 %
Rate of compensation increase	3.50 %	3.50 %

Expected amounts amortized from unrestricted net assets into net periodic pension cost for the next fiscal year.

Amortization of net prior service cost	$ -
Amortization of net loss (gain)	(522,363)

Expected Contributions
The Institution anticipates contributing $79,296 to the Supplemental Plan in 2014.

Estimated Future Benefit Payments

	Benefit Payments
Years	
2015	$ 79,296
2016	43,951
2017	-
2018	-
2019	-
2020–2024	-

10. Other Postretirement Benefits

In addition to providing retirement plan benefits, the Institution provides certain health care benefits for retired employees and their spouses. Substantially all of the Institution's employees may become eligible for the benefits if they reach normal retirement age (as defined) or elect early retirement after having met certain time in service criteria.

Effective January 1, 2012 the Trust agreement which had been funding the Plan was amended to include active employees. Accordingly, assets of the Plan were then decoupled and recorded on the Institution's Statement of Financial Position as "Investments designated for retiree and active medical plans" along with a corresponding increase to the accrued postretirement liability. Actual returns from investments designated for retiree and active medical plans totaled $1,811,722 and $405,982 for the years ended December 31, 2014 and 2013, respectively, and are presented in the nonoperating section of the Statement of Activities, net of administrative fees of $74,296 and

$86,363 for 2014 and 2013, respectively. In addition, health care benefits for active employees funded from these investments totaled $0 and $3,000,000 for the years ended December 31, 2014 and 2013, respectively, and are also presented under the nonoperating section of the Statement of Activities.

	Other Postretirement Benefits	
	2014	**2013**
Change in benefit obligation		
Benefit obligation at beginning of year	$ 30,586,416	$ 36,516,225
Adjustment to reflect change from plan amendment		-
Service cost	440,447	739,773
Interest cost	1,392,174	1,436,212
Benefits paid, net of participant contributions	(947,823)	(984,439)
Actuarial (gain) loss	7,221,415	(7,121,355)
Benefit obligation at end of year	38,692,629	30,586,416
Change in plan assets		
Fair value of plan assets at beginning of year	-	-
Adjustment to reflect change from plan amendment	-	-
Employer contributions	947,823	984,439
Actual return on plan assets	-	-
Benefits paid, net of participant contributions	(947,823)	(984,439)
Fair value of plan assets at end of year	-	-
Funded status	$ (38,692,629)	$ (30,586,416)
Amounts recognized in the statement of financial position consist of		
Accrued benefit liability	$ 38,692,629	$ 30,586,416
Net amount recognized	$ 38,692,629	$ 30,586,416
Components of net periodic benefit cost		
Service cost	$ 440,447	$ 739,773
Interest cost	1,392,174	1,436,212
Expected return on plan assets	-	-
Amortization of prior service credit	(839,846)	(839,846)
Amortization of net loss	512,758	1,318,443
Net periodic benefit cost	$ 1,505,533	$ 2,654,582
Other changes in plan assets and benefit obligations recognized in unrestricted net assets		
Amortization of prior service credit	$ 839,846	$ 839,846
Amortization of actuarial loss	(512,758)	(1,318,443)
Net actuarial (gain) loss	7,221,415	(7,121,355)
Total recognized in nonoperating expense	$ 7,548,503	$ (7,599,952)

The Institution recognizes the net periodic benefit cost in the nonoperating section of the statement of activities. This amounted to ($1,505,533) and ($2,654,582) for the years ended December 31, 2014 and 2013, respectively.

	2014	2013
Weighted-average assumptions used to determine benefit obligations at December 31		
Discount rate	4.3 %	5.2 %
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31		
Discount rate	5.2 %	4.3 %
Expected long-term rate of return on plan assets	N/A	N/A

The plan does not provide prescription drug benefits for post-65 retirees; therefore, there is no anticipated Medicare employer subsidy.

	2014		2013	
	Pre-65	Post-65	Pre-65	Post-65
Assumed health care cost trend rates at December 31				
Health care cost trend rate assumed for next year	7.0 %	6.0 %	7.0 %	6.0 %
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	5.0 %	5.0 %	5.0 %	5.0 %
Year that the rate reaches the ultimate trend rate	2020	2018	2018	2015

Assumed health care cost trend rates have a significant effect on the amounts reported for the health care plan. A one-percentage-point change in assumed health care cost trend rates would have the following effects:

	2014		2013	
	One-Percentage-Point Increase in Trend	One-Percentage-Point Decrease in Trend	One-Percentage-Point Increase in Trend	One-Percentage-Point Decrease in Trend
Effect on total of service cost and interest cost components	$ 339,568	$ (267,464)	$ 447,632	$ (348,300)
Effect on year-end postretirement benefit obligation	7,507,999	(5,856,373)	4,851,858	(3,935,246)

Plan Assets

Due to the change in the Trust agreement, there were no plan assets at December 31, 2014 and 2013.

Expected amounts amortized from unrestricted net assets into net periodic pension cost for the next fiscal year	
Amortization of net prior service cost	$ (819,094)
Amortization of net loss	1,301,830

Expected Contributions
The Institution anticipates contributing $0 to the Retiree Medical Plan in 2015.

Estimated Future Benefit Payments
The following benefit payments, which reflect expected future service are expected to be paid as follows:

Years	Benefit Payments
2015	$ 1,416,202
2016	1,515,656
2017	1,566,678
2018	1,626,918
2019	1,658,039
2020–2024	9,117,050

11. Endowment

The Institution's endowment consists of 145 individual funds established for a variety of purposes. The endowment includes both donor-restricted endowment funds and funds designed by the Board of Trustees to function as endowments. Net assets associated with endowment funds, including funds designated by the Board of Trustees to function as endowments, are classified and reported based on the existence or absence of donor-imposed restrictions.

At December 31, the endowment net asset composition by type of fund consisted of the following:

	2014			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor restricted endowment funds	$ -	$ 251,279,093	$ 78,878,961	$ 330,158,054
Board designated funds	93,763,842	-	-	93,763,842
Total funds	$ 93,763,842	$ 251,279,093	$ 78,878,961	$ 423,921,896

	2013			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor restricted endowment funds	$ -	$ 233,860,217	$ 76,132,449	$ 309,992,666
Board designated funds	99,044,772	-	-	99,044,772
Total funds	$ 99,044,772	$ 233,860,217	$ 76,132,449	$ 409,037,438

Changes in endowment net assets for the year ended December 31, consisted of the following:

	2014			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Net assets beginning of year	$ 99,044,772	$ 233,860,217	$ 76,132,449	$ 409,037,438
Investment return				
Investment income, net of fees	(325,396)	(1,276,463)	-	(1,601,859)
Net appreciation	9,129,609	31,781,351	-	40,910,960
Total investment return	8,804,213	30,504,888	-	39,309,101
New gifts	-	7,429	2,757,354	2,764,783
Appropriation of endowment assets for expenditure under spending policy	(4,136,570)	(13,072,430)	-	(17,209,000)
Additional appropriations	(10,000,792)	-	-	(10,000,792)
Change in split interest agreements	52,219	(21,011)	(10,842)	20,366
Net assets end of year	$ 93,763,842	$ 251,279,093	$ 78,878,961	$ 423,921,896

	2013			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Net assets beginning of year	$ 90,665,746	$ 206,764,211	$ 72,875,489	$ 370,305,446
Investment return				
Investment income, net of fees	(9,538,582)	6,869,187	-	(2,669,395)
Net appreciation	23,645,112	32,684,715	-	56,329,827
Total investment return	14,106,530	39,553,902	-	53,660,432
New gifts	-	-	2,142,811	2,142,811
Appropriation of endowment assets for expenditure	(4,008,899)	(12,540,084)	-	(16,548,983)
Other	(1,741,292)	-	-	(1,741,292)
Change in split interest agreements	22,687	82,188	1,114,149	1,219,024
Net assets end of year	$ 99,044,772	$ 233,860,217	$ 76,132,449	$ 409,037,438

12. Commitments and Contingencies

The Defense Contract Audit Agency (DCAA) is responsible for auditing both direct and indirect charges to grants and contracts on behalf of the ONR. The Institution and the ONR have settled the years through 2011 with no findings or adjustments for unallowable costs. The current indirect cost recovery rates, which are fixed, include the impact of prior year settlements. The DCAA issued an audit report on the completed audit of direct and indirect costs for the year ended December 31, 2011 on April 2, 2015. The years 2012 and 2013 costs remain subject to audit. Any adjustments will be recorded in the years they become known.

The Institution is a defendant in legal proceedings incidental to the nature of its operations. The Institution believes that the outcome of these proceedings will not materially affect its financial position.

13. Related Party Transactions

The Institution's subcontracts to subgrantee organizations in which an individual associated with the subgrantee organization is also a member of the Institution's Board of Trustees or Corporation totaled $442,874 and $1,408,522 for the years ended December 31, 2014 and 2013, respectively. These subcontracts may include federal pass-through awards. The Institution also has other transactions such as legal services and other items with organizations where members of the Board of Trustees or Corporation are affiliated with the organizations. Total expenditures for these legal, publication, research and student transactions were approximately $1,415,740 and $1,179,873 for the years ended December 31, 2014 and 2013, respectively.

The Institution has loans due from various employees for education advances and computer purchases. The amounts outstanding are $853,057 and $1,040,681 at December 31, 2014 and 2013, respectively.

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Woods Hole Oceanographic Institution

Comments and Recommendations

July 16, 2015

Members of the Audit Committee of the Board of Trustees of
Woods Hole Oceanographic Institution

July 16, 2015

Dear Members of the Audit Committee:

In planning and performing our audit of the financial statements of Woods Hole Oceanographic Institution (the "Institution") as of and for the year ended December 31, 2014, in accordance with auditing standards generally accepted in the United States of America, we considered its internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the Institution's internal control over financial reporting. Accordingly, we do not express an opinion on the Institution's internal control over financial reporting.

Our consideration of internal control over financial reporting was for the limited purpose described in the preceding paragraph and was not designed to identify all deficiencies in internal control over financial reporting that might be significant deficiencies or material weaknesses and therefore, there can be no assurance that all deficiencies, significant deficiencies, or material weaknesses have been identified.

AU 325, *Communicating Internal Control Related Matters Identified in an Audit*, of the AICPA Professional Standards includes the following definitions of a deficiency, a significant deficiency and a material weakness:

Deficiency - a deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis.

Significant deficiency - a deficiency, or combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Material weakness - a deficiency, or combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis.

We are providing you with the accompanying comments which include the deficiencies, and other operational matters that came to our attention during the fiscal 2014 audit. In addition, we have provided a status of our prior year management letter comments.

This letter is intended solely for the information and use of the Audit Committee of the Board of Trustees or other persons charged with governance, management, and others within the organization and is not intended to be and should not be used by anyone other than these specified parties.

If you would like any further information or would like to discuss any of the issues raised, please contact Lee Ann Leahy at (617) 530-4554.

Very truly yours,

PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP

cc: Mr. Jeffrey Fernandez, VP of Operations and CFO Ms. Dana Fernandez, Controller

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Current Year Comments and Recommendations

Status of Fiscal Year 2013 Comments and Recommendations

Current Year's Comments and Recommendations

A. Internal Control Enhancements

The control environment is not static in nature, thus improvements are needed to continually improve the overall policies and procedures in place at the Institution. During the current year audit, the following items were identified which will enhance the Institution's internal controls:

Deferred Revenue and Unbilled Accounts Receivable:

At December 31, 2014, deferred revenue recorded by the Institution amounted to approximately $21.2M. This balance predominantly represents grant monies received in advance of expenditures incurred. The Institution appropriately tracks activity within deferred revenue throughout the year, but due to system limitations, does not have a detailed listing of the specific contracts that make up the year-end balance. Additionally, the unbilled accounts receivable balance is manually tracked and updated through the use of an excel spreadsheet. The spreadsheet currently does not age the unbilled balances.

We recommend that at specified periods during the year the deferred revenue balance is tracked and reported by contract. We also recommend a formal aging of unbilled receivable balances be prepared and reviewed to ensure amounts are billed on a timely basis and that no errors exist in the excel spreadsheet.

Fully Depreciated Fixed Assets

At December 31, 2014, the Institution maintained $62M in fully depreciated fixed assets. Of this balance, $38M related to buildings, and $24M related to equipment. A formal analysis to determine whether these fixed assets are still being utilized has not been performed.

We recommend that management undertake an analysis of fully depreciated fixed assets to determine if they continue to be utilized. This analysis could initially be performed on a high-dollar basis so the review first focuses on significant fully depreciated items. Based on the analysis, any fixed assets determined to be idle or not in existence, should be removed from the Institution's fixed asset system.

Segregation of Duties

During the review of the purchasing cycle, it was noted that an individual within the accounts payable department has the ability to both create a new vendor and pay invoices. Currently, there is no mitigating control in place to review the activity of this individual. We recommend that management consider the access rights of personnel within the procurement department, to ensure proper segregation of duties exists or establish a mitigating control such as establishing a review of new vendors by an individual different from those who can create vendors.

In connection with our testing of journal entries, we noted that an individual reviewing journal entries also has the ability to both create and post journal entries. We recommend management eliminate the ability of this individual to both create and post entries, as those individuals who are reviewing journal entries should not have the capability to create and post them.

Management Response:

Deferred Revenue and Unbilled Accounts Receivable:
Management will formalize a reconciliation process where the components of deferred revenue are supported by the applicable funding agency unexpended balances on funded awards (at the summary project level). The reconciliations will be prepared by General Accounting staff and reviewed by the Manager of General Accounting.

Automation and the use of One Solution generated data for the tracking of Unbilled Accounts Receivable is an action item for the next phase of the business process review slated to begin in Q3 2015.

Fully Depreciated Fixed Assets
Quarterly the Property Officer will select a sample of high dollar fully depreciated fixed assets for inspection to determine if the assets continue to be utilized. The fixed asset system allows for documentation of the review and applicable remarks. Assets not physically located or determined to be idle or obsolete will be coded as disposed in the fixed asset system and the related cost and accumulated depreciation will be adjusted from the general ledger. Outcomes from this process will be reviewed to determine if additional analysis is required.

Segregation of Duties
One individual in the Accounts Payable department had the ability to; create a new vendor, enter invoices and post invoices. The individual's posting capabilities have been rescinded. With this mechanism in place, the individual who enters invoices (and updates vendor data base) will not have the capability to post invoices. This step will allow the Accounts Payable Supervisor complete review of all activity before posted to the system.

B. Information Security Program and Oversight

Currently, there is no formally documented Information Security Program to provide oversight for the discrete MIS and CIS groups. Management should consider formally documenting a centralized Information Security Program in order to provide consistent guidance to the MIS and CIS groups. Additionally, management should consider identifying the appropriate individual to assume an information security officer role or equivalent to develop and enforce the security program.

Management's Response

WHOI IT is in the process of a re-organization. A new Senior Director has been hired and is in his first month at the Institution. Part of this re-organization is to combine the MIS and CIS divisions into one. While it is premature to assume what form the Security Program will take, there will be a thorough review as part of the reorganization.

Status of Fiscal Year 2013 Comments and Recommendations

A. Internal Control Enhancements

During the 2013 audit, the following items were identified related to the Institution's internal controls:

Investments and Endowment

The Institution holds a number of alternative investments within its endowment and retirement benefit plans. During 2012, the Institution retained and outsourced services for manager selection, risk management and asset allocation of endowment and plan assets to two third parties. The endowment assets are managed by Global Endowment Management "GEM" and plan assets are managed by Cambridge Associates. During 2013, the Institution continued to establish policies and procedures to monitor the activity over GEM and Cambridge. We recommend that management formalize these procedures and perform a secondary review of its ongoing monitoring process. Examples of these procedures and secondary reviews include the following:

- Formalizing a process by which liquidations, distributions, or other activity reported by fund managers is reconciled and reviewed, on a timely basis with activity reported by SSB.
- Performing a secondary review of the tracking and recording of endowment activity, including investment income, re-designation of donor gifts, and releases from restriction in the financial statements and disclosures.

Given the recent transition in accounting personnel at the Institution, this is a great opportunity to consider the investment monitoring procedures in place and what procedures can be enhanced.

Current year update
This comment is closed.

The Senior Financial Analyst (SFA) who was responsible for the oversight of the investment activity for both the Endowment and Retirement Trust (RT) implemented the process of reconciling documents obtained from investment managers with amounts reported by State Street Bank (SSB) and ultimately distributed to the Institution's general ledger. In addition the Controller, SFA and Manager of General Accounting meet quarterly to review significant events pertaining to the endowment and RT investments and confirm the Institution is accurately presenting these events in the financial statements.

Segregation of Duties

While performing reviews of controls, we identified certain areas where a lack of segregation of duties exists. During the purchasing and payables review, it was noted that two Procurement Department personnel have the ability to both create a new vendor and pay invoices to that same vendor. Currently, there is no mitigating control in place to review the activity of these two individuals. We recommend that management consider the access rights of personnel within the Procurement department, to ensure proper segregation of duties exists or establish a mitigating control such as establishing a review of new vendors by an individual different from those who can create vendors.

During the review of payroll controls it was noted that the Payroll Manager has the ability to add a new employee to the payroll system and is also responsible for processing the payroll for all employees. We recommend that management remove access rights from the payroll department to create new employees in the system.

Current year update
This comment is closed for payroll. Management has rescinded the Payroll Manager's ability to create new employees in the system.

See "Current Year Comments and Recommendation – Internal Control Enhancements" for comments relating to segregation of duties over purchasing and payables.

Review of Contracts and Agreements
In December, 2013 the Institution received an unanticipated invoice from an outside contractor for worked performed on the Alvin submersible from the period 2006 - 2008. Upon further review of the contract agreement with the contractor by the Director of Grant and Contract Services, a potential liability may exist for additional indirect and retainage costs on this contract for the periods 2009-2013, based on final audit by the government of the contractor's actual indirect cost rates for those years.

The contract with the outside consultant was entered into in 2005 by the Institution through the Procurement Department which was heavily involved in the Alvin build. Unilateral decisions were made within this department which resulted in not recognizing certain provisions with a potential financial liability from the Institution at the end of the project.

We recommend that large contractual arrangements entered into by the Procurement Department be communicated to Internal General Counsel and /or Grant and Contracts Services to ensure all terms and conditions are known and can be met by the Institution.

Current year update
This comment is closed. All large project contracts are now reviewed where appropriate by either the Large Project Support Office or Internal General Counsel in conjunction with the Procurement Manager to ensure all terms and conditions are known and can be met by the Institution.

B. Journal Entries

In connection with our testing of journal entries, we noted that several individuals within the Controller's Office have the ability to both create and post journal entries. Management has mitigating internal controls in place in which journal entries are reviewed and approved by the Manager of General Accounting prior to being posted. In the absence of the Manager of General Accounting, or in circumstances when the Manager of General Accounting prepared the journal entry, the review and approval is performed by the Controller.

To further enhance the controls over journal entries, we recommend management take a fresh look at create and post capabilities, and reduce or eliminate them where possible. Additionally, those individuals who are reviewing journal entries should not have the capability to create and post them.

Current Year Update:

With the upgrade to ONESolution, an automated "workflow" process for journal entry processing was implemented during 2014. In conjunction with this project, management has evaluated journal entry posting rights for Finance & Accounting personnel and made necessary updates. See "Current Year Comments and Recommendation – Internal Control Enhancements" for comments relating to segregation of duties over journal entries.

C. Application Security Administration

For one user granted new access to the Bi-Tech application during fiscal year2013, management was unable to provide an access request form to evidence the authorization of access to the ERP.

PwC determined that the impact of this observation on the overall IT environment is limited based on the following factors:

The employee is a member of the MIS group. The user was granted access to the system commensurate with his job responsibilities. There is an increased risk that users could be granted inappropriate access to the ERP.

MIS should consider requiring all users, regardless of department, to submit an authorized access request form prior to granting system access.

Current Year Update:

This comment is closed. During 2014, management has implemented policies to include MIS staff in the requirement for an authorization form.