

MIT Sea Grant Program

Site Review PIER Information

(Information gathered from the Program's Annual Report Submissions in PIER)

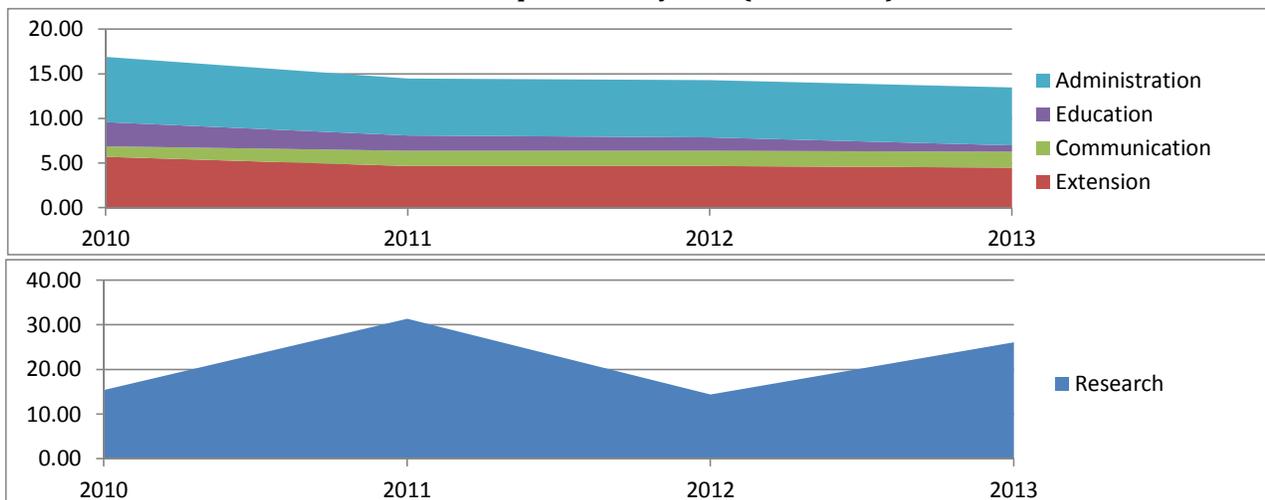
I. Program Management and Organization (organization, program team approach, support).

A. Sea Grant Staffing (2010-2013)

	Range of Annual Number of Individuals	Average Annual Full-Time Equivalents*
Administration	7-9	6.6
Extension	5-16	4.9
Communication	3	1.5
Education	2-9	1.6
Research	25-92	21.8

*One FTE is equivalent to 12 months of full time effort, and can be funded with Sea Grant Federal or non-Federal dollars.

Full Time Equivalents by Year (2010-2013)

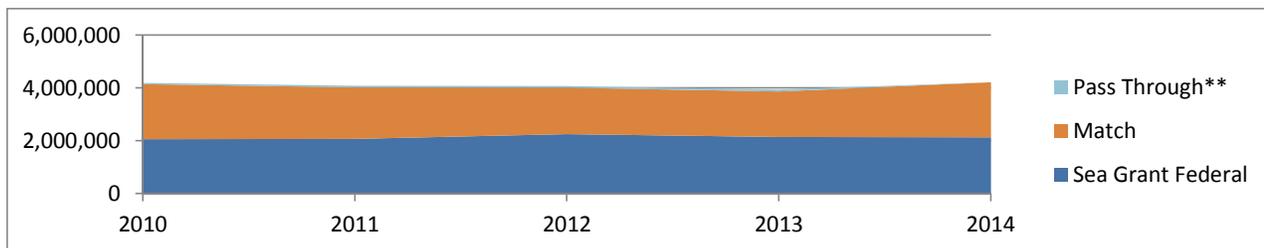


B. Total Funding by Source (2010-2014)

	Sea Grant Federal	Match	Pass Through**	Total Funding
2010	2,063,249	2,083,236	44,241	4,190,726
2011	2,075,077	1,946,379	65,250	4,086,706
2012	2,249,195	1,757,597	67,425	4,074,217
2013	2,148,714	1,717,532	71,750	3,937,996
2014	2,134,307	2,081,784	0	4,216,091

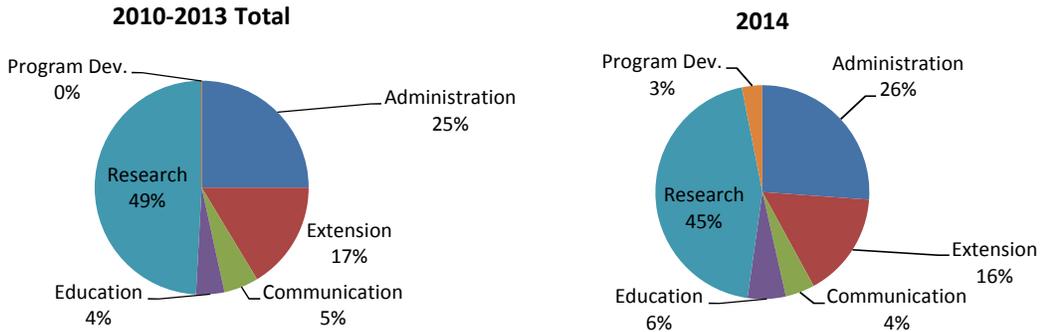
** Pass Through funding refers to federal funds not appropriated to Sea Grant, but administered through the National Sea Grant Office

Funding by Year (2010-2013)

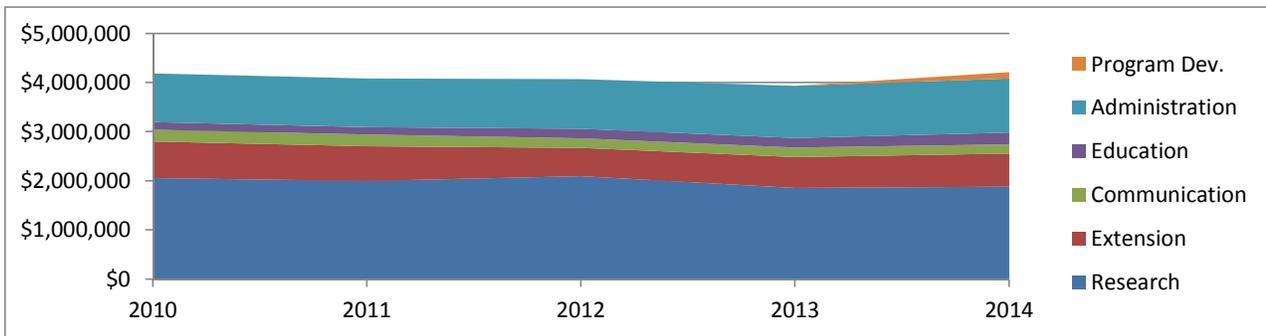


C. Distribution of Funding by Functional Area (Federal + Match + Pass Through)

	2010	2011	2012	2013	2014
Administration	995,484	994,986	1,015,703	1,065,774	1,101,483
Extension	750,582	705,302	570,515	632,154	672,368
Communication	235,709	235,686	195,382	191,589	185,925
Education	154,781	149,288	194,114	193,612	242,671
Research	2,054,170	2,001,444	2,098,503	1,854,867	1,883,505
Program Dev.	0	0	0	0	130,139



Trend (2010-2014)



D. Total Number of Core Funded Proposals (Not NSIs)

	2011	2013
Pre-Proposals Submitted	21	19
Full Proposals Submitted	8	19
Proposals Funded	6	15
Institutions with Proposals Funded	5	5
Proposals Funded from Home Institution	2	11

E. Core-Funded Research Projects

2014

Are blue mussels declining in the Gulf of Maine?: population trajectories, connectivity, and spatiotemporal Consortium for Ocean Sensing In the Nearshore Environment (COSINE) (Robert Chen)

Development and Validation of the Coastal Biosensors for Endocrine Disruption (C-BED) Assay (Helen Enhanced monitoring of harmful algal bloom dynamics and toxicity using real-time observations from co-Focused Research (Chrys Chryssostomidis)

Food Web Structure as a Driver of Multiple Ecosystem Functions in New England Salt Marsh Ecosystems

Functional consequences of invasion-mediated biodiversity changes in a marine ecosystem (A. Randall

Laboratory Development of a Quantum Cascade Laser-Based Sensor System for Measurement of d13C

Marine Center for Development of Biomimetic Underwater Sensors (Michael Triantafyllou)

Using a Global-Regional-Coastal FVCOM System to Assess the Impact of Sea Level Rise on Hurricane and Nor'easter-induced Flood Risk over Massachusetts Coast (Changsheng Chen)

2013

Development and Validation of the Coastal Biosensors for Endocrine Disruption (C-BED) Assay (Helen High Productivity on a Coastal Bank: Physical and Biological Interactions (Pierre Lermusiaux)

Are blue mussels declining in the Gulf of Maine?: population trajectories, connectivity, and spatiotemporal Marine Center for Development of Biomimetic Underwater Sensors (George Karniadakis)

Temporal Concentration Measurements of Dissolved and Atmospheric CO₂ and its Carbon Isotopic Ratio (13C/12C) at an Estuarine Environment Using a Single Sensor (Unreported PI)

2012

Assessing the Bioactivity of Estrogens, Including Halogenated Derivatives, in Chlorinated Sewage Effluents

Development of an Automated Seepage Meter for Quantifying Submarine Groundwater Discharge in the

Development of an Inundation Forecast System for Massachusetts Coastal Waters (Changsheng Chen)

Microbial community composition of permeable reactive barriers: who is really doing the work? (Jennifer Regional: Climate change adaptation and ecosystem service resilience in Northeast coastal communities

Water Quality Monitoring and Improvement (Juliet Simpson)

2011

Combating nitrogen-driven coastal eutrophication: a selective ion array approach to rapid in-situ

Development of a Scientific Management Framework to Support the Ecosystem-Based Management of

Development of real-time instrumentation for the robotic detection of Paralytic Shellfish Poisoning (PSP) toxins in Massachusetts coastal waters (Donald Anderson)

Energy Efficient AUV using a Lateral Line Sensor (Michael Triantafyllou)

Improving understandings of consequences, vulnerabilities, and adaptation strategies to climate change

2010

Acoustic Communication Networks for Distributed Autonomous Underwater (MILICA STOJANOVIC)

Active samplers: development of biomarkers for coastal pollution in the blue (JOHN STEGEMAN)

An Assessment of the Tidal Kinetic Energy Resource off the Massachusetts Coast and (C.

Assessing the distribution, spreading rate, and in situ growth of *Didemnum* (Scott Gallager)

Autonomous Vehicle Exploration and Sampling of Deep-Water Corals (FRANZ HOVER)

Coastal Community Development Project: Demonstration Project on Water Quality (C.

Consortium for Ocean Sensing In the Nearshore Environment (COSINE) (C. CHRYSSOSTOMIDIS)

DeepFSL - a low cost bimodal observation system for deep sea ecosystem research (C. CHRYSSOSTOMIDIS)

Development and Validation of the Water Quality Model System for Massachusetts (C. CHRYSSOSTOMIDIS)

Enabling high- and low-molecular weight AUV-based chemical analysis: (HAROLD HEMOND)

Focused Research (C. CHRYSSOSTOMIDIS)

Incorporation of a compact digital holographic plankton camera into gliders and (CABELL DAVIS)

Three-dimensional Imaging for In Situ Biological Sensing and Flow Velocimetry (Alexandra Techet)

Touch-at-a-Distance: Pressure Microsensor Arrays for AUV Navigation (JEFF LANG)

Using Technology to Assess the Invasive Sea Squirt, *Didemnum vexillum*, Impacts (FRANZ HOVER)

F. NSI, Pass-through, and enhancement funds

2014

Climate Change Adaptation Initiative: Participatory hazard mitigation using the Vulnerability and Consequence Adaptive Planning Scenario (VCAPS) process (Chrys Chryssostomidis) (SG-Climate)

2013

Sathiska Pather_ MIT Sea Grant _Knauss Fellowship (Unreported PI) (EPA)

2012

Fern T Gibbons_ MIT Sea Grant College Program _Knauss Fellowship 2012 (Chyrssostomos

Regional: The governance role of local authorities in marine spatial planning: a legal assessment of prospects and problems. (NESGC) (John Duff) (SG-Social Science)

Sea Grant Climate Adaptation Capacity Building Initiative: Engaging Citizen Scientists Through Technology

2011

Knauss Fellowship: Caitlin Frame (Caitlin Frame) (Department of Energy)

MIT Sea Grant_NMFS Population Dynamics Fellowship Integrating electronic tag information into stock assessment of large pelagic animals (Benjamin Galuardi) (NMFS-SG-Fellowship)

2010

Assessment of Salt Marsh Buffering Capacity and Vulnerability to Climate-Related Impacts (Unreported PI)

Ship Time MIT Sea Grant (Unreported PI) (OAR-SHIPTIME)

II. **Stakeholder Engagement** (relevance, advisory services, and education and training).

A. **Total Number of SG-Sponsored Meetings, Workshops, Conferences, Presentations and Attendees (2010-2013)**

Events	Attendees
852	323,197

B. **Total Number of Volunteer Hours (2010-2013)**

3,450

C. **Students Supported (2010-2013)**

	Students		Degrees Awarded
	New	Continuing	
Undergraduate	94	46	46
MS/MA	84	79	34
PhD	63	44	9
Professional Degree	6	12	1

D. **K-12 Students Reached (2010-2013)**

89,774

III. Collaborative Network Activities (relationships and coordination).

A. Program Partners by Scale

FEDERAL or NATIONAL

American Association for the Advancement of Science (AAAS)
American Fisheries Society (AFS)
AUVSI Foundation
Boston Harbor Islands (US DOI, NPS)
Boy Scouts of America (BSA)
Center for Coastal Environmental Health and Biomolecular Research (US DOC, NOAA, NOS, NCCOS)
Center for Independent Experts (US DOC, NOAA, NMFS)
Consortium for Ocean Leadership
Fulbright Program, US Department of State
Gordon and Betty Moore Foundation
Great Bay National Estuarine Research Reserve (US DOC, NOAA, NOS, NERRS)
Industrial Economics, Inc.
Massachusetts Bay Community College
MRAG Americas
National Marine Educators Association
National Marine Fisheries Service (US DOC, NOAA, NMFS)
National Ocean Sciences Bowl, Consortium for Ocean Leadership (NOSB)
National Oceanic and Atmospheric Administration (US DOC, NOAA)
National Sea Grant Office (US DOC, NOAA, OAR, NSGO)
New England District (DoD, Army, USACE)
North Atlantic Regional Team (US DOC, NOAA, NART)
Northeast Fisheries Science Center (US DOC, NOAA, NMFS, NEFSC)
Ocean Renewable Power Company
Office of Education (US DOC, NOAA, OED)
Office of Naval Research (US DOD, NAVY, ONR)
Outfall Monitoring Science Advisory Panel (US EPA, OMSAP)
Portsmouth Naval Shipyard
Sea Grant Educators Network
SeaPerch Program
Southwest Fisheries Science Center (US DOC, NOAA, NMFS, SWFSC)
U.S. Navy: Naval Postgraduate School, Monterey, CA (NPSMC)
US Army Corps of Engineers (DOD, Army, USACE)
US Bureau of Ocean Energy Management (US DOI, BOEM)
US Coast Guard (US DHS, USCG)
US Coast Guard Auxiliary (US DHS, USCG)
US Department of Energy (US DOE)
US Environmental Protection Agency (US EPA)
US Fish and Wildlife Service (US DOI, FWS)
US Foreign Agriculture Service (USDA, FAS)
US Geological Survey (US DOI, USGS)

INTERNATIONAL

Acadia University, Nova Scotia, CA
Bedford Institute of Oceanography, Nova Scotia, CA
Bluefin Robotics Corporation
Caribbean Science Foundation

Cyprus Research Promotion Foundation
Dioukas School (Greece)
Ehime University, Japan
Eni S.p.A.
Fisheries and Oceans Canada (DFO)
Glasgow Caledonian University, UK
Google
International Council for Exploration of the Seas (ICES)
Leiden University
Nanyang Technological University, Singapore
National University of Singapore
NATO Undersea Research Centre (NURC)
Ocean Biogeographic Information System
Raytheon Company
Rhamangala University of Technology, Tanyaburi (Thailand)
Singapore-MIT Alliance for Research and Technology (SMART)
Social and Environmental Research Institute
South Africa Marine and Coastal Management
South African Department of Environmental Affairs and Tourism, Marine and Coastal Management, Pelagic and High Seas Fishery Management Division
SubChem Systems, Inc.
Total S.A.
Universidad del Sagrado Corazon (San Juan, Puerto Rico)
Universidade Federal de Rio de Janeiro, Rio de Janeiro, RJ, Brazil
University of Piedmont, Italy
University of Pierre and Marie Curie
University of the Basque Country, Bilbao, Spain
Zooniverse

LOCAL

Acton Boxborough High School
Barnstable County Ocean Management Planning District of Critical Planning Concern (DCPC)
Barnstable County, Mass.
Bedford High School
Belmont High School
Boston Harbor Island Alliance
Boston Harbor Islands Coalition
Boston University Center for Conservation Biology and Ecology
Boston University Center for Information and Systems Engineering
British School of Boston
Brookline High School
Buzzards Bay Coalition
Cambridge Rindge and Latin
Cambridge Science Festival
Cape Ann Fresh Catch
Cape Cod Commission
Center for Coastal Environmental Sensing Networks (CESN-UMassBoston)
Charles River Conservancy
Charles River Watershed Association
Chelmsford High School

City of Boston (Environmental Planning)
City of New Bedford
City of Newton, MA
Community Academy of Science and Health
Dexter School
Fitchburg High School
Gloucester Fishermen's Wives Association
Gloucester Maritime Heritage Center
High Tech High
Jeremiah E. Burke High School
Jones River Watershed Authority
Lantos Technologies
Lexington High School
Lincoln-Sudbury High School
Long Beach Aquarium of the Pacific
Marblehead High School
Massachusetts Institute of Technology, Department of Mechanical Engineering (MIT)
Massachusetts Institute of Technology, Edgerton Center (MIT)
Massachusetts Institute of Technology, Energy Initiative (MIT)
Massachusetts Institute of Technology, List Visual Arts Center (MIT)
Massachusetts Institute of Technology, Museum (MIT)
Massachusetts Institute of Technology, Public Service Center (MIT)
Maverick Association of Residents
Meridian Academy
Metropolitan Area Planning Commission, Boston, MA
Minuteman High School
MIT Office of Engineering Outreach Programs
MIT Undergraduate Research Opportunities Program
Neighborhood Organization for Affordable Housing
New Bedford Working Waterfront Festival
New England Aquarium
Newton North High School
Newton South High School
North Andover High School
North Reading High School
Northeast Marine Institute
Phillips Academy
Rogers High School
Salem Sound Coastwatch
Save the Harbor/Save the Bay
Seascan Inc.
Shrewsbury High School
Southfield School
Stoneham High School
Swampscott Middle School
Town of Duxbury, MA
Town of Fairhaven
Town of Hull, MA
Town of Kingston, MA

Town of Lexington, MA
Town of Newport, RI
Town of Old Saybrook, CT
Town of Plymouth, MA
Town of Stoneham, MA
Town of Swampscott, MA
Town of Waterford, CT
Turner's Seafood
University of Massachusetts Boston Nantucket Field Station
W. E. Leonhard Chair, MIT
Wheaton College
Windsor School

REGIONAL

Atlantic States Marine Fisheries Commission (ASMFC)
Casco Bay National Estuary Program
Farallon Institute Advanced Ecosystem Research
Gulf of Maine Council on the Marine Environment
Gulf of Maine Ocean Observing System (GoMOOS)
Lombardo and Associates
Maine Fishermen's Forum
Massachusetts Bays Program
Massachusetts Fishermen's Partnership
Massachusetts Marine Educators
Massachusetts Ocean Partnership
Massachusetts Water Resources Authority
National Weather Service, Taunton, MA
Neponset River Watershed Association
New Bedford Harbor Development Commission
New England Fisheries Management Council (NEFMC)
North and South Rivers Watershed Association
North Coast Marine Mammal Center
Northeast Coastal and Ocean Data Partnership
Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS)
Northeast Regional Ocean Council (NROC)
Northeast Sea Grant Consortium
Northwest Atlantic Marine Alliance
Ocean Crest Seafoods Inc
Piscataqua Region Estuaries Partnership
Regional Association for Research on the Gulf of Maine
The Museum of Science, Boston
Urban Harbors Institute
Worcester Polytechnic Institute (WPI)

STATE

Boston University (BU)
Brown University (BROWN)
California Institute Of Technology (Cal TECH)
California Ocean Protection Council (COPC)
California Sea Grant
California State Polytechnic University, Pomona (CSU)

California State University, Fullerton (CSUF)
Clark University
College of Charleston
Columbia University
Connecticut Sea Grant
Delaware Sea Grant
Florida Department of Environmental Protection (FL DEP)
Florida State University Center for Advanced Power Systems (CAPS)
Harbor Branch Oceanographic Institute (HBOI)
Harvard School of Public Health
Hawaii Sea Grant
Lake Champlain Sea Grant
Maine Department of Marine Fisheries (ME DMF)
Maine Lobstermen's Association
Maine Sea Grant
Marine Biological Laboratory (MBL, WHOI)
Maryland Sea Grant
Mass Department of Energy and Environmental Affairs and the Massachusetts Clean Energy Center (MassCEC)
Massachusetts Department of Conservation and Recreation
Massachusetts Department of Environmental Protection
Massachusetts Division of Marine Fisheries
Massachusetts Division of Marine Fisheries (MA DMF)
Massachusetts Emergency Management Agency
Massachusetts Institute of Technology (MIT)
Massachusetts Institute of Technology Sea Grant (MIT)
Massachusetts Lobstermen's Association Inc.
Massachusetts Maritime Academy
Massachusetts Office of Coastal Zone Management (CZM)
Mid-Atlantic Fisheries Management Council (MAFMC)
Mississippi State University, Electric Ship Research and Development Consortium (MSU, CAPS, ESRDC)
Monterey Bay Aquarium Research Institute (MBARI)
Moss Landing Marine Laboratories
New England Ocean Sciences Education Collaborative (NEOSEC)
New Hampshire Sea Grant
New York Sea Grant
North Carolina Division of Marine Fisheries (NC DENR, DMF)
Northeastern University
Ocean Advisory Commission
Oregon Sea Grant
Oregon State University (OSU)
Purdue University
Rhode Island Coastal Resources Management Council (RI CRMC)
Rhode Island School of Design (RISD)
Rhode Island Sea Grant
Rutgers University
Sonoma State University (SSU)
Southern California Coastal Water Research Project
Stanford University
The Massachusetts Marine Renewable Energy Center (MREC)

The Trustees of Reservations
University of Alabama (UA)
University of California, Berkeley (UCB)
University of California, Davis (UCD)
University of California, Los Angeles (UCLA)
University of California, San Diego, Scripps Institution of Oceanography
University of California, Santa Barbara (UCSB)
University of California, Santa Cruz (UCSC)
University of Connecticut (UCONN)
University of Louisiana (UL)
University of Maine, Orono (UMO)
University of Maryland (UMD)
University Of Massachusetts At Amherst (Umass)
University of Massachusetts at Boston (UMass)
University of Massachusetts, Dartmouth
University Of Minnesota (UMN)
University of New Hampshire (UNH)
University of North Carolina, Charlotte (UNCC)
University of Tennessee (UT)
University of Texas at Austin, Center for Electromechanics (UT, CEM)
University of Washington (UW)
Virginia Sea Grant
Wisconsin Sea Grant
Woods Hole Oceanographic Institution (WHOI)
Woods Hole Oceanographic Institution Sea Grant (WHOI)

B. Source and Amount of Leveraged Funds (2010-2013)	
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Amounts	Year			
Source	2010	2011	2012	2013
Managed	\$1,578,431	\$2,411,812	\$1,656,967	\$461,735
BP Gulf of Mexico Research Initiative (BP GRI)		\$103,242	\$85,835	
Chevron	\$239,500			
Chevron MIT Energy Initiative	\$135,000			
Consortium for Ocean Leadership		\$63,000	\$30,907	\$5,000
Henry Grace Doherty Foundation	\$50,000	\$50,000		\$50,000
Industrial Economics, Inc.	\$30,000	\$30,000		
Massachusetts Water Resources Authority			\$60,000	
Multi-Sponsored Consortium	\$140,000			
National Marine Fisheries Service (US DOC, NOAA, NMFS)		\$32,083		
National Ocean Sciences Bowl, Consortium for Ocean Leadership (NOSB)		\$25,000		
National Oceanic and Atmospheric Administration (US DOC, NOAA)	\$69,529	\$80,000		
National Science Foundation (NSF)	\$27,801			
National Science Foundation STC on Energy Efficient Electronic Systems (NSF)		\$170,000		
New England Fisheries Management Council (NEFMC)		\$26,000		
Office of Education (US DOC, NOAA, OED)			\$532,152	
Office of Naval Research (US DOD, NAVY, ONR)	\$531,027	\$1,008,163	\$763,073	\$250,000
Saltonstall-Kennedy Grant Program	\$100,920			
Singapore-MIT Alliance for Research and Technology (SMART)		\$745,542	\$5,000	
TOTAL France	\$89,619	\$14,619		
US Department of Agriculture (USDA)	\$165,035	\$64,163		
Unreported Source			\$180,000	\$156,735
Influenced		\$3,005,429	\$1,318,975	
Charles River Conservancy		\$17,000		
Clark University			\$3,000	
Massachusetts Water Resources Authority		\$5,000		
National Oceanic and Atmospheric Administration (US DOC, NOAA)		\$15,000	\$370,352	
National Science Foundation (NSF)			\$555,500	
National Science Foundation CNS (NSF)		\$450,000		
National Science Foundation-Chemical Oceanography (NSF)		\$274,527		
Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS)			\$180,000	
Office of Naval Research (US DOD, NAVY, ONR)		\$692,402		
Singapore National Research Foundation		\$180,000		
Singapore-MIT Alliance for Research and Technology (SMART)		\$400,000	\$92,211	
University of Tennessee (UT)			\$5,000	
US Department of Energy (US DOE)		\$941,500		
W. E. Leonhard Chair, MIT		\$5,000		
Woods Hole Oceanographic Institution (WHOI)		\$25,000		
Unreported Source			\$112,912	