Marine Biology @ URI: A Sea of Opportunities

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- Information for Prospective Students
- Kudos and Congratulations
- Marine Biology Lecture Series
- Marine Biology Faculty
- Undergraduate Study in Marine Biology
- Study Abroad Opportunities
- Research Opportunities & Internships
- Marine Field Courses
- Marine Biology Student Awards
- Scholarships for Undergraduates
- Outreach Activities
- Marine Biology Alumni
- URI Diving Program
Portrait of a Freshman Class (60-100/year)

- 82% out-of-state - 12-15 states/year (URI =~60% out-of-state)
- 76% came to URI specifically for the Marine Biology major
- 64% took marine or environment-related courses in HS
- 24% participated in marine or environment-related extracurricular activities
- 46% entered with AP credit (17% w/AP Biology credit)
- 16% Honors Program
- 16% Scholar-Athletes
- 76% have travelled outside of the US (>59 different countries/islands)
- 34% SCUBA certification
- 46% had visited a coral reef

(2015)
Nationally Competitive Scholarships

- NOAA Hollings Scholarships – 41 since 2005
  - 31 recipients = Marine Biology majors (+ FAVS, ENRE, GEO, OEG)
  - >$700,000 in Scholarships + Paid Internships + Conferences
  - 1-8 awarded/year for past 14 years (8 in 2022 = #1 in US)
- Goldwater Scholarships – 3
- Fulbright Scholarship – 1
- Gates Foundation Millennial Scholarship -1
- Several NSF Graduate Research Fellowships
**Marine Biology Faculty in Biological Sciences**

- **Marine ecology** of deep water corals, microplastics
- **Marine genomics** and evolution of eukaryotes
- **Salt marsh ecology** and biogeochemistry
- **Coral reef ecology**
- **Evolution of populations** and human impacts
- **Physiology of corals** and other invertebrates
- **Ecology of invertebrates**
- **Sensory biology** and development of fishes
- **Behavior and ecology** of elasmobranchs

- New hires
- 1\textsuperscript{st} Endowed Chair in CELS
- College and University Teaching and Research Awards
- Millions of dollars in research grants
The Major in Marine Biology
Department of Biological Sciences,
College of the Environment and Life Sciences (CELS)

1. Required Biology and other Science Courses
   -- General Biology with Lab (= AP Bio)
   -- Chemistry (Inorganic, Organic Chemistry, and Biochemistry)
   -- Calculus and Statistics
   -- Physics with Lab
2. Core Biology Courses – Cell/Dev., Physiology, Organismal Diversity, Ecology/Evolution
3. Foundation in Marine Science - Marine Biology Oceanography
4. Marine Biology Electives - classroom/lab, in the field, aboard ship
BIO 360 – Marine Biology (sophomore year)

A month of field labs:
– Salt Marsh Ecology
– Rocky Intertidal Ecology
– Mystic Aquarium
– Narragansett Bay Trawl - Cap’n Bert
Marine Biology Courses

Fall
- Marine Biology (L)
- Invertebrate Zoology (L)
- Salt Marsh Ecology (L)
- Deep Sea Biology
- Seminar on Marine Mammals
- Biological Oceanography (L)
- Fisheries Science
- Fish Physiology

J-Term
- Coral Reef Conservation and Analysis (Bonaire)
- Marine Mammal Behavior and Physiology

Spring
- Marine Biology (L)
- Marine Environ. Physiology (L)
- The Invisible Living Ocean
- Bermuda Marine Biodiversity (L)
- Biology of Algae (L)
- Evolution & Diversity of Fishes (L)
- Marine Ecology (L)
- Marine Bioacoustics
- Marine Pollution

Summer
- Marine Invertebrates of Southern New England (L)

L = lab course
Friday Afternoon Marine Biology “Lecture” Series

• Since 2010
• Special Guest Lectures
• Alumni Career Panels
• Summer and Study Abroad Opportunities
• “What I Did Over My Summer Vacation?”
• Annual Stan Cobb Lecture

2021 - Callie Veelenturf (Hollings Scholar, MBio Class of 2014, MS Purdue University) - “Making a Difference #ForNature, One Sea Turtle at a Time”

2022 - Peg Brady (Natural Resources ‘77, Botany ‘82; Coordinator of NOAA Fisheries Ecosystem and Habitat Science Programs, former White House Deputy Director for Ocean & Coastal Policy – Ecosystem Based Fisheries Management
For an Interdisciplinary Perspective.....

Double Majors or Minors in:

- Aquaculture and Fisheries
- Marine Affairs
- Geology and Geological Oceanography
- Wildlife and Conservation Biology
- Environmental Science and Management
- Environmental Economics and Management
- Oceanography (minor)
- Marine Archaeology (minor)
5th Year Master of Oceanography (BS/MO)

Acceptance to the Graduate School of Oceanography prior to completion of BS in Marine Biology, in senior year:

• 60 credits completed, and room in schedule senior year to take graduate courses
• 3.2 GPA and at ≥ B in prerequisite courses
  -- Biology, Chemistry, Physics, Calculus

Choose a track:
• General Oceanography
• Fisheries
• Coastal Systems
• Ocean Technology and Data
URI Diving Program

Diving Education and Training
- SCUBA Certification (AFS 270)
- Advanced Certifications (AFS 433)
- Dive Master & Instructor credentials

Supervision of All Diving Facilities and Operations

Anya Hanson – URI Diving Safety Officer
Alexandra Moen – Assistant Safety Office, Lecturer
(and Marine Biology alum!)
Students Present their Research at Local, National and International Scientific Conferences
Courses at Sea

A State/University partnership to enhance use of R/V *Endeavor* in research and education
Living and Doing Science at Sea
Collecting Organisms - Tucker Trawl
Getting Up-Close and Personal

Portuguese Man O’War
Real “Hands-On” Learning
NRS 475 - Coral Reef Conservation and Analysis – J-term in Bonaire

Course Projects:
• Impact of Lionfish Invasion
• Effectiveness of Marine Protected Areas
• Causes of Long-Term Reef Declines

http://www.earthtimes.org
AFS 433 - Scientific Diving
Spring Semester/Spring Break in Bonaire
Research Cruise: Krill Ecology in the Antarctic

Michelle and Ian were both awarded a “Bachelor of Antarctic Science with a Minor in Krill Biology” with diplomas signed by the Captain of R/V Palmer.
Study Abroad - Bermuda Institute of Ocean Sciences (BIOS)
Fall Semester – 19 credits – 4-18 students/yr.

- Tropical Marine Invertebrates
- Coral Reef Ecology
- Scientific Diving (AAUS cert.)
- Independent Research

www.bios.edu
MBOR: Tropical Marine Biological Research

Comparing the in situ and ex situ microbiome of three Bermuda coral species for microbial composition and abundance

Alexandra Elizabeth Sinno
Dr. Rachel Parsons
Dr. Samantha de Putron

Do Microplastics Affect Sargassum Metabolism and Growth?

Nadine Mannix
University of Rhode Island

Octopus Feeding and Den Ecology in Bermuda

Zachary Robinson - University of Rhode Island

Parrotfish community structure & corallivory rates across Bermuda’s reef platform

Anna Parsons
Dr. Eric Hochberg, MBOR Fall 2022
Study Abroad – “SEA Semester”

SEA Education Association

“Environmental Studies in Woods Hole and at Sea”

- Ocean Exploration
- Caribbean Reef Expedition
- Sustainability in Pacific Island Communities and Ecosystems
- Protecting the Phoenix Islands
- Marine Biodiversity and Conservation
- Oceans and Climate
- Climate and Society

~ 12 weeks, Fall or Spring
17-18 credits - transferrable

www.sea.edu
Diverse “Out of Classroom” Experiences

• Field Work in Marine Biology Courses - Fall, Spring
• Research Opportunities at URI and elsewhere (never too soon.....)
  – ~30 marine biology faculty in CELS & GSO (+ other marine scientists)
  – Programs: Coastal and Environmental Fellows, EPSCOR SURF, etc.
  – National Science Foundation - REU’s, NOAA Hollings Scholarship Internships
• Study Abroad and National Student Exchange – e.g., SEA Semester, Bermuda Institute of Ocean Sciences, plus James Cook University, U. Hawaii, U. Washington
• Field Courses – Summer, J-term, Spring Break
  – Locally and globally, ashore and aboard ship
  – Other institutions – Shoals Marine Laboratory, Friday Harbor Labs
• Internships (education, outreach) – NGO’s, Exploration Trust, NE Aquarium, Mystic Aquarium
• Clubs – SCUBA, Marine Science Society, Shark Club, etc.

WHERE? Rhode Island, all US coasts, Georges Bank, Gulf of California, Carribean, Mediterranean, South Africa, Australia/New Zealand, Antarctica
99% of graduating seniors in Marine Biology said they would do it again!
(14 years of data)
The Sea of Opportunities Prepares Our Students......

- **Traditional Courses** - Classroom and Lab/Field
- **Undergraduate Research** – at URI, around the US
- **Study Abroad** – SEA Semester, Bermuda, Australia, and elsewhere
- **Internships** – locally, nationally, globally
- **Field Courses** – local, global; on shore, at sea
- **Research Cruises** – Atlantic, Pacific, Antarctica
Marine Biology Alumni!
Alumni in Graduate School

- URI (16, CELS & GSO)
- Cal State - Northridge (3)
- Cal State - Long Beach
- Central Connecticut State University
- College of Charleston (2)
- College of the Atlantic
- Cornell University
- Delaware State University
- Florida State University
- Georgetown University
- James Cook University
- North Carolina State Univ.
- Northeastern University
- Nova Southeastern Univ. (4)
- Old Dominion University
- Penn State Univ.
- Purdue University
- Roger Williams Law School
- San Diego State/UC Davis
- Scripps/UCSD
- Stony Brook University
- Texas A & M (3)
- Tufts Univ. Vet. School (2)
- UMass Dartmouth (2)
- Univ. Pennsylvania Vet. School
- University of Alaska
- Univ. California - Berkeley
- University of Cape Town
- University of Connecticut
- University of Florida
- Universit of Groningen (Netherlands)
- University of Hawaii (2)
- University of Maine (2)
- Univ. Maryland-E. Shore
- Univ. Massachusetts - Boston
- University of Miami
- University of Michigan
- University of New England (2)
- University of New Hampshire
- University of South Carolina
- University of South Florida
- University of Virgin Islands
- Walla Walla University
- Wesleyan University
- Western Washington University

Classes of 2004-2015:
73 students - 57 students at 45 different schools + 16 students at URI (GSO or CELS; almost all for MS)
Alumni in Research, Fisheries, Environmental Consulting

- Federal, State and Local Agencies around the US
- National Oceanic and Atmospheric Administration (Office of Exploration, NOAA Fisheries)
- Marine Biological Laboratory (MBL, Woods Hole)
- Woods Hole Oceanographic Institution
- Mote Marine Laboratory
- Bermuda Institute of Ocean Sciences (BIOS)
- @ URI – in CELS and Graduate School of Oceanography
- Environmental Consulting firms
- Pacific Fisheries Observers
Alumni in Marine Outreach, Informal Education, Journalism

- Soundwatch Program, Friday Harbor (2)
- New Logic Marine Science Camp (NJ)
- Seacamp and Newfound Harbor Marine Institute, Big Pine Key, FL (2)
- Save The Bay (5)
- Americorps & OSEEC (Ocean State Environmental Education Collaborative)
- Pow!Science! LLC
- Massachusetts’ Audubon Society
- US Fish and Wildlife Service
- Little St. Simons Island, Georgia
- Pittsburgh Zoo & PPG Aquarium
- Catalina Island Marine Institute (2)
- Camp Emerald Bay, Catalina Island, CA
- SeaWorld Orlando (2)
- Camp Seewee
- SeaQuest Program at Camp Fuller
- Naturalist Whale Watching, Alaska (4)
- Project Oceanology
- Connecticut Science Center
- Green Street Arts Center (Director, CT)
- Sea Education Association
- CIEE – Bonaire
- Chicopee High School, Chicopee, MA
- Mystic Aquarium
- Seacoast Science Center, NH
- New England Aquarium
- Buttonwood Park Zoo
- RI Lobstermen’s Association (Director)
- GSO Office of Marine Programs at URI
- Marine Biological Laboratory (MBL, Woods Hole)
URI Marine Biology Program

• ~200 students
• Destination major - ~80% out-of-state, from 12-15 states/year + some international students
• 66% of majors do research at URI or elsewhere
• Study Abroad @ BIOS/Bermuda, SEA, James Cook University
• Nationally Competitive Scholarships and Fellowships
  • 31 (of 41) NOAA Hollings Scholarships
  • 3 Goldwater Scholarships
• 99% of graduating seniors would do it again — research opportunities, faculty, courses, study abroad, job opportunities.

Website: web.uri.edu/marbio
URI Marine Biology Program
27 Years of Excellence

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Photo credits: Graham Forrester, Brad Seibel, Ted Durbin, Bethany Jenkins, Anya Hanson, WHOI, Susanne Menden-Deuer, Karen Wishner, Niels Viggo-Hobbs, SEA, Ryan Walsh, Marine Biology Program students