

Marine Biology @ URI: A Sea of Opportunities

Dr. Jacqueline Webb
Director, URI Marine Program

Jacqueline_webb@uri.edu
web.uri.edu/marbio



URI Marine Biology Website

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THE UNIVERSITY OF RHODE ISLAND

THINK BIG WE DO™

URI Marine Biology Program

URI Marine Biology Program

Welcome

The Marine Biology Program involves over 200 students in the B.S. Marine Biology degree program, which is administered by the Department of Biological Sciences. Most of our students are from out-of-state – from 15 states (including Florida, Texas, California, and Hawaii) each year, and from around the world (Germany, Philippines, India, Netherlands, Mexico, China in the past several years; see freshman class profiles). The curriculum for the BS in Marine Biology is designed for students who plan to work in ecology, biological oceanography, marine conservation, marine education, or related field, and those who wish to apply their training to a wide range of other exciting career students to explore the vast world of marine biology while providing an important foundation in biological sciences, chemistry, math, physics, and oceanography. More than 10 new faculty in Marine Biology (in CELS) or Biological Oceanography (in GSO) in the past several years have enhanced opportunities to take a wide diversity of courses and to do research in many marine biology and biological oceanography. We encourage an interdisciplinary approach in other marine-related areas, such as Aquaculture and Fisheries, Geology and Coastal Marine Affairs, Marine Environmental Economics, Marine Archaeology, History and Literature, and/or involvement in URI's Honors Program. Students majoring in marine biology may a minor or double major in one of these areas (or others), depending on their interest in Marine Biology may pursue a BS in Biological Sciences or a BA in Biology (related courses), or may complete a Minor in Marine Biology.



Congratulations & Announcements

- URI alum Peg Brady (BS '77 Natural Resources Management & Policy, MS '82 Botany), Coordinator, NOAA Fisheries' Ecosystem and Habitat Science Programs gave the second Annual Stan Cobb Marine Biology Lecture in November 2022, for an audience of students, faculty, and alumni, in person and via Zoom. Photo: CELS faculty reunion with Peg – Dr. Burroughs (MAF), Peg Brady, Dr. Goldsmith (BIO, ret.), Dr. Miranda (GSO, ret.), Dr. Bengtson (FAVS, ret.)
- EIGHT (!) URI Sophomores (our largest cohort, which makes URI #1 in the country), all CELS students, including 7 Marine Biology majors, have been awarded the 2022 NOAA Hollings Scholarship. They are: Matthew Brander (MBio and Aquaculture and Fisheries Science), Taya Clements (MBio), Kara James (MBio), Ellie Madigan (MBio and WCB), Zoe Scipioni (MBio and WCB), Maricarmen Serna (MBio and ENRE), Alexandra Sinno (MBio), and Molly Halla (GEO). At least one student has received the Hollings Scholarship each year for the past 14 years. A total of 41 URI students have been awarded the Hollings Scholarship since its inception in 2005.
- Congratulations to Myles Wagner (MBio and CMB), recipient of the 2022 Academic Excellence Award in Marine Biology.
- Dario Castillo (MBio Class of 2022) – was awarded a position as one of the first four National Geographic STEM Field Assistants to work with Dr. Bradley Wetherbee. The NatGeo program aims to provide support to students from under-represented groups interested in earning advanced degrees in the STEM disciplines. [Click here for more information about the](#)



- 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

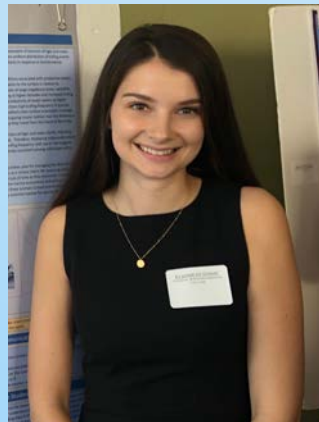
76% have travelled outside of the US (>59 different countries/islands)

34% SCUBA certification

46% had visited a coral reef

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
- 1st 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 \geq 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

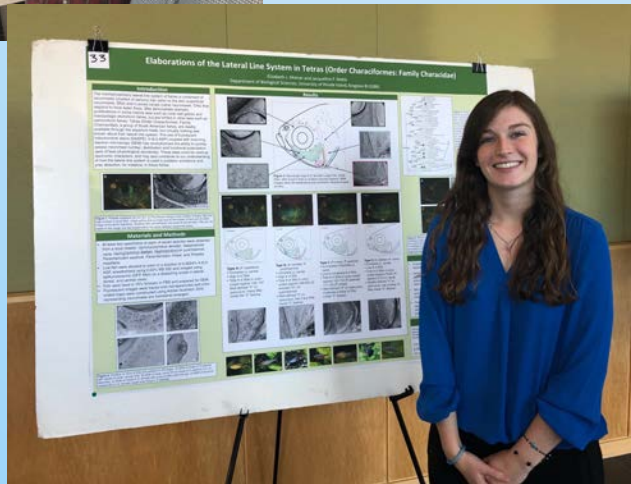
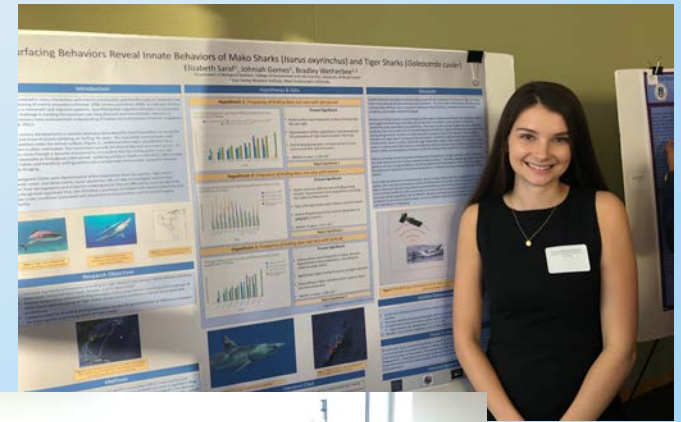
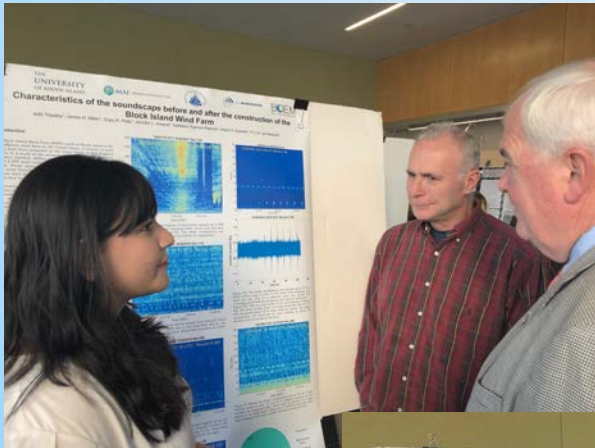
- SCUBA Certification (AFS 270)
- Advanced Certifications (AFS 433)
- Dive Master & Instructor credentials

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



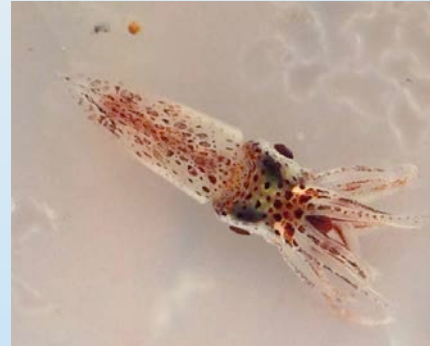
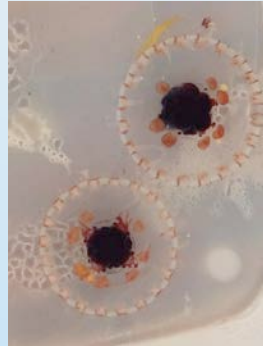
A State/University partnership to enhance use of R/V *Endeavor* in research and education



Living and Doing Science at Sea



Collecting Organisms - Tucker Trawl



Getting Up-Close and Personal



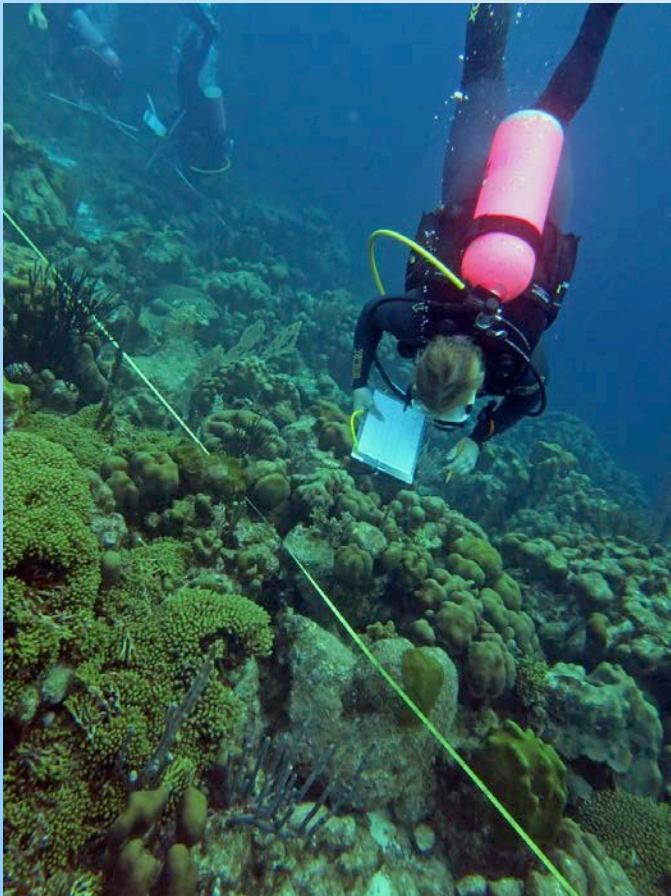
Portuguese Man O'War



Real “Hands-On” Learning

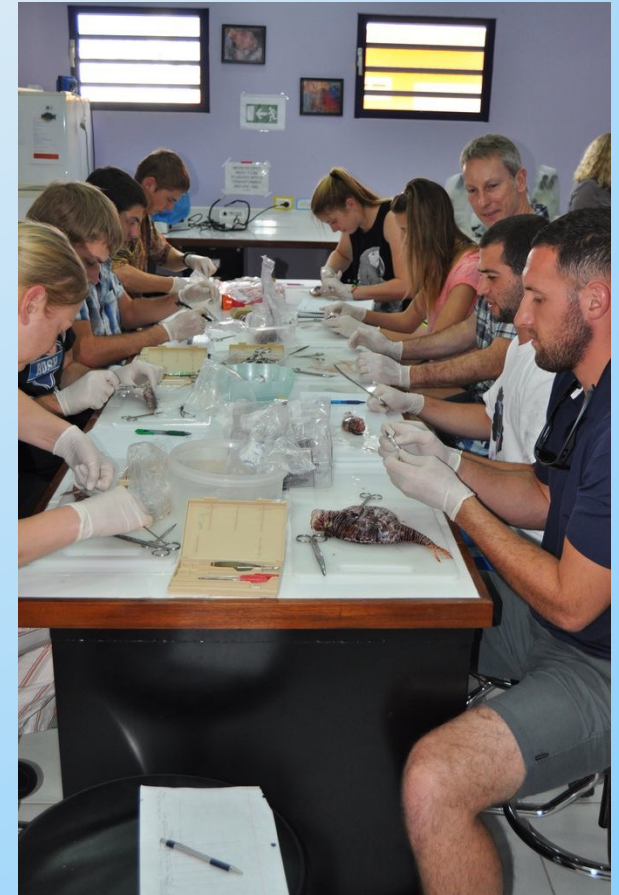


NRS 475 - Coral Reef Conservation and Analysis – J-term in Bonaire



Course Projects:

- Impact of Lionfish Invasion
- Effectiveness of Marine Protected Areas
- Causes of Long-Term Reef Declines



AFS 433 - Scientific Diving

Spring Semester/Spring Break in Bonaire



Research Cruise: Krill Ecology in the Antarctic



RVIB *Nathaniel B. Palmer*



B. Seibel

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



Independent Research Projects – BIOS 2022

MBOR: Tropical Marine Biological Research

BIOS

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?

Nicole Masone
University of Rhode Island

Yvonne Sawall
BIOS

Sargassum without Plastic | Sargassum with Plastic | Sargassum with Plastic Permeated

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

Anna Parsons
Dr. Eric Hochberg, MBOR Fall 2022

BIOS
THE UNIVERSITY OF RHODE ISLAND

Octopus Feeding and Den Ecology in Bermuda

Zachary Robinson - University of Rhode Island
Mentor: Dr. Samantha De Putron

Study Abroad – “SEA Semester”

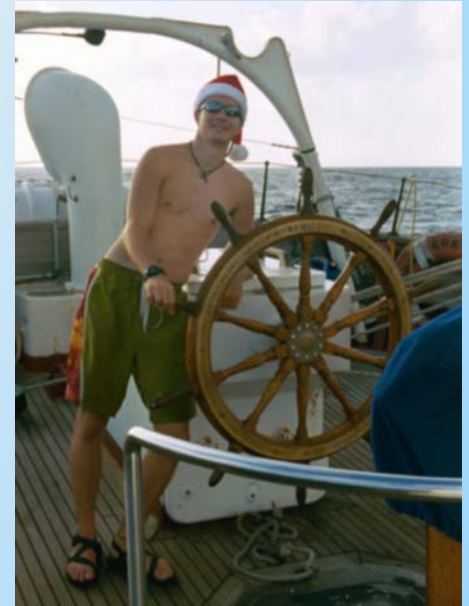
SEA Education Association

“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, Caribbean, Mediterranean, South Africa, Australia/New Zealand, Antarctica



99% of graduating seniors
in Marine Biology said
they would do it again!
(14 years of data)

Our Graduates



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

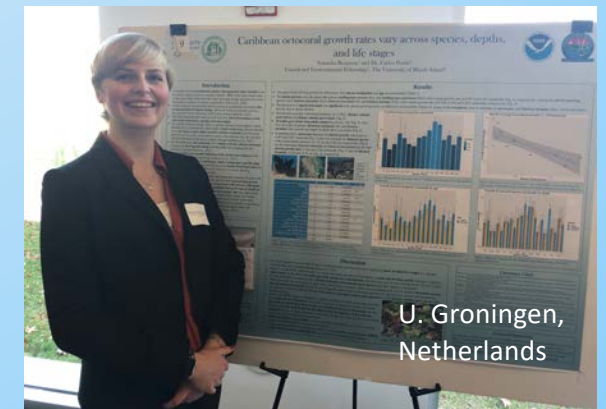


Alumni in Graduate School

- 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