



# DIVING RESEARCH & SAFETY PROGRAM UNIVERSITY OF RHODE ISLAND

## PROGRAM REPORT & STRATEGIC PLAN 2020 - 2021

THE  
UNIVERSITY  
OF RHODE ISLAND  
DIVISION OF RESEARCH  
AND ECONOMIC  
DEVELOPMENT

## OUR VISION:

- To continue offering exceptional diving services with safety as the top priority.
- To better cater to advanced diving needs and specialized research projects.
- To encourage research through powerful partnerships and external funding.
- To build a superior team of leaders, researchers and educators.
- To provide a formal outreach program with teaching resources for all ages.
- To be recognized in the community as a National Leader and regional resource.

## Executive Summary

### Our Commitment:

- To provide high quality instruction and underwater experiential learning opportunities at an affordable cost.
- To support marine biological, oceanographic, environmental and archaeological research activities while maintaining *American Academy of Underwater Sciences (AAUS)* compliance and safe practices.

### Overview:

- Department within the Division of Research and Economic Development
- Partially supported by generous contributions from CELS and the Provost's Office
- Currently staffed by  $2\frac{1}{4}$  positions

### Brief History:

- Diving support services have been offered for 45+ years at URI
- Prior to 2012, there were ~30 diving students annually and ~10 research divers
- Full-time Diving Safety Officer hired in 2012
- Full-time Dive Lecturer hired in 2014

### Contributions:

- Supports an average of 246 divers and 1435 dives annually
- Direct or indirect instruction leading to over \$351,342 in tuition revenue annually
- Supports over 15 academic courses at URI
- \$5,409,429.59 in reported awards since 2015 have been facilitated by access to the Diving Program

## Current Challenges:

- Construction and fit-out of new facility without interrupting training and research support efforts
- Finding quality instructors to maintain safety (e.g. research diving requires 2 instructors)
- Increase in diving courses offered
- Gear availability and maintenance
- Annual inflation and increase of expenses
- Confined water (pool) availability
- Increase in research diving projects

## Opportunities for Program Development:

- Undergraduate Marine Technical Certificate Program
- Partnership with The Ocean Agency, a not-for-profit which raises funds for research; earlier successes included \$86 million for underwater research and \$400 million of media coverage
- A formal outreach program with teaching resources for all ages
- Communication of important conservation issues (e.g. ocean plastics)
- Plan for new Marine Operations building at GSO
- Informational brochure for prospective students

## PROGRAM GROWTH REQUESTS:

1. Hire a new Diving Safety Officer to Support Program Growth- \$65,000/yr plus F&A
2. Increase Support of Diving Control Board Account- \$7190/yr
3. Support of Tenant Improvements for New Facility- \$60,000 in 2022

## COMPLETE PROGRAM REPORT

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## Introduction

The Diving Research & Safety Program oversees all diving operations at the University of Rhode Island (URI), including education, outreach, and research activities following standards as set forth per the American Academy of Underwater Sciences (AAUS). The URI Diving Research & Safety Program is a university-wide program that currently consists of research support and instruction (both academically and non-traditionally). The program oversees two facilities at the URI Tootell Aquatic Center and the Narragansett Bay Campus. The Diving Research & Safety Program is committed to providing high quality instruction at an affordable cost for all to participate, and to support research needs while maintaining compliance and safe practices at all times.

The URI Diving Research & Safety Program falls under the Division of Research and Economic Development as a department. Curricular and regulatory functions are generously supported by annual funding from the College of Environment and Life Sciences and the Office of the Provost. The College of Arts & Sciences, the College of Engineering, and the Graduate School of Oceanography also provide additional support for one staff member's salary.

## Background

### CURRENT STAFF

- Anya Hanson, Diving Safety Officer (DSO; permanent):  
The DSO supervises all program activities and works closely with the Diving Control Board (DCB) to support research efforts at URI. Duties include: provide research diving instruction, provide entry-level instruction, management of finances, supervision of other Diving Research & Safety Program staff, and dive program management and development.

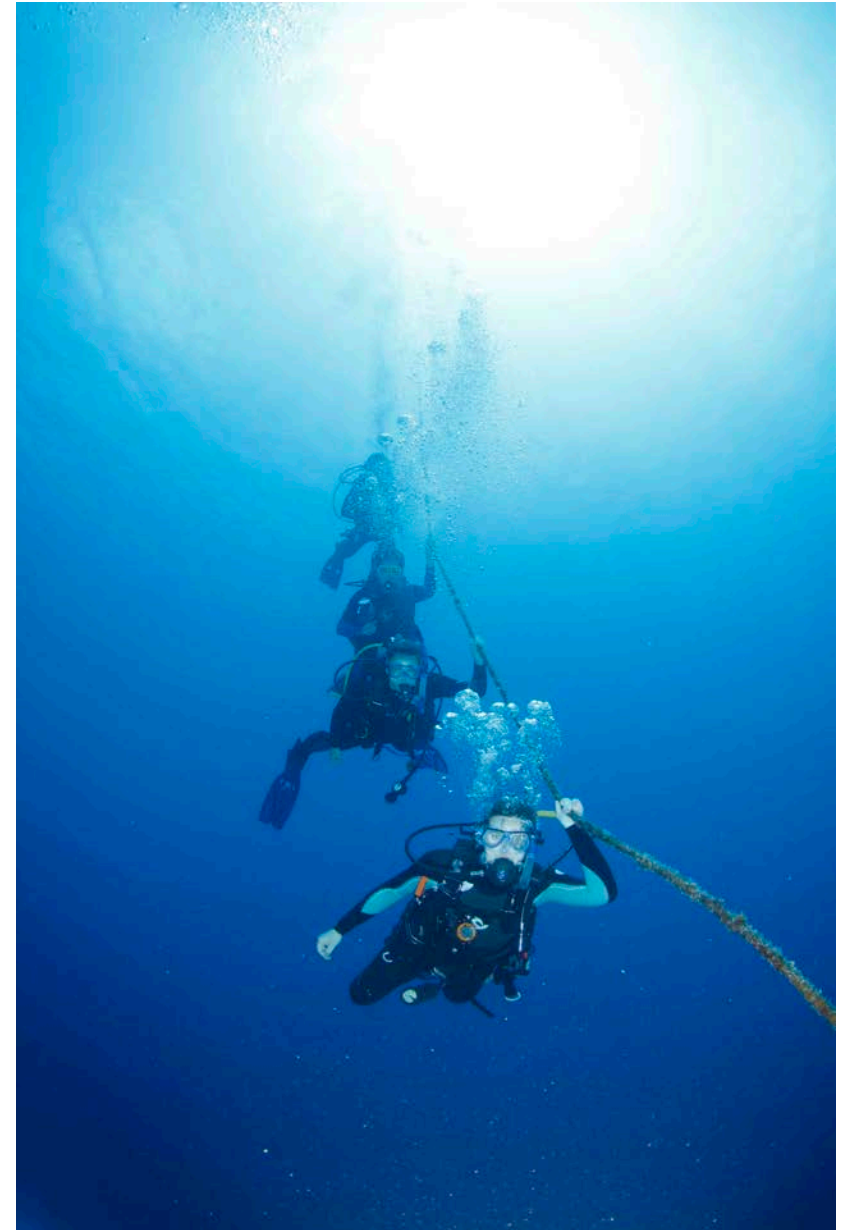


Image 1: Students from URI's AFS 433, Research Diving Methods Course, descend in Bonaire.

- Alexandra Moen, Associate Diving Safety Officer & Dive Lecturer (permanent): This position assists the DSO in dive program management. Duties include: serve as a member of the DCB, provide entry-level instruction, support research diving instruction, and supervise recreational diving instruction at URI.
- Katie Nickles, Dive Instructor (contract): This position is contracted on a semester-basis. The Diving Research & Safety Program has been relying on one additional dive instructor since 2013 to support entry-level instruction and/or assist in research diving instruction.
- Matthew Palasciano, Temporary Dive Instructor (contract): This position is contracted on a semester-basis when the need arises. In 2019, one dive instructor was unable to instruct for medical reasons so additional support was needed.

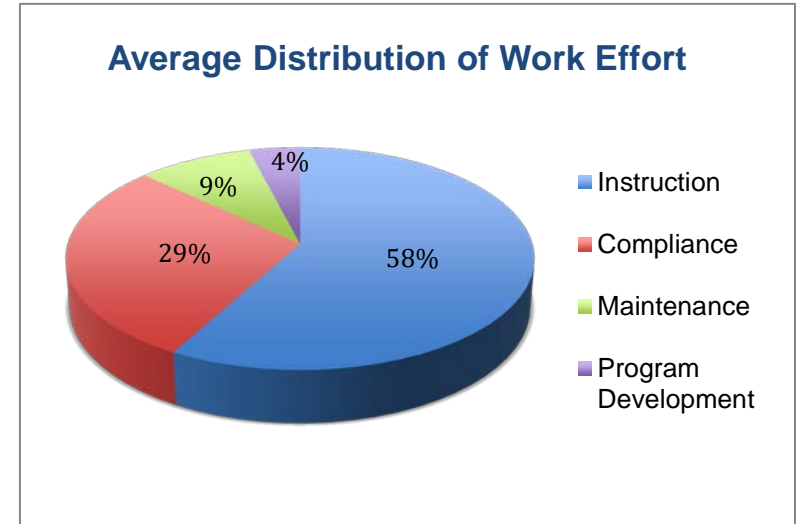


Figure 1: Average annual distribution of effort amongst staff.

## Academic Instruction

The Diving Research & Safety Program directly instructs and facilitates support for various courses at URI. When not directly serving as instructor-of-record, the DSO still plays an active role in managing diving-based courses (>25+ hours per course):

- Conducts compliance review to ensure qualification of all students and instructors (e.g. medicals, insurance, prerequisites)
- Provides additional training when needed such as Diving First Aid and/or specialized diving skills
- Conducts swim tests
- Conducts preliminary practical dive training and checkouts, typically at the pool
- Typically provides training for one instructor to be qualified as an AAUS or equivalent Scientific Diving Instructor
- Ensures all URI diving equipment is serviced and oversees distribution and collection from each participant

## For-Credit Courses offered are:

- AFS 270- Basic Scuba Diving Instruction, (redesigned current version in 2012)
  - Direct instruction of three sections per semester
- AFS/ART 395- Advanced Diving & Underwater Photography (Designed and created in 2019)\*
  - Direct instruction of one course offering every spring semester
- AFS 433- Scientific Research Diving Instruction (redesigned current version in 2012)\*

- Direct instruction of one or two course offerings annually
- NRS 475- January-term Coral Reef Conservation (Co-designed and co-created in 2013)\*
  - Direct instruction 2013-2017, Facilitator 2019
- AFS 391, 392, 491, 492- Special Projects, leadership instructional programs (designed and created in 2013)\*
  - Direct instruction annually
- HIS 396, 490- Underwater Archaeology Field School (on-going)\*
  - Facilitator annually, on-site support/instruction 2012-2014
- HIS 391- Directed Study or Research\*
  - Facilitator when offered
- APG 310: Topics in Anthropology
  - Facilitator when offered
- Marine Biology in Bermuda- semester-long Study-Abroad Program
  - Direction instruction of AFS 433 preparatory program annually
  - Participant in application review process
  - Program facilitator for URI and the Bermuda Institute of Ocean Sciences
- Support for numerous other courses including BIO 360, 418, 475, 495, HPR 307, 310
  - Facilitator when offered
- Undergraduate Marine Technical Certificate Program- (program creation in process with expected launch in 2020)
  - Creator and facilitator of program, to be offered through Aquaculture and Fisheries Department
  - Direct instruction from relevant courses expected each semester

\* with international travel

**2019-2020 COURSE ENROLLMENT**

For-Credit Diving-Based Courses	Instruct	Facilitate	Annual Enrollment	Credit/Contact Hours	Annual Tuition In-state	Annual Tuition Out-of-state
AFS 270- Basic Scuba Diving	X	X	48	100	\$75,600	\$178,272
AFS/ART 395- Advanced Diving	X	X	10	120	\$15,750	\$37,140
AFS 433- Scientific Research Diving	X	X	20	117	\$31,500	\$74,280
NRS 475 or AFS 433 J-term	X	X	20	164	\$31,500	\$74,280
AFS 391-2, 491-2- Special Projects	X	X	3	140	\$4,725	\$11,142
HIS 396, 490, 391, APG 310, HPR		X	10	150	\$15,750	\$37,140
AFS 433 in Bermuda	X	X	10	80	\$15,750	\$37,140
BIO 475- Ecology of Coral Reefs Ber		X	5	20	\$7,875	\$18,570
BIO 495- Tropical Marine Biology		X	5	20	\$7,875	\$18,570
<b>Total</b>			<b>131</b>	<b>911</b>	<b>\$206,325</b>	<b>\$486,534</b>

Table 1: Information regarding expected 2020 enrollment of for-credit diving-based courses only. These courses will contribute an average of \$351,342 in tuition to URI.

Course	Duration (days)	Total Student Contact Hours-Field	Total Instructor Prep Hours- Field	Total Student Contact Hours-Lecture	Total Instructor Prep Hours-Lecture	Total Instructor Hours
AFS 270	13 lecture, 12 lab	36	12	36	26	110
AFS 433	13 lecture, 13 lab	52	26	26	13	117
J-Term Course	16	110	12	30	12	164
Summer Research*	11	55	12	28	10	105

Table 2: Breakdown of contact hours for most common diving-based courses offered.

A typical URI course with lecture and lab involves 84 contact hours. Diving-based courses have 130-195% more contact hours, in comparison to traditional 3-credit lecture courses.

The Diving Research & Safety Program has contributed over \$351,342 in tuition dollars annually for credited-courses and a total of \$1,756,710 over the past 5 years. This does not include revenue generated from not-for-credit instruction.

### Non-Traditional Academic Courses

All recreational programs offered through *Scuba Diving International (SDI)*:

- Scuba Discovery- Trial diving program for high school students
- Basic Scuba Diving Instruction- SDI Open Water Class
- Scientific Research Diving Instruction per AAUS Standards offered at URI and Roger Williams University
- Recreational Specialty SCUBA Certifications, e.g. advanced adventure, nitrox, rescue
- Diving First Aid for Professional Divers Provider-level and Instructor-level
- Career Experience in Dive Program Management through URI’s internship office
- Professional leadership courses, e.g. Divemaster, Instructor
- See Figure 2 for a list of all courses that can be offered



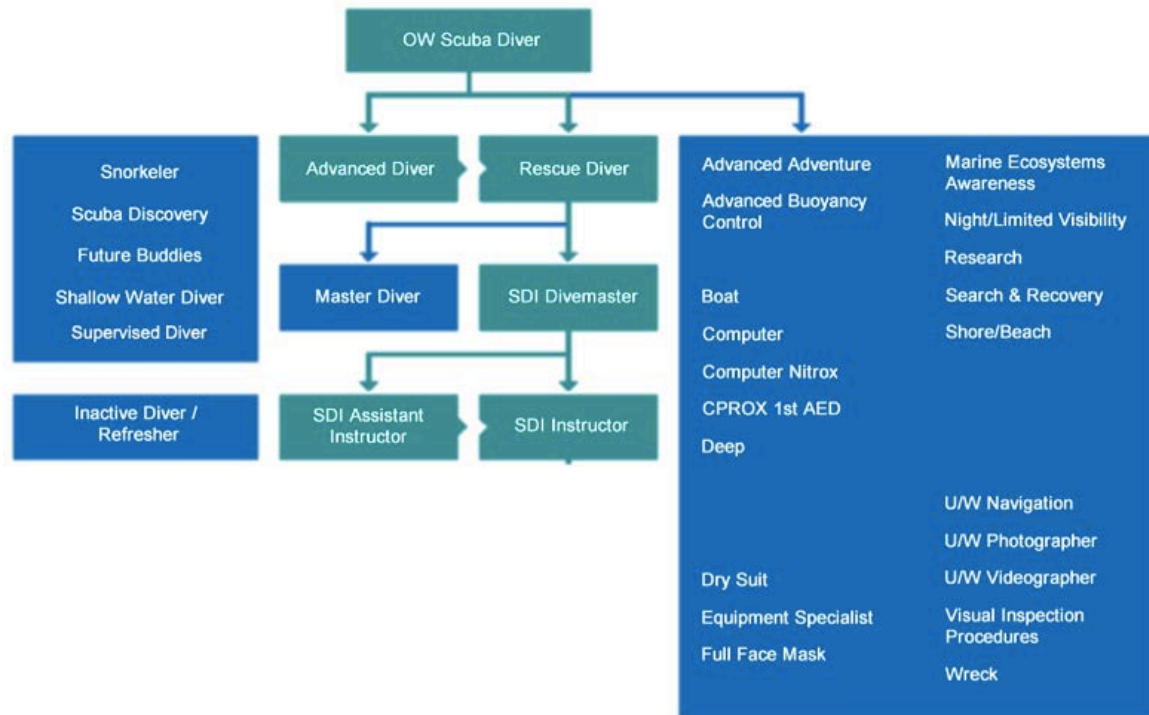


Figure 2: Scuba Diving International course offerings possible at URI.

## Compliance for Scientific Research Diving

- All divers and research protocols meet American Academy of Underwater Sciences (AAUS) standards
- Multi-disciplinary and international research collaborations
- Maintenance of all equipment for courses and research divers
- Management of two facilities: Tootell Aquatic Center, Graduate School of Oceanography (GSO)
- Maintenance of air fill stations per OSHA and AAUS standards
- Instruct scientific divers (staff and faculty) or re-activate status of diver qualifications
- Support and assist research efforts underwater and topside (See Figure 3 for reported awards)
- Agreements with outside organizations utilizing the URI Diving Research & Safety Program
  - Currently Roger Williams University
  - Previous agreements include Brown University and the Narragansett Indian Tribal Historic Preservation Office (NITHPO)

## Community & Professional Outreach

- **Participate and perform for various outreach events**
  - America's Cup Race
  - GSO Open House
  - Dive Conventions: Marine Careers Fair- Boston Sea Rovers, Beneath the Sea
- **Hosted 2016 AAUS Symposium**
  - One-week conference of science talks and diving instructional workshops with over 200 participants in attendance
- **Leader for New England Scientific Diving and DSO community**



Image 2: Student from the MET School (Providence, RI) receives diving instruction.

## Partnerships

1. The Ocean Agency is a non-profit organization with the mission of supporting and accelerating ocean conservation through creativity, technology and powerful partnerships. Led by CEO and co-founder Richard Vevers, their previous achievements to date include:
  - Invented the underwater SV2 camera which brought Google Streetview underwater
  - Pioneered virtual reality underwater education
  - Raised awareness for coral reef conservation through the Emmy award-winning Netflix documentary, Chasing Coral
  - Created the global campaign "50 Reefs" which raised \$86 million in funding for coral reef research and conservation and has gained over \$400 million of media coverage
  - Facilitated the largest coral reef underwater photographic survey as part of the Catlin Seaview Survey

A formal agreement was initiated in 2019 between the Diving Research & Safety Program and the Ocean Agency for the following reasons:

- To create a joint educational outreach program called "The State of the Ocean"
  - The Ocean Agency provided training and equipment for 360° imaging capabilities to create local virtual reality underwater education possible. Photo equipment was most recently loaned for J-term student use.

- To further research collaborations in ocean conservation, namely ocean plastics pollution and coral reef research
- To assist in the testing of new technology (See Figure 4) as part of the Ocean Conservation 2018 X-Prize, (a competition to entice action and development of certain topics)
- To relocate The Ocean Agency to the Narragansett Bay Campus to further opportunities for this partnership



Figure 4: The "hammerhead" camera is a concept design by The Ocean Agency as part of the 2018 X-Prize Foundation Award for Ocean Conservation. URI plans to assist in the testing of this technology.

### Reported Awards Using Diving Services

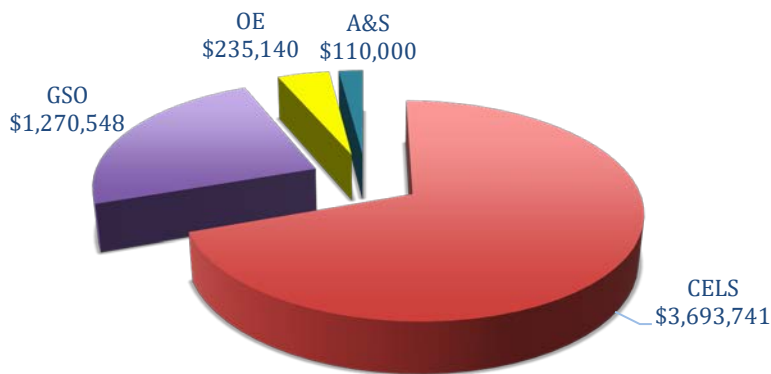


Figure 3: Total Reported Awards Involving Diving over the past five years (2015-2019), totaling \$5,309,429.59.

2. Currently in process, the University of Connecticut- Avery Point and URI are working to establish a formal partnership to share equipment. In the past, both institutions have collaborated to assist in scientific diving efforts and instruction, especially for advanced and technical diving skills. The benefits of this agreement would be:

- To ensure that liability coverage is clearly outlined for both institutions
- To allow for additional sharing of equipment
- To provide instructional and/or research support when needed (e.g. DSO on medical leave)

## Future Objectives

**Overall Goal:** Strengthen current curricula and research support while creatively expanding the number of advanced diver training courses and special projects.

To tackle upcoming challenges (see page 20), the following requests are offered for consideration:

- 1. Hire 1 New Full-Time Employee:** The Diving Research & Safety Program needs to redistribute current staffing efforts to:
  - a. Fully develop partnership such as The Ocean Agency, which has previously raised over \$86 million in research funding for academic institutions, in efforts to increase external funding sources at URI
  - b. Continue the focus of being a National Leader in Scientific Diving (e.g. host more symposia)
  - c. Seek additional funding and sponsorship opportunities
  - d. Maintain support for research programs with increased projects
  - e. Implement new programs as outlined in the 2019 Champlin Foundation Grant
  - f. Support the growing number of courses offered
    - i. For example, 2020 will have two J-terms and a new spring course offering
    - ii. Even when dive staff are not directly instructing diving-based programs, the compliance and preparatory process still requires >25+ credit hours
  - g. Continue to ensure instruction is the safest and highest quality possible
    - i. Diving-based courses require 2 instructors typically with 130-195% more contact hours than the average URI course

**Proposal: Hire a Diving Safety Officer staff member based on \$65,000 annual starting salary plus \$24,689 F&A.**

- 2. Increase DCB Account:** Inflation has been increasing at 2.5% every year, but the main research-support account has barely changed in 20+ years. Like all other industry, the items needed to support this program have increased:
- a. Supplies to maintain equipment for OSHA and AAUS compliance (e.g. compressors and testing)
  - b. AAUS dues from \$500 to \$675 and expected increase in 2020
  - c. Three diving instructors now require professional development training programs versus the ½ instructor position when the account was initially implemented
  - d. To date, the rising costs due to inflation were paid by the Research revenue-generating account, but that has surpassed a sustainable amount

**Proposal: A requested increase of \$7,190 to the annual DCB budget, based on the current annual budget of \$12,810, to a total budget of \$20,000.**

- 3. Tenant Improvements to new facility at the Narragansett Bay Campus:** As part of the 2018 Higher Education Bond, the Diving Research & Safety Program will move into a new Marine Operations facility. This transition will require support:
- a. The current facility is planned to be demolished for the new building. The program will not have a facility to support ocean diving during this time. Instruction may need to be suspended during this transition and scientific diving research may need to operate at a minimum level. For example, compressors will be off-line.
  - b. The new facility will require appropriate storage options for equipment such as:
    - i. Lockers for faculty
    - ii. Racks for community diving equipment (e.g. wetsuits, regulators, drysuits, buoyancy devices)
    - iii. Office and workbench furniture for maintenance
    - iv. Additional furniture

**Proposal: Funding of a maximum of \$60,000 for tenant improvements and storage solutions for the new facility's interior.**

## Diving Statistics

The first full-time URI Diving Safety Officer position was created in spring, 2012, at which time the basic diving-based courses started to be offered by URI instructors versus outside contractors. Additional personnel (Dive Lecturer) started in 2013. Part-time support hired in 2014.

Research divers are annually reported to AAUS. 2018 and 2019 displays a lower number of research divers because instructional efforts shifted. For example, there was no J-term offered in 2018 or 2019 and there was no for-credit research diving course in 2019.

URI hosted the AAUS Annual Symposium Event in 2016.

2020 is predicted to be an active year with over 100 research divers since two J-term courses will be offered.

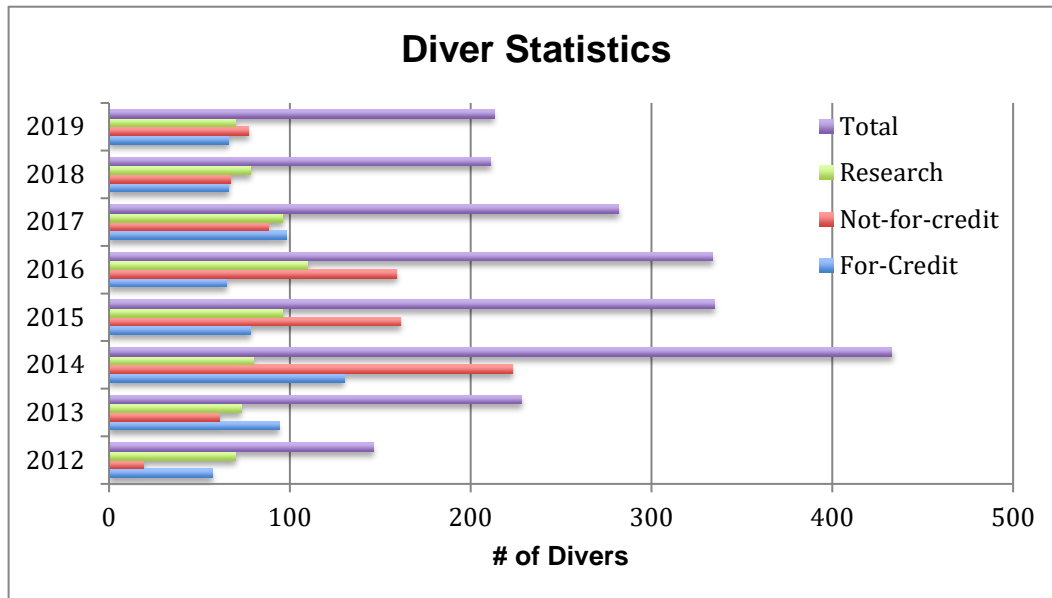


Figure 7: Graphic representation of Table 2. 2012 and 2019 are not represented as completed calendar years.

# CHALLENGES

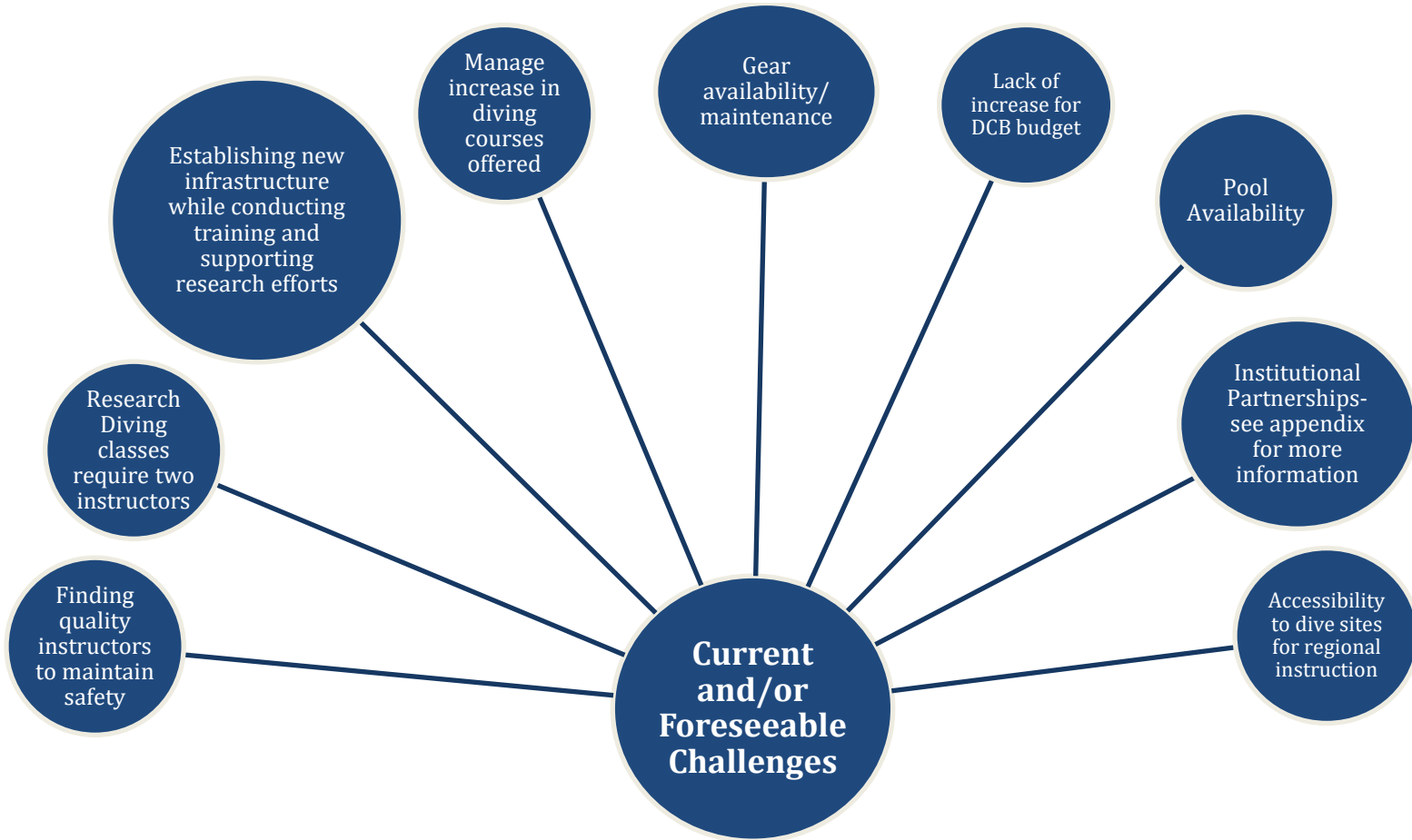


Figure 8: Outline of current and/or foreseeable challenges.

## FUTURE VISION

The URI Diving Research & Safety Program is committed to providing high-quality instruction and support for scuba diving education and research at an affordable cost. Safety will continue to be the biggest priority for all divers and diving operations.

### Within the next 5 years, we envision the following:

- To be recognized in the community as a National Leader and regional resource for Scientific Diving.
- To be established in a new facility with three full-time employees.
- To continue offering more courses and diving-based programs for education and instructional opportunities, (e.g. Marine Technical Certificate Program).
- To provide a state-wide outreach program with teaching resources for all ages.
- To better cater to advanced diving needs and specialized research projects (see Appendix 2).
- To better supplement research projects with external funding sources through powerful partnerships (e.g. The Ocean Agency) and sponsorships.



Image 3: Student collecting biological data underwater.