

# The Woods Hole Partnership Education Program: Increasing Diversity in the Ocean and Environmental Sciences in One Influential Science Community (Session#: 093)

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## Abstract:

To increase diversity in one influential science community, a consortium of public and private institutions created the Woods Hole Partnership Education Program, or PEP, in 2008.

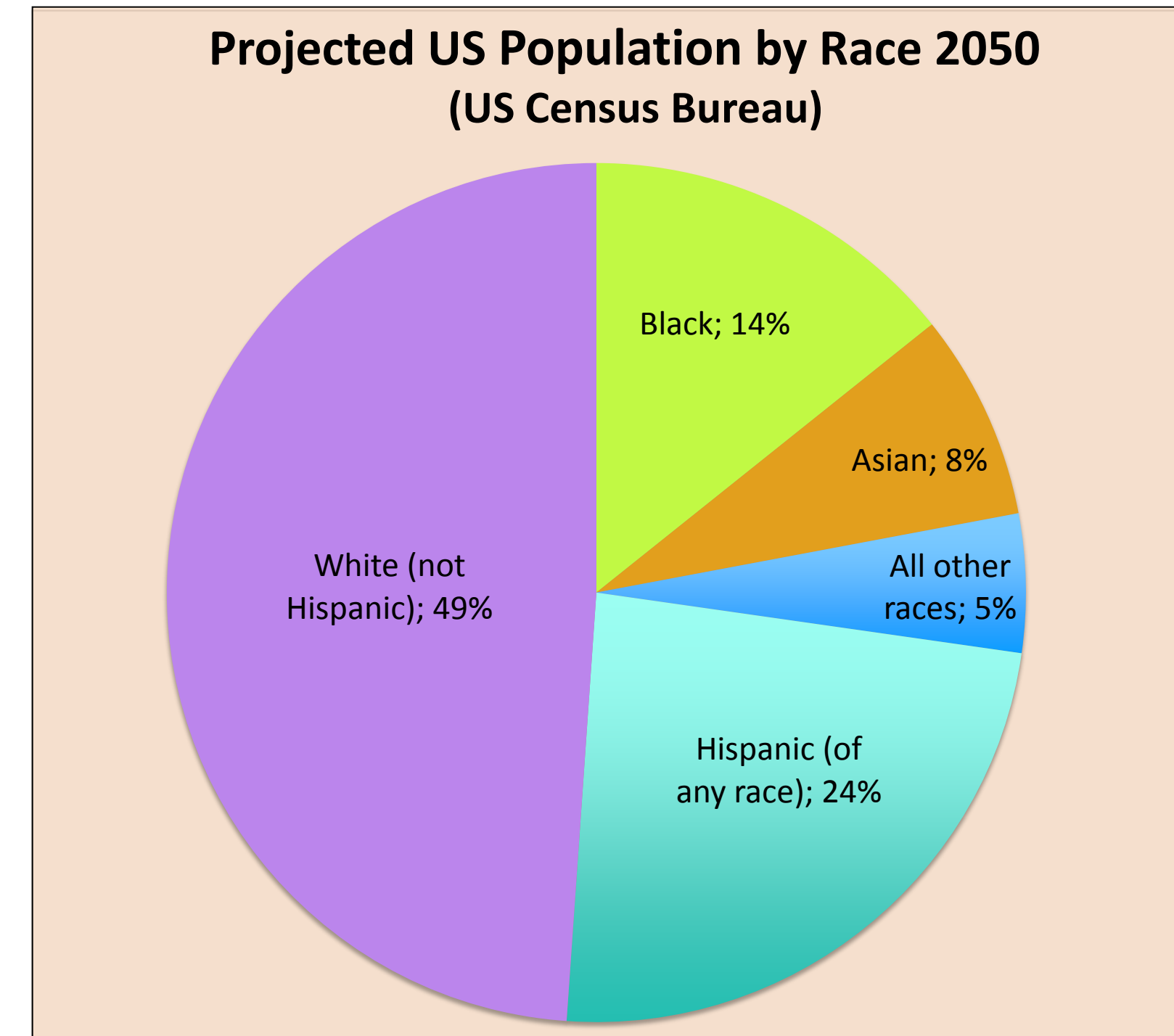
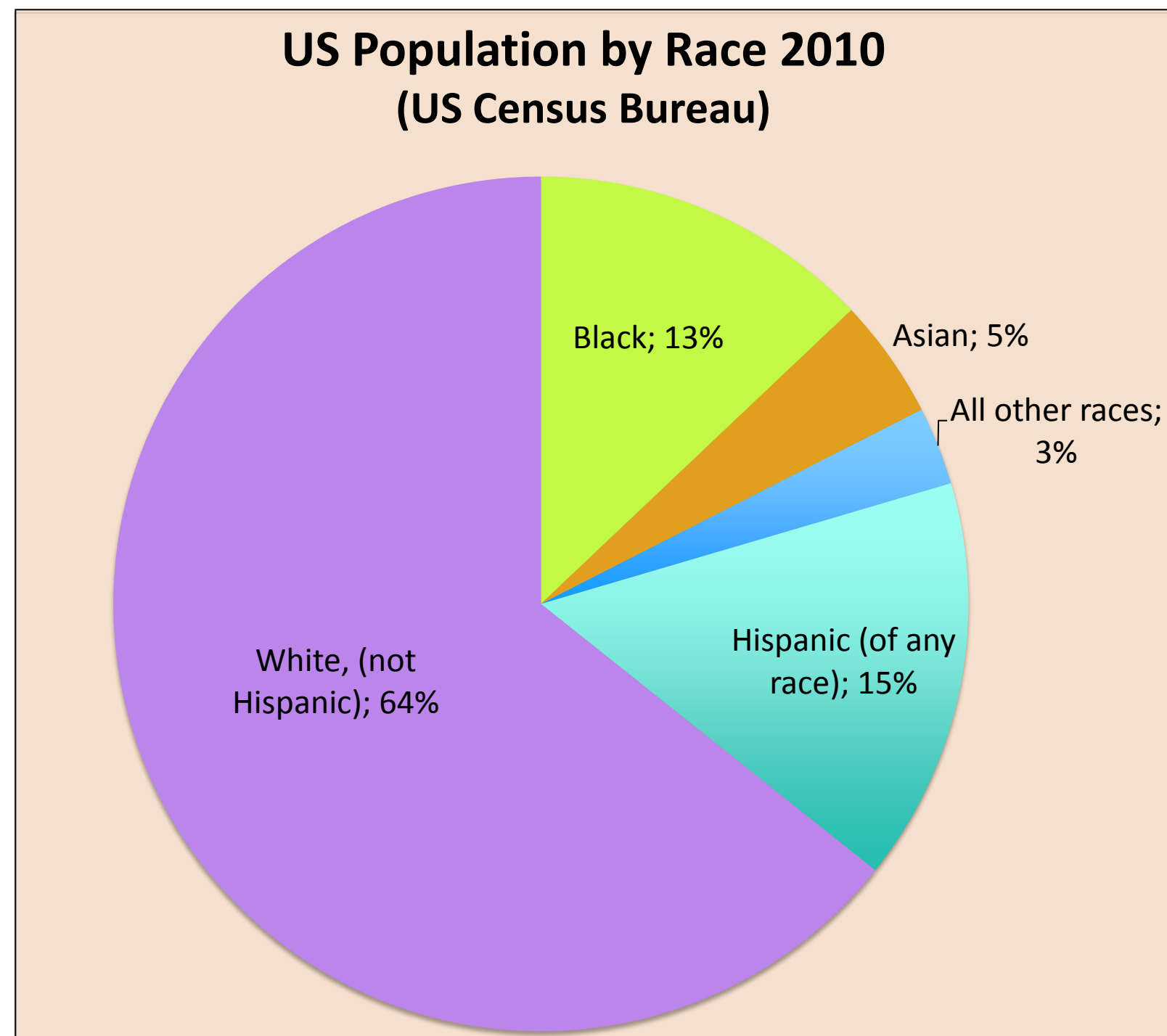
Aimed at college juniors and seniors with some course work in marine and/or environmental sciences, PEP is a four-week course and a six-to-eight-week individual research project under the guidance of a research mentor. Forty-seven students have participated to date. Investigators from the science institutions serve as course faculty and research mentors.



We listened to experts regarding critical mass, mentoring, adequate support, network recruitment, and then built a program based on those features. Three years in we have a program that works and that has its own model for choosing applicants and for matching with mentors. We continue fine-tuning our match process, enhancing mentoring skills, preparing our students for a variety of lab cultures, and setting expectations high while remaining supportive. Collaboration, not competition, is key since a rising tide floats all boats.

## A. Diversity is a Reality

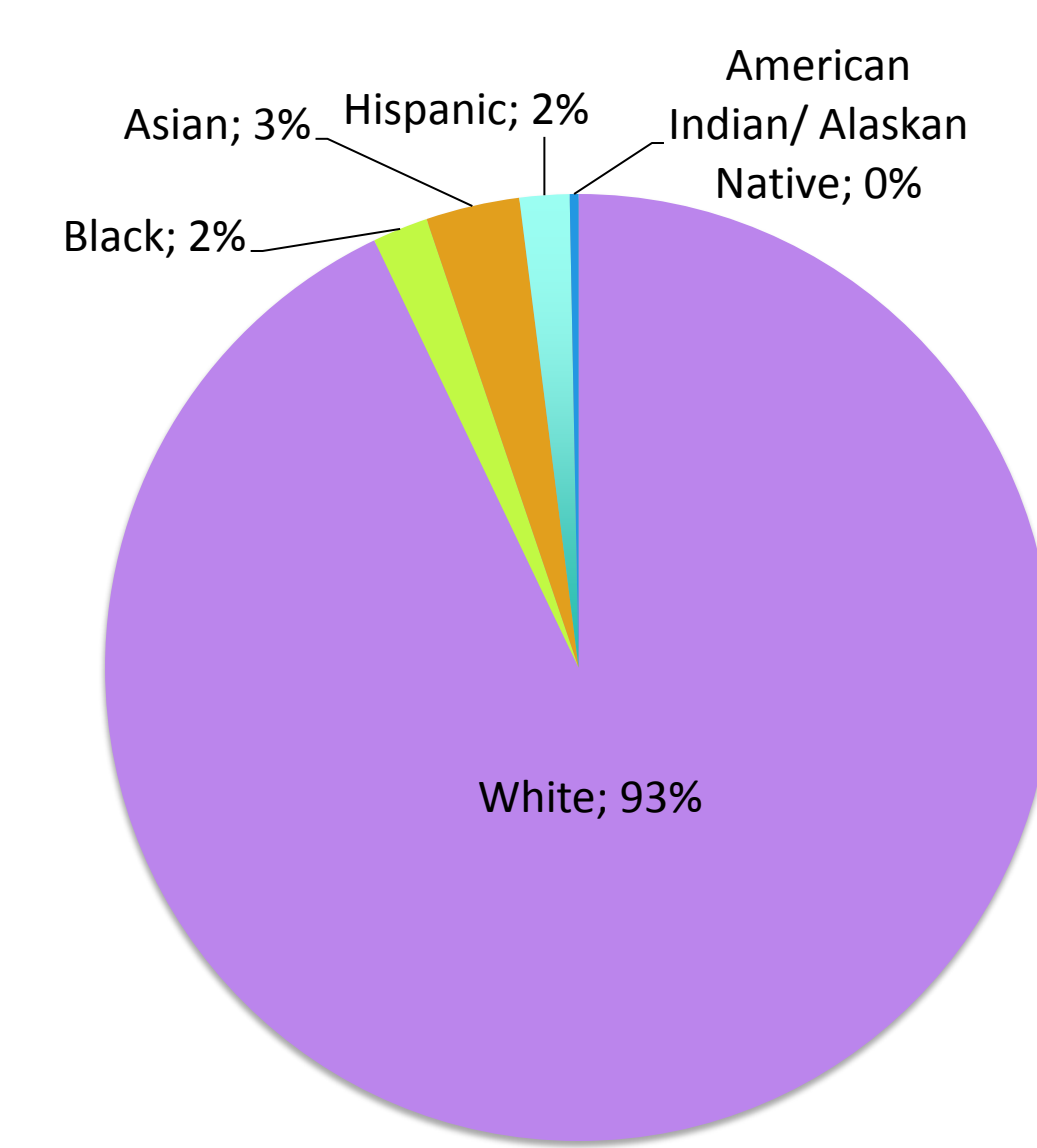
With all minority groups combined expected to outnumber non-minority groups in the U.S. by 2050, it is important for the health of sciences in the United States to diversify our workforce so we are attracting talented individuals from all segments of our population.



Woods Hole is home of numerous public and private research and education institutions. The students and the working scientists in the Woods Hole science community include very few African Americans, Hispanics, or Native Americans.

In 2004 the leaders of six Woods Hole science institutions signed a memorandum committing their institutions to becoming more welcoming and to working together to attract and retain a more diverse workforce. That memorandum established the Woods Hole Scientific Community Diversity Initiative (DI).

In 2009, the DI launched a program (PEP) to attract talent from communities and academic institutions that are rarely represented in Woods Hole.



Diversity of 2008 Year-Round Members of the Woods Hole Scientific Community (MBL, NEFSC, SEA, USGS, WHOI, and WHRC)

### Woods Hole Diversity Initiative Partners

- Northeast Fisheries Science Center (NOAA Fisheries)
- Marine Biological Laboratory (MBL)
- Sea Education Association (SEA)
- U.S. Geological Survey (USGS)
- Woods Hole Oceanographic Institution (WHOI)
- Woods Hole Research Center (WHRC)
- University of Maryland Eastern Shore (UMES) (academic partner)

## B. Guiding Principles of the Woods Hole Partnership Education Program (PEP)

In establishing PEP, the Woods Hole Diversity Initiative sought the advice and guidance of diversity experts who had track records of success in helping other institutions to become more inclusive. Following their advice on Best Practices, the DI determined that PEP would:

- Offer a course on environmental and ocean science; a six-week research internship; and career-building workshops, seminars, and activities
- Specifically encourage applications from individuals in groups underrepresented in marine and environmental science
- Use nontraditional selection criteria
- Develop and maintain relationship with mentors at MSIs
- Include students from non-minority backgrounds, especially "majority" students from schools and communities not normally represented in Woods Hole
- Bring to the village a critical mass of students
- Insure adequate financial support for both students and the program
- Provide hands-on research experience
- Practice strong mentoring – build strong relationships during and after the summer experience
- Work cooperatively and foster a spirit of cooperation rather than competition
- Have clear expectation that students will leave with confidence that they can have careers in science



## C. PEP 2009, 2010, 2011

The four-week course, "Ocean and Environmental Sciences: Global Climate Change," consists of lectures and hands-on activities that include gathering and analyzing data. Course modules are devoted to disciplines that include Physical Oceanography; Chemistry; Biology; Geology; and Ecosystems Management (including sociology, economics, public policy).



Each PEP student also works on a research project at one of the science institutions. At the end of the summer, students present results from their research in a 20-minute public presentation during a one-day PEP seminar.

Students live together and are expected to be supportive of each other. The residential experience with individuals from widely different backgrounds is, for many of the students, a learning experience. Strong mentoring helps with group living, while career building workshops and seminars that include Ethics in Science, Professional Writing, Data Gathering at Sea, and other sessions prepare students for graduate school and beyond. PEP is evaluated each year by a professional evaluator, Dr. Emorcia Hill, Director of Research and Evaluation, Center for Study of Diversity in Science, Harvard Medical School. Dr. Hill interviews students, research mentors, course faculty, and program staff, and her reports guide the evolution of the program.

## D. Challenges and Opportunities

PEP continues to face some unusual challenges. Being hosted by a consortium of seven institutions, the program has to accommodate different and sometimes conflicting sets of administrative guidelines. Additionally, the program was dedicated to finding a collaborative solution to a problem that the Woods Hole institutions had not been able to solve individually. Significant challenges include:

- Meeting administrative requirements at seven partner institutions
- Finding funding for a program that does not belong solely to any of the partner institutions (solved initially by NOAA)
- Attracting applicants to institutions that have been, at best, off the radar of faculty and administrators at many American colleges and universities (previous diversity programs in Woods Hole failed to attract significant numbers of applicants)
- Providing housing in a seaside/resort community (solved by Sea Education Association, which had included PEP in its summer residential programs)
- Transporting students in the village
- Providing guidance for students from diverse backgrounds about living and working together (it is a new experience for many of the PEP students, and a change for the Woods Hole community)
- Making Woods Hole a welcoming environment
- Developing a model for bringing together a large number of institutions, some public and some private, some small and some large



## E. PEP Results

In three years, PEP has brought to Woods Hole 47 students from 33 colleges and universities, including many that previously had sent few or no students or faculty to Woods Hole.

### Colleges and Universities Represented

**2009**  
 Arkansas State University (2)  
 City University of New York  
 Delaware State University  
 Humboldt State University (2)  
 Juniata College  
 Morgan State University  
 Savannah State University (2)  
 Syracuse University  
 University of New England (2)  
 University of Maryland Eastern Shore (2)  
 University of Massachusetts, Boston

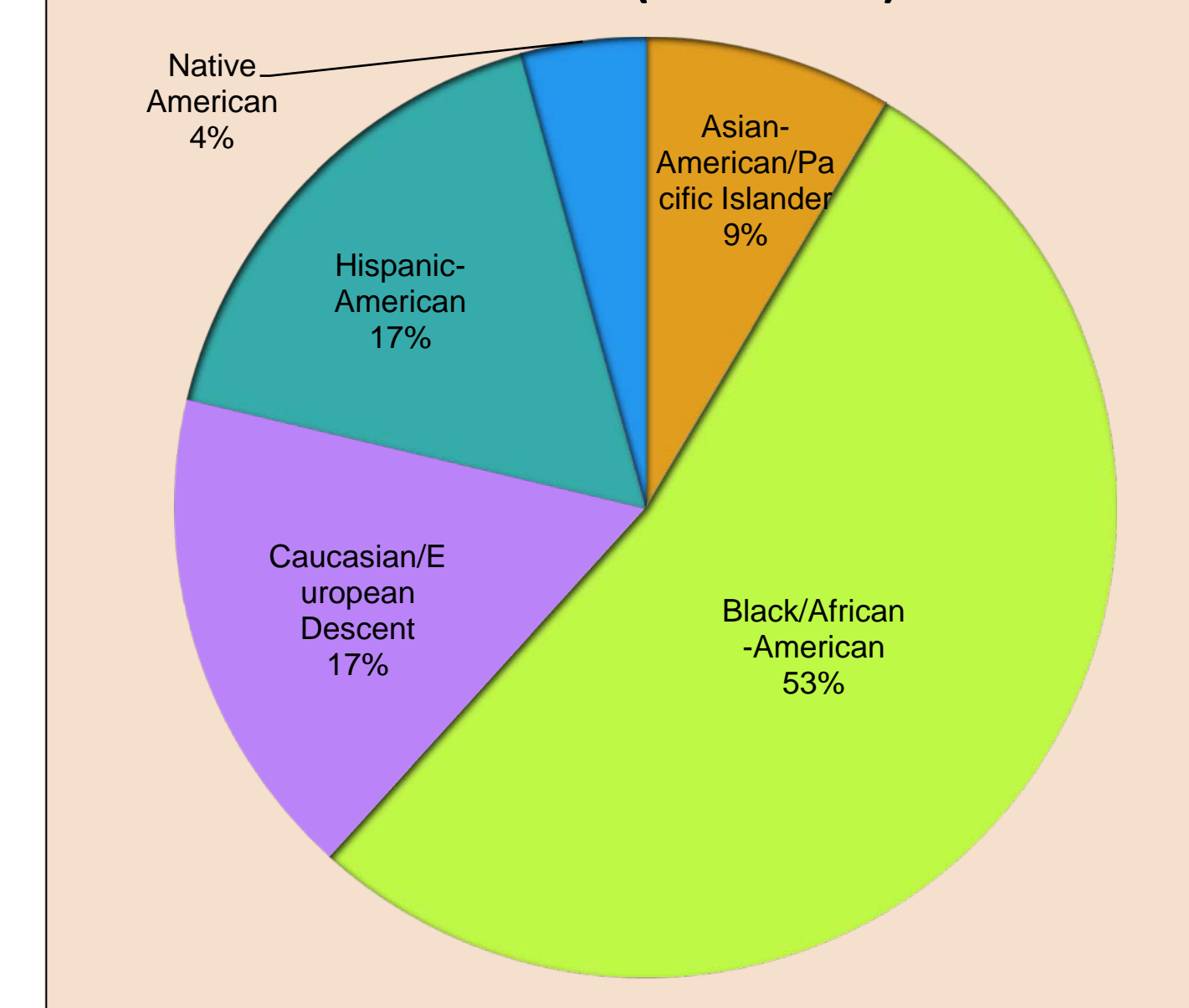
**2010**  
 Bridgewater State University  
 Cornell University  
 Hampton University  
 Morehouse College (2)  
 Nova Southeastern University  
 South Carolina State University  
 Southwestern College  
 SUNY Maritime College  
 University of Arkansas, Fayetteville  
 University of California, Berkeley  
 University of California, San Diego  
 University of Massachusetts, Boston  
 University of New Haven  
 University of South Florida  
 University of Tampa  
 University of the Virgin Islands  
 Virginia Commonwealth University

**2011**  
 Boston College  
 Embry-Riddle Aeronautical University  
 Humboldt State University (3)  
 Morehouse College (2)  
 Spelman College  
 Tuskegee University (2)  
 University of Maryland, College Park (2)  
 University of the Virgin Islands  
 Western Washington University

### Post PEP Achievements

- 82% of PEP graduates are continuing their careers in marine and environmental science.
- Five students have published papers with their PEP research mentors.
- Three have won awards from presentations at professional conferences.
- Five students have gone on to complete Sea Semesters.
- Three have been NEFSC Bradford E. Brown Fellows.
- Three have been offered WHOI Summer Student Fellowships.
- One has become a Knauss Fellow, another an SEFSC Fellow, and one other is a NOAA Fisheries Observer.

### Partnership Education Program Represented Ethnicities (2009-2011)



## F. Lessons Learned and Best Practices

Key PEP program features that are likely to be important in building diversity programs in other communities:

- Using nontraditional selection criteria and assuring critical mass
- Supporting and assisting students/peers with living in a diverse group
- Individuals (staff, faculty, mentors) spending significant time working with students
- Multiple mentors – program mentors as well as research mentors
- Paying attention to communication – internal and external
- Mix of hands-on professional guidance, caring, community support
- Assistance navigating, negotiating, understanding and appreciating cultural expectations and institutional rules that vary from institution to institution and from lab to lab within institutions



- Collaborative planning, implementation and program design
- Top leadership committed to supporting change
- Dedicated program with administrative and scientific support
- Recruitment from non-traditional networks (face-to-face recruiting is essential)
- Dedicated instructors
- Dedicated housing
- Advisory Committee
- Program evaluation
- Dedicated professional communicators

## G. What's Next

Although PEP has completed three successful years, the program faces on-going challenges:

- Securing adequate funding over multiple years (from multiple sources)
- Supporting PEP graduates through the next stages of their careers, monitoring career progress
- Ensuring sustained support from leaders of all partner institutions
- Keeping in mind the clear distinction between the content/technical aspects of a program and the psychosocial support components -- students can master the first while still having difficulty with the latter.
- Improving evaluation and intervention programs to monitor what is working, and why and to determine what scholarly research exists on programs seeking to increase diversity and inclusion in science
- Joining with the psychological and social sciences communities to gain from their experience in evaluation methodology.

For more information, please go to:  
<http://www.woodsholediversity.org/pep/about.html>