

# The MATE Center

## Addressing the Need for a Qualified Workforce

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Marine Advanced Technology Education (MATE) Center

Monterey Peninsula College

[www.marinetech.org](http://www.marinetech.org)



# PRICE OF ADMISSION: AMERICA'S COLLEGE DEBT CRISIS



**STUDENT DEBT IS NEARING 1 TRILLION DOLLARS.**  
Could this be the next bubble to burst? Go inside the debt crisis that could keep taxpayers on the hook for generations.



# Background on the Marine Advanced Technology Education (MATE) Center



- MATE Center founded in 1997
- Headquartered at Monterey Peninsula College in California, **it is a national partnership** of close to a 1000 colleges, universities, high schools, middle schools, elementary schools, marine industries, and professional societies.
- Funded in part by the National Science Foundation's Advanced Technological Education (ATE) Program, the ITEST Program and the REU program; industry contributions; and SeaMATE store sales.





# MATE's Mission

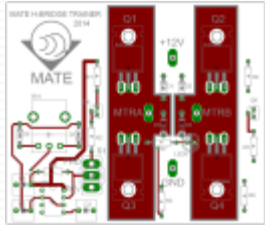
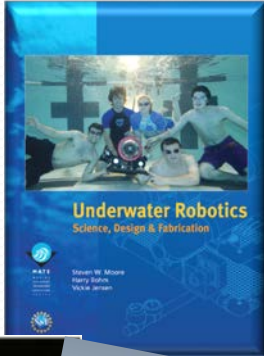
- MATE's mission is to use marine technology to create **interest in and improve science and technology education** and to provide the marine technical workforce with **well-educated technical professionals**.
- A hallmark of all MATE's programs, products and services is that they are **aligned** with ocean workforce **research** and trends.



# MATE Center Programs



**Textbooks, Curriculum,  
ROV Kits**



ROV Building Tutorial 4D -- Electrical Safety Demonstrations



**At-Sea Internships**



**Partnerships**  
800+ Academic Institutions  
180+ Industry partners  
6 Professional Societies  
8 Federal Agencies

**Workforce Studies**



**Teacher Education**



**Underwater Robotics  
Competitions**



**Career Awareness**

**COSEE**  
CENTERS FOR OCEAN SCIENCES  
EDUCATION EXCELLENCE

**OCEANCAREERS.COM**

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- Explore over fifty ocean-related careers
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# MATE Strategy for Improving the Marine Technical Workforce

PRODUCTS	DESCRIPTION
<b>Needs identification</b> ↓	List of critical workforce needs from employer queries
Occupational definitions ↓	Employer recognized occupational categories
<b>Occupational guidelines</b> ↓	Employee identified knowledge and skills for specific occupations
Competencies ↓	Knowledge and skills grouped by subject area
<b>Educational products and services</b> ↓	Competency-based assessments, modules, courses, faculty development workshops, and internships
Educational programs ↓	Degree and certificate programs aligned with workforce needs
<b>Career management programs</b>	Job placement programs, professional development courses



# Knowledge and Skill Guidelines

KNOWLEDGE AND SKILL GUIDELINES FOR MARINE SCIENCE AND TECHNOLOGY

VOLUME 4

## Oceanographic Instrumentation Technician

### The Importance of Oceanographic Instrumentation Technicians and Ocean Observing Systems

Oceanographic Instrumentation Technicians play an important role in the collection of scientific measurements that allow us to understand how the oceans work and to use the ocean and its resources more safely and wisely.

Historically, most ocean measurements were made from ships, but increasingly they are being made from unmanned platforms such as moorings, drifters, and autonomous underwater vehicles. The earliest of these measurements or observations were made in the spirit of pure exploration: to describe what the ocean floor looks like, where the strongest currents are, how salty the water is, etc. As new technologies were invented and new theories advanced, targeted ocean measurements were made to try to understand ocean dynamics and biological and geological interactions: why the



*Mike Kelley, Ocean Observing Supervisor, works on a mooring observing system in Monterey Bay.*

managing fisheries, mitigating oil spills, and forecasting storm surge. The advent of ocean observing systems that take an

The goal of ocean observing systems is to pull together data from various sources to present a cohesive picture of

- Job functions & tasks
- Personal characteristics
- Occupational titles
- Educational backgrounds
- Salary range
- Instruments and tools used
- Professional societies and conferences
- Future trends and more



# MATE/UNOLS Internship Guidelines

**The Attitudes and Attributes of a successful intern are as follows:**

- ❑ Resourceful
- ❑ Responsible
- ❑ Self-starter
- ❑ Able to communicate clearly both orally and in writing
- ❑ Patience
- ❑ Attention to detail
- ❑ Able to read and interpret manuals
- ❑ Able to troubleshoot and problem-solve
- ❑ Confident in decision making
- ❑ Able to work independently and in teams
- ❑ Able to recognize his/her limitations, seek help as needed
- ❑ Able to define & grasp the essence of the problem
- ❑ Follow-through, does not leave jobs unfinished
- ❑ Knowledge of and ability to use good customer relations skills
- ❑ Able to multi-task
- ❑ Able to think outside the box

**Ask me for a copy**

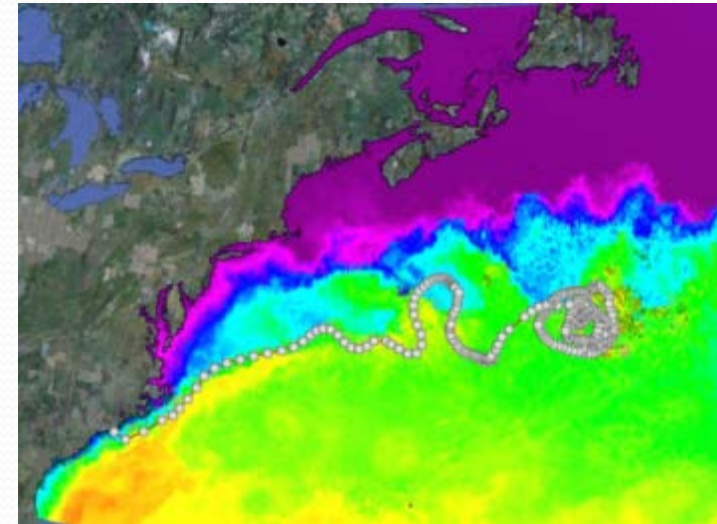
**Plus much more!**





# Faculty Institutes

- Engineering Design
- Introduction to ROVs
- Marine Geospatial Technology



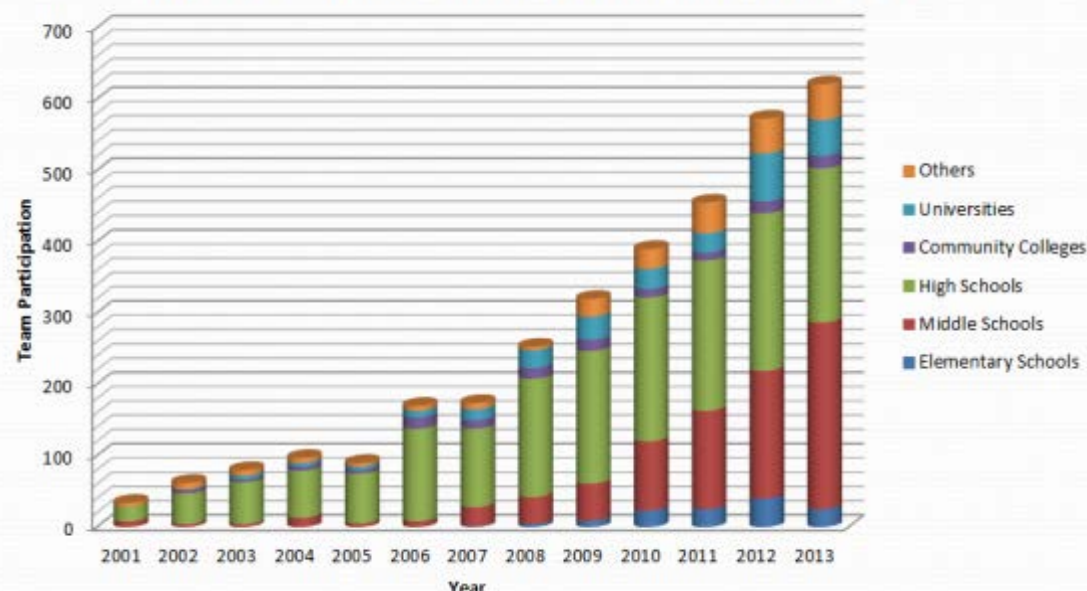


# MATE Underwater Robotics Competitions

23 regional contests across the U.S. & around the world



MATE ROV Competition Team Participation 2001-2013





# At Sea Internships





# Career Awareness and Career Management

**Guide to Marine Science and Technology Programs**  
In Higher Education

Marine Technology Society  
HAT



**EXPLORING OCEAN CAREERS**  
an on-line course on marine occupations

COSEE  
CENTERS FOR OCEAN SCIENCES EDUCATION EXCELLENCE

Exploring Ocean Careers  
This on-line course designed for people who are interested in pursuing education and employment in a marine science or technology field. Developed for the Marine Advanced Technology Education, this course is available to marine education programs who wish to incorporate it into their curricula. In this course, students explore and evaluate coastal careers, develop a career plan, create a resume, and learn to find job opportunities in the ocean workforce. The basis for this course is the OceanCareers.com website, offering a wealth of information & resources about ocean careers. The course also draws upon other valuable resources such as the MarineCareers.net website and the U.S. Department of Labor's website.

**Students can...**  
Discover and evaluate the job opportunities  
Decide which career careers might be "right" for them  
Create a plan to acquire the skills and education they need  
Learn more than simply working or being that career field  
Develop a resume/ general resume/ target resumes  
Search for and identify job openings in their career field  
Determine what skills and education they need  
Conduct an informational interview with a professional employer  
Begin contacting potential employers about their training and priorities

**Course materials include...**

- Chapter Readings offered as video recorded slide shows or text with captions.
- Chapter Assignments guiding students in exploring career careers and preparing to enter the ocean workforce using the vast resources available on the OceanCareers.com website.
- Discussion Questions for on-line forums to foster exchanges about the ever-changing and fascinating ocean industry.
- Reaction Assignments in which students apply and synthesize what they have learned.
- Final Project in which students make a plan to pursue the career of their choice.

**Course Outline**

Section 1: An introduction to ocean careers

- Chapter 1: What is an ocean career? What would an ocean career have to offer me?
- Chapter 2: What are my personal goals and ambitions? What do I have to offer a potential employer?

Section 2: Exploring ocean careers

- Chapter 3: Working on shore or in the shipping industry.
- Chapter 4: Working in an ocean science related job.
- Chapter 5: Designing, building or maintaining equipment, ships or structures.
- Chapter 6: Protecting the marine environment.
- Chapter 7: Working with animals.
- Chapter 8: Working in law enforcement, regulation, national security, or defense.
- Chapter 9: Teaching or sharing information with others.
- Chapter 10: Working with emerging transportation of large and passengers.
- Chapter 11: Careers in energy or mineral research, exploration, and extraction.

Section 3: Preparing for an ocean career

- Chapter 12: What skills and education do I need? How can I get those skills and education?

The MATE Center and its COSEE partners present

# Ocean Career Expo

being held in conjunction with

## MATE's International



**Chapter Readings**  
Check out these examples from the chapter on work

OceanCareers.com  
Students can...

Information about careers and labor market trends.

Send us your Comments!

**Adv**  
The Co-Coordinator  
member can help

**After Care**

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- Find hundreds of related links to continue your career exploration

# SeaMATE

## Is a *Social Enterprise*

that provides community college students with workplace experience while creating products and services which promote marine technical education.

- Manufacturing skills
- Business and marketing
- Customer relations & customer training
- Peer to peer training
- Quality control
- Entrepreneurism
- Networking with professionals







**MATE**

M A R I N E  
ADVANCED  
TECHNOLOGY  
EDUCATION  
C E N T E R

## Questions?

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