

California State University Monterey Bay

Marine Sciences Program

Guide for Prospective Students



MSCI Courses



Science Diving



Research
Opportunity

Welcome to the Department of Marine Science!

This guide summarizes just a few of the key features of the Marine Science Program at CSU Monterey Bay. We recommend that you schedule a meeting if you have specific questions that cannot be answered through the guide and Marine Science web site.

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Marine Science

Bachelor of Science Degree

Find all MSCI-related information at: <https://csumb.edu/marinescience>



What is Marine Science? Marine Science at CSUMB is the interdisciplinary study of the marine environment, with emphases on (1) the use of state-of-the-art technologies to collect & analyze scientific data, and (2) the application of the resultant information to management & policy-making.



Why get a BS in Marine Science? Marine Science students receive training in scientific diving, remote sensing, molecular techniques, geographic information systems (GIS), science communication, and many other marketable laboratory & field skills, all of which are in high demand by employers and will lay the foundation for graduate study in a variety of disciplines.



How does Marine Science differ from other majors on campus and at other Institutions around the region?

Marine Science is *not* the same as marine biology. The CSUMB Marine Science program has an emphasis on interdisciplinary skills rather than on biology alone. However, a Minor in Biology is available on campus to augment training in specific areas of biology. Our Marine Science program differs from other marine-focused programs for its *required* emphasis on the application of science to management & policy. No other local programs require this integration.

Bachelor of Science Degree

CSUMB offers a single, interdisciplinary undergraduate degree in marine science
that prepares students for a wide variety of jobs and graduate school programs.

csumb.edu/catalog/marine-science-bs

[CSUMB Home](#) [Catalog](#)

Marine Science BS

Learning Outcomes

Students in the Marine Science major apply a wide range of technologies to studying marine ecosystems. Through applied learning and research, you will gain the skills necessary to develop a sustainable balance between the unique environmental, recreational, cultural and economic opportunities in the Monterey Bay region.

Undergraduate Requirements

General Education

World Culture & Language

Majors

Minors

Through lab and field experience, you will apply techniques of experimental design, data acquisition, analysis and presentation that provide you with the skills needed to monitor and analyze marine science problems. You are encouraged to interact with other Monterey Bay institutions, such as the Moss Landing Marine Labs, to take advantage of additional local expertise in marine and coastal ecology.

Graduates of the Marine Science major are prepared for a variety of career pathways in the public and private sector. Graduates are also poised to continue their education via graduate studies and research in ecology, environmental science and related fields.

› Required Courses

› Learning Outcomes

MLO 1: Quantitative, Research, and Communication Skills

All marine science graduates use quantitative evidence to evaluate hypotheses. They display and analyze data to interpret and communicate marine patterns and processes in written and oral formats.

MLO 2: Personal, Professional, and Social Responsibility

Marine science graduates work professionally and ethically to promote inclusive environmental decision-making based on diverse stakeholder perspectives.

MLO 3: Marine Science Depth of Knowledge

Marine science graduates demonstrate marine science content knowledge appropriate for marine science careers or graduate school.

MLO 4: Marine Science Integration and Synthesis

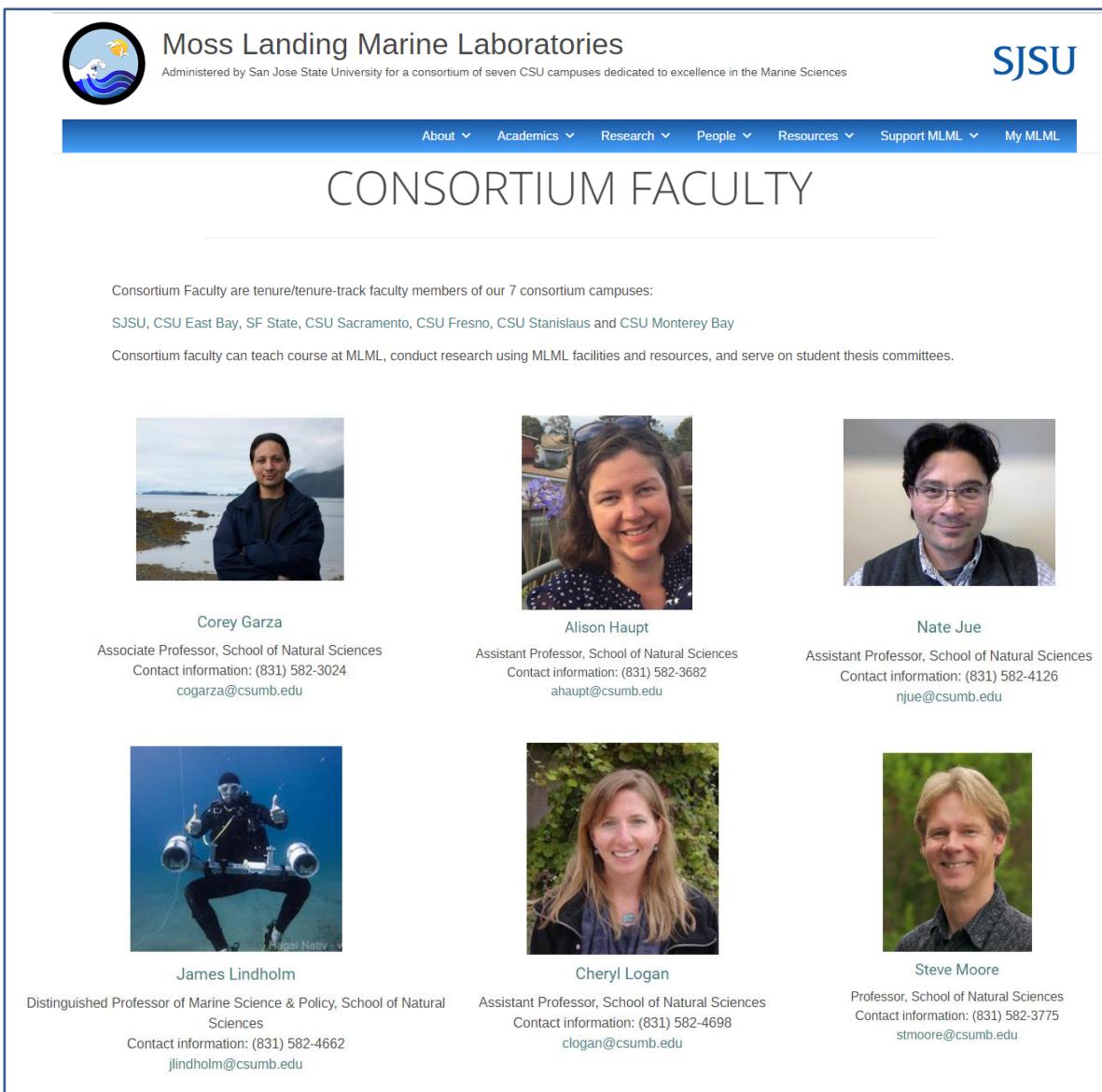
Marine science graduates synthesize, connect, and apply knowledge, skills, and experiences across the interdisciplinary field of marine science (e.g., biology, oceanography, spatial statistics, etc.) allowing them to address new and complex challenges facing the oceans.

Master of Science Degree

CSUMB offers a Master of Science in Marine Science through Moss Landing Marine Labs. Both campuses are located near the shores of Monterey Bay, an extraordinary place that is home to one of the greatest concentrations of marine science research and education institutions anywhere in the world. CSUMB is located only 20 minutes south of MLML and is by far the closest of the seven CSU consortium campuses affiliated with MLML.

You can [enroll through CSUMB](#) and can take advantage of CSUMB housing and other resources, while doing most of your master's [work with MLML faculty](#), including [CSUMB faculty advisers](#), in MLML facilities.

The [MLML master's program is widely known and respected](#) as one of the top marine science programs in the nation. This program will build upon your existing bachelor's degree to give you the knowledge, skills, experience, and professional contacts you'll need to take your marine-related career to a new level!



The screenshot shows the 'CONSORTIUM FACULTY' page of the MLML website. At the top, there is a header with the logo of Moss Landing Marine Laboratories (a stylized fish in a circle), the text 'Moss Landing Marine Laboratories', 'Administered by San Jose State University for a consortium of seven CSU campuses dedicated to excellence in the Marine Sciences', and the SJSU logo. Below the header is a navigation bar with links: About, Academics, Research, People, Resources, Support MLML, and My MLML. The main title 'CONSORTIUM FACULTY' is centered above a list of faculty profiles. Each profile includes a photo, the faculty's name, their title and department, contact information, and an email address. The profiles are arranged in two rows of three.

Faculty Photo	Name	Title/Department	Contact Information	Email
	Corey Garza	Associate Professor, School of Natural Sciences	Contact information: (831) 582-3024	cogarza@csumb.edu
	Alison Haupt	Assistant Professor, School of Natural Sciences	Contact information: (831) 582-3682	aehaupt@csumb.edu
	Nate Jue	Assistant Professor, School of Natural Sciences	Contact information: (831) 582-4126	njue@csumb.edu
	James Lindholm	Distinguished Professor of Marine Science & Policy, School of Natural Sciences	Contact information: (831) 582-4662	jlinholm@csumb.edu
	Cheryl Logan	Assistant Professor, School of Natural Sciences	Contact information: (831) 582-4698	clogan@csumb.edu
	Steve Moore	Professor, School of Natural Sciences	Contact information: (831) 582-3775	stmoore@csumb.edu

Master of Science Degree

(continued)

[CSUMB Home](#) [Catalog](#)

Marine Science MS

CSUMB offers a Master of Science in Marine Science through Moss Landing Marine Labs. Both campuses are located near the shores of Monterey Bay, an extraordinary place that is home to one of the greatest concentrations of marine science research and education institutions anywhere in the world. CSUMB is located only 20 minutes south of MLML and is by far the closest of the seven CSU consortium campuses affiliated with MLML.

You can enroll through CSUMB and can take advantage of CSUMB housing and other resources, while doing most of your masters work with MLML faculty in MLML facilities. The MLML masters program is widely known and respected as one of the top marine science programs in the nation. It will build upon your existing bachelors degree to give you the knowledge, skills, experience, and professional contacts you'll need to take your marine-related career to a new level!

› Required Courses

▼ Learning Outcomes

All MLML students must meet high standards of competency in the core areas of oceanography, marine biology, and quantitative analysis as described in the Learning Outcomes listed below. You are encouraged to discuss alternative assessment options with your advisor; however, the hands-on, integrative nature of the MLML program necessitates a course-based path, followed by independently conducted research, for the majority of students.

Quantitative Foundations

Ability to apply fundamental mathematical and statistical constructs used to communicate quantitative information within the context of marine science; ability to demonstrate proficiency with biological, chemical and physical data acquisition, analysis, display, and communication.

Oceanography Foundations

Ability to apply principles and methods of the major field of oceanography (physical, chemical, geological and biological).

Marine ecology Foundations

Ability to apply advanced scientific concepts and methods to solve complex problems within an integrative ecological framework; ability to examine linkages between marine organisms and their environments; ability to recognize common patterns of change in real systems, build simple models that generate those patterns, and describe potential limitations of systems models as decision-making tools.

Area of Concentration Competency

Ability to demonstrate depth in a chosen area of marine science by completing an appropriate sequence of learning experiences that fulfill the learning outcomes of a self-designed, MLML-approved concentration.

Scientific Inquiry Competency

Ability to design, conduct, and interpret independent scientific investigations of an advanced nature, and to understand the ethical norms that guide scientific processes and methods.

Effective Communication Competency

Ability to present clearly, in written and oral formats, analyses of complex scientific issues.

csumb.edu/marinescience

Marine Science Capstone Project

Capstone provides students an opportunity to synthesize knowledge, skills, and abilities developed over the course of their learning experience at CSUMB. MSCI capstone helps students connect their marine science and policy knowledge to critical issues of ocean stewardship, conservation, exploitation, and management at local, national, and global scales.

CSUMB Marine Science (MSCI) Capstone Options

SEP Marine Science Majors may choose one of two, and only two, available options to meet the CSUMB capstone requirement for the major.

Option 1: Marine Science Group Capstone [MSCI 410 \(1 units\)](#)

- Student must enroll in one of the approved MSCI Group Capstone classes (e.g., MSCI 433, 455, or 470) during his/her **senior year** (specifically, the year in which he/she is planning to graduate).
- Student must simultaneously enroll in MSCI 410 to receive credit for the capstone.
- **May** include a written report, public presentation, and/or research poster.

Option 2: Marine Science Independent Honors Capstone with CSUMB Faculty Lead [MSCI 490 \(2-4 units\)](#)

- Student should discuss interest with a potential tenure-track CSUMB faculty advisor a minimum of **one year** prior to his/her intended graduation date.
- Student and advisor must develop a timeline for preparation of a capstone proposal.
- Proposal must achieve the equivalent of an A- from the CSUMB faculty advisor in order to proceed forward with the capstone project.
- In the student's **final semester** the student should enroll in MSCI 402 to receive credit for capstone.
- **Must** include a written report and a public presentation assessed by advisor and 1 other faculty.

Marine Science Capstone

Internships: Many Marine Science Majors are encouraged to and do participate in research internship experiences as a valuable addition to their education (e.g. summer internships at partnering institutions arrange through UROC or an REU). However, Marine Science Majors wishing to use a research internship experience to fulfill their capstone graduation requirement fall under and must meet all conditions of Option 2 above.

Marine Science Research Programs

csumb.edu/marinescience

Research Programs

Marine Science Research All extramurally funded research activities in the CSUMB marine science program are conducted through [Marine Science Research](#), formerly the Institute for Applied Marine Ecology (IfAME). Learn about faculty research labs, on-going research projects, vessels and equipment, and many other resources.

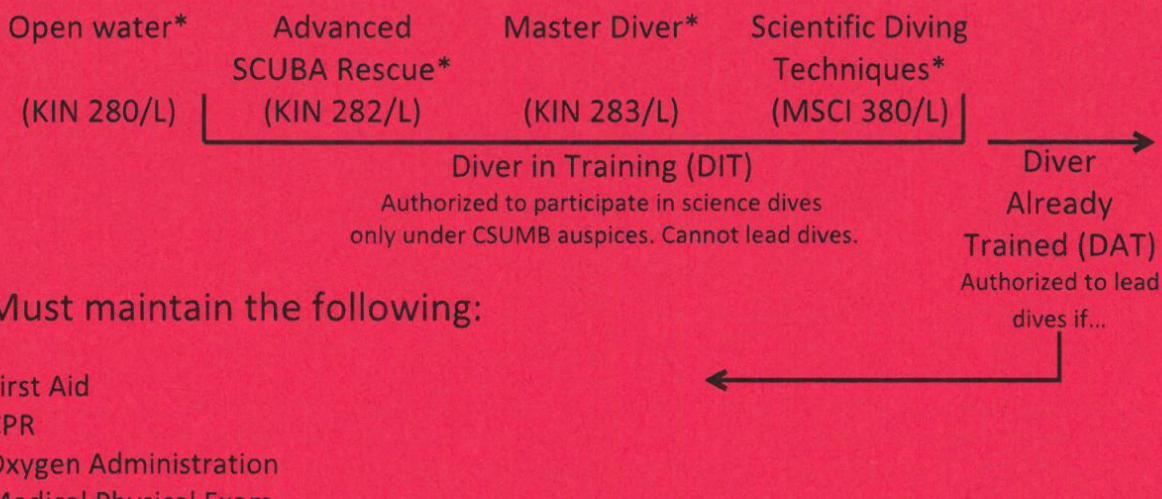
Research Diving Program All research diving activities associated with CSUMB courses, student theses, and funded projects are conducted through the [Research Diving Program](#). CSUMB is a member of the [American Academy of Underwater Sciences](#).

Research Diving Program

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Andrew Morgan (DSO) – amorgan@csumb.edu
csumb.edu/diving

How to Become a CSUMB Research Diver

Curriculum Pathway



*Prerequisite for MSCI 380

To Conduct a Research Dive

Must complete the following:

At least one week in advance:

Dive proposal – Scientific approval prior to DSO approval

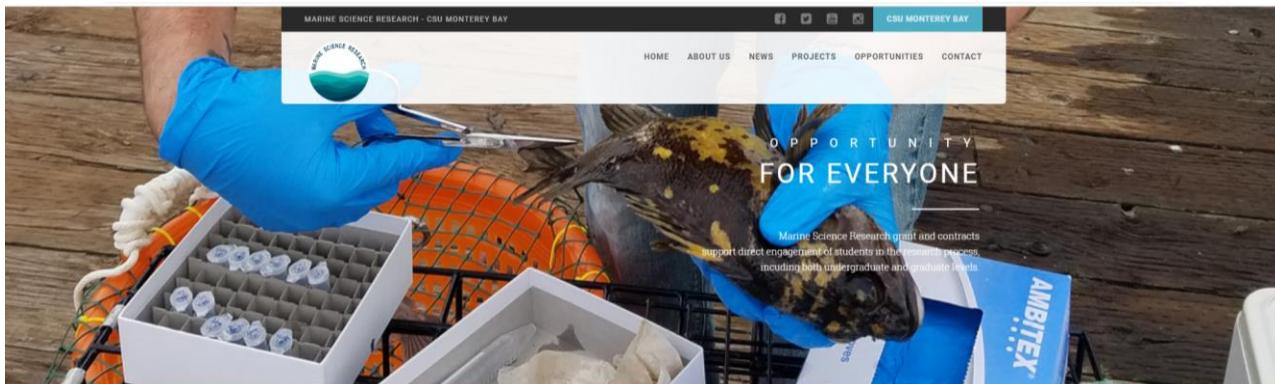
Twenty-four hours in advance:

Daily Dive Plans – detailed summaries of each day of diving

Log all dives on CSUMB's online dive log

Marine Science Faculty Research

ifame.csumb.edu/



OUR MISSION RESEARCH LABS learn about us >

Conducting relevant science to inform sound marine policy

The mission of the Marine Science Research program (formerly the Institute for Applied Marine Ecology, IfAME) is to develop clear linkages between ecological phenomena and potential and realized management regimes along the California coast, across the US, and throughout the world. Using cutting-edge technology, the goal of the program is to provide insight, to reorganize thinking, and to improve paradigms for understanding the interaction of marine ecological systems and human activities.



 **Marine Science Research Highlights**



The Department
MSCI FACULTY + SUPPORT STAFF

Starting July 1, Marine Science is officially its own department! To support the rapidly expanding interest in the sciences at CSUMB, the School of Natural Sciences (SNS) voted to subdivide into more efficient administrative departments based on majors - Marine Science, Biology, and Applied Environmental Science. Come visit us in building 49!



Nod to Marine Science Program
PEER-TO-PEER

CSUMB's Marine Science program was ranked #5 of *The 10 Best Colleges for Marine Biology* by College Magazine, a periodical written by a team of student journalists from universities nationwide.

 **Upcoming Events**

DR. CHERYL LOGAN, PROFESSOR IN DEPT OF MARINE SCIENCE @ CSUMB
MLML Seminar Series - Galapagos Corals: Canaries in a Coal Mine
📍MLML Seminar Room, 4-5 p.m.

DR. MIKE ORBACH, PROFESSOR EMERITUS OF MARINE AFFAIRS & POLICY, DUKE UNIVERSITY
CBE Speaker Series - A Brief History of the World (and Ocean) Public Trust
📍McGowen Bldg, Room 102, Middlebury Institute, Monterey. 6:00-7:30 p.m.

DR. TIM WHITE, GLOBAL FISHING WATCH
Tracking Fish and Fisheries for Ocean management
📍MLML Seminar Room, 4-5 p.m.



Marine Science Faculty

[Ifame.csumb.edu/about.html](http://fame.csumb.edu/about.html)



James Lindholm

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JAMES W. ROTE DISTINGUISHED PROFESSOR OF MARINE SCIENCE &

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Image Analysis Lab

California Undersea Imagery Archive



Corey Garza

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Marine Landscape Ecology Lab



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Coastal Ecology Lab



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Environmental Physiology Lab



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Ecosystem Electronics Lab



Sherry Palacios

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Biological Oceanography Lab



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MBNMS Research Coordinator

MARINE SCIENCE SUPPORT STAFF

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Program (CMEP) Education Director
- Sarena Himeser-Harwood
Administrative Support Coordinator
- Pat Iampietro
Marine Geospatial Technology
Officer
- Larissa Lemon
CUIA Video Archivist
- Andrew Morgan
Dive Safety Officer
- Amy Pyle
Lab Support Technician
- Paulina Salinas-Ruiz
MSCI Teaching Assistant
- Kameron Strickland
Immersion! 360/VR Data Technician

[SCIENCE DIRECTORY](#)

Marine Science Research Projects

ifame.csumb.edu/projects.html

The screenshot shows the homepage of the Marine Science Research Projects website. At the top, there's a navigation bar with links to Home, About Us, News, Project Descriptions, Opportunities, and Contact. Below the navigation is a main content area featuring a large image of a sea creature on a rock. A banner across the top says "Project's Listing". The main content area has a header "Marine Science + Policy" and a "DEPARTMENT OF MARINE SCIENCE" button. On the left, there's a section titled "Projects" with a thumbnail image of a coral reef. To the right, there are four project descriptions:

- California Underseas Imagery Archive (CUIA)** by LINDHOLM. This project involves a physical archive of underwater video imagery used for management decisions.
- Climate-driven Collapse of Mussel Beds (*Mytilus californianus*) in the Southern California Bight** by GARZA. This study looks at long-term effects of climate change on rocky intertidal ecosystems.
- Reservoir Capacity Studies** by KIVITEK. This project focuses on water resources and snowpack in the Sierra Nevada.
- Multiple Stressor Effects of Ocean Acidification & Hypoxia on Temperate Reef Fishes** by LOGAN. This research examines the impacts of climate change on fish populations.

At the bottom, there's a navigation bar with page numbers 1 through 11.

Marine Science Resources

csumb.edu/library/marine-science-research-guide

Library

Quick Links ▾ Start Your Research ▾ Get Research Help ▾ Search Our Collections ▾ About Us ▾ What's New?

[CSUMB Home](#) [Academics](#) [Library](#)

Marine Science Research Guide

› **Articles and databases**

› **Books and background reading**

› **Websites**

See also

See also the CSUMB Library's guides to [Biology](#), [Earth Sciences](#) and [Environmental Studies](#)

Your librarian

[Jeff Corrigan](#)

Senior Assistant Librarian
[Library](#)

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(831) 582-3727

[Tanimura & Antle Family Memorial Library](#)
3164

Proximity map showing the highly accessible location of CSU Monterey Bay to the phenomenal Monterey Bay Canyon and other world-class marine research institutions and coastal management resources.

