



UC DAVIS COASTAL AND MARINE SCIENCES INSTITUTE

# STRATEGIC PLAN

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2020-2025



# EXECUTIVE SUMMARY

**The coastal regions of California** are home to almost 70% of California's population and thousands of resident and migratory species of plants and animals. Our coasts are a major driver of the state's economy, generating \$787 billion in annual wages and \$2 trillion of gross domestic product. As a cultural resource, our coastal ocean also provides a vital sense of place to the state's diverse population. At the same time, changing conditions wrought by climate change, land-use modifications, global economic forces and natural resource extraction are challenging old models of sustainable coastal management.

Meeting these challenges with knowledge requires cross-disciplinary collaboration across the full spectrum of the natural and social sciences. To design robust and equitable solutions, the scientific community must build alliances with the decision-makers and stakeholders who are vested in the sustainable use of our coastal and ocean resources. The UC Davis Coastal and Marine Sciences Institute (CMSI) is uniquely positioned to facilitate the research, education and engagement we need to advance coastal sustainability. Our faculty, staff and students represent an unmatched breadth of biological, physical, social and economic expertise, built on a foundation of service as a Public Research University. We have built CMSI on the holistic vision of the university as a source of knowledge through research, future leadership through education and community-building through engagement. In our first seven years, we have unified the marine and coastal science and policy community across UC Davis and advanced our reputation as invaluable partners in coastal and ocean decision-making.

In the next five years, CMSI will invest in people, programming and fundraising that advance our mission through:

- 1 Research**  
Respond nimbly to emerging research needs in the sustainability of coastal and ocean systems by facilitating collaboration across the disciplinary breadth of CMSI and building partnerships with other institutions.
- 2 Education**  
Prepare the next generation of leaders, representing the diversity of identities invested in sustainable marine and coastal science and policy, to meet future challenges with knowledge, innovation and inclusion.
- 3 Engagement**  
Advance coastal and ocean science literacy while engaging in reciprocal learning that informs our science.
- 4 Cross-Institute Synergies**  
Build our internal community and raise our external profile to broaden the reach of our research, education and engagement initiatives to new people, communities and geographies.

We look forward to collaborating with the broader marine and coastal sciences community of students, scientists, educators, stakeholders, policymakers and citizens to accomplish these goals and make strides toward our shared vision of a sustainable future for California's coasts and ocean. Your support, knowledge, ideas and honest advice are critical to our success in implementing this plan.



A postdoctoral candidate measures sturgeon.  
Photo by Gregory Urquiaga



Anne Todgham (Associate Professor in Animal Science), Andrew Naslund (MSC graduate and research technician), Milica Mandic (Postdoctoral scholar) and Mandy Frazier (PhD student) with their trusty Piston Bully out on the sea ice of McMurdo Sound, Antarctica.



NRT students and COAST Scholars meeting with Yurok Tribal member and educational director Jim McQuillen during their field trip in Northern California. Photo by Sustainable Oceans NRT

# BUILDING A FOUNDATION FOR THE FUTURE

In 2013, guided by nearly 100 faculty representing the College of Agricultural and Environmental Sciences, College of Biological Sciences, College of Engineering, College of Letters and Science, the Schools of Law and Veterinary Medicine, the Graduate School of Management and Bodega Marine Laboratory (BML), UC Davis established the Coastal and Marine Sciences Institute (CMSI). From the outset, CMSI's core mission was to create a dynamic, inclusive and unified community of discovery, education and service embodying all of the core values of Public Research Universities. CMSI is unique among coastal and marine science institutions for its integration across all natural and social sciences. We built CMSI on the 50-year reputation of Bodega Marine Laboratory as a pre-eminent coastal research and collaboration hub, and – just as importantly – as a hands-on classroom that has enriched the lives and education of countless students and lifelong learners. On the main campus, with the transformation of teaching labs into a headquarters with flexible office spaces, student workstations and videoconferencing facilities, there was finally home for the marine sciences. We have also invested in marketing, communications and events capacity to raise our profile internally at UC Davis and externally. These physical, human resource and programmatic investments unite students, faculty and staff from across our campus, Bodega Marine Laboratory and beyond to collaborate, discover, educate and extend the boundaries of our dynamic community.



A summer session class at Bodega Marine Laboratory. Photo by Karin Higgins



Seth Stramwasser, an evolution and ecology major, searches the tide pool during a summer class for undergraduates at Bodega Marine Lab at Pinnacle Gulch Tide Pools in 2017. Photo by Gregory Urquiaga



Students enter Storer Hall, the on-campus home of the UC Davis Coastal and Marine Sciences Institute. Photo by Gregory Urquiaga

In its first seven years, CMSI has established itself as a regional, national and global leader in engaging diverse stakeholders and advancing our understanding of the physical, biological, economic and social challenges of sustaining and restoring our coastal oceans. Both on our own, and in collaboration with organizations like the Delta Stewardship Council, we have coordinated and hosted numerous in-person and virtual events attended by thousands of colleagues, government leaders and partners across the globe. Our faculty serve on many prominent advisory panels, from the California Ocean Protection Council's Science Advisory Team to the National Academy of Sciences Committee on Interventions to Increase the Resilience of Coral Reefs. Sponsored by UC Davis Global Affairs, we extended our reach globally by formally partnering with Universidad Católica (Santiago, Chile) to intellectually link our institutions, share knowledge about our similar coastal systems and provide students with international learning opportunities.

**At the same time,** we are training the next generation of scientists and citizens to think critically and work collaboratively to provide stakeholders and decision-makers with the tools they need to change a world that increasingly depends on resources from our coastal oceans. Our pathbreaking undergraduate major in Marine and Coastal Sciences has grown to nearly 100 students since 2014, with enrollment continuing to flourish. In 2017, CMSI received a \$2.99 million graduate student training grant focused on ocean sustainability from the National Science Foundation. This grant supports a novel model of training for UC Davis and California State University students that engages with stakeholders and policymakers to guide the development and implementation of use-inspired research.

As a growing human population and climate change tax the natural resources and ecosystems that are the foundations of our cultures, societies, and economies, there is increasing urgency to understand, restore and sustainably manage our vital coastal systems. To successfully meet this challenge, academic institutes must respond nimbly to rapidly emerging scientific, economic and social challenges in coastal systems. This requires having an ear to the ground and a comprehensive network of partners. As a Public Research University with a culture of collaboration and public service, we are uniquely poised to leverage our breadth of expertise for the good of a society that increasingly depends on our coasts and oceans. Our cross-institute commitment to service through supporting synergies between research, education and engagement not only serves us in addressing today's coastal challenges, but also builds a legacy of creative thinkers for the future.



Dr. Jackson Gross, a Cooperative Extension Specialist in Aquaculture, and Alexis Juarez, an undergraduate in the Evolution, Ecology, and Biodiversity major, use ultrasound technology to examine the gonad and heart of a red abalone. Photo by Kristin Aquilino



A colony of the coral *Acropora hyacinthus* on a reef in the Cook Islands. Photo by Rachael Bay

This 5-year strategic plan builds on the progress we have made since we founded CMSI seven years ago and represents our vision and aspirations for extending the impacts of our research, educational and engagement programs in coastal marine science and policy to an ever broader community. It also aligns with and amplifies the five goals that guide [UC Davis' strategic plan](#), "To Boldly Go." Like that plan, ours reflects a holistic view of the power that a Public Research University has to benefit society through teaching and research, and the unique culture that UC Davis has to foster synergistic partnerships that serve all of our stakeholders and affiliates. We also recognize the importance of preparing our students for a changing world, culturally, socially and economically. Our investments in experiential learning, professional development for students and faculty and mentorship will help students reap the fullest benefit from their educational experience and leave UC Davis ready to pursue their goals and contribute to their communities. Lastly, we will also boldly go beyond the expectations for diversity, equity and inclusion and build a culture that lifts up marginalized perspectives and weaves them into how we understand and interpret the world.

We begin with a brief overview of one of our most significant assets, the Bodega Marine Laboratory. We then summarize the mission, vision and the four major goals for CMSI over the next five years. Finally, we set out the key objectives and strategies that represent the pathways for achieving these goals. As we embark on this ambitious plan, we look forward to the continued guidance and support from our community. You are critical to our success.

# OUR FLAGSHIP: BODEGA MARINE LABORATORY

**The Bodega Marine Laboratory (BML)**, established by the Regents in 1966, anchors the UC Davis Coastal and Marine Sciences Institute (CMSI) and represents a tangible link between the inland campus and the coast. BML is strategically situated at the epicenter of one of the four most biologically productive and economically valuable coastal systems in the world: strong winds bring cold water and abundant nutrients up from the deep ocean to nourish a diverse marine ecosystem, and to create a climate that supports the most valuable agricultural system on the planet. That marine productivity also fuels fisheries that provide diverse livelihoods for coastal communities across the state. The laboratory itself is situated on the Bodega Marine Reserve, the most heavily utilized of the UC Natural Reserve System's 41 holdings. At present, BML is known internationally for its research on climate change, ocean acidification, restoration of endangered species, marine protected areas, population connectivity, coastal oceanography and environmental toxins, as well as its stature in science advising and communication with policymakers.

BML has historically had a substantial presence of resident faculty from multiple colleges, and associated postdoctoral fellows, graduate students and support staff. There are 100 residents on a year-round basis, and up to 150 residents with additional visiting researchers and undergraduates during summer). The model of resident faculty at BML has created a world-class research, educational and outreach facility firmly grounded in this community. A wave of faculty retirements, administrative reassignments and a tragic accident, however, have left BML underpopulated and those effects have threatened the vibrancy of the institution. Restoration of BML's leadership role in coastal and marine science and future growth requires decisive, collaborative action across academic units over the next five years to re-build BML's critical mass of resident faculty, graduate students and postdoctoral fellows. To this end, the administration's support for hiring three new faculty members at BML in 2020-2021 has been instrumental.



Garrot McCune, an environmental toxicology major, & Dr. Ellie Fairbairn during a summer class. Photo by Gregory Urquiaga



A group of UC Davis students examine a large sea star during their summer session class. Photo by Karin Higgins



The Bodega Marine Laboratory was founded in 1960 by UC Berkeley and became part of UC Davis in 1983. The lab is situated on the Bodega Marine Reserve, which is one of the 41 natural reserves in the UC system. Photo by Jessica Ramos

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My experiences at BML (both the spring student experience and staying on for a summer to help with Randall's eelgrass studies) were my most fond memories of college and had a direct impact on me pursuing a career in academics and research. The collaborative almost family-like community at BML and the hands-on training were integral to me understanding what a “good” research environment looks like and helped me to develop an inquisitiveness about our world that I don't think I had prior to BML. I recently became assistant professor of medicine in the division of pulmonary and critical care at Boston University and Boston Medical Center. Taking care of our sickest patients in the ICU during this pandemic and seeing the disruption to medical student training due to COVID-19 has made me reflect and realize that I can be doing more to help others, especially students during this difficult time. Going forward, I plan to expand my contributions to BML and CMSI as I think that the experience and mission of research, training, and family at BML is unique and incredibly valuable to the community and to UC Davis.

NICHOLAS BOSCH  
UC DAVIS ALUMNUS AND DONOR

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As we welcome new student and faculty residents and develop our research, education and outreach capacity on the coast to address rapidly growing challenges, we must also plan for investments in modernizing and expanding research and culture facilities, instrumentation for monitoring coastal environments, computational infrastructure and conference and housing facilities. Supporting these updates and expansions will also require developing additional human resources to support facilities, aquaculture and husbandry, information technology, library and data acquisition and management and hospitality. As we move forward, we envision a thriving research and educational hub that attracts scientists, educates future global leaders and engages and serves stakeholders and citizens from the community, the region and around the globe.

# MISSION, VISION AND GOALS

## OUR MISSION

To serve our society by:

- 1 Advancing collaborative, use-inspired cross-disciplinary research on the most pressing challenges in the sustainability of coastal ocean systems;
- 2 Supporting science-informed management of coastal and ocean resources through proactive, two-way dialogue with decision-makers;
- 3 Training diverse and creative innovators in coastal and marine science and policy who are prepared to meet the evolving environmental, economic and social challenges and opportunities of our time.

## OUR VISION

We envision a sustainable future for California's coastal and ocean systems where the UC Davis Coastal and Marine Sciences Institute plays a key role through scientific discovery, education, engagement and collaboration for the public good.



A student walks past the moon jellyfish tank in the Science Lab Building in 2015 at UC Davis. The jellyfish tank is an educational display. Photo by Gregory Urquiaga

## 2020-2025 STRATEGIC PLAN GOALS:

- 1 **Research**  
Respond nimbly to emerging research needs in the sustainability of coastal and ocean systems by facilitating collaboration across the disciplinary breadth of CMSI and building partnerships with other institutions.
- 2 **Education**  
Prepare the next generation of leaders, representing the diversity of identities invested in sustainable marine and coastal science and policy, to meet future challenges with knowledge, innovation and inclusion.
- 3 **Engagement**  
Advance coastal and ocean science literacy while engaging in reciprocal learning that informs our science.
- 4 **Cross-Institute Synergies**  
Build our internal community and raise our external profile to broaden the reach of our research, education and engagement initiatives to new people, communities and geographies.



Vivian Sieu, environmental science and management major, holds the class tide pool finds during a summer class for undergrads at Bodega Marine Lab at Pinnacle Gulch Tide Pools in 2017. Photo by Gregory Urquiaga

# RESEARCH

## As part of a major Public Research University,

CMSI's research programs aim to support evidence-based decision-making related to sustainable ocean food production, climate-change resilience and adaptation and biodiversity conservation, among other important issues. CMSI stands apart from peer institutions in our disciplinary breadth, stretching from the Colleges of Agricultural and Environmental Sciences, Biological Sciences, Letters and Science and Engineering to the Schools of Law, Management, Education and Veterinary Medicine, and reflecting our commitment to cross-disciplinary discovery.

**Our faculty and staff are globally recognized experts in marine ecology and evolution, natural resource economics, law, coastal policy, ecosystems-based natural resource management, oceanography, epidemiology, pathology, toxicology, physiology and genetics.**

In 2016, CMSI successfully competed for funding through UC Davis' Hiring Investment Program (HIP), which supports additional faculty hiring that transcends traditional boundaries between colleges, schools and/or departments. With HIP support, we launched the Sustainable Marine Resources Initiative to strategically hire three faculty members who could advance our expertise in sustainable food from the sea. Going forward, CMSI will continue to facilitate hiring to support our uniquely diverse, cross-disciplinary marine and coastal science and policy research community.

The potential for innovative cross-disciplinary research across the eight major academic units affiliated with CMSI is boundless. We need to continue building on and expanding these strengths to solve the increasingly complex challenges of global change and its impacts on the sustainability of both natural and social components of our coastal systems. To that end, CMSI will continue to play a critical role by convening our UC Davis community in creative ways and by facilitating collaborations with partners, stakeholders and policymakers. Strategic investments by UC Davis in marine science faculty both on the main campus and BML, and in infrastructure that supports state-of-the-art research and training programs in coastal ocean change, would ensure that CMSI continues on its path toward becoming the most comprehensive marine and coastal sciences institute on the west coast.



Andrew Naslund (MCS graduate) conducting temperature preference trials on juvenile Antarctic fishes at McMurdo Station, Antarctica. Photo by: Kira Morris

## Powerful Insights into Pathogen Movement from Cross-Disciplinary Collaboration

Water flows downhill — to the ocean — and as it does so it washes many pollutants into the sea, including pathogens. With funding from the National Science Foundation, CMSI scientists combined insights from hydrology, ecology and oceanography with epidemiology, pathology and otter biology to understand the pathways that transported the oocysts of *Toxoplasma gondii* from wild and domestic cats in coastal watersheds to estuaries, kelp forests and coastal waters — and how this explained the spatial patterns of infection in the threatened southern sea otter population off California. Major findings include the increased disease risk due to loss of coastal wetlands that can filter out pathogens from land runoff, and the enhanced risk exposure of otters that primarily feed on turban snails that live on kelp in nearshore waters.



Dr. Karen Shapiro, Associate Professor from the UC Davis School of Veterinary Medicine, collecting samples in Monterey Bay.

# Highlights of Use-Inspired Research

UC Davis plays an important role in advancing use-inspired research in California across many important policy and management arenas. Our research community has a shared appreciation that the grand challenges of coastal sustainability are driven by human activities, and therefore understanding and collaborating with human institutions is critical to designing solutions.



Drake's Estero, a protected area in the MPA network. Photo by NPS

Partnering with the California Ocean Protection Council (OPC) and California Department of Fish and Wildlife, our faculty have provided instrumental research and expertise that informed the design, management and monitoring of California's statewide network of **Marine Protected Areas (MPAs)**. The science-driven design and management process of California's MPA network is a global example.



Researchers from the Bodega Ocean Acidification Research Group going out into the field. Photo by Aaron Ninokawa

With support from OPC, the National Oceanic and Atmospheric Administration, California Sea Grant, the National Science Foundation and the Lenfest Ocean Program, among others, members of the **Bodega Ocean Acidification Research Group** are conducting research projects and facilitating stakeholder dialogues that inform how natural resource managers can mitigate the impacts of changing ocean chemistry on both natural and human systems.

**Our vision is a UC Davis coastal and marine science research community that anticipates new challenges and accelerates the pace of discovery through novel collaborations and shared learning with colleagues, partners and stakeholders.**

## TO ACHIEVE THIS, WE WILL:

- 1 Become a powerhouse for use-inspired research** by convening CMSI affiliates with policymakers, resource managers and stakeholders around pressing issues and leveraging our marketing and communications capacity to reach new science stakeholders.
- 2 Respond nimbly to emerging marine science and policy research needs** by convening CMSI's diverse affiliates to (1) evaluate new avenues of cross-disciplinary research collaboration, (2) facilitating the successful pursuit of multi-PI grants and (3) hosting diverse visiting scholars that fill critical gaps in perspectives, expertise and mentorship.
- 3 Expand capacity to become a leader in coastal and ocean change research and outreach** by (1) establishing partnerships that leverage our in-house expertise, (2) hiring faculty that complement existing expertise and expand cross-disciplinary research opportunities and (3) planning and fundraising for major facilities expansion and renovation at the Bodega Marine Laboratory.
- 4 Stimulate innovation and creativity in graduate student research** by providing seed grants to student teams for collaborative, cross-disciplinary projects.

# EDUCATION

## Our ability to deliver innovative education

to a diverse community of students depends on our ability to evolve with and adapt to changes in our student communities and the field of marine and coastal science and policy. Technology advances, student demographics shift, job opportunities for students change and our knowledge about best practices in education continues to grow. We have made substantial progress toward building our undergraduate and graduate educational programs and reputation. Nevertheless, continued success requires investments in experiential learning and cross-disciplinary education that define our excellence. Undergraduate research experiences, particularly deeply immersive experiences like those offered through the Bodega Marine Laboratory summer sessions, are strong predictors of graduation and post-graduate success in STEM fields<sup>1</sup>. UC Davis must strategically hire new faculty at BML and on the main campus to support additional coursework and mentoring for our growing degree programs, and CMSI must synergistically bolster this effort by coordinating the broader faculty community and investing in professional development for students.

Currently, many undergraduate majors benefit from coastal and marine science classes and extracurricular activities on campus and at BML (including but not limited to Biological Sciences; Wildlife, Fish and Conservation Biology; Evolution, Ecology and Biodiversity; Animal Biology; Animal Science; Environmental Science and Management). We launched the Marine and Coastal Science (MCS) major in 2014 for students interested in dedicated study of marine and coastal science. The rapidly growing MCS major builds on a long history of life-changing, hands-on coursework and research experiences offered through the Bodega Marine Laboratory and Bodega Marine Reserve. As of 2019, the identities of the MCS majors reflect UC Davis' diverse undergraduate student population and is a testament to the dedication of the MCS Faculty Advisors and the Staff Major Advisor, combined with communication, event and mentorship support from CMSI. Combined, we are building a community within the major that ensures students from all backgrounds feel welcome and can succeed.

<sup>1</sup> National Academies of Sciences, Engineering, and Medicine 2019. Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25257>

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I came into this university as an undeclared, first-generation student with little idea of what my path was going to look like and what resources were available to me. When I stumbled into the Marine and Coastal Science major at the wrap of my freshman year, a fire was lit in my belly that kindled my passion for marine science, climate change, and the translation of science into policy (or lack thereof). Not only was I readily welcomed by a supportive community who further inspired me, but the interdisciplinary nature of the major kept me on my toes and challenged me to think beyond my focus. The meaningful connections I formed with my professors in combination with my involvement with Bodega Marine Laboratory enriched my undergraduate experience and rendered it truly life-changing.

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ANYELA GONZALEZ CASILLAS,  
MARINE AND COASTAL SCIENCE MAJOR

We are also evolving to meet the needs of graduate students with the anticipated launch of our Graduate Group in Marine Science (GGMS), a focused degree program to complement the 10+ biological, physical and socioeconomic graduate programs that currently matriculate marine and coastal science students. We are awaiting final approval of this program. According to the National Center for Education Statistics, total postbaccalaureate enrollment increased by 36% between 2000 and 2010 (from 2.2 million to 2.9 million students), and is expected to increase an additional 3% by 2028. At the same time, many of these graduate students are branching out into diverse careers in the academic, government, non-profit and private sectors.



BML Summer Session students gather for a photo with Professor Eric Sanford after surveying the biodiversity of tide pools as part of their class. Photo by Gregory Urquiaga

Through our Sustainable Oceans National Science Foundation Research Traineeship (NRT) program, we have been honing a graduate training model for cross-disciplinary, use-inspired research of marine systems through a variety of experiential learning activities that expose students to different stakeholders and careers. Using lessons from our Sustainable Oceans NRT and offering unique professional development opportunities, we will create new paradigms in graduate education that give our students the skills they will need to thrive along these diverse career paths. We will also learn from the meaningful progress our affiliates have made in diversifying our graduate student body by participating in initiatives such as the [Evolution and Ecology Graduate Admissions Pathways program](#) and holistic application review.

**Our vision is an educational community that supports a diverse student body, builds bonds between future colleagues and seeds multiple sectors of the workforce with scientists and decision-makers who bring diverse perspectives and strong collaborative leadership skills.**

## TO ACHIEVE THIS, WE WILL:

- 1 Diversify the undergraduate and graduate student body** by partnering with campus organizations supporting undergraduate students from underrepresented groups and investing in existing partnerships with minority-serving institutions to reach prospective graduate students.
- 2 Launch our Ph.D. program in marine and coastal science and policy and recruit high-performing, diverse student cohorts** by (1) expediting the approval process, (2) piloting a holistic application process through the NRT, (3) leveraging CMSI's communications and marketing capacity to cast a wide net to prospective students and (4) fundraising to preserve and enhance successful elements of the NRT.
- 3 Increase undergraduate participation in hands-on research and internships and actively engage a broader suite of CMSI faculty** by (1) proactively encouraging CMSI-affiliated faculty, students and staff to post internships and career-relevant experiences on a marine science-focused database, (2) marketing new opportunities to students through an undergraduate-focused newsletter, (3) providing professional development training and (4) fundraising to make these opportunities accessible to all students.
- 4 Prepare students for diverse career paths** by (1) providing professional development opportunities that extend academic training with the tools and skills needed for workplace success, (2) providing networking opportunities with a diverse array of coastal and marine science professionals and (3) connecting students to internship and career experience opportunities.
- 5 Retain and support students and create a vibrant, interconnected community** by empowering the Marine Science Club and Graduate Student Affairs Committee to develop social and professional programming that is responsive to student needs and connecting students to mentors.
- 6 Advance excellence in teaching and mentorship** by providing seed grants to faculty and a graduate student or postdoctoral mentee to pilot novel instruction and mentorship techniques and programs, and to host workshops that extend the resources available on campus.

# ENGAGEMENT

**The University of California** at Davis was established to engage in teaching, research and service for the public good. Evidence-based policies and decisions, grounded in rigorous research and community engagement, have clear societal benefits. For example, confronting the disproportionate impact that climate change has on communities of color and low-income communities will require cross-disciplinary research and innovative collaboration not just between scientists, but among scientists, policymakers and community members. We must work toward the timely exchange of knowledge, policy priorities and economic and cultural needs between CMSI affiliates and ocean and coastal decision-makers and stakeholders. This is a long-term investment in building relationships, trust and community. We can accomplish this through targeted investments in outreach to key constituencies and strategic partnerships with stakeholders, focusing on the state of California, the San Francisco Bay-Delta region and Sonoma County. Our successful and ongoing joint symposia series with the Delta Stewardship Council and Delta Science Program, which creates vibrant intellectual exchanges among faculty, students, private sector scientists and state managers, is a blueprint for success.

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It has been a privilege to help support the CMSI Bodega Marine Laboratory as a donor and a docent. With skepticism of science on the rise, helping a broader audience connect to science and scientists has never been more important. BML's outreach and internship programs offer K-12 students, junior college students, and lifelong learners a once in a lifetime opportunity to meet and work with some of the leading faculty and researchers in coastal and marine science. These interactions change lives and create champions for coastal science and sustainability.

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ROGER PATTON  
BML DONOR AND DOCENT

Another key component of engagement is K-“Grey” education. These efforts to exchange knowledge more broadly seed the scientists, donors and sustainability champions of tomorrow. Success in diversifying CMSI's student affiliates may start with outreach to schools in underserved communities. Donors who make a founding investment in a new research initiative may have their interest piqued on a public tour of BML. And an entrepreneur who wants to advance the sustainability of their aquaculture business may learn where to start at a public symposium. The foundation of successful engagement is the training of our affiliates to be effective and respectful communicators and collaborators with diverse audiences. UC Davis offers general communications workshops through Strategic Communications, and we can build on those workshops to address more specialized topics/audiences and facilitate opportunities for our affiliates to practice their skills.



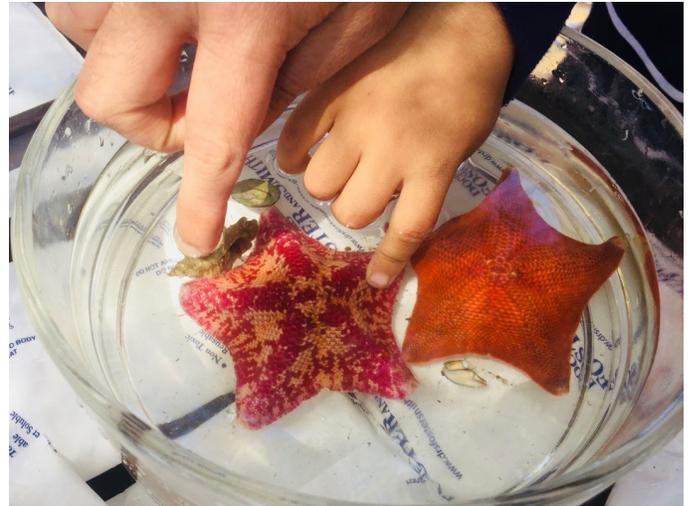
Liz Whiteman, Executive Director of the California Ocean Science Trust (OST), asks a question during the Academic Roadshow stop at UC Davis. CMSI, OST, the California Ocean Protection Council and California Sea Grant co-designed the event to strengthen partnerships between UC Davis researchers and the State of California.



From left: Rick Grosberg, Director of the Coastal and Marine Sciences Institute, Terry Sawyer, co-founder and co-owner of Hog Island Oyster Company, Randall Graham, owner and founder of Bonny Doon Vineyards, author, and innovator, Sue Conley, co-founder of Bette's Oceanview Diner, co-author of Cowgirl Creamery Cooks, and now co-founder and co-owner of Cowgirl Creamery, and Chef Patrick Mulvaney, head chef and co-owner of Mulvaney's B&L at the Pearls, Swine and Wine dinner, hosted by CMSI to discuss sustainable food production and coastal systems. Photo by David Slipher



NRT students and COAST Scholars tour of Blue Creek, the estuary, and the Klamath River with Yurok Tribal members. Photo by Sustainable Oceans NRT



Once a year, BML students and staff bring the ocean to Davis for Picnic Day! Chilled, circulating seawater keeps our marine invertebrates and algae happy for the day, and our touch tanks are a thrill for kids and adults. Bat stars (*Patiria miniata*) come in a variety of colors, with a rough exterior that feels a lot like sandpaper. Photo by Elizabeth Wong

**For this strategic plan, we define engagement as those activities that reach beyond the UC Davis and higher education communities. Our vision is for CMSI to develop an outstanding reputation for public service through relevant, professional and responsive engagement activities that adhere to our values of diversity, equity and inclusion.**

## TO ACHIEVE THIS, WE WILL:

1

**Grow UC Davis and CMSI's reputation as a leader in coastal and marine sciences and as a community-serving institution** by leveraging our marketing, communications and event capacity with broader campus resources (UC Davis Strategic Communications, UC Davis Government and Community Relations, UC Davis Office of Public Scholarship and Engagement) to promote scientific advances being made by CMSI-affiliated students, faculty and staff and by providing travel and communications grants to support engagement activities.

2

**Translate academic research to the public sphere** by facilitating reciprocal learning through briefings, symposia and workshops that connect our research community to partners, stakeholders, community members, alumni and decision-makers.

3

**Develop innovative engagement strategies** by providing seed grants for CMSI affiliates to pilot initiatives that reach new audiences and/or improve the efficacy of information delivery and reciprocal learning.

4

**Communicate effectively with the public** by hiring a full-time outreach and engagement manager at BML and by offering/promoting professional development opportunities that train students, faculty and staff in science communication best practices.

# CROSS-INSTITUTE SYNERGIES

**Our investments** in research, education and engagement mutually reinforce each other and advance our goal of building an integrated, diverse and vital CMSI. CMSI's progress depends on our community of faculty, students, and staff unifying around a vision for the Institute and a plan for achieving it. In our first seven years, CMSI has successfully convened faculty, student, and staff affiliates across all of UC Davis' major academic units in collaborating on research, education and engagement initiatives. We have an important role to play in driving progress on issues in marine science and policy on campus that cannot be addressed by a single college or department. For example, diversifying our student body and faculty while creating a more inclusive and equitable environment, requires multi-unit coordination and collaboration.

CMSI is also a critical leader in philanthropic fundraising for ambitious coastal and marine science and policy initiatives and student support that falls outside of standard university funding mechanisms. Under our previous strategic plan, we envisioned a new facility, the Bodega Learning, Conference and Housing Center, that would greatly expand our capacity on the coast of California for immersive educational experiences, public outreach, and visiting researcher support. The demand for such a facility continues to mount in the face of growing recognition of both the value of coastal systems to our society and threats to the sustainability of these systems. With generous seed funding from the Pitzer Foundation, we can now embark on more rigorous visioning of the facility, which will be a focal area for fundraising efforts for the duration of this plan and beyond.



The Bodega Learning, Conference and Housing Center would greatly expand the public engagement space that is currently limited to the BML Great Hall.  
Photo by Fred Greaves

**Our vision is an institute that builds a comprehensive and synergistic portfolio of research initiatives, educational programs and engagement opportunities to support a diverse, cross-disciplinary and collaborative community of faculty, graduate students, undergraduates, postdoctoral scholars and staff.**

## TO ACHIEVE THIS, WE WILL:

- 1 Create a strong coastal and marine sciences identity across 8 academic units within UC Davis** by investing in novel social and professional opportunities for CMSI affiliates to interact and by internally leveraging CMSI's marketing capacity to communicate the value and impact of UC Davis' investments in coastal and marine science.
- 2 Establish a process that promotes and coordinates programmatic faculty hires in marine science and policy that addresses teaching needs, deepens and expands research expertise, and enhances diversity, equity and inclusion** by leveraging CMSI's Leadership Advisory Council to collaborate across academic and research units.
- 3 Expand and diversify funding sources to support this plan's objectives** by leveraging our enhanced marketing and communications capacity to reach new individual donors and securing grants from philanthropic organizations and corporations.
- 4 Create a more diverse, equitable, inclusive and just marine science and policy community** by funding and facilitating novel learning opportunities that center knowledge and perspectives from marginalized voices.
- 5 Enrich CMSI's programs with international perspectives and extend our impact beyond the US** by partnering with UC Davis Global Affairs to facilitate educational and informational exchange and partnerships with colleagues, partners and stakeholders along the Pacific Rim and across the world.
- 6 Raise CMSI's profile with stakeholders, partners and donors and accelerate the advancement of science-based decision-making** by integrating research, education and engagement on relevant themes in coastal and marine science.
- 7 Execute and update this strategic plan** by forming an external advisory board that can help us fundraise, connect to stakeholders and maximize our impact on research, education and engagement.
- 8 Expand our capacity for immersive educational experiences, community engagement and hosting visiting researchers** by launching Phase II of the Bodega Learning, Conference and Housing Center.

# MEASURING PROGRESS AND MOVING FORWARD

**By mandate, and from its very inception,** CMSI was charged with establishing a program that was unlike any other at UC Davis. With its comprehensive research, educational and engagement missions, and its diverse and broadly distributed network of human, physical and revenue-generating infrastructure to support these activities, CMSI's accomplishments, impacts and assets do not easily fall into the standard model of centers and institutes at UC Davis. Successful grants and fundraising driven by our research, education and engagement initiatives will be one benchmark of our progress. But so, too, will be less easily monetized outcomes, notably the successes of our alumni in their careers and the impacts of our research on our stakeholders, environmental policy and society as a whole.

Our challenge as an Institute is to capture these diverse outcomes and use them to build a team of champions for our work, enhancing both UC Davis' reputation as a powerhouse for marine and coastal science, as well as increasing the capital we generate. We will weigh our success in executing this plan based on multiple metrics, including, but not limited to (1) impacts of our educational programs; (2) engagement of a broad audience of stakeholders in our activities; (3) establishment of new partnerships with stakeholders, policymakers, private and public entities and the community that diversify and enhance the impacts of our activities; and (4) research and funding outcomes. For each of our goals, we have identified quantitative and qualitative data we will collect to assess the multi-dimensional impacts of our work. In mid-2024, we will initiate an external review of our progress toward achieving this plan.



The field trip is a crucial element of the NRT trainee program - building relationships and forming cohesion across disciplines and participants. Photo by Sustainable Oceans NRT



A UC Davis undergraduate student gives a shout to SCUBA diving with art on her mortarboard during commencement. Photo by Gregory Urquiaga

Front Cover Image by David Slipher



**UC DAVIS**  
Coastal and Marine Sciences Institute  
Bodega Marine Laboratory