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## Profile & General Information

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<td>Year Established: 2013</td>
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**Director:** Richard Grosberg  
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530 752-1114  

**Executive Director:** Shauna Oh (effective January 2015)  

**Associate Directors:**  
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**Space:** CMSI Offices & Conference Room, 1347 Storer Hall  
900 ASF  

**Significant Equipment/Instrumentation:** n/a
Executive Summary

Building on its reputation for solutions-driven, outcome-oriented research in integrative environmental science, UC Davis inaugurated the Coastal and Marine Sciences Institute (CMSI) in July 2013, to become a global leader in coastal and marine sciences and policy. CMSI was established to 1) coordinate and promote the diverse research activities of the marine science and policy community at UC Davis, (2) educate future scientists and leaders who will make coastal sustainability a priority and reality; and (3) foster innovative partnerships for discovering, understanding, and communicating science for effective stewardship of ocean and coastal environments in California and beyond. More than any other academic institution in the world, UC Davis has the intellectual history, resources, and strategic commitment that could help CMSI develop and implement science-based outcomes for the future health of the coastal oceans.

Our accomplishments for our first year (2013-2014) reflect an exciting time of establishment, development and partnership-building in support of the four key proposed CMSI focus areas: Marine Sciences Education, Novel Research Enterprises, Center for Coastal Ocean Issues, and the Marine Sciences Learning Center. CMSI laid the foundation for establishing education programs to train the 21st century workforce; catalyzing emerging and novel research collaborations across departments, colleges, and schools; and building relationships with regional, state, federal, non-profit and private organizations. In less than a year, CMSI has made remarkable progress with the formal launch of our new undergraduate major in Marine and Coastal Science, and the submission of a proposal for a comprehensive new Ph.D. program in marine science and policy. CMSI submitted proposals to advance integrative activities that coalesce faculty expertise around unique critical research and education topics. The Center for Coastal Ocean Issues was launched as part of CMSI to create a collaborative forum for addressing critical coastal environmental issues with engagement from resource management agencies, ocean industries, and the public. In collaboration with the Sonoma County Regional Parks, the National Oceanic and Atmospheric Administration, the Sonoma County Board of Supervisors, the Exploratorium and other partners, CMSI also began developing public education outreach programs aimed at improving scientific literacy on coastal issues.

Achievements and Highlights

- Founding Director appointed (July 2013)
- CMSI Executive Director selected (October 2014)
- Associate Directors formally appointed: Academic Programs, Research Enterprises, Center for Coastal Ocean Issues
- CMSI website up and running: cmsi.ucdavis.edu
- Physical space allocated for office and conference and remodel Phase 1 nearly completed
- Inaugural CMSI Faculty meeting held in December 2013 (60 faculty in attendance)
- Organized and hosted a public lecture series and workshops on science communication and society by Joe Palca
- Marine & Coastal Sciences undergraduate major formally approved
- Marine Science Ph.D. program proposal under final internal review by CMSI faculty
• HIP Proposal submitted: Coastal Ocean Sustainability Initiative requesting 6 new positions in coastal marine science and policy
• CMSI-UC Davis-Exploratorium “alumni gala” on 19 November 2014
• Major gifts amounting to $60K [one from The Hoefer Family Foundation ($50K over 2 years); one from The Swerdlow Family Foundation ($10K over 2 years)]
• Briefings held with local government officials, including US Congressional Representatives Garamendi & Huffman, & California Assemblyman Levine
• $1.9 million NSF collaborative Coastal SEES proposal on Tomales Bay submitted (January 2014) by Ted Grosholz et al. to NSF
• ISOpods K-12 program proposal completed in collaboration with Office of Development
• Co-hosted Congressman Jared Huffman press conference at Bodega Marine Laboratory on ocean acidification
• Featured on KQED’s Forum show on climate change, ocean acidification and coastal sustainability/sustainable mariculture
• Developed partnerships and initiated planning discussions to establish the Bodega Bay Coastal Learning and Outreach Center with primary partners NOAA, Sonoma County Regional Parks, and Sonoma County Board of Supervisors ($50K planning fund established)
• Video walls and touchscreens installed at Bodega Marine Lab (and ready for installation in Storer Hall) – supported by gifts from the Hoefer Family Foundation
• Inaugural seminar series established beginning Spring 2015
• Inaugural workshop series planned beginning Spring 2015
• Established a partnership between the Center for Coastal Ocean Issues and the UC Davis Policy Institute to co-sponsor science-policy workshop
• Co-hosted Chancellor’s Club event at Bodega Marine Lab

POSITIONING FOR FUTURE SUCCESS

CMSI has provided for the first time a coherent and vibrant identity among the numerous marine scientists on campus and at Bodega Marine Laboratory. However, in order for this campus-wide initiative to succeed, CMSI will need to develop a comprehensive strategic plan (supported by the Office of Research, Office of Development and Strategic Communications) to guide the decisions on UC Davis investments in marine and coastal science and policy. The plan will include a sustainable funding model for CMSI and its associated academic programs, as well as a communications and marketing strategy that packages and delivers messages that resonate with current and potential donors, partners and stakeholders, and improves the internal and external visibility and recognition of CMSI.

We envision CMSI within a broader framework at UC Davis that coalesces and expands our existing strengths and that leverages our unique geographic position in the heart of California. What we are calling the Sierra-to-the-Sea (S2S) framework explicitly links the key iconic features of California: the Sierra Nevada mountains, the Central Valley, the Delta, San Francisco Bay, and the coastal ocean; and builds on the strengths of existing centers and projects at UC Davis, including the Tahoe Environmental Research Center, the Center for Watershed Sciences, and the Bodega Marine Laboratory. To this end, CMSI will continue building partnerships with TERC, JMIE, CWS and PIEEE to strengthen the S2S framework and to improve our marketing, communications and development capacity.
Background, Mission & Vision

We are living in the era of the sea, generated by increasing recognition that the global oceans provide vital biological, physical, and societal benefits, and that human activities have, are, and will continue to seriously jeopardize these essential functions. In our own state, where almost three quarters (and a rapidly growing fraction) of the population lives within 20 miles of one of the most biologically and economically productive coastlines in the world, the challenges of a sustainable coastal ocean are especially critical and urgent. Answering this challenge is a natural and essential part of UC Davis’s commitment to be the world’s leader in global sustainability.

Developing innovative, comprehensive, and sustainable solutions to these challenges requires a new generation of collaborations involving the full spectrum of biological, medical, physical, and social sciences, context that only historians can provide, and novel partnerships that fully engage constituencies well beyond the traditional bounds of academia. More than any other academic institution in the world, UC Davis has the intellectual history, resources, and strategic commitment to become a global leader for developing and implementing positive, science-based outcomes for the future health of the coastal oceans, including the development of sustainable and safe marine food supply.

To this end, in July of 2013, UC Davis established the Coastal and Marine Sciences Institute (CMSI). CMSI’s mission is to (1) coordinate and promote the diverse research activities of the marine science and policy community at UC Davis, (2) educate future scientists and leaders who will make coastal sustainability a priority and reality; and (3) foster innovative partnerships for discovering, understanding, and communicating science for effective stewardship of ocean and coastal environments in California and beyond. Our vision is to be a world-leading interdisciplinary research and educational institute, focusing on the economic, ecological, and social challenges of rapidly changing and increasingly crowded coastal and ocean environments.

CMSI leverages our physical presence near one of the most productive and economically valuable marine ecosystems in the world, a world-class marine laboratory and natural reserve at the epicenter of this ecosystem, broad faculty expertise, and a long history of dedication to increasing public understanding of our world through science to solve the challenges facing the coastal systems upon which so many rely upon for food, economic support, and recreation.

As part of the CMSI, we have launched the Center for Coastal Ocean Issues (CCOI). The CCOI serves as an international nexus of synthetic science applied to coastal marine management and policy. Unlike other potentially comparable centers in the US, CCOI is distinguished by its engagement of all stakeholders into the development of relevant
research programs, and the translation of the best science into public policy. Our proximity to Sacramento makes UC Davis an indispensable partner in addressing challenges in stewardship by engaging with resource management agencies, ocean industries and the public. In addition, our Policy Institute for Energy, Environment and the Economy is a close partner, broadening the collaborative reach of CMSI and CCOI, and our impacts on comprehensive environmental planning from the Sierra to the Sea.

In its first year, CMSI has also taken major steps toward fortifying and expanding UC Davis' research enterprises by advancing integrative activities, including the submission of a multi-million dollar collaborative NSF proposal, that coalesce faculty expertise around critical public-sector or industrial research needs. These efforts fall within three domains, specifically 1) Climate and Environmental Change, 2) Ocean Health, and 3) Natural Resource Management. As befits CMSI's core philosophy, the unifying feature across each of these areas builds on connectivity—between the land and the sea, the coastal and the deep ocean, academic disciplines, and stakeholders.

The foundation for achieving the goal of a healthy, beautiful, and sustainable coastal ocean fundamentally depends on educating the next generation to understand and address these issues with creative, multidisciplinary solutions. To this end, CMSI has established a new undergraduate major in Marine Coastal Sciences as well as a Graduate Group in Marine Sciences. This new major draws from top-ranked, nationally recognized programs at UC Davis, including Ecology and Evolutionary Biology, Earth and Planetary Sciences, Environmental Science and Policy, Engineering, and Veterinary Medicine. The major in Marine and Coastal Sciences emphasizes the interdisciplinary nature of marine sciences by exposing students to the full spectrum of disciplines that constitute modern marine science and policy, and by requiring hands-on experiences as interns or researchers in at least one sub-discipline. The creation of a formal undergraduate major, along with the establishment of a new Ph.D. program in Coastal Marine Sciences, are also critical steps toward UC Davis finally receiving the rankings and recognition it deserves in marine science and policy.

CMSI is building our public education outreach through the creation of The Bodega Learning Center. The BLC will improve public scientific literacy on marine and coastal issues through investigative and interactive learning, and provide a public gateway to the coastal ecosystems and natural resources of the northern California coast. Extending the exceptional facilities and programs of the Bodega Marine Laboratory, and in collaboration with Sonoma County Regional Parks, National Oceanic and Atmospheric Administration, the Sonoma County Board of Supervisors, the Exploratorium, and other partners, the Center will advance public understanding of the local environment and the process of scientific discovery, bringing research discoveries to life. In addition, a newly established collaboration with The Exploratorium of San Francisco is further extending CMSI’s impact on public understanding of northern California coastal sustainability.

Coastal and marine ecosystem health and its connection to our economic, environmental and social well-being are unquestionable. With growing populations, these sensitive ecosystems will experience even greater demand. It is evident that we need to start approaching these problems differently in order to determine the pathway to coexistence between human activities and ecological processes. The CMSI and its “Sierra-to-the-Sea” approach to the complex challenges facing our aquatic landscapes are establishing a new paradigm for integrative marine research. By leveraging the vast resources of UC Davis in a comprehensive way, CMSI and its partners are poised to achieve a collaborative sustainable resource management approach that is sensitive to the needs of a diverse stakeholder network, that is informed by the latest research, and implemented by a current and new generation of resource managers.
Values

- **Coherent identity**: coalesce marine scientists on the main campus and at Bodega Marine Laboratory
- **Sustainability**: preserve the economic, ecological, and social benefits of the ocean and coastal environment
- **Stewardship**: understand, protect, and enhance the value of ocean and coastal environments
- **Interdisciplinarity**: define, pursue, and solve major challenges facing the coast and ocean
- **Connectivity**: between the land and sea, between places in the ocean, between academic disciplines and stakeholders (Sierra-to-the-Sea framework)
- **Partnerships**: build relationships to leverage resources; address problems together; fair and honest brokers among partners
- **Innovation**: new ideas, collaborations, approaches, and solutions
- **Effectiveness**: achieve success
- **Quality**: continue the UC Davis tradition of research and educational excellence
Two-Year Benchmarks (OVCR):

- **Create a Strategic Plan for CMSI**
  - Develop mission and vision statements that will differentiate CMSI and create an associated strategic plan and timeline in consultation with UC Davis faculty and administration. The strategic plan should include detailed descriptions and strategies for excellence and sustainability in the four key proposed CMSI focus areas: “Novel Research Enterprise” (including Bodega Marine Laboratory operations), “The Marine Sciences Learning Center,” the “Center for Coastal Ocean Issues (CCOI),” and the “Marine Sciences Educational Program (MSEP).” Within the strategic plan, develop a sustainable business model for CMSI operations, including programmatic space and infrastructure needs at BML and on campus. Establish evaluation matrices to assess the performance of the CMSI.
  - **Key deliverable: A Strategic Plan for CMSI by December 2015**
  - **Progress as of 1 November 2014:**
    - Initiated development of CMSI/BML Master Plan in collaboration with Campus Planner Bob Segar (not done for BML since 1964)
    - Meetings with Blue North and other consultants to discuss options for revising 2011 MSIPC Draft Strategic Plan
    - Executive Committee established short-term strategic priorities
    - Housing/Conference Center planning exercise in collaboration with colleagues (Prof. David de la Peña) and senior studio projects in Landscape and Environmental Design
    - Initiated discussions with faculty and administrative leadership re: comprehensive analysis of infrastructure to support marine science research and teaching on main campus and BML, including inventory of existing infrastructure, and present and future needs

- **Establish CMSI educational programs**
  - Champion the development of undergraduate and graduate degree programs and professional training opportunities. Complete the process of establishing the undergraduate Marine Biology Program and core curriculum.
  - **Key deliverable: Establishment of formal undergraduate major and significant progress towards establishing new postgraduate educational program in Marine Sciences.**
  - **Progress as of 1 November 2014:**
    - Catalog description in Appendix 2
    - Proposal for a new Graduate Group in Marine Sciences fully drafted and ready to be submitted to Graduate Council and Graduate Studies by 1 November 2014: Appendix 3
• **Lead CMSI Research**
  o Foster and nurture existing marine sciences research activities. Advance integrative activities that coalesce faculty expertise around unique critical research and education topics. Work closely with key UC Davis stakeholders to develop a strategy and timeline for competing for large collaborative grants from diverse funding sources. Also, work closely with the UC Davis Development team to identify opportunities for philanthropic donations of scale from both individuals and Foundations.
  o **Key deliverable:** Lead at least one effort to bring in a major grant or gift to support an interdisciplinary research program(s).
  o **Progress as of 1 November 2014:**
    • $1.9 million collaborative Coastal SEES proposal on Tomales Bay submitted (January 2014) by Ted Grosholz et al. to NSF
      • Full participation by faculty from CA&ES, CBS, SVM, and CL&S
      • Reviews were strongly positive – will resubmit in 2015
    • $1.7 million collaborative proposal to be submitted to NSF Coupled Human and Natural Systems program (18 November 2014)
    • Proposal submitted for coastal and bay monitoring partnership with Chevron Corporation
    • Proposals drafted for Heising-Simons Foundation and Moore Foundation
    • Inaugural CMSI all-faculty meeting held on campus in December 2013, attended by >50 UC Davis faculty and researchers
    • Scheduled a second all-day CMSI research conference for March 19, 2015 at UC Davis

• **Lay the Foundation for CMSI Administrative Leadership**
  o Develop and lead selection process for BML leadership positions, including a permanent Director for BML, CCOI and MSEP.
  o **Key Deliverable:** Appoint leadership positions in CMSI focus areas.
  o **Progress as of 1 November 2014:**
    • All key leadership positions for CMSI filled:
      • Prof. Tessa Hill, Associate Director for Academic Programs
      • Prof. Jim Sanchirico, Associate Director for Policy and the Center for Coastal Ocean Issues
      • Prof. John Largier, Associate Director for Research Enterprises
      • Shauna Oh, Ph.D., Executive Director CMSI (effective 1 January 2015)
    • Coordination with administrative leadership at BML:
      • Prof. Gary Cherr, Interim Director
      • Patrick Helbling, Associate Director
• **Development of a CMSI Outreach and Communication Strategy**
  - Establish a strong ‘brand identity’ for CMSI that clearly distinguishes it from other competitor marine sciences organizations. Develop a communication strategy to effectively manage information flow between key UC Davis stakeholders.
  - **Key deliverable: Develop a strong identity for CMSI through development of an effective communications plan.**
  - **Progress as of 1 November 2014:**
    - CMSI website (cmsi.ucdavis.edu) and listserver established in November 2013
    - Briefings at UC Davis, Bodega Marine Laboratory, and Hog Island Oyster Company with local government officials including Congressman John Garamendi, Congressman Jared Huffman, and Assemblyman Mark Levine
    - Press conference co-hosted with BML by Jared Huffman on ocean acidification and threats to coastal environments and economies (June 2014)
    - CMSI and BML scientists featured on KQED’s Forum (June 2014)
    - **ISOpods K-12 program proposal** completed in collaboration with Office of Development (see Appendix 4)
  - Co-hosting major Exploratorium-CMSI-UC Davis Alumni Gala (19 November 2014 at the Exploratorium), featuring 7 core CMSI research groups (Ocean Acidification; Coastal Meteorology; Marine Invasive Species and Restoration; Seagrass Ecosystems; Larval Transport and Sustainable Fisheries; Ocean Health, Pathogens, and Pollution)
Program Highlights

- **Founding Director** appointed (July 2013)
- **CMSI website** up and running: cmsi.ucdavis.edu
- Physical space allocated for office and conference and remodel Phase 1 nearly completed
- **Inaugural CMSI Faculty meeting** held in December 2013 (60 faculty in attendance)
- Organized and hosted a public lecture series and workshops on science communication and society by Joe Palca, Chief Science Correspondent, National Public Radio (November 2013), with broad support from two UC Davis IGERTs (REACH and CCWAS) (Climate Change, Water, and Society IGERT), the John Muir Institute of the Environment, the College of Agriculture and Environmental Sciences, the School of Veterinary Medicine, the Office of Strategic Communications, the College of Biological Sciences, and the Center for Population Biology. The public talk was attended by over 400 community members, and >100 UC Davis faculty, students, and administrative leaders participated in workshops and other events.

- **Marine & Coastal Sciences undergraduate major** formally approved (40+ majors currently):
  - Open house for prospective majors, advisors, and faculty held on 15 Oct. 2014
• **Marine Science Ph.D. program** proposal under final internal review by CMSI faculty
  o To be submitted to Graduate Studies by 15 November 2014
• **CMSI Executive Director** selected in October 2014
  o Shauna Oh, Ph.D., currently Associate Director, California Sea Grant
• **HIP Proposal** submitted: Coastal Ocean Sustainability Initiative requesting 6 new positions in coastal marine science and policy (highly ranked but not supported)
• **Associate Directors formally appointed**: Tessa Hill (Academic Programs), John Largier (Research Enterprises), & Jim Sanchirico (Center for Coastal Ocean Issues)
• **CMSI-UC Davis-Exploratorium “alumni gala”** scheduled for 19 November 2014 (focus on development of undergraduate and graduate student exchanges with Exploratorium partners)
• **Major gifts** amounting to $60K (one from The Hoefer Family Foundation ($50K over 2 years); one from The Swerdlow Family Foundation ($10K over 2 years])
• **Briefings held with local government officials,** including US Congressional Representatives Garamendi & Huffman & California Assemblyman Levine
• **$1.9 million NSF collaborative Coastal SEES proposal** on Tomales Bay submitted (January 2014) by Ted Grosholz et al. to NSF
  o *This proposal represents the first major grant submitted by CMSI faculty,* and includes PIs from the College of Agricultural and Environmental Sciences, the School of Veterinary Medicine, the College of Letters and Sciences, the College of Engineering, and the College of Biological Sciences.
  o The proposal focuses on the interactions among agriculture, mariculture, ranching, and tourism that fuel the economy of the Point Reyes/Tomales Bay region, and the economic and environmental sustainability of that coastal ecosystem in the face of multiple anthropogenic and natural internal and external drivers. Proposal declined with strong reviews, to be resubmitted in October 2015.
  o **$1.7 million collaborative proposal to be submitted to NSF Coupled Human and Natural Systems program** (18 November 2014)
• **ISOpods K-12 program proposal** completed in collaboration with Office of Development
• **Co-hosted Congressman Jared Huffman press conference** at Bodega Marine Laboratory on ocean acidification
• **Featured on KQED’s Forum show** on climate change, ocean acidification and coastal sustainability/sustainable mariculture (with John Largier, Terry Sawyer (Hog Island Oyster Company partner), and Congressman Jared Huffman)
• **Developed partnerships and initiated planning discussions to establish the Bodega Bay Coastal Learning and Outreach Center** with primary partners NOAA, Sonoma County Regional Parks, and Sonoma County Board of Supervisors ( $100K planning fund established)
• **Video walls and touchscreens installed at Bodega Marine Lab** (and ready for installation in Storer Hall) – supported by gifts from the Hoefer Family Foundation
• **Inaugural seminar series established** beginning Spring 2015
• **Inaugural workshop series planned** beginning Spring 2015
• **Established a partnership between the Center for Coastal Ocean Issues and the UC Davis Policy Institute** to co-sponsor science-policy workshops.
• **Co-hosted Chancellor’s Club** event at Bodega Marine Lab
Next steps: 2014-2015

• **Develop a comprehensive CMSI strategic plan** that updates and refines the 2012 draft plan, and that includes a sustainable business plan for CMSI and its associated academic programs.

• **Finish renovations of CMSI office and conference space in Storer Hall:** There were substantial delays in starting the renovations due to excessive cost estimates that were not projected in the initial planning. We split the renovation into phases and reevaluated the needs. The project, as planned, is nearly halfway complete, under budget, and the main office and conference space should be finished by 1 January 2015, with the remaining renovations completed by 31 March 2015.

• **CMSI Launch and Open House:** With the near-completion of the CMSI headquarters on campus, and the arrival of Executive Director Shauna Oh (January 2015), we plan to host a major public event on campus (Fall 2015).

• **Appoint a CMSI External Advisory Board:** The ideal model for starting an external advisory board for CMSI remains a challenge, but we will propose an initially small board, with ca. 5 members, to be expanded in 2015-2016. We have waited to make these appointments until our vision, needs, and strategic plans have coalesced.

• **Complete installation of video-conferencing system between main campus and BML:** All hardware has been purchased and installed at both locations, to be linked by PolyCom software. We are working with IET to ensure reliability and quality for use by Spring Quarter 2015.

• **Complete the establishment of a Ph.D. program in Coastal Marine Sciences at UC Davis:** The final proposal is now ready to be submitted to the Graduate Division, and once approved, CMSI leadership (Tessa Hill and Steven Morgan) will continue to shepherd the proposal through systemwide approval.

• **Initiate CMSI seminar series:** Now that the administrative infrastructure of CMSI is in place, we have begun to plan for a monthly seminar series, rotating between the main campus and BML. Planning and hosting will fully engage CMSI graduate student and postdoctoral affiliates. We hope to use the seminar series to attract a broad audience of the academic and non-academic community, and as a platform for endowed support from an individual donor or donors.

• **Initiate CMSI inaugural workshops and conferences:** We have now begun the planning for 3 major CMSI/CCOI workshops over the next 18 months. These workshops will build on partnerships with the Policy Institute, the Center for Watershed Sciences, and the Tahoe Environmental Research Center, among others. The inaugural topics will likely include...
  - Salmon and drought in California and beyond
  - Ocean acidification: impacts of coastal ecosystems and economies
  - Coastal pathogens, pollution, and land-sea interactions
  - Invasive species and their impacts and control in coastal ecosystems

• **Develop infrastructure to compile data on accomplishments of CMSI faculty, graduate students, and other researchers:** With the arrival of Executive Director Oh, we will finalize the development of a Survey Monkey web portal that will simplify how CMSI researchers update their research profiles and accomplishments, including participation on boards, commissions, and panels.

• **Build relationships with Office of Development and Strategic Communications to improve the external visibility of CMSI:** It is becoming increasingly apparent that UC Davis lacks the marketing expertise in environmental sciences for us to achieve the presence warranted by the excellence of our research and academic programs.
CMSI is building its partnerships with TERC, JMIE, and CWS to improve our marketing, communications, and development capacity.

- **Advance the infrastructure and leadership for the Sierra to the Sea framework at UC Davis**
- **CMSI Fellows Program**: Working with the Development Office, develop a funding model to support 3-5 CMSI Postdoctoral Fellows, and 3-5 Faculty Research Fellows
- **Endowed Professorships**: We aim to develop external support initially for 3-5 Endowed Professorships in Coastal Marine Science and Policy.
- **CMSI Internship Program**: We have now secured partnerships with both the Exploratorium and the California Academy of Sciences that will allow us to develop comprehensive undergraduate and graduate internship programs at these world-reknown Bay Area centers for research and public engagement. In collaboration with the Office of Development, we are collaboratively developing proposals for external funding to support these internship programs.
- **Housing and Conference Center**: There continues to be a pressing need to develop a new model for housing and conference support at Bodega Marine Lab. CMSI will continue discussions with Head Campus Planner Bob Segar and BML Director Gary Cherr to develop plans for new housing and conference facilities in the next BML Master Plan (not done since 1964).
- **Continue planning for Bodega Learning Center**: In partnership with NOAA, Sonoma Regional Parks, the Sonoma County Board of Supervisors, Sonoma County Land Trust, and the Exploratorium, CMSI and BML will continue to co-lead the effort to establish a new public educational and outreach facility at Mason’s Marina, adjacent to Bodega Marine Lab.
Peer Comparison

Second only to Scripps Institution of Oceanography (UC San Diego), UC Davis has the most coastal/marine science faculty of any of the UC campuses (SIO-UC San Diego: 242; UC Davis: 74; UC Santa Cruz: 65; UC Santa Barbara: 45). According to data gathered by staff at the Bodega Marine Laboratory, “UC Davis ranks in the upper quartile of (>41 faculty) of marine programs nationally in size of faculty. On the west coast, non-oceanographic institutions with >50 marine scientists include UC Davis (~70), UC Santa Barbara, UC Santa Cruz, Oregon State University, and the University of Washington.”

The UC Davis Coastal and Marine Sciences Institute does not fall into the standard categories of being either an oceanographic institution (e.g., Scripps Institution of Oceanography, UC San Diego; Hatfield Marine Science Center, Oregon State University) or a marine lab/field station (e.g., Long Marine Lab, UC Santa Cruz; Friday Harbor Labs, University of Washington; Hopkins Marine Station, Stanford University). Instead, like the Marine Science Institute (MSI) at UC Santa Barbara, and the Institute of Marine Sciences (IMS) at UC Santa Cruz, CMSI is an umbrella organization that aims to consolidate and coordinate marine research, education, and outreach across multiple academic and/or Organized Research Units. Also, like these other more or less comparable units within the UC system, CMSI has minimal infrastructure and staff, and instead aims to sponsor activities and programs that fuel innovation and collaboration, and that raises the internal and external profile of marine science at our respective campuses.

Unlike MSI and IMS, CMSI aims to play a much more active role in advancing research and educational programs in marine science at UC Davis, especially in fostering close links between science and policy, between scientists spanning the full gamut of the natural and social sciences, and between policymakers, stakeholders and scientists. In some of these ways, CMSI more closely resembles organizations like the Center for Ocean Solutions (COS) at Stanford, and the California Ocean Sciences Trust (OST). What distinguishes CMSI from COS is (1) our focus on coastal ecosystems, (2) our commitment to look both outward to the sea and landward toward the watersheds that influence so many coastal processes, and (3) our explicit inclusion of educational programs, both undergraduate and graduate, as part of the domain of CMSI. Similarly, CMSI differs from organizations like OST, which are essentially “boundary” organizations that translate marine science into policy, in our core research and educational missions. In other words, we do the science, and train the next generation of scientists, policymakers, and citizens.

As CMSI moves into its second year, we are aware of the importance of establishing more precisely who our peer organizations are, and developing clear metrics that allow us to assess how well we are performing, both internally and externally. The two most important steps toward receiving a formal external ranking of our programs in marine science and policy are the establishment of formal academic programs. In this respect, CMSI has made remarkable progress in less than a year, with the formal launch of our new undergraduate major in Marine and Coastal Science, and the near completion of a proposal for a comprehensive new Ph.D. program in marine science and policy. Obviously, much remains to be done, but we are quickly establishing our identity in the crowded seascape of coastal marine science and policy, and we will soon have assembled a comprehensive database that monitors the achievements of our researchers and students.
SWOT Analysis

STRENGTHS

• Broad support from >60 UC Davis faculty
• Comprehensive research and academic excellence across the full spectrum of biological, physical & social sciences (including economics, law, & policy)
• Culture of collaborative, interdisciplinary research & training programs focusing on coastal communities & ecosystems
• Commitment to, & reputation for, serving a broad range of stakeholders with the best available science
• Reputation for solution-based, outcome-oriented research in marine science
• Ideal location, with world-class marine lab situated in a region of unique global economic & biological significance, & main campus near the political center of CA
• Newly established undergraduate major in Marine & Coastal Sciences

WEAKNESSES

• Low visibility: marine science programs at UC Davis lack history & name recognition
• Internal & external partnerships need more extensive development
• CMSI is a new venture in a crowded landscape of other academic & non-academic marine science & policy organizations in CA & beyond
• Limited funding & administrative support, especially in the realm of strategic planning, development, & marketing, external affairs & communications
• Sustainability of additional inter-disciplinary collaborations across too many institutional structures with competing demands & interests

OPPORTUNITIES

• Unfilled geographic niche: no academic organization is strongly associated with coastal northern California
• Unfilled research & policy niche: no other institute focuses on links between the sea and land, & their unique challenges
• Healthy supply of potential partners and donors, including federal, state, regional, & local natural resource agencies, foundations, individual donors, & industries interested in coastal marine sciences & sustainable uses of coastal ecosystems
• High demand for new knowledge and novel scientific & policy paradigms to address pressing challenges in sustainably managing coastal ecosystems
• Strong educational demand for interdisciplinary training in marine science
• Strong workforce demand for individuals with science & policy training in marine resource management
• Positive public attitudes toward protection of the coast & oceans, & need for better stewardship through informed citizenry, & discovery- & place-based education

THREATS

• Stagnation of support for higher education & research; support increasingly tied to near-term outcomes
• Lack of clear guidelines re: indirect cost returns and accounting for extramural support and other forms of research & academic productivity
• Increasing competition from other marine science & policy programs in California & beyond, including growing number of “boundary” organizations
• Omission in national rankings for marine science programs
• Limited environmental & ocean literacy regarding environmental & economic challenges in the coastal oceans
• Limited directly marketable outputs from research and educational activities; i.e., there are large economic stakes in the management of ocean and coastal natural resources, but few large economic interests
Appendix 2: Marine & Coastal Science B.S.

Marine and Coastal Science

The major in Marine and Coastal Science focuses on the interdisciplinary nature of marine science by exposing students to courses that focus on marine subjects. The major builds upon existing strengths at UCS in marine and coastal sciences as well as field-based courses offered at Biological Marine Laboratory to provide students a unique, interdisciplinary, "hands-on" education. Initial advising is provided by the Department of Earth and Planetary Sciences for interested students.

The Program: The major begins with introductory courses in mathematics, chemistry, and biology, and earth sciences. These courses are followed by core courses in Marine Science. The major requirement provides breadth and breadth, that all students gain exposure to one or two areas and broad exposure to many courses in Marine and Coastal Science topics. Focus areas include Coastal Environmental Processes, Marine Ecology and Organizational Biology, Marine Environmental Chemistry, and the Earth System.

In this major, students will be exposed to the foundation disciplines within marine science (biology, chemistry, geology, physics) as well as modern issues facing marine and coastal environments: geographic change, climate change, pollution, coastal systems, conservation, and the private sector.

Interdisciplinary and Career Alternatives, A.B. in Marine and Coastal Science will provide students with knowledge and practical experiences needed to pursue careers in marine science (government, private sector, research) and/or advanced degree programs. The program includes both research and internship experiences to help prepare students for these career paths.

Admissions: Students majoring in Marine and Coastal Science are strongly encouraged to meet with their faculty advisor (designated, based upon Focus Area chosen) once per year to review their course work plan. Staff advising is available through the Department of Earth and Planetary Sciences, and student peer advising is available. Faculty advisers include: Texas Hill College of Letters and Sciences, Ocean Sciences, and Biological Sciences; and Brian Golson (College of Biochemistry). The student’s chosen Focus Area will determine the college into which the student is admitted. The college is the student’s major and the associated department.

- Coastal Environmental Processes, College of Agricultural and Environmental Sciences
- Marine Ecology & Organizational Biology, College of Biological Sciences
- Marine Environmental Chemistry, College of Agricultural and Environmental Sciences
- Marine Environmental Chemistry, College of Agricultural and Environmental Sciences
- Oceans and the Earth System, College of Agricultural and Environmental Sciences

B.S. Major Requirements:

1. denotes courses only offered at Biological Marine Laboratory
2. UNITS
3. Preparatory Subject Matter
   - Biological Sciences 1A, B, C, 1A, B, C
   - Chemistry 2A, B, C
   - Mathematics 1A, 1B, 1A, 1B, 2A, 2B
   - Note: Students in Marine & Coastal Science & Organizational Biology focus areas must take seven series of 2A, B, C.
   - Physics 2A, 2B, 2C, 2A, 2B, 2C
   - Chemistry 8A, 8B
   - Organic Chemistry 1A, 1B
   - Psychology 10, 101, 102
   - Statistics 100 or 101

2. Courses must be approved by the Biological Marine Laboratory.

3. Focus Area Requirement - equal or greater than 8
   - Complete one course from each category below, totaling equal or greater than 12 units.

Coastal Environmental Processes
- Emphasis on coastal and marine systems and processes that affect coastal communities.
- Focus on the interaction between the marine and the terrestrial environment.
- Courses include environmental science and policy, marine biology, and oceanography.

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Marine Environmental Chemistry
- Emphasis on major topics in marine chemistry: geochemistry, the carbon cycle, and the marine environment.

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Marine Ecology and Organizational Biology
- Emphasis on the study of marine organisms and their interactions within ecosystems.
- Courses include marine biology, marine ecology, and oceanography.

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Marine Environmental Chemistry
- Emphasis on major topics in marine chemistry: geochemistry, the carbon cycle, and the marine environment.

Coastal and Marine Science B.S.

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