Annual Report 2021–2022

Marine Science Institute

UC SANTA BARBARA

Marine Science Institute
UC **Santa Barbara**

Annual Report 2021–2022



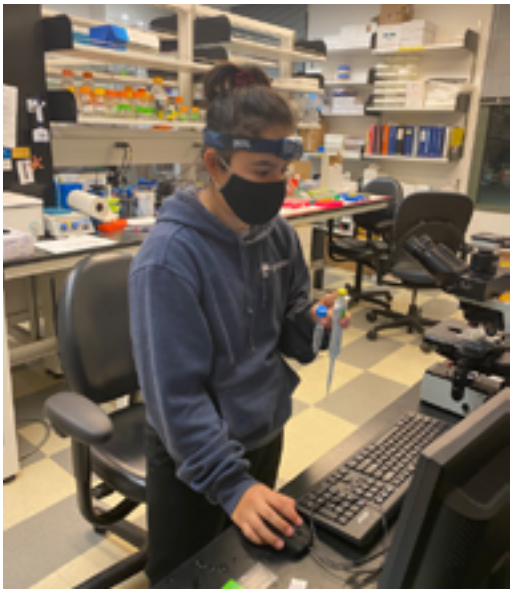
Table of Contents

05	Mission Statement		
07	From the Director	Overview	09
		Executive Summary	13
19	Organization Chart	Administrative Staff	21
23	MSI Advisory Committee, Administrative & Technical Staff		
27	Statistical Summary	Statistical Summary 2021-2022	28
31	Principal Investigators		
35	Postdoctoral Researchers, Graduate and Undergraduate Students		
39	External Participation	Affiliated Researchers	40
43	Other Projects & Activities	Coastal Research Center	45
		Ocean & Coastal Policy Center	47
		Analytical Lab	51
		Education & Outreach	52
		Projects & Activities Chart	55
57	Proposal and Award Administration	Proposal Submitted, Awards Issued and Total Projects Administered | 2017–2022	58
		Value of Proposals Submitted, Value of Awards Funded and Total Funds Administered | 2017–2022	59
61	Space	Marine Science Building	62
		Trailers	66
		Devereux West	67

Mission Statement

The Marine Science Institute at the University of California, Santa Barbara, is committed to fostering innovative and significant research, to promoting effective stewardship, and to sharing exciting discoveries of the world's oceans.






Marine heatwave experiment, Hofmann Lab, MSI, January 2021.

"We were so desperate even the PI had to work…"

DIRECTOR

From the **Director**

The Marine Science Institute (MSI) was born as a campus response to the 1969 Santa Barbara oil spill, a local maritime accident that spawned the modern environmental movement. The modest beginning of MSI as a small research unit has grown today to have a global reach and stellar reputation for cutting-edge research in broad areas of marine science.

Overview

The Marine Science Institute (MSI) was born as a campus response to the 1969 Santa Barbara oil spill, a local maritime accident that spawned the modern environmental movement. The modest beginning of MSI as a small research unit has grown today to have a global reach and stellar reputation for cutting-edge research in broad areas of marine science. The growth and sustained success of MSI reflects the synergy created when world-class regular and research faculty are well supported by highly dedicated professionals in a culture that fosters cross-disciplinary collaboration. MSI brings together marine researchers from across campus and supports both multi-investigator collaborative projects and individual research efforts. The scientific membership at MSI consists of both ladder rank faculty and professional researchers. In 2021-2022 MSI membership included 52 ladder rank faculty and 58 professional researchers/project scientists over 510 additional participants distributed across postdoctoral scholars, specialists, graduate students, undergraduates, technical research staff, visiting scholars and support staff. In addition, MSI has a major role on campus in terms of communicating science to a broader audience at MSI's Research Experience and Education Facility (REEF).

Housed in the Marine Science Research Building (MSRB) on the UCSB campus, MSI support services and research laboratories, along with seawater workroom facilities that support experimental work on marine organisms. Support services include the MSI administrative staff that support pre- and post- award activities, the MSI analytical facility that provides expertise in the chemical analysis of environmental samples from the marine environment, the Ocean O'Graphics unit that provides web and graphics services, and the MSI information technology group who support scientific computing. Research space is allocated to individual ladder rank faculty and professional researchers and to collaborative research groups. MSI professional researchers are also housed within departmental spaces, at Devereux and off-campus leased space. The REEF, the MSI educational and outreach facility, is located at Campus Point.

MSI staff have had another busy year. In 2021-2022 MSI submitted 116 proposals, and had 94 new awards. Overall, MSI administered and managed the activity of 274 projects that sum to just over $117M. Post award activities include accounting, personnel management, procurement and travel. Beyond pre- and post- award activities MSI staff are also responsible for MSRB management and maintenance, management and maintenance of common use scientific equipment, laboratory safety compliance, seawater system

maintenance, room scheduling, serving as the interface between the Channel Island Marine Sanctuary offices and campus facilities and management offices.

As another major research support resource, the MSRB is also one of the few research buildings at UCSB plumbed into the campus seawater system. Researchers have access to over 1,600 ft2 of seawater workroom space distributed across six seawater laboratories. An additional three walk-in environmental chambers provide access to temperature-controlled conditions simulating environments from the tropics to the poles. Other common spaces provide access to common use scientific equipment including autoclaves, freeze dryers, centrifuges and refrigerator/freezer space. These common-use facilities serve the needs of individual research projects and collaborative efforts on an as needed basis.

The MSI Analytical Laboratory provides investigators with analytical services for environmental samples from the marine environment. The purpose of the facility is to provide investigators access to instrumentation and analyses that would be too costly or too inefficient for individual PIs to maintain. In normal years the laboratory also serves a strong educational function supporting research of graduate students and postdoctoral scholars, the laboratory staff assist undergraduates conducting honors research and independent study projects. The laboratory routinely employs undergraduates to assist in sample preparation and in routine analyses providing vital real-world work experience. Moreover, laboratory personnel guide investigators in the development of new analytical methods to catalyze new avenues of research and to support new extramural proposals.

Starting last Fall (September 2021), the MSI Information Technology group merged with IT staff from Geography, ISBER and ERI to form the General Research IT group (GRIT). This new combined team offers more depth and breadth, leveraging campus expertise in the main areas of IT support. The goal of this merger, from the MSI perspective, was to expand the breadth of research computing support for MSI researchers. Overall, the merger supports the research missions of MSI more effectively and efficiently, resulting in better support for marine research at UCSB. The types of services offered by GRIT can be roughly classified as infrastructure, user, or computational support. MSI's greatest needs were in infrastructure, which mostly consisted of the need to migrate from the beyond-end-of-life hardware to newer infrastructure. To address this issue, GRIT system administrators migrated MSI data, websites and other systems, or otherwise incorporating them into

existing infrastructure. GRIT also leverages pre-existing relationships with other campus experts. Lastly, the GRIT group was formed through a Memorandum of Understanding (MOU) with the other campus institutions. The Directors and MSOs of the units, and the Director of GRIT meet periodically to evaluate progress and address any concerns -- ensuring that GRIT is not only supporting MSI researchers, but also providing IT services that open up new opportunities for research at MSI. Thus far, the GRIT endeavor has been successful in meeting the IT and computing needs of MSI.

MSI's Educational and Outreach Program brings our discoveries to K-12 students, the general public and to UCSB students. A recent goal has been to engage more UCSB undergraduates. These efforts have been wildly successful. In an average year the REEF serves nearly 4,000 UCSB undergraduates in activities ranging from laboratory classes to research training and other activities spanning six campus administrative divisions along with 18,000 visits by K-12 students and the general public.

MSI is led by the director who is advised by the business services officer and a deputy director. The MSI Advisory Committee, consisting of faculty and researchers from each of the participating campus departments and professional schools, serves an oversight role and reports on MSI needs and activities to the vice chancellor for research. Local governance is handled by the MSI Resources Committee that reviews requests for office and laboratory space with the MSRB and makes recommendations to the director. The MSI Computing Committee assesses the computer infrastructure necessary to support MSI research and makes policy and purchase recommendations to the director.

In terms of administration and leadership in this review period, Carolyn Sheehan continues as the MSI MSO, bringing her extensive experience to bear on the challenges of operating during the long tail of the COVID pandemic. Carolyn has been very successful in retaining MSI staff and in managing the complexities of a growing ORU. In January 2021, Professor Gretchen Hofmann, took on the role as the Interim Director of MSI. Prof. Hofmann is a marine ecophysiologist who studies the impacts of climate change processes (e.g., marine heatwaves and ocean acidification) on marine organisms. She joins the MSI staff in their commitment to maintaining a strong research unit, and in supporting the marine science research community. Prof. Hofmann was re-appointed as Interim Director on July 1, 2022. This Fall (2022), the search for a permanent Director was underway and will continue into 2023.

Executive Summary

MSI has had another highly successful year of scientific discovery with the institute PI's conducting nearly 300 research projects ranging from efforts to develop new policies for ocean management to working on industry-science collaborations. As noted above, the statistics for proposal submission and PI success are impressive: In 2021-2022 MSI PIs submitted 116 proposals, they received 94 new awards. Although this number of new awards is close to the last cycle (n=97 new swards), these new 94 bring in substantially more funding than last year, here a 76% increase as compared to dollars in FY21. This increase over the previous year also reflects a higher success rate; specifically, an 81% success in FY22, up from ~a 67% success rate in FY21.

Highlighted below is a subset of these successful projects that have recently been added to the MSI portfolio, but obviously there are many others that represent the level of exciting work being done at UCSB's MSI. Importantly, increasing numbers of PIs are focused on climate change-connected research in marine systems, a trend that will put UCSB in good position to compete for funds in the future. There is also significant development in innovation and solutions space science and we look forward to more work in this direction in the future.

- Professor **Morgan Raven** (Earth Science) received the highly competitive and meritorious CAREER award for her research on carbon sequestration in the oceans. This is a particularly exciting project. Not only will the project explore how the ocean stores carbon, but it will look at unexplored mechanisms that might become more important as the ocean warms. Read more about the project here: **https://www.news.ucsb.edu/2022/020612/cryptic-carbon-sequestration**.
- Other new major projects include an NSF Award to **Alyson Santoro** (EEMB) from the Convergence Accelerator Phase 2 funding. This project is designed to develop bioplastics engineered to degrade in the ocean; the project is called Nereid Biomaterials (**https://nereidbio.org/**) and was highlighted in The Current (**https://www.news.ucsb.edu/2022/020733/fantastic-bioplastic**).
- An additional major new award to the MSI's Research Biologist, Dr. **Adam Lambert** is from the California Wildlife Conservation Board. This new award of ~$6.5M focuses on restoration activities in the Cienega Springs Ecological Reserve and Wetland. In this same vein of restoration and supporting management, a new faculty member, Prof. Leander Love-Anderegg received a new award from the California Department of Forestry examining how prescribed burns can support management decisions.
- Professor **Douglas McCauley** continues to lead the Benioff Ocean Initiative (BOI). The BOI seeks to understand how science can both inform and solve problems affecting our oceans. Last year the BOI launched a new large initiative focused on ocean plastics. This particular effort seeks to design and deploy a pilot intervention strategy that both physically captures plastic waste in rivers before it reaches the ocean, and catalyzes policy-based, infrastructural, and/or societal change to reduce plastic waste in put rivers. BOI continues as a major entity in MSI, moving conservation and solution science forward.

- Professor **Gretchen Hofmann**, along with co-PIs Carol Blanchette, Douglas McCauley, Malaphone Phommasa and Hillary Young received an NSF award to support STEM education at UCSB. Here, the program FUERTE (Field-based Undergraduate Engagement through Research, Teaching and Education) is designed to bring under-represented students into research areas that involve field work, such as marine science. Funded by the Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI Program) at NSF, the $5 million 5-year award is the first step in building MSI as a platform for increasing diversity and inclusion in marine science. FUERTE is in its first year and will continue to unite MSI researchers in diversity activities.
- Most people familiar with MSI know that the institute is the intellectual home of two of the nation's long-term ecological research programs: The **Santa Barbara Coastal (SBC) LTER** that focuses on the kelp forest ecosystem, and the **Moorea Coral Reef (MCR) LTER** that studies the coral ecosystems of French Polynesia. In 2020, the SBC LTER underwent a leadership transition with senior Researcher and marine ecologist Dr. Robert Miller taking on the lead PI role. This move was very successful and the SBC LTER received its 4th award with the fifth being planned for submission in 2024. A similar transition is expected in the future for the MCR LTER where leadership will transition from Professors Russell Schmitt and Sally Holbrook to Professor Deron Burkepile. The MCR LTER has also recently received funding for their next five-years. LTERs are designed to test ecological theory on timescales not approachable in short-term studies and to evaluate how ecological communities respond to climate perturbations. These two studies bring together over 100 investigators from UCSB and elsewhere in a highly interdisciplinary effort to advance our understanding of these ecosystems.

COVID-19 Impacts

Having moved from a "work from home" mode during the heart of the pandemic, MSI has successfully implemented a hybrid work schedule for the staff. As of July 2021, MSI moved to a hybrid schedule with most people working 2-3 days at home and the balance in person in the Marine Science Research Building (MSRB). Thus far, we have been very successful in adapting to the rapid pace of change. In general, this approach has been very successful for the unit, allowing flexibility for staff with all the core functions of the ORU being maintained. We do acknowledge that the tail of the pandemic will be long. Notably, MSI's Analytical Laboratory was especially hard hit by the research closure as all income to this recharge facility ceased while salaries for analytical lab members continued to be paid through the recharge account following university policy. The lab manager filed for, and received,

an exception to analyze critical perishable samples during the closure. The lab had been seeing an upward trajectory until the pandemic hit. Retaining the NUD in 19-20 allowed the lab to be slightly in deficit despite a 3.5 month complete shutdown. Unfortunately, the pandemic continued through 20-21 with minimal researcher travel and internal samples being processed. The 21-22 fiscal year brought back internal activity however equipment issues and building water quality has challenged the growth of the lab's activities.

Lastly, MSI's education and outreach facility, the REEF, was significantly impacted by the pandemic and remained closed to on-site, in-person activities. However, the REEF's director, Scott Simon, reinvented the REEF creating the virtual REEF online. With assistance from the undergraduate docents, and with all participants working remotely, he turned the REEF into a 100% virtual experience. For example, they have produced over 100 educational videos that run on the virtual REEF YouTube Channel. This is an impressive success story and it is ongoing. We also used this time to perform some renovations and improvements of the REEF facility and look forward to hosting some in-person tours for UCSB undergraduates during the regular academic year (2021-2022).

5-Year Plan

Looking to the future MSI has the following goals for the next 5 years. Foremost is the completion of the open search for a new permanent director as the current director's service ends July 1, 2023. Interim Director Hofmann will be in place until a new Director is hired, hopefully spring- summer 2023. This is a vital position for campus that will influence the quality of marine science research at UCSB for the next decade.

A continuing goal at MSI is to capitalize on the untapped research potential of its investigators by creating a fund to catalyze new research endeavors that will provide seed money for turning new ideas into proposals. The goal is to fund collaborative groups to sponsor workshops, meetings with program managers and other activities that will position MSI researchers for success on new innovative projects. This is especially important for professional researchers who are not eligible for university research funds through the academic senate. MSI has reworked its budget to allow the new director this opportunity on a limited basis.

Over the past few years MSI's has met its goal to broaden REEF programs to better serve the core mission of the university by increasing the number of UCSB undergraduates that the program serves. At present, the REEF is expected to experience shortfalls in funding, which largely comes from donor funds. This will likely occur in 2023-2024, and the MSI is working with development and campus to strengthen the financial future for the REEF.

Given the fact that the REEF serves 4,000 undergraduates per year a solution based on contribution to UCSB's core educational mission is justified. We have partnered with six campus divisions ranging from Academic Affairs to Student Affairs and Administrative Services to engage undergraduates at multiple levels. These efforts were highly successful with nearly 4,000 undergraduates having benefited from our programs the year before the pandemic. This success compliments the record number of 18,000 public visitors to the REEF in the year before the pandemic. This is an impressive achievement when one considers that the entire operation is managed and run by a single staff member with the assistance from undergraduate student docents.

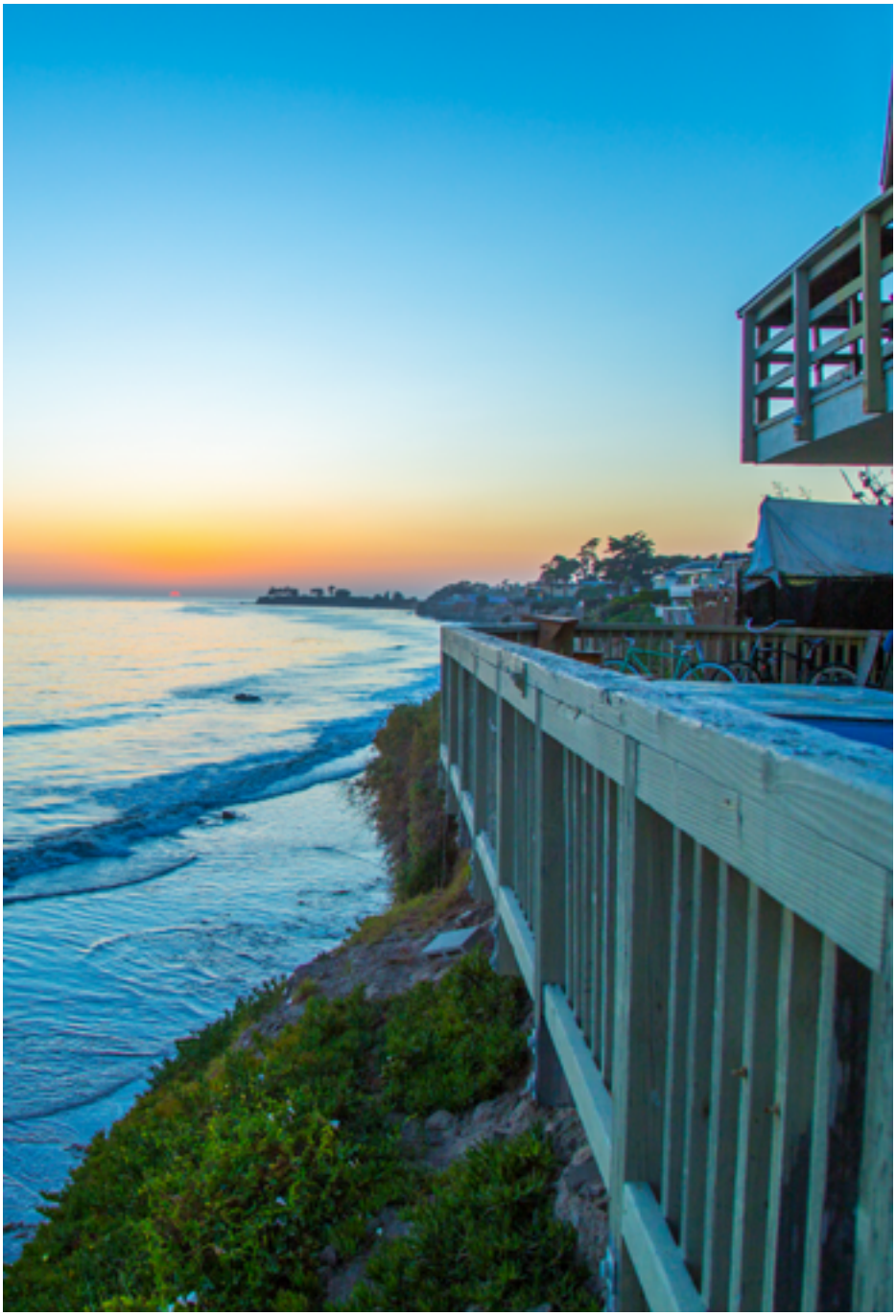
An unmet goal is financial support for professional researchers who rely on grants for 100% of their salaries. Professional researchers continue to account for over half of MSI's grant and research activity. MSI continues to work with OR to find ways of supporting this group. Beyond support for all researchers there is a subset of professional researchers that merit special attention. Professional researchers at MSI lead the largest of our collaborative group projects including the SBC LTER, the MBON and the SONGS project. These group projects are often leveraged by other investigators that bring in significant research funding beyond the original project. Leading one of these projects demands considerable time and effort which is often not covered by the project budget. A system that rewards researchers for taking on these leadership roles will ensure that MSI can continue to organize the teams necessary to compete for, manage and renew these and other large programs.

Future continued growth in marine research at UCSB will require MSI to seek additional research space. MSI is fortunate to have access to research space in the MSRB which is strategically deployed in support of collaborative projects and individual projects for both ladder rank faculty and professional researchers. Recently MSI lost thousands of square feet of research space with the demolition of building 408. Much of MSI's membership is from departments that are also experiencing space limitations. MSI is now working with departments to explore creative solutions for new research space. Our approach is to develop partnerships that will produce synergies to allow new space to meet multiple needs across campus. Efforts continue to be focused on replacing the "Old Marine Laboratory" at campus point which suffers from severe structural deficiencies which would offer the opportunity to construct a new expanded state-of-the-art facility. We also have researchers that are enthusiastic to move to Devereux should space be made available. [As of December 2022, we have received news that MSI researchers will have access to addition space in the Devereaux building with more details for follow in the next annual report.]

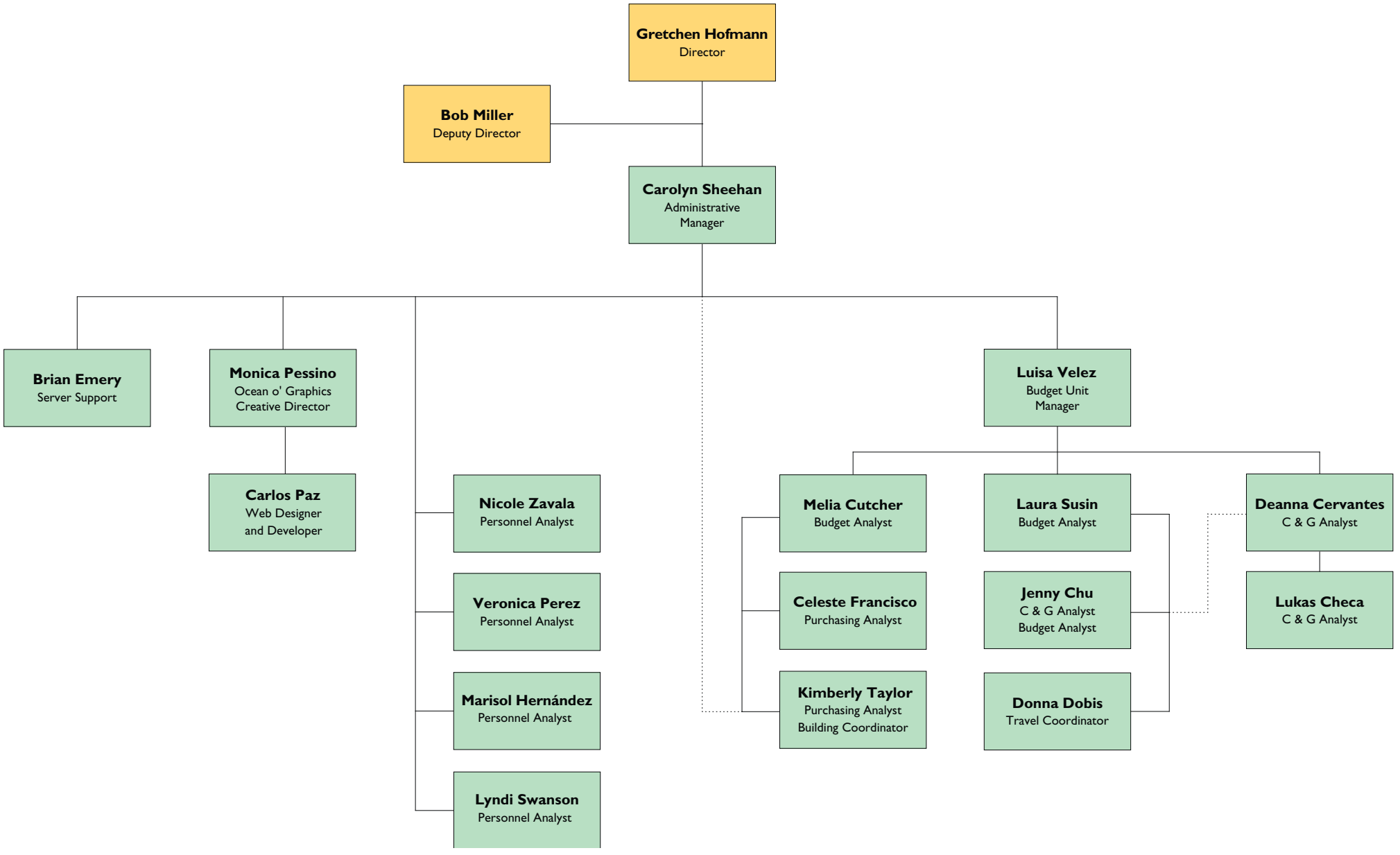
MSI's operating budget is sound and the current recharge units are operating independently without campus support. This has become challenging for the Analytical Lab as the competitors are supported by their campuses, making our rates uncompetitive. In addition, gaps in our ability to support the director of the REEF are anticipated in 2023-2024, and we would like to see a large-scale renovation of the seawater workrooms and tanks which have not been modernized since the opening of the building in 2004. Notably, there are new technologies and systems that would open up new, exciting areas of research, especially with regard to climate change impacts, something that would benefit MSI and the entire UCSB community.

ORG CHAR

Organizational **Chart**



MARINE SCIENCE INSTITUTE
ORGANIZATIONAL CHART



MSI Advisory Committee, Administrative and Technical Staff

Marine Science Institute Advisory Committee | 2021–2022

Chancellor	Henry T. Yang
Executive Vice Chancellor	David Marshall
Vice Chancellor For Research	Joseph Incandela
Interim Director	Gretchen Hofmann
Interim Deputy Director	Bob Miller

Advisory Committee

Jenn Caselle, Committee Chair, MSI
Darcy Bradley, Bren
Anthony De Tomaso, MCDB
Jennifer Dugan, MSI
Adam Lambert, MSI
Holly Moeller, EEMB
Nick Nidzieko, Geography
Morgan Raven, Geology
Alyson Santoro, EEMB
William Smith, MCDB
Mark Torchin, MSI

Ex-Officio Members

Gretchen Hofmann, Interim Director MSI
Charles Lester, Director, Ocean Coastal Policy Center
Bob Miller, Interim Deputy Director, MSI
Carolyn Sheehan, Manager, MSI
Russell Schmitt, Director, Coastal Research Center

Marine Science Institute
Administrative and Technical Staff

Interim Director, Gretchen Hofmann

Interim Deputy Director, Bob Miller

Management Services Officer, Carolyn Sheehan

Financial Manager, Luisa Velez

Purchasing Manager, Melia Cutcher

Budget Manager, Laura Susin

Contracts & Grants Manager, Deanna Cervantes

Contracts & Grants, Lukas Cheka

Budget & Contracts & Grants Officer, Jenny Chu

Development Officer, Matt Fratus

Education & Outreach, Scott Simon

Graphics Manager, Monica Pessino

Web Developer, Carlos Paz

IT & Server Support, Brian Emery

Personnel Manager, Nicole Zavala

Personnel Analyst III, Veronica Perez

Personnel/Payroll Analyst, Marisol Hernandez

Personnel/Payroll Analyst, Lyndi Swanson

Purchasing Analyst/Building Coordinator, Kimberly Taylor

Purchasing Analyst, Celeste Francisco

Travel Coordinator, Donna Dobis

STATS

Statistical **Summary**

Statistical Summary for the Marine Science Institute 2021–2022

	MSI
Personnel engaged in research (head count)	
Faculty	52
Professional Researchers (including Visiting)	40
Project Scientists	18
Specialists	39
Postdoctoral Scholars	28
Postgraduate Researchers	0
Graduate Students	78
Undergraduate Students	167
Technical & Research Staff	94
TOTAL	**516**

Participation from outside UCSB (head count)	
Academics (without Salary Academic Visitors)	84
Other (specify)	0
TOTAL	**84**

Unit Operational Staff (# of FTE)	
Administrative	14.5
Computing	0.5
Technical & Service (e.g. recharge personnel, lab manager)	5
Programmatic Staff	0
TOTAL	**20**

	MSI
Sponsored Research	
Number of Principal Investigators*	101
Proposals submitted (#)	116
Proposals submitted ($ value)	$68,848,943
Awards issued (#)	94
Awards issued ($ value)	$30,797,788
Extramural awards administered during year (#)**	274
Extramural awards administered during year ($ value)***	$107,602,794
Costshare funds managed during year ($ value)**	$1,346,332
Awarding agencies dealt with (#)****	72

Other Projects & Programs	
Seminars, symposia, workshops sponsored (#)	38
Other projects administered (#)****	97
Other projects administered ($ value)*****	$17,659,486
Intramural support administered ($ value)**	$622,755
Budget & Space	
Total base budget for the year	$2,251,246
Total assigned square footage in ORU	43,948

* Number of PIs, Co-PIs and Proposed PIs (count each person only once.)
** If the award was open during the year, even if for only one month, please include in total.
*** Count each agency only once (include agencies to which proposals have been submitted).
**** Other projects—such as donation, presidential awards, fellowships, anything that isn't core budget, extramural, or intramural.

Marine Science Institute

Principal Investigators

2021–2022

Marine Science Institute Principal Investigators 2021–2022

Adam, Thomas	Assistant Researcher	Marine Science Institute
Amiri, Sarah	Undergraduate Student	Ecology, Evolution & Marine Biology
Arrington, Eleanor	Graduate Student	Earth Science
Bell, Thomas	Project Scientist	Earth Research Institute
Blanchette, Carol	Associate Researcher	Marine Science Institute
Bradley, Darcy	Assistant Researcher	Marine Science Institute
Briggs, Cheryl	Professor	Ecology, Evolution & Marine Biology
Brooks, Andy	Project Scientist	Marine Science Institute
Brzezinski, Mark	Professor	Ecology, Evolution & Marine Biology
Bull, Ann	Visiting Researcher	Marine Science Institute
Burkepile, Deron	Professor	Ecology, Evolution & Marine Biology
Cabral, Reniel	Assistant Researcher	Marine Science Institute
Caldow, Chris	Research Associate	Marine Science Institute
Capece, Lena Rose	Graduate Student	Earth Science
Carleton, Tamma	Assistant Professor	Bren School of Envir. Sci. & Management
Carlson, Craig	Professor	Ecology, Evolution & Marine Biology
Caselle, Jennifer	Researcher	Marine Science Institute
Closset, Ivia	Postdoctoral Researcher	Marine Science Institute
Costello, Christopher	Professor	Bren School of Envir. Sci. & Management
Culver, Carrie	Research Scientist	Marine Science Institute
D'Antonio, Carla	Professor	Environmental Studies
de Leon Sanchez, Erin	Graduate Student	Ecology, Evolution & Marine Biology
Deschenes, Olivier	Professor	Economics
Dudley, Tom	Researcher	Marine Science Institute
Dugan, Jenifer	Researcher	Marine Science Institute
Eliason Parsons, Erika	Assistant Professor	Ecology, Evolution & Marine Biology
Emery, Brian	Assistant Researcher	Marine Science Institute
Emery, Kyle	Graduate Student	Ecology, Evolution & Marine Biology
Foltz, Kathy	Associate Professor	Molecular, Cellular & Devel. Biology
Free, Christopher	Assistant Researcher	Marine Science Institute
Froehlich, Halley	Assistant Professor	Environmental Studies/EEMB
Gaines, Steven	Dean, Bren School, Professor	Bren School of Envir. Sci. & Management
Gately, James	Graduate Student	Ecology, Evolution and Marine Biology
Geyer, Roland	Professor	Bren School of Envir. Sci. & Management
Goss, Hayley	Graduate Student	Geography
Halpern, Benjamin	Professor	Bren School of Envir. Sci. & Management

Heilmayr, Robert	Assistant Professor	Bren School of Envir. Sci. & Management
Herbst, David	Associate Researcher	Marine Science Institute
Hodges, Scott	Professor	Ecology, Evolution & Marine Biology
Hofmann, Gretchen	Professor	Ecology, Evolution & Marine Biology
Holbrook, Sally	Professor of Biology	Ecology, Evolution & Marine Biology
Iglesias-Rodriguez, Maria	Professor	Ecology, Evolution & Marine Biology
Jack, Kelsey	Associate Professor	Bren School of Envir. Sci. & Management
Jenniches, Chloe	Undergraduate Student	Marine Science Institute
Jerde, Chris	Assistant Researcher	Marine Science Institute
Kennett, James	Emeritus Research Professor	Earth Science
Kim, Sylvia	Associate Specialist	Ecology, Evolution & Marine Biology
Kim, Lisa	Staff Research Associate	Ecology, Evolution & Marine Biology
Kuris, Armand	Professor of Biology	Ecology, Evolution & Marine Biology
Lafferty, Kevin	Research Biologist	Marine Science Institute
Lambert, Adam	Associate Research Biologist	Marine Science Institute
Lea, David	Professor	Earth Science
Lenihan, Hunter	Professor	Bren School of Envir. Sci. & Management
Lester, Charles	Researcher	Marine Science Institute
Lisiecki, Lorraine	Professor	Earth Science
Love, Milton	Researcher Emeritus	Marine Science Institute
Love-Anderegg, Leander	Assistant Professor	Ecology, Evolution & Marine Biology
Macias-Munoz	Postgraduate Research	Ecology, Evolution & Marine Biology
MacDonald, Andy	Assistant Researcher	Earth Research Institute
MacIntyre, Sally	Professor	Ecology, Evolution & Marine Biology
Mazer, Susan	Professor	Ecology, Evolution & Marine Biology
McCauley, Douglas	Assistant Professor	Ecology, Evolution & Marine Biology
Melack, John	Professor	Ecology, Evolution & Marine Biology
Meng, Kyle	Associate Professor	Bren School of Envir. Sci. & Management
McLaughlin, John	Graduate Student	Ecology, Evolution & Marine Biology
Michaud, Kristen	Graduate Student	Ecology, Evolution & Marine Biology
Miller, Robert	Researcher	Marine Science Institute
Moeller, Holly	Assistant Professor	Ecology, Evolution & Marine Biology
Muller, Erik	Associate Researcher	Marine Science Institute
Nicholson, Craig	Researcher	Marine Science Institute
Nidzieko, Nicholas	Assistant Professor	Geography
Nisbet, Roger	Professor	Ecology, Evolution & Marine Biology

Oakley, Todd	Professor	Ecology, Evolution & Marine Biology
O'Brien, Margaret	Specialist	Marine Science Institute
Page, Henry Mark	Researcher	Marine Science Institute
Pak, Dorothy	Academic Coordinator	Marine Science Institute
Paul, Nicola	Graduate Student	Ecology, Evolution & Marine Biology
Peng, Xuefeng	Postdoctoral Researcher	Marine Science Institute
Plantinga, Andrew	Professor	Bren School of Envir. Sci. & Management
Prouix, Stephen	Associate Professor	Bren School of Envir. Sci. & Management
Raven, Morgan	Assistant Professor	Geology
Reed, Daniel	Researcher	Marine Science Institute
Reti, Jay	Research Associate	Natural Reserve System
Santoro, Alyson	Assistant Professor	Ecology, Evolution & Marine Biology
Schmitt, Russell	Professor	Ecology, Evolution & Marine Biology
Schroeter, Stephen	Researcher	Marine Science Institute
Siegel, David	Professor	Geography
Simon, Scott	REEF Manager	Marine Science Institute
Sokolow, Susanne	Postdoctoral Researcher	Marine Science Institute
Stier, Adrian	Associate Professor	Ecology, Evolution & Marine Biology
Titcomb, Georgia	Postgraduate Researcher	Ecology, Evolution & Marine Biology
Torchin, Mark	Researcher	Marine Science Institute
Valentine, David	Professor	Earth Sciences
Waite, J. Herbert	Professor	Molecular, Cellular & Devel. Biology
Walker, Ian	Professor	Geography
Washburn, Libe	Professor	Geography
Wilson, Douglas	Research Geologist	Earth Science
Winter, Matthew	Graduate Student	Physics
Wittmann, Marion	Executive Director	Natural Reserve System
Young, Hillary	Assistant Professor	Ecology, Evolution & Marine Biology
Young, Oran	Emeritus Research Professor	Bren School of Envir. Sci. & Management

msi

POSTDOCS
GRADS AN
UNDERGRA

Marine Science Institute Postdoctoral Researchers, Graduate and Undergraduate Students

Marine Science Institute Postdoctoral Researchers, Graduate and Undergraduate Students 2021–2022

Postdoctoral Researchers

Archibald,Kevin M
Arrington,Eleanor Catherine
Brown,Alexandra L
Closset,Ivia M
Dowdy,Kelsey Lee
Englander,Aaron Gabriel
Eurich, Jacob
Ferguson,Caroline E
Giraldo Ospina,Ana Maria
Jordan Colzani,Felipe
Kerr,Kelly L
Lang,Megan E
Latka, Catharine
Marraffini,Michelle L
Meng,Measrainsey
Mizuta,Darien Danielle
Ospina, Anita Giraldo
Payandeh,Ali Reza
Pfab,Franz Ferdinand
Quintana,Anastasia
Speare,Kelly E
Spiecker,Barbara J
Stephens,Brandon M
Temino Boes,Regina
Titcomb,Georgia C
Varney,Rebecca
Willis-Norton,Ellen M
Zhou,Yuxin

Graduate Students

Abajian,Alexander C
Albers,Justine B
Arrington,Eleanor Catherine
Beckley,Billie A
Blomqvist,Linus E
Bogan,Samuel Neill
Braman,Charles A
Cook,Dana T
De Leon Sanchez,Erin
Dewees,Shane Landau
Dornan,Natalie N
Eisaguirre,Jacob Henry
English,Chance J
Esaian,Sevan
Fang,Yutian
Fass,Ryan Patrick
Fitch,Robert Lloyd
Frazer,Seth
Gallagher,Jordan P
Gamble,Devin Errol
Garcia,Alberto Gabriel
Gately,James A
Goss,Hayley
Gosselin,Kelsey
Grimes,Nathaniel Gordon
Hardesty Moore,Molly Ruth
Hardison,Emily
He,Yifan
Heffentrager,Madison Lynn
Hensley,Nicholai Marcus
Hobart,Bethany Michelle
Honeycutt,Randi N
Johns,Jason Wells
Katrak-Adefowora,Roshni
Katz,Tatum Shaw
Kauffman,Kayla
Kim,Lisa Hea Mee
Klope,Margaret M
Kopecky,Kai Logan
Kumaishi,Grace Alice
Lawson,Julia Margaret
Leach,Terence S
Lee,Brian
Lewis,Risa Anne
Lopazanski,Cori J
Love,Connor R
Madden,Jessica Ryan
Maier,Jason Ari
Malagutti,Flavio A
Malakhoff,Katrina D
Maniscalco,Michael A
Matsumura,Sara Misayo
McEldowney,Amber Alyssa
Mcelroy,Mary Ellis
McKim,Siena Audra
Michaud,Kristen M
Moscona-Remnitz,Benjamin
Nadeem,Muhammad Fatiq
Nordheim,Caitlin Lyall
Parsons,John Keesling
Payne,Helen Elizabeth
Pettit,Andrew Tanner
Ramirez Parada,Tadeo
Rand,Devin Scott
Ray,William J

Regent,Nicholas Siu-Ming
Rodriguez,Leeza-Marie
Romine,Jeffrey Reed
Rossi,Devon Michelle
Rozal,Samantha Allyson Ho
Sambado,Samantha Brianne
Sanchez, Erin de Leon
Sclafani,Danielle
Snyder,Jordan Noelle
Strauss,Charles Kent
Tye,Cecily J
Velazquez,Lourdes Rosio
Xu,Chengyuan

Undergraduate Students

Alvarado,Kayley Ann
Arellano, Maritza
Azadpour,Elmera
Baksh,Nuzha N
Banks,Molly Foster
Beltran,Nelson V
Bernstein,Maya Katharina
Beshoff,Sophia D
Boborci, Madigan
Boozarpour,Mina M
Boyle,Sarah
Breck,Justin L
Brock, Bowen H
Brown,Madeleine R
Brunjes,Ian Frederick
Bungay,Sharlene Bansil
CapittiFenton,Lucy A
Cartwright,Paloma Madline
Charlet, Naomi
Chavez Hernandez,Celeste
Chen,Samantha
Chen,Yifei
Choi, Dylan
Chupein,Sophia M
Cohen, Madison
Colucci,Makenna Mary
Cruz,Yalery
Cummings,Summer R
Cunningham,Jessica A
Dela Cruz,Katrina
Deshmukh,Anannya Abhay
Dietzel,Michaele Marie
DiMundo,Francesca
Dinh,Heather
Dinh,Yvonne Vi
Diskin,Fiona R
Doheny,Brandon M
Dorji,Shey W
Dornan,Natalie N
Douglas,Zoe Ann
Egg,Erika Elizabeth
Eriksen,Emerson Lyra
Feng,Zhixiao
Fernandez,Ariana
Figueroa,Lesley
Foshay,Bergen Skye
Foster, Joshua
Garcia,Angelica
Garoufalias,Nikko
Garzelloni,Roman J
Gerigk,Matthew
Gillingham,Zoe
Girish,Radhika
Gomez,Ivana R
Goodman, Adam
Gordon,Marea
Grant, Sabrina
Grant,Sabrina Nicole
Green,Rachel
Hacker,Allison Kathleen
Hahn, Hope
Hampton,Madison Elizabeth
Harding, Jaden P
Harris,Lauren Nicole
Hascall, Emily M
Holroyd,Madeline A
Horstmeyer, William T
Hsu,Tiffany
Hu,Holly
Huang,Kaipeng
Jaeger,Stuart J
Jain, Alyssa
Jain,Alyssa Nazari
Jakob,Ethan
Jenniches,Chloe L
Jennings,Lauren C
Juengling Bean,Eva
Kolhatkar,Rucha Shekhar
Koo,Kathryn Long-Win
Kracha,Christopher
LaLonde,Jack T
Lamour,Timothy W
Leiphardt,Callie Marie
Leslie, Mika
Li, Stanton
Li,Lena L
Lim,Karina Danielle
Limon,Benise
Listorti,Mykala M
Liu, Hanwei
Loomis,Allen K
Lovell,Annie
Luong,Vanessa

Lupien,Tao Y
Malhotra, Parker
Malhotra,Parker D
Manalo,Zoe
Martin, Alix
Martinez, Juana
Mau,Elizabeth Giuliana
McEligot,Elizabeth Ann
McKernan, Bailey
McNeill,Lyndsey Paige
McVeigh,Halley
Melman,Leah J
Milanes,Cambria
Miller,Jared T
Moes,Lyla Inez
Moreno,Luiza D
Moyer,Noah R
Naum,Jakub Nickolas
Ng,Jordan
Oda,Kai C
Padmos, Anneke
Parcell,Theresa
Park, Charin
Parsa,Eva
Partlow, Emalia
Penn,Cameron
Perez,Yanelyn T
Phillips,Ella Ann
Pinhas,Vered
Plouffe,Kyler A
Prewitt,James Scott
Primavera,Skylar Delahanty
Reamey,Maya H
Rhodes,Rachel Alicia
Riley, Katherine
Rivera,Kennedy
Rosenberg,Elizabeth J
Rosenfeld,Aya
Salmon,Abigail R
Salyapongse,Zoe D
Samantha Foon
Sandoval,Joaquin Samuel
Santos,Julia Beatriz Perez
Shah,Gabrielle F
Skube,Lauren
Smith,Conner M
Sorrentino,Celest Nicole
Spiegleman,Joanne D
Stead,Courtney K
Stoilova,Marina I
Stone,Eliana
Strauss,Charles Kent
Subgani, Alicia
Sun,Megan
Suzuki,Kana E
Talesfore,Anna H
Toomey,Mary Elizabeth
Trebesch Heberlein,Evan
Samuel
Valdez, Alexandra
Valdez,Craig J
Valdivia, Alessandra
Van Horn,Andie Renae
Vega,Jessica R
Vick,Kathleen
Villasenor Derbez,Juan Carlos
Viz,Mariano
Wagner,Kiara G
Wagner,Noah N
Warren,Daphne
Winter, Matthew
Wisniewski,Jenna Claire
Wloczysiak,Marine
Yang,Victoria
Zhong,Alice

External Participation

Marine Science Institute External Participation 2021–2022

Affiliated Researchers	
Aleuy Young, Oscar	University of Calgary
Ambrose, Richard	UCLA
Ballerini, Evangeline	MAC
Bayer, Barbara	University of Vienna
Blanchette, Carol	UCSB
Brito, Isaac	Conservation International
Brock, Cameryn	UCSB
Bursek, Julie	NOAA
Carpenter, Robert	CSUN
Cavenaugh, Kyle	UCLA
Cook, Samantha	NOAA
Costa, Bryan	NOAA
Couture, Jessica	UCSB
Cox, Julia	UCSB
Culver, Carolynn	UCSD
Curtis, Joseph	UCSB
DeProspero, Nicolas	NOAA
Dobson, Alistair	UCSB
Duncan, Elizabeth	NOAA
Edmunds, Peter	CSUN
Emery, Katherine	Santa Barbara Audubon Society
Engle, John	UCSB
Fackler, Claire	NOAA
Fang, Yutian	UCSB
Ferguson, Jeffrey	NOAA
Fisher, Alexander	University of Washington
Francis, Laura	NOAA
Freedman, Ryan	NOAA
Fry, Shauna	NOAA
Gastil-Buhl, Mary	UCSB
Huckelbridge, Kate	California Coastal Commission
Ingulsrud, Laura	NOAA
Jacobs, Todd	NOAA

Johnson, Cyril	Cal Poly
Johnson, Gabrielle	NOAA
Kayal, Mohsen	French National Institute for Sustainable Development (IRD)
Klose, Kristie	US Forest Service
Koehn, Kathryn	UCSB
Kuehn, Michael	Bloom Biological, Inc.
Lafferty, Kevin	USGS
Lakta, Catha	University of Bonne, Germany
Lambert, Jonathan	Conservation.org
Lang, Megan	UC Berkeley
Larios, Eugenio	Universidad Estatal de Sonora
Liu, Shuting	UCSB
Martinez, Carolina	Pontificia Universidad Catolica de Chile
Mayorga, Juan	UCSB
McKinley, Cheyenne	UCSB
Meng, Measrainsey	Invenia Labs, UK
Mobley, Chris	NOAA
Morten, Jessica	NOAA
Mueller, Benjamin	University of Amsterdam (UvA)
Muller, Erik	UCSB
Murray, Michael	NOAA
Nishimoto, Mary	UCSB
O'Brien, Margaret	Recall w/UCSB
Omand, Melissa	URI
Page, Henry	UCSB
Phillips, Zachary	University of Texas
Raimondi, Peter	UCSC
Ramirez Fromm, Andres	UCSB
Rassweiler, Andrew	Florida State University
Richards, John	UCSB
Roan, Aaron	UCSB
Satterthwaite, Erin	UCSB
Schneider, Heather	Santa Barbara Botanic Garden
Schwemmer, Robert	NOAA

Selgrath, Jennifer	NOAA
Shaw, Jenny	UCSB
Smith, Jayson	Cal Poly Pomona
Sweeney, Edward	NOAA
Temino Boes, Regina	Universitat Politècnica de València (UPV)
Torchin, Mark	Smithsonian Tropical Research Institute
Trockel, Dale	Industry - CODAR
Trockel, Josh	Industry - CODAR
Urgoiti Crespo, Sofia	UCSB
Weber, Paige	Univ of North Carolina
Webmann, Alexander	The Nature Conservancy
Weinstein, Sara	University of Utah
Young, Rebecca	NOAA

PROJECTS

Other Projects & Activities


TELEBACHILLERATO COMUNITARIO
Generación 2015-2018

Coastal Research Center

The Coastal Research Center is an organizational unit within the Marine Science Institute at UCSB. The central theme of the Center is to develop scientific knowledge to gain a more complete understanding of coastal and island ecosystems, which is necessary for sound management of the natural resources within coastal and island regions. The Center links academic scientists from a wide variety of disciplines, enhancing the ability to address marine environmental issues.

While CRC scientists work in marine environments throughout the world, much effort is focused on coastal reefs found in the Santa Barbara Channel region and the coral reefs surrounding the island of Moorea, French Polynesia. These two locations provide excellent model systems for the scientific exploration of a wide range of marine issues and scientists at UCSB have long valued these environments as natural laboratories for scientific study. Both areas are enjoyed by those seeking recreation, support important local fisheries and are faced with growing conflicts amongst different user groups as human population pressures increase, a trend that is common for many marine environments. The nearshore marine environments of California and the islands of French Polynesia are used increasingly as a disposal site for waste products. Renewed exploitation of oil and natural gas reserves has augmented the number of conflicting demands placed upon the Channel resources, while issues related to global climate change have increased concerns about the sustainability of coral reef ecosystems. Local issues related to the sustainability of commercial and sport fisheries in both regions mirror global concerns regarding management of exploited stocks. The cumulative effects of human activities on the natural resources of both of these regions are just beginning to be understood. It is imperative that we learn how to balance the multiple uses of nearshore ocean waters in an environmentally sound manner. Lessons learned by scientists in the Coastal Research Center have wide implications for understanding and resolving present and future problems, and will help local, regional and national regulators develop better management policies.

Development of sound management plans for areas such as the Santa Barbara Channel or the islands of French Polynesia is hampered by scientific uncertainty about the consequences of human activities. To understand and predict natural and anthropogenic disturbances, synthesis of new and existing knowledge of many scientific aspects of coastal marine systems - including biology, ecology, genetics, geology, chemistry and oceanography - will be necessary. Further, the development of new approaches and the use of

emerging technologies are needed to resolve fundamental questions, some of which have remained unanswered for many years. Only with these advances will it be possible to make reliable predictions about the consequences of various activities, to develop the ability to restore degraded habitats and conserve valuable resources, and to foster development of environmentally sound policies for use of coastal or island regions in general.

The Center has four major objectives:

- To facilitate and promote interdisciplinary research initiatives
- To act as a center for production and integration of basic scientific information to more fully understand coastal and island ecosystems and their natural and exploited populations.
- To evaluate and predict effects of human activities on the marine environment, and to develop measures to ameliorate lost or degraded natural resources.
- To train students in basic research on marine environmental issues that may be applicable to decision-makers.
- To facilitate and promote interdisciplinary research initiatives.

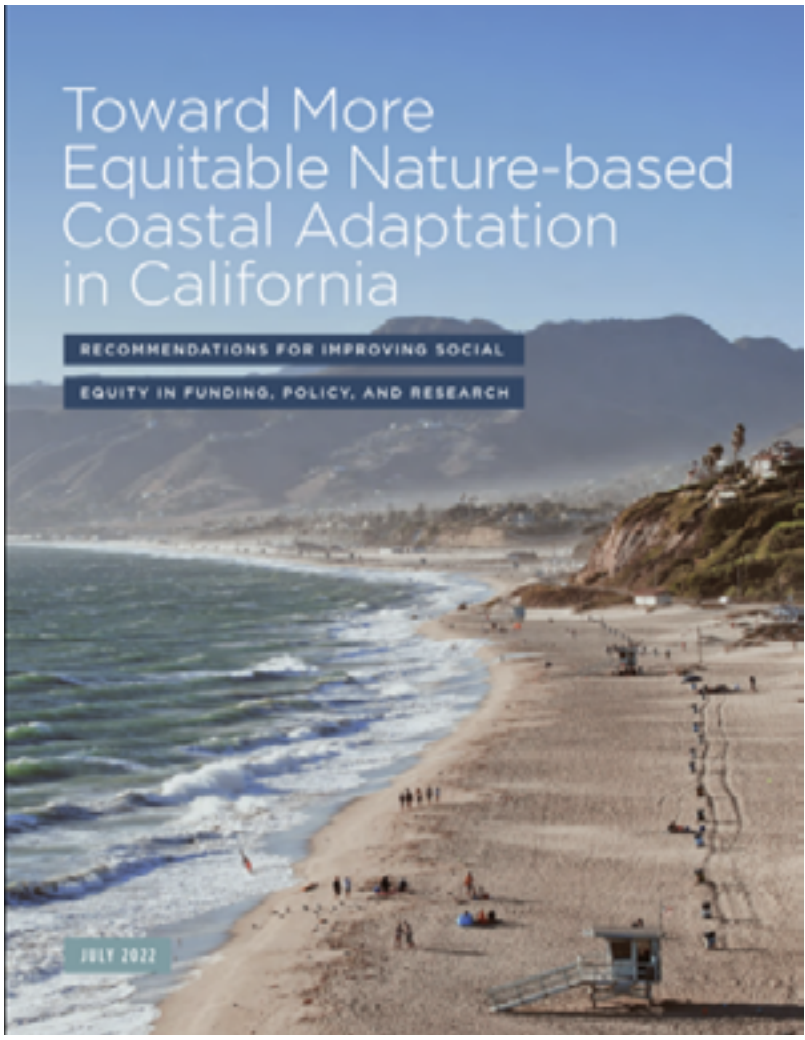
Ocean and Coastal Policy Center

The Future of the Coast is Now. The Ocean and Coastal Policy Center at UCSB (OCPC) is engaging questions that speak to a central challenge of our time: *How can we live sustainably and equitably on our coasts in the face of unprecedented environmental change?* OCPC offers coastal policy analysis, advising and education to government, NGOs, students and citizens working for our coasts. In 2021-2022, OCPC expanded its work in three major policy areas:

Climate Change, Adaptation, and Coastal Resilience. OCPC continued a 2-year effort funded by the State of California to address the state's critical need to prepare for global sea level rise. The $422,513 grant from the California Ocean Protection Council is supporting our research to improve the capacity of coastal communities to identify and adapt to the future impacts of sea level rise, such as increased beach erosion and coastal flooding. The grant funded student researcher Caitlin Manley, now a graduate of UCSB's Bren School for Environmental Science and Management. Caitlin has been helping OCPC build a map-based inventory of sea level rise adaptation activity on the California coast to support coastal managers and the public concerned with sea level rise. The inventory may also serve as a crucible for continued research and education about of how society can adapt effectively along its coasts. Caitlin has done amazing work for OCPC and is moving on soon to a prestigious NOAA Sea Grant Knauss Fellowship. She will be missed!

OCPC and Dr. Lester also continued collaborating with colleagues from UC Santa Cruz and UC San Diego through a UC multicampus research award exploring how the University of California can help address the challenge of coastal adaptation. The project is wrapping up in December. Also addressing resilience, OCPC was awarded $105,000 to contribute policy research and advising to the City of Santa Cruz Resilient Coast project, which is developing an "adaptation pathway" approach based on environmental and social monitoring to trigger future community-based coastal adaptation along its shoreline.

OCPC continues to actively contribute to on-going professional, community and academic conversations about coastal resilience. Dr. Lester was again invited to deliver closing remarks (at 4:44:21) at this year's UCI/Coastal Quest coastal resilience conference: Accelerating Solutions for a Resilient Coast. In September, Dr. Lester's work with several colleagues that takes a fresh look at the question of managed retreat in California was published by the Journal of Coastal Research. The article, Shoreline Retreat in California: Taking a Step Back, draws on the actual 50-year coastal management experience in California to show not only that some managed retreat is happening in various ways, but that there are lessons in past management efforts that may help communities move beyond the current overly-simplified debate about whether to stay or move back from the coastal edge.



Environmental Justice and Protection of the Public Trust. At the end of last year, Dr. Lester completed a report, Protecting Public Trust Shoreline Resources in the Face of Sea Level Rise, examining the implications of the inland movement of the mean high tide line due to sea level rise for the management of often competing public and private shoreline interests. He presented the report (begins at 1:08:42) to the California Coastal Commission in November, and in June of 2022, the Coastal Commission considered a draft Public Trust action plan with recommendations, many drawing from Dr. Lester's report. Dr. Lester will also be presenting his public trust work at the 2022 Yosemite Environmental Law Conference.

In another exciting project, OCPC and Dr. Lester participated as an expert advisor to the California Ocean Science Trust in the preparation of a report: Toward More Equitable Nature-based Coastal Adaptation in California. The report identifies important questions and research needs to address the need for social equity and justice as communities adapt to shoreline change.

OCPC also continues to work with an interdisciplinary team from CSU Channel Islands and San Francisco State University to address public beach access, sea level rise and social equity in the Santa Barbara region. The

project will provide recommendations to state and local beach managers for improving equitable beach access. The "Beach Sustainability Assessment for Comprehensive Analysis and Management" project is funded by the CSU Council on Ocean Affairs, Science & Technology and California Sea Grant.

Global Coastal Conservation Exchange. OCPC's collaboration with researchers in Chile working to improve the conservation of Chile's incredible coast continued this year, with OCPC joining an MOU with Pontificia Universidad Católica de Chile. In April, Dr. Carolina Martinez visited UCSB for the summer months to work with Dr. Lester and learn more about California coastal management. In June, Dr. Lester presented to an international seminar (at 57:20) lessons learned from California for enhancing coastal governance in Chile. He will be traveling to Chile in December to continue collaborative work with Dr. Martinez.

Other Activities. Dr. Lester continued working in a variety of intergovernmental and other forums, including co-chairing the sea-level rise adaptation subcommittee of Santa Barbara County's Regional Climate Collaborative, and serving on the Science Advisory Committee of the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) in Santa Barbara and Ventura Counties, and the Goleta Slough Management Committee. He also continued working with the Chancellor's Coastal Planning Science Advisory Board to help prepare a sea level rise adaptation plan for the campus.

Dr. Lester also continued to give invited lectures about coastal resilience, planning and regulation in California. In September, he contributed to two important interdisciplinary workshops addressing climate change and social change. The Sea'ties project is sponsored by the Ocean and Climate Platform and is an international initiative to mobilize cities which feature a diversity of climatic, geographic, social, economic and political contexts. Dr. Lester spoke at a Sea'ties workshop in Santa Cruz. At the end of the month, Dr. Lester spoke on a panel at the People on the Move in a Changing Climate, sponsored by USC Sea Grant. The workshop brought together academics and practitioners from many disciplines to consider the challenges climate change is bringing to the stability of populations across the country and the globe.

OCPC In the News

- The Conversation: **California's latest offshore oil spill could fuel pressure to end oil production statewide**
- New York Times: **Billions in Climate Deal Funding Could Help Protect U.S. Coastal Cities**
- USA Today: **Oceans rise, houses fall: The California beach dream home is turning into a nightmare Service Between OC, San Diego**
- E&E News: **Managed retreat: Unpopular, expensive and not going away**

More Information

For more information, please visit the OCPC website or contact: Dr. Charles Lester, Director, at charleslester@ucsb.edu or phone: (831) 706–8280.

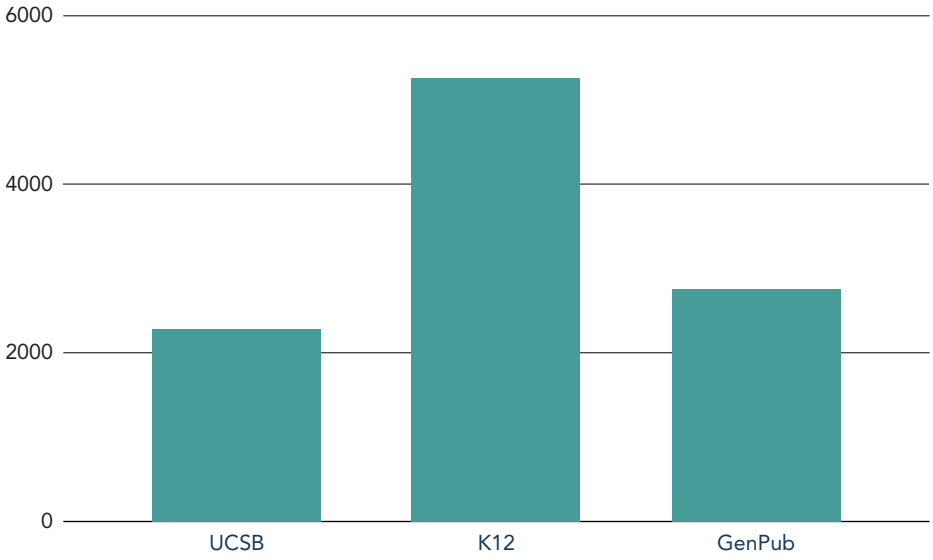
Analytical Laboratory

The MSI Analytical Lab is a professionally managed chemical analysis facility with the objectives of improving the quality and efficiency of marine-related research efforts, and of providing advanced capabilities for new and expanded research programs. Originally established in 1977 to serve the needs of UCSB marine researchers, the facility is now recognized campus wide as well as nationally as a resource for high-quality analytical services. The major capabilities of the lab include wt% elemental analysis of carbon, hydrogen and nitrogen (CHN) by combustion and automated determination of dissolved nutrients in natural waters using a 5-channel Flow Injection Analyzer. The lab also provides a stable isotope service and facility for UCSB researchers. The facility includes maintained instrumentation and training for the determination of stable isotopes of carbon and nitrogen in biological and geological materials using continuous-flow Isotope Ratio Mass Spectrometry. Most of the Lab's current instrumentation was obtained with extramural funding from grants acquired by the Lab manager in conjunction with interested faculty and researchers. The Lab operation is solely supported through user fees. There are currently two full time staff members employed in the Analytical Laboratory. The covid-19 pandemic has continued to slow down operation, but we have still been able to meet researcher needs in a safe and timely manner. Please visit our website at msi.ucsb.edu/services/analytical-lab for more information.

MSI Education and Outreach

As we continue to head towards a new "normal", MSI Oceans-To-Classrooms (O2C) Education/Outreach Programs and The REEF have continued to evolved and we're excited to invite visitors back to The REEF for in-person programming and courses. While we have seen changes, and challenges, due to the pandemic, in-person programming continues to increase. Our education and outreach efforts, through the REEF saw over 10,000 K-12, college and general public visitors in 2021-2022, and, based on current requests, we estimate returning to pre-pandemic numbers over 20,000!

As we ramp back up, we have been able to respond to teachers and course needs through the continued design and development of in-person, and distance, teaching strategies and online resources. Over 30 different Tri-Counties (SLO/SB/Ventura) K-12 schools were served this past year, as well as other communities from California. Because of our online presence we reached students across the globe along with our collaboration with UCSB's Virtual Youth Summit at the Gevirtz Graduate School of Education at UCSB! Exposure continues to include live Zooms in the Research Experience & Education Facility (REEF), as well as UCSB outreach events through Orientation and Visitor Center programs. Additionally, we supported teacher professional development through our work with the SBC-LTER and the NSF-funded Authentic Research Experiences for Teachers (ARETs) in a cross-site project along with the Arctic (ARC) and Andrews Forest (AND) LTERs.



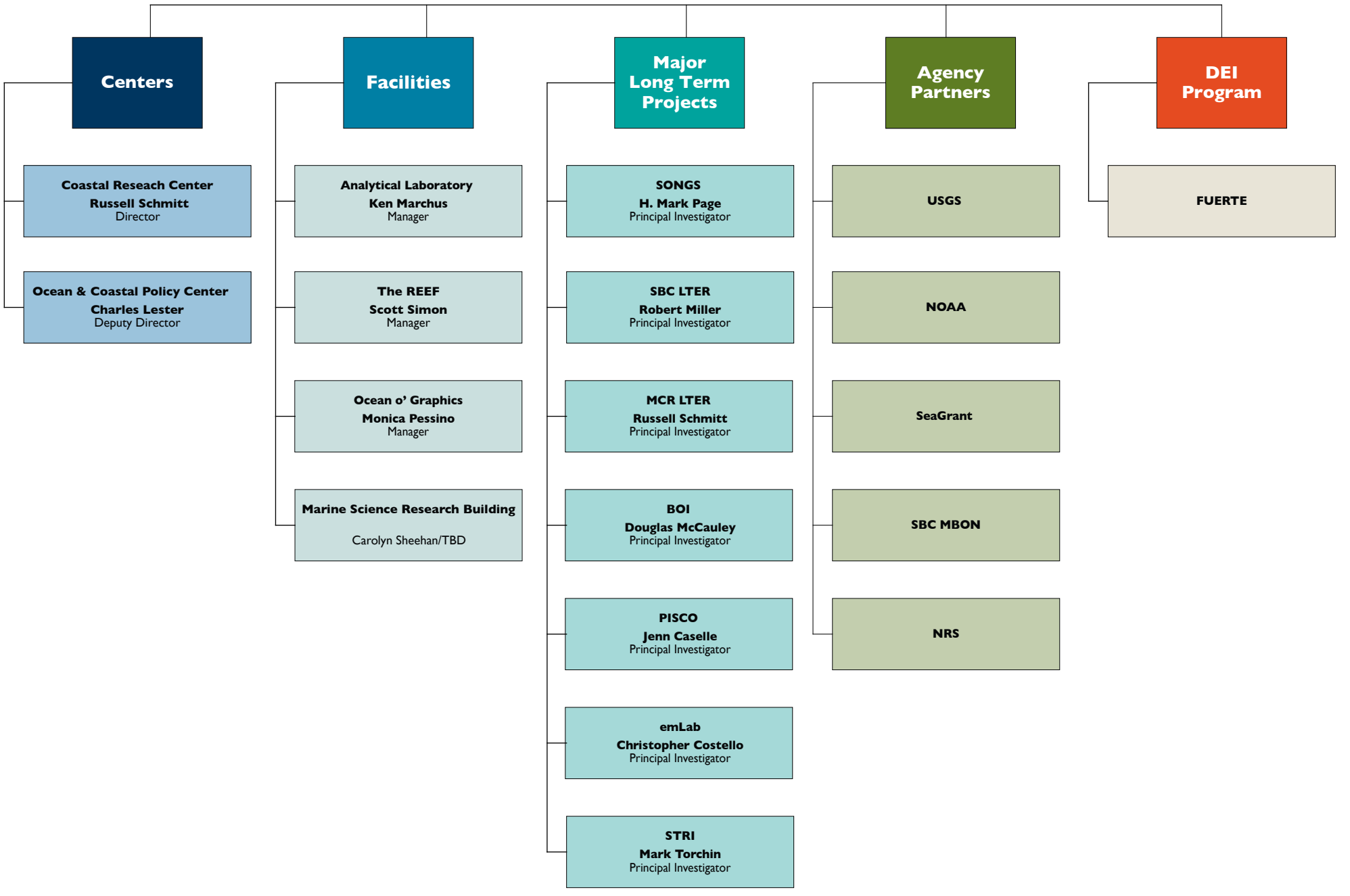
Graph of number of visitors by user group

University of California Santa Barbara (UCSB), as well as other universities, have continued to include the REEF as part of their curriculum.

None of this would have been possible without the continued support and collaborations from groups both on- and off-campus. First and foremost is our continued capital and program updates through the generous donation of Betty Wells Marine Science Ocean Initiative. It also includes the Office of Education Partnerships, The Gevirtz Graduate School of Education(GGSE), The AS Coastal Fund, Santa Barbara Channel Islands National Marine Sanctuary (CINMS) and many more. One partnership of note is with the American Association of University Women (AAUW) and the Tech Trek Math & Science Camp for Girls. This year we were able to resume this residential summer camp, bringing 160 middle school girls from SB, Ventura, SLO, LA and Kern Counties to UCSB for a week-long STEM experience.

MARINE SCIENCE INSTITUTE

Other Projects and Activities 2021–2022



The REEF: The Research Experience and Education Facility

SONGS: Nuclear Generating Station

SBC LTER: Santa Barbara Coastal Term Ecological Research

MCR LTER: Moorea Coral Reef Long-term Ecological Research

BOI: Benioff Ocean Initiative

PISCO: Partnership for Interdisciplinary Studies of Coastal Oceans

emLab: Environmental Market Solutions Lab

STRI: Smithsonian Tropical Research Institute

USGS: United States Geological Survey

NOAA: National Oceanic and Atmospheric Administration

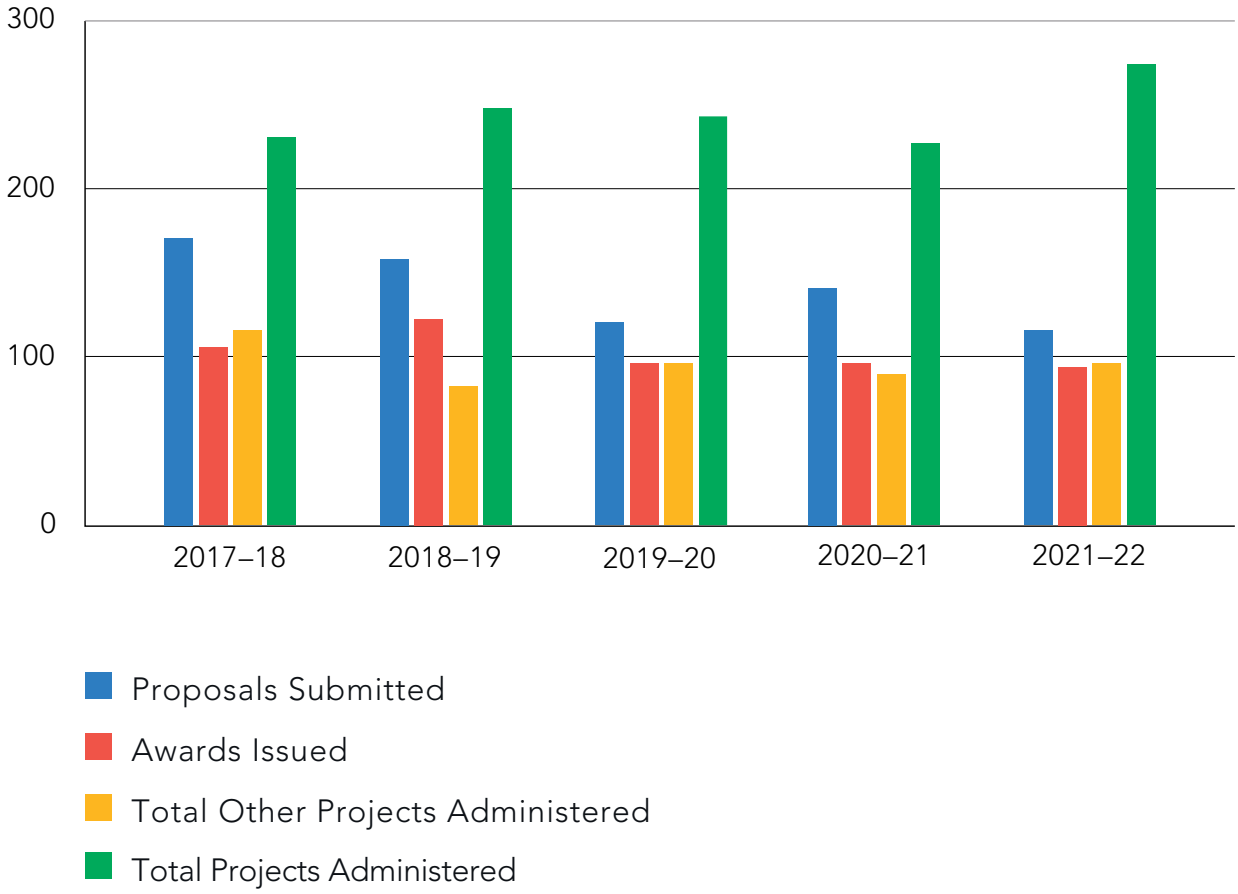
SBC MBON: Southern California Bight Marine Biodiversity Observation Network

NRS: Natural Reserve System

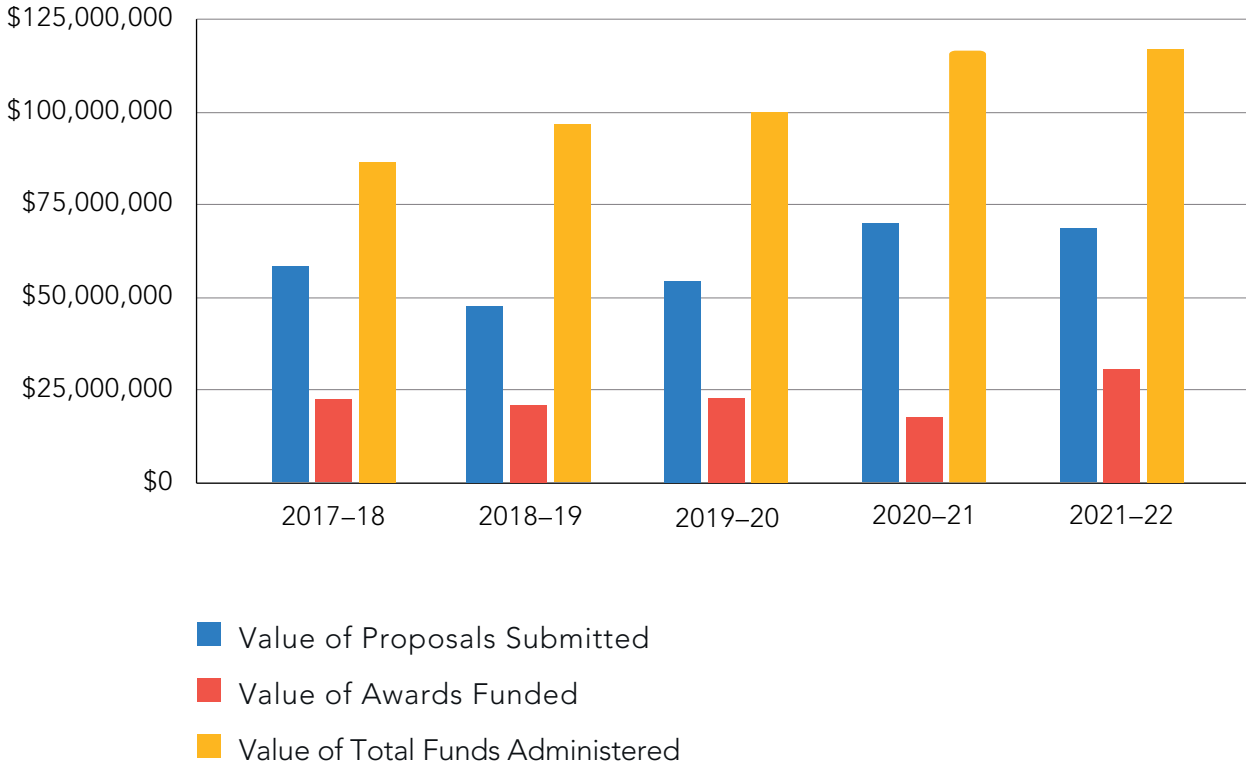
FUERTE: Field-based Undergraduate Engagement through Research, Teaching, and Education

Proposal & Award Administration

Proposal Submitted, Awards Issued and Total Projects Administered | 2017–2022



Value of Proposals Submitted, Value of Awards Funded and Total Funds Administered | 2017–2022




Happy Holidays

Space

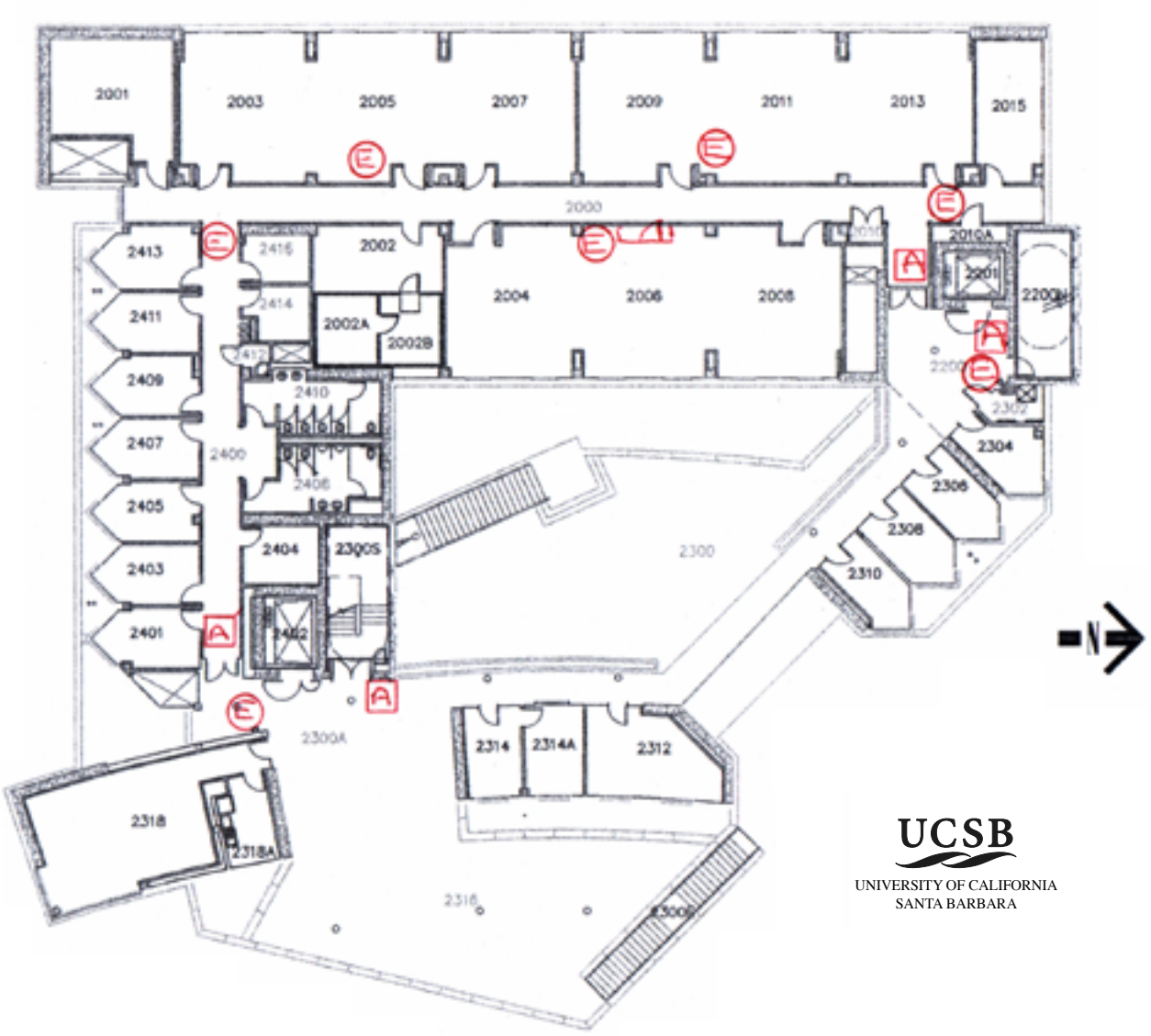
Marine Science Research Building | Bldg. No. 520 – 1st floor 06/2022

1001	Seawater workroom
1002	Common support laboratory
1003	Valentine laboratory
1004	Page/Dugan laboratory
1005	Valentine laboratory
1006	SONGS
1007	Siegel laboratory
1008	Valentine Laboratory
1009	Analytical laboratory

1010	Valentine Laboratory
1011	Analytical laboratory
1204	Graduate Students office
1206	Post Doc/Graduate Students office
1208	Graduate Students office
1302	Auditorium
1304	Sustainable Fisheries Group
1304a	Sustainable Fisheries Group

1304b	Sustainable Fisheries Group
1308	Copier room
1310	Carrie Culver
1312	MSI Researchers office
1314	MSI Researchers office
1409	Seawater workroom
1411	Seawater workroom
1413	Seawater workroom

Marine Science Research Building | Bldg. No. 520 – 2nd floor 06/2022



2001	Seawater workroom
2002	Common support laboratory
2002a	Environmental room
2002b	Environmental room
2003	Hofmann laboratory
2004	Miller laboratory
2005	Hofmann laboratory
2006	Miller laboratory/ SBC LTER/ MBON
2007	Hofmann laboratory
2008	Shared laboratory

2009	Burkepile laboratory
2011	Burkepile laboratory
2013	Burkepile laboratory
2015	SONGS project
2304	Burkepile Researchers office
2306	Erika Eliason
2308	Kevin Lafferty
2310	Bob Miller
2312	Benioff Ocean Initiative
2314	Benioff Ocean Initiative

2314a	Benioff Ocean Initiative
2318	Conference room
2401	Mark Page
2403	Jenifer Dugan
2405	MSI Researchers office
2407	Mark Torchin
2409	Hofmann Researchers office
2410	Restrooms
2411	Hofmann Researchers office
2413	Hofmann Researchers office

Marine Science Research Building | Bldg. No. 520 – 3rd floor 06/2022

3001	Seawater workroom
3002	Common support laboratory
3003	Reed laboratory
3004	Holbrook laboratory
3005	Reed laboratory
3005a	Common support laboratory
3006	Schmitt laboratory
3008	Blanchette laboratory
3009	PISCO laboratory
3011	Caselle laboratory

3013	Washburn laboratory
3014	Storage
3015	MacIntyre laboratory
3304	Charles Lester
3306	SBC LTER Researchers office
3308	Dan Reed
3310	Andrew Brooks
3312	CRC Researchers Office
3312a	CRC Researchers Office
3314	Russell Schmitt

3316	Sally Holbrook
3322	Conference room
3401	Margaret O'Brien – Mary Gastil-Buhl
3403	Adam Lambert
3405	BON Researchers office
3407	BON Researchers office
3409	Chris Jerde
3411	Craig Nicholson

Marine Science Research Building | Bldg. No. 520 – 4th floor 06/2022

4002	Receiving
4003	Ocean o' Graphics – Carlos Paz
4003a	Ocean o' Graphics – Monica Pessino
4003b	NRS
4003c	NRS
4004a	File Room
4004c	Kimberly Taylor / Celeste Francisco
4004d	Jenny Chu
4005a	Nicole Zavala
4005a	Marisol Hernandez
4005b	Veronica Perez
4005c	Lyndi Swanson
4006a	Melia Cutcher

4006a	Vacant
4006b	Vacant
4007	Mail room
4008	Break room
4009	MSI Researchers office
4009a	MSI Centers
4009b	MSI Researchers
4012	Server room
4013	MSI Researchers office
4304	Douglas McCauley
4306	Libe Washburn
4308	Sally MacIntyre
4310	Gretchen Hofmann
4312	Deron Burkepile
4314	Jenn Caselle

4316	Nick Nidzieko
4318	Conference Room
4322	Sustainable Fisheries Group
4322a	Michaela Clemence
4322b	MSI Researchers
4326b	MSI Director Suite
4326	MSI Director Suite
4326a	MSI Director
4401	Carolyn Sheehan
4403	Brian Emery/IT
4405	Luisa Velez
4407	Laura Susin
4409a	Lukas Checa
4409b	Deanna Cervantes
4409c	Donna Dobis

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334-a	Scott Simon
334-b	REEF
334-c	REEF

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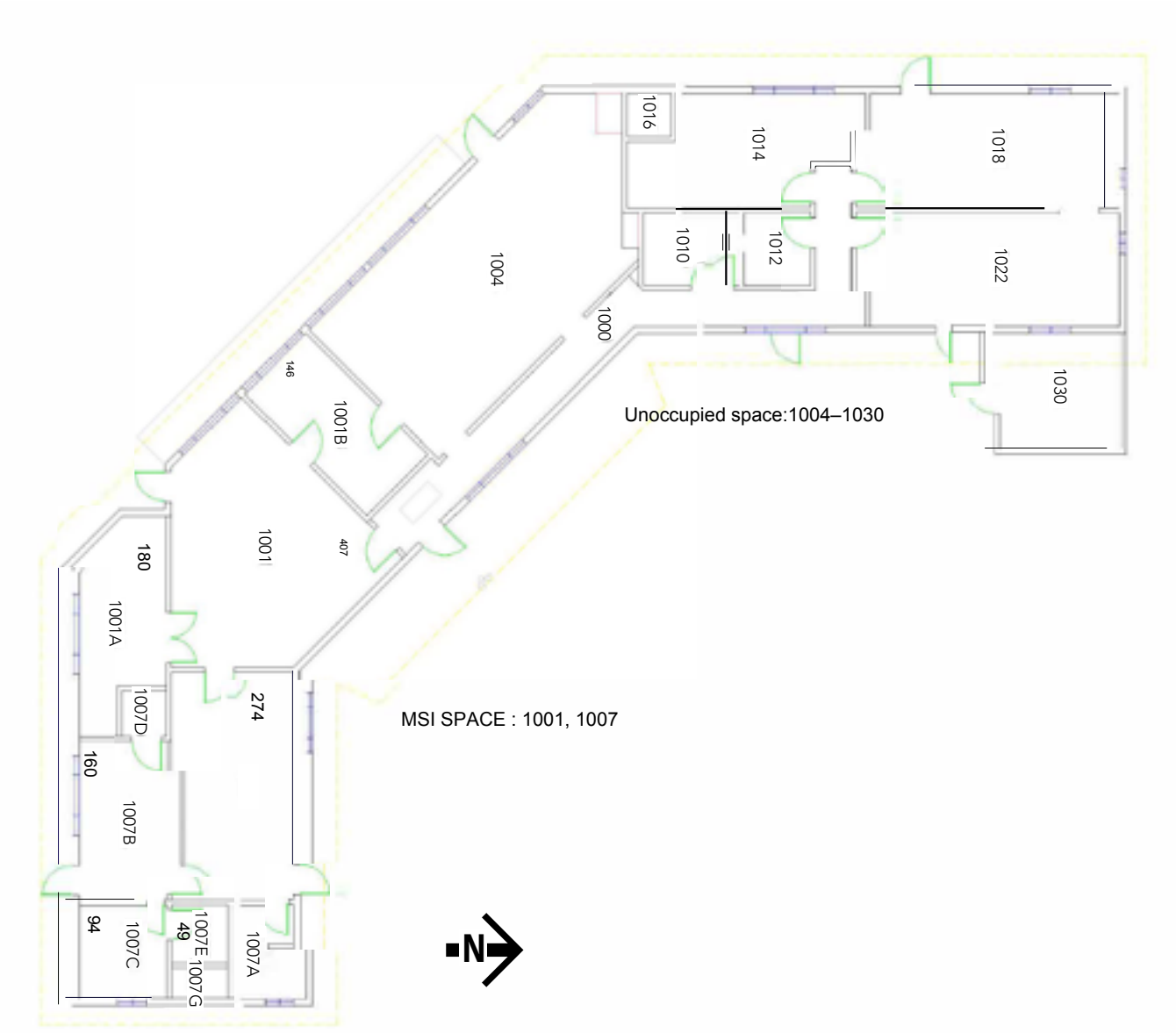
06/2022



1001	Love data laboratory
1001a	Love laboratory
1001b	Milton Love office
1007	Kitchenette / break room

1007a	Restroom
1007b	Dorothy Pak office
1007c	Dorothy Pak laboratory
1007d	Closet

1007e	Storage
1007g	Utility room

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