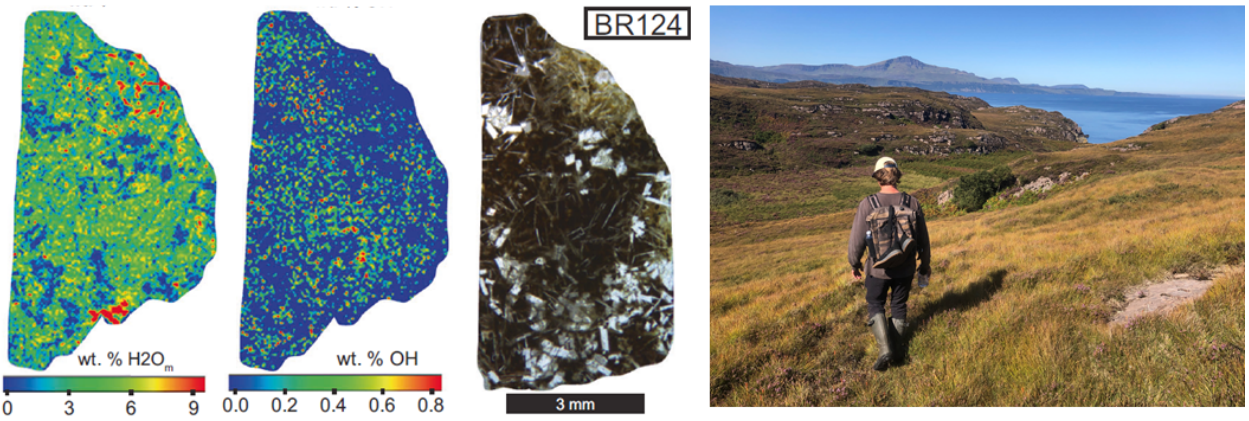
UC SANTA BARBARA

Earth Research Institute

Annual Report
Fiscal Year 2022-2023



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Mission Statement

The mission statement for the Earth Research Institute (ERI) is "***Supporting research and education in the sciences of our solid, fluid, and living Earth***". This mission reflects the union of several academic emphases and their symbiotic interactions, in particular:

- **Natural Hazards** - Impacts of Earth processes on society: earthquakes, tsunamis, volcanic eruptions, landslides, floods, droughts, storms, wildfires, erosion, and other natural processes.
- **Human Impacts** - Impacts of humankind on Earth: pollution assessment and remediation, land use and land-cover change; food and freshwater security; anthropogenic forcing of climate changes, erosion, and fire; biodiversity conservation; and natural resource management (forestry, fisheries, etc.).
- **Earth System Science** - The science of Earth's subsystems (atmosphere, hydrosphere, lithosphere/mantle, cryosphere, biosphere and anthroposphere) and their interactions.
- **Earth Evolution** - Evolutionary mechanisms and history of Earth's tectonics, climate, and biota from Earth's formation to the present.
- **Environmental Data** - Integrated digital "collaboratory" where data, models, metadata resources, etc., are shared among investigators within ERI, across campus, and with colleagues throughout the world.

Overview

The Earth Research Institute (ERI) is an organized research unit of the University of California Santa Barbara dedicated to supporting extramurally-funded research within the broad area of Earth Science. Professor Alex Simms completed his first year as the Interim Director of the unit having taken over for Kelly Caylor in August of 2022. More than seventy independent research groups conduct and administer their research using the facilities and resources of the Institute. ERI supports fourteen administrative employees and three computer system administrators, all from university resources. ERI fulfills its mission in three primary ways. First, it provides research support through shared facilities, including computational facilities for intensive simulation modeling and for terabyte scale data storage and access; staging facilities and dry laboratories for readying equipment for field deployments; and access to a wide variety of satellite and aircraft remote-sensing data. Second, ERI provides contract and grant support from proposal preparation through close-out and strives to reduce administrative burden in order to allow PIs to focus on research. Third, ERI is home to the Cheadle Center for Biodiversity and Restoration (CCBER), which fulfills the UC Santa Barbara mission of research, education, and public service through stewardship and restoration of campus lands, preservation and management of natural history collections, and through learning experiences and programs that offer unique opportunities for students of all ages.

Figure 1: Proposals Submitted, Awards Issued and Projects Administered | FYs 2017-2023

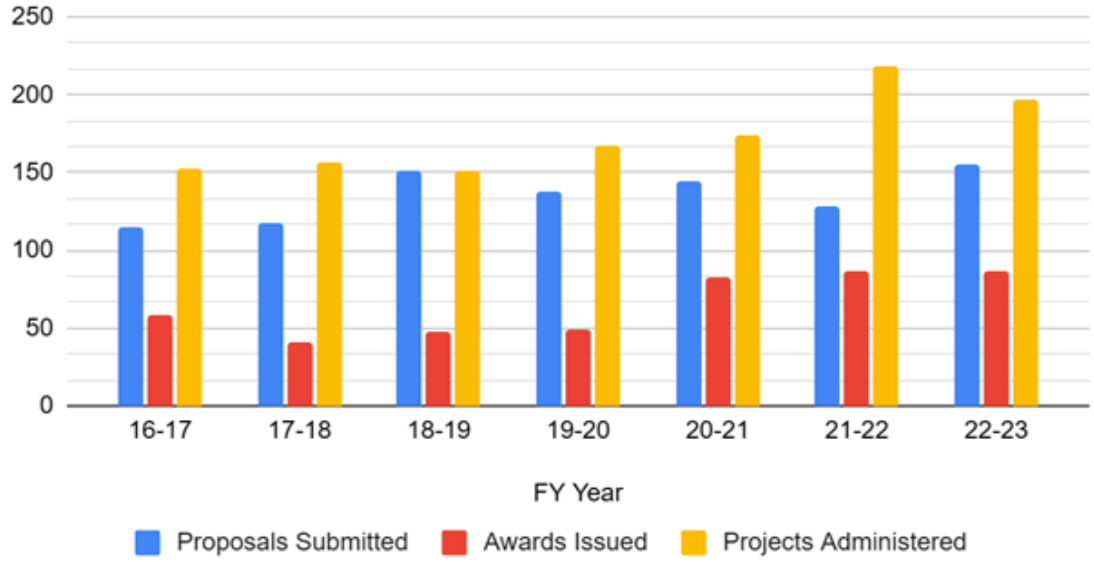
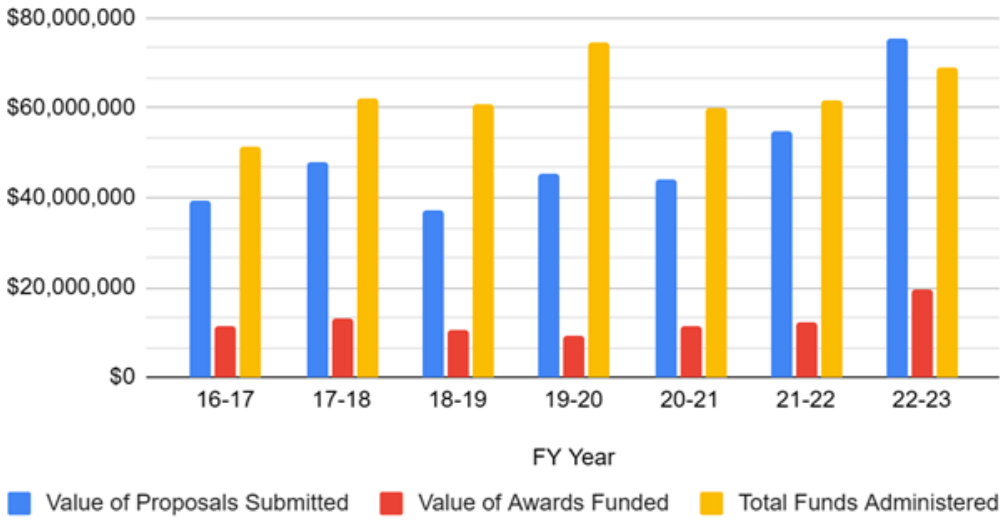


Figure 2: Value of Proposals Submitted, Value of Awards Funded and Total Funds Administered | FYs 2017-2023



Over the past year, ERI held steady in the number of awards issued compared with 2021-2022 (87 in both years) despite having a ~20% increase in the number of submissions (155 versus 129). However, the value of those proposals increased significantly ($75.4 Million versus $54.7 Million) as did the value of the awards from ~$12.5 Million to ~$19.6 Million, an approximately 50% increase in value (Fig. 1). This value of new awards is the largest in ERI history and stems from a couple very large grants (>$2 Million) that are likely a one-time increase. Although ERI experienced a decrease in the number of projects administered (197 vs. 219), the value of the funds administered increased by ~12% to over $68.9 million (Figure 2) USD in funding, largely as a result of the significant increase in the value of the new awards.

ERI researchers have done remarkable things with the research funding they garnered. They have continued to publish in the best general science journals (e.g. *Science*, *Nature*, *Proceedings of the National Academy of Sciences*) as well as the top journals in their fields (e.g. *Nature Energy*, *Nature Communications*, *Nature Geoscience*, *Nature Climate Change*, *Geophysical Research Letters*, etc.). ERI research provides important insights into societally relevant problems ranging from food, water and energy security to volcanic hazards. CCBER's activities help the university fulfill its conservation mandates. The proven track record of ERI researchers assures that it will continue to provide answers to important fundamental and applied science questions in the future.

The great span of research accomplishments in ERI is due to the diversity and quality of its faculty and researchers. ERI includes PIs from the Bren School, Ecology, Evolution, and Marine Biology (EEMB), Earth Science, Geography, the Marine Science Institute, the National Center for Ecological Analysis and Synthesis, Chemistry & Biochemistry, Computer Science,

Anthropology, Environmental Studies, Chemical Engineering, Mechanical Engineering, Economics, the Natural Reserve System, and Physics. ERI was joined by 5 new PIs this year, some new to the university, others have been on campus for quite some time but submitting proposals through ERI for the first time. As ERI has grown over the past decade, our research has grown well beyond Earth Sciences, with faculty working across the entire suite of domains in Earth and Environmental Sciences.

The strength of ERI faculty members and researchers is reflected in the awards and accolades they have garnered. Six of our faculty are members of the U.S. National Academy of Sciences (Roberta Rudnick, Richard Church, Galen Stucky, David Tilman, and emeriti Doug Burbank and Thomas Dunne). Thirteen of our faculty are Fellows of the AGU, the largest Earth Science organization in the world (Matt Jackson, John Melack, Francis MacDonald, Dar Roberts, Roberta Rudnick, David Siegel, Toshiro Tanimoto, and emeriti Ralph Archuleta, Douglas Burbank, Jeffrey Dozier, Thomas Dunne, Brad Hacker, and Bruce Luyendyk. Seven ERI faculty (Doug Burbank, Brad Hacker, Ed Keller, Francis Macdonald, and Roberta Rudnick), two of which were newly elected this year (John Cottle and Susannah Porter), are Fellows of the Geological Society of America and nine (Craig Carlson, Richard Church, Frank Davis, Jeff Dozier, Thomas Dunne, John Melack, Galen Stucky, and David Tilman) including newly elected, Dar Roberts, are Fellows of AAAS. Six of our faculty are fellows of the Ecological Society of America (Anna Trugman, Carla D'Antonio, Frank Davis, Douglas McCauley, Josh Schimel, and David Tilman). Faculty members have been honored with many additional awards from academic societies over the past years, including John Cottle (Fellow, Mineralogical Society of America; GSA Early Career Award, Mineralogy, Geochemistry, Petrology, & Volcanology Division); Matt Jackson (the Geochemical Society's Clarke Award; AGU's Kuno Award); Scott Jasechko (GSA Kohout Early Career Award); Susannah Porter (Fellow, Paleontological Society); Roberta Rudnick (AGU Hess Medal); and Frank Spera (Fellow, Mineralogical Society). Just this year, Roberta Rudnick was awarded the prestigious Victor Mortiz Goldschmidt Award (the highest honor given by the Geochemical Society). Our PIs also serve in high-visibility positions in their profession (e.g., Roberta Rudnick, President of the Geochemical Society). This excellence continues to our early career researchers with 7 currently holding NSF Early Career Awards including Zachary Eilon, Scott Jasechko, Ashley Larsen, Robin Matoza, Kristi Morell, Samantha Stevenson, and new this year, Interim Associate ERI director Holly Moeller.

Executive Summary

The mission of the Earth Research Institute (ERI) is to support research and education in the sciences of our solid, fluid, and living Earth. In the past fiscal year, ERI-affiliated faculty and researchers from across campus submitted 155 proposals requesting over $75 million in funding in which 87 new awards in the amount of $19.5 million were awarded. ERI also welcomed new staff members, accommodated new administrative and student contract changes, and continued to support excellent Earth Science research. Major awards and activities during the last year include:

- **Professor Dave Siegel (Geography)** received a major research award of over $2.8 million ($2,897,686) from the Department of Energy to examine the viability and risks associated with using algae to sequester CO_2 in the oceans. The project examines some of the aspects of this potential solution to one of our largest environmental challenges – trying to reduce the amount of CO_2 in our atmosphere.

- **Assistant Professor Holly Moeller (EEMB)** received an NSF CAREER Award, “How do mixotroph phenotypic plasticity and adaptive evolution constrain climate feedbacks” ($1,104,048). This new project measures how mixotrophs--plankton that combine photosynthesis and heterotrophy within the same cell—evolve in response to climate change. The grant also includes funds to support math-biology education in K-12 classrooms and at UCSB. Dr. Moeller becomes our seventh active NSF CAREER awardee.

- **Former PhD Student Demian Nelson and Professor John Cottle (Earth Science)** published a paper in the journal *Nature Communications* showing that 100-Million-year-old lavas in Antarctica interacted with ice sheets at the time of their cooling. This finding changes our views on when and where ice was located during a time period in Earth’s history thought to be “ice-free.”

- **Assistant Professor Ranjit Deshmukh (BREN/Environmental Studies)** published a policy brief in the journal *Nature Energy* showing that restricting the location of new oil wells in California has a greater health benefit than levying excise and carbon taxes. Furthermore they showed that this policy approach brings greater benefits with less economic harm to disadvantaged communities.

In order to retain talent, most staff work some sort of hybrid schedules, with a few that remain almost exclusively remote. For those working hybrid schedules, on campus work schedules are staggered such that most days at least two people are available on site. In addition, most administrative interactions are conducted via email or through software portals and, with the hybrid schedule, staff are still available during the week for an in-person meeting if needed.

After a few years' hiatus (due to COVID), we re-instigated our "Rooftop Research Reception" to allow our researchers to meet in person again. Teaming up with the Geography Department we hosted an event to bring together faculty, researchers, and post-docs from across the ERI community to help them meet and foster potential collaborations. Over 50 Researchers came to the event.

Like many other departments on campus, filling staff vacancies has been a challenge. Fortunately, we were successful at recruiting 2 new staff members, bringing our cohort back up to 17 (inclusive of GRIT). We also weathered four staff leaves this year, but thanks to herculean efforts by other staff and preparation by those on leave along with their staggered leave times allowed us to make it through those lean periods. We also appointed a new interim associate director last year.

We put in an FTE request for a permanent director this year, but that was not approved this time around. We are hopeful that we will be more successful in our request next year.

As we enter 2023-2024, we are excited to continue our efforts to support world-class research. We know our research community is tackling some of the most important fundamental and applied research for meeting the challenges of our changing world. Many exciting directions and initiatives are coming and we feel ERI is positioned to take advantage of these in the coming years. This annual report provides a snapshot of the Earth Research Institute in 2022-2023, the research we do, and the impact of these efforts.

UC SANTA BARBARA
Cheadle Center for Biodiversity
& Ecological Restoration

Katherine Esau Director's Annual Report, Vernon and Mary Cheadle Center for Biodiversity and Ecological Restoration, Katja C. Seltmann, Period: 7/1/22-6/30/23

Our mission at UC Santa Barbara's Vernon and Mary Cheadle Center for Biodiversity and Ecological Restoration is to lead the way in biodiversity research, conservation, and ecological restoration. We strive to preserve and enhance our natural heritage by combining stewardship of campus lands, preservation of natural history collections, and research and education about biodiversity.

Cheadle Center's Collections & Biodiversity program

The Cheadle Center's Collections & Biodiversity program aims to understand and conserve this diversity of life on earth and involves multiple fields of study, such as evolution, systematics, ecology, genetics, and conservation biology. Our research highlights the importance of natural history collections as the historical records of biodiversity. Currently, this Cheadle Center program is home to three researchers and two postdoctoral scholars, all funded by Cheadle Center projects. Our principle research themes include:

1. **Biodiversity Conservation:** Research initiatives focused on the preservation and description of diverse life forms, their habitats, and ecosystems, emphasizing conservation strategies and practices.
2. **Natural History Collections:** Preservation, curation, and utilization of historical records and specimens to support biodiversity research and education.
3. **Environmental Factors and Phenotype:** Exploring the impact of environmental conditions and evolutionary processes on the anatomical and functional characteristics of bees, amphibians and plants.
4. **Technology Advancements:** Advancing technological tools and methods, such as camera trap technology and 3D imaging, to aid in biodiversity research and conservation efforts.

Looking ahead, our researchers have several proposals either under review or in preparation. The first proposal is with the USDA, collaborating with faculty at UC Riverside and the University of Utah, focused on bee health. It seeks to explore the relationship between anatomical variation in bee populations and stressors, using DNA and imaging on both historical museum specimens and bumble bees in colonies. The second proposal, in preparation for submission to NSF, involves primary field exploration in an unexplored Colombian cloud rainforest. Led by the Cheadle Center and in collaboration with Colombian and US herbaria, this project aims to discover numerous new plant species, including orchids.

Fig. 2: UCSB Vertebrate Zoology Collection. Birds in new housing (left) and Herpetology Collection in outdoor trailer (right).

In 2023, the UCSB Natural History Collections faced several challenges. We had to address a significant mold issue in our Herpetology Collection due to a malfunctioning air conditioning unit in the external trailer where it is housed. Additionally, there was an ongoing pest infestation in the Vertebrate Collection caused by building shifts that created openings in the window seam, allowing pest insects to enter. The Vertebrate Collection, predominantly stored in outdated, non-sealing cabinets lacking proper climate control, required freezing specimens in accordance with museum best practices to mitigate damage and control the infestation. We submitted an NSF infrastructure grant to acquire new collections, with plans for resubmission next year. Furthermore, the UCSB Coastal Fund (AS) is supporting an undergraduate internship program that is assisting our mitigation efforts, and the building and maintenance funding from the Office of Research aided with this mitigation project.

The Cheadle Center also thanks the Office of Research for securing the rooms that were formerly occupied by the Speech and Hearing Department. The two main labs now contain the Invertebrate Zoology Collection and more sensitive specimens from our Vertebrate Collection that were under threat from the pest infestation. The additional space has also allowed us to expand our internship program, providing rooms and space for over 100 undergraduates this year. We are working with UCSB Development to renovate the rooms for improved collection use and we have been approved for several collection naming opportunities (Herbarium, Vertebrate Collection, Invertebrates) that may help with fundraising efforts. However, fundraising for infrastructure is second to securing funding for our Shirley Tucker Curator of Biodiversity Collections and Botanical Research, whose position is currently being paid at 15% from the Cheadle Center endowment funds, 10% from teaching (EEMB, ENVS) and the remainder from

current use donations. We would like to express our gratitude to Dr. Shirley Tucker for her continued support of this vital role.

The Cheadle Center continues its effort as a specimen data publisher. Our digitized collections are shared via the Global Biodiversity Information Faculty (GBIF), and through GBIF, our digital specimen records have been cited 740 times since 2016. This is up from 476 last year, possibly indicating the increased use of digital specimen data for research or increased availability of our 8 digital collections. Over the past seven years, the National Science Foundation and the Institute for Museum and Library Services have supported the near-complete digitization of Invertebrate Zoology, Seaweed, and Vascular Plant collections totaling 120K specimens. Digital citations are tracked from GBIF, and each dataset is identified similarly to a published dataset. Authors include those identified citations in their subsequent research products, creating a trackable link to our digitized specimen data.

Cheadle Center's Ecological Restoration & Management program

Current program priorities include implementing the Ellwood Marine Terminal restoration project, securing the NCOS Endowment, preserving and researching rare plants, and supporting a sustainable and resilient campus.

Lisa Stratton, the Cheadle Center's Director of Ecosystem Management, has secured ca. 7M in funding from the Wildlife Conservation Board, Exxon Mobil, California State Coastal Conservancy for the demolition and restoration of **Elwood Marine Terminal** (**EMT**; Fig. 2). The site is 17.45 acres and includes two crude oil storage containers. Restoration includes new woodland, restored wetlands, freshwater pond, grassland and coastal sage habitats. Demolition is expected to start in Spring 2024 and be completed in 2029. The community can stay connected with EMT and all of our restoration projects through the Restoration Register Newsletter (formally called NCOS News).

Fig 2: Elwood Marine Terminal restoration slated to start in Spring, 2024

This EMT is contiguous with the Cheadle Center's 136-acre **North Campus Open Space (NCOS)** restoration project and Coal Oil Point Reserve (geolocation: 34.41610, -119.88182). Integral in the restoration plan for EMT includes access for culturally guided practices by the Chumash. Our restoration priorities include developing collaborations with the Chumash including cultural burns, signage and facilitating land use conversations as an

important liaison and campus ambassador. This is one example of how Cheadle Center provides positive public relations for campus via our projects and outreach. The good will Cheadle Center provides on campus is evident in our reputation with the California Coastal Commission, a relationship critical to campus housing and building development.

A continuing collaboration between the Cheadle Center and US Fish & Wildlife include growing, researching and outplanting plant species of conservation importance. UCSB is located in a critically endangered habitat, thus mitigation is required for construction. Expanding from these mitigation efforts, Cheadle Center is now leading the way toward conservation and monitoring for many threatened or endangered species. These include Ventura marsh milk-vetch, marsh sandwort, salt marsh bird's beak, Coulter's goldfields, miniature lupine, *Brodeia jolonensis*, *Bloomeria crocea*, Santa Barbara honeysuckle, southern tarplant, and *Sesuvium ventrucosum*.

Cheadle Center is also leading the way in developing sustainable and successful ways of restoring grasslands, an endangered habitat that is also hard to restore because of the impact and prevalence of non-native grasses. These non-native grasses are also a major cause for wildfires as they ignite quickly during the summer. redmaids, or khutash to the Chumash (Fig. 3), are one of the grassland wildflowers that are effectively managed and propagated by control burns for which we have great success.

In 2023, the Cheadle Center actively contributed to various planning committees at UCSB, including the **Coastal Planning Science Advisory Board**. This board, consisting of individuals such as John Melack, Paul Alessio, Patrick Barnard, Jenifer Dugan, Gary Griggs, Charles Lester, Mark Page, Lisa Stratton from Cheadle Center, and ex officio member Shari Hammond, was responsible for collaborating with the UC Santa Barbara Office of Campus Planning and Design to draft the UCSB Sea Level Rise Adaptation Strategy Plan. The primary goal of this plan was to assess and make necessary adjustments to the UCSB Long Range Development Plan (LRDP) in response to sea level rise and associated vulnerabilities.

Fig. 3: Field of native khutash (*Calandrinia ciliata*) outside of Henley Gate planted by the Cheadle Center's Restoration & Management team.

Contributions to Education

The Cheadle Center staff and researchers contribute significantly to the education mission of ERI and the campus. During this fiscal year, we provided research and education internships for **257** UCSB undergraduate students. **165** in our Collections and Biodiversity program, **73** in our Restoration and Ecology program, and **20** in our Kids in Nature Environmental Education program.

Also during this year, Center staff and researchers **taught 7 courses,** including Restoration Seminar (EEMB 188RE), Collection Curation (ENVS/EEMB 96), Restoration Skills (ENVS 95), Vertebrate Ecology and Evolution (EEMB 113), Principles of Evolution (EEMB 131), Ethnobotany (ENVS/ANTH 197EB), and California Flora and Vegetation (EEMB 103A). Additionally, between Spring 2022 - Spring 2024 over **32** students were supported by the Cheadle Center for independent study (EEMB 84, EEMB 184, EEMB/ENVS 99, EEMB/ENVS 199).

The Restoration Seminar, Collection Curation and Restoration Skills courses are not funded by the home departments (EEMB/ENVS), rather they are fully funded by Cheadle Center. These courses serve about **150** students a year.

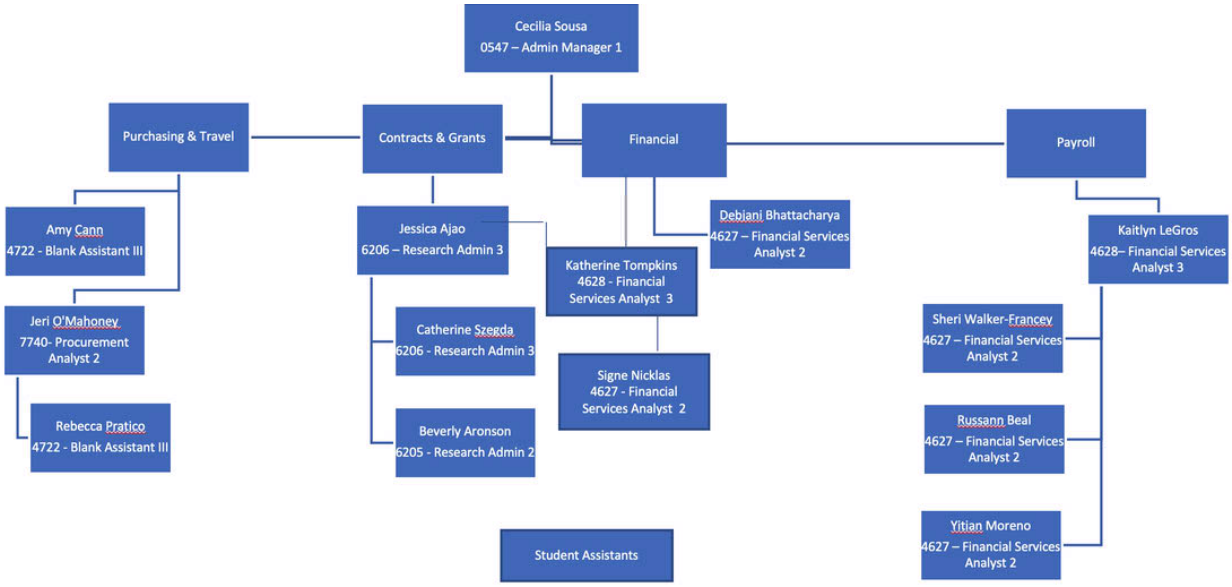
Through guest lectureship, tours, data, TA training or classes using our facilities (campus lands, collections) we estimate that the Cheadle Center supports ca. **35 classes** a year across campus and **over 6,000** students benefit each year.

Campus and Donor Support

This year (2023) the Cheadle Center received $1,239,000 in donations, with the majority (98%) going towards the North Campus Open Space for endowment and current use. Money from the endowments is earmarked primarily for staff salaries, including the UCSB Natural History Collections collections manager. Other donor supported staff include our Greenhouse Manager, Research and Monitoring Coordinator, and Education and Outreach Coordinator. These are the principal staff members who support guest lecture in classes, mentor undergraduates and do most of our community outreach. This community outreach includes many activities on UCSB campus lands after restoration is complete. These ongoing tasks include trail creation and management, managing transients (an ever increasing issue on campus), signage, management of porta-potties, dog off-leash enforcement, and trash cleanup.

We thank the Cheadle Center Director's Council as they continue to connect us to a broader donor community. Many members of the Director's Council have made generous gifts to our operations this year and have continued to promote the Cheadle Center including funding our undergraduate and postdoctoral research programs. The Council is Ed and Sue Birch, Bill and Mary Cheadle, Joseph Cheadle, James Markham, Suzanne and Duncan Mellichamp, Greg and Dale Stamos, Larry Friesen, Jennifer Thorsch, and Sharon Metsch. We are also grateful for the benefit of collaborative efforts through the North Campus Open Space Scientific Advisory Committee, the Cheadle Center Advisory Committee, the Earth Research Institute, the UCSB Office of Research, the UCSB Office of Development, and our Cheadle Center Research Affiliates

Organization Chart



Advisory Committee, Administrative, and Technical Staff

Directors

Alex Simms, Interim Director

Ryoko Oono, Associate Director

ERI Advisory Committee

Dr. Tim DeVries, Professor, Department of Geography (Chair)

Dr. Leila Carvalho, Professor, Department of Geography

Dr. Ashley Larsen, Associate Professor, Bren School of Env. Science & Mgmt.

Dr. Robin Matoza, Associate Professor, Earth Sciences

Dr. Roberta Rudnick, Professor, Earth Sciences

Dr. Katja Seltmann, Director of the Cheadle Center for Biodiversity & Ecological Restoration

Dr. Timothy Stillinger, Assistant Researcher, Earth Research Institute

Dr. Alex Simms, Professor, Earth Science (ex officio - ERI Interim Director)

Michael Colee, Director of Computing (ex officio)

Cecilia Sousa, Management Services Officer (ex officio)

ERI Administrative and Technical Staff

Cecilia Sousa, Management Services Officer

Jessica Ajao, Contracts & Grants Manager/Financial Coordinator

Bev Aronson, Contracts & Grants Analyst

Rustie Beal, Personnel Analyst

Debjani Bhattacharya, Financial Analyst

Amy Cann, Travel Assistant

Kaitlyn LeGros, Personnel Supervisor

Kat Long, Contracts & Grants Analyst

Signe Nicklas, CCBER Financial Coordinator

Jeri O'Mahoney, Purchasing Analyst

Yitian Moreno, Personnel Analyst

Rebecca Pratico, Purchasing Assistant

Catherine Szegda, Contracts & Grants Analyst
Katherine Tompkins, Financial Research Analyst
Sheri Walker-Francey, Personnel Analyst

Michael Colee, Director of GRIT
Aaron Martin, Systems Administrator
Matthew Key, Systems Administrator (replacing A. Martin - retired as of 6/30/23)
Darla Sharp, Information Systems Analyst

Statistical Summary

Personnel Engaged in Research (head count)	
Faculty	34
Professional Researchers (inc Visiting)	15
Project Scientists	3
Specialists	13
Postdoctoral Scholars	20
Graduate Students	67
Undergraduate Students	151
Technical & Research Staff	69
TOTAL	372

Unit Operational Staff (# of FTE):	
Administrative	14
Computing	3
TOTAL	17

Sponsored Research	
Number of Principal Investigators*	131
Proposals Submitted (#)	155
Proposals Submitted ($ value)	$75,437,858
Awards issued (#)	87
Awards issued ($ value)	$19,593,775

Extramural awards administered during year (#)**	197
Extramural awards administered during year ($ value)**	$68,971,510
Costshare funds managed during year ($ value)**	$1,761,177
Awarding agencies dealt with (#)***	93

*Number of PIs, Co-PIs and Proposed PIs
**If the award was open during FY, it's included
***Each agency counted once (includes agencies to which proposals have been submitted)

Other Projects & Programs	
Seminars, symposia, workshops sponsored (#)	3
Other projects administered (#)****	75
Other projects administered ($ value)****	$1,877,466
Intramural support administered ($ value)**	$335,753

****Other projects, such as donation, presidential awards, fellowships, anything that isn't core budget, extramural, or intramural

Budget & Space	
Total base budget for the year	$792,622
Total assigned square footage	18,497

Principal Investigators

Name	Title	Home Department
Ackert, Elizabeth	Assistant Professor	Geography
Andrea Adams	Assistant Researcher	ERI
Peter Alagona	Associate Professor	Environmental Studies
Leander Anderegg	Assistant Professor	EEMB
Sarah Anderson	Professor	Bren School
Ralph Archuleta	Professor Emeritus	Earth Science
Ned Bair	Associate Researcher	ERI
Kathy Baylis	Professor	Geography
Carol Blanchette	Research Biologist and Valentine Eastern Sierra Reserves Director	NRS
Derek Booth	Researcher, ERI	ERI
Mark Brzezinski	Professor	EEMB
Cherie Briggs	Professor	EEMB
Mark Buntaine	Professor	Bren School
Douglas Burbank	Professor Emeritus	Earth Science
Elizabeth Carlisle	Assistant Professor	Environmental Studies
Craig Carlson	Professor	EEMB
Leila Carvalho	Professor	Geography
Kelly Caylor	Professor	Geography and Bren School
Richard Church	Professor	Geography
Scott Cooper	Professor	EEMB
John Cottle	Professor, Director of NRS	Earth Science
Carla D'Antonio	Professor	Environmental Studies
Frank Davis	Professor	Bren School
Ranjit Deshmukh	Associate Professor	Environmental Studies
Timothy DeVries	Professor	Geography

Qinghua Ding	Associate Professor	Geography
Peter Downs	Researcher	ERI
Jeffrey C. Dozier	Professor Emeritus	Bren School
Dudney, Joan	Assistant Professor	Bren School
Thomas Dunne	Professor Emeritus	Bren School
Nathalie Eegholm	Graduate Student	Geography
Zachary Eilon	Associate Professor	Earth Science
Erika Eliason	Associate Professor	EEMB
Chris Evelyn	Associate Researcher	ERI
Erica Fleishman	Researcher	ERI
Joan Florsheim	Researcher	ERI
James Frew	Professor Emeritus	Bren School
Steve Gaines	Professor / Dean	EEMB / Bren School
Phil Gans	Professor	Earth Science
Vamsi Ganti	Associate Professor	Geography
Summery Gray	Assistant Professor	Environmental Studies
Bradley Hacker	Professor	Earth Science
Lee Hannah	Lecturer	Bren School
Danielle Harlow	Professor	GGSE
Paul Hegarty	Senior Development Engineer	ERI
Robert Heilmayr	Assistant Professor	Environmental Studies
Laura Hess	Researcher Emeritus	ERI
Patricia Holden	Professor	Bren School
Matthew Jackson	Professor	Earth Science
Scott Jasechko	Associate Professor	Bren School
Christopher Jerde	Assistant Researcher	MSI
Chen Ji	Professor	Earth Science
Charles Jones	Professor	Geography
Arturo Keller	Professor	Bren School
Jennifer King	Professor	Geography

Roland Knapp	Research Biologist	ERI
Ashley Larsen	Associate Professor	Bren School
Gen Li	Assistant Professor	Earth Science
Karin Lohwasser	Associate Professor	GGSE
Andrew MacDonald	Assistant Researcher	ERI
Francis MacDonald	Professor	Earth Science
Sally MacIntyre	Professor	EEMB
Stéphane Maritorena	Researcher	ERI
Robin Matoza	Professor	Earth Science
Marc Mayes	Associate Specialist	ERI
Susan Mazer	Professor	EEMB
John Melack	Professor	Bren School and EEMB
Robert J. Miller	Researcher	ERI
Holly Moeller	Assistant Professor	EEMB
Noah Molotch	Associate Researcher	ERI
Kristin Morell	Associate Professor	Earth Science
Max Moritz	Researcher	ERI
Alan Murray	Professor	Geography
Norm Nelson	Researcher Emeritus	ERI
Nicholas Nidzieko	Associate Professor	Geography
Michelle O'Malley	Professor	Chemical Engineering
Ryoko Oono	Associate Professor	EEMB
Isaac Park	Project Scientist	ERI
Nicol Parker	Graduate Student	Bren School
Debra Perrone	Associate Professor	Environmental Studies
Andrew Plantinga	Professor	Bren School
Susannah Porter	Professor, Chair of Earth Science	Earth Science
Simone Pulver	Associate Professor	Environmental Studies

Morgan Raven	Assistant Professor	Earth Science
Daniel Reed	Research Biologist	MSI
Matthew Rioux	Lecturer	Earth Science
Karl Rittger	Associate Researcher	ERI
Dar Roberts	Professor	Geography
Dylan Rood	Assistant Researcher	ERI
Roberta Rudnick	Professor	Earth Science
Cris Sandoval	Coal Oil Point Reserve Director	NRS
Alyson Santoro	Professor	EEMB
Joshua Schimel	Professor	EEMB
Katja Seltmann	Katherine Esau Director of Cheadle Center; Associate Researcher	ERI
David Siegel	Professor	Geography
Alexander Simms	Professor, ERI Interim Director	Earth Science
Rachel Simons	Project Scientist	ERI
Michael Singer	Researcher	ERI
Tom Smith	Assistant Researcher	ERI
Frank Spera	Professor	Earth Science
Jamison Steidl	Researcher	ERI
Samantha Stevenson	Associate Professor	Bren School
Lisa Stratton	Research Biologist, Cheadle Center	ERI
Sangwon Suh	Professor	Bren School
Samuel Sweet	Professor	EEMB
Christina (Naomi) Tague	Professor	Bren School
Toshiro Tanimoto	Professor	Earth Science
David Tilman	Professor	Bren School
Anna Trugman	Associate Professor	Geography

Greg Wahlert	Museum Scientist, Cheadle Center	ERI
Ian Walker	Professor	Geography
Libe Washburn	Professor	Geography
Ember Waters	Graduate Student	Geography
Grace Wu	Assistant Professor	Environmental Studies
Xifeng Yan	Professor	Computer Science

Postdoctoral Researchers, Graduate and Undergraduate Students

Postdoctoral Scholars
Archibald, Kevin
Artiga-Purcell, Alejandro
Chadwick, Austin
Chamanara, Sanaz
Estifanos, Tafesse
Gebremichael, Merhawi
Krause, Sebastian
Ostwald, Madeline
Paight, Christopher
Pfab, Franz
Quetin, Greg
Rhim, Jeemin
Riedman, Leigh Anne
Roshan, Saeed
Seto, Daisuke
Smith, Colleen
Stephens, Brandon
Thompson, Callum
Walker, Kendra
Zhou, Wencai

Graduate Student Researchers
Allen, Jean
Anttila, Eliel
Bai, Ruixia
Baxter, Ian
Beckley, Billie
Boving, Indra
Brande, Kaili
Brunsvik, Brennan
Capece, Lena
Cardanini, Emily
Das, Debsmita
Daum, Kristofer
De Negri, Rodrigo
De Orla-Barile, Marian
Divola, Claire
Eegholm, Nathalie
English, Chance
Farrant, Damien
Floyd, Soon Ye
Francoeur, Jeremy
Gellman, Jacob
Gomez, Atahualpa
Graup, Louis
Greenberg, Evan
Hardardottir, Sunna
Heckman, Christopher
Hilton, Annette
Horton, Elizabeth
Huffman, Emily
Hunt, Amanda
Lee, Brian
Li, Zhe
McMahon, Conor
Medri, Elisa
Morgan, Bryn
Mu, Ye
Nowicki, Michael
Ochoa, Maximilian
Ortiz, Hugo
Parker, Nicol
Pede, Anna
Pendse, Anshul
Pfleger, Cali
Pu, Judy
Reynolds, Becca
Ringwood, Mary
Romanelli, Elisa
Runte, Gabe
Saglimbeni, Nicholas
Salas, Cristhian
Sarup, Ojas
Snyder, Jordan
Sten, Michaela
Tasistro-Hart, Adrian
Tournebise, Nikita
Tripathy, Pratyush
Weverka, Jacob
Xing, Chen
Yamamoto, Kana
Zhao, Feifei

Undergraduate Students
Alvarado, Kayley
Anaya, Christopher
Atwater, Hannah
Bailey, Melea
Barbaglia, Gina
Baskerville, Ethan
Berry, Lauren
Bihari, Kinga
Bischel, Katerina
Bloom, Elaine
Braconi Lazarini, Luma
Bradman, Eva
Brokaw, Ricky
Brown, Meagan
Burdette, Anne
Cadogan, Mary
Campos, Calen
Canto Adams, Joelle
Carbo Mestre, Pol
Caruana, Sabrina
Castelein, Alexandre
Celebrezze, Josephe
Cervantes, Fabiola
Chamberlin, Mia
Chen, Kathryn
Chew, Alexis
Chuen, Aubrey

Coggshall, Jacob
Cowan, Jeremy
Daymond, Allison
Dextre, Andre
Ding, Luning
Ellisman, Ada
Estrada, Ethan
Franco, Madeline
Glick, Aliya
Grossman, Isabella
Harris, Lauren
Herschenfeld-Catalan, Luna
Hirokawa, Ryan
Holcomb, Haley
Holroyd, Madeline
Huitema, Justin
Jantz, Benjamin
Juarez, Rosemary
Kaare-Rasmussen, Jakob
Kaminaga, Josephine
Kroeger, Jennifer
Lam, Kai
Lam, Kydanh
Laubstein, Max
Leal Ibarra, Hector
Lee, Lauren
Lee, Abigail
Lee, Michael
Legrys, Jordan
Loomis, Allen
Lopez, Daniel
Lund, Paige
Manner, Allison
Marinalpizar, Karla
Martin-Chales, Miriam
Mcguire, Kelyn
McKernan, Bailey
Mirrashidi, Sophia
Moya, Katheryn
Narofsky, Jayde
Noi, Evgeny
Nunez, Sebastian
Olvera, Ethan
Ortner, Sophia
Pastore, Sydney
Patel, Mansi
Pendrey, Justin
Perry, Daniel
Petersen, Oscar
Peyton, Aaron
Puchkova, Isabella
Ray, Soham
Reddy, Neha
Ren, Zoe
Rios, Danielle
Rivera, Kennedy
Sacdalan, Jaycee
Safir, Leo
Sayre, Emma
Schmahl, Brian
Scruggs, Kenda
Scruggs, Kenda
Sedano Ojeda, Vanessa
Serafin, Leslie
Sipin, Terrell
Slater, Riley
Solgi, Ryan
Stiles, Lauren
Strange, Lily
Su, Aidan
Tait, Taylor
Tarbox, Natalie
Tessier, Kevin
Tewari, Rishima
Tomasik, Georgia
Tyson, Dakota
Umsted, Lyndsey
Van Dyck, Pablo
Vargas, Sarah
Walker, Marian
Wallace, Fiona
Wallace, Julia
Wei, Wilma
Xie, Henry
Xu, Jianwei
Yuan, Weiling
Zechiel, Claire
Zhan, Fei
Zhou, Yiwen

External Participation

Allen, James
Apen, Francisco
Barbosa, Pedro
Bell, Thomas
Bishop, Ann
Bodwitch, Hekia
Catlett, Dylan
Celebrezze, Joseph
Clark, Ryan
Cole, Elizabeth
Cole, Julia
Cortes Cortes, Alicia
Crempien, Jorge
De Figueiredo Ribeiro, Fernanda
Dean, Ellen
Di Lorenzo, Emanuele
Dimmerling, Tim
Engle, Diana
Felix, Jean Wildort
Feraud, Marina
Fernandes Amaral, Joao Henrique
Fisher, George
Fleishman, Erica
Florsheim, Joan
Forsberg, Bruce
Ge, Yuan
Gimmel, Matthew
Gonzalez, Victor
Guilliams, Christopher
Henderikx Freitas, Fernanda
Holmgren, Mark
Holzer, Markus
Jia, Tianqi
Jinil, Kwak
Kramer, Sasha
Kung, Giar-Ann
Lima, Fabio
Lochin, Pierre
Luo, Rui
Luong, Justin
Markham, James
Martin, Aaron
Michaelides, Katerina
Miller, Jared
Miller, Kira
Mitarai, Satoshi
Mitchell, Jonathan
Montesanto Shirley, Anita Lara
Mortimer, Monika
Naesborg, Rikke
Newman, Erica
Newman, Matthew
Niemeyer, Ryan
Norris, Jesse
Novo, Evlyn
O'Hirok, Bill
Ohlmann, J
Orr, Michael
Poelen, Jorrit
Ray, Emma
Rhim, Jeemin
Romanelli, Elisa
Rood, Dylan
Rudorff, Conrado
Sousa, Daniel
Speer, Kevin
Stella, John
Stoimenov, Peter
Thrift, Charles
Topal, Daniel
Wan, Zhengming
Wilber, Mark
Wilson, Houston
Zhang, Yingxian

Other Projects and Activities

CCBER and ERI have benefited from support from the **Associated Students** via **The Coastal Fund** and **The Green Initiative Fund**. We are grateful for the support over the years and for the support of these projects during this fiscal year.

Associated Students Coastal Fund Awards:

PI(s)	Title
DeVries	UCSB Nearshore Wave Forecasting System
Evelyn	Behavioral and Disease Ecology of an Island Endemic Amphibian
Evelyn, Seltmann	Supplemental travel funds, Behavioral and Disease Ecology of an Island Endemic Amphibian
Holden	Keeping Microplastics Out of Santa Barbara's Ocean
Holden	Wastewater Surveillance of SARS-CoV-2 for the Santa Barbara Region
Joyner, Seltmann	A Sweet Deal: understanding plant-pollinator interactions in coastal ecosystems around the UCSB campus through the lens of nectar quality
King, Pagenkopp, Stratton	Greenhouse Gas Fluxes of an Intermittently Tidal Salt Marsh
Lee, Seltmann	The proof is in the pollen: using pollen metabarcoding techniques to monitor native pollinator communities on the UCSB campus and restored coastal areas
Love, Stratton	Return of the Wetland
Schimel	Climate - Root Feedbacks on Terrestrial C stocks via Triggering and Enzyme Synthesis, Two Mechanisms of Priming.
Schimel	Investigating effects of organic amendments on inorganic carbon stocks in coastal grasslands
Schimel	Soil amendments in coastal grassland restoration for carbon sequestration
Schimel	Soil Amendments in Coastal Grassland Restoration for Carbon Sequestration
Schimel	Student Internships to study grazing effects on soil under California native and exotic grasses
Seltmann	Conversations with Collections: Documenting Coastal Change and Ecology through Photography
Seltmann	Enabling public access to UCSB campus coastal restoration
Seltmann	How will coastal native bees respond to increasing drought under climate

	change?
Seltmann	Kids in Nature Peer-Peer Environmental Education Program Internships
Seltmann	Plan Bee
Seltmann	Santa Cruz Island Trips for Undergraduate Bee Researchers
Seltmann	Why are some restorations better for bees than others?
Stratton	Assessing E-DNA as a Restoration Tool
Stratton	Campus Lagoon 2022: Building on Success
Stratton	Campus Lagoon Restoration and Transformation 2021
Stratton	CCBER Plant Habitat Book - Revision & Re-issue
Stratton	Coastal Biodiversity and Restoration Research and Monitoring Internships
Stratton	Coastal Ecology Connection for Early Childhood Education and Pre-K Nature Based Education at North Campus Open Space
Stratton	Coastal Ecology Literacy for Early Childhood Education and Pre-K Nature Based Education at North Campus Open Space
Stratton	Coastal research & monitoring internship program
Stratton	Establishing the endangered Marsh Sandwort
Stratton	North Campus Open Space Grand Opening Community Day
Stratton	Restoration Interns: Fall 2019, Winter & Spring 2020
Stratton	Restoration Internship Program 2022
Stratton	Restoring a Unique Coastal Seep to UCSB
Stratton	UCSB Campus Lagoon Restoration
Stratton	UCSB Campus Lagoon Restoration 2022: Transformation in Progress
Stratton	West Storke Wetland Enhancement
Wahlert	Coralline Calling Chronus: An Oceanic Resurrection Through Time Measuring Calcium Carbonate
Wahlert	Inventory of the Seaweeds of Santa RosaIsland, Santa Barbara County, California

Proposal and Award Administration

Figure 1: Proposals Submitted, Awards Issued and Projects Administered | FYs 2017-2023

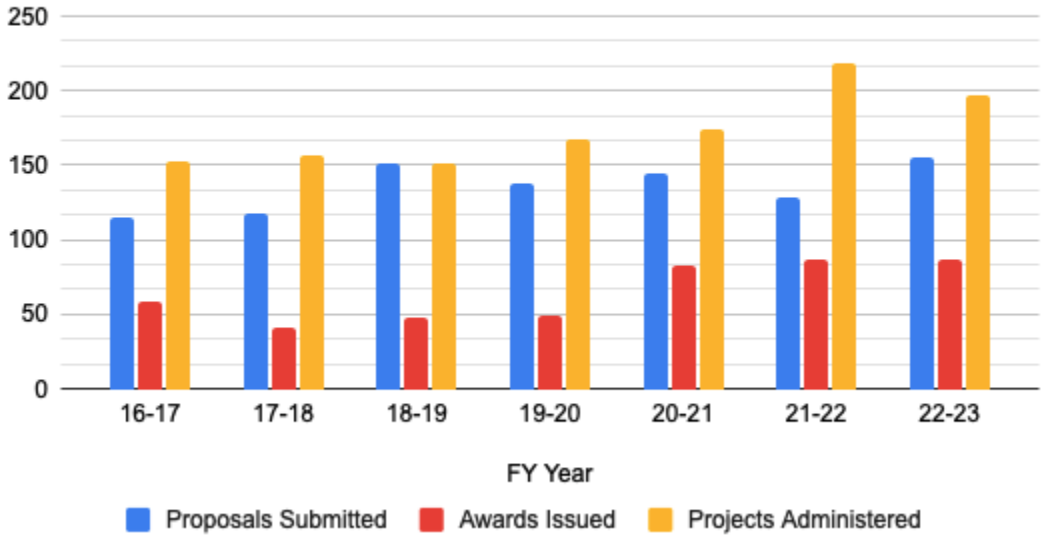
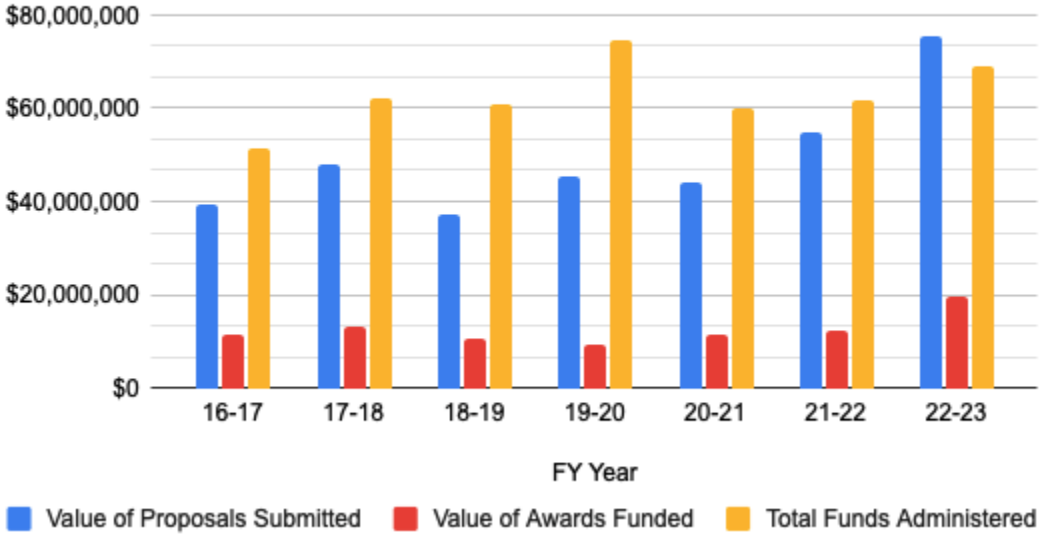


Figure 2: Value of Proposals Submitted, Value of Awards Funded and Total Funds Administered | FYs 2017-2023



Space

ERI currently occupies the top floor of Ellison Hall and a wing of Girvetz Hall. In Ellison we have 35 research offices, 6 administrative offices and 4 conference rooms. The square footage totals 7,945. Ellison Hall is where our administrative team sits and many of our soft money funded researchers, along with postdocs, visitors, etc. We have several conference rooms which are available within Ellison for group meetings.

In Girvetz we have 10 research labs and two research offices totalling 4,210 square feet. This space is currently used for ground-floor field staging by at least 5 research groups. The research groups utilizing the Girvetz space remain active and are growing; the need for the first floor space has not decreased.

Cheadle Center currently occupies one wing of Harder Stadium. Their staff and students are using the 17 spaces which are a mix of research offices and Herbarium/Natural History Collection space totalling 4,048 square feet. They are also occupying the Gator Barn out at North Campus Open Space.

(Reference - Facilities Space Data and Ellison Floor Plan with names)