NCEAS

National Center for Ecological Analysis and Synthesis

Annual Report

Fiscal Year 2019-2020

Transforming environmental science. Accelerating discovery. Generating solutions.

National Center for Ecological Analysis and Synthesis

Director: Ben Halpern

Annual Report

Fiscal Year 2019-2020

University of California, Santa Barbara

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TABLE OF CONTENTS

Mission Statement 3
Overview 3
Executive Summary 6
People of NCEAS 12
- Organization Chart 12
- Advisory Committee 12
- Administrative Staff 13
- Technical Staff 13
- All Other Staff 13

Statistical Summary 16
Principal Investigators 17
Graduate and Undergraduate Students 17
External Participation 19
Academic Projects: Working Groups & Meetings 34
Trainings 36
Publications 36

MISSION STATEMENT

NCEAS's mission is to accelerate scientific discoveries that will enhance our understanding of the world and benefit people and nature, as well as to transform the scientific culture to be more open, efficient, and collaborative.

OVERVIEW

The National Center for Ecological Analysis and Synthesis (NCEAS) is an independent research center of UC Santa Barbara with a global network and impact. We conduct transformational science focused on informing solutions that will allow people and nature to thrive. Established in 1995, NCEAS has pioneered the movement toward scientific collaboration, openness, and synthesis in ecology and environmental science and has helped build a community of scientists around it.

We achieve **our mission**, stated above, through the following:

- **Enabling collaborations** between the brightest minds in the environmental sciences
- **Conducting breakthrough science** that is grounded in big-picture thinking
- **Improving analyses** through computing innovations that increase the usability of data
- **Partnering** with agencies and organizations that can help put the science to action
- **Training and inspiring** generations of scientists to practice synthesis and open science

Our approach to science is solutions oriented and enables discoveries at bigger scales and faster speeds, making them well positioned to inform environmental policy and management. The approach focuses on synthesis, leverages collaboration, and embraces and practices open science.

Environmental challenges are complex and their solutions require diverse perspectives and sets of expertise. In recognition of this, we convene multidisciplinary teams of academic and non-academic researchers from all over the world into working groups who, over the course of one to two years, tackle "wicked" questions collaboratively, an approach NCEAS first innovated and institutions around the world now emulate. These teams do not collect new data, but synthesize and analyze existing data from many sources to uncover new and often big-picture insights that can inform policy and management. Given that data must be accessible and reproducible to be useful and effective for solutions-oriented science, we strive to advance discovery and scientific culture in the direction of open science.

Another aspect of our approach is building **partnerships** with other research institutions, nonprofits, and government agencies, which can expand scientific capacity and help apply the science to solutions. For example, one of our major partnership initiatives is the Science for Nature and People Partnership (SNAPP), a collaboration with The Nature Conservancy and Wildlife Conservation Society that brings together working groups to address challenges that

lie at the intersection of nature conservation, sustainable development, and human well-being. We also operate the US Long-Term Ecological Research (LTER) Network Office, a partnership with the National Science Foundation.

Our approach informs the three pillars of **our work**: research, data science, and training.

We lead synthesis and analytical research initiatives and projects that tackle big questions that would be difficult to answer with other scientific approaches. The following are current examples of our research:

- We lead the Ocean Health Index, a program that systematically assess the health of the world's oceans annually for 220 coastal nations and territories, as well as at smaller regional scales. This program also prioritizes open and transparent methods for reproducible research, sharing code and providing training and support for independent groups interested in leading their own OHI assessments.
- We are leading two working groups producing first-of-their-kind global analyses of the environmental impacts of food systems to help expand the understanding of how to feed a global population sustainably.
- We partner with the Environmental Market Solutions Lab (emLab) to understand the key economic, ecological, social, and political conditions under which innovations in cell-based seafood could drive an ocean conservation benefit.
- We have partnered with Future Earth to support two working groups focused on ocean sustainability, through the Program for Early-stage Grants Advancing Sustainability Science (PEGASuS) program. One working group is advancing work on establishing a global observing network and standards for monitoring ocean life, and the other is working with the island nation of Palau to develop science-driven strategies to manage long-term food security, as provided by oceans, in the country.

We also create innovative solutions for managing and analyzing environmental data, such as the following:

- Through our KNB Data Repository, we make thousands of environmental datasets – generated at NCEAS and elsewhere – publicly available for free allowing researchers to store their own data and access data from thousands of others, ultimately making science more transparent and reproducible.
- In partnership with DataONE and NOAA's National Center for Environmental Information, we run the Arctic Data Center to make available all data, software, and other research products associated with NSF-funded science in the Arctic for the sake of reproducibility.

Finally, we train early career and established researchers from around the world in best practices for open science and data management, especially with an application to synthesis research. Examples of this work include the following:

- Our Learning Hub is our knowledge-sharing community where, through trainings and resources, environmental researchers can learn the latest data science skills and technologies, enabling their science to inform solutions more quickly and effectively.
- We serve as a host institution for postdoctoral researchers, which typically support working groups, giving them experience coordinating research teams and designing their own synthesis research projects.
- We operate a mentorship program called Openscapes, which encourages early career researchers to establish best practices in and a culture around collaboration and open science in their labs.

NCEAS operates in downtown Santa Barbara in a facility that provides visiting researchers the physical and mental space for creativity and collaboration – important ingredients that foster the level of scientific output for which NCEAS is known. At the same time, NCEAS maintains strong ties to campus. Many working groups include UCSB faculty or researchers, and we employ and train a large cadre of UCSB graduate students in data management, scientific programming, and science communications.

In addition, the Center supports a community of resident researchers that concentrate on synthesis science or the development of computational approaches and tools to support synthesis science. NCEAS staff provides logistical and technical support, training, and outreach services to increase the productivity and impact of our researchers and working groups.

EXECUTIVE SUMMARY

NCEAS is known globally as a hub for scientific innovation, collaboration, and training the ecological community. The past year has only reinforced and grown this reputation. While this year has undoubtedly produced unprecedented challenges, it has also given NCEAS an opportunity to expand our ability and capacity to support science and the scientific community in innovative and collaborative ways. With the emergence of the COVID-19 pandemic, NCEAS hastened its plans to increase support for virtual training, mentoring, collaboration, and skills development. Not only did we transition our tight-knit resident scientist community to a rich virtual environment, but we also developed new training modules and modes of collaboration to help our working groups - and the broader ecological community - work more effectively together, from afar. While we have discovered that there truly is no substitute for many aspects of in-person scientific collaboration, we have also developed methods to increase our productivity and support of the ecological community in virtual ways that we will continue to implement long after this global pandemic is behind us. Our broader scientific initiatives continue to thrive, producing ground-breaking science, and our focus on diversifying representation in science has never been stronger. I believe we will enter the new year stronger and more aware of how we can continue to be a revolutionary leader, helping to further advance scientific frontiers and build a world in which people and nature thrive.

This past year NCEAS was granted over six million dollars in awards, hosted 45 workshops and over 700 participants from over 250 different institutions and 30 different countries. Together the center produced over 90 publications and received national and international media attention for our groundbreaking synthesis science and data science training.

This year marked the 25th Anniversary of NCEAS, as well as the 40th Anniversary for the LTER Network, whose network hub is hosted at NCEAS. At NCEAS we hosted several virtual salon's, highlighting our research accomplishments as well as a seminar series open to the public to learn more about the transformational science NCEAS is doing. Our LTER Network Office hosted a 40th Anniversary Symposium at the Ecological Society of America's (ESA) annual conference and published a high-profile publication in the journal BioScience entitled 'Long Term Ecological Research Network Celebrates 40 Years of Discovery: The network has inspired international and agricultural endeavors.' Likewise, I, along with colleagues, produced a peer-reviewed paper using a case study of 2304 publications from NCEAS compared to 320,000 other similar papers to help answer key questions about Ecological Synthesis and Its Role in Advancing Knowledge. We found much higher citation rates for synthesis papers overall (fivefold more) and found that synthesis papers often played key roles in driving, redirecting, or resolving core questions in ecology. Together, these results show that synthesis in science conducted at NCEAS has played a crucial role in accelerating and advancing ecological knowledge.

This year also brought many advances and publications from our applied science working groups, spanning a broad range of topics. One working group showed how a new approach to

compensate for the impact of human development may be an effective alternative to biodiversity offsetting – and help nations achieve international biodiversity targets (Simmonds et al. *Conservation Letters*, December 2019). Another innovative group produced a formal global action plan to conserve parasite biodiversity, a group of species that is highly vulnerable to extinction, but are found in every ecosystem and play crucial ecological roles around the world (Hopkins et al. *Biological Conservation*, August 2020). Our recently-completed SASAP partnership continues to be quite productive and garner both scientific and media attention, most notably with its latest comprehensive study of four salmon species across all regions of Alaska, finding that salmon are returning to rivers smaller and younger than in the past (Oke et al, *Nature Communications*, August 2020). Our food system working groups were especially productive this year authoring research showing that global adoption of novel aquaculture feeds could substantially reduce forage fish demand by 2030 (Cottrell et al. *Nature Food*. May 2020) and creating a novel methodology for comprehensively and cumulatively mapping the environmental pressures associated with food production systems (Kuempel et al. *One Earth*, July 2020).

Our diverse set of initiatives and partnerships continue to make significant progress towards our shared NCEAS mission and substantial contributions to the scientific and informatics communities:

- The Science for Nature and People Partnership (SNAPP) has entered its seventh year of activity. A partnership with The Nature Conservancy and Wildlife Conservation Society, SNAPP has grown to support 49 working groups to date, with 12 active working groups. SNAPP recently published an interactive storymap to elucidate its unique and effective Roadmap for Science-Driven Solutions to Sustainability.
- Our LTER Network Office (LNO) is the hub of scientific synthesis, education, and outreach activities for the Network, which links 28 ecological research programs and over 2000 researchers working in every major U.S. biome. The LTER LNO hosted five different synthesis working group projects at NCEAS this year, and initiated a new request for proposals for new working groups which will launch in 2021. Many hours of research and work culminated this year with the launch of the new LTER Community Platform, which will facilitate interaction and communication across the entire LTER network of sites and researchers. LTER also created a comprehensive webpage of Resources for Diversity, Equity, and Inclusion that has become a go-to site for much of the ecological community and hosted a virtual career panel series aimed at helping graduate students explore diverse career paths outside of academia.
- NCEAS has transitioned to playing the lead role in the administrative oversight of DataONE, a network for Earth and environmental data search and discovery. We continue to work on a long-term plan for sustainability of this program into the next decade as part of the future vision of DataONE. DataONE continues to grow, with 45 repositories now in the network.
- The NSF-funded Arctic Data Center, the primary repository for Arctic scientific data, metadata, software, and provenance, has over 6200 datasets encompassing 55 terabytes of content. The Center hosted two successful virtual events for Arctic

researchers this year - one workshop on Supporting Social Scientific Data and the other a reproducible research training - and the team continues to build its network in the Arctic community, including participating and presenting at the Ecological Society of America, the American Geophysical Union, and the Polar to Global Online Interoperability and Data Sharing Hackathons.

- This year marked the ninth annual global Ocean Health Index assessment. The OHI fellowship program, launched in 2017-2018, continues to be an efficient way of producing the annual global assessment as well as providing valuable experience for emerging data scientists. In fact, this year's assessment was successfully led by a previous OHI fellow! As always, we are proud to be an example of open data science, making all data and processing scripts readily available to researchers. We are enthusiastically continuing our partnership with ESRI to support and disseminate OHI scores through the Living Atlas.
- Our Conservation Aquaculture Research Team (CART) has undertaken several new projects with the goal of integrating aquaculture into the broader food systems discussion, including a collaboration with emLab looking into the potential for cell-based seafood to have an ocean conservation benefit, mapping food's cumulative environmental footprint, and uncovering the gap in future seafood consumption and long-term aquaculture policies. The team has also been hard at work researching COVID-related impacts to the seafood supply chain and how to build resilience into the system. In 2021 the team looks forward to partnering with California SeaGrant and the Ocean Protection Council to develop an Aquaculture Action Plan for the state of California and partnering with the University of Tasmania researching the optimization of feeds to support ecosystem-based aquaculture.
- SeaSketch accomplished many milestones this year including a large, 5-year grant from the Waitt Foundation to provide decision support for the Blue Prosperity Coalition and their global marine spatial planning efforts as well as support the development of the next version of SeaSketch which will be entirely free and open source. They also partnered with a variety of government and non-government institutions to establish marine spatial plans and protected areas in New Zealand, the Federated States of Micronesia, Maldives, Bermuda, Azores, Canada, US, Reunion, Denmark and Norway. SeaSketch was also integrated into the Blue Solutions Initiative (including GIZ, GRID-Arendal, IUCN and UNEP) as part of their Blue Planning in Practice platform and teaching marine spatial planning.

Last year we launched our Learning Hub for environmental data science, which aims to build a knowledge-sharing and skills-building community where environmental researchers can learn the latest data science skills and technologies. This year we have expanded the number and variety of training and mentoring opportunities significantly. In this time of pandemic we have successfully transitioned to the virtual environment, our flagship five-day short course that teaches researchers the basics and best practices of open science and data science. We have also increased our support for working groups by developing and implementing new modules to train these teams in virtual collaboration and reproducible science. We authored two articles highlighting our key takeaways and best practices from conducting these virtual training

modules around 'Kick-starting scientific collaborations remotely' and 'Developing reproducible workflows collaboratively'. These trainings were immensely successful and will now be offered to all incoming working groups, whether they are able to meet in person or virtually, as we have found these best practices to be truly transformational for any collaboration environment. Our Openscapes mentoring program is also an exciting and growing piece of the Learning Hub. This cohort-based program has always been primarily based in the virtual environment and served as a great foundation for developing additional remote training opportunities this year. This program helps early career researchers implement a culture and practice of open science in their labs, which is needed now more than ever.

This COVID-19 pandemic offered our NCEAS team many opportunities to develop resources to better support our working groups and engage groups more regularly in the virtual environment. We outlined how our team is leveraging the liabilities of virtual collaboration to find things that virtual collaboration actually does better, in an article hosted online by the Ecological Society of America (ESA). We also created a comprehensive webpage dedicated to resources to improve virtual collaboration along with a detailed manual providing Guidance for Collaborative Synthesis Science Working Groups. These living documents will be continually updated to support our working groups and collaborators now and into the future. We also significantly increased our support for working group collaborations via facilitation of in-person and virtual meetings. We now offer a professional facilitator's skill and expertise to all working groups. We have found professional facilitation transformational for working groups: not only does facilitation create a more inclusive and welcoming team dynamic, but it has also proven to increase the productivity of these groups. Our post working group evaluation surveys have shown facilitation to be so impactful for our groups that we are now requiring SNAPP groups to rely on a facilitator for their first meeting and encouraging groups to tap into this resource as much as possible. We have also initiated a new partnership with COMPASS, an organization focused on training scientists to be better communicators. With the support of the Packard Foundation we have hired a Science Communication Liaison that will work with NCEAS and COMPASS to bring additional science communication trainings and support to the NCEAS community and our working groups.

This past year has also brought much reflection across the scientific community around how we can effectively increase Diversity, Equity, and Inclusion (DEI). At NCEAS our long-standing Diversity Committee developed a new Strategic Plan for Diversity, Equity, and Inclusion and updated our Center Code of Conduct to better reflect our focus on actionable steps we can take to improve Diversity, Equity, and Inclusion in science and at the Center. The renewed urgency to address systemic racism and discrimination inspired by the growing Black Lives Matter movement in Spring 2020, along with the global demand for change, requires action with concrete steps towards meaningful outcomes. Our Strategic Plan is a response to that call. It is not enough, but it is a start, and is intended to be a living document, reviewed and revised regularly, to help maintain momentum and progress towards the ultimate goal of a truly diverse, equitable and inclusive place of work. NCEAS values diversity in expertise, backgrounds, needs and experiences, and aims to see diversity reflected among our residents and visitors. We are committed to providing a safe, productive, and welcoming environment

for everyone in our community. Our strategic plan outlines the concrete actions that NCEAS will take to achieve our vision of a more diverse and inclusive research center.

Five-Year Projection Update

Overall, our five-year plan has not changed, and I am pleased to highlight additional milestones that showcase our progress:

- We are maintaining a robust portfolio of working groups, within our target per-year range, with 27 active working groups this year.
- Our resident postdoc community included 12 members, with several more arriving in the coming months. This vibrant community of early career researchers is a fundamental part of the identity, creativity, and productivity of NCEAS and we are excited to see it grow and expand in both number and disciplinary focus.
- We will be ramping up engagement with four new noteworthy partnerships in the coming year. The first with Microsoft AI for Earth, aimed at informing the science of sustained, automated, and technology-driven ecosystem assessment. The second with National Geographic, focusing on the intersection of ecosystem health and mental health. The third with the Bureau of Ocean Energy Management (BOEM), focusing on seabird indicators and ecosystem assessment. And the fourth with the California Ocean Protection Council to direct the development of a strategic aquaculture plan for the state of California as well as a new project aimed at synthesizing the data related to the effectiveness of California's marine protected area network.
- We continue to engage and nurture ongoing and strong partnerships with international conservation organizations, including The Nature Conservancy, Wildlife Conservation Society and Conservation International.
- Our Learning Hub initiative continues to expand and deepen our central role as a training and mentorship hub for environmental data science across ecological and environmental communities. The scope and diversity of opportunities and resources continues to grow and now includes several training modules for supporting virtual collaboration among research groups and virtual on-boarding of postdocs. Overall, our diverse trainings range from one-hour webinar trainings, to week-long fee-for-service trainings, to months-long mentorship opportunities.
- Openscapes led its first contracted workshop this year, mentoring six research teams from NOAA (a second has been rescheduled to 2021), and its first advisory meeting with funding from the Mozilla Foundation. We also strengthened our commitments to diversity, equity, and inclusion in part by securing funding to contract a diversity, equity, and inclusion expert to help evaluate and design Openscapes remote event series in 2021.
- We have begun an exciting new chapter for Environmental Data Science this year with the launch of a new Master's of Environmental Data Science (MEDS) degree at UCSB. NCEAS led the way in the development of this program and is now a key partner in building its future. Our first cohort of students starts in 2021 and we are working closely with members across campus to establish this program as a hub for EDS globally.

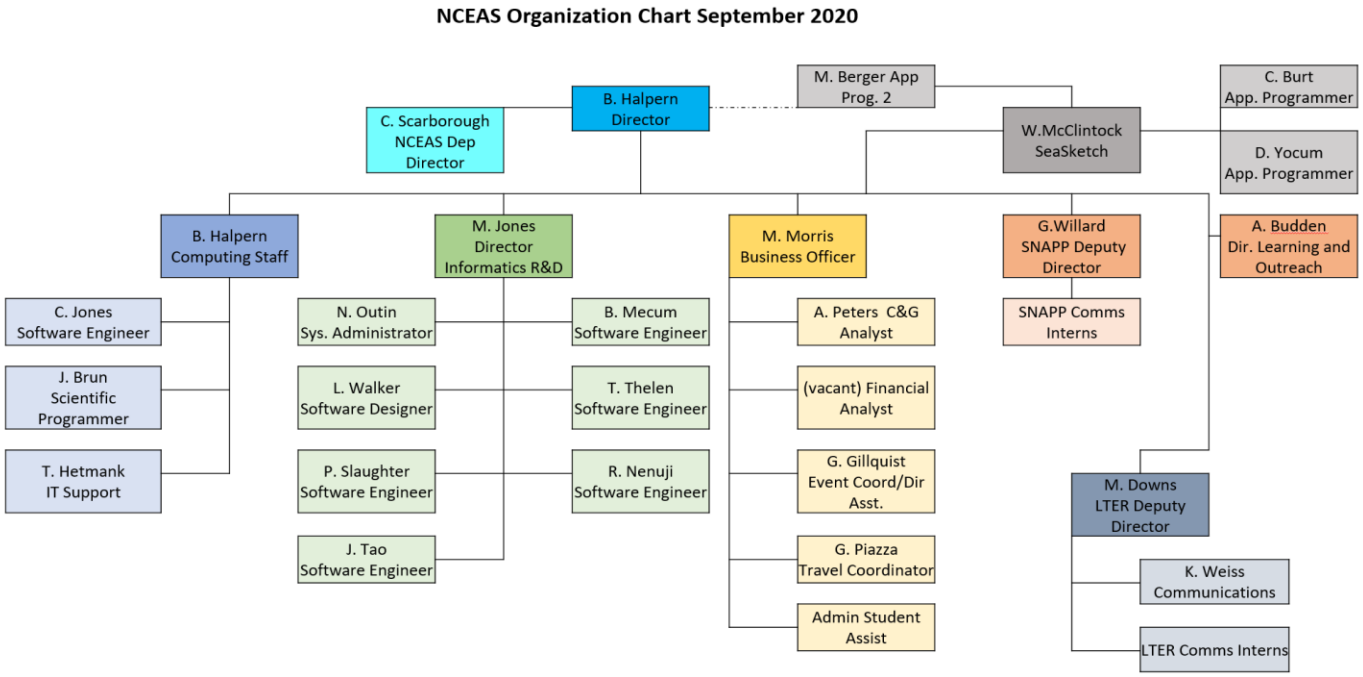
- Our third cohort of Artists in Residence was unfortunately cut short due to the COVID stay at home orders starting in March, but we hope to further engage with Eliza Evans (Sculptor) and Kristian Brevik (Sculptor) in the year to come.
- We have added an additional member to our Director's Council, which continues to be actively engaged in helping us further the science and mission of NCEAS. Members of the Council met in person this year and have remained deeply engaged via virtual meetings as well as attending multiple virtual seminars and salon's hosted by NCEAS and our development team. We continue to seek additional members who will serve to help NCEAS with high-impact development and fundraising efforts, and potentially contribute to our strategic direction.

My fourth year as Director of NCEAS has been marked by new challenges and truly revolutionary successes. I continue to be amazed by the supportive and visionary communities at NCEAS and UCSB, and look forward to the great things we will accomplish together in the coming year. The diversity and impact of our science and the fortitude of our community has never been more commendable. I also want to thank the Zegar Family Foundation, the Gordon and Betty Moore Foundation, the David and Lucile Packard Foundation, the National Philanthropic Trust, the National Science Foundation, the Waitt Foundation, Conservation International, Microsoft, National Geographic, BOEM, our partners at The Nature Conservancy and the Wildlife Conservation Society, and our many other sponsors for their generous support. I also want to acknowledge and thank the State of California and the leadership of UC Santa Barbara for their continued support of and commitment to NCEAS.

Ben Halpern, Executive Director
National Center for Ecological Analysis and Synthesis (NCEAS)

PEOPLE OF NCEAS

ORGANIZATION CHART



Resident Scientists	
Project Scientists	2
Academic Coordinators	6
Postdoctoral Fellows	8
Researchers	5
Specialists	12
Senior Fellows	5

ADVISORY COMMITTEE

- Cherie Briggs, Committee Chair, EEMB
- Kelly Caylor, Geography, Bren
- Krzysztof Janowicz, Geography
- Kyle Lewis, Technology Management Program
- Marko Peljhan, Media Arts and Technology
- Leah Stokes, Political Science
- Rich Wolski, Computer Science

Ex-Officio Members:

- Ben Halpern, Director, NCEAS
- Julia Niessen, Business Officer, NCEAS

ADMINISTRATIVE STAFF

- Julia Niessen, Business Officer (through July 2019)
- Michelle Morris, Business Officer (starting September 2019)/Contracts & Grants Analyst (through September 2019)
- Courtney Scarborough, Deputy Director
- Ana Peters, Contracts & Grants Analyst, Financial Analyst (through November 2019)
- Ginger Gillquist, Event Coordinator/Director's Assistant
- Gabriella Piazza, Travel Coordinator

TECHNICAL STAFF

- Julien Brun, Scientific Programmer
- Chad Burt, Applications Programer
- Steven Chong, Projects Data Technician
- Melanie Frazier, Scientific Programmer
- Thomas Hetmank, Programmer/Analyst
- Chris Jones, Software Engineer
- Matt Jones, Director of Research & Development NCEAS Data Science
- Jared Kibele, Bioinformatics Programmer
- Jasmin Lai, Data Systems Analyst
- Bryce Mecum, Science Software Engineer
- Rushiraj Nenuji, Software Engineer
- Nicolas Outin, System Administrator
- Mark Schildhauer, Center Associate
- Peter Slaughter, Software Engineer
- Jing Tao, Software Engineer
- Thomas Thelen, Software Engineer
- Lauren Walker, Software Designer
- Daniel Yocum, Applications Programmer

ALL OTHER STAFF

Academic Coordinators

- Amber Budden, Director of the Learning Hub (NCEAS)
- Marty Downs, Deputy Director (LTER NCO)
- Erin McClean, Arctic Data Center Outreach Coordinator
- Jenny Seifert, Communications Officer (through March 2020) (NCEAS, Ocean Health Index)
- Heather Lahr, Project Coordinator (NCEAS/EmLab)

- Kristen Weiss, Communications Coordinator (LTER NCO)
- Geoff Willard, Deputy Director (SNAPP)
- Samuel Norlin, Education Coordinator (LTER NCO)

Specialists

- Jamie Afflerbach, Associate Specialist
- Susan Clark, Associate Specialist
- Jesse Goldstein, Assistant Specialist
- Juliette Verstaen, Assistant Specialist
- Danielle Ferraro, Associate Specialist
- Julia Lowndes, Associate Specialist
- Katherine Millage, Associate Specialist
- Sarah Erickson, Jr. Specialist
- Paul-Eric Rayner, Jr. Specialist
- Maya Samet, Jr. Specialist
- Gordon Blasco, Jr. Specialist
- Kristen Peach, Jr. Specialist

Researchers

- Jennifer Caselle, Researcher
- Chris Costello, Researcher
- Frank Davis, Researcher
- Olivier Deschenes, Researcher
- Jeff Dozier, Researcher
- Alexa Fredston-Hermann, Graduate Student Researcher
- Carrie Kappel, Researcher
- Chris Lortie, Researcher
- Jason Maier, Graduate Student Researcher
- Casey O'Hara, Graduate Student Researcher
- Kimberly Selkoe, Researcher
- Vincent Thivierge, Graduate Student Researcher
- Cascade Tuhoske, Graduate Student Researcher
- Zoe Welch, Graduate Student Researcher

Project Scientists

- Julia Lowndes, Associate Project Scientist
- Courtney Scarborough, Associate Project Scientist (through September 2019)
- Will McClintock, Assistant Project Scientist

Other Staff

- Chris Beltz
- Samantha Csik
- Tess Hooper
- Wai-Yin Kwan
- Erin O'Reilly

STATISTICAL SUMMARY

STATISTICAL SUMMARY FOR NCEAS			
1. Academic personnel engaged in research:			
	a.	Faculty	5
	b.	Professional Researchers (including Visiting)	4
	c.	Project Scientists	3
	d.	Specialists	12
	e	Postdoctoral Scholars	11
	f	Postgraduate Researchers	0
		TOTAL	35
2. Graduate Students:			
	a	Employed on contracts and grants	22
	b.	Employed on other sources of funds	0
	c.	Participating through assistantships	
	d.	Participating through traineeships	
	e	Other (specify)	22
		TOTAL	
3. Undergraduate Students:			
	a.	Employed on contracts and grants	18
	b.	Employed on other funds	1
	c.	Number of volunteers, & unpaid interns	
		TOTAL	19
4. Participation from outside UCSB: (optional)			
	a.	Academics (without Salary Academic Visitors)	
	b.	Other (working group participants)	322
5. Staff (Univ. & Non-Univ. Funds):			
	a.	Technical	22
	b.	Administrative/Clerical	5
6. Seminars, symposia, workshops sponsored			45
7. Proposals submitted			28
8. Number of different awarding agencies dealt with*			21
9. Number of extramural awards administered			25
10. Dollar value of extramural awards administered during year**			23,776,593
11. Number of Principal Investigators***			14
12. Dollar value of other project awards ****			78481
13. Number of other projects administered			41
14. Total base budget for the year (as of June 30, 2019)			539318
15. Dollar value of intramural support			508516
16. Total assigned square footage in ORU			14302
17. Dollar value of awards for year (08 Total)			6,031,358

PRINCIPAL INVESTIGATORS

Amber Budden	Center Associate	National Center for Ecological Analysis and Synthesis
Jennifer Caselle	Associate Research Biologist	Marine Science Institute
Chris Costello	Professor	Bren School
Frank Davis	Director	National Center for Ecological Analysis and Synthesis
Olivier Deschenes	Professor	Economics
Marty Downs	Deputy Director	National Center for Ecological Analysis and Synthesis
Jeff Dozier	Professor	Bren School
Halley Froehlich	Professor	Environmental Studies
Benjamin Halpern	Professor	Bren School
Robert Heilmayr	Professor	Environmental Studies
Matthew Jones	Director of Informatics, Research, and Development	National Center for Ecological Analysis and Synthesis
Carrie Kappel	Researcher	National Center for Ecological Analysis and Synthesis
Christopher Lortie	Researcher	National Center for Ecological Analysis and Synthesis
William McClintock	Project Scientist	Marine Science Institute
Mark Schildhauer	CNT V	National Center for Ecological Analysis and Synthesis

GRADUATE AND UNDERGRADUATE STUDENTS

Graduate Students

- Madeline Berger
- Samuel G Clawson
- Cheyenne Coxon
- Laura Ingulsrud
- Maggie Klope
- Sara Orofino
- Robert Saldivar
- Caitlin Swalec
- Juan Carlos Villasenor-Derbez
- Zoe Welch
- Juliette Verstaen

- Molly Williams

Undergraduate Students

- Kira Archipov
- Gordon Blasco
- Angel Chen
- Lily Cheng
- Nancy Clarin
- Julia Di Lena
- Erika Egg
- Kelsey Fennell
- Sidney Gerst
- Nathan Hwangbo
- Nisha Jagota
- Jeremy Knox
- Vivian McGowan
- Kyle Monper
- Joel Salzman
- Meilin Shi
- Rachel Sun
- Kelly Wang
- Joanne Yue

Postdoctoral Fellows

- Maya Almaraz
- Lesley Atwood
- Rich Cottrell
- Michael Eggen
- Whitney Friedman
- Halley Froehlich
- Kaitlyn Gaynor
- Jose Giron Nava
- Caitlin Kuempel
- Anoush Missirian
- April Ridlon
- Erin Satterthwaite
- Marcus Thomson
- Grace Wu

EXTERNAL PARTICIPATION

ACTIVITY	FIRST	LAST NAME	INSTITUTION
2019 LTER Information Managers Meeting	Kristofer	Hall	University of New Mexico
	Donald	Henshaw	USDA Forest Service
	Adam	Sapp	University of Georgia
	Mary	Martin	University of New Hampshire
	Hsun-Yi	Hsieh	Michigan State University
	Virgil	Johnson	University of Georgia
	Chris	Turner	NULL
	Hap	Garritt	Marine Biological Laboratory
	Sarah	Elmendorf	National Ecological Observatory Network, Inc. (NEON)
	Yang	Xia	Kansas State University
	Sven	Bohm	Michigan State University
	Emery	Boose	Harvard University
	Daniel	Bahauddin	Long Term Ecological Research (LTER)/Cedar Creek Natural History Area (CDR)
	James	Conners	University of California, San Diego
	Stevan	Earl	Long Term Ecological Research (LTER)/Central Arizona-Phoenix (CAP)
	Jason	Downing	University of Alaska, Fairbanks
	Gregory	Maurer	New Mexico State University
	James	Laundre	Marine Biological Laboratory
	Stace	Beaulieu	Woods Hole Oceanographic Institution
Arctic Data Center Social Science Workshop	Noor	Johnson	Exchange for Local Observations and Knowledge of the Arctic (ELOKA)
	Mercé	Crosas	Harvard University
	Erica	Hill	National Science Foundation
	Kristal	Jones	National Socio-Environmental Synthesis Center (SESYNC)
	Geoffrey	Hayes	Northwestern University
	Mark	Parsons	Rensselaer Polytechnic Institute
	Marie	Lowe	University of Alaska, Anchorage
	Matthew	Berman	University of Alaska, Anchorage
	Nicholas	Weber	University of Illinois, Urbana Champaign
	Jared	Lyle	University of Michigan
	Timothy	Pasch	University of North Dakota
Arctic Data Center Training	Anna	Talucci	Colgate University
	Sharon	Kenny	Environmental Protection Agency
	Nikolai	Tausnev	Jet Propulsion Laboratory of the National Aeronautics and Space Administration (NASA)
	Antonia	Androski	Museum of Southwest Biology

	Leslie	Hartten	NOAA Earth Systems Research Laboratory
	Haley	Dunleavy	Northern Arizona University
	Amanda	Young	University of Alaska, Fairbanks
	Susanne	Euskirchen	University of Alaska, Fairbanks
	Allen	Bondurant	University of Alaska, Fairbanks
	Andreas	Muenchow	University of Delaware
	Michael	Sousa	University of Minnesota
	Amber	Budden	University of New Mexico
	Mariel	Campbell	University of New Mexico
	Timothy	Pasch	University of North Dakota
	Christina	Bonsell	University of Texas
	Jennie	DeMarco	Western Colorado University
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	Jane	Hill	University of York
	Hedley	Grantham	Wildlife Conservation Society
Tools and practices for collaborative, reproducible data science	Joanna	Carey	Babson College
	Kate	Wilkins	Colorado State University
	Melinda	Smith	Colorado State University
	Paul	Julian	Florida International University
	Arial	Shogren	Michigan State University
	Lee	Stanish	National Ecological Observatory Network, Inc. (NEON)
	Janet	Jansson	Pacific Northwest National Laboratory
	Ryan	Haugo	The Nature Conservancy
	Dawson	Fairbanks	University of Arizona

	Peter	Wilfahrt	University of Bayreuth
	Jorge	Rodrigues	University of California, Davis
	Jeffrey	Blanchard	University of Massachusetts, Amherst
	Timothy	Ohlert	University of New Mexico
	Claire	Willey Sthapit	University of Washington
	Jihoon	Jung	University of Washington
	Jennifer	Krenz	University of Washington
	Kathijo	Jankowski	US Geological Survey (USGS)
	Martin	Holdrege	Utah State University
VoCamp Meeting	Aaron	Eberhart	Arkansas State University
	Ryan	McGranaghan	Atmospheric and Space Technology Research Associates LLC
	Lisa	Kerr	Gulf of Maine Research Institute
	Alex	Kerney	Gulf of Maine Research Institute
	Riley	Morse	Gulf of Maine Research Institute
	Philip	Murphy	InfoHarvest Inc.
	Lu	Zhou	Kansas State University
	Cogan	Shimizu	Kansas State University
	Sean	Gordon	Portland State University
	Pascal	Hitzler	Wright State University

ACADEMIC PROJECTS: WORKING GROUPS & MEETINGS

NAME	MEETING TYPE	LEADER		START	END
Protein Sustainability	Working Group	Ho	Melissa	7/14/2019	7/17/2019
LTER: Communities to Ecosystems	Working Group	Komatsu	Kimberly	7/15/2019	7/18/2019
SNAPP: Appalachian Coalfields	Working Group	Dunscomb	Judy	7/24/2019	7/26/2019
SNAPP: Flow Impacts	Working Group	Vigerstol	Kari	7/29/2019	8/1/2019
Fungal Traits	Working Group	Schildhauer	Mark	8/15/2019	8/17/2019
Clean Seafood	Working Group	Halpern	Benjamin	8/19/2019	8/20/2019
LTER: Synchrony	Working Group	Hallett	Lauren	9/10/2019	9/13/2019
LTER: Stream Elemental Cycling	Working Group	Wymore	Adam	9/11/2019	9/13/2019
LTER: Biodiversity and Productivity	Working Group	Isbell	Forest	9/23/2019	9/27/2019
SNAPP: Levers for Health	Working Group	Sokolow	Susanne	9/30/2019	10/3/2019
PEGASuS: Managing Ocean Change and Food Security	Working Group	Micheli	Fiorenza	10/7/2019	10/9/2019

LTER: SOM Synthesis	Working Group	Wieder	William	10/14/2019	10/18/2019
SNAPP: Zero Deforestation Maps	Working Group	Heilmayr	Robert	10/16/2019	10/18/2019
NEON: Vulnerability To Invasion	Working Group	Bradley	Bethany	10/21/2019	10/25/2019
SNAPP: Sanitation for and by Nature	Working Group	Cross	Katharine	11/4/2019	11/7/2019
SNAPP: Coastal Outcomes	Working Group	Darling	Emily	11/13/2019	11/15/2019
PEGASuS: Ocean Observing Systems	Working Group	Bax	Nicholas	12/2/2019	12/5/2019
Global Food Systems	Working Group	Halpern	Benjamin	12/10/2019	12/13/2019
SNAPP: Appalachian Coalfields	Working Group	Dunscomb	Judy	2/5/2020	2/7/2020
SNAPP: Climate Resilient Fisheries	Working Group	Mills	Katherine	2/24/2020	2/28/2020
SNAPP: Conservation Aquaculture	Working Group	Wasson	Kerstin	3/18/2020	3/20/2020
SNAPP: Steppe Health	Working Group	Fine	Amanda	3/24/2020	3/26/2020
SNAPP: Zero Deforestation	Working Group	Heilmayr	Robert	4/1/2020	4/3/2020
SNAPP: Wild Camelid Mange	Working Group	Walzer	Christian	4/16/2020	4/17/2020
SNAPP: FlowImpacts	Working Group	Vigerstol	Kari	4/21/2020	4/22/2020
NEON: Vulnerability to Invasion	Working Group	Bradley	Bethany	5/18/2020	5/21/2020
SNAPP: Healthy Forests and Humans	Working Group	Haugo	Ryan	5/26/2020	5/28/2020
Soil Data Harmonization	Workshop	Halpern	Benjamin	4/14/2020	4/16/2020
Arctic Data Center Social Science Workshop	Workshop	Jones	Matthew	4/21/2020	4/23/2020
Arctic Data Center: Science Advisory Board	Advisory Board	Jones	Matthew	8/27/2019	8/28/2019
SNAPP: Board of Directors	Advisory Board	Montambault	Jensen	9/25/2019	9/25/2019
SNAPP: Management Team	Advisory Board	Montambault	Jensen	1/22/2020	1/23/2020
SNAPP: Board of Directors	Advisory Board	Montambault	Jensen	3/12/2020	3/12/2020
Dryad Data Repository	Meeting	Jones	Matthew	10/4/2019	10/4/2019
SNAPP: Central Pacific Data Collaboration	Meeting	Montambault	Jensen	1/7/2020	1/9/2020
VoCamp Meeting	Meeting	Halpern	Benjamin	1/27/2020	1/28/2020
The Whole Tale All Hands Meeting	Meeting	Ludaescher	Bertram	3/4/2020	3/6/2020

TRAININGS

NAME	MEETING TYPE	LEADER		START	END
Reproducible Research Techniques for Synthesis Training Workshop	Training Workshop	Jones	Matthew	8/5/2019	8/9/2019
Arctic Data Center Training	Training Workshop	Jones	Matthew	10/7/2019	10/11/2019
Reproducible Research Techniques for Synthesis Training Workshop	Training Workshop	Jones	Matthew	11/4/2019	11/8/2019
Reproducible Research Techniques for Synthesis Training Workshop	Training Workshop	Jones	Matthew	2/3/2020	2/7/2020
SNAPP: Postdoc Training	Training Workshop	Brun	Julien	2/18/2020	2/21/2020
Efficient virtual collaboration & facilitation for synthesis science	Training Workshop	Brun	Julien	4/24/2020	4/24/2020
Tools and practices for collaborative, reproducible data science	Training Workshop	Brun	Julien	5/8/2020	5/8/2020
DataONE Fee for Training	Training Workshop	Jones	Matthew	5/11/2020	5/15/2020

PUBLICATIONS

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