



# NCEAS

National Center for Ecological Analysis and Synthesis

## **Annual Report** Fiscal Year 2018-2019

**Transforming environmental science. Accelerating discovery. Generating solutions.**





National Center for Ecological Analysis and Synthesis

Director: Ben Halpern

Annual Report

Fiscal Year 2018-2019

University of California, Santa Barbara

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## MISSION STATEMENT

NCEAS' 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, sustainability development, and human well-being. We also operate the US Long-Term Ecological Research (LTER) Network's Communication Office, a partnership with the National Science Foundation.

This 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 co-led the State of Alaskan Salmon and People (SASAP) project with Nautilus Impact Investing, which convened eight working groups to attain a more comprehensive understanding of ecological and social conditions for salmon – including Native Alaskan knowledge – to enable more equitable and informed decision-making.
- 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 are partnering 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:

- We are a founding partner and co-coordinator of the NSF-funded DataONE network, a federation of environmental data centers and repositories with a mission of making data more accessible to researchers around the world.
- 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 new 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 new mentorship program called Openscapes, which helps early career researchers 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

At NCEAS, we are always looking for new scientific challenges to tackle and innovative ways to improve the pace and scope of discovery. We use our collaborative, big-picture approach to address many of the most pressing global environmental challenges. We continue to support and host a wide range of transformative science. One of the most exciting things about the past year is our new initiative to equip a growing number of environmental researchers with critical skills for making their data accessible and their science more useful to environmental decision-making. I believe our combined initiatives reflect our persistence in pushing the frontier on how science can help build a world in which people and nature thrive.

The next generation of environmental scientists must be able to access, synthesis, and analyze ever-increasing amounts of data, as well as work together to advance knowledge and solutions for the complex challenges we are facing. That's why we launched our [Learning Hub](#) for environmental data science this year. Through the Learning Hub, we aim to build a knowledge-sharing and skills-building community where environmental researchers can learn the latest data science skills and technologies, enabling their science to inform solutions more quickly and effectively. One of its flagship components is a [five-day short course](#) that teaches researchers the basics and best practices of open science and data science. The Learning Hub also includes a new mentorship program in open data science, called [Openscapes](#), which helps early career researchers implement a culture and practice of open science in their labs. Openscapes is the brainchild of one of our data scientists, Julia Lowndes, who was awarded a fellowship through Mozilla to launch this innovative program.

This year was also host to new projects that will surely contribute to UC Santa Barbara's thought leadership – as well as our own – in ocean science and sustainability. In partnership with Future Earth, we are supporting two working groups focused on ocean sustainability, through the Program for Early-stage Grants Advancing Sustainability Science (PEGASuS). 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. Researchers at NCEAS are also partnering with the Bren School's emLab on a large project assessing the conservation potential of lab-grown seafood as an alternative to wild-caught seafood. And through our Science for Nature and People Partnership (SNAPP), NCEAS led a horizon scanning workshop on frontiers in ocean sustainability science given climate

change and a need for equitable outcomes, which has led to two new working groups in this research area that will begin next year.

As a multidisciplinary institute, we continue our pursuit of expanding how scientists think about complex problems. To facilitate out-of-the-box thinking, last year NCEAS launched an [artist-in-residence program](#), and this year we saw the first fruits from this initiative. The program aims to provide scientists access to new modes of thinking about science and environmental problems and to inspire artists to express scientific ideas in creative ways. The first results of this initiative from our first cohort of artists have been inspiring: a photography exhibition called “Women in Science” at Santa Barbara’s Moxi Children’s Museum, produced by photographer Nicole Berry and aimed at inspiring youth; the debut of an original musical composition by composer James Stephenson that is a musical representation of synthesis science; and a collection of poetry by local writer Emily Vizzo that explores the language of synthesis. This year was also host to our second cohort of artists: mixed-media artist Ozge Samanci, data designer Skye Moret, and illustrator/painter Allison Horst.

In addition to these new endeavors, over the past year NCEAS working groups have published influential papers spanning a range of topics. Two groups found common ground for long-standing natural resource debates, shining light on pathways to solutions. One unearthed important areas of agreement among wildfire scientists about how to manage forest fires under a changing climate ([Moritz et al, white paper, October 2018](#)); the other found a clear link between the economic health of cattle ranches in the United States and the ability to maintain habitat of an iconic wild bird, the greater sage grouse ([Runge et al, Journal of Applied Ecology, September 2018](#)), which points to viable options for managing public land amid competing interests. Another paper offered the [first comprehensive analysis](#) of how climate change could affect marine aquaculture production worldwide, revealing the magnitude of the threat in the future and today. In line with our tradition of leadership in basic ecological science, our working groups also advanced understandings in biodiversity and their benefits to people ([Dee et al, Trends in Ecology and Evolution, August 2019](#)) and in the magnitude that global changes in climate, nutrients, etc. affect plant communities in comparison to experimental treatments ([Langley et al, Global Change Biology, October 2018](#)), which has implications for the interpretations of long-term ecological experiments.

NCEAS’ diverse set of existing and expanding projects, many in collaboration with practitioner and academic partners, continue to make progress on our mission:



- The Science for Nature and People Partnership (SNAPP) has entered its sixth year of activity. A partnership with The Nature Conservancy and Wildlife Conservation Society, SNAPP has grown to support 39 working groups to date, with 15 active working groups, with 4 to 5 more launching in 2020. SNAPP's impacts and outcomes are described in the summary magazine, [SNAPPshot](#).
- In 2019, NCEAS received funding from the National Science Foundation to continue operating the Long Term Ecological Research (LTER) Network Office (LNO) for another five years. The [LTER Network](#) links 28 ecological research programs and over 2000 researchers working in every major U.S. biome. The LNO is the hub of scientific synthesis, education, and outreach activities for the Network, which will celebrate its 40th anniversary in 2020. NCEAS' deep experience in synthesis and collaboration – and its growing expertise in science communication – make it an ideal location for the LNO. Major new LNO activities in 2019 include launching a new community platform and preparing a self study in advance of NSF's 40-year review of the program.
- NCEAS continues to contribute to and play a lead role in [DataONE](#), a network for Earth and environmental data search and discovery. Over the last year, we have been preparing for the transition of administrative oversight to NCEAS as part of the [future vision of DataONE](#) into 2020 and beyond. DataONE continues to grow, with 42 repositories now in the network, including recent partners the Cary Institute and the Interdisciplinary Earth Data Alliance (IEDA).
- The NSF-funded [Arctic Data Center](#), a repository for Arctic scientific data and research documents, has over 5700 datasets, totaling 34 terrabytes of content. The center hosted two successful training events for Arctic researchers at NCEAS, and the team continues to build its network in the Arctic community, including a recent (September 2019) collaborative NSF award to build a Permafrost Discovery Gateway.
- The [State of Alaska's Salmon and People Project](#) (SASAP) wrapped up, with the completion and launch of a legacy website that serves as a public portal to the eight working groups' major findings and their data. This website will provide valuable and accessible resources to aid local decision-making for the sustainability of Alaska's salmon and salmon-dependent communities.
- The last year marked the seventh annual global [Ocean Health Index](#) assessment, which was completed by our inaugural cohort of our [fellowship program](#) that launched last year. This program provides emerging scientists training in data science and an efficient way to produce annual global OHI assessments. This year we also welcomed our second cohort of this program, who have helped us produce the forthcoming eighth annual assessment. In addition, we formed a partnership with ESRI to support and disseminate OHI efforts and had OHI

proposed as a key indicator for Sustainable Development Goal (SDG) 14, Life Under Water.

- Our [Conservation Aquaculture Research Team](#) had another productive year, publishing three papers in high-impact journals that continue to expand our knowledge about how to produce farmed seafood sustainably. Members of our team have also brought their research to public sphere to help inform dialogue and decision-making at the national level around aquaculture, including publishing [an op-ed](#) in Scientific American and attending Ocean Week on Capitol Hill in June 2019.

## Five-Year Projection Update

Our overall five-year plan has not changed, and I am excited to offer additional benchmarks that showcase our progress:

- We are maintaining a number of working groups within our target per-year range, with 27 that are currently active.
- We have grown our resident post-doc community to 10, 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.
- Our establishment of a new initiative around climate change and human equity, with two working groups that will be constituted in the coming year, further demonstrates progress in our objective to create new nodes for synthesis research.
- We continue to engage and nurture ongoing and strong partnerships, including the World Wildlife Fund, Conservation International, Future Earth, and our strong partnership with The Nature Conservancy and Wildlife Conservation Society through SNAPP.
- We launched a new, bold initiative around training and education in environmental data science, called the Learning Hub. The scope and diversity of opportunities and resources includes everything from one-hour webinar trainings to multi-day “boot camps” to week-long fee-for-service trainings. We also launched a mentorship program, Openscapes, described above. This initiative is a new “pillar” of activity at NCEAS and part of our objective to strengthen our position as a go-to place for environmental data science training.
- Our leadership role in proposing a new Master’s degree at UCSB – Masters of Environmental Data Science – bore fruit this year with UCSB formally approving the program. The proposal is now working its way through UC approval.

- We hosted our second cohort of artists this year, as described above.
- Our Director's Council has been actively engaged over the year, and we are actively seeking additional members who will serve to help NCEAS with high-impact development and fundraising efforts, and potentially contribute to our strategic direction. The Council held its first meeting earlier in the year and is scheduled for its second meeting this fall.

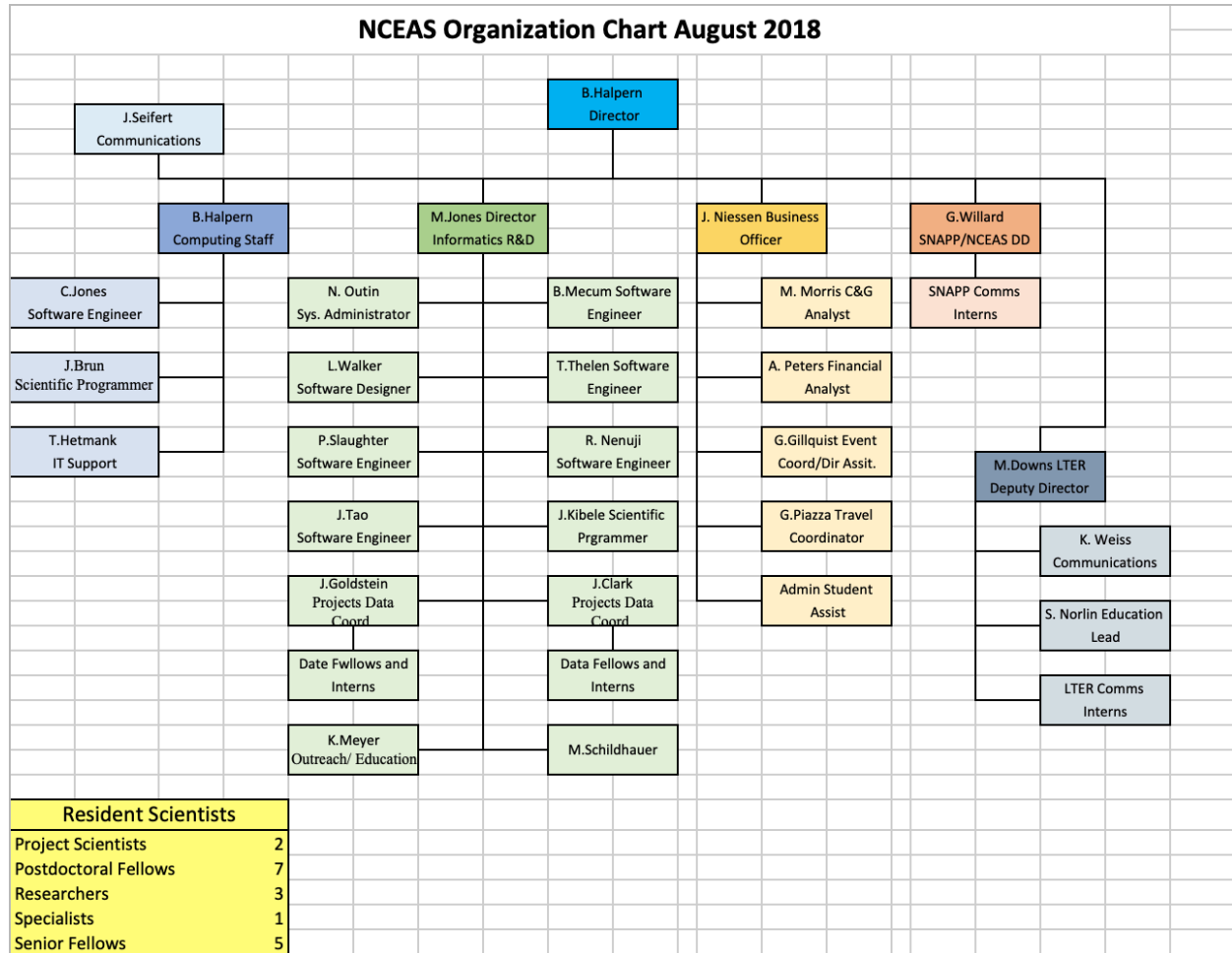
Now three years into my role as Director, I continue to be excited about the diversity and impact of projects we are leading and supporting. I want to thank the Gordon and Betty Moore Foundation, the National Science Foundation, our partners at The Nature Conservancy and the Wildlife Conservation Society, the Zegar Family Foundation, 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



### 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
- Ana Peters, Financial Analyst
- Michelle Morris, Contract & Grant Analyst
- Ginger Gillquist, Event Coordinator/Director's Assistant
- Gabriella Piazza, Travel Coordinator

#### Technical Staff

- Julien Brun, Scientific Programmer
- 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, Scientific Programmer
- Bryce Mecum, Science Software Engineer
- Dominic Mullen, Projects Data Technician
- 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

#### Academic Coordinators

- Marty Downs, Deputy Director (LTER NCO)
- Kathryn Meyer, Arctic Data Center Outreach Coordinator
- Jenny Seifert, Communications Officer (NCEAS, Ocean Health Index)
- 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, Associate Specialist

#### Researchers

- Amber Budden, Visiting Researcher
- Jennifer Caselle, Researcher
- Frank Davis, Researcher
- Olivier Deschenes, Researcher
- Alexa Fredston-Hermann, Graduate Student Researcher
- Carrie Kappel, Researcher
- Casey O'Hara, Graduate Student Researcher
- Kimberly Selkoe, Researcher
- Vincent Thivierge, Graduate Student Researcher

#### Project Scientists

- Julia Lowndes, Associate Project Scientist
- Courtney Scarborough, Associate Project Scientist

#### Other Staff

- Marie Johnson
- Scott Mortensen
- Emily O'Dean
- Erin O'Reilly
- Derek Strong
- Robyn Thiessen-Bock
- Daniel Yocum

## STATISTICAL SUMMARY

STATISTICAL SUMMARY FOR: NCEAS				
1. Academic personnel engaged in research:				
a.	Faculty			3
b.	Professional Researchers (including Visiting)			6
c.	Project Scientists			2
d.	Specialists			3
e.	Postdoctoral Scholars			10
f.	Postgraduate Researchers			
	TOTAL			24
2. Graduate Students:				
a.	Employed on contracts and grants			16
b.	Employed on other sources of funds			
c.	Participating through assistantships			
d.	Participating through traineeships			
e.	Other (specify)			
	TOTAL			16
3. Undergraduate Students:				
a.	Employed on contracts and grants			12
b.	Employed on other funds			1
c.	Number of volunteers, & unpaid interns			
	TOTAL			13
4. Participation from outside UCSB: <span style="float: right;">(optional)</span>				
a.	Academics (without Salary Academic Visitors)			
b.	Other (specify)			
5. Staff (Univ. & Non-Univ. Funds):				
a.	Technical			15
b.	Administrative/Clerical			5
6. Seminars, symposia, workshops sponsored				57
7. Proposals submitted				28
8. Number of different awarding agencies dealt with*				22
9. Number of extramural awards administered				44
10. Dollar value of extramural awards administered during year**				\$24,156,980
11. Number of Principal Investigators***				19
12. Dollar value of other project awards ****				\$40,000
13. Number of other projects administered				2
14. Total base budget for the year (as of June 30, 2018)				\$641,823
15. Dollar value of intramural support				\$101,347
16. Total assigned square footage in ORU				14302
17. Dollar value of awards for year (08 Total)				\$7,550,403
*	Count each agency only once (include agencies to which proposals have been submitted).			
**	If the award was open during the year, even if for only one month, please include in total.			
***	Number of PIs, Co-PIs and Proposed PIs (count each person only once.)			
****	Other projects - such as donation, presidential awards, fellowships,			
	anything that isn't core budget, extramural, or intramural.			

## 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
Krzysztof Janowicz	Professor	Geography
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
Julia Lowndes	Project Scientist	National Center for Ecological Analysis and Synthesis
William McClintock	Project Scientist	Marine Science Institute
James Salzman	Professor	Bren School
Mark Schildhauer	Director of Computing	National Center for Ecological Analysis and Synthesis



Kim Selkoe	Associate Researcher	National Center for Ecological Analysis and Synthesis
Samantha Stevenson	Professor	Bren School

## GRADUATE AND UNDERGRADUATE STUDENTS

### Graduate Students

- Camila Bobroff
- Eleanore Campbell
- Bitian Chen
- Samuel Clawson
- Alexandra Jamis
- Amanda Kelley
- Kyle Monper
- Margaux Sleckman
- Cristina Sparks
- Iwen Su
- Camilla Vargas Poulsen
- Juliette Verstaen
- Molly Williams

### Undergraduate Students

- Kira Archipov
- Juliet Bachtel
- Gordon Blasco
- Cheyenne Coxon
- Patrick Foran
- Nathan Hwangbo
- Tia Kordell
- Soham Mistry
- Grant Nolasco
- Noelle Pruett

- Rachel Sun
- Caitlin Swalec
- Joanne Yue

#### Postdoctoral Fellows

- Maya Almaraz
- Lesley Atwood
- Jorge Cornejo Donoso
- Michael Eggen
- Whitney Friedman
- Halley Froehlich
- Jose Giron Nava
- Skylar Hopkins
- Caitlin Kuempel
- Erin Satterthwaite

## EXTERNAL PARTICIPATION

#### DataONE: Observation Network for Earth

Daniella	Lowenberg	University of California, Office of the President
Sean	Gordon	The HDF Group
Ted	Habermann	The HDF Group
Amber	Budden	University of New Mexico
John	Chodacki	University of California, Office of the President

#### DataONE: CEO

David	Vieglais	University of Kansas
David	Bloom	University of California, Berkeley
Heather	Soyka	University of New Mexico
Vivian	Hutchison	US Geological Survey (USGS)
Amber	Budden	University of New Mexico
John	Meyer	University of New Hampshire
Megan	Mach	Stanford University
Shannon	Rauch	Woods Hole Oceanographic Institution
Amanda	Whitmire	Stanford University

## 2018 LTER All Scientists Meeting

Julia	Cox	University of Massachusetts
Alex	Wells	Middlebury College
Robin	Rohwer	University of Wisconsin, Madison
Chris	Madden	Florida International University
Kathleen	Weathers	Cary Institute of Ecosystem Studies
Adrianna	Trusiak	University of Michigan
Suzy	Roebling	Florida International University
Sharon	Collinge	National Science Foundation
Danielle	Cook	University of North Carolina, Chapel Hill
Amy	Rosemond	University of Georgia
Orlando	Rios	Wayne State University
Eric	Seabloom	University of Minnesota
Jeremy	Kasper	University of Alaska Fairbanks
Bailey	McMeans	University of Toronto, Mississauga
Josh	Darling	University of Colorado, Boulder
Yvette	Spitz	Oregon State University
Christine	Hladik	Georgia Southern University
Ashley	Lang	Dartmouth College
Cody	Meek	University of Alaska, Fairbanks
Marta	Berbes	Arizona State University
Melinda	Weaver	Arizona State University
Jessica	O'Connell	University of Georgia
Katie	Kemmitt	Arizona State University
Keryn	Gedan	George Washington University
Lisa	Herrmann	Arizona State University
Cari	Paulenich	University of California, San Diego
Amanda	Morrison	Colorado State University
Lyndsey	Parkinson	University of Alaska, Fairbanks
Craig	See	University of Minnesota
Katherine	Weiss	Arizona State University
Caitlin	Barale Potter	University of Minnesota
Kelsey	Solomon	University of Georgia
Jeff	Hepinstall-Cymerman	University of Georgia
Michael	Rawlins	University of Massachusetts
Wenwen	Li	University of Houston
Ana	Aguilar-Islas	University of Alaska, Fairbanks
Christine	Angelini	University of Florida

Sinéad	Crotty	University of Florida
John	Schalles	Creighton University
Sunghoon	Hong	State University of New YORK (SUNY), College of Environmental Science and Forestry
Alexander	Young	State University of New YORK (SUNY), College of Environmental Science and Forestry
Lauren	Alteio	University of Massachusetts, Amherst
Meghan	MacLean	Harvard Forest
Stephanie	Bestelmeyer	Asombro Institute for Science Education
Yiqi	Luo	University of Oklahoma
Robert	Schooley	University of Illinois, Urbana Champaign
Luis	Weber	Arizona State University
Nick	Haddad	Michigan State University
Sandy	Marquart-Pyatt	Michigan State University
Lissy	Goralnik	Michigan State University
Neville	Millar	Michigan State University
Alan	Berkowitz	Cary Institute of Ecosystem Studies
Kate	Glanville	Michigan State University
Kent	Connell	Kansas State University
Jaide	Allenbrand	Kansas State University
Caitlin	Broderick	Kansas State University
Pablo	Gutierrez	University of Puerto Rico
Jazlyn	Hall	Columbia University
Glenda	Almodovar	Escuela Superior Aurea E. Quiles
Matt	Hedin	Virginia Polytechnic Institute and State University
Isha	Kalra	Miami University
David	Robinson	University of New Mexico
Carolynn	Harris	Montana State University
Lansing	Perng	California State University, Northridge
Ashley	Potter	California State University, Northridge
Tae Hee	Hwang	Indiana University
Brett	Addis	University of Montana
Fiona	Jevon	Dartmouth College
Noella	Baez	University of Puerto Rico
Thomas	Kelly	Florida State University
Laura	Lilly	University of California, San Diego
Kristen	DeAngelis	University of Massachusetts, Amherst



Sarah	Powers	Virginia Polytechnic Institute and State University
Heidi	Mendoza-Islas	University of Alaska, Fairbanks
Vince	Butitta	University of Wisconsin, Madison
Trina	McMahon	University of Wisconsin, Madison
Diane	McKnight	University of Colorado, Boulder
Laurel	Brigham	University of Colorado, Boulder
Chiara	Forrester	University of Colorado, Boulder
Eli	Gendron	University of Colorado, Boulder
Scott	Taylor	University of Colorado, Boulder
Douglas	Martinson	Columbia University
Ari	Friedlaender	University of California, Santa Cruz
Cristina	Schultz	Woods Hole Oceanographic Institution
Janice	McDonnell	State University of New Jersey, Rutgers
James	Nelson	University of Louisiana, Lafayette
Kim	Eichhorst	University of New Mexico
Lauren	Baur	University of New Mexico
Tim	Ohlert	University of New Mexico
Cora Ann	Johnston	University of Virginia
Gwen	Miller	University of South Carolina
Stephanie	Hampton	Washington State University
Alesia	Hallmark	University of New Mexico
Carolyn	Voter	University of Wisconsin, Madison
Kevin	Archibald	Woods Hole Oceanographic Institution
Christopher	Whitney	University of New Hampshire
Marissa	Nufer	Michigan State University
Annette	Brickley	Woods Hole Oceanographic Institution
Liz	Duff	Mass Audubon Endicott Sanctuary
Edward	Rastetter	Marine Biological Laboratory
Riley	Andrade	Arizona State University
Emma	Rosi-Marshall	Cary Institute of Ecosystem Studies
Art	Miller	University of California, San Diego
Katherine	Barbeau	University of San Diego
Suzanne	Remillard	Oregon State University
Yi	Yang	University of Nebraska Lincoln
Maria Cristina	Portales Reyes	University of Minnesota
Siddharth	Iyengar	University of Minnesota, Twin Cities
Nina	Wurzburger	University of Georgia
Laureano	Gherardi	Arizona State University

John	Anderson	New Mexico State University
Janet	Branchaw	University of Wisconsin, Madison
Sharon	Stammerjohn	University of Colorado, Boulder
Jennie	McLaren	University of Texas, El Paso
Steven	Pennings	University of Houston
Niall	Hanan	New Mexico State University
Stephen	Hamilton	Michigan State University
Katherine	Gross	Michigan State University
Jesse	Nippert	Kansas State University
Lydia	Zeglin	Kansas State University
Kristen	Weiss	Center for Ocean Solutions
Suzanne	Strom	Western Washington University
Emily	Stanley	University of Wisconsin
Oscar	Schofield	State University of New Jersey, Rutgers
Natasha	Woods	Virginia Commonwealth University
Mike	Rugge	Florida International University
Tamara	Harms	University of Alaska, Fairbanks
Jessica	Chappell	University of Georgia
Noah	Lottig	University of Wisconsin
Christopher	Swan	University of Maryland, Baltimore
Oliver	Wigmore	University of Colorado, Boulder
Ralf	Goericke	University of California, San Diego
David	Calvitto	Alda Communication Training
Maura	Dudley	University of Georgia
Julie	Doll	Michigan State University
Ela-Sita	Carpenter	USDA Forest Service
Susanne	Menden-Deuer	University of Rhode Island
Emily	Whalen	University of New Hampshire
Jennifer	Rudgers	University of New Mexico
Marissa	Matsler	Cary Institute of Ecosystem Studies
James	Rea	Alda Communication Training
Michael	Neubert	Woods Hole Oceanographic Institution
Robert	Andrus	University of Colorado, Boulder
Marcy	Litvak	University of New Mexico
Karen	McGlathery	University of Virginia
Stephanie	Sommer	University of California, San Diego
Ben	Livneh	University of Colorado, Boulder
Barbara	Bevacqua	Western Washington University
Sydne	Record	Bryn Mawr College

Xiaohe	Zhang	Boston University
Rebecca	Hewitt	Northern Arizona University
Jennifer	Holguin	University of Texas, El Paso
Andrew	Robison	University of New Hampshire
Haneen	Omari	New Mexico State University
Julie	Zinnert	Virginia Commonwealth University
Megan	Machmuller	Colorado State University
Luke	Lamb-Wotton	Florida International University
Sarah	Hobbie	University of Minnesota, Twin Cities
Ryan	James	Florida International University
Jill	Baron	US Geological Survey (USGS)
Omar	Gutierrez del Arroyo	University of California, Berkeley
Joel	Llopiz	Woods Hole Oceanographic Institution
Tatiana	Rynearson	University of Rhode Island
Amanda	Suchy	Cary Institute of Ecosystem Studies
Derek	Pierson	Oregon State University
Amelie	Berger	University of Virginia
Heidi	Golden	University of Connecticut
Charles	Scaife	University of Virginia
Matthew	Vadeboncoeur	University of New Hampshire
Shawn	Devlin	University of Montana
Nicolle	Omiotek	Elmhurst College
Marilyn	Sigman	University of Alaska, Fairbanks
Alexander	Huryh	University of Alabama
Nathan	McTigue	University of Texas at Austin
Matthew	Kirwan	Virginia Institute of Marine Science
Christa	Mulder	University of Alaska, Fairbanks
Joseph	LaManna	Washington University in St. Louis
Michael	Dietze	Boston University
Megan	Wheeler	Arizona State University
Jill	Haukos	Kansas State University
Allison	Swartz	Oregon State University
J. Morgan	Grove	USDA Forest Service
Scott	Doney	University of Virginia
Caitlin	Smoot	University of Alaska, Fairbanks
Nicholas	LoRusso	Syracuse University
Pamela	Snow	Harvard Forest
Adam	Wymore	University of New Hampshire
Daniel	Damelin	The Concord Consortium

Nancy	Sonti	USDA Forest Service
Peter	Groffman	City University of New York (CUNY)
Paul	Julian	Florida International University
Heidi	Sosik	Woods Hole Oceanographic Institution
Jonathan	Duncan	Penn State University
Jake	Walsh	University of Wisconsin
Claudine	Hauri	University of Alaska, Fairbanks
Christina	Bonsell	University of Texas
Vanessa	Lougheed	University of Texas, El Paso
Carissa	Gervasi	Florida International University
John	Blair	Kansas State University
Marie	Tosa	Oregon State University
Meghan	DeVan	University of New Mexico
James	Morris	University of South Carolina
Kari	O'Connell	Oregon State University
Nicholas	Oehm	Florida International University
Karla	Jarecke	Oregon State University
Caitlin	Nordheim	Arizona State University
Jessie	Motes	University of Georgia
Habib	Fakhraei	Syracuse University
Alessandra	Puig-Santana	Florida International University
Cameo	Chilcutt	Harvard University
Nicholas	Anguiano	Michigan State University
Max	Castorani	University of Virginia

### 2019 LTER Science Council Meeting

Gayle	Pugh	National Science Foundation
Cristina	Takacs-Vesbach	University of New Mexico
Jess	Zimmerman	University of Puerto Rico, Rio Piedras Campus
Katherine	Barbeau	University of San Diego
Dan	Thornhill	National Science Foundation
Eric	Seabloom	University of Minnesota
Kenneth	Dunton	University of Texas, Austin
Erica	Christensen	New Mexico State University
James	McClelland	University of Texas
Diane	McKnight	University of Colorado, Boulder
David	Garrison	National Science Foundation
Pamela	Templer	Boston University
Deborah	Steinberg	Virginia Institute of Marine Science

Gary	Lovett	Cary Institute of Ecosystem Studies
Colette	St. Mary	University of Florida
Peter	Groffman	City University of New York (CUNY)
Grizelle	Gonzalez	USDA Forest Service
Nick	Haddad	Michigan State University
Tom	Miller	Rice University
Jennifer	Rudgers	University of New Mexico
Michael	Neubert	Woods Hole Oceanographic Institution
Timothy	Seastedt	University of Colorado, Boulder
Edward	Rastetter	Marine Biological Laboratory
Michael	Gooseff	University of Colorado, Boulder
Evelyn	Gaiser	Florida International University
Kevin	Griffin	Columbia University
Daniel	Childers	Arizona State University
Katharine	Suding	University of Colorado, Boulder
Karen	McGlathery	University of Virginia
Sarah	Hobbie	University of Minnesota, Twin Cities
Corinna	Gries	University of Wisconsin, Madison
Rebecca	Montgomery	University of Minnesota
Charles Rhett	Jackson	University of Georgia
Oscar	Schofield	State University of New Jersey, Rutgers
Emily	Stanley	University of Wisconsin
Scott	Swinton	Michigan State University
Jonathan	Thompson	Harvard University
Annette	Brickley	Woods Hole Oceanographic Institution
		Long Term Ecological Research (LTER)/Cedar
		Creek Natural History Area (CDR)
Dan	Bahauddin	Kansas State University
Jesse	Nippert	Florida International University
John	Kominoski	Kansas State University
Lydia	Zeglin	University of Rhode Island
Tatiana	Rynearson	University of Louisiana, Lafayette
James	Nelson	Oregon State University
Julia	Jones	Western Washington University
Suzanne	Strom	University of Alaska
Roger	Ruess	University of Maryland, Baltimore
Christopher	Swan	The Ecosystems Center
Anne	Giblin	Oregon State University
Michael Paul	Nelson	Florida State University
Mike	Stukel	

Michael	Pace	University of Virginia
J. Morgan	Grove	USDA Forest Service
Jay	Jones	University of Alaska, Fairbanks
Paul	Hanson	University of Wisconsin
Merryl	Alber	University of Georgia
David	Hondula	Arizona State University
Niall	Hanan	New Mexico State University
Seth	Danielson	University of Alaska, Fairbanks

### **Arctic Data Center Training**

Erin	Whitney	University of Alaska, Fairbanks
		The National Institute of Standards and Technology (NIST)
Amanda	Moors	University of New Mexico
Amber	Budden	University of Alaska, Anchorage
Jennifer	Schmidt	University of Alaska, Fairbanks
Ibrahim	Ilhan	University of Alaska, Anchorage
Tobias	Schwoerer	Loyola University Chicago
Sam	Dunn	George Washington University
Vera	Kuklina	George Washington University
Robert	Orttung	US Environmental Protection Agency (EPA)
Kelsey	Aho	University of Alaska, Fairbanks
Randy	Fulweber	University of Dayton
Ivan	Sudakov	University of Arkansas
Hong	Guo	George Mason University
Vera	Solovyeva	University of Alaska, Fairbanks
Kirill	Dolgikh	Woods Hole Research Center
Anna	Suslova	Alaska State Libraries, Archives, And Museums
Anastasia	Tarmann	Boise State University
Tate	Meehan	Association of State and Territorial Health Officials
Priyanka	Surio	Boston University
Taejin	Park	University of New Hampshire
Apryl	Perry	Ohio State University
Vibhor	Agarwal	

### **Arctic Data Center: Science Advisory Board**

Amber	Budden	University of New Mexico
Peter	Pulsifer	National Snow and Ice Data Center
Paul	Berkman	Tufts University

Melissa	Zweng	NOAA, Ocean Climate Laboratory
Mark	Parsons	University of Colorado, Boulder
Karl	Rittger	National Snow and Ice Data Center
Susan	Hubbard	Lawrence Berkeley National Laboratory
		National Oceanic and Atmospheric
Sheekela	Baker-Yeboah	Administration (NOAA)

### **Arctic Data Center: Project Team Meeting**

		National Oceanic and Atmospheric
Sheekela	Baker-Yeboah	Administration (NOAA)
Amber	Budden	University of New Mexico
Marie	Johnson	University of Montana

### **Arctic Carbon Exchange Synthesis**

Susanne	Euskirchen	University of Alaska, Fairbanks
Roisin	Commane	Columbia University
Anna	Virkkala	University of Helsinki
Elyn	Humphreys	Carleton University
Derek	Lemoine	University of Arizona
Christina	Minions	Woods Hole Research Center
Masahito	Ueyama	Osaka Prefecture University
Steven	Oberbauer	Florida International University
Jennifer	Watts	Woods Hole Research Center
Frans-Jan	Parmentier	University of Oslo
Edward	Schuur	Northern Arizona University
Min Jung	Kwon	Korean Polar Research Institute
Marguerite	Mauritz	Northern Arizona University
Oliver	Sonnentag	Université Montréal
Susan	Natali	Woods Hole Research Center
Gerardo	Celis	Northern Arizona University
Mathias	Goeckede	Max-Planck Institute for Biogeochemistry

### **Arctic Data Center Training**

Barbara	Johnson	University of Alaska, Fairbanks
Hunter	Snyder	Dartmouth College
Vladimir	Alexeev	University of Alaska, Fairbanks
Michael	Loranty	Colgate University
Kelly	Deuerling	University of Florida
Gary	Holton	University of Hawaii, Manoa



Bryan	Brasher	National Oceanic and Atmospheric Administration (NOAA)
Matthew	Druckenmiller	National Snow and Ice Data Center
Shujie	Wang	Columbia University
Amber	Budden	University of New Mexico
Julia	Stuart	Northern Arizona University
		National Aeronautics and Space Administration (NASA)
Angela	Bliss	University of Maryland, Baltimore County
Nicole	Trenholm	Bronx Community College
Monika	Sikand	University of California, San Diego
Carolyn	Kurle	Texas State University
Shayne	O'Brien	University of Massachusetts, Amherst
Benjamin	Keisling	University of Colorado, Boulder
Patricia	DeRepentigny	Massachusetts Institute of Technology
Aleksandra	Durova	Columbia University
Patrick	Alexander	University of New Hampshire
Jessica	Ernakovich	Hampshire College
Seeta	Sistla	University of Washington
Ying-Jung	Chen Deweese	

### Arctic Data Center Training

Anna	Nesterovich	Iowa State University
Susan	Howard	Earth and Space Research
Hélène	Angot	University of Colorado, Boulder
Amber	Budden	University of New Mexico
Yiyi	Huang	University of Arizona
Sanghoon	Kang	Baylor University
Komi	Messan	US Army Corps of Engineers
Caixia	Wang	University of Alaska, Anchorage
Grant	Deane	University of California, San Diego
Rebecca	Finger-Higgins	Dartmouth College
Desheng	Liu	Ohio State University
Anastasija	Mensikova	George Washington University
Alison	Paulson	Mississippi State University
Christina	Minions	Woods Hole Research Center
Kelly	Kapsar	Michigan State University
Olaf	Kuhlke	University of Minnesota Duluth
Sara	Pedro	University of Connecticut
Aleksey	Sheshukov	Kansas State University

### **State of Alaska Salmon and People (SASAP) Meeting**

Wilson	Justin	University of Alaska, Anchorage
Michael	Williams	Akiak Native Community
Taylor	Brelsford	AECOM
Courtney	Carothers	University of Alaska, Fairbanks
Caroline	Brown	Alaska Department of Fish and Game
Rachel	Donkersloot	Alaska Marine Conservation Council (AMCC)
Jessica	Black	University of Alaska, Fairbanks
Carrie	Stevens	University of Alaska, Fairbanks
Benjamin	Stevens	Tanana Chiefs Conference
Jonathan	Samuelson	Kuskokwim River Inter-Tribal Fish Commission
Nicholas	Kameroff Jr.	Kuskokwim Inter-tribal Fisheries Commission
Stephanie	Quinn-Davidson	Tanana Chiefs Conference
Jesse	Coleman	University of Alaska, Fairbanks
James	Fall	Alaska Department of Fish and Game
Stephen	Langdon	University of Alaska, Anchorage
Erika	Gavenus	University of British Columbia
Ian	Dutton	Nautilus Impact Investing, LLC
Charles	Hahn	University of Washington
Sarah	Inman	University of Washington
Sarah	Warnock	Nautilus Impact Investing, LLC
Brooke	Wright	University of Alaska
Charlie	Wright	NULL
Danielle	Ringer	University of Alaska, Fairbanks
Janessa	Esquible	Orutsararimut Native Council
Julie	Raymond-Yakoubian	Kawerak, Inc.

### **State of Alaska Salmon and People (SASAP) Research Priorities**

John	Linderman	Alaska Department of Fish and Game
Andrew	Munro	Alaska Department of Fish and Game
Stephen	Langdon	University of Alaska, Anchorage
Jessica	Black	University of Alaska, Fairbanks
Wilson	Justin	University of Alaska, Anchorage
Danielle	Ringer	University of Alaska, Fairbanks
Sarah	Inman	University of Washington
Meagan	Krupa	Nautilus Impact Investing, LLC
Matthew	Baker	North Pacific Research Board
David	Albert	The Nature Conservancy

Rachel	Donkersloot	Alaska Marine Conservation Council (AMCC)
Michael	Jones	Quantitative Fisheries Center
Richard	Brenner	Alaska Department of Fish and Game
Daniel	Rinella	US Fish and Wildlife Service (FWS)
Ian	Dutton	Nautilus Impact Investing, LLC
James	Fall	Alaska Department of Fish and Game
Daniel	Schindler	University of Washington
Sarah	Warnock	Nautilus Impact Investing, LLC
Eric	Palkovacs	University of California, Santa Cruz
Tobias	Schwoerer	University of Alaska, Anchorage
Peter	Westley	University of Alaska, Fairbanks
Pete	Rand	Prince William Sound Science Center
Leslie	Jones	University of Alaska, Anchorage
Matthew	Sloat	Wild Salmon Center
Erin	Dovichin	Gordon and Betty Moore Foundation
Freddie	Christiansen	Old Harbor Native Corporation
Bob	King	Alaska Department of Fish and Game
Dennis	Whigham	Smithsonian Environmental Research Center
Michael	Williams	Akiak Native Community
Charles	Hahn	University of Washington
		North Pacific Anadromous Fish Commission
Mark	Saunders	(NPAFC)

#### **State of Alaska Salmon and People (SASAP) writing workshop**

Leslie	Jones	University of Alaska, Anchorage
Matthew	Sloat	Wild Salmon Center
Peter	Westley	University of Alaska, Fairbanks
Meagan	Krupa	University of Alaska, Anchorage
Molly	McCarthy	University of Alaska, Anchorage
Sarah	Warnock	Nautilus Impact Investing, LLC

#### **Renewable Natural Resources**

Elizabeth	Selig	Conservation International
		Stockholm International Peace Research
Malin	Mobjörk	Institute
		Stockholm University, Stockholm Resilience
Jessica	Spijkers	Center
Philippe	Le Billon	University of British Columbia
Christopher	Weible	University of Colorado, Denver

Tiffany	Morrison	Arc Centre of Excellence for Coral Reef Studies
Maria	Carmen Lemos	University of Michigan
Örjan	Bodin	Stockholm University, Stockholm Resilience Center
Cullen	Hendrix	University of Denver
Colette	Wabnitz	University of British Columbia
Matthew	Osborne	Stockholm Environment Institute (SEI)

### **Biogeochem workshop**

Steve	Perakis	US Geological Survey (USGS)
Kevin	Wilcox	USDA Agricultural Research Service (ARS)
Helene	Genet	University of Alaska, Fairbanks
Timothy	Albaugh	Virginia Polytechnic Institute and State University
Sarah	Roley	Washington State University
David	Kicklighter	Ecosystems Center
Bonnie	Kwiatkowski	Marine Biological Laboratory
Stephen	Porder	Brown University
Edward	Rastetter	Marine Biological Laboratory
Ruth	Yanai	Syracuse University
Timothy	Seastedt	University of Colorado, Boulder
Audrey	Barker-Plotkin	Harvard Forest

### **URSSI Software credit and metrics workshop**

Karthik	Ram	University of California, Berkeley
Carl	Boettiger	University of California, Berkeley
James	Howison	University of Texas, Austin
Kristin	Vanderbilt	University of New Mexico
Daniel	Katz	University of Illinois, Urbana-Champaign
Jeffery	Carver	University of Alabama
Alice	Allen	Astrophysics Source Code Library
Lorraine	Hwang	University of California, Davis
Kyle	Niemeyer	Oregon State University
Neil	Chue Hong	University of Edinburgh
Lars Holm	Nielsen	CERN
Abigail	Cabunoc Mayes	Mozilla
Arfon	Smith	Space Telescope Science Institute
Patrice	Lopez	Science-Miner
Nicholas	Tierney	Monash University

Jessica	Hausman	Jet Propulsion Laboratory of the National
Joshua	Greenberg	Aeronautics and Space Administration (NASA)
Edwin	Henneken	Alfred P. Sloan Foundation
		Smithsonian Astrophysical Observatory

### **The Nature Conservancy Global Science Retreat**

Jamie	Wentz	The Nature Conservancy
Melissa	Kim	Uplift Worldwide
Kassie	Morton	The Nature Conservancy
Jensen	Montambault	The Nature Conservancy
Stephanie	Wear	The Nature Conservancy
Collin	Weigel	The Nature Conservancy
Nicholas	Wolff	The Nature Conservancy
Megan	Kelso	University of California, Los Angeles
Molly	Wallace	The Nature Conservancy
Jennifer	McGowan	The Nature Conservancy
Yuta	Masuda	The Nature Conservancy
Edward	Game	The Nature Conservancy
Justine	Hausheer	The Nature Conservancy
Timm	Kroeger	The Nature Conservancy
Jessica	Musengezi	The Nature Conservancy
Heather	Tallis	The Nature Conservancy
Dayana	Gonzalez	The Nature Conservancy
Tamiko	Graves	The Nature Conservancy
Joshua	Goldstein	The Nature Conservancy
Sarah Kate	Nomura	The Nature Conservancy
Gina	Waterfield	The Nature Conservancy
Luke	Hawbaker	The Nature Conservancy, United Kingdom
Cara	Byington	The Nature Conservancy
Tim	Boucher	The Nature Conservancy
Kingsley	Onyechi	The Nature Conservancy
Matthew	Miller	The Nature Conservancy
Olivia	Millard	The Nature Conservancy
Sheila	Walsh Reddy	The Nature Conservancy
Hugh	Possingham	University of Queensland
Meaza	Zerihun Demissie	World Bank
Mae	Seon	The Nature Conservancy
Christine	Jacobs	The Nature Conservancy
Dawn	O'Neal	The Nature Conservancy

### **NCEAS Visioning Workshop**

Leah	Gerber
Elizabeth	Borer
Richard	Williams
Diego	Vazquez
Mary	O'Connor
Priyanga	Amarasekare
Helen	Regan
Andrew	Dobson
Brian	Enquist
Eric	Berlow
Christopher	Lortie

Arizona State University  
University of Minnesota  
Vibrant Data Labs  
Instituto Argentino de Investigaciones de las Zonas Aridas  
University of British Columbia  
University of California, Los Angeles  
University of California, Riverside  
Princeton University  
University of Arizona  
Vibrant Data Labs  
York University

### **NCEAS Visioning Workshop**

Paula	Kahumbu
Lee	Hannah
Mohamed	Bakarr
Ezequiel	Fabiano

Wildlife Direct  
Conservation International  
Conservation International  
University of Namibia

### **LTER: Metacommunities**

Jonathan	Tonkin
Nina	Lany
Christopher	Swan
Shawn	Taylor
Nathan	Wisnoski
Sydne	Record
Nicole	Voelker
Jennifer	Rehage
Rolando	Santos
Chris	Catano
Colin	Averill
Eric	Sokol
Aldo	Compagnoni
Riley	Andrade
Benjamin	Jantzen

Oregon State University  
Michigan State University  
University of Maryland, Baltimore  
Wildlife Ecology and Conservation  
Indiana University  
Bryn Mawr College  
University of Maryland, Baltimore  
Florida International University  
Florida International University  
Michigan State University  
Boston University  
University of Colorado, Boulder  
Utah State University  
Arizona State University  
Virginia Polytechnic Institute and State University

### **LTER: Stream Elemental Cycling**

Bianca	Rodriguez-Cardona	University of New Hampshire
Carla	Lopez-Lloreda	Luquillo Critical Zone Observatory
Pirkko	Kortelainen	Finnish Environment Institute
Sherri	Johnson	Oregon State University
Susana	Bernal Berenguer	Centre de Estudis Avancats de Blanes
Adam	Wymore	University of New Hampshire
Jack	Brookshire	Montana State University
William	McDowell	University of New Hampshire
Rebecca	Barnes	Colorado College
Hannah	Fazekas	University of New Hampshire
Penny	Johnes	University of Bristol

### **LTER: Communities to Ecosystems**

Kimberly	Komatsu	Smithsonian Environmental Research Center
Anthony	Walker	Oak Ridge National Laboratory
Ensheng	Weng	University of Oklahoma
Trevor	Keenan	Lawrence Berkeley National Laboratory
		National Aeronautics and Space Administration (NASA)
Nancy	Kiang	National Aeronautics and Space Administration (NASA)
Ben	Poulter	USDA Agricultural Research Service (ARS)
Kevin	Wilcox	Johns Hopkins University
Meghan	Avolio	

### **LTER: Communities to Ecosystems**

Emily	Grman	East Michigan University
Sarah	Koerner	University of North Carolina, Greensboro
Kevin	Wilcox	USDA Agricultural Research Service (ARS)
Adam	Langley	Villanova University
Meghan	Avolio	Johns Hopkins University
Kimberly	Komatsu	Smithsonian Environmental Research Center

### **SASAP Training**

Falk	Huettmann	University of Alaska, Fairbanks
Jeffrey	Falke	Oregon State University
Kirill	Dolgikh	University of Alaska, Fairbanks
Hazel	Berrios	Arkansas State University
Jennifer	Roach	University of Alaska, Fairbanks



Nelson	Crockett	University of Alaska, Fairbanks
Barbara	Johnson	University of Alaska, Anchorage
Stephen	Klobucar	University of Alaska, Fairbanks
Mary	McCabe	University of Alaska, Fairbanks
Kelsey	Griffin	National Park Service
Erik	Schoen	University of Alaska, Fairbanks
Jim	Jasper	Alaska Department of Fish and Game
Catherine	Bradley	US Fish and Wildlife Service (FWS)
Ben	Loeffler	Fairbanks North Star Borough
Anna-Marie	Benson	US Fish and Wildlife Service (FWS)
Christopher	Pike	University of Alaska, Anchorage
Jim	Magdanz	University of Alaska, Fairbanks
Ibrahim	Ilhan	University of Alaska, Fairbanks
Peter	Westley	University of Alaska, Fairbanks

#### **SNAPP: Compensatory Conservation**

Fabien	Quetier	Biotope
Amrei	von Hase	Forest Trends
Hugh	Possingham	University of Queensland
James	Watson	Wildlife Conservation Society
Martine	Maron	University of Queensland
Jeremy	Simmonds	University of Queensland
Laura	Sonter	University of Queensland
Vicoria	Griffiths	University of Oxford
Hedley	Grantham	Wildlife Conservation Society
Hugo	Costa	Wildlife Conservation Society
Raymond	Victurine	Wildlife Conservation Society
Guy	Dutson	The Biodiversity Consultancy
Nicole	Shumway	University of Queensland
Joseph	Bull	University of Kent

#### **SASAP: Well-Being and Salmon**

Jessica	Black	University of Alaska, Fairbanks
Courtney	Carothers	University of Alaska, Fairbanks
Danielle	Ringer	University of Alaska, Fairbanks
Carrie	Stevens	University of Alaska, Fairbanks
Rachel	Donkersloot	Alaska Marine Conservation Council (AMCC)

#### **SASAP: Community Based Monitoring**

Michael	Jones	Quantitative Fisheries Center
Samuel	Truesdell	Michigan State University
William	Bechtol	Bechtol Research
Sarah	Inman	University of Washington
Lewis	Coggins	US Fish and Wildlife Service (FWS)
Matthew	Catalano	Auburn University
Brendan	Connors	ESSA Technologies Ltd
Ben	Staton	Auburn University
Janessa	Esquible	Orutsararimut Native Council
Steve	Fleischman	Alaska Department of Fish and Game
Joseph	Spaeder	Bearing Sea Fishermen's Association
Laura	Loucks	Clayoquot Biosphere Trust
Ian	Dutton	Nautilus Impact Investing, LLC

### **SNAPP: Levers for Health**

Alison	Peel	Griffith University
Laura	Kwong	Stanford University
Sarah	Olson	Wildlife Conservation Society
Megan	Kelso	University of California, Los Angeles
Heather	Tallis	The Nature Conservancy
Christopher	LeBoa	Stanford University
Erin	Mordecai	Stanford University
Susanne	Sokolow	Stanford University
Justin	Remais	University of California, Berkeley
Chelsea	Wood	University of Washington
Giulio	De Leo	Stanford University
Andrea	Lund	Stanford University
Nicole	Nova	Stanford University
Isabel	Jones	Hopkins Marine Station
Lisa	Mandle	Stanford University
Andrew	MacDonald	Stanford University
Andres	Garchitorena	Harvard Medical School
Matthew	Bonds	Harvard Medical School
Julia	Buck	University of North Carolina, Wilmington

### **SNAPP: Managing Soil Carbon**

Deborah	Bossio	The Nature Conservancy
Chelsea	Carey	Point Blue Conservation Science
Eli	Fenichel	Yale University

Elsa	Ordway	Stanford University
Stephen	Wood	The Nature Conservancy
Mark	Bradford	Yale University
Emily	Oldfield	Yale University
Daniel	Kane	Yale University
Emma	Fuller	Granular
Sasha	Gennett	The Nature Conservancy

### **LTER Synchrony**

Lawrence	Sheppard	University of Kansas
Lauren	Shoemaker	University of Wyoming
Daniel	Reuman	University of Kansas
Jonathan	Walter	University of Virginia
Max	Castorani	University of Virginia
Katharine	Suding	University of Colorado, Boulder
Lauren	Hallett	University of Oregon
Andrew	Rypel	University of California, Davis
Joan	Dudney	University of California, Berkeley
Lei	Zhao	China Agricultural University
Nina	Lany	Michigan State University
Kathryn	Cottingham	Dartmouth College
Maria Cristina	Portales Reyes	University of Minnesota

### **LTER: Biodiversity and Productivity**

Meghan	Avolio	Johns Hopkins University
		German Center for Integrative Biodiversity
		Research (iDiv)
Adam	Clark	Colorado State University
Melinda	Smith	University of Minnesota
Forest	Isbell	University of Minnesota
Laura	Dee	Smithsonian Environmental Research Center
Kimberly	Komatsu	University College London
Tim	Newbold	University College London
Charlotte	Outhwaite	University of Minnesota
Jane	Cowles	California State University, Los Angeles
Alexandra	Wright	Universiteit Utrecht
Yann	Hautier	University of Zurich
Andrew	Hector	Yokohama National University
Akira	Mori	University of British Columbia
Mary	O'Connor	

Jarrett	Byrnes	University of Massachusetts-Boston
Andrew	Gonzalez	McGill University
Eric	Seabloom	University of Minnesota

#### SNAPP: Food and Forests in Africa

Charles	Meshack	Tanzania Forest Conservation Group
Marieke	Sassen	Wageningen University
Florence	Agyei Martey	Ghana Environmental Protection Agency
		Food and Agriculture Organization of the United Nations (FAO)
Yigremachew	Seyoum	Center for International Forestry Research
Habtemariam	Kassa	Indaba Agricultural Policy Research Institute
Hambulo	Ngoma	The Nature Conservancy
Lucy	Magembe	International Institute for Environment and Development
Phil	Franks	International Institute for Environment and Development
Barbara	Adolph	Ethiopian Development and Research Institute
Tagel	Gebrehiwot	World Agroforestry Center
Peter	Minang	Copperbelt University
Jacob	Mwitwa	Imperial College, London
Joseph	Tobias	International Institute for Environment and Development
Xiaoting	Hou-Jones	University of Zambia
Lungu	Obed	The Nature Conservancy Africa
Anne	Trainor	Netherlands Environmental Agency
Ezra	Berkhout	International Food Policy Research Institute
Tim	Thomas	University of Ghana
Dora	Neina	

#### SNAPP: Food and Forests in Africa

Lucy	Magembe	The Nature Conservancy
Melanie	Ryan	University of Cambridge
Dora	Neina	University of Ghana
Tim	Thomas	International Food Policy Research Institute
Elizabeth	King	University of Georgia
Anne	Trainor	The Nature Conservancy Africa
Jacob	Mwitwa	Copperbelt University
Peter	Minang	World Agroforestry Center

Habtemariam	Kassa	Center for International Forestry Research International Institute for Environment and Development
Phil	Franks	University of Edinburgh
Casey	Ryan	Netherlands Environmental Agency
Ezra	Berkhout	Imperial College, London
Joseph	Tobias	Tanzania Forest Conservation Group
Charles	Meshack	Center for International Forestry Research
James	Reed	University of Cambridge
Bhaskar	Vira	Wageningen University
Marieke	Sassen	Basque Centre for Climate Change
Unai	Pascual	International Institute for Environment and Development
Barbara	Adolph	Ethiopian Development and Research Institute
Tagel	Gebrehiwot	International Institute for Environment and Development
Xiaoting	Hou-Jones	Alliance for a Green Revolution in Africa (AGRA)
Dorothy	Effa	Zambia Agriculture Research Institute (ZARI)
Mutinta	Malambo	Deutsches Forschungszentrum Künstliche Intelligenz (DFKI) GmbH - German Research Center for Artificial Intelligence
Daniel	Gusenbauer	

#### **LTER: SOM Synthesis**

Jessica	Moore	University of New Hampshire
Avni	Malhotra	Stanford University
Benjamin	Sulman	Oak Ridge National Laboratory
Derek	Pierson	Oregon State University
William	Wieder	University of Colorado, Boulder
Katerina	Georgiou	University of California, Berkeley
Kate	Lajtha	Oregon State University
Craig	Rasmussen	University of Arizona
Stevan	Earl	Long Term Ecological Research (LTER)/Central Arizona-Phoenix (CAP)
Stuart	Grandy	University of New Hampshire
Melannie	Hartman	Colorado State University
Samantha	Weintraub	National Ecological Observatory Network, Inc. (NEON)

Asmeret	Berhe	University of California, Merced
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### SNAPP: Board of Directors

Hugh	Possingham	University of Queensland
Ward	Woods	Wildlife Conservation Society
Harry	Hagey	Private
Amanda	Fine	Wildlife Conservation Society
John	Robinson	Wildlife Conservation Society
Whitney	Friedman	University of California, Santa Cruz
Matthew	Miller	The Nature Conservancy
Jensen	Montambault	The Nature Conservancy
Cynthia	Beckwith	The Nature Conservancy
Ruth	DeFries	Columbia University
Cristian	Samper	Wildlife Conservation Society

### SNAPP: Board of Directors

Carolyn	Gray	Wildlife Conservation Society
Kingsley	Onyechi	The Nature Conservancy
Seth	Neiman	
Shirley	Hagey	Private
Jessica	Musengezi	The Nature Conservancy
Harry	Hagey	Private
Hugh	Possingham	University of Queensland
Jensen	Montambault	The Nature Conservancy
John	Robinson	Wildlife Conservation Society
		Communication Partnership for Science and the Sea (COMPASS)
Chad	English	Columbia University
Ruth	DeFries	Wildlife Conservation Society
Cristian	Samper	The Nature Conservancy
Brian	McPeck	

### Global Food Systems

Daniel	Moran	Norwegian University of Science and Technology
Richard	Cottrell	University of Tasmania
Peter	McIntyre	Cornell University
Jessica	Gephart	University of Virginia
Caitie	Kuempel	University of Queensland

Marc	Metian	International Atomic Energy Agency (IAEA)
Lex	Bouwman	PBL Netherlands Environmental Assessment Agency
Johannes	Tobben	Norwegian University of Science and Technology (NTNU)
Nis	Sand Jacobsen	University of Washington
Julia	Blanchard	University of Tasmania
Kirsty	Nash	University of Tasmania

### **SNAPP: Steppe Health**

Batsaikhan	Sodnom	General Authority for Veterinary Services
Felix	Njeumi	Food and Agricultural Organization (FAO)
Richard	Kock	University of London
Jeffrey	Mariner	Tufts University
Amanda	Fine	Wildlife Conservation Society
Enkhtuvshin	Shiilegdamba	Wildlife Conservation Society
Ganchimeg	Jamiyansuren Wingard	Denver Zoo at City Park

### **SNAPP: Management Team**

Jensen	Montambault	The Nature Conservancy
Jessica	Musengezi	The Nature Conservancy
Kathryn	Mastro	Wildlife Conservation Society

### **SNAPP: Science Advisory Council**

Fabrice	DeClerck	EAT Foundation
Paul	Armsworth	University of Tennessee
Priya	Shyamsundar	The Nature Conservancy
Angela	Antenore	Antenore & Associates
Jensen	Montambault	The Nature Conservancy
David	Wilkie	Wildlife Conservation Society
Yuta	Masuda	The Nature Conservancy

### **SNAPP: Science Advisory Council**

Jensen	Montambault	The Nature Conservancy
Chad	English	Communication Partnership for Science and the Sea (COMPASS)
Yuta	Masuda	The Nature Conservancy
Priya	Shyamsundar	The Nature Conservancy
David	Wilkie	Wildlife Conservation Society



Jane Carter	Ingram	Wildlife Conservation Society
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## SNAPP: Sanitation for and by Nature

Florent	Chazarenc	Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture (IRSTEA)
Ajith	Edathoot	Bremen Overseas Research and Development Association (BORDA)
Fabio	Masi	IRIDRA
Alex	Viwat Campbell	Bremen Overseas Research and Development Association (BORDA)
Bernhard	Pucher	University of Natural Resources and Life Sciences (BOKU)
Robert	McDonald	The Nature Conservancy
Darja	Istenifç	University of Ljubljana
Rose	Kaggwa	National Water and Sewerage Corporation (NWSC)
Stefan	Reuter	Bremen Overseas Research and Development Association (BORDA)
Lluis	Corominas	Catalan Institute for Water Research (ICRA)
Günter	Langergraber	University of Natural Resources and Life Sciences (BOKU)
Andressa	Mansur	German Center for Integrative Biodiversity Research (iDiv)
Vicenç	Acuña	Catalan Institute for Water Research (ICRA)
Robert	Gearheart	Humboldt State University
Ania	Morvannou	Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture (IRSTEA)
Tjasa	Griessler Bulc	University of Ljubljana
Katharina	Tondera	Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture (IRSTEA)
Katharine	Cross	International Water Association Bangkok Office
Andrews	Jacob	Consortium for DEWATS Dissemination Society

## SNAPP: Appalachian Coal Fields

Randall	Jackson	West Virginia University
Brad	Kreps	The Nature Conservancy
Marilyn	Wrenn	Coalfield Development Corporation
Mark	Anderson	The Nature Conservancy
		The Mountain Association for Community
Leslie	Ferguson-Oles	Economic Development (MACED)
Elizabeth	Engel	The Nature Conservancy
Danna	Baxley	The Nature Conservancy
Judy	Dunscomb	The Nature Conservancy
William	Norman	Clemson University
		The Mountain Association for Community
Joshua	Bills	Economic Development (MACED)
Sally	Palmer	The Nature Conservancy
Campbell	Moore	The Nature Conservancy
Thomas	Ochuodho	University of Kentucky
Elizabeth	Wheatley	The Nature Conservancy

#### SNAPP: Flow Impacts

Bert	de Bievre	Fondo para la protección del Agua (FONAG)
Rebecca	Tharme	Riverfutures
Stan	Kang	The Nature Conservancy
Kari	Vigerstol	The Nature Conservancy
Robin	Abell	Conservation International
Jan	Cassin	Forest Trends
Adrian	Vogl	Stanford University
James	Dennedy-Frank	Stanford University
Daniela	Giardina	Oxfam
Suzanne	Ozment	World Resources Institute
Ted	Grantham	University of California, Berkeley
Paul	Hicks	Catholic Relief Services, Coffeelands

#### ESS-DIVE

Karen	Whitenack	Lawrence Berkeley National Laboratory
Charuleka	Varadharajan	Lawrence Berkeley National Laboratory
Joan	Damerow	Lawrence Berkeley National Laboratory
Hesham	Elbashandy	Lawrence Berkeley National Laboratory
Deborah	Agarwal	Lawrence Berkeley National Laboratory
Valerie	Hendrix	Lawrence Berkeley National Laboratory
Cory	Snively	Lawrence Berkeley National Laboratory

Fianna	O'Brien	Lawrence Berkeley National Laboratory
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### SNAPP Horizon Scanning Meeting

Jason	Patlis	Wildlife Conservation Society
Jensen	Montambault	The Nature Conservancy
Linwood	Pendleton	World Wildlife Fund
		Instituto de Hidráulica Ambiental de Cantabria
Inigo Losada	Rodriguez	King Abdullah University of Science and Technology (KAUST)
Carlos	Duarte	The Ocean Data Alliance
Steve	Adler	San Diego State University
Arielle	Levine	Monterey Bay Aquarium
Margaret	Spring	SkyTruth
John	Amos	NYC Mayors Office
Sarah	Sayeed	Lancaster University
Christina	Hicks	The Nature Conservancy
Michael	Beck	University of California, Santa Cruz
Whitney	Friedman	The Nature Conservancy
Elizabeth	McLeod	American Museum of Natural History
Eleanor	Sterling	A Rocha International
Robert	Sluka	University of Toronto
Emily	Darling	National Oceanic and Atmospheric Administration (NOAA)
Charles	Stock	Unknown
Kenneth	Weiss	Sherman's Lagoon
James	Toomey	University of British Columbia
William	Cheung	

### Protein Sustainability

Melissa	Ho	World Wildlife Fund
Andrew	Salter	University of Nottingham
Matthew	Guyer	
Margaret	Gill	University of Aberdeen
Michael	Clark	University of Oxford
Iain	Wright	International Livestock Research Institute
Benjamin	Houlton	University of California, Davis
Xin Gen	Lei	Cornell University
Edward	Allison	University of Washington
Taryn	Skinner	World Wildlife Fund

Lisa	Goddard	Columbia University
Emily	Moberg	World Wildlife Fund
		Alliance for a Green Revolution in Africa
Lindiwe	Sibanda	(AGRA)

### Protein Sustainability

John	Njoka	University of Nairobi
Khumbudzo	Manyaga	INMED South Africa
		University of Limpopo Turfloop Graduate
Godswill	Makombe	School of Leadership
		West African Science Service Center on
		Climate Change and Adapted Land Use
Thomas	Yameogo	(WASCAL)
		Consultative Group on International
Hakeem	Ayinde Ajeigbe	Agriculture Research (CGIAR)
Hongwei	Xin	University of Iowa
		International Centre of Insect Physiology and
Sunday	Ekesi	Ecology
Beulah	Pretorius	University of Pretoria
Xin Gen	Lei	Cornell University
Laura	Vang Rasmussen	University of British Columbia
Taryn	Skinner	World Wildlife Fund
Andrew	Salter	University of Nottingham
Lynnette	Tshabangu	World Wildlife Fund, Zimbabwe
Catherine	Woteki	Iowa State University
Margaret	Gill	University of Aberdeen
Tressa	Arbow	University of Washington
Frederic	Baudron	CGIAR
Benjamin	Houlton	University of California, Davis
Shibani	Ghosh	Tufts University
Emily	Moberg	World Wildlife Fund
		Alliance for a Green Revolution in Africa
Lindiwe	Sibanda	(AGRA)
Melissa	Ho	World Wildlife Fund
Imke	de Boer	Wageningen University
Ludovic	Miaro Iii	World Wildlife Fund (WWF)
Sidi	Osho	Afe Babalola University
Tonderayi	Matsungu	University of Zimbabwe
Michael	Clark	University of Oxford

### **Protein Sustainability**

Melissa	Ho	World Wildlife Fund
Taryn	Skinner	World Wildlife Fund
Hongwei	Xin	University of Iowa
Xin Gen	Lei	Cornell University
Michael	Clark	University of Oxford
Iain	Wright	International Livestock Research Institute
Shibani	Ghosh	Tufts University
Andrew	Salter	University of Nottingham
Edward	Allison	University of Washington
Emily	Moberg	World Wildlife Fund
Laura	Vang Rasmussen	University of British Columbia
Tressa	Arbow	University of Washington
Edward	Allison	University of Washington

### **SNAPP: Indigenous Perspectives**

Hi'ilei	Hobart	Columbia University
Paige	West	Barnard College
Cynthia	Malone	American Museum of Natural History
Jamon	Halvaksz	University of Texas, San Antonio
Allison	Martin	The Nature Conservancy
Magdalene	Tara	The Nature Conservancy
Maria	Estrada	The Nature Conservancy
Cynthia	Nakozoete	The Nature Conservancy
Robyn	James	The Nature Conservancy
Jonah	Cardillo	The Nature Conservancy
Madlyn	Lagusu Ero	The Nature Conservancy
Adriana	Garriga Lopez	Kalamazoo College
Ruth	Konia	The Nature Conservancy, Papua New Guinea
Tiara	Na'puti	University of Colorado, Boulder
Sangeeta	Mangubhai	Wildlife Conservation Society

### **SNAPP: Coastal Outcomes**

Jessica	Blythe	Brock University
Georgina	Gurney	James Cook University
Natalie	Ban	University of Victoria
Timothy	McClanahan	Wildlife Conservation Society Kenya

Joachim	Claudet	Centre National de la Recherche Scientifique (CNRS)
Amelia	Wenger	University of Queensland
Elizabeth	McLeod	The Nature Conservancy
David	Gill	Duke University
Emily	Darling	Wildlife Conservation Society
Stacy	Jupiter	Wildlife Conservation Society
		International Union for Conservation of Nature (IUCN)
Dan	Laffoley	International Union for Conservation of Nature (IUCN)
		The Nature Conservancy
Harry	Jonas	World Wildlife Fund
Vera	Agostini	Wildlife Conservation Society Indonesia
Gabriella	Ahmadia	Wildlife Conservation Society, Madagascar
Stuart	Campbell	World Wildlife Fund, Indonesia
Ravaka	Ranaivoson	Wildlife Conservation Society Kenya
Estradivari	Sant	Ontario Ministry of Agriculture, Food and Rural Affairs
Nyawira	Muthiga	
Graham	Epstein	

#### SNAPP: Zero Deforestation Maps

Musnanda	Satar	The Nature Conservancy
Grant	Rosoman	Greenpeace International
Rebecca	Armson	Goodhope
Pairan		Koperasi Unit Desa Teratai Biru
Uki		Setara Jambi
Charlotte	Opal	Earthworm
Ibrahim	Gulagnar Hanifa	SPKS
Darto		SPKS
James	Erbaugh	Dartmouth College
Edy	Sumarmin	Asosiasi Petani Sawit Swadaya Amanah
Violace	Putri	Solidaridad Network
Su Sin	Sheun	Helikonia
Kimberly	Carlson	University of Hawaii, Manoa
Anthony	Hill	Proforest
Godwin	Limberg	Daemeter
Marieke	Leegwater	Solidaridad Network
Patrick	Anderson	Forest Peoples Programme
Reza	Azmi	Wild Asia

Peter

Bayliss

PT REA Kaltim Plantations

### **PEGASuS: Ocean Observing System**

J. Emmett  
Olav Sigurd

Duffy  
Kjesbu

Karen  
Heath  
Sonia  
Marjo  
Anna

Evans  
Kelsey  
Batten  
Vierros  
Zivian

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Erin  
Craig  
Alfredo

Bax  
Satterthwaite  
Starger  
Giron

Pier Luigi  
Simon  
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Elizabeth  
Patricia  
Joshua  
Valerie  
Frank  
Zoe

Buttigieg  
Thrush  
Dunn  
Selig  
Miloslavich  
Tewksbury  
Allain  
Muller-Karger  
Bax

Sky

Bristol

Smithsonian Environmental Research  
Center  
Institute of Marine Research  
Commonwealth Scientific and Industrial  
Research Organisation (CSIRO)  
University of Maryland  
Marine Biological Association of the UK  
University of British Columbia  
Ocean Conservancy  
Commonwealth Scientific and Industrial  
Research Organisation (CSIRO)  
University of California, Davis  
Future Earth  
University of California, San Diego  
Alfred Wegener Institute for Polar and  
Marine Research  
University of Auckland  
Duke University  
Center for Ocean Solutions  
University of Tasmania  
University of Washington  
The Pacific Community (SPC)  
University of South Florida  
Self-employed  
US Geological Survey (USGS) Powell  
Center for Analysis and Synthesis

### **PEGASuS: Managing Ocean Change and Food Security**

Robert  
Patrick  
Fiorenza  
Jessica  
Stacy  
Alan

Richmond  
Christie  
Micheli  
Gephart  
Jupiter  
Friedlander

F. Umiich

Sengebau

University of Hawaii  
University of Washington  
Stanford University  
University of Maryland  
Wildlife Conservation Society  
University of Hawaii, Manoa  
Palau Ministry of Natural Resources,  
Environment, and Tourism



Colette	Wabnitz	University of British Columbia
Staci	Lewis	Stanford University
Javier	Cuetos-Bueno	The Nature Conservancy
Joleen	Ngoriakl	Koror State Government
Sebastian	Ferse	University of Bremen
Keobel	Sakuma	Palau International Coral Reef Center
Vanessa	Jaiteh	Coral Reef Research Foundation
Steve	Lindfield	Coral Reef Research Foundation
Philip	James	The Pacific Community (SPC)
		Commonwealth Scientific and Industrial
		Research Organization (CSIRO)
Alistair	Hobday	Stanford University
Angela	Doerr	MarAlliance
Kevin	Rhodes	Palau International Coral Reef Center
Yimnang	Golbuu	Stanford University
Lucie	Hazen	Stanford University
Jim	Leape	University College Cork
Valerie	Cummins	Universiti Malaysia Sabah
Annadel	Cabanban	University of Hawaii, Manoa
Kirsten	Oleson	Ministry of Natural Resources,
		Environment, and Tourism
Noah	Idechong	Palau National Marine Sanctuary
Nick	Ngwal	Stanford University
Robert	Dunbar	Palau Automated Land and Resource
		Information System Office
David	Idip	

### **PEGASuS: Managing Ocean Changes and Food Security**

Colette	Wabnitz	University of British Columbia
Joshua	Tewksbury	Future Earth
Staci	Lewis	Stanford University
Kirsten	Oleson	University of Hawaii, Manoa
Yimnang	Golbuu	Palau International Coral Reef Center
Yvonne	Ueda	The Nature Conservancy
Collin	Closek	Hopkins Marine Station
Patrick	Christie	University of Washington
Mark	Zimring	The Nature Conservancy
Annadel	Cabanban	Universiti Malaysia Sabah
Alan	Friedlander	University of Hawaii, Manoa
Robert	Dunbar	Stanford University

Emily	Kelly	Stanford University
Sebastian	Ferse	University of Bremen
Eric	Hartge	Stanford University
Fiorenza	Micheli	Stanford University
Robert	Richmond	University of Hawaii
		Victoria Lee World Economic Forum
Victoria	Lee	Centre for the Fourth Industrial Revolution
Jim	Leape	Stanford University

### Specialist Meeting

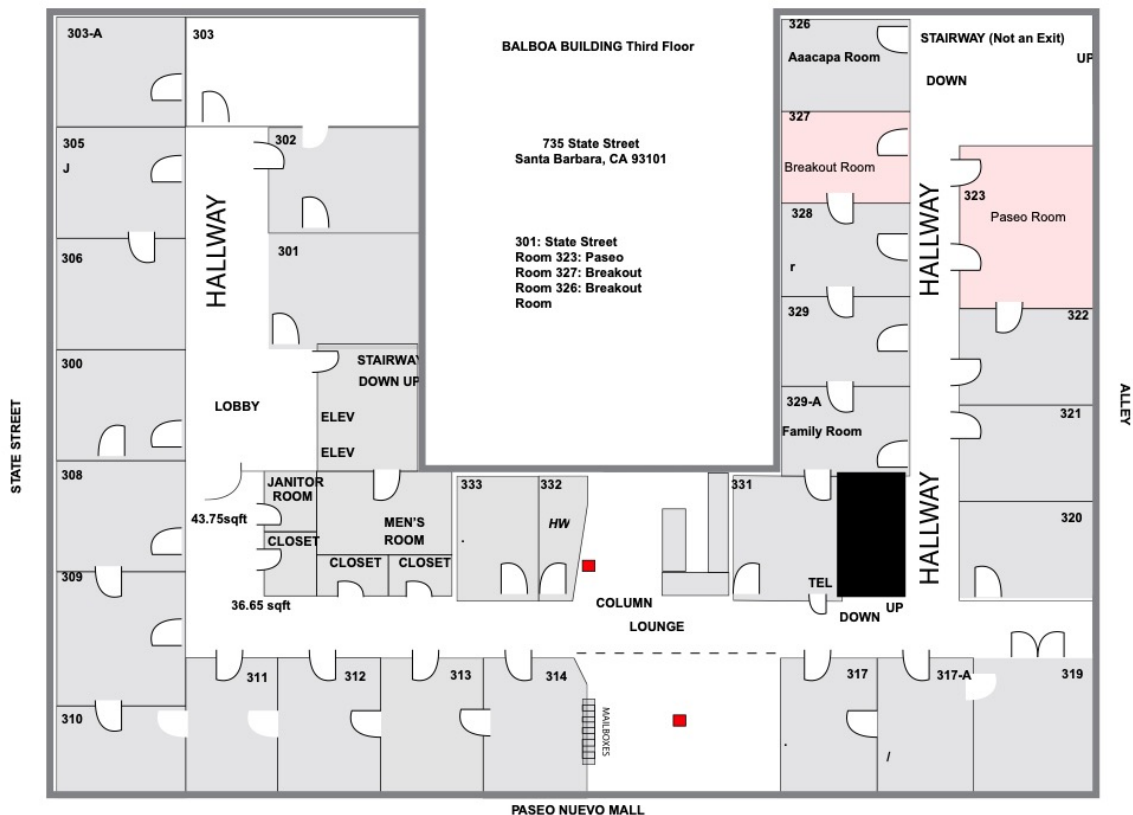
Mary	Gleason	The Nature Conservancy
Lucas	Joppa	Microsoft Research Ltd.
Matt	Merrifield	The Nature Conservancy
		Environmental Systems Research Institute (ESRI)
Dawn	Wright	Princeton University
Daniel	Rubenstein	The Nature Conservancy
Kate	Wing	University of Redlands
Lowell	Smith	University of Colorado, Boulder
Katharine	Suding	National Geographic Society
Shah	Selbe	University of Texas, Dallas
May	Yuan	Environmental Systems Research Institute (ESRI)
Jack	Dangermond	Zegar Family Foundation
Charles	Zegar	Vandenberg Air Force Base
Daryl	York	The Nature Conservancy
Michael	Bell	The Nature Conservancy
Harry	Butterfield	The Nature Conservancy
Michael	Sweeney	National Oceanic and Atmospheric Administration (NOAA)
Jane	Lubchenco	Jet Propulsion Laboratory of the National Aeronautics and Space Administration (NASA)
David	Schimel	NatureServe
Healy	Hamilton	Washington State University
Stephanie	Hampton	California Academy of Sciences
Shannon	Bennett	University of California, Los Angeles
Brian	Holguin	Environmental Systems Research Institute (ESRI)
Laura	Dangermond	

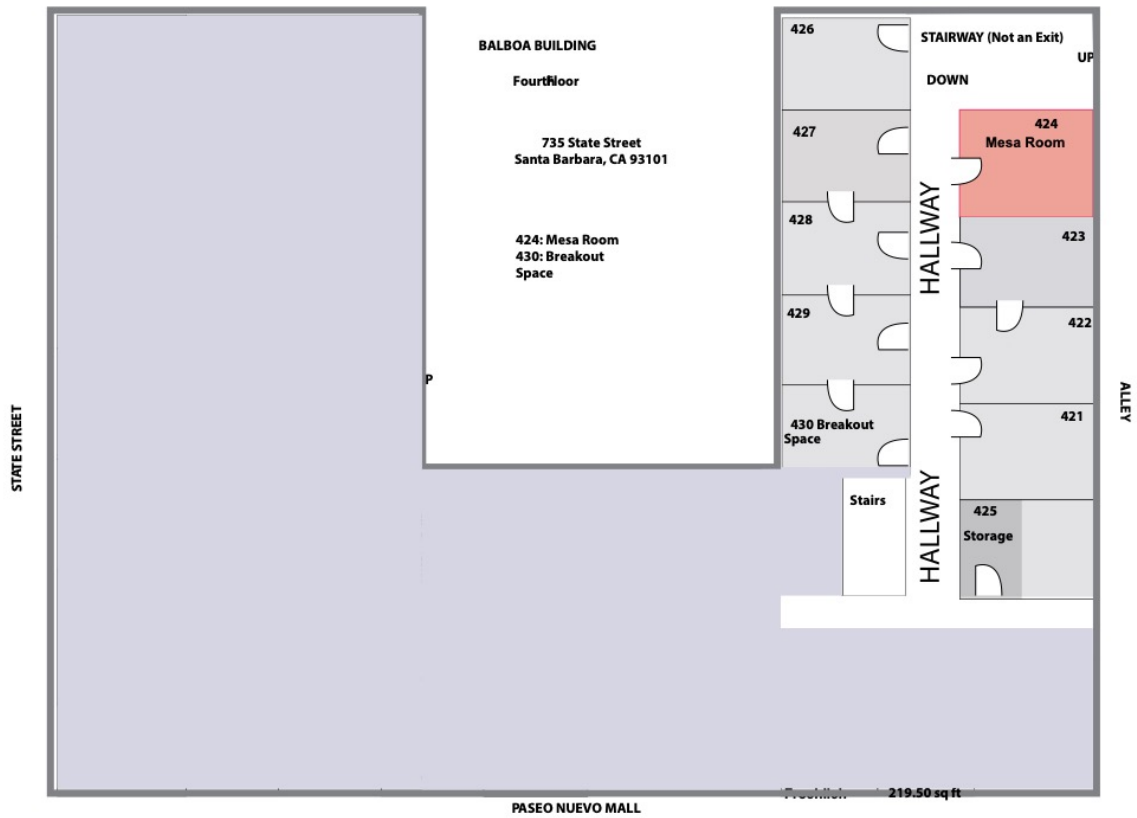
Peggy	Lubchenco	Teacher, La Colina Junior High
Hugh	Possingham	University of Queensland
Karin	Lin	The Nature Conservancy
Natalie	Orfalea	Orfalea Foundation
		Environmental Systems Research Institute
Damian	Spangrud	(ESRI)
Mark	Reynolds	The Nature Conservancy
Hilary	Swain	Archbold Biological Station
Torben	Rick	Smithsonian Institution

## SPACE

*National Center for Ecological Analysis and Synthesis* is located in downtown Santa Barbara, approximately 8.5 miles from the main UC Santa Barbara campus.

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## ACADEMIC PROJECTS: MAJOR CONFERENCES, WORKING GROUPS, AND MEETINGS

Leader		Name	Type	Start Date	End Date
Matthew	Jones	DataONE: Observation Network for Earth	Meeting	3/5/2019	3/7/2019
Frank	Davis	2018 LTER All Scientists Meeting	Meeting	9/30/2018	10/4/2018
Frank	Davis	2019 LTER Science Council Meeting	Meeting	5/14/2019	5/17/2019
Matthew	Jones	Arctic Data Center: Project Team Meeting	Meeting	8/30/2018	8/31/2018
Frank	Davis	SASAP Meeting	Meeting	8/24/2018	8/24/2018
Benjamin	Halpern	Renewable Natural Resources	Meeting	10/22/2018	10/26/2018
Benjamin	Halpern	TNC Global Science Retreat	Meeting	3/6/2019	3/8/2019
Benjamin	Halpern	NCEAS Visioning Workshop	Meeting	6/19/2019	6/21/2019
Jensen	Montambault	SNAPP: Management Team	Meeting	1/16/2019	1/17/2019
Jensen	Montambault	SNAPP: Science Advisory Council	Meeting	6/18/2019	6/19/2019
Matthew	Jones	ESS-DIVE	Meeting	2/5/2019	2/6/2019
Jensen	Montambault	SNAPP Horizon Scanning Meeting	Meeting	7/17/2018	7/19/2018
Benjamin	Halpern	Specialist Meeting	Meeting	3/17/2019	3/20/2019
Matthew	Jones	DataONE: CEO	Working Group	4/30/2019	5/2/2019
Matthew	Jones	Arctic Carbon Exchange Synthesis	Working Group	10/9/2018	10/10/2018
Frank	Davis	SASAP Research Priorities	Working Group	11/7/2018	11/9/2018

Eric	Sokol	LTER: Metacommunities	Working Group	11/5/2018	11/9/2018
Adam	Wymore	LTER: Stream Elemental Cycling	Working Group	4/1/2019	4/5/2019
Kimberly	Komatsu	LTER: Communities to Ecosystems	Working Group	10/15/2018	10/18/2018
Kimberly	Komatsu	LTER: Communities to Ecosystems	Working Group	5/14/2019	5/16/2019
Martine	Maron	SNAPP: Compensatory Conservation	Working Group	5/4/2019	5/7/2019
Rachel	Donkersloot	SASAP: Well-Being and Salmon	Working Group	2/18/2019	2/23/2019
Michael	Jones	SASAP: Community Based Monitoring	Working Group	7/11/2018	7/12/2018
Susanne	Sokolow	SNAPP: Levers for Health	Working Group	12/11/2018	12/14/2018
Stephen	Wood	SNAPP: Managing Soil Carbon	Working Group	1/28/2019	1/30/2019
Lauren	Hallett	LTER: Synchrony	Working Group	1/29/2019	2/1/2019
Forest	Isbell	LTER: Biodiversity and Productivity	Working Group	2/18/2019	2/22/2019
Phil	Franks	SNAPP: Food and Forests in Africa	Working Group	9/24/2018	9/26/2018
Phil	Franks	SNAPP: Food and Forests in Africa	Working Group	3/28/2019	3/30/2019
William	Wieder	LTER: SOM Synthesis	Working Group	11/12/2018	11/15/2018
Benjamin	Halpern	Global Food Systems	Working Group	10/23/2018	10/26/2018
Benjamin	Halpern	Global Food Systems	Working Group	5/6/2019	5/9/2019

Amanda	Fine	SNAPP: Steppe Health	Working Group	3/27/2019	3/29/2019
Katherine	Cross	SNAPP: Sanitation for and by Nature	Working Group	2/11/2019	2/13/2019
Judy	Dunscomb	SNAPP: Appalachian Coal Fields	Working Group	2/6/2019	2/7/2019
Kari	Vigerstol	SNAPP: Flow Impacts	Working Group	11/26/2018	11/30/2018
Melissa	Ho	Protein Sustainability	Working Group	10/17/2018	10/20/2018
Melissa	Ho	Protein Sustainability	Working Group	2/28/2019	3/3/2019
Melissa	Ho	Protein Sustainability	Working Group	5/13/2019	5/16/2019
Paige	West	SNAPP: Indigenous Perspectives	Working Group	5/21/2019	5/23/2019
Emily	Darling	SNAPP: Coastal Outcomes	Working Group	4/10/2019	4/13/2019
Robert	Heilmayr	SNAPP: Zero Deforestation Maps	Working Group	4/6/2019	4/7/2019
Nicholas	Bax	PEGASuS: Ocean Observing Systems	Working Group	3/5/2019	3/7/2019
Fiorenza	Micheli	PEGASuS: Managing Ocean Change and Food Security	Working Group	2/12/2019	2/15/2019
Fiorenza	Micheli	PEGASuS: Managing Ocean Changes and Food Security	Working Group	5/6/2019	5/8/2019
Frank	Davis	SASAP writing workshop	Workshop	3/13/2019	3/15/2019
Benjamin	Halpern	Biogeochem workshop	Workshop	12/4/2018	12/5/2018

Benjamin	Halpern	URSSI Software credit and metrics workshop	Workshop	1/23/2019	1/24/2019
Benjamin	Halpern	NCEAS Visioning Workshop	Workshop	5/28/2019	5/31/2019
Matthew	Jones	Arctic Data Center: Science Advisory Board	Advisory Board	8/29/2018	8/30/2018
Jensen	Montambault	SNAPP: Board of Directors	Advisory Board	9/19/2018	9/19/2018
Jensen	Montambault	SNAPP: Board of Directors	Advisory Board	3/5/2019	3/5/2019
Jensen	Montambault	SNAPP: Science Advisory Council	Advisory Board	7/10/2018	7/11/2018

## TRAININGS

Matthew	Jones	Arctic Data Center Training	Training Workshop	8/13/2018	8/17/2018
Matthew	Jones	Arctic Data Center Training	Training Workshop	1/14/2019	1/18/2019
Matthew	Jones	Arctic Data Center Training	Training Workshop	2/11/2019	2/15/2019
Matthew	Jones	SASAP Training	Training Workshop	10/16/2018	10/17/2018

## PUBLICATIONS

### Journal Articles

Adair, Carol E.; Hooper, David U.; Paquette, Alain; Hungate, Bruce A.. 2018. Ecosystem context illuminates conflicting roles of plant diversity in carbon storage. *Ecology Letters*. 10.1111/ele.13145.



Afflerbach, Jamie C.; Frazier, Melanie; Froehlich, Halley E.; Anderson, Sean C.; Halpern, Benjamin S.. 2019. Quantifying uncertainty in the wild-caught fisheries goal of the Ocean Health Index. *Fish Fisheries*. 10.1111/faf.12346.

Aguilar, Xavier Fernandez; Fine, Amanda E.; Pruvot, Mathieu; Njeumi, Felix; Walzer, Christian; Kock, Richard; Shiilegdambam, Enkhtuvshin. 2018. PPR virus threatens wildlife conservation. *Science*. 10.1126/science.aav4096.

Bax, Nicholas J.; Miloslavich, Patricia; Muller-Karger, Frank Edgar; Allain, Valerie; Appeltans, Ward; Batten, Sonia Dawn; Benedetti-Cecchi, Lisandro; Buttigieg, Pier Luigi; Chiba, Sanae; Costa, Daniel Paul; Duffy, J. Emmett; Dunn, Daniel C.; Johnson, Craig Richard; Kudela, Raphael M.; Obura, David; Rebelo, Lisa-Maria; Shin, Yunne-Jai; Simmons, Samantha Elisabeth; Tyack, Peter Lloyd. 2019. A Response to Scientific and Societal Needs for Marine Biological Observations. *Frontiers in Marine Science*. 10.3389/fmars.2019.00395.

Beaudreau, Anne H.; Ward, Eric J.; Brenner, Richard E.; Shelton, Andrew O.; Watson, Jordan T.; Womack, Jennifer C.; Anderson, Sean C.; Haynie, Alan C.; Marshall, Kristin N.; Williams, Benjamin C.. 2019. Thirty years of change and the future of Alaskan fisheries: Shifts in fishing participation and diversification in response to environmental, regulatory and economic pressures. *Fish and Fisheries*. 10.1111/faf.12364.

Beck, Marcus W.; Sherwood, Edward T.; Henkel, Jessica Renee; Dorans, Kirsten; Ireland, Kathryn; Varela, Patricia. 2019. Assessment of the Cumulative Effects of Restoration Activities on Water Quality in Tampa Bay, Florida. *Estuaries and Coasts*. 10.1007/s12237-019-00619-w.

Blake, Rachael E.; Ward, Colette L.; Hunsicker, Mary E.; Shelton, A. Ole; Hollowed, Anne B.. 2019. Spatial community structure of groundfish is conserved across the Gulf of Alaska. *Marine Ecology Progress Series*. 10.3354/meps13050.

Bremer, Leah L.; Falinski, Kim; Ching, Casey; Wada, Christopher A.; Burnett, Kimberly M.; Kukea-Shultz, Kanekoa; Reppun, Nicholas; Chun Gregory; Oleson, Kirsten L.L.; Tickin, Tamara. 2018. Biocultural Restoration of Traditional Agriculture: Cultural, Environmental, and Economic Outcomes of Lo'i Kalo Restoration in He'eia, O'ahu. *Sustainability*. 10.3390/su10124502.

Brown, Christopher J.; Jupiter, Stacy D.; Albert, Simon; Anthony, Kenneth R.N.; Hamilton, Richard J.; Fredston-Hermann, Alexa; Halpern, Benjamin S.; Lin, Hsien-Yung; Maina, Joseph; Mangubhai, Sangeeta; Mumby, Peter J.; Possingham, Hugh P.;

Saunders, Megan I.; Tulloch, Vivitskaia J.D.; Wenger, Amelia; Klein, Carissa J.. 2018. A guide to modelling priorities for managing land-based impacts on coastal ecosystems. *Journal of Applied Ecology*. 10.1111/1365-2664.13331.

Burns, Jean H.; Bennett, Joanne M.; Li, Junmin; Xia, Jing; Arceo-Gómez, Gerardo; Burd, Martin; Burkle, Laura A.; Durka, Walter; Ellis, Allan G.; Freitas, Leandro; Rodger, James G.; Vamosi, Jana C.; Wolowski, Marina; Ashman, Tia-Lynn; Knight, Tiffany M.; Steets, Janette A.. 2019. Plant traits moderate pollen limitation of introduced and native plants: a phylogenetic meta-analysis of global scale. *New Phytologist*. 10.1111/nph.15935.

Canonico, Gabrielle; Buttigieg, Pier Luigi; Montes, Enrique; Muller-Karger, Frank E.; Stepien, Carol; Wright, Dawn; Benson, Abigail; Helmuth, Brian; Costello, Mark; Sousa-Pinto, Isabel; Saeedi, Hanieh; Newton, Jan, Appeltans, Ward, Bednaršek, Nina, Bodrossy, Levente, Best, Benjamin D., Brandt, Angelika; Goodwin, Kelly D.; Iken, Katrin; Marques, Antonio C.; Miloslavich, Patricia; Ostrowski, Martin; Turner, Woody; Achterberg, Eric P.; Barry, Tom; Defeo, Omar; Bigatti, Gregorio; Henry, Lea-Anne; Ramiro-Sánchez, Berta; Durán, Pablo; Morato, Telmo; Roberts, J. Murray; García-Alegre, Ana; Cuadrado, Mar Sacau; Murton, Bramley. 2019. Global Observational Needs and Resources for Marine Biodiversity. *Frontiers in Marine Science*. 10.3389/fmars.2019.00367.

Cheatham, Michelle; Krisnadhi, Adila; AMini, Rehanah; Hitzler, Pascal; Janowicz, Krzysztof; Shepherd, Adam; Narock, Tom; Jones, Matt; Ji, Peng. 2018. The GeoLink knowledge graph. *Big Earth Data*. 10.1080/20964471.2018.1469291.

Clavelle, Tyler; Lester, Sarah E.; Gentry, Rebecca; Froehlich, Halley E.. 2019 Interactions and management for the future of marine aquaculture and capture fisheries. *Fish and Fisheries*. 10.1111/faf.12351.

Couture, Jessica L.; Blake, Rachael E.; McDonald, Gavin; Ward, Colette L.. 2018. A funder-imposed data publication requirement seldom inspired data sharing. *PLoS ONE*. 10.1371/journal.pone.0199789.

Dacks, Rachel; Ticktin, Tamara; Mawyer, Alexander; Caillon, Sophie; Claudet, Joachim; Fabre, Pauline; Jupiter, Stacy D.; McCarter, Joe; Mejia, Manuel; Pascua, Pua'ala; Sterling, Eleanor; Wongbusarakum, Supin. 2019. Developing biocultural indicators for resource management. *Conservation Science and Practice*. 10.1111/csp2.38.

Davies, Ian P.; Carranza, Valerie; Froehlich, Haley E.; Gentry, Rebecca R.; Kareiva, Peter; Halpern, Benjamin S.. 2019. Governance of marine aquaculture: Pitfalls, potential, and pathways forward. *Marine Policy*. 10.1016/j.marpol.2019.02.054.

Davies, Jonathan T.; Regetz, James; Wolkovich, Elizabeth M.; McGill, Brian J.. 2018. Phylogenetically weighted regression: A method for modelling non-stationarity on evolutionary trees. *Global Ecology and Biogeography*. 10.1111/geb.12841.

Dee, Laura E.; Cowles, Jane; Isbell, Forest; Pau, Stephanie; Gaines, Steven D.; Reich, Peter B.. 2019. When Do Ecosystem Services Depend on Rare Species? *Trends in Ecology & Evolution*. 10.1016/j.tree.2019.03.010.

Delevaux, Jade M.S.; Stamoulis, Kostantinos A.; Whittier, Robert; Jupiter, Stacy D.; Bremer, Leah L.; Friedlander, Alan; Kurashima, Natalie; Giddens, Jonatha; Winter, Kawika B.; Blaich-Vaughan, Mehana; Burnett, Kimberly M.; Geslani, Cheryl; Tickin, Tamara. 2019. Place-based management can reduce human impacts on coral reefs in a changing climate. *Ecological Applications*. 10.1002/eap.1891.

Delevaux, Jade M.S.; Winter, Kawika B.; Jupiter, Stacy D.; Blaich-Vaughan, Mehana; Stamoulis, Konstantinos A.; Bremer, Leah L.; Burnett, Kimberly; Garrod, Peter; Troller, Jacquelyn L.; Tickin, Tamara. 2018. Linking Land and Sea through Collaborative Research to Inform Contemporary applications of Traditional Resource Management in Hawai'i. *Sustainability*. 10.3390/su10093147.

Dickson, Brett G.; Albano, Christine M.; Anantharaman, Ranjan; Beier, Paul; Fargione, Joe; Graves, Tabitha A.; Gray, Miranda E.; Hall, Kimberly R.; Lawler, Josh J.; Leonard, Paul B.; Littlefield, Caitlin E.; McClure, Meredith L.; Novembre, John; Schloss, Carrie A.; Schumaker, Nathan H.; Shah, Viral B.; Theobald, David M.. 2018. Circuit-theory applications to connectivity science and conservation. *Society for Conservation Biology*. 10.1111/cobi.13230.

Donovan, Mary K.; Friedlander, Alan M.; Jouffray, Jean-Baptiste; Williams, Gareth J.; Wedding, Lisa M.; Crowder, Larry B.; Erickson, Ashley L.; Graham, Nick A. J.; Gove, Jamison M.; Kappel, Carrie V.; Karr, Kendra; Kittinger, John N.; Norström, Albert V.; Nyström, Magnus; Oleson, Kirsten L.L.; Stamoulis, Kostantinos A.; White, Crow; Williams, Ivor D.; Selkoe, Kimberly A.. 2018. Combining fish and benthic communities into multiple regimes reveals complex reef dynamics. *Nature*. 10.1038/s41598-018-35057-4.

Downing, John A.; Striegl, Robert G.. 2018. Size, age, renewal, and discharge of groundwater carbon. *Inland Waters*. 10.1080/20442041.2017.1412918.

Froehlich, Halley E.; Afflerbach, Jamie C.; Frazier, Melanie; Halpern, Benjamin S.. 2019. Blue Growth Potential to Mitigate Climate Change through Seaweed Offsetting. *Current Biology*. 10.1016/j.cub.2019.07.041.

Froehlich, Halley E.; Gentry, Rebecca R.; Halpern, Benjamin S.. 2018. Global change in marine aquaculture production potential under climate change. *Nature Ecology & Evolution*. 10.1038/s41559-018-0669-1.

Gaines, Steven D.; Costello, Christopher; Owashi, Brandon; Mangin, Tracey; Bone, Jennifer; Molinos, Jorge García; Burden, Merrick; Dennis, Heather; Halpern, Benjamin S.; Kappel, Carrie V.; Kleisner, Kristin M.; Ovando, Daniel. 2018. Improved fisheries management could offset many negative effects of climate change. *Science Advances*. 10.1126/sciadv.aao1378.

Gavin, Michael C.; McCarter, Joe; Berkes, Fikret; Te Pareake Mead, Aroha; Sterling, Eleanor J.; Tang, Ruifei; Turner, Nancy J.. 2018. Effective Biodiversity Conservation Requires Dynamic, Pluralistic, Partnership-Based Approaches. *Sustainability*. 10.3390/su10061846.

Gavin, Michael C.; McCarter; Berkes, Fikret; Sterling, Eleanor J.; Turner, Nancy J.. 2018. Protected land: Many factors shape success. *Science*. 10.1126/science.aau5168.

Goulding, Michael; Venticinque, Eduardo; Ribeiro, Mauro L. de B.; Barthem, Ronaldo B.; Leite, Rosseval G.; Forsberg, Bruce; Petry, Paulo; Lopes da Silva-Júnior, Urbano; Ferraz, Polliana Santos; Cañas, Carlos. 2018. Ecosystem-based management of Amazon fisheries and wetlands. *Fish and Fisheries*. 10.1111/faf.12328.

Gravuer, Kelly; Gennet, Sasha; Throop, Heather L.. 2019. Organic amendment additions to rangelands: A meta-analysis of multiple ecosystem outcomes. *Global Change Biology*. 10.1111/gcb.14535.

Gries, Corinna; Budden, Amber; Laney, Christine; O'Brien, Margaret; Servilla, Mark; Sheldon, Wade; Vanderbilt, Kristin; Vieglais, David. 2018. *Data Science Journal*. 10.5334/dsj-2018-022.

Hampton, Stephanie E.; Jones, Matthew B.; Wasser, Leah; Schildhauer, Mark P.; Supp, Sarah R.; Brun, Julien; Hernandez, Rebecca R.; Boettiger, Carl; Collins, Scott L.; Gross, Louis J.; Fernandez-del-Viso, Denny S.; Budden, Amber E.; White, Ethan P.; Teal, Tracy; Labou, Stephanie G; Aukema, Juliann E.. 2017. Skills and Knowledge for Data-Intensive Environmental Research. *BioScience*. 10.1093/biosci/bix025.

Himes-Cornell, Amber; Ormond, Carlos; Hoelting, Kristin; Ban, Natalie C.; Koehn, J. Zachary; Allison, Edward H.; Larson, Eric C.; Monson, Daniel H.; Huntington, Henry P.; Okey, Thomas A.. 2018. Factors Affecting Disaster Preparedness, Response, and Recovery Using the Community Capitals Framework. *Coastal Management*. 10.1080/08920753.2018.1498709.

Hoeksema, Jason D.; Bever, James D.; Chakraborty, Sounak; Chaudhary, V. Bala; Gardes, Monique; Gehring, Catherine A.; Hart, Miranda M.; Housworth, Elizabeth Ann; Kaonongbua, Wittaya; Klironomos, John N.; Lajeunesse, Marc J.; Meadow, James; Milligan, Brook G.; Piculell, Bridget J.; Pringle, Anne; Rúa, Megan A.; Umbanhowar, James; Viechtbauer, Wolfgang; Wang, Yen-Wen; Wilson, Gail W. T.; Zee, Peter C.. 2018. Evolutionary history of plant hosts and fungal symbionts predicts the strength of mycorrhizal mutualism. *Communications Biology*. 10.1038/s42003-018-0120-9.

Isbell, Forest; Cowles, Jane; Dee, Laura E.; Loreau, Michel; Reich, Peter B.; Gonzalez, Andrew; Hector, Andy; Schmid, Bernhard. 2018. Quantifying effects of biodiversity on ecosystem functioning across times and places. *Ecology Letters*. 10.1111/ele.12928.

Jouffray, Jean-Baptiste; Wedding, Lisa M.; Norström, Albert V.; Donovan, Mary K.; Williams, Gareth J.; Crowder, Larry B.; Erickson, Ashley L.; Friedlander, Alan M.; Graham, Nicholas A. J.; Gove, Jamison M.; Kappel, Carrie V.; Kittinger, John N.; Lecky, Joey; Oleson, Kirsten L. L.; Selkoe, Kimberly A.; White, Crow; Williams, Ivor D.; Nyström, Magnus. 2019. Parsing human and biophysical drivers of coral reef regimes. *Proceedings of the Royal Society B*. 10.1098/rspb.2018.2544.

Komatsu, Kimberly J.; Avolio, Meghan L.; Lemoine, Nathan P.; Isbell, Forest; Grman, Emily; Houseman, Gregory R.; Koerner, Sally E.; Johnson, David S.; Wilcox, Kevin R.; Alatalo, Juha M.; Anderson, John P.; Aerts, Rien; Baer, Sara G.; Baldwin, Andrew H.; Bates, Jonathan; Beierkuhnlein, Carl; Belote, R. Travis; Blair, John; Bloor, Juliette M. G.; Bohlen, Patrick J.; Bork, Wedward W.; Boughton, Elizabeth H.; Bowman, William D.; Britton, Andrea J.; Cahill Jr., James F.; Chaneton, Enrique; Chiariello, Nona R.; Cheng, Jimin; Collins, Scott L.; Cornelissen, J. Hans C.; Du, Guozhen; Eskelinen, Anu; Firn, Jennifer; Foster, Bryan; Gough, Laura; Gross, Katherine; Hallett, Lauren M.; Han

Xingguo; Harmens, Harry; Hovenden, Mark J.; Jagerbrand, Annika; Jentsch, Anke; Kern, Christel; Klanderud, Kari; Knapp, Alan K.; Kreyling, Juergen; Li, Wei; Luo, Yiqi; McCulley, Rebecca L.; McLaren, Jennie R.; Megonigal, J. Patrick; Morgan, John W.; Onipchenko, Vladimir; Pennings, Steven C.; Prevéy, Janet S.; Price, Jodi N.; Reich, Peter B.; Robinson, Clare H.; Russell, R. Leland; Sala, Osvaldo E.; Seabloom, Eric W.; Smith, Melinda D.; Soudzilovskaia, Nadjda; Souza, Lara; Suding, Katherin; Suttle, K. Blake; Svejcar, Tony; Tilman, David; Tognetti, Pedro; Turkington, Roy; White, Shannon; Xu, Zhuwen; Yahdjian, Laura; Yu, Qiang; Zhang, Pengfei; Zhang, Yunhai. 2019.

Global change effects on plant communities are magnified by time and the number of global change factors imposed. *PNAS*. 10.1073/pnas.1819027116.

Krupa, Meagan Boltwood; Cunfer, Molly McCarthy; Clark, S. Jeanette; O'Dean, Emily. 2018. Resurrecting the public record: Assessing stakeholder participation in Alaska's fisheries. *Marine Policy*. 10.1016/j.marpol.2018.07.010.

Lai, Jiangshan; Lortie, Christopher J.; Muenchen, Robert A.; Yang, Jian; Ma, Keping. 2019. Evaluating the popularity of R in ecology. *Ecosphere*. 10.1002/ecs2.2567.

Langley, J. Adam; Chapman, Samantha K.; La Pierre, Kimberly J.; Avolio, Meghan; Bowman, William D.; Johnson, David S.; Isbell, Forest; Wilcox, Kevin R.; Foster, Bryan L.; Hovenden, Mark J.; Knapp, Alan K.; Koerner, Sally E.; Lortie, Christopher J.; Megonigal, James P.; Newton, Paul C. D.; Reich, Peter B.; Smith, Melinda D.; Suttle, Kenwyn B.; Tilman, David. 2018. Ambient changes exceed treatment effects on plant species abundance in global change experiments. *Global Change Biology*. 10.1111/gcb.14442.

Lisovski, Simeon; Bauer, Silke; Briedis, Martins; Davidson, Sarah C.; Dhanjal-Adams, Kiran L.; Hallworth, Michael T.; Karagicheva, Julia; Meier, Christoph M.; Merkel, Benjamin; Ouwehand, Janne; Pedersen, Lykke; Rakhimberdiev, Eldar; Roberto-Charron, Amélie; Seavy, Nathaniel E.; Sumner, Michael D.; Taylor, Caz M.; Wotherspoon, Simon J.; Bridge, Eli S.. 2019. Light-level geolocator analyses: A user's guide. *Journal of Animal Ecology*. 10.1111/1365-2656.13036.

Lombard, Fabien; Boss, Emmanuel; Waite, Anya M.; Vogt, Meike; Uitz, Julia; Stemmann, Lars; Sosik, Heidi M.; Schulz, Jan; Romagnan, Jean-Baptiste; Picheral, Marc; Pearlman, Jay; Ohman, Mark D.; Niehoff, Barbara; Möller, Klas O.; Miloslavich, Patricia; Lara-Lpez, Ana; Kudela, Raphael; Lopes, Rubens M.; Kiko, Rainer; Karp-Boss, Lee; Jaffe, Jules S.; Iversen, Morten H.; Irisson, Jean-Olivier; Fennel, Katja; Hauss, Helena; Guidi, Lionel; Gorsky, Gaby; Giering, Sarah L. C.; Gaube, Peter; Gallagher, Scott;

Dubelaar, George; Cowen, Robert K.; Carlotti, François; Briseño-Avena, Christian; Berline, Léo; Benoit-Bird, Kelly; Bax, Nicholas; Batten, Sonia; Ayata, Sakina Dorothée; Artigas, Luis Felipe; Appeltans, Ward. 2019. Globally Consistent Quantitative Observations of Planktonic Ecosystems. *Frontiers in Marine Science*. 10.3389/fmars.2019.00196.

Lortie, Christopher J.. 2018. Ten simple rules for writing statistical book reviews. *PeerJ*. 10.7287/peerj.preprints.26924v1.

Lortie, Christopher J.. 2018. A comment on computational biology and connecting the dots. *PeerJ*. 10.7287/peerj.preprints.27408v1.

Lortie, Christopher J.; Filazzola, A.; Kelsey, R.; Hart, Abigail K.; Butterfield, H. S.. 2018. Better late than never: a synthesis of strategic land retirement and restoration in California. *Ecosphere*. 10.1002/ecs2.2367.

Lortie, Christopher J.; St. John, Julie; Spangler, Will. 2019. Do or do not. There is no try in restoration ecology. *Restoration Ecology*. 10.1111/rec.12994.

Marshall, Kristin N.; Duffy-Anderson, Janet T.; Ward, Eric J.; Anderson, Sean C.; Hunsicker, Mary E.; Williams, Benjamin C.. 2019. Long-term trends in ichthyoplankton assemblage structure, biodiversity, and synchrony in the Gulf of Alaska and their relationships to climate. *Progress in Oceanography*. 10.1016/j.pocean.2018.11.002.

McFadden, Ian R.; Sandel, Brody; Tsirogiannis, Constantinos; Morueta-Holme, Naia; Svenning, Jens-Christian; Enquist, Brian J.; Kraft, Nathan J.B.. 2019. Temperature shapes opposing latitudinal gradients of plant taxonomic and phylogenetic  $\beta$  diversity. *Ecology Letters*. 10.1111/ele.13269.

McFarlane, Rosemary A.; Horwitz, Pierre; Arabena, Kerry; Capon, Anthony; Jenkins, Aaron; Jupiter, Stacy; Negin, Joel; Parkes, Margot W.; Saketa, Sala. 2019. Ecosystem services for human health in Oceania. *Ecosystem Services*. 10.1016/j.ecoser.2019.100976.

Meier, Alan; Davis, Steven J.; Victor, David G.; Brown, Karl; McNeilly, Lisa; Modera, Mark; Pass, Rebecca Zarin; Sager, Jordan; Weil, David; Auston, David; Abdulla, Ahmed; Bockmiller, Fred; Brase, Wendell; Brouwer, Jack; Diamond, Charles; Dowey, Emily; Elliott, John; Eng, Rowena; Kaffka, Stephen; Kappel, Carrie V.; Kloss, Margarita; Mezić, Igor; Morejohn, Josh; Phillips, David; Ritzinger, Evan; Weissman, Steven; Williams, Jim.

2018. University of California Strategies for Decarbonization: Replacing Natural Gas. UC TomKat Carbon Neutrality Project. 10.17605/OSF.IO/HNPUJ.

Mori, Akira S.; Isbell, Forest; Seidl, Rupert. 2018.  $\beta$ -Diversity, Community Assembly, and Ecosystem Functioning. *Trends in Ecology & Evolution*. 10.1016/j.tree.2018.04.012.

Morishige, Kano'e'ulalani; Andrade, Pelika; Pascua, Pua'ala; Steward, Kanoelani; Cadiz, Emily; Kapono, Lauren; Chong, Uakoko. 2018. Nā Kilo 'Āina: Visions of Biocultural Restoration through Indigenous Relationships between People and Place. *Sustainability*. 10.3390/su10103368.

Moritz, Max A.; Topik, Chris; Allen, Craig D.; Hessburg, Paul F.; Morgan, Penelope ; Odion, Dennis C.; Veblen, Thomas T.; McCullough, Ian. 2018. A Statement of Common Ground Regarding the Role of Wildfire in Forested Landscapes of the Western United States. Fire Research Consensus Working Group Final Report.

O'Hara, Casey; Villaseñor-Derbez, Juan Carlos; Ralph, Gina M.; Halpern, Benjamin S.. 2019. Mapping status and conservation of global at-risk marine biodiversity. *Conservation Letters*. 10.1111/conl.12651.

Okey, Thomas A. 2018. Indicators of marine ecosystem integrity for Canada's Pacific: An expert-based hierarchical approach. *Science of The Total Environment*. 10.1016/j.scitotenv.2018.07.184.

Oldfield, Emily E.; Bradford, Mark A.; Wood, Stephen A.. 2019. Global meta-analysis of the relationship between soil organic matter and crop yields. *SOIL*. 10.5194/soil-5-15-2019.

Raheem, Nejem; Cravens, Amanda E.; Cross, Molly S.; Crausbay, Shelley; Ramirez, Aaron; McEvoy, Jamie; Zoanni, Dionne; Bathke, Deborah J.; Hayes, Michael; Carter, Shawn; Rubenstein, Madeleine; Schwend, Ann; Hall, Kimberly R.; Suberu, Paul. 2019. Planning for ecological drought: Integrating ecosystem services and vulnerability assessment. *WIREs Water*. 10.1002/wat2.1352.

Rohr, Jason R.; Barrett, Christopher B.; Civitello, David J.; Craft, Megan E.; Delius, Bryan; DeLeo, Giulio A.; Hudson, Peter J.; Jouanard, Nicolas; Nguyen, Karena H.; Ostfeld, Richard S.; Remais, Justin V.; Riveau, Gilles; Sokolow, Susanne H.; Tilman,



David. 2019. Emerging human infectious diseases and the links to global food production. *Nature Sustainability*. 10.1038/s41893-019-0293-3.

Runge, Claire; Plantinga, Andrew; Larsen, Ashley E.; Naugle, David E.; Helmstedt, Kate; Polasky, Stephen; Donnelly, J. Patrick; Smith, Joseph T.; Lark, Tyler J.; Lawler, Joshua J.; Martinuzzi, Sebastian; Fargione, Joseph E.. 2018. Unintended habitat loss on private land from grazing restrictions on public rangelands. *Journal of Applied Ecology*. 10.1111/1365-2664.13271.

Runge, Claire; Withey, John; Naugle, David E.; Fargione, Joseph E.; Helmstedt, Kate; Larsen, Ashley E.; Martinuzzi, Sebastian; Tack, Jason D.. 2019. Single species conservation as an umbrella for management of landscape threats. *PLoS ONE*. 10.1371/journal.pone.0209619.

Runting, Rebecca K.; Ruslandi, R; Griscom, Bronson W.; Struebig, Matthew J.; Satar, Musnanda; Meijaard, Erik; Burivalova, Zuzana; Cheyne, Susan M.; Deere, Nicolas J.; Game, Edward T.; Putz, Francis E.; Wells, Jessie A.; Ancrenaz, Marc; Ellis, Peter; Khan, Faisal A. A.; Leavitt, Sara M.; Possingham, Hugh P.; Watson, James E. M.; Venter, Oscar. 2019. Larger gains from improved management over sparing-sharing for tropical forests. *Nature Sustainability*. 10.1038/s41893-018-0203-0.

Seltmann, Katja; Lafia, Sara; Paul, Deborah; James, Shelley; Bloom, David ; Rios, Nelson E.; Ellis, Shari; Farrell, Una; Utrup, Jessica; Yost , Michael Mike; Davis, Edward; Emery, Robert; Motz, Gary; Kimmig, Julien; Shirey, Vaughn; Sandall, Emily; Park, Daniel S.; Tyrrell, Christopher; Thackurdeen, Rajesh; Collins, Matthew; O'Leary, Vincent ; Prestridge, Heather L.; Evelyn, Christopher J.; Nyberg, Ben. 2018. Georeferencing for Research Use (GRU): An integrated geospatial training paradigm for biocollections researchers and data providers. *Research Idea and Outcomes*. 10.3897/rio.4.e32449.

Sterling, Eleanor J.; Zellner, Moira; Jenni, Karen E.; Leong, Kirsten; Glynn, Pierre D.; BenDor, Todd K.; Bommel, Pierre; Hubacek, Klaus; Jetter, Antonie J.; Jordan, Rebecca C.; Schmitt Olabisi, Laura; Paolisso, Michael; Gray, Steven A.. 2019. Try, try again: Lessons learned from success and failure in participatory modeling. *Elementa*. 10.1525/elementa.347.

Szuwalski, Cody ; Britten, Gregory L.; Licandeo, Roberto; Amoroso, Ricardo O.; Hilborn, Ray; Walters, Carl J.. 2019. Global forage fish recruitment dynamics: A comparison of methods, time-variation, and reverse causality. *Fisheries Research*. 10.1016/j.fishres.2019.01.007.

Taylor, Philip G.; Cleveland, Cory C.; Soper, Fiona; Wieder, William R.; Dobrowski, Solomon Z.; Doughty, Christopher E.; Townsend, Alan R.. 2019. Greater stem growth, woody allocation, and aboveground biomass in Paleotropical forests than in Neotropical forests. *Ecological Society of America*. 10.1002/ecy.2589.

Thompson, Patrick L. ; Isbell, Forest; Loreau, Michel; O'Connor, Mary I.; Gonzalez, Andrew. 2018. The strength of the biodiversity–ecosystem function relationship depends on spatial scale. *Proceedings of the Royal Society B*. 10.1098/rspb.2018.0038.

Ward, Eric J.; Delgado-Nordmann, Helena; Brenner, Richard E.; Beaudreau, Anne H; Moffitt, Steven D.; Shelton, Andrew O.. 2018. Assessing long-term changes in sex ratios of Pacific herring in Prince William Sound, Alaska. *Fisheries Research*. 10.1016/j.fishres.2018.10.031.

Weinstein, Michael P.; Hazen, Robert; Litvin, Steven Y.. 2018. Response of Nekton to Tidal Salt Marsh Restoration, a Meta-Analysis of Restoration Trajectories. *Wetlands*. 10.1007/s13157-018-1106-6.

Wilcox, Kevin R.; Tredennick, Andrew; Koerner, Sarah E.; Grman, Emily; Hallett, Lauren M.; Avolio, Meghan L.; Komatsu, Kimberly J.; Houseman, Gregory R.; Isbell, Forest; Johnson, David S.; Alatalo, Juha M.; Baldwin, Andrew H.; Bork, Edward W.; Boughton, Elizabeth H.; Bowman, William D.; Britton, Andrea J.; Cahill, James F.; Collins, Scott L.; Du, Guozhen; Eskelinen, Anu; Gough, Laura; Jentsch, Anke; Kern, Christel; Klanderud, Kari; Knapp, Alan K.; Kreyling, Juergen; Luo, Yiqi; McLaren, Jennie R.; Magonigal, J. Patrick; Onipchenko, Vladimir; Prevey, Janet S.; Price, Jodi N.; Robinson, Clare H.; Sala, Osvaldo E.; Smith, Melinda D.; Soudzilovskaia, Nadejda A.; Souza, Lara; Tilman, David; White, Shannon R.; Xu, Zhuwen; Yahdjian, Laura; Yu, Qiang; Zhang, Pengfei; Zhang, Yunhai. 2017. Asynchrony among local communities stabilises ecosystem function of metacommunities. *Ecology Letters*. 10.1111/ele.12861.

## Reports and White Papers

Bales, Roger C.; Christensen, Jon; Heeren, Alexander; Hodges, Heather; Leombruni, Lisa ; Rebich Hespanha, Stacy. 2018. Strategic Communication to Achieve Carbon Neutrality within the University of California.

Neugarten, Rachel; Langhammer, Penny; Osipova, Elena; Bagstad, Kenneth; Bhagabati, Nirmal; Butchart, Stuart H.M.; Dudley, Nigel; Elliott, Vittoria; Gerber, Leah

R.; Arrellano Gutierrez, Claudia; Ivanic, Kasandra-Zoica; Kettunen, Marianne; Mandle, Lisa A; Merriman, Jenny ; Mulligan, Mark; Peh, Kelvin; Raudsepp-Hearne, Ciara; Semmens, Darius J.; Stolton, Sue; Willcock, Simon. 2018. Tools for measuring, modelling, and valuing ecosystem services.

## **Data Sets**

Hallett, Lauren M.; Avolio, Meghan L.; Carroll, Ian; Jones, Sydney; MacDonald, Andrew; Flynn, Dan; Slaughter, Peter; Ripplinger, Julie; Collins, Scott L.; Gries, Corinna; Jones, Matthew B.. 2019. Codyn: Community Dynamics Metrics.

Câmara, Gilberto; Picoli, Michelle; Simoes, Rolf; Maciel, Adeline; Carvalho, Alexandre X Y; Coutinho, Alexandre; Esquerdo, Julio; Antunes, Joao; Begotti, Rodrigo; Arvor, Damien (2017): Land cover change maps for Mato Grosso State in Brazil: 2001-2016, links to files. PANGAEA. 10.1594/PANGAEA.881291.

## **Software**

Reuman, Daniel C.. 2018. R Package called tsvr.

Reuman, Daniel C.. 2018. R Package called mms.

Sheppard, Lawrence W; Zhao, Lei; Anderson, Thomas L.; Walter, Jonathan A.; Reuman, Daniel C.. 2019. wsyn: Wavelet approaches to synchrony.

Wang, Shaopeng; Zhao, Lei; Reuman, Daniel C.. 2019. tsvr: Timescale-specific variance ratio.

Wood, Stephen A.. 2018. BibScan R Package.

Reuman, Daniel C.; Orme, David. 2018. Reproducible science template for R markdown.