

**Dr. SARAH AMELIA GRAVEM** (she/her)  
Oregon State University  
3029 Cordley Hall, Corvallis, OR 97331  
GravemS@oregonstate.edu  
[www.SarahGravem.com](http://www.SarahGravem.com)  
[www.piscoweb.org/sea-star-wasting-syndrome-task-force](http://www.piscoweb.org/sea-star-wasting-syndrome-task-force)  
[www.PRIMEDNetwork.org](http://www.PRIMEDNetwork.org)

## EDUCATION

**Ph.D. Marine Ecology**, University of California Davis. March 2015. Thesis: Linking prey behavior to intertidal zonation and community structure in rocky tidepools. Advisor: Dr. Steven Morgan.

**Master of Science, Biology**. California Polytechnic State University San Luis Obispo. September 2009. Thesis: Sex and microhabitat-specific trade-offs in allocation of mycosporine-like amino acids in purple sea urchins (*Strongylocentrotus purpuratus*). Advisor: Dr. Nikki Adams.

**Bachelor of Science, Aquatic Biology**. University of California Santa Barbara. September 2005. Graduate with highest honors (*summa cum laude*)

## PUBLICATIONS

### *In Revision*

1. **Gravem, S.A.**, B.N. Poirson, J.W. Robinson and B.A. Menge. A long-term dataset demonstrates resilience of rocky intertidal community structure to climactic variability. *In revision for Ecosphere*.

### *Published or In Press*

1. 2020. **Gravem, S.A.**, W.N. Heady, V.R. Saccomanno, K.F. Alvstad, A.L.M. Gehman, T.N. Frierson, and S.L. Hamilton. *Pycnopodia helianthoides*. IUCN Red List of Threatened Species. *Accepted at IUCN for December 2020*. [pdf supplement](#)
2. 2019. **Gravem, S.A.** and S.G. Morgan. Trait-mediated indirect effects in a natural tidepool system. *Marine Biology* 166: 23 [pdf](#)
3. 2019. Menge, B.A., K. Milligan, J. Caselle, J. Barth, F. Chan, **S.A. Gravem**, J. Lubchenco, M. Novak, J.W. White, C. Blanchette, L. Washburn, M. Carr, P. Raimondi and M. McManus. Integrating Coastal Oceanic and Benthic Ecological Approaches for Understanding Large-scale Ecosystem Dynamics. *Oceanography* 32(3): 38-49 [pdf](#)
4. 2019. Menge, B.A., J. E. Caselle, J. A. Barth, F. Chan, **S.A. Gravem**, J. Lubchenco, K. Milligan, M. Novak, J. W. White, C.A. Blanchette, L. Washburn, M. Carr, P. Raimondi, M. McManus, T.C. Gouhier. Community Responses to Climate-Related Variability and Disease: The Critical Importance of Long-term Research. *Oceanography* 32(3): 72-81 [pdf](#)
5. 2018. **Gravem, S.A** and 37 others. Research and Management Needs to Address Sea Star Wasting Syndrome: A Collaborative Strategic Action Plan. Published online Nov 2018 <http://www.piscoweb.org/strategic-action-plan>. [pdf](#)
6. 2017. **Gravem, S.A.**, S. Bachhuber, H. Fulton-Bennet, Z. Randell, A. Rickborn, J. Sullivan, B.A. Menge. Opinion: Transformative research is not easily predicted. *Trends in Ecology and Evolution* 32(11): 825-834. [pdf](#)
7. 2017. **Gravem, S.A.** and S.G. Morgan. Shifts in intertidal zonation and refuge use by prey after mass mortalities of two predators. *Ecology* 98(4): 1006-1015 [pdf](#) [Appendix S1](#) [Appendix S2](#)
8. 2017. Taylor, A. W., S.G. Morgan and **S.A. Gravem**. Underwater video reveals decreased activity of rocky intertidal snails during high tides and cooler days. *Marine Ecology* 38(2): e12418 [pdf](#) [Appendix S1](#) [Appendix S2](#)
9. 2016. Morgan, S.G., **S.A. Gravem**, and B.G. Miner. Trait-mediated indirect interactions by residents of rocky shore tidepools. *Marine Ecology Progress Series*. 552: 31-46. [pdf supplement](#)
10. 2016. Menge, B.A. E.B. Cerny-Chipman, A. Johnson, J. Sullivan, **S.A. Gravem**, and F.T. Chan. Ecology of the sea star wasting disease epidemic in the keystone predator *Pisaster ochraceus*: population impact, recovery potential, and predation rate. *PLoS One*. 11(5) e0153994. [pdf correction](#)
11. 2016. **Gravem, S.A.** and S.G. Morgan. Prey state alters trait-mediated indirect interactions in rocky tidepools. *Functional Ecology*. 30(9): 1574-1582 [pdf](#) [Lay summary](#) [Appendix S1](#) [Fig S1](#) [data](#)

12. 2015. **Gravem, S.A.** Linking Antipredator Behavior of Prey to Community Structure and Intertidal Zonation in Rocky Tidepools. Dissertation. University of California, Davis. [pdf](#)
13. 2012. **Gravem, S.A.** and N.L. Adams. Sex and microhabitat influence the uptake and allocation of mycosporine-like amino acids to tissues in the purple sea urchin, *Strongylocentrotus purpuratus*. *Marine Biology*. 159(12): 2839-2852. [pdf supplement](#)
14. 2011. Brander, S., R. Fontana, T. Mata, **S.A. Gravem**, A. Hettinger, J. Bean, A. Szlobolzlai, C. Keiper and M. Marrero. The ecotoxicology of plastic marine debris. *The American Biology Teacher*. 73(8): 474-478. [pdf](#)

#### **In Preparation**

1. **Gravem, S.A.**, S. Bachhuber, A. Chiachi, and B.A. Menge. Latitudinal shifts in intertidal predator population density, size structure and vertical zonation reveal the potential impacts of climate change.
2. **Gravem, S.A.** et al. A research and management contingency plan for marine disease outbreaks.
3. **Gravem, S.A.**, C. Garza, J. Dickens, and S.G. Morgan. Unraveling the complex effects of temperature, waves, and predators on intertidal communities to predict responses to climate change. *In prep*
4. Hamilton, S.L., Beas-Luna, R., Francis, F., Gehman, A., Heady W., Lonhart, S., Rogers-Bennett, L., Saccomanno, V., Salomon, A. and **S.A. Gravem**. A disease-driven global collapse and climate-associated range shift in an apex predator.
5. Glidden, C.K., S. Bachhuber, L.C. Field, R. Cates, L. Cohen, E. Crockett, M. Degnin-Warner, M. Feezell, H. Fulton-Bennett, S. Hennessy, D. Pires, B.N. Poirson, Z.H. Randell, E. White, and **S.A. Gravem**. The Challenges of Managing Marine Disease.
6. Menge, B. A., **S. A. Gravem**, E. Richmond, and M. Noble. Relative importance of predation and herbivory in driving community structure in productive and unproductive ecosystems. *Ecological Monographs*
7. Burton, A., **S.A. Gravem** and F. Barreto. *In prep*. Does the sea star species, *Pisaster ochraceus*, show genetic variation for resistance to SSWD?
8. Rickborn, A.J., **S. A. Gravem** and B.A. Menge. Patterns of cryptic community structure and recovery in intertidal surge channel communities. *In prep for submission to JEMBE*. [pdf](#)

#### **POSITIONS HELD**

**Research Associate (Postdoctoral)**, Oregon State University, 6/2018-present. Project: Mechanisms of resistance and resilience to system-wide loss of a keystone predator in an iconic intertidal community. Co-PIs Bruce Menge, Pete Raimondi and Tarik Gouhier.

**Contract Scientist**, The Nature Conservancy, 01/2020 – present. Project: Lead of the *Pycnopodia Recovery Working Group* and IUCN Red List Assessment.

**Postdoctoral Scholar**, Oregon State University, 6/2015-6/2018. Project: The consequences of sea star wasting disease for intertidal ecosystems along the US West Coast. Advised by Bruce Menge and Jane Lubchenco

**Ph.D. Student**, UC Davis, CA 9/2008-3/2015. Project 1) Examining the community level effects of predators in tidepool communities, first by studying potential for the sub-lethal effects of predators to initiate trophic cascades and second by investigating the role of predators in creating alternate community states. Project 2) Predicting the impacts of climate change on the vertical zonation of intertidal organisms using a spatial climate gradient. Advised by Steven G. Morgan. Committee members: Eric Sanford and Bryan Gaylord.

**NSF GK-12 Fellow**, 9/2009- 9/2011. University Of California Davis, Davis, CA, United States.

**Master of Science Student**, Cal Poly State University, 9/2005-8/2008. Designed and carried out a long-term field project concerning the physiological allocation of sunscreens to different tissues in intertidal purple sea urchins. Advised by Nikki L. Adams. Committee members: Mark Moline and Steven Rein

**Research Assistant**, UC Santa Barbara, 6/2005-8/2005. Research diver for Moorea Long Term Ecological Research (LTER) project under Drs. Russ Schmitt, Sally Holbrook and Andrew Brooks. Monitored daily larval settlement of anemonefish onto anemones and set up long term research sites. Assisted in a project examining nutrient supplements to corals from coral reef fish. Co-designed and carried out a research project examining a crab-coral mutualism under Dr. Hannah Stewart.

**Research Assistant & Senior Research Project**, UC Santa Barbara, 10/2004-6/2005. Prepared mRNA samples from green sea urchins to create cDNA libraries and macroarrays. Comparisons were made between sea urchins under varying heat shock stress. Advised by Dr. Gretchen Hoffmann.

**Research Assistant**. UC Santa Barbara, 9/2004-2/2004. Examined movements and size structure of shore crabs populations. Collected estuarine fish for toxin analysis in the Carpinteria Salt Marsh under Dr. Andrew Brooks.

**Undergraduate Research Project, James Cook University, Australia**. 4/2004. Examined population size structure of *Acropora* corals at Orpheus Island, Great Barrier Reef. Advised by Dr. Betty Willis.

**Tropical Biology Field Course, James Cook University, Australia**. 1/2004-5/2004. Various small research projects in multiple tropical terrestrial and marine ecosystems near Townsville, Australia.

**Research Assistant**. UC Santa Barbara, 3/2003-6/2003. Quantified barnacle settlement from various PISCO settlement sites under Dr. Steve Gaines.

**Research Assistant**. UC Santa Barbara, 3/2002-6/2002. Isolated DNA and extracted otoliths from larval kelp bass for a project examining spatial distribution of larvae under Dr. Kim Selkoe.

## RESEARCH GRANTS

### ***Under consideration:***

NSF LTREB. Testing tipping points in a model rocky intertidal meta-ecosystem – Climate change, increasing variances, and response mechanisms. B. Menge, S. Gravem and T. Gouhier. (\$599,998) White Paper to Senator Jeff Merkley (D-OR). From Healthy Kelp to Healthy Economies. T. Calvanese, S. Gravem. A. Galloway, S. Hamilton and the Oregon Kelp Alliance (ORKA). (\$3-8 million budget proposal to the US. Senate).

### ***Received:***

The SeaDoc Society. March 2020. Assessing the reproductive timing and status of *Pycnopodia helianthoides* to inform species recovery strategies in the Salish Sea and Northeast Pacific. F. Francis, J. Schultz, S. Gravem (\$48,433)

The Nature Conservancy. January 2020. *Pycnopodia* Status Update: Baja, California to Alaska. S. Gravem and S. Hamilton. (\$50,000)

Oregon SeaGrant Program Development Grant. Sept 2019. Network Development for PRIMED: Primary Responders in Marine Emergent Diseases. Sarah Gravem, Tim Miller-Morgan, Christiane Loehr, Steve Rumrill, Sara Hamilton, and Silke Bachhuber (\$9,900).

BAND Foundation Jan 2020. Network Development for PRIMED: Primary Responders in Marine Emergent Disease. By S. Gravem, T. Miller-Morgan, C. Loehr, S. Rumrill, S. Hamilton, S. Bachhuber (\$15,000)

BAND Foundation. 2018. Renewal of: Wildlife Health is Wildlife Hope: Building a Strategic Framework for Effective Wildlife Health Response, Management, and Policy Implementation. Co-written with Association of Fish and Wildlife Agencies. Additional \$5,000 for follow-up workshop and travel.

NSF Biological Oceanography Program. 2017. Collaborative Research: Mechanisms of resistance and resilience to system-wide loss of a keystone predator in an iconic intertidal community. B. Menge, PI, T. Gouhier and P. Raimondi, Co-PIs; S. Gravem, Postdoc (co-writer of proposal) (\$700,000)

BAND Foundation. 2017. Wildlife Health is Wildlife Hope: Building a Strategic Framework for Effective Wildlife Health Response, Management, and Policy Implementation. B. Menge, PI. S. Gravem, lead writer of marine component of proposal co-written with Association of Fish and Wildlife Agencies. (\$499,943 total, \$17, 930 to Oregon State to create strategic action plan for sea star wasting disease)

Long-Term Research in Environmental Biology. LTREB Renewal: Ecosystem response to climate change - role of ecological subsidies and species interactions. Bruce Menge, PI. S. Gravem, co-writer of proposal (\$449,995)

Henry A. Jastro Research Award. Sept. 2012. \$2785 grant to outstanding UC Davis graduate students. Title: An experimental approach to test climate change impacts on intertidal species interactions and community structure.

Henry A. Jastro Research Award. Sept. 2011. \$2500 grant to outstanding UC Davis graduate students. Title: Climate change effects on intertidal communities.

Henry A. Jastro Research Award. Sept. 2010. \$2000 grant to outstanding UC Davis graduate students.  
Title: Trophic cascades caused by changing herbivore behavior in tide pool communities.  
Mildred E. Mathias Grant. Jan. 2010. \$2350 for field studies in the UC Natural Reserve System. Title:  
Predator effects on communities: indirect interactions and alternate community states.  
Conchologists Society of America Grant. Spring 2009. \$1500 for studies in Malacology. Title: Indirect  
interactions in an intertidal food web mediated by an herbivorous snail, *Chlorostoma funebris*.

**Unfunded:**

Multi-state Conservation Grant Program. Sarah Gravem, Laura Rogers-Bennett, Cynthia Catton, James Moore, Steven Rumrill, Chris Eardley, Kristen Gilardi, Christine Krueder Johnson, and Kyle Hebert. (\$230,760)  
Oregon Sea Grant. Population Genomics of SSWD Resistance in *Pisaster ochraceus*. Eli Meyer, Felipe Barreto, S.A. Gravem and Bruce Menge. (\$60,063).  
L'Oreal USA for women in science program. Feb 2016. The sea star wasting disease epidemic on the U.S. West Coast: a scientific opportunity not to be "wasted". (\$60,000)  
Lerner Gray Fellowship 2012. An experimental approach to test climate change impacts on intertidal species interactions and community structure  
Sigma Delta Epsilon Graduate Women in Science Fellowship 2011. Climate change effects on key species interactions  
National Science Foundation Research Proposal. Co-written with Drs. Steven Morgan and Jenna Shinen. 2010 & 2011.  
Lerner Gray Fellowship. 2011. Climate change consequences for a key species interaction  
Environmental Protection Agency Science to Achieve Results Fellowship (EPA STAR). 2010. Title: Climate change effects on key species interactions  
Ernest E. Hill Fellowship. 2010. Title: Community-level impacts of climate change: key climate-mediated interactions between a foundation species and its predator  
Environmental Protection Agency Science to Achieve Results Fellowship (EPA STAR). 2009. Title: Changing vertical ranges in intertidal species along a spatial temperature gradient: understanding the potential effects of global warming  
Department of Energy Graduate Fellowship Program. 2009.  
Consortium for Women in Research Graduate Research Award. 2008. The comparative roles of density and trait-mediated indirect interactions in controlling algal abundance and diversity in a marine intertidal community

**SCIENTIFIC LEADERSHIP AND NETWORKING**

1. **Pycnopodia Recovery Working Group** 2019-present. Co-lead of a working group of >60 scientists. Goals include 1) listing *Pycnopodia* as critically endangered through IUCN (coming Dec 2020) 2) advance knowledge of *Pycnopodia* biology, ecology and epidemiology, and 3) pursue active recovery of the species.
2. **PRIMED Network** 2018- present. (Primary Responders in Marine Emergent Disease) Founder and lead. Our mission is to detect, monitor and effectively respond to marine wildlife disease emergencies in a changing ocean. <http://primednetwork.org/>
3. **Oregon Kelp Alliance (ORKA)**. 2020-present. Leading member of The Oregon Kelp Alliance (ORKA) which represents diverse interests in kelp forest ecosystems, and includes commercial urchin divers, researchers, managers, conservationists, tour guides, sport divers, chefs, and other community members in support of healthy kelp forests. <https://oregonkelp.com/>
4. **Sea Star Wasting Task Force** 2016-present. Founder and lead. Purpose is to identify research and management priorities to address sea star wasting syndrome. [www.piscoweb.org/sea-star-wasting-syndrome-task-force](http://www.piscoweb.org/sea-star-wasting-syndrome-task-force)
5. **PISCO** 2015-present. (Partnership for Interdisciplinary Studies of Coastal Oceans): Postdoctoral fellow for a large-scale (US West Coast), long-term ecological consortium including OSU (J. Barth co-PI), UCSB (S. Gaines, R. Warner, and L. Washburn co-PIs), UCSC (M. Carr, P. Raimondi, M. McManus co-PIs), and HMS, Stanford Univ. (M. Denny, S. Palumbi co-PIs). Goals include meta-ecosystem research in the California

Current system; providing science for policy makers and managers; training students and postdocs; creating and managing a publicly available database of PISCO data; networking with NGOs, agencies, and other organizations sharing similar goals (see <http://www.piscoweb.org>).

6. **State of the Coast 2019.** Invited lead organizer for public workshop. Rumrill, S., \***S.A. Gravem**, D. Caracciolo, D. Kone. Complex and Connected: Holistic Approaches to Management in the Nearshore. State of the Coast Conference. Gleneden Beach, OR. Nov. 9, 2019.
7. **Western Society of Naturalists** Lead organizer of a Special Session and Mixer on Kelp Ecosystem Health and Sea Star Wasting. Ensenada, Mexico. Nov. 2, 2019
8. **Wildlife Health Forum 2018.** Planning committee member. USGS Headquarters, Reston, VA, Nov 13-16<sup>th</sup> 2018
9. **Marine Disease Outbreaks Workshop.** Lead organizer of the workshop. Oct 20<sup>th</sup>, 2018, Portland OR
10. **Sea Star Wasting Disease Workshop.** Lead Organizer of the workshop. Nov 15<sup>th</sup>, 2017, Pasadena CA

#### ACADEMIC HONORS AND FELLOWSHIPS

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| Excellence in Undergraduate Research Mentoring. Inaugural Award from the OSU Graduate School | May 2020, \$1000                                 |
| Postdoc Professional Development Travel Award, OSU Graduate School                           | Fall 2019, \$500                                 |
| Oregon Museum of Science and Industry Science Communication Fellow                           | Winter 2017                                      |
| Western Society of Naturalists Meeting 2012 Best Student Talk Award                          | Fall 2012, \$500                                 |
| Bodega Marine Lab Fellowship (2 times)   | Fall 2011, Winter 2013. \$5,500 quarterly        |
| NSF CAMEOS GK-12 Fellowship (2 times)  | 2009 & 2010 academic years. \$30,000 annually    |
| UCD Block Grant Fellowship (4 times)   | F 2008, W 2009, S 2012 & 2013. \$5,400 quarterly |
| Graduate Student of the Year, Cal Poly   | Spring 2008                                      |
| Outstanding Contribution to Graduate Study, Cal Poly   | Sept. 2005                                       |
| UCSB Graduate with College Honors (highest honor awarded, top 15 in class)                   | Sept. 2005                                       |
| UCSB Graduate with Highest Honors ( <i>summa cum laude</i> , top 2.5% in class)              | Sept. 2005                                       |
| UCSB Dean's Honors   | W,S,F 2002; W,S 2003; S 2004; W,S 2005           |
| UCSB Honors Program  | Sept. 2001- June 2003                            |
| Member of the Golden Key International Honor Society   | W 2001- S 2005, F 2009-present                   |
| Member of the National Society of Collegiate Scholars  | Fall 2001- Spring 2005                           |
| Mia Tegner Memorial Scholarship  | July 2004  |

#### TEACHING EXPERIENCE

##### *Instructor Positions*

**Instructor.** Oregon State University. Winter 2020. Graduate Seminar on Marine Disease.

**Instructor.** Oregon State University. Fall 2016, Winter 2017. Graduate Seminar on Transformative Science.

##### *Guest Lectures*

**Guest Lecturer in Marine Science.** April 2020. Challenges of understanding and managing disease outbreaks in the sea. University of California, Irvine. Invited By Dr. Cascade Sorte

**Guest Lecturer in Invertebrate Zoology.** Fall 2019. Online lecture series on Asterozoa. Oregon State University. Invited by Dr. Nathan Kirk.

##### **Asterozoa 1: Spiny Skin**

<https://oregonstate.box.com/s/ayqxxjyrc35803p6rekdstchkgauvv9>

##### **Asterozoa 2: The water vascular and digestive systems**

<https://oregonstate.box.com/s/epmxb8bqxv8t2zatxfe7l9a24j78q8st>

**Asteroidea 3: Reproduction and Ecology**

<https://oregonstate.box.com/s/fv6dkb6a8ltg34n3hnevbsqcdkel08xg>

**Guest Lecturer in Global Sociology.** Apr 30 2018. Climate Change, Humans, and the Ocean. San Francisco State University. Invited By Dr. Valerie Francisco

**Guest Lecturer in Marine Ecology Field Course.** Springs 2010, 2011, 2012, 2013. UC Davis Bodega Marine Lab. Gave lectures predator-prey interactions, behavioral ecology, and experimental design. Course taught by Steven Morgan.

**Guest Lecturer in Invertebrate Zoology.** Winters 2005, 2006, 2007, 2008. Cal Poly Biol. Sci. Dept. Lectured and designed laboratory exercises on gastropods and arthropods. Course taught by Dr. Nikki Adams

**Teaching Assistant Positions**

**CAMEOS GK-12 Fellow.** UC Davis Bodega Marine Lab, 7/2009-6/2011. Marine biology guest teacher twice monthly in Sonoma and Marin county high school biology classes. Developed curriculum and led students in open inquiry group research projects aimed at ocean literacy and understanding the scientific process.

**Teaching Assistant,** UC Davis Bodega Marine Lab, Spring 2009 and Spring 2014. TA'd Marine Ecology Field Course, involving intensive marine ecology course. Mentored fourteen undergraduates in independent original research projects. Course taught by Steven Morgan.

**Teaching Assistant.** Cal Poly Biol. Sci. Dept. 9/2005-12/2007. Laboratory courses taught: Animal Diversity and Ecology (2 times), Cellular and Molecular Biology, Organismal Form and Function, General Biology, Ecology and Evolution (field course) and Invertebrate Zoology (3 times)

**Teaching Assistant.** Cal Poly Biol. Sci. Dept. Winters 2005-2008. Lectured and designed laboratory exercises on gastropods and arthropods yearly in Invertebrate Zoology. Laboratory teaching assistant and field trip leader for Invertebrate Zoology.

**Organic Chemistry Group Tutor.** UC Santa Barbara, 9/2004-3/2005. Bi-weekly lecturer and tutor for UCSB Campus Learning Assistant Services for undergraduates in organic chemistry

**ACADEMIC SERVICE**

**WSN Mentorship Program Mentor.** Mentor to student during the Western Society of Naturalists Conference. November 5-18, 2020

**Mentor for the SURE program at OSU** (Summer Research Experience for Undergraduates). Advised 11 undergraduates working full time on independent summer research projects in the PISCO lab between 2017 and 2020. Each awarded \$5,560 for student salary and research.

**Mentor for the URSA program at OSU** (Undergraduate Research, Scholarship and the Arts). Advised 19 undergraduates ~5hrs per week in independent spring research projects in the PISCO lab between 2018 and 2020. Each awarded \$1,000 for student salary and research.

**Invited panelist for incoming graduate student orientation.** Nov 7, 2018. Invited to speak about beginning graduate school and maintaining a work-life balance

**Marine Team Leader for Integrative Biology.** Spring 2016-2017. Coordinated interested students and connect them with laboratories at OSU to earn research experience and course credit.

**Invited guest for Graduate Student Professional Development Series. Jan 19, 2016.** Invited to speak about finishing grad school and finding post-docs while maintaining a work-life balance with a family.

**Bodega Marine Lab Professional Development Workshop Series.** Summer 2013. Co-created a workshop series for BML students on communicating science, finding jobs in both academia and non-academia, writing CVs and giving PowerPoint presentations, Served as a panelist for PowerPoint presentation workshop.

**Collaborative internship program with local Junior College.** Summers 2012-2014. Created summer internship program between Santa Rosa Junior College and Bodega Marine Lab and awarded course credit to undergraduates for assisting with research at BML.

**Western Society of Naturalists Student Committee.** 11/2011-11/2013. Planned and organized elements of an annual research conference in marine science. Co-created a workshop on giving effective 1-minute "elevator talks" about research.

**Bodega Marine Sciences Association treasurer.** 6/2011-8/2013. Association to support students and staff at BML through grants and social events. Managed budget, student scholarships, and all cash flow.

**Bodega Marine Lab Seminar Committee member.** 6/2011-6/2013. Selected and organized invited speakers at BML to enrich learning and facilitate collaboration. Managed budget.

**Congressional briefings for U.S. Senate and House members.** 2/2010. Visited the offices of Senator Barbara Boxer (CA), Congressman Mike Thompson (CA 5<sup>th</sup> District), and Congresswoman Doris Matsui (CA 6<sup>th</sup> District) to brief them on the potentially harmful effects of climate change on ecosystems and the economy by altering species interactions.

**REU Mentor.** UC Davis Bodega Marine Lab, summers 2009 and 2010. Primary mentor for 2 female REU students studying community interactions in the rocky intertidal.

**UC Davis Ecology Symposium committee.** Fall 2009. Assisting in planning the annual scientific research symposium in Ecology at UC Davis

**Ecology Graduate Student Association member,** 9/2008-6/2009. Liason between students, faculty and administration in graduate student matters, planned social and supportive events for graduate students

**Graduate Student Association representative,** 9/2008-6/2009. Represented the Ecology Graduate Group to the UC Davis graduate community.

**Graduate Coordinating Committee,** Cal Poly State University, 9/2006-9/2007. Liaison between graduate students, faculty and department and university administration. Reviewed applications for admission into the graduate program.

**Biology Department Student Fee Committee,** Cal Poly State University, 9/2005-6/2006. Reviewed and approved departmental budget for teaching and research. Reviewed applications for use of funds for teaching and research.

#### PEER REVEIWS FOR ACADEMIC JOURNALS

1. Ecology (2)
2. Functional Ecology (2)
3. Hydrobiologia (2)
4. Integrative and Comparative Biology (1)
5. Journal of Ecology (1)
6. Journal of Experimental Marine Biology and Ecology (3)
7. PlosOne (1)
8. Marine Ecology (1)
9. Oecologia (1)

#### OUTREACH

**Marine Wildlife Health iNaturalist Project.** Developed a community science project associated with the PRIMED network to detect and identify marine disease outbreak in real-time.  
<https://www.inaturalist.org/projects/marine-wildlife-health>

**Live from the Field.** October 2020. Participated in a “Live from the Field” on Climate Change at the Land-Sea Interface panel for The Virtual Field, sponsored by NSF.  
<https://thevirtualfield.org/video/climate-change-at-the-land-sea-interface/>

**Coast Watch PRIMED for the Future Workshop Series.** Led a public workshop on why and how to participate in tracking wildlife health in Oregon. Available Soon on  
<https://www.youtube.com/channel/UCmfpsfd5mRUoKbnplZ6COZQ/videos>

**State of the Coast Nov. 9, 2019.** Invited lead organizer for public workshop. Complex and Connected: Holistic Approaches to Management in the Nearshore. State of the Coast Conference. Gleneden Beach, OR. Co-organizers: S. Rumrill, D. Caracciolo, D. Kone.

**Oregon Coast Aquarium BioBlitz.** Led a series of events in 5 marine reserves to engage 100s of members of the public to engage in real data collection. Summer 2019.

**Purple Wasted Sea star Ale.** Our laboratory has partnered with Rogue Brewery and produced a new beer dedicated to raising awareness and funds to study sea star wasting disease.  
[http://www.rogue.com/rogue\\_beer/wasted-sea-star-purple-pale-ale/](http://www.rogue.com/rogue_beer/wasted-sea-star-purple-pale-ale/)

**CAMEOS GK-12 Fellow.** UC Davis Bodega Marine Lab, 7/2009-6/2011. Marine biology specialist in Sonoma and Marin county high school biology classes. Developed curriculum and led students in open inquiry group research projects aimed at ocean literacy and understanding the scientific process.

**Mardi Gras Charity Ball committee.** 1/2009-3/2010. Assisting in planning and soliciting donations for the Graduate Group in Ecology's annual charity event benefiting local sustainable businesses

**Education Opportunity Program,** UC Santa Barbara, 9/2001-6/2003. Mentee and mentor for UCSB students who met the qualifications for the program, including minorities, low income and first generation college students.

#### PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

Ecological Society of America (ESA) since 2014  
Western Society of Naturalists (WSN) since 2005  
Society for Integrative and Comparative Biology (SICB)  
American Malacological Society  
Scientific SCUBA Diver (2005) with American Academy of Underwater Sciences (AAUS), >100 dives  
Recreational SCUBA Diver (2002), >140 dives  
Motorboat Operator and Boating Safety Certified (2006)

#### MEDIA PRODUCTS

**Live from the Field.** Filmed for the NSF-Sponsored "Live from the Field" series for The Virtual Field  
<https://www.youtube.com/watch?v=clkALLvHBMc&feature=youtu.be>

**Video on Sea star wasting and the PRIMED network.** Filmed for the BAND foundation and *The Guardian*.  
<https://oregonstate.box.com/s/jwdzsd2ci8xina6186r4r315jmpwwwvlb>

**PRIMED Network Website**  
<https://www.primednetwork.org/>

**The Lubchenco-Menge Lab website**  
<https://www.lubchencomengelab.com/>

**Sea Star Wasting Disease Task Force Website**  
<http://www.piscoweb.org/sea-star-wasting-syndrome-task-force>

**Personal Website**  
<http://www.SarahGravem.com>

**Seasick.** 2014. Interviewed for the documentary film "Seasick" on seastar wasting  
<https://vimeo.com/112720791>

**Virtual Tour of Bodega Marine Laboratory.** Co-created video on research at Bodega Marine Lab.  
[https://www.youtube.com/watch?v=DYI\\_gw72bk8](https://www.youtube.com/watch?v=DYI_gw72bk8)

#### MEDIA COVERAGE

**Monterey Herald.** Nov 7, 2020. By Emily Harwitz. Sea stars struggling to recover from wasting epidemic.  
<https://www.montereyherald.com/2020/11/07/sea-stars-struggling-to-recover-from-wasting-epidemic/>

**The Mercury News.** Nov 7, 2020. By Emily Harwitz. Sea stars struggling to recover from wasting epidemic.  
<https://www.mercurynews.com/2020/11/07/sea-stars-struggling-to-recover-from-wasting-epidemic/>

**National Wildlife Magazine.** Feb 1, 2019. By Jennifer Holland. Under the Weather: Emerging diseases pose a growing threat to wildlife worldwide. <https://www.nwf.org/Home/Magazines/National-Wildlife/2019/Feb-Mar/Conservation/Wildlife-Disease>

**KGW News.** Portland, Oregon. Feb 1, 2019. By Keely Chalmers. Study ties warming climate to starfish die-off on Oregon Coast. <https://www.kgw.com/amp/article?section=news&subsection=local&headline=study-ties-warming-climate-to-starfish-die-off-on-oregon-coast&contentId=283-d3d3cb08-c017-404d-a080-a12e734053b2>

**KPTV Fox 12.** Oregon. Jun 11, 2018. By Simon Gutierrez. Starfish on Oregon coast gradually recovering following wasting disease. <http://www.kptv.com/clip/14412146/starfish-on-oregon-coast-gradually-recovering-following-wasting-disease>

- Science Magazine.** Apr 30, 2018. How to write your Ph.D. thesis. By Elisabeth Pain. <http://www.sciencemag.org/careers/2018/04/how-write-your-phd-thesis>
- Daily Astorian.** Feb 16, 2018. Seastar wasting unusually high at Haystack Rock. By Brenda Visser [http://www.dailyastorian.com/Local\\_News/20180216/sea-star-wasting-unusually-high-at-haystack-rock](http://www.dailyastorian.com/Local_News/20180216/sea-star-wasting-unusually-high-at-haystack-rock)
- Science Magazine.** Nov 13, 2017. To predict what research will be transformative, a crystal ball might be your best option. By Elisabeth Pain. [www.sciencemag.org/careers/2017/11/predict-what-research-will-be-transformative-crystal-ball-might-be-your-best-option](http://www.sciencemag.org/careers/2017/11/predict-what-research-will-be-transformative-crystal-ball-might-be-your-best-option)
- Corvallis Gazette Times.** Oct 8, 2017. Think Too Much: The case for funding 'everyday' science. [http://www.gazettetimes.com/opinion/editorial/think-too-much-the-case-for-funding-everyday-science/article\\_861e116b-fea9-5537-a807-db8c776ae23a.html](http://www.gazettetimes.com/opinion/editorial/think-too-much-the-case-for-funding-everyday-science/article_861e116b-fea9-5537-a807-db8c776ae23a.html)
- Hakai Magazine.** July 7, 2016. Shrinking the keystone By Eric Simons. Feature of my dissertation. <https://www.hakaimagazine.com/article-short/shrinking-keystone>
- National Geographic.com.** May 24, 2016. Starfish Baby Boom Surprises Biologists. <http://news.nationalgeographic.com/2016/05/160524-starfish-baby-boom-surprises-biologists/>
- Seeker.** May 12, 2016. Starfish Baby Boom Gives Hope Amid Wasting Disease. <http://www.seeker.com/starfish-baby-boom-gives-hope-amid-wasting-disease-1793293071.html>
- Reuters.** May 11, 2016. Baby starfish return to Oregon, California after massive die-off. <http://www.reuters.com/article/us-oregon-starfish-idUSKCN0Y206L>
- Science World Report.** May 11, 2016. Climate Change Update: Warmer Temperature Results To Sea Star Species Death. <http://www.scienceworldreport.com/articles/39812/20160516/climate-change-update-warmer-temperature-results-to-sea-star-species-death.htm>
- Boing Boing.** May 11, 2016. Starfish along the U.S. West Coast rebound after deadly epidemic of wasting disease. <https://boingboing.net/2016/05/11/west-coast-starfish-rebound-af.html>
- Smithsonian.com.** May 10, 2016. Wasting Disease Clears Way for Young Sea Stars, for Now. <http://www.smithsonianmag.com/smart-news/wasting-disease-clears-way-young-sea-stars-now-180959034/?no-ist>
- Live Science.** May 9, 2016. Starfish Baby Boom Brings Hope to Population Turning to Goo. <http://www.livescience.com/54689-new-starfish-survivors.html>
- The Scientist.** May 9, 2016. Sea Star Comeback? <http://www.the-scientist.com/?articles.view/articleNo/46056/title/Sea-Star-Comeback/>
- Willamette Week.** May 9, 2016. After a Huge Die-Off, Oregon's Sea Stars Are Coming Back. <http://www.wweek.com/news/2016/05/09/after-a-huge-die-off-oregons-sea-stars-are-coming-back/>
- The Lumberjack.** May 6, 2016. A STARring Role. <http://thelumberjack.org/2016/05/06/a-starring-role/>
- Siuslaw News.** May 6, 2016. Study shows sea star juveniles abundant but still recovering. [http://www.thesiuslawnews.com/v2\\_news\\_articles.php?heading=0&page=73&story\\_id=9633](http://www.thesiuslawnews.com/v2_news_articles.php?heading=0&page=73&story_id=9633)
- KGW Portland News.** May 6, 2016. Young starfish numbers exploding, recovery uncertain. <http://www.kgw.com/news/local/central-coast/young-starfish-numbers-exploding-recovery-uncertain/173787601>
- Science Daily.** May 5, 2016. Sea star juveniles abundant, but recovery is anything but guaranteed <https://www.sciencedaily.com/releases/2016/05/160505144846.htm>
- Science News** May 5, 2016. Cause of mass starfish die-offs is still a mystery. <https://www.sciencenews.org/blog/wild-things/cause-mass-starfish-die-offs-still-mystery>
- PBS News Hour.** May 4 2016. After shocking die-off, Oregon sea stars stage an epic comeback. <http://www.pbs.org/newshour/updates/after-shocking-die-off-oregon-sea-stars-stage-an-epic-comeback/>
- Seasick.** 2014. Interviewed for the documentary film "Seasick" on seastar wasting disease along the West Coast. <https://vimeo.com/112720791>
- Purple Wasted Seastar Ale.** Our laboratory has partnered with Rogue Brewery and produced a new beer dedicated to raising awareness and funds to study seastar wasting disease. [http://www.rogue.com/rogue\\_beer/wasted-sea-star-purple-pale-ale/](http://www.rogue.com/rogue_beer/wasted-sea-star-purple-pale-ale/)

#### RESEARCH PRESENTATIONS (\*invited presentation)

*Curriculum Vitae*  
 Dr. Sarah Gravem  
 www.SarahGravem.com

1. **Gravem, S.A.**, W. Heady, V. Saccomanno, K. Alvstad, A. Gehman, T. Frierson and S. Hamilton. 2020. Misalignment Of The Stars: Dramatic Global Declines Of The Sunflower Sea Star *Pycnopodia helianthoides*. Western Society of Naturalists Annual meeting, Nov 5-8, 2020
2. Hamilton, S.A., W. Heady, V. Saccomanno, A. Gehman, R. Beas-Luna, F. Francis, S. Lonhart, L. Rogers-Bennett, A. Salomon and **S.A. Gravem**. 2020. Disease driven changes in the realized niche of an apex predator. Western Society of Naturalists Annual meeting, Nov 5-8, 2020
3. Field, L.C., **S.A. Gravem**, P.T. Raimondi, and B.A. Menge. 2020. Trends in vertical distribution of *Mytilus californianus* and their predators along the Oregon and California coastlines. Western Society of Naturalists Annual meeting, Nov 5-8, 2020
4. MacAdams, C. S. Bachhuber, **S.A. Gravem**, B.A. Menge. Measure mussels twice, cut once: comparing results of manipulative experiments to long-term observations in the rocky intertidal. Western Society of Naturalists Annual meeting, Nov 5-8, 2020
5. Kobelt, J., W. Heady, V. Saccomanno, J. Hodin, D. Duggins, **S.A. Gravem**, and A.W.E. Galloway. 2020. Sunflower star predation rates on fed and starved purple sea urchins. Western Society of Naturalists Annual meeting, Nov 5-8, 2020
6. Necarsulmer, A.N., M.L. Cortez, S.A. Gravem, P.T. Raimondi, B.A. Menge. 2020. Has *Pisaster ochraceus* recovered its keystone predator role in California and Oregon? Western Society of Naturalists Annual meeting, Nov 5-8, 2020
7. Miksell, L., L.C. Field, S. Bachhuber and **S.A. Gravem**. 2020. Using iNaturalist and community science to detect marine diseases outbreaks. State of the Coast Conference. Nov. 5-8, 2020
8. **\*Gravem, S.A.** 2020. The (mis)alignment of the stars: sea star wasting and its consequences for tidepools and kelp forests. The Noyo Center Science Talks. Sept 30, 2020
9. **Gravem, S.A.**, B.N. Poirson, J.W. Robinson, and B.A. Menge. Back to the Future: the sensitivity of rocky intertidal communities to a decade of climate variability. Ecological Society of America. Aug 3-7, 2020
10. Bachhuber, S.M., **S.A. Gravem**, B.A. Menge. Replacing the keystone: variable effects of trophic redundancy in rocky intertidal ecosystems post-sea star wasting. Ecological Society of America. Aug 3-7, 2020
11. **\*Gravem, S.A. Plenary:** Marine disease and their impacts on the US West Coast. North American Echinoderm Conference. *Originally scheduled June 2020. Postposed due to COVID*
12. Brander, S., **Gravem, S.A.** and 18 others. Tales of otters, rockfish, and zooplankton: occurrence and implications of microplastics in biota along the Pacific Northwest coast. Salish Sea Ecosystem conference. Vancouver, WA. April 19-22, 2020.
13. **\*Gravem, S.A.** What's up with Sea star wasting? State of the Coast Conference. Gleneden Beach, OR. Nov. 9, 2019.
14. **Gravem, S.A.** B.N. Poirson, J.W. Robinson, and B.A. Menge. Back to the Future: Using a long-term dataset to explore whether rocky intertidal community structure is sensitive to climatic variability. Western Society of Naturalists Annual Meeting. Ensenada, Mexico Oct. 31-Nov. 3, 2019
15. Bauer, K.K., B.A. Menge, and **S.A. Gravem**. Is this the place? Chemical and physical settlement cues utilized by barnacle and mussel larvae. Western Society of Naturalists Annual Meeting. Ensenada, Mexico Oct. 31-Nov. 3, 2019
16. Dickens, J.M., B.A. Menge, C. Garza, S.G. Morgan, **S.A. Gravem**. Burn in Shell: using 3-D flyover maps to depict predictions of mussel bed zonation with increasing temperatures and wave exposure. Western Society of Naturalists Annual Meeting. Ensenada, Mexico Oct. 31-Nov. 3, 2019
17. Robinson, J.W., **S.A. Gravem**, P.T. Raimondi, and B.A. Menge. Are we there yet? A coast-wide look at the recovery of keystone function to sea star wasting, 5 years in. Western Society of Naturalists Annual Meeting. Ensenada, Mexico Oct. 31-Nov. 3, 2019
18. **\*Gravem, S.A.** Sea star wasting and outbreaks in the sea. Invited seminar at Willamette University. Feb 18, 2019
19. **\*Gravem, S.A.** and the SSWS Task Force. Challenges of understanding and managing disease outbreaks in the sea. Invited Presentation at the Wildlife Health Forum, USGS Headquarters, Reston, VA, Nov 13-16, 2018

20. **Gravem, S.A.** and the SSWS Task Force. Challenges of understanding and managing disease outbreaks in the sea. Poster presentation at Eastern Pacific Oceans Conference. Sept 13, 2018
21. **\*Gravem, S.A.** and the SSWS Task Force. Community involvement in “A Collaborative Strategic Action Plan” for research and management of sea star wasting disease. Invited panelist for Interagency Arctic Research Policy Committee: Coastal Resilience Collaboration Team Meeting September 2018
22. **\*Gravem, S.A.** and the SSWS Task Force. Challenges of understanding and managing disease outbreaks in the sea. Invited seminar at Hatfield Marine Science Center. August 2018
23. **Gravem, S.A.,** S. Bachhuber, H. Fulton-Bennett, Z. Randell, A. Rickborn, J. Sullivan, B.A. Menge. Transformative research is not easily predicted: transformative scientists weigh in on everyone's favorite buzzword. Ocean Sciences Portland, OR Feb 11-16, 2018
24. **Gravem, S.A.,** S. Bachhuber, H. Fulton-Bennett, Z. Randell, A. Rickborn, J. Sullivan, B.A. Menge. Transformative research is not easily predicted. Western Society of Naturalists. Pasadena, CA Nov 16-19, 2017
25. **Gravem, S.A.,** Elahi, R., Garza, C., LaScala-Gruenwald, D., Litvin, S.Y., Menge, B.A., Micheli, F., O’Leary, J.K., Pearse, J.S., Tyburczy, J.A., and Watanabe, J.M. Mechanisms driving resistance and resilience to community change after the sea star wasting disease outbreak. Ecological Society of America. Portland, OR. Aug 9-13, 2017
26. **\*Gravem, S.A.** 2017. Predator control of intertidal communities: effects on prey behavior, impacts of climate change, and the consequences of sea star wasting disease. Invited seminar at California State University Northridge. Feb 21, 2017
27. **\*Gravem, S.A.** Sea star wasting and keystone predation. Invited seminar to Pacific University. Jan 17, 2017.
28. **Gravem, S.A.,** Elahi, R., Garza, C., LaScala-Gruenwald, D., Litvin, S.Y., Menge, B.A., Micheli, F., O’Leary, J.K., Pearse, J.S., Tyburczy, J.A., and Watanabe, J.M. 2016. Mechanisms driving resistance and resilience to community change after the sea star wasting disease outbreak. Western Society of Naturalists. Monterey, CA. Nov 10-13, 2016
29. Poirson, B.N., **Gravem, S.A.,** Menge, B.A. 2016. The effect of climate cycles and upwelling on rocky intertidal low zone communities in Oregon and Northern California. Western Society of Naturalists. Monterey, CA. Nov 10-13, 2016 (poster)
30. Field, L.C., **Gravem, S.A.,** Barreto, F.S. 2016. Correlation between Heterozygosity at Elongation Factor 1-  $\alpha$  Locus and Recovery from Sea Star Wasting Disease in *Pisaster ochraceus*. Western Society of Naturalists. Monterey, CA. Nov 10-13, 2016 (poster)
31. **\*Gravem, S.A.** and S.G. Morgan. 2016. Olly Olly Oxen Free! Responses of Mobile Intertidal Prey to Mass Mortalities of Two Sea Star Predators. Invited seminar at Oregon Institute of Marine Biology. August 3, 2016
32. **\*Gravem, S.A.** and S.G. Morgan. 2016 Olly Olly Oxen Free! Responses of Mobile Intertidal Prey to Mass Mortalities of Two Sea Star Predators. Invited seminar at California Polytechnic State University San Luis Obispo. June 3, 2016
33. **Gravem, S.A.** and S.G. Morgan. 2016 Olly Olly Oxen Free! Responses of Mobile Intertidal Prey to Mass Mortalities of Two Sea Star Predators. Seminar to BIO 450 at Hatfield Marine Science Center. May 9, 2016
34. **Gravem, S.A.** and 10 others. 2016. Seastar wasting disease on the Oregon Coast. Seminar during Integrative Biology Department Open House. May 1, 2016.
35. **Gravem, S.A.** 2015 and S.G. Morgan. 2015. Olly Olly Oxen Free! Responses of Mobile Intertidal Prey to Mass Mortalities of Two Sea Star Predators. Seminar for the Integrative Biology Club at Oregon State University. Dec 1, 2015
36. **Gravem, S.A.,** Elahi, R., Garza, C., LaScala-Gruenwald, D., Litvin, S.Y., Menge, B.A., Micheli, F., O’Leary, J.K., Pearse, J.S., Tyburczy, J.A., and Watanabe, J.M. 2015. Tracking the *Pisaster* disaster: responses of *Pisaster* populations and intertidal mussels to seastar wasting disease. Western Society of Naturalists. Sacramento, CA. Nov 5-8, 2015
37. **\*Gravem, S.A.** 2015 and S.G. Morgan. Olly Olly Oxen Free! Responses of Mobile Intertidal Prey to Mass Mortalities of Two Sea Star Predators. Invited Seminar to the Integrative Biology Department at Oregon State University. Oct 19, 2015.

38. **\*Gravem, S.A.** 2015 and S.G. Morgan. Olly Olly Oxen Free! Responses of Mobile Intertidal Prey to Mass Mortalities of Two Sea Star Predators. Invited Seminar to the Hatfield Marine Science Center. July 16, 2015.
39. **Gravem, S.A.** 2015. Scaling from individual prey behavior to intertidal zonation and community structure in rocky tidepools. Exit Seminar. Bodega Marine Laboratory. April 17, 2015
40. **Gravem, S.A.** and S.G. Morgan. Olly olly oxen free! Vertical and microhabitat shifts of an intertidal snail following mass mortality of a seastar predator. Western Society of Naturalists. Tacoma, WA. Nov 13-16, 2014
41. **Gravem, S.A.** and S.G. Morgan 2014. Trait-mediated indirect effects in a natural tidepool system. Ecological Society of America Meeting. Sacramento, CA August 10-15, 2014.
42. **Gravem, S.A.** and S.G. Morgan 2013. Do sea snails “risk it for the biscuit?” Invited seminar to the public for the “Science Uncorked” lecture series in Bodega Bay
43. **\*Gravem, S.A.** 2013. Climate change effects on species interactions. Invited seminar at Santa Rosa Junior College. May 2, 2013
44. **Gravem, S.A.** and S.G. Morgan. 2012. The indirect cascading effects of seastar predators on tidepool algae are mediated by behavioral traits of individual snails. Western Society of Naturalists Meeting 2012. Seaside, CA. Nov 8-11, 2012. *\*Received Best Student Talk Award*
45. Taylor, A.W., **Gravem, S.A.** and S.G. Morgan. 2012. Lights, camera, action! Studying the effects of waves on intertidal snail *Chlorostoma funebris* behavior with underwater cameras. Western Society of Naturalists Meeting 2012. Seaside, CA. Nov 8-11, 2012.
46. **Gravem, S.A.** and S.G. Morgan. 2012. Risk it for the biscuit: Effects of seastar predators on algae are mediated by behavior of individual snails. Bodega Marine Lab research presentation. Bodega Bay, CA Oct. 15, 2012.
47. **Gravem, S.A.** and S.G. Morgan. 2012. Tidepools are scary: seastar predators benefit tidepool algae by scaring snail prey. Mathias Research Symposium. Bodega Marine Lab, CA. Mar. 2-3 2012.
48. **Gravem, S.A.** and S.G. Morgan. 2011. Abiotic impacts on species distributions around intertidal boulders for forecasting responses to climate change. Western Society of Naturalists Meeting 2011. Vancouver, WA. Nov 10-13, 2011.
49. **Gravem, S.A.** 2011. Climate change effects on species interactions. Beyond the Golden Gate Research Symposium. San Francisco, CA. Nov 1, 2011.
50. **Gravem, S.A.** and S.G. Morgan. 2011. From snail polish to b-b-b-boulder faces: the glamour of intertidal communities. Bodega Marine Lab research presentation. Bodega Bay, CA Oct. 3, 2011.
51. Bean, J.R., R. Eberl, R.E. Fontana, D. Trockel, A. Newsom, **S.A. Gravem**, B.S. Cheng, M. Byrd, M. Chow, V. Chow, S.L. Williams. 2011. Framework for an open inquiry curriculum: engaging students through independent research projects in local environments. NSF GK-12 Annual Meeting. Washington, DC. March 11-13, 2011. (poster)
52. **Gravem, S.A.**, R. Ardisana and S.G. Morgan. Microclimate changes the strength of the predator-prey interactions in rocky shore communities. Western Society of Naturalists meeting 2010. San Diego, CA, Nov 11-14, 2010.
53. Adams N., J. Campanale, **S.A. Gravem**, A. Malicoat, and M. Mallonee. 2010. Long-term exposure of adult purple sea urchins, *Strongylocentrotus purpuratus*, to sunlight protects embryos from ultraviolet radiation. Integrative and Comparative Biology 50(S1):E1
54. **Gravem, S.A.**, S. Traiger and S.G. Morgan. Predator avoidance initiates trophic cascades in tidepool communities. Bodega Marine Lab Research Presentation. Bodega Bay, CA April 19, 2010.
55. Bean, J.R., S.M. Brander, M. Byrd, R.E. Fontana, **S.A. Gravem**, A. Hettlinger, T.M. Mata, A.I. Szobozlai, M. Chow, V. Chow, S.L. Williams. 2010. Connecting land to sea: developing scientific inquiry skills by studying marine debris. NSF GK-12 Annual Meeting. Washington DC, March 25-28, 2010. (poster)
56. **Gravem, S.A.**, S. Traiger and S.G. Morgan. Predator avoidance initiates trophic cascades in tidepool communities. Benthic Ecology Annual Meeting. Wilmington, North Carolina. March 10-13, 2010.
57. Bean, J.R., S.M. Brander, M. Byrd, R.E. Fontana, **S.A. Gravem**, A. Hettlinger, T.M. Mata, A.I. Szobozlai, M. Chow, V. Chow, S.L. Williams. 2010. Connecting land to sea: developing scientific inquiry skills by studying marine debris. AAAS Annual Conference. San Diego CA. February 17-21, 2010. (poster)
58. Adams, N, J. Campanale, **S.A. Gravem**, A. Mallicoat, M. Mallonee. 2010. Long-term exposure of adult

- purple sea urchins, *Strongylocentrotus purpuratus*, to sunlight. Society for Integrative and Comparative Biology Annual Meeting. Seattle, Washington. January 3-7, 2010.
59. **Gravem, S.A.**, Traiger, S. B. and S.G. Morgan. 2009. Does predator avoidance initiate trophic cascades in tide pool communities? Western Society of Naturalists Meeting 2009. Seaside, CA. November 14, 2009
  60. Traiger, S. B., **S.A. Gravem**, and S.G. Morgan. 2009. *Chlorostoma (Tegula) funebris* size refuge and escape response from *Leptasterias hexactis*. Western Society of Naturalists Meeting 2009. Seaside, CA. November 14, 2009
  61. **Gravem, S.A.** 2008. Ubiquitous aquatic natural sunscreens, the mycosporine-like amino acids, are not present in sea otter eye tissues. Western Society of Naturalists Annual Meeting 2008. Vancouver, British Columbia. (poster)
  62. **Gravem, S.A.**, Campanale, J.C., Mallonee, M., Ewers, C., Malicoat, A., Goschke, G., Suronen, E., Daugherty, M., Maher, E., Strickler, S., and N.L. Adams. 2008. Effects of exposure to solar ultraviolet radiation (SUVR) and accumulation of natural sunscreens in the purple sea urchin (*Strongylocentrotus purpuratus*). Western Society of Naturalists Annual Meeting 2008. Vancouver, British Columbia. (poster)
  63. **Gravem, S.A.** Some for Me, Some for My Larvae: Sunscreen Allocation by Purple Sea Urchins. 2008. Central Coast Biological Society Spring Meeting.
  64. **Gravem, S.A.**, Chang, L.E., and N.L. Adams. 2008. Microhabitat variation in mycosporine-like amino acid concentrations in the gonads and epidermis of the purple sea urchin, *Strongylocentrotus purpuratus*. 2008 Cal Poly College of Science and Math Annual Research Conference
  65. **Gravem, S.A.**, Chang, L.E., and N.L. Adams. 2007. Microhabitat variation in mycosporine-like amino acid concentrations in the gonads and epidermis of the purple sea urchin, *Strongylocentrotus purpuratus*. 2008 Society for Integrative and Comparative Biology Annual Meeting. San Antonio, Texas
  66. **Gravem, S.A.**, Chang, L.E., and N.L. Adams. 2007. Microhabitat variation in mycosporine-like amino acid concentrations in the gonads and epidermis of the purple sea urchin, *Strongylocentrotus purpuratus*. 2007 Western Society of Naturalists Annual Meeting. Ventura, California
  67. **Gravem, S.A.**, Baker, H., and N.L. Adams. 2007. Microhabitat variation in mycosporine-like amino acid content in red macroalgae (Phylum Rhodophyta) on California's Central Coast. 2007 Western Society of Naturalists Annual Meeting. Ventura, California
  68. **Gravem, S.A.**, L.E. Chang and N.L. Adams (2007). Characterization of natural sunscreens in red macroalgae on the Central Coast of California. 2007 Cal Poly College of Science and Math Annual Research Conference
  69. **Gravem, S.A.**, H. Baker and N.L. Adams (2007) Characterization of mycosporine-like amino acid content of red algae on the Central Coast of California. 2007 Northwest Algal Symposium (poster)

## MENTORING

(<sup>f</sup>female, <sup>c</sup>person of color, <sup>LGBT</sup>, <sup>PhD</sup>pursued PhD, <sup>MS</sup>pursued MS, <sup>HS</sup>high school student <sup>INT</sup>international student)

1. <sup>#</sup>**Chantelle MacAdams**. March 2019-present. SURE grant recipient. Currently paid full-time technician in PISCO lab.
2. <sup>^</sup>**Lily Miksell**. Winter 2020-present. Alexei Lubchenco Menge Scholarship recipient. URSA scholarship recipient. Currently an intern for the PRIMED network.
3. <sup>^</sup>**Kristen Alvstad**. Winter 2019-present. URSA scholarship recipient. Currently working on Pycnopodia recovery project and co-author on manuscript
4. **Jasper Schultz**. Winter 2020-present. Applying to Master's programs for fall 2021.
5. <sup>^</sup>**Shelby Hansen**. Winter 2020-present. URSA scholarship recipient. SURE grant recipient.
6. **Roy Anderson**. Winter 2020-present. SURE grant recipient.
7. <sup>^</sup>**Aimee Fernandez**. Winter 2020-present.
8. <sup>^</sup>**Mattea Holt**. Winter 2020-present. URSA scholarship recipient.
9. <sup>^</sup>**Daisy Youmans**. Winter 2020-present. URSA scholarship recipient.
10. <sup>^</sup>**Celeste Stout**. Winter 2020-present. URSA scholarship recipient.
11. **Hunter Calvert**. Winter 2020-present. URSA scholarship recipient.
12. <sup>PhD</sup>**Kris Bauer**- Spring 2016-Summer 2020. Alexei Lubchenco Menge Scholarship recipient, SURE scholarship recipient, URSA scholarship recipient, paid research technician on the STARS project, Focus: genetic and community responses to SSWD, settlement cues in larval invertebrates. Current PhD student at OSU spring 2020.

13. <sup>MS</sup>**Laurel Field** Summer 2016-Fall 2020. Paid research technician on the STARS project, Senior thesis on genetic responses to sea star wasting disease. Current MS student at OSU in the Marine Resource Management Program.
14. <sup>^</sup>**Sidney Ngo** March 2018-Fall 2020. Undergraduate thesis student studying *Pisaster* growth and reproduction
15. <sup>MS</sup> **John Dickens**. Spring 2019-Spring 2020. Student employee. Current MS student at OSU in the Marine Resource Management Program.
16. <sup>MS^\*</sup>**Beth Davis**. Summer 2018- Summer 2020. Studying response of intertidal communities to sea star wasting. Current MS student at CSUMB fall 2020
17. <sup>MS^\*</sup>**Madison Nelsen**. Winter 2020-Summer 2020. Current MS student in the UK.
18. **Josh Havelind**. Winter 2020-Spring 2020. SURE grant recipient. Currently working on Pycnopodia recovery project
19. **Ander Switalla**. Winter 2020-Spring 2020. URSA scholarship recipient
20. **Dreagn Bennett** March 2019-Spring 2020. SURE grant recipient and summer intern
21. <sup>^</sup>**Erin Drumm**. Winter-Spring 2019. URSA scholarship recipient
22. <sup>^</sup>**Lyndsey Katzler**. Winter-Spring 2019. URSA scholarship recipient
23. <sup>^\*</sup>**Tory Schroeder**. Winter-Spring 2019. URSA scholarship recipient
24. <sup>\*</sup>**Derek Yau**. Winter-Spring 2019. URSA scholarship recipient
25. **Gabriel Reitzes**. Winter-Spring 2019. URSA scholarship recipient
26. <sup>MS^\*</sup>**Amanda Chiachi** March 2018-Sept 2019. Paid research assistant on the STARS project. Currently MS student at CSU Northridge
27. <sup>MS^\*</sup>**Kinsey Matthews** March 2018- Sept 2019. Paid research assistant on the STARS project. Currently MS student at Moss Landing Marine Labs
28. <sup>^</sup>**Haley Schmidt** Fall 2017-Spring 2019. Paid undergraduate research assistant
29. **Seth Strumwasser**. June 2018-Sept 2018. Paid undergraduate research assistant on the STARS project
30. <sup>\*</sup>**Carlos Camilo Avendano**. March 2018-Sept 2018. SURE grant recipient and summer intern
31. <sup>^\*</sup>**Megan Koehn**. Winter-Spring 2018. URSA scholarship recipient
32. **Shayne Sensenbach**. Winter-Spring 2018. URSA scholarship recipient
33. **Seth Thomas**. Winter-Spring 2018. URSA scholarship recipient
34. <sup>^</sup>**Katie Bodner**. Winter-Spring 2018. URSA scholarship recipient
35. <sup>^\*</sup>**Simone Burton**. Winter-Spring 2018. URSA scholarship recipient
36. <sup>^</sup>**Kailey Kraus** Fall 2016-Fall 2017. Paid undergraduate research assistant studying Integrative Biology
37. <sup>^\*INT</sup>**Amanda Cunha de Sousa Coracao**-Spring 2016. Undergraduate working on senior project on seastar genetics and population dynamics after sea star wasting disease
38. **Skyler Peven**- Fall 2015-present. Undergraduate field technician on work-study. Studied genetic responses to seastar wasting disease.
39. <sup>^</sup>**Megan Mumau**- Winter-Spring 2015. Undergraduate at OSU studying Zoology.
40. **Zac Pinard** Summer 2015-2016. Undergraduate at OSU studying wildlife conservation
41. <sup>^</sup>**Aly McKenzie** Summer 2015-Fall 2016. Undergraduate at OSU. Graduated spring 2016
42. <sup>^</sup>**Celeste Moen**- Summer 2015- Fall 2016. Undergraduate at OSU. Current aquarist Cal Academy.
43. <sup>^\*</sup>**Kaelie Sivihok** Summer 2015- Fall 2016. Undergraduate at OSU. Current aquarist at Birch Aquarium
44. <sup>^\*MS</sup>**Cat Feng-Lo** Summer 2015-Spring 2016. Undergraduate at OSU. Current MS student at Florida Atlantic University
45. <sup>^PhD</sup>**Melissa Britsch** Summer 2015-Sumer 2016. SURE grant recipient. Currently PhD student at University of Maine
46. **Trevor Bayley**- Summer 2015. Undergraduate at OSU doing independent summer research in the SURE program
47. <sup>^</sup>**Laura Heindenriech**- Summer 2013-Summer 2014. Retiree beginning new career in Marine Biology
48. <sup>HS</sup>**Caspian Morast** Summer 2016-2018. High school student looking to study marine biology.
49. <sup>^HS</sup>**Lily Leveque-Eichorn**- Summer 2014-Fall 2018. High school student looking to major in Marine Biology. Current Undergraduate in Public Policy at UC Berkley
50. <sup>^\*PhD</sup>**Catrin Wendt**. Summer 2013. Currently a PhD student at University of Washington
51. <sup>^PhD</sup>**Lauren Wynkoop**. Spring 2013- Fall 2013. Volunteer. UC Santa Cruz graduate. Current PhD student at University of Vermont

52. **Jenny Bayley**. Fall 2012- Spring 2013. Recent UC Berkley chemical engineering graduate now working with an NGO in Sacramento on water quality issues.
53. <sup>PhD,MS,HS</sup>**Dawn Barlow**. Summer 2012. High school student volunteer. Majored in Marine Biology at Claremont College. Current PhD student at Oregon State
54. **Daniel Stone**. Summer 2012. Undergraduate at Santa Rosa Junior College gaining research experience. Transferred 4 year school in September 2013.
55. <sup>PhD</sup>**Danielle Smull**. Winter 2011-Spring 2013. Current PhD student at University of Colorado
56. **Austin Taylor**. Spring 2012-present. UC Davis graduate doing spring quarter research project, hired as a technician through summer 2012. Co-author on published manuscript.
57. **Edmund Antell**. Spring 2012-Fall 2013. Summer volunteer then technician in my laboratory for 1 year. Currently a technician at San Francisco State Romburg Tiburon Center.
58. <sup>A</sup>**Erin Wilson**. Spring 2012. UC Davis undergraduate working on spring quarter research project on trait-mediated indirect interactions in boulder fields.
59. <sup>A</sup>**Megan Miguel**. Spring-Summer 2012. Santa Rosa Junior College student gaining research experience before transferring to a 4-year university. Graduated from UC Davis.
60. <sup>A\*</sup>**Emily Booth**. Spring-Summer 2012. Santa Rosa Junior College student. Graduated from UC Davis.
61. <sup>HS</sup>**Sam Kemiji**. Spring-Summer 2012. High school sophomore gaining research experience before applying to college.
62. <sup>AHS</sup>**Brianna Lackey**. Spring 2012. UC Davis grad gaining research experience before applying to grad school.
63. <sup>AMS</sup>**Katie Mascovitch**. Summer 2011-Winter 2012. UC Berkeley grad gaining research experience and applying to graduate school. Current M.S. student at University of Georgia.
64. <sup>A\*</sup>**Jamie Wolfe**. Spring 2011-Winter 2013. Santa Rosa Junior College student gaining research experience.
65. <sup>A</sup>**Kristin Merala**. Spring-Summer 2011. UC Davis student employed as research assistant. Graduated 2012
66. **Lars Clark**. Spring-Summer 2011. Santa Rosa Junior College student employed as research assistant and now attending UCLA as a biology major and a microbiology minor.
67. **Alex von Boer**. Spring-Summer 2011. Graduate from Boudin University, Maine. Did summer research and currently applying to graduate school in ornithology
68. <sup>A\*</sup>**Aiko Michot**. Spring-Summer 2011. High school teacher doing research immersion to develop open inquiry lessons into the classroom.
69. <sup>AHS</sup>**Erin Mullen**. Spring 2010. High school senior working on senior research project. Began University in fall 2011 in marine biology.
70. <sup>\*,HS</sup>**Andrew Chen**. Summer 2009-Summer 2011. High school student gaining research experience. Graduated as wildlife conservation biology major at UC Davis.
71. <sup>PhD</sup>**Ryanne Ardisana**. Summer 2010. REU student. The Combined Effects of Climate and Predation on Intertidal Barnacles. Current PhD student at University of Illinois
72. <sup>INT</sup>**Jonathan Demmer**. Spring 2010 international student from France gaining research experience
73. <sup>A\*MS,HS</sup>**Olivia Turnross**. Summer 2009-Summer 2012. High school senior thesis: Trait-mediated indirect interactions in a rocky shore community; indirect effects of *Leptasterias hexactis* on *Tegula funebris* aggregation and grazing. Graduated from College of Creative Studies at UCSB as a McNair Scholar. Graduated with Masters Degree in Marine Ecology from UC Davis. Current PhD student in Human Ecology at UC Davis.
74. <sup>PhD</sup>**Sarah Traiger**. Summer 2009. Research Experience for Undergrads student. Predator-prey interactions in tide pools: The direct and indirect effects of *Leptasterias hexactis* on *Tegula funebris* and macroalgae. Two research conference presentations and work published at BML. Current PhD student at University of Alaska Fairbanks
75. <sup>A</sup>**Samantha Petersen**. Spring 2009. BML Spring Class Student. Snail movement: Indication of a trait-mediated indirect interaction. Research conference presentation and work published at BML.
76. <sup>PhD</sup>**Christian Denny**. Spring 2009. BML Spring Class Student. Get a meal or be a meal? Hunger and its implications for the risk allocation hypothesis. Research conference presentation and work published at BML. Current PhD student at Moss Landing Marine Lab
77. <sup>A</sup>**Ariadne Vlahakis**. Spring 2009. BML Spring Class Student. Trait mediated direct guardian interactions: Possibility of a new model for mechanisms governing community structure. Research conference presentation and work published at BML.

78. **^Megan Mallonee.** Fall 2007- Summer 2008. Reproductive output in sea urchins experimentally exposed to differing diets and UV conditions. Cal Poly Senior Project Student
79. **^Allison Malicoat.** Allocation of mycosporine-like amino acids to different tissues in sea urchins experimentally exposed to differing diets and UV conditions. Fall 2007- Summer 2008. Cal Poly Senior Project Student
80. **^MS^Elise Suronen.** Spring 2007- Spring 2008. Cal Poly Senior Project Student studying phototaxis and covering behavior in sea urchins exposed to UV light. Graduated with a M.S. from University of Idaho. Current Environmental Planner at Marin County Resource District
81. **^\*MS^Lindsay Chang.** Fall 2005- Summer 2007. Mycosporine-like amino acids (MAAs) in *Strongylocentrotus purpuratus* on the Californian Central Coast. Cal Poly Senior Project Student. Received Master's degree in Marine Policy at University of Washington. Currently employed by consulting firm in Davis, CA

#### **CERTIFICATIONS**

Recreational SCUBA Diver, SCUBA Services International (2002), >140 total dives  
 Scientific SCUBA Diver, American Academy of Underwater Sciences (2005), >100 science dives  
 Motorboat Operator and Boating Safety Certification (2006)

#### **REFERENCES**

##### **Dr. Bruce Menge** (Post-doc Advisor and Co-PI)

Professor  
 Integrative Biology Department  
 3029 Cordley Hall  
 Corvallis, OR 97331  
 (541) 737-5358  
 mengeb@oregonstate.edu

##### **Dr. Pete Raimondi** (Co-PI)

Professor  
 Long Marine Lab  
 100 McAllister Way  
 Santa Cruz, CA 95060  
 (831) 459-5674  
 raimondi@ucsc.edu

##### **Dr. Steven Morgan** (PhD Advisor)

Professor  
 Department of Environmental Science and Policy  
 Bodega Marine Laboratory  
 P.O. Box 247, Bodega Bay, CA 94923  
 (707) 875-1920  
 sgmorgan@ucdavis.edu

##### **Dr. Jane Lubchenco** (Post-doc mentor)

Distinguished Professor and Marine Studies Advisor to the President  
 3029 Cordley Hall  
 Corvallis, OR 97331  
 541-737-5337  
 lubchenco@oregonstate.edu

##### **Dr. Eric Sanford** (PhD Committee)

Professor

*Curriculum Vitae*  
*Dr. Sarah Gravem*  
*www.SarahGravem.com*

Department of Evolution and Ecology, University of California, Davis  
Bodega Marine Laboratory  
P.O. Box 247, Bodega Bay, CA 94923  
(707) 875- 2040  
edsanford@ucdavis.edu

**Dr. Nikki Adams** (MS Advisor)  
Professor  
Department of Biological Sciences  
California Polytechnic University San Luis Obispo  
1 Grand Avenue, San Luis Obispo, CA 93407  
(805) 756-2943  
nadams@calpoly.edu