Janet K. Walker

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EDUCATION

B.S. Environmental Science, 2015, University of Virginia, College of Arts and Science, Charlottesville, VA

- **Major GPA: 3.88**; Cumulative GPA: 3.68; Highest Distinction
- Minor: Specialization in Environmental and Biological Conservation

Ph.D. Ecology, Expected 2020, San Diego State University and University of California, Davis

- **SDSU GPA: 3.90; UC Davis GPA: 4.0**
- Advisors: Jeremy Long (jlong@mail.sdsu.edu) and Ted Grosholz (tedgrosholz@ucdavis.edu)
- Thesis: Understanding the trophic and non-trophic effects of habitat modifiers on community dynamics in California salt marshes

RESEARCH INTERESTS

My research interests primarily focus on the ecology of marine systems, particularly the population and community dynamics of marine and coastal organisms in response to environmental stress and disturbance. More specifically, I am interested in the impacts of invertebrates on plant-plant interactions and their corresponding effects on overall species fitness and ecosystem health. My research seeks to improve restoration efforts by contributing to a stronger understanding of the drivers of salt marsh community structure, and how these change across latitudinal gradients. Additionally, I am interested in how environmental stress gradients (temperature, nutrients, porewater salinity, etc.) may drive plant stress and associated herbivore feeding preferences. Identifying geographic variation in herbivore pressure will help our predictions for the resilience of these ecosystems in the face of climate change, as increased drought and salinity may intensify herbivory.

PUBLICATIONS

- **Walker,** J.K., and J.D. Long. Site-specific effects of burrowing crabs on plant community composition in California salt marshes. *In prep.*

- Long, J.D., S.R. Rinehart, J.K. **Walker**, W. White, G. Greenberg-Pines, P. Åbery and H. Pavia. Community grazing rates are higher on sheltered shores because of more abundant herbivores: A field assessment. *In prep.*

- Long, J.D., S.R. Rinehart, J.K. **Walker,** W. White, G. Greenberg-Pines, H. Pavia, and E. Berdan. Larval flies expedite the bioavailability of nutrients on two assemblages of seaweed wrack. *In prep.*

- **Walker**, J.K., L.K. Blum, A.L. Bijak, and K. van Dijk. Genetic diversity and spatial structure of phenotypically similar *Spartina alterniflora* stands. *In Review.*

PRESENTATIONS

- **Walker,** J.K., and J.D. Long. Site-specific effects of burrowing crabs on plant community composition in California salt marshes. Oral Presentation, Coastal and Estuarine Research Federation. November 2017.

- White, W.*, S. Rinehart, **J. Walker,** and J.D. Long. Plant community composition determines sediment ammonium levels in two southern California salt marshes. Poster Presentation, SDSU Student Research Symposium, March 3, 2017.

- **Walker,** J.K., and J.D. Long. Burrowing crabs alter salt marsh plant community composition. Poster Presentation, Western Society of Naturalists. November 2016.

- **Walker**, J.K., A.L. Bijak, and L.K. Blum. Spatial and genetic structure of *Spartina alterniflora* at four spatial scales in Virginia salt marshes. Oral Presentation, Coastal and Estuarine Research Federation. November 2015.

- **Walker**, J.K., A.L. Bijak, and L.K. Blum. Potential relationship between salt marsh dieback and the genetic diversity and spatial structure of *Spartina alterniflora*. Poster Presentation, Department of Environmental Sciences, Research Forum. University of Virginia, Charlottesville. January 2015.

*Undergraduate technician

RESEARCH EXPERIENCE

June - July 2017, **Visiting Researcher,** The Tjärnö Marine Biological Laboratory, University of Gothenburg, Sweden, *Supervisor: Henrik Pavia and Jeremy Long*

- Invited researcher to collaborate with 20 faculty, students, and staff
- Designed, conducted, and analyzed two laboratory experiments examining the effects of *Coelopa frigida* (seaweed fly) on marine algae wrack decomposition by manipulating starting egg density, wrack assemblage, and site
- Designed, conducted, and analyzed a multi-site field experiment comparing rocky intertidal community grazing across wave exposures (sheltered vs protected) using fake food assays

2016 – Present – **Dissertation Research,** UC Davis

- Expand field caging experiment from southern California (below) to northern California (Bolinas Lagoon) in order to compare crab effects on plant community structure along a latitudinal gradient
- Conduct multiple feeding experiments at Bodega Marine Lab in order to identify feeding preferences of herbivorous crabs in northern and southern California salt marshes, to

better understand patterns of local and regional community structure and plant palatability
- Feeding experiments manipulate three factors: 1) plant species: *Spartina foliosa* (Pacific cordgrass), *Sarcocornia pacifica* (perennial pickleweed), or *Salicornia bigelovii* (annual pickleweed), 2) plant source location: North (Bolinas Lagoon, Tomales Bay, Bodega Harbor) or South (Sweetwater Marsh, Kendall-Frost Marsh Reserve, Seal Beach Marsh), and 3) crab source location: *Pachygrapsus crassipes* from North sites or from South sites

2015 – Present – **Dissertation Research,** San Diego State University
- Conduct a multi-factorial, manipulative caging experiment at two southern California sites (Kendall-Frost Marsh Reserve, San Dieguito Lagoon) in order to determine crab effects on plant community structure by manipulating Crabs (Present, Removal) at each of three intertidal elevations (High, Mid, Low)
- Assess plant community structure by recording plant percent cover, plant morphology, and plant reproduction and assess biogeochemistry by measuring sediment metrics
- Analyze these data with a multi-factor ANOVA and nMDS in order to detect changes in community composition

2013-2015 – **Undergraduate Research,** University of Virginia, *Supervisor: Linda Blum*
Research Question: What is the spatial structure of *Spartina alterniflora* clones in Upper Phillips Creek marsh (Chesapeake, VA), and what is the genetic relatedness of clones within this marsh to *S. alterniflora* in nearby marshes?
- Extracted DNA, ran PCR, and utilized microsatellites to determine the distribution of *S. alterniflora* clones within a marsh and the genetic diversity of populations among marshes at the Virginia Coast Reserve Long-Term Ecological Research Site
- Characterized spatial structure using kinship analyses and semivariograms of genetic distance and geographic distance

2014 – National Science Foundation Research Experience for Undergraduates (**NSF REU**), Virginia Coast Reserve LTER, *Supervisor: Linda Blum and Karen McGlathery*
- Developed a nested sampling design in order to increase sample size at four spatial scales
- Developed and executed multiplexing techniques in order to increase time and cost efficiency of DNA analysis

TEACHING AND MENTORING

2017-2018 – Teaching Assistant
San Diego State University, San Diego, CA
- Instructor of Ecology and the Environment Discussion (BIOL 354d)

2016-2017 – Teaching Assistant
University of California, Davis, Davis, CA
- Instructor of Career Discovery Group (SAS 098)
- Introduce transfer students to University resources and expose students to careers in the STEM field

2015-2016 – Teaching Assistant
San Diego State University, San Diego, CA

- Instructor of Ecology and the Environment Discussion (BIOL 354d)
- Facilitate informative and comprehensive discussions of current topics in ecology
- Teach and emphasize scientific writing in order to prepare students for fields in science

HONORS AND AWARDS

2017 –

Garden Club of America Award in Coastal Wetlands Studies; $5,000
Society of Wetland Scientists Student Research Grant; $1,000

2016 –

Garden Club of America Award in Coastal Wetlands Studies Finalist

2015 –

Second place, Outstanding Oral Presentation – CERF Conference 2015
University of Virginia –

- Graduated with Highest Distinction
- Award winner of the Mahlon G. Kelly Prize for outstanding undergraduates in ecology, $1,000
- Featured undergraduate for the Department of Environmental Sciences Annual Report
- Phi Eta Sigma National Honor Society; Pi Epsilon National Environmental Science Honor Society

ASSOCIATION MEMBERSHIPS

2016 – Present, Bodega Marine Science Association (BMSA)
UC Davis, Bodega Marine Lab (BML), Bodega Bay, CA

- Raise funds to help students pay for travel grants to scientific meetings and engage in local community events in order to extend community outreach

2015 – Present, Marine Ecology and Biology Student Association (MEBSA)
San Diego State University, San Diego, CA

- Secretary (2015-2016), Collaborate with the executive committee to update event calendar and inform members
- Organize and facilitate events to bring science to the broader San Diego community

2015 – Present, Coastal and Estuarine Research Federation (CERF)

TECHNICAL PROFICIENCIES

- DNA isolation, Polymerase Chain Reaction (PCR) techniques, Multiplexing
- Analyzing PCR product with a MegaBACE 1000
- Scoring MegaBACE product with Genetic Analysis in Excel (GenAlEx) via Geneious software
- RStudio, GenClone, GenoDive, Primer-e, PERMANOVA+, and ArcGIS

REFERENCES

Jeremy Long, Ph.D.
Professor, Department of Biology
San Diego State University
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Ted Grosholz, Ph.D.
Professor, Department of Environmental Science and Policy
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Linda Blum, Ph.D.
Research Associate Professor, Department of Environmental Sciences
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