

**Julie B. Schram**  
**Curriculum Vitae, 15 June 2020**  
University of Oregon, Oregon Institute of Marine Biology  
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## EDUCATION

Ph.D Biology	University of Alabama at Birmingham, 2015
M.S. Biology	University of Alabama at Birmingham, 2010
B.S. Biology	Western Washington University, 2004

## PROFESSIONAL APPOINTMENTS

Postdoctoral Researcher - University of Oregon, Oregon Institute of Marine Biology, 2016 - Present  
Postdoctoral Researcher – University of Washington, 2018  
Adjunct Professor – University of Oregon, Oregon Institute of Marine Biology  
Summer 2017, 2019 Instructor of record Ocean Acidification  
Lecturer – University of Alabama at Birmingham, Birmingham, Alabama  
Spring 2015 Instructor of record Advanced Invertebrate Zoology  
Graduate Teaching Assistant – University of Alabama at Birmingham, Birmingham, Alabama  
Fall 2012, 2013, 2014, 2015 Invertebrate Zoology laboratory, Instructor of record  
Spring 2011 General Biology laboratory  
Fall 2010; Fall 2011 Microbiology laboratory  
Fall 2009; Spring, Summer 2010 Microbiology laboratory  
Fall 2008; Spring, Summer 2009 Human Physiology laboratory

## PEER REVIEWED PUBLICATIONS

- Thomas M♦, **Schram JB**, Clark-Henry Z, Shanks A, Galloway, AWE (2020) Juvenile Dungeness crabs (*Metacarcinus magister*) selectively integrate and modify the fatty acids of their experimental diets. Phil Trans B. DOI: <http://dx.doi.org/10.1098/rstb.2020.0038>
- Schram, JB**, Amsler, CD, McClintock, JB (2019) Contrasting chemotactic escape responses of the common Antarctic gastropod *Margarella antarctica* to four species of sympatric sea stars. Polar Science. DOI: <https://doi.org/10.1016/j.polar.2019.100486>
- Schram, JB**, Amsler, MO, Galloway, AWE, Amsler, CD, McClintock, JB (2019) Fatty acid trophic transfer of Antarctic algae to a sympatric amphipod consumer. Antarctic Science, 1-2. DOI: <https://doi.org/10.1017/S0954102019000397>
- Yoshioka, RM♦, **Schram, JB**, Galloway, AWE (2019) Eelgrass pathogen *Labyrinthula zosterae* synthesizes essential fatty acids. Diseases of Aquatic Organisms 135, 89-95. DOI: <https://doi.org/10.3354/dao03382>
- Dethier, MN, Hoins, G♦, Kobelt, J♦, Lowe, AT, Galloway, AWE, **Schram, JB**, Raymore, M, Duggins DO (2019) Feces as food: The nutritional value of urchin feces and implications for benthic food webs. J Exp Mar Biol Ecol 514, 95-102. DOI: <doi.org/10.1016/j.jembe.2019.03.016>

- Hakim, JA ♦, **Schram JB**, Galloway AWE, Morrow CD, Crowley MR, Watts SA, Bej AK (2019) The Purple Sea Urchin *Strongylocentrotus purpuratus* Demonstrates a Compartmentalization of Gut Bacterial Microbiota, Predictive Functional Attributes, and Taxonomic Co-Occurrence. *Microorganisms* 7, 35. DOI: [10.3390/microorganisms7020035](https://doi.org/10.3390/microorganisms7020035)
- Schram JB**, Kobelt, JN ♦, Dethier, MN, Galloway AWE (2018) Trophic Transfer of Macroalgal Fatty Acids in Two Urchin Species: Digestion, Egestion, and Tissue Building. *Front Ecol Evol.* 6:83. DOI: [10.3389/fevo.2018.00083](https://doi.org/10.3389/fevo.2018.00083)
- Schram JB**, Schoenrock KM, McClintock JB, Amsler, CD, Angus RA (2017) Ocean warming and acidification alter Antarctic macroalgal biochemical composition but not amphipod grazer feeding preferences. *Mar Ecol Prog Ser.* 581, 45-56. DOI: <https://doi.org/10.3354/meps12308>
- Schram JB**, Schoenrock KM, McClintock JB, Amsler CD, Angus RA (2016) Seawater acidification more than warming presents a challenge for two Antarctic macroalgal-associated amphipods. *Mar Ecol Prog Ser.* 554, 81-97. DOI: [10.3354/meps11814](https://doi.org/10.3354/meps11814)
- Schram JB**, Amsler, MO, Amsler CD, Schoenrock KM, McClintock JB, Angus RA (2016) Antarctic benthic grazer assemblages exhibit resistance following exposure to decreased pH. *Mar Biol* 163:106. DOI: [10.1007/s00227-016-2894-y](https://doi.org/10.1007/s00227-016-2894-y)
- Schram JB**, Schoenrock KM, McClintock JB, Amsler CD, Angus RA (2016) Testing Antarctic resilience: The effects of elevated seawater temperature and decreased pH on two gastropod species. *ICES Journal of Marine Science.* 73 (3), 739-752. doi: [10.1093/icesjms/fsv233](https://doi.org/10.1093/icesjms/fsv233)
- Schoenrock KM, **Schram JB**, Amsler CD, McClintock JB, Angus RA, Vohra YK (2016) Climate change confers a potential advantage to fleshy Antarctic crustose macroalgae over calcified species. *J Exp Mar Biol Ecol* 474, 58-66, doi: [10.1016/j.jembe.2015.09.009](https://doi.org/10.1016/j.jembe.2015.09.009)
- Schram JB** ♦, Schoenrock KM ♦, McClintock JB, Amsler CD, Angus RA (2015) Multi-frequency observations of seawater carbonate chemistry on the central coast of the western Antarctic Peninsula. *Polar Research.* 34, 25582. DOI: <http://dx.doi.org/10.3402/polar.v34.25582>
- Schram JB** ♦, McClintock JB, Amsler, CD, Baker BJ (2015) Impacts of acute elevated seawater temperature on the feeding preferences of an Antarctic amphipod toward chemically deterrent macroalgae. *Mar Biol* 162, 542-433. DOI: [10.1007/s00227-014-2590-8](https://doi.org/10.1007/s00227-014-2590-8)
- Schoenrock KM ♦, **Schram JB** ♦, Amsler, CD, McClintock JB, Angus RA (2015) Climate change impacts on over-story *Desmarestia* spp. from the western Antarctic Peninsula. *Mar Biol* 162, 377-389. DOI: [10.1007/s00227-014-2582-8](https://doi.org/10.1007/s00227-014-2582-8)
- Harvey BP, Al-Janabi B, Broszeit S, Cioffi R, Kumar A, Aranguren-Gassis M, Bailey A, Green L, Gsottbauer CM, Hall EF, Lechler M, Mancuso FP, Pereira CO, Ricevuto E, **Schram JB**, Stapp LS, Stenberg S, Santa Rosa LT (2014) Evolution of Marine Organisms under Climate Change at Different Levels of Biological Organisation. *Water* 6, 3545 – 3574. DOI: [10.3390/w6113545](https://doi.org/10.3390/w6113545)  
(♦ all coauthors)
- Schram JB** ♦, Schoenrock KM ♦, McClintock JB, Amsler, CD, Angus RA (2014) Multiple stressor effects of near-future elevated seawater temperature and decreased pH on righting and escape behaviors of

two common Antarctic gastropods. J Exp Mar Biol Ecol. 457, 90-96.  
DOI:[10.1016/j.jembe.2014.04.005](https://doi.org/10.1016/j.jembe.2014.04.005)

Lebrato, M, McClintock JB, Amsler, MO, Ries, JB, Egilsdottir, H♦, Amsler, CD, Challener, C♦, **Schram, JB♦**, Mah, CL, Cuce, J♦, Baker, BJ (2013) From the Arctic to the Antarctic: the major, minor, and trace elemental composition of echinoderm skeletons: Ecological Archives E094-127, Ecology. 94(6), 1434-1434. DOI: [10.1890/12-1950.1](https://doi.org/10.1890/12-1950.1)

**Schram JB♦**, McClintock JB, Angus RA, Lawrence JM (2011) Regenerative capacity and biochemical composition of the sea star *Luidia clathrata* (Say) (Echinodermata: Asteroidea) under conditions of near-future ocean acidification. J Exp Mar Biol Ecol. 407, 266-274.  
DOI:[10.1016/j.jembe.2011.06.024](https://doi.org/10.1016/j.jembe.2011.06.024)

McClintock JB, Amsler MO, Angus RA, Challener RC♦, **Schram JB♦**, Amsler CD, Mah CL, Cuce J♦, Baker BJ (2011) The Mg-Calcite composition of Antarctic echinoderms: Important implications for predicting the impacts of ocean acidification. J Geology. 119, 457-466. DOI: [10.1086/660890](https://doi.org/10.1086/660890)

**Schram JB♦**, McClintock JB (2009) Rapid regeneration of the body wall of the aboral central disc in the sea star *Luidia clathrata*. Gulf of Mexico Science. 27(2), 123-124. DOI: <https://doi.org/10.18785/goms.2702.05>

♦ indicates student coauthor at time of publication

#### **PUBLICATIONS SUBMITTED**

Salant CD, Shanks, A, **Schram JB**, Galloway AWE (*under review*) Trophic biomarkers indicate coastal surfzone hydrodynamics affect resource assimilation of mussels and barnacles. L & O

**Schram JB**, Sorensen HL, Brodeur RD, Galloway AWE, Sutherland KR (*under review*) Abundance, distribution, and feeding ecology of *Pyrosoma atlanticum* in the Northern California Current. Mar Ecol Prog Ser.

Galloway AWE, von Dassow G, **Schram JB**, Klinger T, Hill TM, Lowe AT, Chan F, Yoshioka RM, Kroeker KJ (*under review*) Accidental ocean acidification: a ghost factor haunting our experiments? Biol Bull

#### **NON-PEER REVIEWED PUBLICATIONS**

**Schram JB** (2015) Responses of marine benthic invertebrates of the western Antarctic Peninsula to ocean acidification and elevated temperature. Ph.D Dissertation. Biology, University of Alabama at Birmingham.

**Schram JB**, McClintock JB, Angus RA, Lawrence JM (2010) Arm loss and regenerative capacity of the common soft-bottom sea star *Luidia clathrata* exposed to near-future conditions of ocean acidification. M.S. Thesis.

#### **SELECTED RECENT AWARDS AND HONORS**

2020 Antarctic Science International Bursary – Support for Early Career Scientists working in Antarctic Science (£6000)

- 2018 Partners in Science grant – Partner with local high school teacher for hands on science experience to study Dungeness crab responses to ocean acidification, funded by M.J. Murdock Charitable Trust (\$15,000)
- 2017 Funded 2018-20 Oregon Sea Grant Biennial Research Competition, Co-PI with Aaron Galloway. Project title: Effects of ocean acidification on behavior, development, and nutritional value of newly recruited coastal Dungeness crab (\$200,000)
- 2015 Samuel B. Barker Award for Excellence in Graduate studies – UAB Graduate School - Highest prestige UAB annual award given to 1 Ph.D. and 1 Master’s student nominated by each department’s graduate program director and selected by the Dean of the Graduate School
- 2014 Travel Grant - Office of Polar Programs, funded by NSF and allocated by Scientific Committee on Antarctic Research (SCAR) for attendance of 2012 SCAR conference (\$2,250)
- 2014 UAB Ireland Research Travel Award – Funding granted for travel to the Friday Harbor Laboratory Facility to perform gastropod shell material strength analysis (\$1,000)
- 2014 1<sup>st</sup> Place – UAB Graduate Student Research Days – oral presentation competition
- 2013 Sigma Xi Grants-In-Aid of Research – Funding for mollusk shell x-ray diffraction (XRD) and scanning electron microscopy (SEM) elemental analysis (\$640)
- 2012 Travel Grant - Office of Polar Programs, funded by NSF and allocated by SCAR (\$1,000)

#### **RECENT NATIONAL/INTERNATIONAL CONFERENCE PRESENTATIONS**

- 2019 25<sup>th</sup> Biennial Coastal and Estuarine Research Federation Conference (Nov. 2-7, 2019) Mobile, AL. **JB Schram\***, SJ Taipale, AWE Galloway. Poster presentation: Controlled diet mixtures of macroalgae influence the fatty acid composition of juvenile and adult isopods
- 2019 25<sup>th</sup> Biennial Coastal and Estuarine Research Federation Conference (Nov. 2-7, 2019) Mobile, AL. HG Hayes♦\*, SA Manos♦\*, **JB Schram**, AWE Galloway. Poster presentation: Does a Reduced pH Affect Juvenile Dungeness Crab Behavior?
- 2019 25<sup>th</sup> Biennial Coastal and Estuarine Research Federation Conference (Nov. 2-7, 2019) Mobile, AL. WW Raymond♦\*, **JB Schram**, AWE Galloway, GL Eckert. Oral presentation: Trophic mysteries of the shallows: Trophic relationships in Southeast Alaska eelgrass ecosystems
- 2019 Oregon Lakes Association Annual Conference (Oct. 25, 2019) Bend, OR. **JB Schram\***, MT Brett, J Nielson, AWE Galloway. Oral presentation: Diet reconstruction of juvenile suckers of Upper Klamath Lake using fatty acids as biomarkers.
- 2019 Oregon Lakes Association Annual Conference (Oct. 25, 2019) Bend, OR. MT Brett\*, **JB Schram**, J Nielson, AWE Galloway. Oral presentation: Using Fatty Acid Biomarkers to untangle trophic pathways in hypereutrophic Upper Klamath Lake.
- 2018 California Cooperative Oceanic Fisheries Investigations (CalCOFI) Conference (Dec. 2018) La Jolla, CA. HL Sorensen♦\*, KR Sutherland, RD Brodeur, AWE Galloway, **JB Schram**. Poster presentation: Abundance, distribution, and feeding ecology of *Pyrosoma atlanticum* in the northern California Current during the 2017 bloom.
- 2018 Western Society of Naturalists Annual Meeting (November 2018), Tacoma, WA. RM Yoshioka♦\*, **JB Schram**, AWE Galloway. Poster presentation: Eelgrass pathogen synthesizes essential fatty acids.
- 2018 Western Society of Naturalists Annual Meeting (November 2018), Pasadena, CA. MD Thomas♦\*, **JB Schram**, AL Shanks, AWE Galloway. Poster presentation: Juvenile Dungeness crab (*Metacarcinus magister*) fed different meat and algal diets are distinguished by their fatty acid profiles.
- 2018 Oregon State of the Coast Annual Meeting (Oct. 2018). Coos Bay, OR. RM Yoshioka♦\*, **JB Schram**, AWE Galloway. Poster presentation: An eelgrass pathogen produces essential fatty acids.

- 2018 Assoc. for the Sci. of Limnol. & Oceanogr. (ASLO) Annual Meeting (7/2018) Victoria, Canada. MT Brett\*, **JB Schram**, AWE Galloway, A Střížek, J Kann, JM Nielsen Oral presentation: Do *Daphnia* and *Aphanizomenon* have a symbiotic relationship? Evidence for highly selective zooplankton resource utilization in a hypereutrophic lake.
- 2018 Gordon Research Conference, Ocean Global Change (15-20 July), Waterville Valley, NH, **JB Schram**, AWE Galloway. Poster presentation: Interaction of trophic stressors and the role of cannibalism on newly recruited coastal Dungeness crab exposed to reduced seawater pH
- 2018 American Society of Microbiology (7-11 June), Atlanta, GA. JA Hakim♦\*, **JB Schram**, C Morrow, SA Watts, AWE Galloway, AK Bej. Oral presentation: The gut microbiome of sea urchin *Strongylocentrotus purpuratus* demonstrates a unique compartmentalization of microbiota and functional significance
- 2017 Western Society of Naturalists Annual Meeting (November 2017), Pasadena, CA. L Dixit♦\*, **JB Schram**, AWE Galloway. Poster presentation: Importance of visual cues in the pigmentation and coloration of the marine isopod *Pentidotea wosnesenskii*.
- 2017 Western Society of Naturalists Annual Meeting (November 2017), Pasadena, CA. AWE Galloway\*, **JB Schram**, M Thomas♦, JL Watson. Oral presentation: Why so blue? Assessing possible drivers for bright blue-colored flesh in lingcod.
- 2017 Ecological Society of America (6-11 August), Portland, OR. **JB Schram\***, AWE Galloway Oral presentation: Influence of macroalgal diet on purple urchin trophic efficiency
- 2017 North American Echinoderm Conference (9-13 July), Worcester, MA. **JB Schram\***, AWE Galloway. Oral presentation: Purple urchin compensatory consumption of sympatric macroalgae maintains growth and influences nutritional subsidies
- 2016 Western Society of Naturalists (10-16 November), Monterey, CA. **JB Schram\***; AWE Galloway Oral presentation: Algal diet mixtures influence isopod growth, tissue turnover, and coloration
- 2016 Gordon Research Series, Ocean Global Change Biology (16 - 17 July), Waterville Valley, NH. **JB Schram\***, AWE Galloway. Invited talk: Trophic biomarkers reveal basal food web dynamics in changing environmental conditions
- 2016 Society for Integrative and Comparative Biology Annual Meeting (3-7 January), Portland, OR. **JB Schram\***, KM Schoenrock, JB McClintock, CD Amsler, RA Angus. Oral presentation: Seawater acidification rather than warming is a significant challenge for two common Antarctic macroalgal-associated amphipods
- 2015 Society for Integrative and Comparative Biology Annual Meeting (3-7 January), West Palm Beach, FL. **JB Schram\***, MO Amsler, CD Amsler, KM Schoenrock, JB McClintock, RA Angus. Oral presentation: Glimpses of assemblage resilience through an Antarctic ocean acidification mesocosm experiment
- 2014 XXXIII SCAR (Scientific Committee on Antarctic Research) Open Science Conference (25 – 28 August), Auckland, New Zealand. **JB Schram\***, KM Schoenrock, JB McClintock, CD Amsler, RA Angus. Oral presentation: Impacts of ocean acidification on an Antarctic marine macroalgal-mesograzer community: insights from a laboratory mesocosm experiment  
Poster presentation: Multi-frequency observations of seawater pH, alkalinity, and carbonate chemistry of coastal western Antarctic Peninsula
- 2014 Gordon Research Conference, Ocean Global Change Biology (6 – 11 July), Waterville Valley, NH. **JB Schram\***, CD Amsler, MO Amsler, KM Schoenrock, JB McClintock, RA Angus. Poster presentation: Impacts of ocean acidification on an Antarctic marine macroalgal-mesograzer community: insights from a laboratory mesocosm experiment
- \* indicates presenter  
♦ indicates student coauthor

## INVITED TALKS

- 2019 Walla Walla University, Walla Walla, WA (8 Oct) Biology Colloquium seminar – Antarctic Organismal responses to climate change
- 2018 Southwestern Community College, Coos Bay, OR, USA (27 Oct) Oregon State of the Coast Symposium, invited discussion leader - Juvenile Dungeness crab responses to ocean acidification
- 2018 Gulf Coast Research Laboratory, Ocean Springs, MO, USA (5 Sept) Invited seminar speaker - Organismal responses to Antarctic ocean warming and acidification
- 2018 Hatfield Marine Science Center, Newport, OR, USA (27 June) Monterey Bay Aquarium Research Institute (MBARI) Education and Research: Testing Hypotheses (EARTH), Invited presenter - Juvenile Dungeness crab responses to ocean acidification
- 2018 Oregon Institute of Marine Biology, Charleston, OR (7 May) Marine Ecology course - Climate change: What does it mean for marine ecology?
- 2018 Oregon Institute of Marine Biology, Charleston, OR (5 May) The Ocean Planet Biology course (BI150) – Introduction to the Rocky Shores of the Coastal Intertidal Zone
- 2017 Regional 2017 Meeting of IMSLIC, Oregon Institute of Marine Biology, Charleston, OR (31 March) – You are what you eat: Feeding assays provide insights into benthic trophic ecology dynamics
- 2017 Charleston Marine Life Center, Charleston, OR (28 January) Public lecture– Ocean Acidification: What is it and what does it mean for marine life?
- 2016 Oregon Institute of Marine Biology, Charleston, OR (25 April) Department seminar - Testing Antarctic tolerance: Invertebrate responses to seawater warming and acidification
- 2016 Wasser Cluster, Lunz am See, Austria (20 April) Invited seminar speaker– Testing Antarctic tolerance: Invertebrate responses to seawater warming and acidification

#### **PROFESSIONAL EXPERIENCE**

- Fatty acid extraction and analysis using gas chromatography-mass spectrometry (GCMS)
- Data management and programming (R)
- Scientific diving, American Academy of Underwater Sciences (2012 – 2014, 2016 - present)
- Temperature and CO<sub>2</sub> enrichment experimental design and set-up
- Seawater carbonate chemistry analysis– Total alkalinity titration, Spectrophotometric pH, Dissolved Inorganic carbon
- Invertebrate zoology
- Phycology
- Aquarium maintenance
- Chlorophyll *a* analysis – fluorometry
- Remote field technician: experience working on scientific research cruise (Palmer LTER annual cruise on Lawrence M. Gould, Maria Vernet lab, 07 Jan – 03 Feb 2006 & 07 Jan – 06 Feb 2007)

#### **RECENT PROFESSIONAL SERVICE**

- 2019 Participated in group review (Association for Polar Early Career Scientists, APECS) of the Working Group II Contribution to the IPCC Sixth Assessment Report, 1<sup>st</sup> Order draft
- 2019 Mentored OIMB summer Research Experience for Undergraduates program, “Exploration of Marine Biology on the Oregon Coast” students (2)
- 2018 Participated in group review (Association for Polar Early Career Scientists, APECS) of the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate, 1<sup>st</sup> and 2<sup>nd</sup> order drafts
- 2018 Mentored OIMB summer Research Experience for Undergraduates program, “Exploration of Marine Biology on the Oregon Coast” student (1)
- 2017 Mentored OIMB summer Research Experience for Undergraduates program, “Exploration of Marine Biology on the Oregon Coast” students (2)

- 2018 Began (and continue to) serve on PhD committee for 1 PhD candidate (Nicole Nakata)
- 2016 Mentored undergraduate (2) & graduate (3) students in research (OIMB)
- 2016 XXIV Scientific Committee on Antarctic Research (SCAR) Open Sciences Conference (20-30 August) Kuala Lumpur – Ocean Acidification session convener
- 2015 Mentored undergraduate in laboratory research (Connor Stein) – UAB
- 2015 UAB Graduate Student Government (GSG) Mentoring and Advisory Council –program for graduate students mentoring new graduate students
- 2014 Chair of the Community Service Committee – Graduate Student Government (GSG)

**RECENT EDUCATIONAL OUTREACH ACTIVITIES**

- 2019 North Bend High School, North Bend, OR (20 Sept) Science National Honors Society - In Search of Seaweeds in Antarctica: A Diver's Journey to the Bottom of the World
- 2019 7 Devils Brewing Company, Coos Bay, OR (7 July) Pub Science Talk - In Search of Seaweeds in Antarctica: A Diver's Journey to the Bottom of the World
- 2018 Assisted with field projects for University of Oregon students (BI 283) – 19 May
- 2017 Charleston Marine Life Center, Charleston, OR (17 May, 26 June, 25 July) Teen Marine Science program –Presentation and hands-on activity, Introduction to climate change: What is it and what does it mean for marine life?
- 2017 Assisted with field projects for University of Oregon students (BI 283) – 5 May

**PROFESSIONAL MEMBERSHIPS**

- American Society of Naturalists (2013 – Present)
- Coastal & Estuarine Research Federation (2019 – Present)
- Ecological Society of America (2013 – Present)
- Society for Integrative & Comparative Biology (2011 - Present)
- Sigma Xi (2012 - Present)

**PEER REVIEW**

- Antarctic Science
- Estuarine, Coastal and Shelf Science
- Ethology
- Frontiers in Marine Science
- Journal of Experimental Marine Biology and Ecology
- Marine Ecology Progress Series
- Marine Environmental Research
- PeerJ
- Scientific Reports
  
- National Science Foundation scientific research proposals
- Chilean Antarctic Institute, INACH research proposals
- Deutsche Forschungsgemeinschaft (DFG) research proposals