

Julie B. Schram
Curriculum Vitae, 22 October 2019
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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

Schram, JB, Amsler, CD, McClintock, JB (*in press*) Contrasting chemotactic escape responses of the common Antarctic gastropod *Margarella antarctica* to four species of sympatric sea stars. *Polar Science*

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, <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, <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)
- 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.](https://doi.org/10.1007/s12237-009-9123-2)

PUBLICATIONS SUBMITTED or IN PREPARATION

Salant, CD, Shanks, A, **Schram, JB**, Galloway, AWE (submitted) Trophic biomarkers indicate coastal surfzone hydrodynamics affect resource assimilation of mussels and barnacles. Mar Ecol Prog Ser.

Brett, MT, Budge, SM, Galloway, AWE, Nielsen, JM, **Schram, JB**, Strandberg, U, Kainz, M, Taipale, SJ. (in prep) Best professional practices for the implementation of fatty acid based dietary mixing models. Phil Trans B

Schram, JB, Sorensen, H, Galloway, AWE, Brodeur, R, Sutherland, K (in prep) Abundance, distribution, and feeding ecology of *Pyrosoma atlanticum* in the Northern California Current. Mar Biol.

Schram, JB, Galloway, AWE, Taipale, SJ (in prep) Algal diet mixtures influence the fatty acid assimilation in juvenile and adult isopods. Proc B

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

- 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 1st 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 25th 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 25th 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 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 certified, American Academy of Underwater Sciences (2012 – 2014, 2016 - present)
- Temperature and CO₂ 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)

PROFESSIONAL SERVICE

- 2019 Participated in group review (Association for Polar Early Career Scientists, APECS) of the IPCC Working Group II Contribution to the IPCC Sixth Assessment Report, 1st 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, 1st and 2nd 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?
- 2018 Assisted with field projects for University of Oregon students (BI 283) – 5 May

PROFESSIONAL MEMBERSHIPS

- American Society of Naturalists (2013 – 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 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