

SARA E. SIMMONDS

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EDUCATION

- 2016 **Ph.D. Biology – University of California, Los Angeles**
Dissertation: “Genomic Signatures of Natural Selection and Geographic Isolation in Corallivorous Snails.” Advisor: Paul Barber
- 2008 **M.S. Biology – California State University, Fullerton**
Thesis: “Exploring the use of statoliths of *Kelletia kelletii* as natural tags to estimate population connectivity across a species' range.” Advisor: Danielle Zacherl
- 2002 **B.Sc. 1st Class Hons. Zoology – University of Tasmania**

RESEARCH INTERESTS

I am interested in examining speciation, population genomics and connectivity using next-generation sequencing technology.

RESEARCH AND EMPLOYMENT EXPERIENCE

- 2016–2017 **Fisheries Biologist – Pacific States Marine Fisheries Commission**
Geneticist/biologist for two ESA listed species programs, Snake River Sockeye Salmon and Chinook Snake River Integrated Broodstock. Worked with other agency to develop a GT-seq SNP panel to genotype Columbia River Sockeye for stock identification and parentage based tagging. Ran parentage analysis, built pedigrees, estimated lifetime reproductive success to evaluate different management strategies. Analyzed and summarized data and provided recommendations to managers. Participated in inter-agency meetings and supervised lab technicians.
- 2010–2015 **Graduate Research Assistant – University of California, Los Angeles**
Spearheaded the transition to using next-generation sequencing (RAD-seq) in the Barber Lab for SNP discovery to study population genomics and phylogenomics. Set up the lab for RAD-seq library preparations, troubleshoot published protocols to work specifically with our study organisms, debugged pipelines for data processing and analysis, and trained graduate students in RAD-seq library prep and data analysis.
- 2007–2009 **Research Associate II – University of California, Santa Barbara**
Investigated dispersal characteristics, recruitment dynamics and population connectivity of marine organisms in California. Collaborated to build a mixture model using genetics, microchemistry data, oceanography and dispersal characteristics to predict dispersal patterns and compare to empirical results.
- 2005–2007 **Graduate Research Assistant – California State University, Fullerton**
Developed statolith microchemistry for use as natural tags to estimate population connectivity of Kellet’s Whelk, *Kelletia kelletii*, along the coast of California, USA and Baja California, Mexico.
- 2003–2004 **Research Assistant – Dept. of Marine Sciences, University of Connecticut**
Research duties included SCUBA diving, small vessel handling, underwater photography, designing experimental apparatus and plankton and fouling community recruit identification.
- 2002–2003 **Junior Research Fellow – School of Zoology, University of Tasmania**
Studied the larval dynamics of the introduced northern Pacific seastar (*Asterias amurensis*) in Tasmania.
- 2000 **Volunteer Fellow – CSIRO Division of Marine Research, Hobart, Tasmania**
Worked on a project examining the temporal and spatial variation of spawning in fish of the Southern Australian Fisheries.

- 1999–2000 **Aquarist and Diver – Sea Life Minnesota Aquarium**
Worked as part of the animal husbandry team at this world-class aquarium, caring for 1,000s of freshwater and marine organisms.
- 1998–1999 **Senior Aquatic Life Interpreter – Sea Life Minnesota Aquarium**
Educated the public about aquatic life through public speaking, demonstrations and classes.

PUBLICATIONS

Collaborator (*undergraduate, ‡international)

- Willette DA, **Simmonds SE**, Cheng SH, Esteves S*, Kane TL, Nuetzel H, Pilaud N*, Rachmawati R‡, & PH Barber. (2017) Using DNA barcoding to track seafood mislabeling in Los Angeles restaurants. *Conservation Biology*. 31:1076-1085.
- Simmonds SE**, Kinlan BP, White CC, Paradis GL, Warner RR, & DC Zacherl (2014) Geospatial statistics strengthen the ability of natural geochemical tags to estimate range-wide population connectivity in marine species. *Marine Ecology-Progress Series*. 508:33-51.
- Hopper JV*, White C, Lorda J‡, **Simmonds SE**, AM Kuris, & RF Hechinger (2014) Reduced parasitism of a marine whelk, *Kelletia kelletii*, in its expanded geographic range. *Journal of Biogeography*. 41:1674-1684.
- Johnson C‡, **Koch S** & Patil J‡ (2004) Spatial and temporal patterns in the abundance of larvae of the northern Pacific seastar (*Asterias amurensis*) in the Port of Hobart and Storm Bay, SE Tasmania. Final Report to the Department of Sustainability and Environment, Victoria. 34p.

PUBLICATIONS – FORTHCOMING

- Simmonds SE**, Chou VS*, Rachmawati R‡, Cheng SH, Calumpong HP‡, Mahardika GN‡, & PH Barber. Evidence of ecological divergence from coral-eating snails (genus *Coralliophila*) in the Coral Triangle. (in revision *Coral Reefs*)
- Simmonds SE**, Fritts-Penniman AL, Cheng SH, Mahardika GN‡, & PH Barber. Divergence with gene flow between host-races in a corallivorous snail. (in prep. *Molecular Ecology*)
- Simmonds SE**, Fritts-Penniman AL, Cheng SH, Mahardika GN‡, & PH Barber. Genome-wide signatures of population structure and local adaptation in a corallivorous snail, *Coralliophila violacea*. (in prep. for *Molecular Ecology*).

CONFERENCES

†presenting author

- 2017 Johnson EL†, **Simmonds SE**, Kozfkay C. Evaluating reintroduction strategies for endangered Sockeye Salmon. American Fisheries Society. Contributed talk. Tampa, Florida.
- 2016 **Simmonds SE**†, Fritts-Penniman A, Cheng S, Mahardika N & PH Barber. Ecological divergence and adaptation to coral host in a marine snail. Contributed talk. Evolution. Austin, Texas.
- 2015 **Simmonds SE**†, Fritts-Penniman A, Cheng S, Mahardika N & PH Barber. Adaptive divergence and genomic signatures of host-driven selection in coral-associated gastropods. Contributed poster. Gordon Research Conference, Speciation. Ventura, California.
- 2012 **Simmonds SE**†, Rachmawati R, Cheng SC, & PH Barber. Host-specificity and ecological speciation in Indo-Pacific corallivorous gastropods. Contributed talk. Western Society of Naturalists. Monterey, California.
- 2012 **Simmonds SE**†. Host-specificity and ecological speciation in Indo-Pacific corallivorous gastropods. Contributed talk. Pacific Advanced Studies Institute Genomics Workshop. Dumaguete, Philippines.
- 2010 Kinlan BP† & **SE Koch**, Warner RR & DC Zacherl. Empirical estimation of larval connectivity across a species range from multivariate natural tag-recapture data. Contributed talk. Ocean Sciences Meeting. Portland, Oregon.

- 2009 **Koch SE[†]**, Kinlan BP, Warner RR, Gaines SD, & DC Zacherl. Building empirical estimates of larval dispersal and population connectivity in open-coast marine species. Contributed talk. Western Society of Naturalists. Monterey, California.
- 2008 **Koch SE[†]**, Paradis G, Gaines S, Warner R & D Zacherl. Exploring the use of statoliths as natural tags to estimate population across a species' range. Contributed paper. Larval Biology Symposium. Lisbon, Portugal.
- 2007 **Koch SE[†]** & T Konotchick. Ocean acidification effects on mollusc larvae. Contributed paper. Western Society of Naturalists. Santa Barbara, California.
- 2007 **Koch SE[†]**, Paradis G, Gaines S, Warner R & D Zacherl. Immigration in the ocean: statoliths as larval passports. Contributed paper. Southern California Academy of Science Annual Meeting. Fullerton, California.
- 2006 Hopper JV[†], White C, Lorda J, **Koch SE** & AM Kuris. (2006) Distribution and abundance of parasites in *Kelletia kelletii*, a marine whelk with a recent range expansion. Contributed paper. Western Society of Naturalists. Seattle, Washington.

TEACHING EXPERIENCE

- 2010–2013 **Teaching Assistant – Indonesian Biodiversity Research Center**
Marine Ecology, Molecular Ecology and Surveying Biodiversity
- 2012 **Laboratory Coordinator – University of California, Los Angeles**
Introduction to Marine Science
- 2010–2011 **Teaching Assistant – University of California, Los Angeles**
Introduction to Marine Science
- 2005–2007 **Teaching Assistant – California State University, Fullerton**
Evolution and Biodiversity

AWARDS AND HONORS

- 2013 Lemelson Fellowship – University of California, Los Angeles
- 2013 A.M. Schechtman Teaching Assistant Award – University of California, Los Angeles
- 2012 Ecology and Evolutionary Biology Fellowship – University of California, Los Angeles
- 2012 Sigma Xi Grant-in-Aid of Research
- 2012 Conchologists of America Research Grant
- 2010–2011 SEAS-FLAS Fellowship – University of California, Los Angeles
- 2010 Lemelson Fellowship – University of California, Los Angeles
- 2009–2010 GAANN Fellowship – University of California, Los Angeles