

## SACHA O'REGAN

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### EDUCATION

- 2010–13 MSc Biological Sciences, Simon Fraser University, Burnaby, Canada  
Thesis title: Amphibians under stress: life histories, density dependence, and differences in vulnerability
- 2006–10 BSc Honours Biology with Distinction, Western University, London, Canada  
Thesis title: Assessing the validity of quantitative nuclear magnetic resonance (QNMR) spectroscopy as a technique for determining body composition of arthropods

### SKILLS

**Writing:** Extensive writing experience — seven peer-reviewed publications, multiple environmental impact assessments, technical data reports, permit applications, MSc thesis, book chapter

**Data analysis:** Statistical programming and data visualization with R and Microsoft Excel

**Leadership:** Coordinating multi-disciplinary teams to meet technical report deadlines, supervising field crews

**Field:** Marine and terrestrial wildlife surveys, amphibian mark-recapture techniques, water property measurements

**Additional Assets:** Registered Professional Biologist with the College of Applied Biology; experience providing scientific and regulatory advice to private industry and government agencies, including on species or ecosystems at risk; experience communicating with First Nations, academics, regulatory agencies, and fishers; knowledge of provincial and federal legislation and policies relating to species or ecosystems at risk, forestry, marine and freshwater fisheries, water quality and disposal at sea; fluently bilingual

### EMPLOYMENT EXPERIENCE

#### STANTEC, BURNABY

Nov 2013–Present

#### Environmental scientist

Conducting environmental assessments and completing permitting applications for marine and freshwater components of development projects, including assessing impacts on ecosystems and species at risk. Developing habitat offsetting plans and drafting species and ecosystem monitoring plans.

- Co-author of two environmental impact assessments and two Fisheries Act Authorization Applications, and first author of six technical data reports (on topics of marine ecosystems and fish, sediment and water quality, freshwater fish).
- Drafted a plan to monitor effects of a project's construction on rockfish abundance, species richness, and community composition.
- Co-authored a novel hydrodynamic modelling study to investigate the movement patterns of larval eulachon from the Nass and Skeena Rivers.
- Responded to Information Requests on three projects from regulatory agencies, First Nations, and the public as part of environmental assessment applications.
- Other responsibilities: data management, analysis, and visualization in R; fieldwork including pond-breeding amphibian (e.g., Western toad), breeding bird, nocturnal raptor call-playback surveys, wildlife feature, intertidal, eelgrass, and subtidal ROV surveys in coastal BC habitats, and marine mammal surveys in both BC and the Saint Lawrence.

**HAKAI NETWORK FOR COASTAL PEOPLE, ECOSYSTEMS AND MANAGEMENT**

June 2013–Nov 2013

**Independent contractor**

- Designed and conducted an interview-based study assessing fishers' perspectives on local trends and management efficacy in BC's commercial sea cucumber, urchin, and geoduck fisheries.
- Published study in peer-reviewed journal (O'Regan 2015, below).

**BC MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS**

March 2013

**Independent contractor**

- Authored 128-page report as second author on an eight-scientist team to evaluate the impact of Central Coast forest management practices and BC's Ecosystem-based Management Land Use Objectives on biodiversity, stream channel morphology, sediment supply, and forest functioning, and make recommendations for the design, implementation, and data analysis of an experimental watershed program (Hocking et al. 2013, below).

**SIMON FRASER UNIVERSITY**

Sept 2010–Jan 2013

**MSc Research**

- Designed and conducted a large-scale outdoor study investigating the response of three BC frog species (Great Basin spadefoot, red-legged frog, Pacific chorus frog) to climate warming and changes in pool permanency (O'Regan et al. 2014, below).
- Developed a framework to identify the risk of amphibian populations to decline based on relationships between life-history traits, density-dependent bottlenecks, and stressor occurrence.

**SIMON FRASER UNIVERSITY**

Sept 2011–Dec 2011

**Teaching Assistant**

- Led tutorials, marked written and oral work, and advised 40 undergraduate students in third-year Animal Ecology.

**SIMON FRASER UNIVERSITY**

May 2010–Aug 2010

**NSERC USRA Researcher**

- Conducted a literature review to characterize the state of knowledge on amphibian density-dependence.
- Assisted colleagues at the UBC Experimental Pond Facility with a study examining the impacts of warming and nutrient additions on aquatic food web structure and function.

**UNIVERSITY OF CALGARY**

May 2009–Aug 2009

**NSERC USRA Undergraduate Researcher**

- Conducted an experiment examining the feeding preferences of predacious diving beetle larvae (Yee et al. 2013, below).
- Assisted with investigating the effects of cattle grazing on temporary wetland ecology.

**OPERATION WALLACEA, INDONESIA**

June, July 2008

**Research Assistant**

- Assisted with harp trapping and mist netting bats, tarsier habitat assessments, and swabbing frogs for fungal pathogens, coral reef monitoring, sea mammal surveys, intertidal transects.

**PUBLICATIONS AND REPORTS**

Hocking, M.D. and **S.M. O'Regan**. 2016. Carrion communities as indicators in fisheries, wildlife management and conservation. Chapter 22 *In*: Carrion ecology, evolution, and their applications (M.E. Benbow, J.K. Tomberlin and A.M. Tarone Eds.). CRC Press, Boca Raton, FL.

**O'Regan, S.M.** 2015. Harvesters' perspectives on the management of British Columbia's giant red sea cucumber fishery. *Marine Policy*. 51: 103–110. <http://bit.ly/sea-cucumbers>

**O'Regan, S.M.**, W.J. Palen, and S.C. Anderson. 2014. Climate warming mediates negative impacts of rapid pond drying for three amphibian species. *Ecology*. 95: 845–855. (\*Recommended by Faculty of 1000 as being of special significance in its field) <http://bit.ly/amphib-climate>

Gerick, A.A., R.G. Munshaw, W.J. Palen, S.A. Combes, and **S.M. O'Regan**. 2014. Thermal performance assays and species distribution models reveal climate vulnerability of temperate amphibians. *Journal of Biogeography*. 41: 713–723. <http://bit.ly/amphib-phys>

Hocking, M.D., **S.M. O'Regan**, R.W. Collings, J. Benner, H. Munro, K. Squires, N. Swain, and K. Lertzman. 2013. Ecosystem-based management in the Great Bear Rainforest: A knowledge summary for priority ecological questions and experimental watersheds design. Prepared for British Columbia Ministry of Forests, Lands, and Natural Resources Operations. <http://bit.ly/ebm-report>

Favaro, B., D.C. Braun, **Earth2Ocean Research Derby**. 2013. The 'Research Derby': A pressure cooker for creative and collaborative science. *Ideas in Ecology and Evolution*. 6: 40–46. <http://bit.ly/res-derby>

Phillis, C.C.\*, **S.M. O'Regan\***, S.J. Green\*, J.E.B. Bruce\*, S.C. Anderson, J. Linton, Earth2Ocean Research Derby, and B. Favaro. 2013. Multiple pathways to conservation success. *Conservation Letters*. 6: 98–106. (\*Authors contributed equally; listed in reverse alphabetical order) <http://bit.ly/consv-pathways>

Yee, D.A., **S.M. O'Regan**, B. Wohlfahrt, and S.M. Vamosi. 2013. Variation in prey-specific consumption rates and patterns of field co-occurrence for two larval predaceous diving beetles. *Hydrobiologia*. 718: 17–25. <http://bit.ly/diving-beetles>

**O'Regan, S.M.**, C.G. Guglielmo, and G.M. Taylor. 2012. Measurement of arthropod body composition using quantitative magnetic resonance. *Invertebrate Biology*. 131: 216–233. <http://bit.ly/invert-qmr>

## PRESENTATIONS

**O'Regan, S.M.** and W.J. Palen. Extending the utility of species-specific data for amphibian conservation. 2012. World Congress of Herpetology, Vancouver, BC.

**O'Regan, S.M.** and W.J. Palen. Evaluating the strength of stage-specific density-dependence for amphibian populations. 2011. UBC/UVIC/SFU Ecology and Evolution Retreat, Brackendale, BC.

**O'Regan, S.M.** and W.J. Palen. Assessing the importance of stage-specific stressors for amphibian populations. 2011. Inter-Departmental Ecology of Aquatic Systems (IDEAS) Symposium, SFU.

## REVIEWS

Reviewer for Ecology, Ecosphere, Herpetologica

## AWARDS AND SCHOLARSHIPS

2012 Graduate Fellowship, Simon Fraser University

2011 Graduate Fellowship, Simon Fraser University

2010 NSERC Alexander Graham Bell Canada Graduate Scholarship

2010 Pacific Century Graduate Scholarship, Simon Fraser University

2010 NSERC Undergraduate Student Research Award, Simon Fraser University

2010 NSERC Undergraduate Student Research Award, University of Alberta (declined)

2010 Helen I. Battle Scholarship, Western University  
2009 NSERC Undergraduate Student Research Award, University of Calgary  
2006-09 Continuing Admission Scholarship, Western University