# Sean Charles Anderson

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## Education

2011–13 Ph.D. Candidate, Simon Fraser University, Burnaby, Canada Supervisors: Dr. Nicholas K. Dulvy and Dr. Andrew B. Cooper
Canadian Fulbright Scholar to the University of Washington in 2012–13

2010 M.Sc. Biology, Dalhousie University, Halifax, Canada
Thesis title: Trends, drivers, and ecosystem effects of expanding global invertebrate fisheries. Supervisor: Dr. Heike K. Lotze. (PDF)
Canadian Governor General's Academic Gold Medal for the top-ranked Master's Natural Sciences and Engineering thesis at Dalhousie University in 2010

2004–07 B.Sc. (Hons.) Environmental Science, Dalhousie University, Halifax, Canada
Thesis title: How sustainable are emerging low-trophic level fisheries on the Scotian Shelf? Supervisors: Dr. Heike K. Lotze and Dr. Ransom A. Myers. (PDF)
First Class Honours & Environmental Programmes Honour Society Medal

2001–03 B.Sc. Candidate (Hons.) Kinesiology, University of Waterloo, Waterloo, Canada
Transferred to Dalhousie University in 2004.

## Publications

2012 Phillis, C.C.*, S.M. O'Regan*, S.J. Green*, J.E.B. Bruce*, **S.C. Anderson**, J.N. Linton, Earth2Ocean Research Derby, B. Favaro. Multiple pathways to conservation success. Conservation Letters. Early view online. http://dx.doi.org/10.1111/j.1755-263X.2012.00294.x. (**Authors contributed equally, listed in reverse alphabetical order*)

2012 Harnik, P.G., H.K. Lotze, **S.C. Anderson**, Z.V. Finkel, S. Finnegan, D.R. Lindberg, L.H. Liow, R. Lockwood, C.R. McClain, J.L. McGuire, A. O'Dea, J.M. Pandolfi, C. Simpson, D.P. Tittensor. Extinctions in ancient and modern seas. Trends in Ecology and Evolution. 27(11): 608–617. http://dx.doi.org/10.1016/j.tree.2012.07.010.

2012 **Anderson, S.C.**, T.A. Branch, D. Ricard, H.K. Lotze. Assessing global marine fishery status with a revised dynamic catch-based method and stock-assessment reference points. ICES Journal of Marine Science. 69(8): 1491–1500. http://dx.doi.org/10.1093/icesjms/fss105. (PDF)

2011 **Anderson, S.C.**, B.G. Farmer, F. Ferretti, A.L.S. Houde, and J.A. Hutchings. Correlates of vertebrate extinction risk in Canada. BioScience. 61(7): 538–549. http://dx.doi.org/10.1525/bio.2011.61.7.8. (PDF)

2011 **Anderson, S.C.**, J. Mills Flemming, R. Watson, H.K. Lotze. Serial exploitation of global sea cucumber fisheries. Fish and Fisheries. 12(3): 317-339. http://dx.doi.org/10.1111/j.1467-2979.2010.00397.x. (PDF) Featured in Science on January 14 2011.

2011 Boudreau, S.A., **S.C. Anderson**, B. Worm. Top-down interactions and temperature control of snow crab abundance in the northwest Atlantic. Marine Ecology Progress Series. 429: 169–183. http://dx.doi.org/10.3354/meps09081.

2011 **Anderson, S.C.**, J. Mills Flemming, R. Watson, H.K. Lotze. Rapid global expansion of invertebrate fisheries: trends, drivers, and ecosystem effects. PLoS ONE. 6(3): e14735. http://dx.doi.org/10.1371/journal.pone.0014735

2008 **Anderson, S.C.**, H.K. Lotze, and N.L. Shackell. Evaluating the knowledge base for expanding low-trophic-level fisheries in Atlantic Canada. Can. J. Fish. Aquat. Sci. 65(12): 2553–2571. http://dx.doi.org/10.1139/F08-156. (PDF) Eighth most-read CJFAS article in 2008.

## Submitted manuscripts

2013 **Anderson, S.C.**, A.B. Cooper, N.K. Dulvy. Ecological prophets: Quantifying metapopulation portfolio effects. Submitted with revisions to Methods in Ecology and Evolution.

2013 O'Regan, S.M., W.J. Palen, **S.C. Anderson**. Climate warming mediates negative impacts of rapid pond drying for three amphibian species. Submitted to Ecology.

## Awards and scholarships

2014 Graduate Fellowship, Simon Fraser University

2012–13 Canadian Fulbright Scholar award to the University of Washington in 2012–13

2011 Canadian Governor General's Academic Gold Medal for the top-ranked Master's Natural Sciences and Engineering thesis at Dalhousie University in 2010

2011–14 Provost Prize of Distinction, Simon Fraser University

2011–14 Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship (Doctoral)

2007–10 Faculty Research Grant Scholarship, Dalhousie University

2007–09 Graduate Studies Scholarship, Dalhousie University

2007 Environmental Programmes Honour Society Medal, Dalhousie University

2001–03 Academic All-Canadian, University of Waterloo

2001–02 Dean's Entrance Scholarship, University of Waterloo

## Invited talks and conference presentations

2013 **Anderson, S.C.**, A.B. Cooper, N.K. Dulvy. False prophets: The challenges of quantifying ecological portfolios (slides), Quantitative Seminar, School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA, United States.

2012 **Anderson, S.C.**, A.B. Cooper, N.K. Dulvy. False prophets: The ecological portfolio effect overestimates the benefit of diversity. Branch Lab, School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA, United States.

2012 **Anderson, S.C.**, A.B. Cooper, N.K. Dulvy. Metapopulation dynamics and the generality of the ecological portfolio effect. Les Ecologistes Departmental Seminar, Simon Fraser University, Burnaby, BC, Canada.

2010 **Anderson, S.C.** The rise of invertebrates, the fall of sea cucumbers, and the risk of maturing late. Earth2Ocean Research Group, Simon Fraser University, Burnaby, BC, Canada.

2009 **Anderson, S.C.**, J. Mills Flemming, R. Watson, H.K. Lotze. Ecosystem impacts of the global expansion of invertebrate fisheries. International Oceans Past II Conference *Multidisciplinary Perspectives on the History and Future of Marine Animal Populations*. Vancouver, BC, Canada.

2009 **Anderson, S.C.**, J. Mills Flemming, R. Watson, H.K. Lotze. Global invertebrate fisheries: trends and consequences. NCEAS (National Center for Ecological Analysis and Synthesis) Working Group *Finding Common Ground in Marine Conservation and Management*. Santa Barbara, CA, USA.

2009 **Anderson, S.C.**, H.K. Lotze, N.L. Shackell. Evaluating the knowledge base for expanding low-trophic level fisheries in Atlantic Canada. Harvest Fisheries Seminar Series. Bedford Institute of Oceanography, Fisheries and Oceans, Dartmouth, NS, Canada.

2008 **Anderson, S.C.**, H.K. Lotze, N.L. Shackell. Evaluating the knowledge base for expanding low-trophic level fisheries in Atlantic Canada. Departmental Seminar, Biology Department, Dalhousie University, Canada.

## Contract employment

2011–13 Database management, data analysis, and visualization for the project *Global Shark Abundance Baselines* (Hopkins Marine Station, Stanford University, CA, United States) with F. Micheli, F. Ferretti, N.K. Dulvy, H.K. Lotze, and B. Worm.

2010 Assessment of Arctic surfclam on Banquereau Bank using industry collected data for Clearwater Seafoods, Bedford, NS, Canada.

2010 Modelling length-frequency distribution changes of Atlantic halibut for NAFO Divisions 4VWX5Z and 3NOP for Dr. K. Trzcinski, Population Ecology Division, Bedford Institute of Oceanography, Fisheries and Oceans, Dartmouth, NS, Canada.

## Working groups and workshops

2011–13 NESCent (National Evolutionary Synthesis Center, Durham, NC) Working Group *Determinants of Extinction in Ancient and Modern Seas* led by Paul Harnik, Seth Finnegan, and Rowan Lockwood. (URL)

2010 Atlantic Halibut Assessment Science Peer Review Meeting, Fisheries and Oceans, Dartmouth, NS, Canada.

2007–09 NCEAS (National Center for Ecological Analysis and Synthesis, Santa Barbara, CA) Distributed Graduate Seminar, in association with the Working Group *Finding Common Ground in Marine Conservation and Management* led by Ray Hilborn and Boris Worm. (URL)

2008 Workshop on Canadian Science and Management Strategies for Sea Cucumber (*Cucumaria frondosa*), Fisheries and Oceans, Dartmouth, NS, Canada (work presented *in absentia*).

2007 Workshop on Canadian Science and Management Strategies for Atlantic Hagfish, Fisheries and Oceans, Dartmouth, NS, Canada. (URL)

## Selected courses and training

Present Proficient in statistical analyses and data management using R, WinBUGS, JAGS, Sweave, knitr, LaTeX, Perl, PostgreSQL, Git.

2013 Quantitative Modelling in Ecosystem Based Management, R. Hilborn, School of Aquatic and Fishery Sciences, University of Washington (auditing).

2013 Applied Time Series Analysis; E. Holmes, M. Scheuerell, and E. Ward; School of Aquatic and Fishery Sciences; University of Washington (audited).

2012 Numerical Computing for the Natural Resources, Dr. A.E. Punt, School of Aquatic and Fishery Sciences, University of Washington (audited).

2012 Risk Assessment and Decision Analysis for Management of Natural Resources, Dr. R.M. Peterman, School of Resource and Environmental Management, Simon Fraser University.

2011 Presenting Data and Information, Edward Tufte, Seattle, WA, United States.

2009 Technical Expertise in Stock Assessment: Model Fitting and Interpretation by Dr. C. Needle, chair of the International Council for the Exploration of the Sea working group on methods of fish stock assessment, Dalhousie University.

2008 Data Analysis, Dr. J. Mills Flemming, Department of Mathematics & Statistics, Dalhousie University (audited).

## Teaching

2012 Introduction to ggplot2. (notes, slides) Lecture for FISH 507H: Beautiful Graphics in R, School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA, United States

2012 Workshop on the R package plyr. (notes, slides, examples) Branch Lab, School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA, United States

2011 Multipanel plotting in R with base graphics. (notes, slides). Earth2Ocean Research Group, Simon Fraser University, Burnaby, BC, Canada.

2011 A brief introduction to R. (notes, workshop code). Earth2Ocean Research Group, Simon Fraser University, Burnaby, BC, Canada.

2011 Workshop on the R package plyr (notes, slides). Earth2Ocean Research Group, Simon Fraser University, Burnaby, BC, Canada.

2007–08 Teaching Assistant, Organismal Biology and Ecology, Dalhousie University, two semesters (BIOL 1021).

2007–08 Teaching Assistant, Marine Mammology, Dalhousie University (BIOL 4060).

## Reviews

Reviewer for Ecology, Conservation Biology, Fish and Fisheries, International Journal of Tropical Biology and Conservation, Journal of Environmental Management, Aquatic Conservation