Marine Geospatial Ecology Laboratory Nicholas School of the Environment Duke University A328–LSRC Building Durham, NC 27708 USA

Phone: +1-919-613-8021 Email: rss10@duke.edu 152 Solterra Way Durham, NC 27705 USA

Phone: +1-919-913-4941 Email: robschick@gmail.com

EDUCATION

2009 Ph.D. Ecology, University Program in Ecology, Duke University

2002 M.E.M. Resource Ecology, Nicholas School of the Environment, Duke University.

1997 B.S. Zoology, Department of Biology, University of Washington.

EMPLOYMENT

Marine Geospatial Ecology lab, Duke University

2017- Independent Research Scientist

Department of Psychiatry and Behavioral Sciences, Duke University Medical Center, Duke University, Durham, NC 27708, USA

2012 – Joint faculty appointment (Consulting Associate)

Centre for Research into Ecological and Environmental Modelling, University of St Andrews, St Andrews, KY16 9LZ, Scotland

2016 Independent Senior Research Fellow funded by the Marine Alliance for Science and Technology for Scotland (MASTS)

2013 Independent Research Fellow funded by MASTS

2012 Named Research Fellow. Advisor - Len Thomas

Nicholas School of the Environment, Duke University, Durham, NC 27708, USA

2010 Postdoctoral Associate. Advisor - James Clark

2009 Postdoctoral Associate. Advisor - Patrick Halpin

National Oceanic and Atmospheric Administration, Southwest Fisheries Science Center, Fisheries Ecology Division, 110 Shaffer Rd. Santa Cruz, CA 95060, USA

2002 Ecologist (GS-11)

2002 Staff Research Associate III (Contractor through UC Santa Cruz)

Edgerton Research Laboratory, New England Aquarium, Boston, MA 02110, USA

2000 Assistant Scientist/GIS

Cascadia Research Collective, Olympia, WA 98501, USA

1997 Marine Mammal Observer

Oregon State University, Newport, OR 97365, USA

1995 Research Intern for Dr. Bruce Mate

Pacific Whale Foundation, Kihei, HI 96753, USA

1992 Field Research Associate

PUBLICATIONS

Journal Articles (34)

- **2018** Abrahms B, Scales KL, Hazen EL, Bograd SJ, **Schick RS**, Robinson PW, Costa DP. Mesoscale activity facilitates energy gain in a top predator. *Proc. R. Soc. B* 20181101.
- 2017 Schick, R. S., G. W. Humphris., T. W. Kelsey, J. Marston, and K. Samson. MapMySmoke: Feasibility of a New Quit Cigarette Smoking Mobile Phone Application Using Integrated Geo-positioning Technology, and Motivational Messaging Within a Primary Care Setting. *BMC Pilot and Feasibility Studies*
- 2017 Schick, R. S., J.J.D. Greenwood, and S. T. Buckland. An experiment on the impact of a neonicotinoid pesticide on honey bees; the value of a formal analysis of the data. *Environmental Sciences Europe*, 29(1):1-10, DOI:10.1186/s12302-016-0103-8.¹
- 2016 Fleishman, E., Costa, D.P., Harwood, J., Kraus, S.D., Moretti, D., New, L.F., Schick, R. S., Schwarz, L.K., Simmons, S.E., Thomas, L., and R.S. Wells. Monitoring population-level responses of marine mammals to disturbance. *Marine Mammal Science* 32(3):1004–1021.
- **2016** Rolland, R., **Schick**, **R. S.**, Knowlton, A., Pettis, H., Hamilton, P., Clark, J. S., and S. D. Kraus. Health in right whales: from individuals to population. *Marine Ecology Progress Series* **542**:265–282.
- 2016 Towner, A. V., Leos-Barajas, V., Langrock, R., Schick, R. S., Smale, M. J., Kaschke, T., Jewell, O. J. D. and Papastamatiou, Y. P. Sex-specific and individual preferences for hunting strategies in white sharks. *Funct Ecol.* doi:10.1111/1365-2435.12613
- 2015 Oedekoven, C., Fleishman, E., Hamilton, P., Clark, J. S. and Schick, R. S. Expert elicitation of seasonal abundance of North Atlantic right whales (Eubalaena glacialis) in the mid-Atlantic. *Endangered Species Research.* 29(1):51–58.
- 2015 New, L., Hall, A. J., Harcourt, R., Kaufman, G., Parsons, E. C. M., Pearson, H. C., Cosentino, A. M. and R. S. Schick. The Modelling and Assessment of Whale-watching Impacts. *Ocean & Coastal Management* 30(1):e7.
- 2015 King, S.L., Schick, R. S., Donovan, C., Booth, C. G., Burgman, M. and Thomas, L., and J. Harwood. An Interim Framework for Modelling the Population Consequences of Disturbance. *Methods in Ecology and Evolution* 6(10):1150–1158. doi: 10.1111/2041-210X.12411

¹Cited by the UK Expert Committee on Pesticides as part of the Department for Environment, Food and Rural Affairs of-

2015 O'Toole, M. D., Lea, M-A, Guinet, C., Schick, R. S. and M. A. Hindell. Foraging strategy switch of a top marine predator according to seasonal resource differences. Frontiers in Marine Science. doi: 10.3389/fmars.2015.00021

- 2014 Belkin, I. M., Hunt Jr., G. L., Hazen, E. L., Zamon, J. E., Schick, R. S., Prieto, R., Brodziak, J., Hare, J., Teo, S. L. H., Thorne, L., Bailey, H., Itoh, S., Munk, P., Musyl, M. K., Willis, J. K., and W. Zhang. Fronts, Fish, and Predators. *Deep-Sea Research II*. doi:10.1016/j.dsr2.2014.07.009.
- 2014 Mitchell, J.T., Schick, R. S., Hallyburton, M., Dennis, M. F. Kollins, S. H., Beckham, J.C. and F.J. Mc-Clernon. Combined Ecological Momentary Assessment and Global Positioning System tracking to assess the spatial distribution of risk behavior: a proof of concept study targeting smoking behavior. *Journal of Dual Diagnosis* 10:19–29. dpi:10.1080/15504263.2013.866841

2014

2009 Urban, D. L., Minor, E. S., Treml, E. A., and R. S. Schick Graph models of habitat mosaics. *Ecology Letters* **12**(3):260–273.

- **2009** Schick, R. S. and M. E. Lutcavage. Inclusion of prey data better predicts bluefin tuna (*Thunnus thynnus*) distribution. *Fisheries Oceanography* **18**:77–81.
- 2008 Schick, R. S., S. R. Loarie, F. Colchero, B. D. Best, A. Boustany, D. A. Conde, P. N. Halpin, L. N.

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- 2018 Southall, B.L., R.W. Baird, M. Bowers, W. Cioffi, C. Harris, J. Joseph, N. Quick, T. Margolina, D. Nowacek, A. Read, R. Schick, J. Shearer, and D.L. Webster. Atlantic Behavioral Response Study (BRS) – 2017 Annual Progress Report. Prepared for U.S. Fleet Forces Command. Submitted to Naval T. H., E. P. Bjorkstedt, Favilletien Engineering Recommend Atlantic North Recommend of the Property of the Pro
- rlong, R. S. Schick, Magkofififeafig, issuegtawat. DRikteri Vargin ja Bateh, structure of coho
- the Southern Oregon & Northern California Coasts Evolutionarily Significant Unit. NOAA models for the Arctic Environ-Memo, 390. mental Impact Statement (EIS) study area. Final Report. Prepared for U.S. Fleet Forces Command.
- A., R. S. Schick, E. P. By Projetted to Daya Fibrilities Engineering. Compand, Atlanticil Norfolk, Virginia, under Contract No.
- . Burnett. Predicting the potential for historical coho, chinook and steelhead habitat in
- California. NOAA Technical Memo, 379. King, R. S. Schick, C. Donovan and C. Booth. A Protocol for Implementing the construction of Pacific Particles of Chipoles and Assessing the non-spawning distributions of Chipoles and Received and Protocol for Implementing the A Technical Memo, 377. Marine and Freshwater Science
 A. L. Edsall, and S. T. Lindley. Historical and Current Distribution of Pacific Salmonids
 I Valley, CA. NOAA Technical Memo, 369.
- R. S. Schick, B. P. May, J. J. Anderson, S. Green, C. Hanson, A. Low, D. McEwan, R. en swyasion, iand secing fillarass Population structure of threatened and endangered n ESU sin Califorgia's Gentral Valley basin NOAA Technical Memo, 360. 1
- of Noise on Aquatic Life II. Springer Press
- \$PAMOPR\$900iBls, B., \$PetN\$91FIS, KMANITG91PAU, HAMATOGK#7, FMOFMAS, L., Harwood, EFFECTS POFORAGO TO TO THE THOUGHT THE THOUGHT FOR THE STOP OF THE Model System. Effects of Noise on Aquatic Life II. Springer Press
- onovan, C., Schick, R. S., Thomas, L., and New, L. F. Understandof Acoustic Disturbance (PCAD) for Marine Mammals. Effects of
- between bluefin tuna and sea surface temperature fronts. In J. GIS for the Oceans and Seas, pages 61–66. ESRI Press.

2015 Feasibility of a new quit cigarette smoking mobile phone application (MapMySmoke) using integrated geo-positioning technology, and motivational messaging within primary care NHS setting. NHS Fife Research Bursary. Co-PI with John Marston (Pittenweem Medical Practice), Gerry Humpris (University of St Andrews School of Medicine), and Tom Kelsey (University of St Andrews School of Computer Science). Award: £19,420.

- 2015 Extending an aerial remote sensing platform using three digital sensors. Marine Alliance for Science and Technology for Scotland Technology, Platforms & Sensors Small Grant Round. Award: £1,200.
- 2014 PCoD Lite Using an interim PCoD protocol to assess the effects of disturbance associated with US Navy exercises on marine mammal populations. Co-PI with Cormac Booth, Mark Burgman, Carl Donovan, John Harwood, Len Thomas. US Office of Naval Research. Award: \$150,000.
- 2013 Scottish Universities Life Science Alliance LEADERS award to investigate movement patterns of human smokers. Award: £30,865.
- 2012 Statistical tools for fitting models of the Population Consequences of Acoustic Disturbance to data from marine mammal populations (PCAD tools II). Co-PI with Len Thomas, John Harwood, and Catriona Harris. US Office of Naval Research. Award: \$475,956.
- 2012 The Population Consequences of Disturbance Model Application to North Atlantic Right Whales (*Eubalaena glacialis*). Co-PI with Scott Kraus, Rosalind Rolland, and Amy Knowlton. US Office of Naval Research. Award: \$132,417.

PRESENTATIONS

Invited

- 2017 Departmental Seminar, Duke University Marine Lab
- 2015 Remote presentation to the North Atlantic Right Whale Recovery Plan Southeast U.S. Implementation Team. April 21st.
- 2015 Annual Research Symposium, School of Biology University of St Andrews, March 27th.
- 2014 International Marine Conservation Congress, Glasgow, Scotland. August 14th–19th.
- **2014** Hidden Markov Model Symposium, The Boyd Orr Centre for Population and Ecosystem Health, University of Glasgow, Scotland. February 13th.
- 2013 University of Aberdeen, Lighthouse Field Station, Cromarty, Scotland. October

2009 Ecological Modeling for Marine Mammalogists Workshop at the 18th Biennial Conference on the Biology of Marine Mammals, at Québec City, Quebec, Canada. October 11th.

- **2006** Departmental seminar, Department of Biology, UNC-Greensboro. Greensboro, NC. November 1st.
- 2004 Schick, R.S. and S.T. Lindley. 2004. Inferring Historical Within-basin Population Structure of Central Valley Steelhead Using Graph Theory. Presented during the Central Valley Steelhead Recovery Symposium at the American Fisheries Society meeting of the California-Nevada and Humboldt Chapters. Redding, CA. April 22nd-24th.
- 2002 Schick, R.S., and M.E. Lutcavage. Bluefin tuna (*Thunnus thynnus*) distribution in relation to sea surface temperature fronts in the Gulf of Maine (1994-1996). Presented during the Spatial Movement of Fish: Field Study, Modeling, and Management Perspectives symposium at the American Fisheries Society Annual Meeting. Baltimore, MD. August 18th–22nd.

Contributed

- 2018 Southall, B.L., R.W. Baird, M. Bowers, W. Cioffi, H. Foley, A. Friedlaender, C. Harris, J. Joseph, N. Quick, T. Margolina, D. Nowacek, A. Read, R. Schick, J. Shearer, Z. Swaim, D. Waples and D.L. Webster, J. Wisse. Atlantic Behavioral Response Study: Experimental Design, Analytical Methods, and Preliminary Results
- 2018 Pirotta, E., Booth, C. G., Costa, D. P., Fleishman, E., Harris, C., Joy, R., Kraus, S. D., Lusseau, D., Moretti, D., New, L., Schick, R. S., Schwarz, L. K., Simmons, S. E., Thomas, L., Tyack, P. L., Weise, M. J., Wells, R. S., Wilson, L., and J. Harwood. Understanding the population consequences of disturbance reviewing the current state of PCoD research.
- 2015 Schick, R.S., Hewitt, R.C., Rodwell, S., Anderson, P., Martin, J., Kearns, M. and P. Thompson. Using UAVs to Monitor Size Structure and Body Condition in Harbour Seals. Unmanned Aerial Vehicles in Environmental Research. Liverpool John Moores University, Liverpool, England. July 7th-8th.
- 2014 King, S.L., Schick, R. S.⁶, Donovan, C., Booth, C.G., Burgman, M. and Thomas, L., and Harwood, J. An Interim Framework for Modelling the Population Consequences of Disturbance. International Marine Conservation Congress. Glasgow, Scotland. August 14th-18th.
- 2013 Fleishman, E., Hamilton, P., and

2011 Schick, R.S., Kraus, S.D., Rolland, R., Corkeron, P., Hamilton, P., Clark, C.W., and J.S. Clark. Potential effects of acoustic disturbance on foraging behavior, body condition, and demography in North Atlantic right whales. Presented at the 96th Annual Meeting of the Ecological Society of America, Austin, TX. August 7th–12th.

- 2011 Schick, R.S., Kraus, S.D., Rolland, R., Corkeron, P., and P. Hamilton. Potential effects of acoustic disturbance on foraging behavior, body condition, and demography in North Atlantic right whales. Presented at the Association for Environmental Studies and Sciences (AESS). Burlington, VT. June 23rd–26th.
- 2011 Thomas, L., Schick, R.S.⁶, Clark, J.S., and J. Harwood. Translating conceptual to parameterized models for multiple taxonomic groups. Presented at the Association for Environmental Studies and Sciences (AESS). Burlington, VT. June 23rd–26th.

2004 Schick, R. S. and S.T. Lindley. Using Graph Theory to Assess Connectivity in the Endangered Central Valley, CA Spring Run Chinook Evolutionarily Significant Unit. Presented during the 89th Annual Meeting of the Ecological Society of America. Portland, OR. August 1st–6th.

- 2004 Schick, R.S. Using the ArcInfo Network Module to Determine Fish Population Structure. Presented at the 24th Annual ESRI User Conference. San Diego, CA. August 9th–13th.
- 2003 Schick, R.S., A. Agrawal, B. Spence, M. Goslin, and E.P. Bjorkstedt. Using Dynamic Segmentation to Display, Query and Analyze Fisheries Data. Presented at the 23rd Annual ESRI User Conference. San Diego, CA. July 7th–11th.
- 2003 Schick, R.S., S.T. Lindley, and E.P. Bjorkstedt. Assessing quantitative relationships between Chinook salmon and GIS-derived habitat data. Presented during the Interagency Ecological Program Workshop, California Water and Environmental Modeling Forum Annual Meeting. Pacific Grove, CA. February 25th–27th.
- 2002 Brill, R.W., M.E. Lutcavage, R.S. Schick, and N.K. Newlands. Environmental Influences on Movements and Depth Distributions of Tunas and Billfishes. Presented at the New Insights Into the Ecology of Pelagic Animals From Applications of Electronic Tags, during the 2002 Ocean Sciences Meeting. Honolulu, HI. February 11th-15th.
- 2000 Schick, R.S. New statistical approaches to spatial analysis of right whale distribution vs. environmental parameters. Presented at the Annual Right Whale Consortium Meeting. Boston, MA. October 26th-27th.
- 2000 Schick, R.S., M.E. Lutcavage, and S.D. Kraus. Satellite Imagery Ecosystem based GIS study of Bluefin Tuna and Right Whale distribution and movements in the Gulf of Maine and Northwest Atlantic. Presented at Environmental Consequences of Underwater Sound Meeting, Office of Naval Research, United States Navy. Rosslyn, VA. July 18th–19th.
- 2000 Schick, R.S., and D.L. Urban. Spatial Components of Bowhead Whale (Balaena mysticetus) distribution in the Alaskan Beaufort Sea. Presented at the 15th Annual Symposium of the U.S. Chapter of the International Association for Landscape Ecology. Ft. Lauderdale, FL. April 15th–19th.

Posters

- **2016** Schick, R. S., G. W. Humphris., T. W. Kelsey, J. Marston, and K. Samson. MapMySmoke–A Context Aware Mobile Phone Application Targeted at Smoking Cessation. NHS Scotland Smoking Cessation Conference, Edinburgh, Scotland, November 22nd, 2016.
- 2014 Schick, R. S., L. F. New, L. Thomas, D. P. Costa, M. A. Hindell, C. R. McMahon, P. W. Robinson, S. E. Simmons, M. Thums, J. Harwood, and J. S. Clark. Estimating resource acquisition and at-sea body condition of a marine predator. Presented at the 5th Bio-logging Science Symposium. September 22nd 26th. Strasbourg, France.
- 2013 Schick, R.S., Kraus, S.D., Rolland, R., Knowlton, A., Hamilton, P., Pettis, H., Kenney, R., and J.S. Clark. Using effort, sightings, and body condition data to estimate survival and health of individuals and the entire right whale population. Presented at the 3rd International Conference

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2011 Curtice, C., Schick, R.S., Dunn, D.C., and P. N. Halpin. Home Range Analysis of Hawaiian Monk Seals (*Monachus schauinslandi*) Based on Colony, Age and Sex. Presented at the 19th Biennial Conference on the Biology of Marine Mammals, Tampa, Florida, November 27th–December 2nd.

2008 Schick, R.S., S.R. Loarie, P.N. Halpin, Read, A.J., Slay, C.S., Kraus, S.D., Mate, B.R., Baumgartner, M.F., and J.S. Clark. Estimating habitat suitability in the migratory corridor of NW Atlantic Right Whales. Presented at the North Atlantic Right Whale Consortium Annual Meeting. New Bedford, MA. November 5th

- 2012 Guest lecturer for Models for Environmental Data, Duke University.
- 2012 Guest lecturer for Marine GIS, Duke University.
- 2007 Teaching assistant for Marine GIS. As TA I developed and taught 4 separate modules.
- 2007 Guest lecturer, Marine Environmental Science, Elon University (Undergraduate).
- **2006** Organized, received funding for, and led a multi-week seminar on "The Uses of Technology in Teaching," Duke University.
- 2006 Teaching assistant for Marine GIS, Duke University.

SERVICE

Research staff representative to the School of Mathematics and Statistics, University of St. Andrews.

Research staff representative to the Research and Teaching Staff Forum, University of St. Andrews.

Elected Board Member (January 2013 - December 2015), North Atlantic Right Whale Consortium.

Associate Editor, PLoS-ONE

Manuscript reviewer for: Ecological Applications, Biometrics, Deep-Sea Research II, PLoS-ONE, Ecology, Marine Ecology Progress Series, BMC Ecology, Journal of Applied Ecology, Ecological Modelling, Landscape Ecology, San Francisco Estuary and Watershed Science, Functional Ecology, Conservation Biology, Endangered Species Research, Progress in Oceanography, Methods in Ecology and Evolution.

Co-organizer of CREEM R-Users Group, University of St. Andrews.

PRESS

- 2016 Scientists devise an app to beat smoking. The Times, Gemma Fraser, 14 June 2016.
- 2009 Researchers Call for Second Look at Right Whale Protection ScienceInsider Blog Post, Science Magazine, Erik Stokstad, 18 August 2009.
- 2004 New Tools Reveal Treasures at Ocean Hot Spots, by David Malakoff, Science, 21 May 2004, Vol 304, pages 1104–1105.

EDP

Operating Systems: OSX, Linux, Windows

Software Applications/Languages: R, LATEX, ArcInfo/ArcGIS, Matlab, Adobe Illustrator

INTERESTS

Piedmont Style Blues Guitar, Photography, Information Visualization, Ancestral Diets, Food & Cooking, Gardening

Last updated: August 2, 2018