

Daniel G. Boyce

Postdoctoral Fellow

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SUMMARY

- Doctoral degree in Marine biology from Dalhousie University.
- Undergraduate Honours Bachelor degree in Marine Biology with minor in Oceanography from Dalhousie University.
- Undergraduate thesis awarded highest marks in graduating class (99%) and published in a leading peer-reviewed journal.
- First chapter of Ph.D. thesis was published as an article in *Nature*; was highlighted as *Discover* Magazines top 100 science stories of 2010 (#30) and has been cited 258 times since publication.
- Main areas of expertise are macroecology, biological oceanography, community ecology, biogeography, and habitat modeling.
- Proficient at statistical analyses of large complex data and computer programming.
- Diverse scientific experience includes the analyses of large empirical data sets, field work, and large-scale experiments.
- Extensive at-sea employment experience including commercial fishing vessels, live-aboard dive vessels, and scientific fishery observing.
- Experienced in communication of scientific information and media relations; have interviewed with national and international newspaper, magazine, radio, and television.

EDUCATION

- 2007-2013
- Ph.D. in Biology, Dalhousie University, Halifax, Canada
 - Thesis title: 'Global patterns of marine phytoplankton change over the past century'. Supervisor: Dr. Boris Worm, and formerly co-supervised by Dr. Ransom Myers. Also working in close collaboration with Dr. Marlon Lewis.
 - This research focused on long term (1890 to present) and large scale (global) changes in marine phytoplankton biomass as well as the factors driving these changes and consequences therein.
 - This work required statistical analyses of large, complex oceanographic datasets as well as mesocosm experiments.
 - Analyses were performed on the Dalhousie Department of Mathematics and Statistics Computing Cluster using R, Matlab, and Generic Mapping Tools.
- 1998-2006
- B.Sc. (Honors) Biology, Dalhousie University, Halifax, Canada,
 - Thesis title: 'Effects of water temperature on global patterns of tuna and billfish'.
 - Supervisor: Dr. Boris Worm.
 - Research focussed on habitat modeling the spatial distribution of tunas and billfishes as a function of sea surface temperature fields.
 - Research required the synthesis of published scientific literature, the derivation of habitat models, and the analysis of global long-term fishery databases. Statistical packages R and Matlab were used.

RELEVANT PUBLICATIONS

- 2014
- Boyce DG, Worm B. Patterns, drivers and ecosystem consequences of marine phytoplankton change (manuscript, to be submitted May 2014, *Annual Review of Marine Science*).
- Boyce DG, Dowd, M, Lewis MR, Worm B. Oceanographic drivers of marine phytoplankton change over the past century (manuscript, to be submitted May 2014, *Limnology and Oceanography*)
- Lewandowska AM, Boyce DG, Hofmann M, Matthiessen B, Sommer U, Worm B. Effects of sea surface warming on marine plankton (accepted, *Ecology Letters*)
- Boyce DG, Dowd, M, Lewis MR, Worm B. Robust estimates of global phytoplankton change from 1890 to present. (accepted, *Progress in Oceanography*).

2012	Boyce DG, Lewis MR, Worm B. 2012. Integrating global chlorophyll data from 1890 to 2010. <i>Limnology and Oceanography: methods</i> . 10:840-52.
2011	Boyce DG, Lewis MR, Worm B. 2011. Boyce et al. reply on global phytoplankton trends. <i>Nature</i> 472:E8-E9.
2010	Boyce DG, Lewis MR, Worm B. 2010. Global phytoplankton decline over the past century. <i>Nature</i> 466: 591-596.
2008	Boyce D, Tittensor D, Worm B. 2008. Effects of temperature on global patterns of tuna and billfish richness. <i>Marine Ecology Progress Series</i> 355:267-276.

RELEVANT SCIENTIFIC EMPLOYMENT

2006	Laboratory technician for Dr. Ransom Myers, Dalhousie University, Halifax, Canada
2006	Scientific fishery observer, Javitec Ltd, Bedford, Canada
2003-2004	Instructor for Marine Science Floating Lab, San Diego, USA
2003-2005	Crew on live-aboard dive boat, San Diego, USA
2002-2005	Crew on live-aboard deep sea tuna fishing boat, San Diego, USA
2003	Guide for whale watching tours, San Diego, USA

FUNDING

2007-2013	Graduate Studies Scholarship, Dalhousie University
2012	Mesoqua transnational access bursary
2007-2011	Graduate studies funded by the Sloan Foundation (FMAP)

ORAL PRESENTATIONS

2012	GEOMAR (Kiel, Germany). Title: Patterns, drivers and ecosystem consequences of marine phytoplankton change
2010	Bedford Institute of Oceanography Friday morning seminar series (Bedford, Canada). Title: Climate-driven phytoplankton decline over the past century
2010	Aquashift conference (Kiel, Germany). Title: Climate-driven global phytoplankton declines over the past century
2008	World Conference on Marine Biodiversity (Valencia, Spain). Title: Global patterns of richness and the ecological decline for oceanic predatory fishes

RELEVANT SCIENTIFIC SKILLS AND TRAINING

Programming	Proficient in R, Matlab, SAS, Latex, Generic Mapping Tools, BASH, SQL
Academic	<p>Graduate courses taken: Analysis of biological data, fisheries oceanography, Communication for scientists</p> <p>Courses audited: State-space models for ecologists, data analysis, time series analysis, probability, applied multivariate analysis, state-space models, longitudinal data analysis, linear regression analysis</p>
Teaching	<p>Teaching assistant: Introductory ecology</p> <p>Teaching assistant: Ecology and evolution of fishes</p> <p>Guest lecturer: Data analysis</p>
Reviewer	Reviewer for: <i>Global Change Biology</i> , <i>Journal of Marine Systems</i> , <i>Progress in Oceanography</i> , <i>Journal of Geochemical Research</i> , <i>Geophysical Research Letters</i> , <i>Aquatic Living Resources</i>
Media	<p>Radio: ~10 interviews including <i>CBC (As it Happens, Mainstreet, Radio Canada)</i>, <i>BBC World News</i>, <i>National Public Radio</i>, <i>Australian Public Radio</i></p> <p>Newspaper and magazine: ~30 interviews including <i>The Los Angeles Times</i>, <i>The Globe and Mail</i>, <i>Wired</i>, <i>The New Scientist</i>, <i>The Christian Science Monitor</i></p> <p>Television: <i>CBC The National</i></p>

FIELD WORK EXPERIENCE AND QUALIFICATIONS

2012	Conducted at-sea zooplankton sampling and identification as part of mesocosm experiments.
2009	Participated in field work with the Ocean Tracking Network (OTN) catching and tagging giant bluefin tuna with Drs. Barbara Block and Michael Stokesbury, Port Hood, NS.
2006	Javitech 4 week scientific observer training course included training in: navigation, marine species identification, catch estimation, sampling and data collection, fisheries regulations, radio communications.
2006	Marine radio operator certificate.
2003-2004	San Diego Floating Classroom: Conducted sampling via sediment sampler, plankton net, otter trawl and seafloor dredge.
1999	PADI rescue diver.
1999	PADI advanced open-water diver.
1998	PADI open-water diver.

REFERENCES

Dr. Boris Worm

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