

Emily A. Moberg

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Education

- 2011-2016 **Massachusetts Institute of Technology and Woods Hole Oceanographic Institution**
PhD in Biological Oceanography
- 2007-2011 **Massachusetts Institute of Technology**
B.S. in Environmental Engineering

Training and Experience

- Fall 2016 - present **Postdoctoral Research**, Department of Ecology, Evolution, and Natural Resources at Rutgers University and at Yale School of Forestry and Environmental Studies. Research on the impacts of climate change on the socio-ecological impacts of climate change via mathematical models. Supervisors: Malin Pinsky and Eli Fenichel, Ph.D.
- 2011-2016 **Graduate Research**, Department of Biology, WHOI, Woods Hole, MA. Research on bio-economic effects of harvest on species in changing environments. Previously: research on harvested metacommunities via mathematical modeling. Supervisor: Michael Neubert, Ph.D.
- Fall 2010 **Research Assistant**, Department of Civil and Environmental Engineering, MIT, Cambridge MA. Design and assist in fabrication of housing for optical sensor within a pressure housing in an AUV. Supervisor: Harold Hemond, Ph.D.
- Summer 2010 **Summer Student Fellow**, Sosik Lab: Woods Hole Optical Oceanography and Phytoplankton Ecology Program, Department of Biology, WHOI, Woods Hole, MA. Developed an algorithm to automatically calculate plankton biovolume from two-dimensional images. Analyzed data from Martha's Vineyard Coastal Observatory to assess influence of insolation on plankton carbon to chlorophyll ratios. Supervisor: Heidi Sosik, Ph.D.
- Summer 2009 **Research Assistant**, US Army Corps of Engineers-Engineer Research and Development Center (ERDC), Lexington, MA. Developed new database of chemical properties to interface with the Trophic Trace sediment bioaccumulation model. Researched and summarized current literature on ecological modeling to guide Army Corps planners. Supervisor: Igor Linkov, Ph.D.
- Fall 2008 **Research Assistant**, Department of Civil and Environmental Engineering, MIT, Cambridge, MA. Collected data for fluid dynamics experiment studying the effect of negatively buoyant particle flow through a shroud on the induced draft. Analyzed results to determine trends and consistently with previous trials. Supervisor: Eric Adams, Ph.D.
- Summer 2008 **Research Assistant**, Penn Sediment Dynamics Laboratory, Department of Earth and Environmental Science, University of Pennsylvania, Philadelphia, PA. Designed and constructed an experimental set-up for laboratory study of alluvial fan formation. Analyzed topographical data using MATLAB to study temporal changes in fan surfaces. Supervisor: Douglas J. Jerolmack, Ph.D.
- Summer 2004 **Research Assistant**, Brain Behavior Laboratory, Department of Psychiatry, University of Pennsylvania School of Medicine, Philadelphia, PA. Designed department website and organized data and neurocognitive tests. Supervisor: Bruce I. Turetsky, M.D.

Publications

Books

Linkov, I. & **Moberg, E.A.** (2011) *Multi-Criteria Decision Analysis: Environmental Applications and Case Studies*. Taylor & Francis, Boca Raton, FL.

Peer Reviewed Publications

Moberg, E.A., Shyu, E., Herrera, G., Lenhart, S., Lou, Y., Neubert, M.G. (2015) On the bioeconomics of marine reserves when dispersal evolves. *Natural Resource Modelling*. 28 (4): 456-474.

Moberg, E.A., Kellner, J.K., and Neubert, M.G. (2015) Bioeconomics and biodiversity in harvested metacommunities: a patch-occupancy approach. *Ecosphere*. 6 (11): 1-18.

Fischer, A.D.,* **Moberg, E.A.***, Alexander, H., Brownlee, E.F., Hunter-Cevera, K.R., Pitz, K.J., Rosengard, S.Z. and Sosik, H.M. (2014) Sixty years of Sverdrup: a retrospective of progress in the study of phytoplankton blooms. *Oceanography*. 27 (1): 222-235. (* indicates shared first-authorship)

Moberg, E.A. & Sosik, H.M. (2012). Distance maps to estimate cell volume from two-dimensional plankton images. *Limnology and Oceanography Methods*. 10. 278-288.

Irani, F., Kalkstein, S., **Moberg, E.A.**, and Moberg, P.J. (2010). Neuropsychological performance in older patients with schizophrenia: A meta-analytic review of cross-sectional and longitudinal studies. *Schizophrenia Bulletin* 37 (6), 1318-1326.

Technical Reports

Foran, C.M., Linkov, I., **Moberg, E.A.**, Smith, D., and Soballe, D.M. (2011). Ecological forecasting tools and planning of ecosystem restoration projects. EMRRP Technical Notes Collection. ERDC TN-EMRRP-EM-10. Vicksburg, MA: U.S. Army Engineer Research and Development Center. <http://el.erd.c.usace.army.mil/emrrp/techtran.html>

Publications in Preparation

Moberg, E.A. and Solow, A. A test for an unambiguous poleward shift in a species distribution.

Moberg, E.A., Neubert, M.G. and Costello, C. Optimal harvest in a deteriorating environment.

Presentations

Moberg, E.A., Neubert, M.G. & Costello, C. (Jan. 2016) Optimal harvest of a deteriorating fishery. Presented at Rutgers University. New Brunswick, NJ.

Moberg, E.A., Neubert, M.G. & Costello, C. (2015). Optimal Management of a Deteriorating Fishery. Presented at Ecological Society of America Conference, Baltimore, MD.

Moberg, E.A. & Solow, A. (2013, 2014). Stochastic dominance as a test of species' distributional shifts. Presented at *IntEcol*, London, England; *AARMS-Sustainability of Aquatic Ecosystem Networks*, Fredericton, Canada; and *WHOI Biology Department Seminar*, Woods Hole, MA.

Moberg, E.A. & Neubert, M.G. (2012). The cost of protecting biodiversity in harvested metacommunities. Presented at Ecological Society of America Conference, Portland, OR.

Moberg, E.A. & Sosik, H.M. (2011). Automated Calculation of Cell Volume from 2D Images of Phytoplankton with Complex Shapes. Presented at the American Society of Limnology and Oceanography 2011 Aquatic Sciences Meeting, San Juan, Puerto Rico.

Teaching and Mentoring Experience

- Spring 2016 - present *National Network of Climate Change Interpreters Curriculum Development Team*, Worked on extending and modifying existing NNOCCI curriculum (to train informal science interpreters how to communicate climate change) to a shorter, 'flipped' classroom model.
- Summer 2015 *Mentored Undergraduate Summer Student Fellow*, WHOI, Woods Hole, MA. Co-mentored an undergraduate student on a mathematical modeling project. Worked with her on model development, poster presentation, and manuscript development.
- Spring 2015 *Ecological Society of America Theory Section Mentoring Program*, Established a mentoring program within the theory section to facilitate mentoring among multiple professional levels.
- Fall 2011 - present *Terrascope Alumni Mentor*, MIT, Cambridge, MA. Provide feedback and assistance to freshman students engaged in a team-based, research course.
- Summer 2015 *Kaufman Teaching Certificate Program*, Teaching and Learning Laboratory, MIT, Cambridge, MA. Completed a course in teaching practice.
- Spring 2013 *Teaching Assistant for Biological Oceanography*, WHOI, Woods Hole, MA. Taught a weekly recitation and assisted in the construction and grading of problem sets and exams. Supervisor: Jesus Pineda and Stace Beaulieu.

Awards and Membership in Honorary Societies

- 2012 Lotka Award for best graduate poster in Theoretical Ecology Section at ESA conference
2011 MIT Ida Green Fellowship
2010 Tau Beta Pi; Engineering Honor Society
2010 Chi Epsilon; Civil Engineering Honor Society

Grants

- 2014 **WHOI Ocean Venture Fund: Management of climate-impacted fisheries**; 1 year
2011 **NSF Graduate Research Fellowship**: 3 years

Outreach and Service

Outreach

- Summer 2014 - 2016 *National Network of Climate Change Interpreters (NNOCCI) Regional Leader*, Coordinate science fellows who have gone through the NNOCCI program and organize opportunities, such as webinars, for science fellows to share their expertise.
- Fall 2013 *NNOCCI*, New England Aquarium, Boston, MA. Learned best-practices for communicating climate change science to the general public.
- Fall 2012 - 2013 *The Secret Life of Researchers Newspaper Column in MIT's Tech*, Founded, wrote for, and solicited articles for a column about research at MIT.

Reviews

Reviewed for *Global Change Biology*

Other Service

- 2013 - 2015 ***ESA Theory Section-Student Section Liaison***, Worked with the leadership of the Theory Section to judge paper and presentation awards and to run section meetings.
- 2014 - present ***Judge at Falmouth High School and Falmouth Academy Science Fairs***, Judged and gave feedback to students on science fair projects at the middle and high school levels.
- 2013 - 2014 ***Association of Student Activities (ASA) Secretary***, Organized and helped run meetings at MIT, and served as a member of the Graduate Student Association funding board representing the ASA.
- 2012 ***Association of Student Activities, Graduate Student Member at Large***, Represented graduate student groups and helped organize events for the ASA.
- Fall 2012 ***Joint Program Student Organization President***, Helped organize the open house, ran meetings, and represented student interests to the administration.
- Fall 2011 - 2012 ***Volunteer at Terrascope Youth Radio***, Gave feedback and aided in radio program development to Cambridge high school students.

Society Memberships

- 2012 - present Ecological Society of America
2012 - present Society for Mathematical Biology
2013 - present Resource Modelling Association
2016 - present Association of Environmental and Resource Economics

Skills

MATLAB, CAD (Keycreator), L^AT_EX, French, Adobe Illustrator