Kelly A. Kearney

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Research Interests

Marine ecosystem and biogeochemical dynamics at global and regional scales, with a focus on developing modeling techniques that link lower and upper trophic levels.

Education

2012 — Ph.D., Geosciences
Princeton University
Princeton, NJ

- Advisor: Jorge Sarmiento
- Dissertation title: An analysis of marine ecosystem dynamics through development of a coupled physical-biogeochemical-fisheries food web model

2008 — M.A., Geosciences
Princeton University,
Princeton, NJ

2002 — B.S., Marine science and biology
University of Miami,
Coral Gables, FL

- *Summa cum laude*, Departmental Honors in Marine Science
- Minors: physics, mathematics, chemistry

Fellowships and Awards

2011 - 2012 — Nippon Foundation Nereus Fellowship
2008 - 2012 — NOAA Dr. Nancy Foster Scholarship
2002 — Maryland Sea Grant Research Experience for Undergraduates
2002 — Phi Beta Kappa

Research and Professional Experience

2015 - present — Research scientist
Joint Institute for the Study of the Atmosphere and Ocean; University of Washington
NOAA Alaska Fisheries Science Center
Seattle, WA

2013 - 2015 — Postdoctoral associate
Division of Marine Biology and Fisheries/Cooperative Institute for Marine and Atmospheric Studies; Rosenstiel School of Marine and Atmospheric Science; University of Miami
NOAA Atlantic Oceanographic and Meteorological Laboratory; Ocean Chemistry and Ecosystems Division; Ecosytem Restoration, Assessment, and Modeling Group

Miami, FL

Mar. 2009 - May 2009

CTD operations and sample collection
U.S. Repeat Hydrography Program, reoccupation of WOCE Section I5

2003 - 2006

Physical scientist
Naval Oceanographic Office
Geophysics and Acoustics branch, Mine Warfare Emerging Technologies group
Stennis Space Center, MS

- Worked with high-frequency acoustic models to simulate sonar performance under varying environmental conditions
- Collected and analyzed sidescan sonar, multibeam bathymetry, and hydrographic data aboard the Naval Oceanographic Office's TAGS-60 class vessels— 9 months sea time total.

Jan. 2003 - Jul. 2003

Independent Undergraduate Research
Rosenstiel School of Marine and Atmospheric Science, University of Miami
Miami, FL

- Continuation of REU research (below).

Jun. 2002 - Aug. 2002

Research Experience for Undergraduates Fellowship
Horn Point Laboratory, University of Maryland Center for Environmental Science
Cambridge, MD

- Developed an empirical advection-diffusion model from salinity obervations to analyze nutrient movement in the Choptank River, a major tributary of the Chesapeake Bay.
- Advisor: Bill Boicourt

Teaching Experience

Feb. 2009 - May 2009

Assistant in Instruction
Princeton University
Princeton, NJ

- GEO 202: Ocean, Atmosphere, and Climate (for upper level undergraduates)
- lab instructor for 9 students, grader for lecture with 19 students

Feb. 2003 - Jul. 2003

Test preparation instructor
Kaplan, Inc.
Miami, FL

- GRE test preparation courses, math and verbal sections
- approximately 20 students per class

Technical Skills

Programming languages— expert with Matlab; proficient in Perl, Fortran; also familiar with javascript (D3), python, DOS batch files, awk, sed, and unix shell scripting; limited use of Visual .NET
Scientific Applications— Regional Ocean Modeling System (ROMS), LaTeX, LyX, git, NCAR Command Language (NCL), Generic Mapping Tools (GMT), ferret
Other Applications— Microsoft Office; Apple iWork; Adobe Illustrator 5
Operating systems— Mac OS X, UNIX, Linux, Windows

Professional and Service Activities

2008-2012	Princeton Graduate Student Government— Health and Life Chair
2003-2014	Member: ASLO

Publications and Presentations

Journal Articles

V. Guesnet, G. Lassalle, A. Chaalali, K. Kearney, B. Saint-Béat, B. Karimi, B. Grami, S. Tecchio, N. Niquil, and J. Lobry, "Incorporating food-web parameter uncertainty into Ecopath-derived ecological network indicators," *Ecol. Modell.*, vol. 313, pp. 29–40, 2015.

K. A. Kearney, D. Tommasi, and C. Stock, "Simulated ecosystem response to volcanic iron fertilization in the subarctic Pacific ocean," *Fish. Oceanogr.*, vol. 24, no. 5, pp. 395–413, 2015.

J. Steenbeek, J. Buszowski, V. Christensen, E. Akoglu, K. Aydin, N. Ellis, D. Felinto, J. Guitton, S. Lucey, K. Kearney, S. Mackinson, M. Pan, M. Platts, and C. Walters, "Ecopath with Ecosim as a model-building toolbox: Source code capabilities, extensions, and variations," *Ecol. Modell.*, 2015.

K. A. Kearney and C. Kelble, "Modeling the combined effects of climate change and Everglades restoration on the Florida Bay ecosystem," poster presentation, Ocean Sciences Meeting, Honolulu, HI, 2014.

K. A. Kearney, C. Stock, and J. L. Sarmiento, "Amplification and attenuation of increased primary production in a marine food web," *Mar. Ecol. Prog. Ser.*, vol. 491, pp. 1–14, 2013.

K. A. Kearney, C. Stock, K. Aydin, and J. L. Sarmiento, "Coupling planktonic ecosystem and fisheries food web models for a pelagic ecosystem: Description and validation for the subarctic Pacific," *Ecol. Modell.*, vol. 237-238, pp. 43–62, jul 2012.

H. Song, R. Ji, C. Stock, K. Kearney, and Z. Wang, "Interannual variability in phytoplankton blooms and plankton productivity over the Nova Scotian Shelf and in the Gulf of Maine," *Mar. Ecol. Prog. Ser.*, vol. 426, pp. 105–118, 2011.

W. W. L. Cheung, V. W. Y. Lam, J. L. Sarmiento, K. Kearney, R. Watson, D. Zeller, and D. Pauly, "Large-scale redistribution of maximum fisheries catch potential in the global ocean under climate change," *Glob. Chang. Biol.*, vol. 16, pp. 24–35, jan 2010.

V. Christensen, C. J. Walters, R. Ahrens, J. Alder, J. Buszowski, L. B. Christensen, W. W. L. Cheung, J. Dunne, R. Froese, V. Karpouzi, K. Kaschner, K. Kearney, S. Lai, V. Lam, M. L. D. Palomares, A. Peters-Mason, C. Piroddi, J. L. Sarmiento, J. Steenbeek, R. Sumaila, R. Watson, D. Zeller, and D. Pauly, "Database-driven models of the world's Large Marine Ecosystems," in *Sustain. Dev. World's Large Mar. Ecosyst. Dur. Clim. Chang. A Commem. Vol. to Adv. Sustain. Dev. Occas. Present. 2010 Göteborg Award* (K. Sherman and S. Adams, eds.), ch. 6, pp. 74–103, IUCN, Gland, Switzerland., 2010.

W. W. L. Cheung, V. W. Y. Lam, J. L. Sarmiento, K. Kearney, R. Watson, and D. Pauly, "Projecting global marine biodiversity impacts under climate change scenarios," *Fish Fish.*, vol. 10, no. 3, pp. 235–251, 2009.

V. Christensen, C. J. Walters, R. Ahrensa, J. Alder, J. Buszowski, L. B. Christensen, W. W. L. Cheung, J. Dunne, R. Froese, V. Karpouzi, K. Kaschner, K. Kearney, S. Lai, V. Lam, M. L. D. Palomares, A. Peters-Mason, C. Piroddi, J. L. Sarmiento, J. Steenbeek, R. Sumaila, R. Watson, D. Zeller, and D. Pauly, "Database-driven models of the world's Large Marine Ecosystems," *Ecol. Modell.*, vol. 220, no. 17, pp. 1984–1996, 2009.

G. C. Johnson and K. A. Kearney, "Ocean climate change fingerprints attenuated by salt fingering?," *Geophys. Res. Lett.*, vol. 36, no. 21, p. L21603, 2009.

Presentations

K. A. Kearney and C. Kelble, "Modeling the combined effects of climate change and Everglades restoration on the Florida Bay ecosystem," poster presentation, Ocean Sciences Meeting, Honolulu, HI, 2014.

K. Kearney, C. Stock, D. Tommasi, and J. Sarmiento, "Can volcanic-induced primary production explain high salmon returns?," oral presentation, IMBER Open Science Conference, Bergen, Norway, 2014.

K. Kearney, C. Stock, K. Aydin, and J. Sarmiento, "Modeling the effects of decadal-scale variability across trophic levels," oral presentation, Eastern Pacific Ocean Conference, South Lake Tahoe, CA, 2011.

K. A. Kearney, C. Stock, and J. L. Sarmiento, "Predicting ecosystem response to decadal-scale climate variability using an end-to-end ecosystem model," poster presentation, ICES Annual Science Conference, Gdansk, Poland, 2011.

K. Kearney, C. Stock, and J. Sarmiento, "An end-to-end ecosystem model for the Pacific Eastern Subarctic Gyre," poster presentation, Advances in Marine Ecosystem Modeling Research (AMEMR) Meeting, Plymouth, UK, 2011.

K. Kearney, C. Stock, and J. Sarmiento, "Investigating decadal variability in the Eastern Subarctic Pacific using an end-to-end ecosystem model," oral presentation, ASLO Aquatic Sciences Meeting, San Juan, Puerto Rico, 2011.

K. Kearney, C. Stock, and J. Sarmiento, "Investigating decadal variability in the Northeast Pacific using an end-to-end ecosystem model," poster presentation, CAMEO End-to-end Modeling Workshop, Woods Hole, MA, 2010.

K. Kearney, C. Stock, and J. Sarmiento, "Investigating decadal variability in the Northeast Pacific using an end-to-end ecosystem model," poster presentation, Ocean Sciences Meeting, Portland, OR, 2010.

K. A. Kearney, C. Stock, and J. Sarmiento, "Modeling an end-to-end oceanic food web with physical forcing," poster presentation, ASLO Aquatic Sciences Meeting, Nice, France, 2009.

K. Kearney, J. Sarmiento, V. Christensen, A. Gnanadesikan, and C. Stock, "Linking a lower trophic level biogeochemical model with an upper trophic level ecosystem model," poster presentation, Ocean Sciences Meeting, Orlando, FL, 2008.

K. Kearney, J. Sarmiento, V. Christensen, A. Gnanadesikan, C. Stock, and S. Guenette, "Linking a lower trophic level biogeochemical model with an upper trophic level ecosystem model," oral presentation, European Conference for Ecological Modelling, Trieste, Italy, 2007.

K. A. Kearney and W. Boicourt, "Analysis of salinity data for an advection-diffusion model," Invited REU poster presentation, ASLO Aquatic Sciences Meeting, Salt Lake City, 2003.