

Enrique N. Curchitser

Title and Address:

Associate Professor
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Contact Information:

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Education

Highest Earned Degree

1999 Ph.D. in Oceanography, Rutgers University.

Dissertation

On the Transient Adjustment of a Mid-latitude Abyssal Ocean Basin with Realistic Geometry and Bathymetry (1999). Director: Dr. Dale Haidvogel.

Other Earned Degrees

1993 M.S. in Mechanical and Aerospace Engineering, Rutgers University. Thesis title: *Cyclic Reduction Solutions of Aerodynamic Problems Using MIMD Distributed Memory Multiprocessors*.

1988 B.S. with honors, in Mechanical and Aerospace Engineering, Rutgers University. Honors thesis title: *Numerical Study of Rayleigh-Benard Convection in 3-D*.

Linguistic Ability

Spanish, English

Graduate Dissertation Advisors

Ph.D. Dr. Dale B. Haidvogel (Rutgers University)

M.Sc. Dr. Richard B. Pelz (Rutgers University)

Honors and Awards

Fellowships

Post-doctoral fellowship award from the Columbia University Earth Institute Center for Non-Linear Earth Systems, 2001 (2 years of salary support).

Faculty fellowship from the Advanced Study Program at the National Center for Atmospheric Research, Boulder, Colorado, Summer 2006 (2 months salary and travel support).

Professional Awards and Honors

International Council for the Exploration of the Seas (ICES) Service Award

National Science Foundation Antarctica Service Medal

American Society of Mechanical Engineers. Best technical paper award on a paper titled: *NurneTical study*

of Rayleigh-Benard Convection in 3-D. ASME northeast regional student competition

James Slade honors scholar, College of Engineering, Rutgers University

Tau Beta Pi national engineering honor society, elected

Pi Tau Sigma national mechanical engineering honor society, elected

Rutgers University College of Engineering Dean's List.

Research Interests

Professional Identification

Oceanographer, Climate Scientist, Modeler

Employment History

Positions Held

- 07/2012-ongoing | Associate Professor, Department of Environmental Sciences, Rutgers University
- 05/2012-ongoing | Affiliate Scientist, National Center for Atmospheric Research
- 03/2014-ongoing | U.S. State Department representative to the North Pacific Marine Science Organization (PICES) governing council.
- 09/2006-ongoing | Adjunct Associate Research Scientist at the Lamont-Doherty Earth Observatory, Columbia University.
- 09/2006-12/2013 | Executive director for the U.S. GLOBEC program.
- 09/2006-06/2012 | Associate Research Professor, Institute of Marine and Coastal Sciences, Rutgers University.
- 04/2002-08/2006 | Doherty Associate Research Scientist, Lamont-Doherty Earth Observatory, Columbia University.
- 02/2001-04/2002 | Post-Doctoral fellow, Lamont-Doherty Earth Observatory and the Department of Applied Physics and Applied Mathematics, Columbia University.
- 08/2000-02/2001 | Visiting Scientist, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany.
- 09/1999-08/2000 | Postdoctoral scientist, NASA Goddard Institute for Space Studies, New York.

Graduate Program Affiliations

- 2012-ongoing: Graduate Program in Atmospheric Sciences, Full Member
- 2012-ongoing: Graduate Program in Oceanic Sciences, Full Member

Publications

Chapters in Books or Monographs

Ito, S.-I., K.A. Rose, A.J. Miller, K. Drinkwater, J.E. Overland, S. Sundby E.N. Curchitser, J.W. Hurrell and Y. Yamanaka, 2010. Ocean ecosystem responses to future global change scenarios: A way forward. In: Global Change and Marine Ecosystems, M. Barange, J. Field, R. Harris, E. Hofmann, I. Perry and F. Werner, Eds., Oxford press, pp 287-322.

Curchitser E.N. and R.B. Pelz, 1991. Implementation of the Euler equations on MIMD, distributed memory, multiprocessor computers using cyclic reduction algorithms. *Parallel Computational Fluid Dynamics*, Elsevier Science Publishers, pp 97-112.

Articles in Refereed Journals

(* denotes student or post-doc paper)

*Kang, D., and E.N. Curchitser, 2015. Energetics of Eddy-Mean Flow Interactions in the Gulf Stream region. *J. Phys. Oce.* In review.

Rose, K.A., J. Fiechter, E.N. Curchitser, K. Hedstrom, M. Bernal, S. Creekmore, A. Haynie, S. Ito, S. Lluch-Cota, B.A. Megrey, C. Edwards, D. Checkley, T. Koslow, S. McClatchie, F. Werner and A. McCall, 2015. Demonstration of a fully-coupled end-to-end model for small pelagic fish using sardine and anchovy in the California Current. *Prog. Oce.*, In review.

Fiechter, J., D. Huff, B. Martin, D.W. Jackson, C. Edwards, K. Rose, E. Curchitser, K. Hedstrom, S. Lindley and B. Wells, 2015. Environmental conditions impacting juvenile Chinook salmon growth off central California: an ecosystem model analysis. *Geo. Res. Lett.* In review.

*Dorman, J.G., F. Castruccio, E.N. Curchitser, J. Kleypas and T. Powell (2014). Modeled connectivity of *Acropora millepora* populations from reefs of the Spratly Islands and the greater South China Sea. *Coral Reef*. In Review.

*Cheng, W., E.N. Curchitser, C. Stock, A.J. Hermann, E. Cokelet, C. Mordy, P. Stabeno, G. Hervieux and F. Castruccio, 2015. What processes contribute to the spring and fall bloom co-variability on the Eastern Bering Sea shelf? *Deep-Sea Res. II*. In Review.

Parada, C., J.M. Orensanz, S. Hinckley, D. Armstrong, E. Curchitser and A. Hermann, 2015. Gauging the Ratchet's Crank- Coupled Biophysical Modelling of Snow Crab (*Chionoecetes opilio*) Larval Dispersal in the Eastern Bering Sea. *Prog. Oce.*, In review.

Hermann, A.J., G.A. Gibson, N.A. Bond, E.N. Curchitser, K. Hedstrom, W. Cheng, M. Wang, E.D. Cokelet and P.J. Stabeno 2015. Projected future biophysical states of the Bering Sea. *Deep-Sea Res. II*. In Review.

Kleypas, J., F. Castruccio and E. N. Curchitser and E. McLeod, 2015. The impact of ENSO on coral heat stress in the western equatorial Pacific. *Global Change Biology*, In press.

*Navarez, D.A., D.M. Munroe, E.E. Hofmann, J.M. Klinck, E.N. Powell, R. Mann and E.N. Curchitser, 2014. Long-term dynamics in Atlantic surfclam (*Spisula solidissima*) populations: The role of bottom water temperature. *J. Mar. Sys.* 141, pp. 136-148.

Fiechter, J., K.A. Rose, E.N. Curchitser and K. Hedstrom, 2015. The role of environmental controls in determining sardine and anchovy population cycles in the California Current: Analysis of an end-to-end model. *Prog. Oce.*, In press.

*Richar, J.I., G.H. Kruse, E.N. Curchitser and A.J. Hermann, 2015. Patterns in connectivity and retention of simulated Tanner crab (*Chionoecetes bairdi*) larvae in the eastern Bering Sea. *Prog. Oce.* In Press.

Fiechter, J., E. N. Curchitser, C. A. Edwards, F. Chai, N. L. Goebel, and F. P. Chavez, 2014. Air-sea CO₂ fluxes in the California Current: Impacts of model resolution and coastal topography. *Global Biogeochem. Cycles*, 28. doi:10.1002/2013GB004683.

Cheng, W., E.N. Curchitser, C. Ladd and P. Stabeno, 2014. Ice--Ocean Interactions in the Eastern Bering Sea: NCAR CESM Simulations and Comparison with Observations. *Deep Sea Res. II*. doi:10.1016/j.dsr2.2014.03.002.

*Petrik, C. J.T. Duffy-Anderson, F. Mueter, K. Hedstrom and E.N. Curchitser, 2014. Biophysical transport model suggests climate variability determines distribution of walleye pollock early life stages in the Eastern Bering Sea through effects of spawning. *Prog. Oce.*, In press.

Danielson, S.L., T.J. Weingartner, K.S. Hedstrom, K. Aagaard, R. Woodgate, E.N. Curchitser and P.J. Stabeno, 2014. Coupled wind-forced controls of the Bering-Chukchi shelf circulation and the Bering Strait

- throughflow: Ekman transport, continental shelf waves, and variations of the Pacific-Arctic sea surface height gradient. *Prog. Oce.* 125, pp. 40-61. DOI:10.1016/j.pocean.2014.04.006.
- McKinell, S., E.N. Curchitser, K. Groot, M. Kaeriyama and M. Trudel, 2014. Oceanic and atmospheric extremes motivate a new hypothesis for variable marine survival of Fraser River sockeye salmon. *Fish. Oceanogr.* 23:4, pp. 322-341. DOI:10.1111/fog.12063.
- Kristiansen, T., C. Stock, K. Drinkwater and E.N. Curchitser, 2014. Mechanistic insights into the effects of climate change on larval cod. *Global Change Biology*. doi: 10.1111/gcb.12489.
- Curchitser, E.N, H.P. Batchelder, D.B. Haidvogel, J. Fiechter and J. Runge, 2013. Advances in Physical, Biological and Coupled Ocean Models During the US GLOBEC Program. *Oceanography*, Vol. 26, No. 4, pp. 54-69.
- *Castruccio, F. S., E. N. Curchitser, and J. A. Kleypas, 2013. A model for quantifying oceanic transport and mesoscale variability in the Coral Triangle of the Indonesian/Philippines Archipelago, *J. Geophys. Res. Oceans*, 118, doi:10.1002/2013JC009196.
- *Kang, D. and E.N. Curchitser, 2013. Gulf Stream eddy characteristics in a high-resolution ocean model. *J. Geophys. Res. Oceans*, doi:10.1002/jgrc.20318.
- *Gibson, G.A., A. J. Hermann, K. Hedstrom, E. N. Curchitser, 2013. A modeling study to explore on-shelf transport of oceanic zooplankton in the Eastern Bering Sea Deep-Sea Res. II, 121–122: pp. 47-64.
- *Meccia, V., M. Tonelli, I. Weiner and E.N. Curchitser, 2013. A numerical study of the Southern Ocean including a thermodynamic active ice shelf: part I Weddell Sea. *Geosci. Model Dev.*, 6, pp. 1209-1219. doi:10.5194/gmd-6-1209-2013.
- Haidvogel, D.B., E. Turner, E.N. Curchitser and E.E. Hofmann, 2013. Looking Forward: Transdisciplinary Modeling, *Environmental Forecasting and Management. Oceanography*, Vol. 26, No. 4, pp. 136-143.
- Hermann, A.J., G.A. Gibson, N.A. Bond, E.N. Curchitser, K. Hedstrom, W. Cheng, M. Wang, P. J. Stabeno, L. Eisner, K.D. Cieciel, 2013. A multivariate analysis of observed and modeled biophysical variability on the Bering Sea shelf: multidecadal hindcasts (1970-2009) and forecasts (2010-2040). *Deep-Sea Res. II*, 56: pp. 2474-2486. doi:10.1016/j.dsr2.2009.02.008.
- Hollowed A.B., E.N. Curchitser, C. Stock, C.I. Zhang, 2012. Trade-offs associated with different modeling approaches for assessment of fish and shellfish responses to climate change. *Climate Change*. doi:10.1007/s10584-012-0641-z.
- *Danielson, S., K. Hedstrom, K. Aagard, T. Weingartner and E.N. Curchitser, 2012. Wind-induced reorganization of the Bering shelf circulation. *Geo. Res. Lett.* doi:10.1029/2012GL051231.
- Capotondi, A., M. Alexander, N. Bond, E. Curchitser and J. Scott, 2012. Enhanced upper-ocean stratification with climate change in the CMIP3 models. *J. Geophys. Res.*, doi:10.1029/2011JC007409.
- *Danielson, S., E. Curchitser, K. Hedstrom, T. Weingartner, and P. Stabeno, 2011. On ocean and sea ice modes of variability in the Bering Sea. *J. Geophys. Res.*, 116, C12034, doi:10.1029/2011JC007389.
- Arango, H., J. Levin, E.C. Curchitser, B. Zhang, A.M. Moore, W. Han, A.L. Gordon, C. Lee and J.B. Girton, 2011. Development of a Hindcast/Forecast Model for the Philippine Archipelago. *Oceanography*, 20 (1), pp. 58-69, doi:10.5670/oceanog.2011.04.
- Stock C.A., M.A. Alexander, N.A. Bond, K.M. Brander, W.W.L Cheung, E.N. Curchitser, T.L. Delworth, J.P. Dunne, S.M. Griffies, M.A. Haltuch, J.A. Hare, A.B. Hollowed, P. Lehodey, S.A. Levin, J.S. Link, K.A. Rose, R.R. Rykaczewski, J.L. Sarmiento, R.J. Stouffer, F.B. Schwing, G.A. Vecchi and F.E. Werner, 2011. On the use of IPCC-class models to assess the impact of climate on Living Marine Resources. *Prog. Ocean*, 88 (1-4), pp. 1-27, doi:10.1016/j.pocean.2010.09.001.
- Ito, S.-I., K.A. Rose, A.J. Miller, K. Drinkwater, J.E. Overland, S. Sundby E.N. Curchitser, J.W. Hurrell and Y. Yamanaka, 2010. Ocean ecosystem responses to future global change scenarios: A way forward. In: *Global Change and Marine Ecosystems*, M. Barange, J. Field, R. Harris, E. Hofmann, I. Perry and F.

Werner, Eds., Oxford press, pp 287-322.

Combes, V., E. Di Lorenzo and E. Curchitser, 2009. Interannual and decadal variations in cross-shore mixing in the Gulf of Alaska. *J. Phys. Oce.*, 39(4): pp. 1050-1059.

Hermann, A.J., E.N. Curchitser, E.L. Dobbins and D.B. Haidvogel, 2009. A comparison of remote versus local influence of El Nino on the coastal circulation of the Northeast Pacific. *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.02.005.

*Fiechter J., A.M. Moore, C.A. Edwards, K.W. Bruland, E. Di Lorenzo, C.V. Lewis, T.M Powell, E.N. Curchitser and K. Hedstrom, 2009. A simple approach to model iron limitation on primary production in the coastal Gulf of Alaska. *Deep-Sea Res. II*, doi:10.1016/j.dsr2.2009.02.010.

Han W., A. M. Moore, J. Levin, B. Zhang, H. G. Arango, E.N. Curchitser, E. Di Lorenzo, A. Gordon, J. Lin, 2009. Seasonal surface ocean circulation and dynamics in the Philippine Archipelago region during 2004-2008. *Dyn. Atm. Oce.*, 47, pp. 114-137.

Di Lorenzo, E., N. Schneider, K.M. Cobb, K. Chhak, P.J. Franks, A.J. Miller, J.C. McWilliams, S.J. Bograd, H. Arango, E.N. Curchitser, T.M. Powell and P. Rivere, 2008. North Pacific Gyre Oscillation links ocean climate and ecosystem change. *Geophys. Res. Lett.*, 35, L08607, doi:10.1029/2007GL032838.

Haidvogel D.B., H. Arango, W.P. Budgell, B. Cornuelle, E.N. Curchitser, E. Di Lorenzo, K. Fennel, W.R. Geyer, A.J. Hermann, L. Lanerolle, J. Levin, J.C. McWilliams, A.J. Miller, A.M. Moore, T.M Powell, A. Shchepetkin, C.R. Sherwood, R.P. Signell, J.C. Warner and J. Wilkin, 2008: Regional Ocean Forecasting in Terrain-Following Coordinates. *J. Comp. Phys.*, 227, pp. 3595-3624.

Huang, H.P., A. Kaplan, E.N. Curchitser, and N. Maximenko, 2007. The degree of anisotropy for mid-ocean currents from satellite observations and an eddy-permitting model simulation. *J. Geophys. Res.*, 112, C09005, doi:10.1029/2007JC004105.

Powell, T, C. Lewis, E.N. Curchitser, D.B. Haidvogel, A.J. Hermann and E.L Dobbins, 2006. Results from a three-dimensional, nested biological-physical model of the California Current System and comparisons with statistics from satellite imagery. *J. Geophys. Res.*, 111, C07018, doi:10.1029/2004JC002506

Curchitser, E.N., D.B. Haidvogel, A.J. Hermann, E. Dobbins, T.M. Powell and A. Kaplan, 2005. Multi-scale modeling of the North Pacific Ocean: Assessment of simulated basin-scale Variability (1996-2003). *J. Geophys. Res.*, 110, C11021, doi:10.1029/2005JC002902.

Gan J.P., H. Li, E.N. Curchitser and D.B. Haidvogel, 2005. Modeling South China Sea Circulation . Part I: Response to seasonal forcing regimes. *J. Geophys. Res.*, 111, C06034, doi:10.1029/2005JC003298.

Iskandarani, M, D.B. Haidvogel, J. Levin, E.N. Curchitser, and C.A. Edwards, 2002. Multiscale Geophysical Modeling Using the Spectral Element Method. *Computing in Science and Engineering*, 4(5): pp. 42-48.

Curchitser, E.N. , D.B. Haidvogel, and M. Iskandarani, 2001. Transient adjustment of circulation in a mid-latitude abyssal ocean basin with realistic geometry and bathymetry. *J. Phys. Oce.*, 31(3): pp. 725-745.

Curchitser, E.N., D.B. Haidvogel, and M. Iskandarani, 1999. On the transient adjustment of a mid-latitude abyssal ocean basin with realistic geometry: The constant depth limit. *Dyn. Atm. Oce.*, 29: pp. 147--188.

Curchitser, E.N., M. Iskandarani, and D.B. Haidvogel, 1998. Spectral element solution of the Shallow-Water Equations on multiprocessor computers. *J. Atmo. Oce. Tech.*, 15(2): pp. 510--521.

Haidvogel, D.B., E.N. Curchitser, M. Iskandarani, R. Hughes, and M. Taylor, 1997. Global modeling of the ocean and atmosphere using the spectral element method. *Atmo.-Oce. Vol XXXV, No. 1.*

Articles in Non-refereed or General Journals

Biaostoch, A., E. Curchitser, R. Small and C. Boning, 2014. Nested ocean modelling. *CLIVAR Exchanges No. 65 (Vol. 19 No. 2).*

Curchitser, E.N. and I. Allen, 2012. Report on workshop on Climate Change Projections. *PICES Press Vol.*

20, No. 2.

Haidvogel, D.B., and E.N. Curchitser, 2011. Interdisciplinary Modeling in U.S. GLOBEC. Current, Vol. 27 No. 2.

Curchitser, E.N., A. Gallego, M. Kishi and E. Di Lorenzo, 2009. Report on Modeling Ecosystems and Ocean Processes Workshop. PICES Press Vol. 17 No. 2.

Published Conference Proceedings

Petrik, C.M., J. T. Duffy-Anderson, F. Mueter, K. Hedstrom, S. Danielson, E. Curchitser, and S. Barbeaux. Modeling climate effects on the dispersal and distribution of early life stages of walleye pollock over the eastern Bering Sea Shelf. ICES, CM 2013/B:43

Curchitser, E.N., K.A. Rose, K. Hedstrom, J. Fiechter, S.-I. Ito, S. Lluch-Cota and B.A. Megrey, 2009. Development of a climate-to-fish-to-fishers model: progress, issues, and some solutions. ICES CM 2009/E:26

Chyczewski, Marconi, Pelz, and Curchitser. *Solution of the Euler and Navier-Stokes Equations on Parallel Processors Using a Transposed Thomas ADI Algorithm*. AIAA paper 93-3310, in proceedings of 11th Computational Fluid Dynamics Conference, Orlando, FL 1993.

Curchitser, Pelz, and Marconi. *Solution of the Euler and Navier-Stokes equations on MIMD multiprocessors using cyclic reduction*. AIAA paper 92-0561, in proceedings of the 30th Aerospace Sciences Meeting 1992.

Other Publications

Curchitser, E.N., K. Hedstrom, S. Danielson and T. Weingartner. 2013. Adaptation of an Arctic Circulation Model. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Environmental Studies Program, Headquarters, Herndon, VA. OCS Study BOEM 2013-202. 82 pp.

McKinnell, S.M., E. Curchitser, C. Groot, M. Kaeriyama and K.W. Myers. 2011. The decline of Fraser River sockeye salmon *Oncorhynchus nerka* (Steller, 1743) in relation to marine ecology. PICES Advisory Report. Cohen Commission Tech. Rept. 4: 195p. Vancouver, B.C. www.cohencommission.ca

Curchitser, E.N., J. Small, K. Hedstrom and W. Large, 2011. Up- and down-scaling effects of upwelling in the California Current System. pp. 98-102. In: Foreman, M.G., Yamanaka, Y. (Eds), Report of Working Group 20 on Evaluations of Climate Change Projections, PICES Scientific Report No. 40.

Curchitser, E.N., K. Hedstrom, S. Danielson and T. Weingartner, 2010. Modeling of Circulation in the North Aleutian Basin. Department of the Interior, Bureau of Ocean Energy Management, Regulation and Enforcement, Environmental Studies Program, Headquarters, Herndon, VA. OCS Study BOEMRE 2010-028. 69p.

Teaching Activities

Courses Taught

Computational Methods for Meteorology, Undergraduate, Rutgers University

Large-scale Ocean and Atmospheric Dynamics, Graduate, Rutgers University

Numerical Modeling of the Atmosphere and Ocean, Graduate, Rutgers University

Assessing the Economic Risks of Climate Change, Graduate, Rutgers University

Graduate Ocean Seminar, Graduate, Rutgers University

Fundamentals of Ocean Climate Modeling at Global and Regional Scales, Graduate summer school, Hyderabad, India

Numerical Modeling, Graduate, Columbia University

Special Courses Taught

South Atlantic circulation variability and change: integrating models and observations. Buenos Aires, Argentina (2014)

International Center for Theoretical Physics: Summer school on *Fundamentals of Ocean Climate Modeling at Global and Regional Scales*. Hyderabad, India (2013).

Curricular Development - Courses and Programs Developed

- 2014-ongoing | Fundamentals of Geophysical Fluid Dynamics. Developed new course for graduate students in Atmospheric and Oceanic Sciences at Rutgers. To be taught every other year.
- 2014-ongoing | Large-scale Atmosphere and Ocean Dynamics. Re-designed course for graduate students in Atmospheric and Oceanic Sciences at Rutgers. To be taught every other year.
- 2014-ongoing | Development of a numerical laboratory for Geophysical Fluid Dynamics: As part of the re-design of the graduate level Atmosphere and Ocean dynamics courses, I am developing a computational laboratory to assist students in developing a physical intuition for the subject.
- 2013-ongoing | Assessing the Economic Risks of Climate Change. Developed new graduate course, first taught in the Spring of 2014.
- 2013-ongoing | Computational Methods for Meteorology. Developed new course required for undergraduate majors in Meteorology. To be taught every Spring.
- 2013-ongoing | Computational Methods for Meteorology. Development of course slides and software that students can access through the course (Sakai) website to help them with material.

Conference Presentations, Lectures, Demonstrations

Keynote or Plenary Addresses

Modeling the Earth System: Are we ready? . Science Board invited talk at the PICES annual meeting, Portland, OR (2010).

A multi-scale approach to modeling the North Pacific ocean. Keynote address at the Brazilian Oceanography Society (SBO) annual meeting, Sao Paulo, Brazil (2009).

Multi-scale modeling in the North Pacific Ocean. Bjerknes Institute invited scientist keynote address, Bergen, Norway (2004).

Invited Addresses

Regional Climate Modeling in the California Current System (and beyond), CalCOFI Symposium, La Jolla, CA (2014).

A climate-to-fish-to-fishing model for the eastern Pacific sardine and anchovy system, NOAA-NWFSC, Seattle, WA (2014).

Multi-scale modeling of boundary currents, CLIVAR workshop on high-resolution modeling, Kiel, Germany (2014).

Climate—Boundary Current Interactions: Stories from East and West. PICES annual meeting, Yeosu, Korea (2014).

Climate change and marine ecosystem research, PICES FUTURE workshop, Kona, HI (2014).

Recent Advances in Regional, Climate and Earth System modeling, India Institute of Technology, Bhubaneswar, India (2013).

Ecosystem models and their relevance to management strategy evaluations, Pacific Fisheries Management Council, La Jolla, CA (2013).

Multi-scale modeling of oceanic boundary currents, Regional Climate Modeling workshop, Busan, Korea (2013).

Imagining the future: Towards an integrated multi-scale Earth System Model , University of Delaware, College of Earth, Ocean, and Environment colloquium, Newark, Delaware (2012).

Some thoughts on global climate and regional ecosystems, International Consortium for the Exploration of the Seas (ICES), Copenhagen, Denmark (2012).

Local and remote climate effects of eastern boundary upwelling. Gordon Research Conference, South Hadley, MA (2011).

The Odyssey of a GLOBEC-ian. U.S. GLOBEC final symposium young scientist presentation, Washington, DC (2011).

Local and remote climate effects of eastern boundary upwelling. Regional Climate Modeling Workshop, Seoul, Korea (2011).

Modeling Climate-to-fish-to-fishers: Yes We Can!, North Carolina State Colloquium, Raleigh, NC (2011).

Development of a climate-to-fish-to-fishers model: Implementation in the eastern Pacific sardine and anchovy systems. American Fisheries Society annual meeting, Seattle, WA (2011).

Local and remote climate effects of eastern boundary upwelling. American Fisheries Society annual meeting, Seattle, WA (2011).

Modeling Climate-to-fish-to-fishers: Yes We Can!, Princeton University colloquium, Princeton, NJ (2011).

Modeling the ocean, one piece at a time. Geophysical Fluid Dynamics Laboratory colloquium, Princeton, NJ (2011).

Some thoughts on climate-and-ecosystem research directions: A modeler's perspective. Friday Harbor, WA (2010).

The ocean in 2030: A modeler's perspective. National Research Council committee on the future of ocean research, Washington, DC (2010).

Development of a climate-to-fish-to-fishers model: Implementation in the eastern Pacific Sardine and Anchovy system. AGU Ocean Sciences Meeting, Portland, OR (2010).

On Climate, Predictability, Earth System Models and other random thoughts. MARIFISH--ICES joint workshop on integrated ecosystem modelling, Barcelona, Spain (2010).

Climate, biology or human activity: How do we study the relative roles causing marine ecosystem variability? IMBER IMBIZO, Crete, Greece (2010).

Mechanisms for low-frequency variability of forage fish: A comparative analysis of North Pacific sardine systems. AGU Ocean Sciences meeting, Portland, OR (2010).

Modeling Climate-to-fish-to-fishers: Yes We Can!, NOAA GLOBEC seminar series, Washington, DC (2009).

End-to-end marine ecosystem models: Strategies, applications and future directions. ICES annual meeting, Berlin, Germany (2009).

Modeling Climate-to-fish-to-fishers: Yes We Can!, University of Maryland at Horn Point colloquium, Horn Point, MD (2009).

A multi-scale approach to modeling the north Pacific Ocean. Old Dominion University Colloquium, Norfolk, VA (2008).

Coupled bio-physical modeling in the North Pacific ocean: A multi-scale approach. SUNY Stony Brook

colloquium, Stony Brook, NY (2007).

Multi-scale modeling in the north Pacific ocean: Assessment of basin-scale variability. Institute of Ocean Sciences colloquium, Sydney, BC (2005).

Organizing and Chairing Activities

Participation in Organizing or Chairing Conferences, Workshops, and Organizations

2006-ongoing | Session and workshop convener in national and international meetings including: American Geophysical Union Ocean Sciences Meeting, North Pacific Marine Science Organization (PICES), International Consortium for the Exploration of the Seas (ICES), Ecosystem Studies of Sub-Arctic Seas (ESSAS), Global Ecosystem Dynamics (GLBOEC), International Symposium on the Effects of Climate Change on the World's Oceans, Regional Climate Modeling Workshops and Climate and Ocean Variability, Predictability and Change (CLIVAR).

Editorial Activities

Editorship of Scholarly or Professional Journals

2014-ongoing | Guest managing editor for Progress in Oceanography special volume on Modeling and observational approaches to understanding marine ecosystem dynamics.

Memberships

Membership/Offices Held in Scholarly and Professional Societies

2005-ongoing | American Meteorological Society
 1994-ongoing | American Geophysical Union.
 1986-1994 | American Society of Mechanical Engineering.
 1986-1994 | American Institute of Aeronautics and Astronautics.

Funding

Externally-Funded Research and/or Training Grants

2014-2018 | (Grant Amount: \$385,384) NSF. Support of US Scientific Participation in the North Pacific Marine Science Organization (PICES)., Curchitser
 2014-2017 | (Grant Amount: \$1,200,000) NSF. EaSM-3: Regional decadal predictions of coupled climate-human systems, Curchitser, Seneca, Felder, Andrews, Kopp
 2014-2017 | (Grant Amount: \$63,271) NOAA. Assessing regional sea-ice predictability in the U.S. Arctic: A multi-model approach., Curchitser
 2013-2015 | (Grant Amount: \$108,292) Department of Interior. Cook Inlet Circulation Model Calculations., Curchitser
 2013-2015 | (Grant Amount: \$270,749) NOAA. Integrated rapid-response observations and ocean ensemble optimization to improve storm intensity forecasts in the northeast U.S., Glenn (PI), Curchitser, Wilkins

- 2012-2015 (Grant Amount: \$38,136) ONR. Predicting trophic interactions and habitat utilization in the California Current ecosystem., Fiechter, Curchitser, Rose
- 2012-2014 (Grant Amount: \$24,948) NSF. Regional variability in future temperature stress to coral reefs in the Coral Triangle., Curchitser
- 2011-2015 (Grant Amount: \$3,853,332) NSF. A CRI-EaSM Collaborative proposal: Climate-to-humans: A study of urbanized coastal environments, their economics and vulnerability to climate change., Curchitser, Felder, Fefferman, Reinfelder, Werner
- 2011-2013 (Grant Amount: \$193,953) NSF. Collaborative Research – BEST Synthesis: The variable transport of pollock larvae and eggs over the Bering shelf: A marriage of physics and biology., Curchitser
- 2011-2012 (Grant Amount: \$120,000) NOAA. Coupled bio-physical projections in the California Current., Curchitser
- 2010-2012 (Grant Amount: \$349,999) Department of Interior. Adaptation of an Arctic Circulation Model. Department of Interior, Bureau of Ocean Energy Management., Curchitser
- 2010-2015 (Grant Amount: \$853,738) NSF. Multi-scale modeling: Assessing the role of eastern boundary upwelling regions and their ecosystems on climate variability using a fully coupled model., Curchitser
- 2010-2012 (Grant Amount: \$113,116) UCAR. Coral Reef Bleaching and Recruitment under Future Climate Change Scenarios in the Coral Triangle – A Vulnerability Study using a Multi-scale Climate Model., Curchitser
- 2010-2012 (Grant Amount: \$53,263) Washington Sea Grant. Projections of ocean properties along the Washington coast related to environmental health., Bond, Curchitser, Hermann
- 2009-2012 (Grant Amount: \$56,673) Spanish Institute of Oceanography (IEO). REPROdUCE: understanding REcruitment PROcesses Using Coupled biophysical models of the pelagic Ecosystem., Curchitser
- 2009-2011 (Grant Amount: \$77,997) NOAA. Cross-shelf exchange processes in the Bering Sea. Downscaling climate models and ecosystems implications., Curchitser
- 2008-2012 (Grant Amount: \$83,389) NSF. Collaborative Research: Assessing the IPCC models for climate variability and change and the implication to ecosystems in the U.S. GLOBEC regions., Curchitser
- 2008-2009 (Grant Amount: \$56,876) NOAA. Tightly Coupled Dynamic End-to-End Marine Ecosystem Models., Curchitser
- 2008-2012 (Grant Amount: \$69,916) North Pacific Research Board (NPRB). Recruitment mechanisms for Tanner Crabs in the Eastern Bering Sea., Curchitser
- 2008-2012 (Grant Amount: \$317,666) NOAA/NSF. CAMEO: Building the Foundation: Mechanisms for low-frequency variability of forage fish: A comparative analysis of North Pacific Sardine systems., Curchitser
- 2008-2011 (Grant Amount: \$204,001) NSF. The effect of varying freshwater inputs on regional ecosystems in the Atlantic., Haidvogel (PI), Curchitser
- 2007-2011 (Grant Amount: \$206,037) NSF. Downscaling global climate projections to the ecosystems of the Bering Sea with nested biophysical models., Curchitser
- 2007-2010 (Grant Amount: \$278,000) Department of Interior (DOI). Modeling of circulation in the North Aleutian Basin., Curchitser

- 2006-2011 | (Grant Amount: \$798,791) NSF. U.S. GLBOEC Coordinating Office., Haidvogel (PI), Curchitser
- 2006-2009 | (Grant Amount: \$156,287) ONR. Characterization and modeling of Lombok Strait dynamics using the ROMS 4DVAR data assimilation system., Moore (PI), Arango, Curchitser, Wilkins, Levin
- 2005-2007 | (Grant Amount: \$355,016) ONR. Testing parameterizations of submesoscale ocean variability: Resolution and power spectra., Kaplan, Curchitser, Huang
- 2005-2008 | (Grant Amount: \$182,974) NSF. US-GLOBEC NEP phase IIIA-CCS: Effects of meso-zooplankton populations in the CCS using data-assimilative, physical/ecosystem models., Curchitser
- 2005-2006 | (Grant Amount: \$19,500) NOAA. A coupled ocean-sea ice model of the Bering Sea., Curchitser

Service

Contributions to the Advancement of the Academic Profession

- 2014-ongoing | U.S. State department appointed academic delegate to the North Pacific Marine Science Organization (PICES) governing council.
- 2014-ongoing | Co-lead International Climate Variability and Predictability (CLIVAR) research focus on bio-physical interactions and the dynamics of upwelling systems.
- 2014-ongoing | Guest managing editor for Progress in Oceanography special volume on Modeling and observational approaches to understanding marine ecosystem dynamics.
- 2014-ongoing | Member (elected) U.S. Climate Variability and Predictability (CLIVAR) Panel on Predictability, Predictions and Applications Interface (PPAI).
- 2013-ongoing | U.S. representative (alternate) to the International Consortium for the Exploration of the Seas (ICES) scientific committee (SCICOM).
- 2011-ongoing | Co-chair of North Pacific Marine Science Organization (PICES) working group on Regional Climate Modeling (WG-29).
- 2011-ongoing | Member (elected) North Pacific Marine Science Organization (PICES) Physical Oceanography and Climate (POC) Committee.
- 2010-ongoing | Member (elected) International Climate Variability (CLIVAR) Ocean Model Development Panel (OMDP).
- 2010-ongoing | Member (elected) North Pacific Marine Science Organization (PICES) working group on North Pacific Climate Variability and Change (WG-27).
- 2010-ongoing | Co-chair of Ecosystem Studies of Sub-Arctic Seas (ESSAS) modeling working group.
- 2010-2010 | Member of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) external review panel.
- 2006-ongoing | Panelist on multiple National Science Foundation, Department of Energy and Sea Grant award panels.
- 2006-2010 | U.S. Member of North Pacific Marine Science Organization (PICES) working group on Evaluation of Climate Change Projections (WG-20). National Center for Atmospheric Research Community Earth System Model (NCAR-CESM) ocean working group.

- 2005-2008 | Member of the National Science Foundation (NSF) Partnership for Advanced Computational Infrastructure (PACI) allocations committee.
- 1999-ongoing | Ad-hoc grant and manuscript reviewer for the National Science Foundation (NSF), North Pacific Research Board (NPRB), Department of Energy (DOE), NOAA-Sea Grant, German Science Foundation (DFG) and various journals including: Nature, J. Geophys. Res., J. Phys. Oce., Deep Sea Res., Ocean Mod. and Prog. Oce.

Service to Other Public Bodies

- 2014-2014 | Department of Energy Peer Review Panelist (SciDAC Panel)
- 2013-2013 | Massachusetts Sea Grant Panelist
- 2011-2011 | Department of Energy Peer Review Panelist (SciDAC Panel)
- 2010-2010 | National Science Foundation Peer Review Panelist (FESD Panel)
- 2009-2009 | National Science Foundation Peer Review Panelist (CMG Panel)
- 2009-2009 | National Science Foundation Peer Review Panelist (OPP Panel)
- 2005-2008 | National Science Foundation Partnership for Advanced Cyber Infrastructure (PACI) Panel member (2 panels per year).

Service to Rutgers University

- 2014-ongoing | New Brunswick Faculty Council
- 2014-ongoing | New Brunswick Faculty Council: Faculty Affairs and Personnel Policy Committee
- 2013-ongoing | Department of Environmental Sciences computer committee
- 2013-ongoing | Department of Environmental Sciences nominations committee

Publics Served

- 2013-ongoing: Fisheries managers: Consult with fisheries managers on uses for model outputs.
- 2012-ongoing: Non-profits: Provide Nature Conservancy with model output for use in planning.

Participation in Field Work

- 02/2003-04/2003 | *R/V N. B. Palmer*, 43 day Ross Sea AnSlope cruise. Salinometer and CTD operation during cruise to explore bottom water formation and pathways in the Ross Sea.
- 09/2001-10/2001 | *R/V N. B. Palmer*, 45 day Western Antarctic Peninsula Long Term Ecosystem Research (LTER) cruise. Collected data on sea ice properties as part of a multi-decadal data gathering effort in the region.

Students Supervised

Students Supervised for Independent Studies

- Ashley van Name: Research internship and undergraduate honors thesis.
- Peter Cai: Research internship.

Master's or Doctoral Students by Type of Supervision

- Zhuomin Chen, currently enrolled. Oceanography, Rutgers University.
- Lori Sentman, currently enrolled. Atmospheric Sciences, Rutgers University

Caroline Farkas, currently enrolled. Atmospheric Sciences, Rutgers University.

Sarah Lietzke, currently enrolled. Oceanography, Rutgers University.

Arielle Alpert, currently enrolled, written comps. Atmospheric Sciences, Rutgers University.

David Langer, currently enrolled, written comps. Atmospheric Sciences, Rutgers University.

Seth Danielson, external advisor, Oceanography, University of Alaska Fairbanks.

Postdoctoral Trainees

Elizabeth Drenkard, Biogeochemistry and climate, Rutgers University.

Dujuan Kang, Oceanography and climate, Rutgers University

Frederic Castruccio, Oceanography and climate, Rutgers University

Gaelle Hervieux, Oceanography and climate, Rutgers University

Bin Zhang, Oceanography, Rutgers University

Ezgi Taskinogulo, Oceanography, Rutgers University