

Katja Fennel

Canada Research Chair in Marine Prediction
Department of Oceanography, Dalhousie University
1355 Oxford Street
Halifax, NS, B3H 4J1
Canada

Phone: 902-494-4526
Fax: 902-494-3877
E-mail: Katja.Fennel@dal.ca
Home page: <http://memg.dal.ca/fennel>

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ACADEMIC AND RESEARCH POSITIONS

- 2012 – present **Adjunct Professor**, University of Maryland Center for Environmental Science, Horn Point Laboratory, Horn Point, MD, USA
- 2011 – present **Associate Professor, Canada Research Chair II**, Department of Oceanography, Dalhousie University, Halifax, NS
- 2008 – 2013 **Adjunct Professor**, School of Marine Sciences, University of Maine, Orono, MN, USA
- 2006 – 2011 **Assistant Professor, Canada Research Chair II**, Department of Oceanography, Dalhousie University, Halifax, NS
- 2006 – 2008 **Adjunct Professor**, Institute for Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ, USA
- 2005 – 2013 **Assistant Professor**, Institute for Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ, USA
- 2002 – 2005 **Assistant Research Professor**, Institute for Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ, USA
- 1999 – 2002 **Post-Doctoral Fellow**, College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR, USA, Advisor: Mark Abbott
- 1998 – 1999 **Post-Doctoral Fellow**, Alfred Wegener Institute of Polar and Marine Research, Bremerhaven, Germany, Advisor: Jens Schröter

EDUCATION

- 1995 – 1998 **Ph.D.** in Marine Biology, University Rostock, Germany, Thesis: “*A coupled, three-dimensional model for the dynamics of nutrients and plankton in the Western Baltic Sea*”, Advisor: Bodo von Bodungen
- 1992 – 1994 **M.Sc. (Diplom)** in Numerical Mathematics, University Rostock, Germany, Thesis: “*On the direct and inverse Ekman problem*”
- 1989 – 1992 **B.Sc. (Vordiplom)** in Mathematics, University Rostock, Germany

OTHER PROFESSIONAL ACTIVITIES

Editor	<p>Co-editor in Chief for <i>Biogeosciences</i> (since May 2013)</p> <p>Co-editor of <i>Biogeosciences</i> Special Issue “<i>Biogeochemistry and ecosystems in the western north Pacific continental margins under climate change and anthropogenic forcing</i>” (2013)</p> <p>Co-editor of forthcoming book <i>Modeling Coastal Hypoxia - Numerical Simulations of Patterns, Controls and Effects of Dissolved Oxygen Dynamics</i> to be published by Springer (2013)</p>
Editorial board member	<p><i>Biogeosciences</i> (since February 2012), <i>Ocean Modelling</i> (since June 2009), <i>Atmosphere-Ocean</i> (June 2008 to September 2012)</p>
Member in scientific steering committees and working groups	<p>CMOS 2009 Congress Scientific Organizing Committee (08/2008 – 06/2009); Ocean Tracking Network Council (07/2009 – 06/2012); Ocean Tracking Network Scientific Advisory Committee (01/2010-05/2014); IMBER/LOICZ Continental Margins Task Team (12/2010-); Climate Variability and Predictability (CLIVAR) Working Group for Ocean Model Development (10/2010-12/2013); CMOS 2012 Congress Scientific Organizing Committee (08/2011 – 06/2012); SCOR WG 142 <i>Quality control procedures for oxygen and other biogeochemical sensors on floats and gliders</i> (10/2012-); Organizing Committee for 2015 Gordon Conference in Ocean Circulation (05/2014-)</p>
Chair and co-chair of conference sessions	<p>Ocean Sciences Meeting 2006 Session OS009 <i>Advances in the Study of Carbon Cycling on Continental Margins</i>; Ocean Sciences Meeting 2008 Session OS094 <i>Coastal Ocean Modelling and Prediction</i>; AGU Fall Meeting 2008 Session B46 <i>Carbon Flux and the North Atlantic Bloom</i>; CMOS 2009 1st Plenary Session; CMOS 2009 Session <i>Physical-biological interactions in the ocean</i>; Ocean Sciences Meeting 2012 Session 041 <i>Methods and Applications of Data Assimilation for Ocean Biogeochemistry</i>; 2013 ASLO Meeting <i>Biological and biogeochemical responses to human impacts at the sediment-water interface</i></p>
Manuscript reviewer	<p>AMBIO (1), Antarctic Science (1), Atmosphere-Oceans (2), Biogeosciences (8), Continental Shelf Research (5), Deep-Sea Research I (3), Deep-Sea Research II (3), Dynamics of Atmosphere and Ocean (1), Ecological Modelling (1), Estuarine, Coastal and Shelf Sciences (1), Geophysical Research Letters (5), Global Biogeochemical Cycles (4), Journal of Geophysical Research (12), Journal of Marine Systems (7), Journal of Soils and Sediments (1), Limnology and Oceanography (5), Limnology and Oceanography: Fluids and Environment (1), Limnology and Oceanography: Methods (1), Marine Ecology Progress Series (9), Ocean Dynamics (3), Ocean Modelling (7), Journal of Plankton Research (1), Ocean Science (2), Progress in Oceanography (5), Science (2)</p>
Panel member for funding agencies	<p>DOE Carbon Cycle Program, 2003 (reviewed more than 20 proposals); NSF Biological Oceanography, 2006 (reviewed more than 20 proposals); NASA ROSES, 2011 (reviewed 5 proposals); German Research Foundation SFB 754, 2011 (reviewed 20 proposals)</p>
Proposal reviewer	<p>NSF Antarctic Program, 2003; DOE Carbon Cycle Program, 2003; Maryland</p>

SeaGrant, 2004; NSF Biological Oceanography, 2004, 2005, 2006, 2007, 2009; NSF Chemical Oceanography 2007, 2008; Hawaii SeaGrant 2006, 2008; NSERC Discovery Grants Program 2008, 2009, 2010, 2011, 2012, 2013; NSERC Strategic Projects 2008; CFI Leaders Opportunities Fund 2010; Wisconsin SeaGrant 2009; Science Foundation of the Netherlands 2009; NASA ROSES 2011; Polish Science Foundation 2010, 2012; Oregon SeaGrant 2011; ANR French Science Foundation 2013

Research cruises	R/V Alfred Penck, Baltic Sea Monitoring cruise in 1996; CTD measurements and water sampling R/V Bjarni Saemundson, North Atlantic Bloom cruise in 2008; CTD measurements, water sampling, recovery of Lagrangian floats and seaglidars
Professional organizations	Member in American Geophysical Society, American Society of Limnology and Oceanography, The Oceanography Society, European Geosciences Union

PUBLICATIONS IN PEER-REVIEWED JOURNALS AND BOOK CHAPTERS (my students and post-doctoral fellows in *bold-italics*)

- 2014** Langseth, B.J., Purcell, K.M., Craig, J.K., Schueller, A.M., Smith, J.W., Shertzer, K.W., Creekmore, S., Rose, K.A., **Fennel, K.**, Effect of changes in dissolved oxygen concentrations on the spatial dynamics of the Gulf Menhaden fishery in the northern Gulf of Mexico, *Marine and Coastal Fisheries* (in press)
- Laurent, A., **Fennel, K.**, Modeling river-induced phosphorus limitation in the context of coastal hypoxia, In: *Modeling Coastal Hypoxia: Numerical Simulations of Patterns, Controls and Effects of Dissolved Oxygen Dynamics*, Justic, D., Rose, K.A., Hetland, R.D., Fennel, K., (eds.), Springer (forthcoming)
- Brennan, C.E., Blanchard, H., Fennel, K.**, Putting temperature and oxygen thresholds of marine animals in context of environmental change: A regional perspective for the Scotian Shelf and Gulf of St. Lawrence, *Canadian Journal of Fisheries and Aquatic Sciences* (submitted)
- Lagman, K., Fennel, K., Thompson, K.R., Bianucci, L.**, Assessing the utility of frequency dependent nudging for bias correction in biogeochemical models, *Ocean Modelling* doi: 10.1016/j.ocemod.2014.06.006 (2014)
- Feng, Y., **Fennel, K.**, Jackson, G.A., DiMarco, S.F., Hetland, R.D., A model study of the response of hypoxia to upwelling favorable wind on the northern Gulf of Mexico shelf, *Journal of Marine Systems* **131**:63-73 (2014)
- Laurent, A., Fennel, K.**, Simulated reduction of hypoxia in the northern Gulf of Mexico due to phosphorus limitation, *Elementa* **2**:000022, doi:10.12952/journal.elementa.000022 (2014)
- Azhar, M.A., Canfield, D.E., **Fennel, K.**, Thamdrup, B., Bjerrum, C. J., A model-based insight into the coupling of nitrogen and sulfur cycles in a coastal upwelling system, *Journal of Geophysical Research-Biogeosciences* **119**, doi:10.1002/2012JG002271

(2014)

Fennel, K. Other nutrients and dissolved oxygen and climate change, In: Freedman, B. (ed) *Global Environmental Change, Volume 1 of the Handbook of Global Environmental Pollution*, Springer, Heidelberg, Germany (in press)

Ibarra, D., **Fennel**, K., Cullen, J., Coupling 3-D Eulerian bio-physics (ROMS) with individual-based shellfish ecophysiology (SHELL-E): A hybrid model for carrying capacity and environmental impacts of bivalve aquaculture, *Ecological Modelling* **273**, 63-78 (2014)

Garçon, V., Bell, T. G., Wallace, D., Arnold S. R., Baker A., Bakker, D. C. E., Bange, H. W., Bates, N. R., Bopp, L., Boutin, J., Boyd, P., Bracher, A., Burrows, J. P., Carpenter, L. J., **Fennel**, K., Font, J., Friedrich, T., Garbe, C. S., Gruber, N., Jaeglé, L., Lana, A., Lee, J. D., de Leeuw, G., Liss, P. S., Miller, L., Olgun, N., Olsen, A., Pfeil, B., Quack, B., Read, K. A., Reul, N., Rödenbeck, C., Rohekar, S. S., Saiz-Lopez, A., Saltzman, E. S., Schneising, O., Schuster, U., Séférian, R., Steinhoff, T., Yves Le Traon, P., Wittke, F. Perspectives and Integration in SOLAS science. In: Liss, P. S. and Johnson, M. T. (Editors), "Ocean-Atmosphere Interactions of Gases and Particles", 247 Springer Earth System Sciences, DOI 10.1007/978-3-642-25643-1_5 (2014)

2013

Luettich, R.A. Jr., Signell, R., Friedrichs, C., Friedrichs, M., Harding, J., **Fennel**, K., Howlett, E., Graves, S., Smith, E., Crane, G., Wright, D., Baltes, B., The U.S. IOOS Super-regional Coastal Ocean Modeling Testbed: Implementation and Overview of Findings, *Journal of Geophysical Research-Oceans* **118**, 6319-6328, doi:10.1002/2013JC008939 (2013)

Xue, Z., He, R., **Fennel**, K., Cai, W.-J., Lohrenz, S., and Hopkinson, C.: Modeling ocean circulation and biogeochemical variability in the Gulf of Mexico, *Biogeosciences* **10**, 7219-7234, doi:10.5194/bg-10-7219-2013 (2013)

Wilson, R.F., **Fennel**, K. and **Mattern**, J.P., Simulating sediment-water exchange of nutrients and oxygen: A comparative assessment of models against mesocosm observations, *Continental Shelf Research* **63**, 69-84 (2013)

Mattern, P., Dowd, M., **Fennel**, K., Particle Filter-based data assimilation for a 3D biological ocean model and satellite observations, *Journal of Geophysical Research-Oceans* **118**, doi:10.1002/jgrc.20213 (2013)

Mattern, P., **Fennel**, K., Dowd, M.: Uncertainty in hypoxia predictions for the TX-LA shelf, *Journal of Geophysical Research-Oceans* **118**, doi:10.1002/jgrc.20130 (2013)

Fennel, K., **Hu**, J., **Laurent**, A., Marta-Almeida, M., Hetland, R. (2013) Sensitivity of hypoxia predictions for the Northern Gulf of Mexico to sediment oxygen consumption and model nesting, *Journal of Geophysical Research-Oceans* **118**, doi:10.1002/jgrc.20077

Burt W.J., Thomas, H., **Fennel**, K., Horne, E. (2013) Sediment-water column fluxes of carbon, oxygen and nutrients in Bedford Basin, Nova Scotia, inferred from ²²⁴Ra measurements, *Biogeosciences*, **10**, 53-66, doi:10.5194/bg-10-53-2013

- 2012** *Laurent, A., Fennel, K., Hu, J., Hetland, R.* (2012) Simulating the effects of phosphorus limitation in the Mississippi and Atchafalaya river plumes, *Biogeosciences* **9**, 4707-4723, doi:10.5194/bg-9-4707-2012
- Bianucci, L., Fennel, K., and Denman, K. L.* (2012) Role of sediment denitrification in water column oxygen dynamics: comparison of the North American east and west coasts, *Biogeosciences* **9**, 2673-2682, doi:10.5194/bg-9-2673-2012
- Mattern, P., Fennel, K., Dowd, M.* (2012) Estimating time-dependent parameters for a biological ocean model using an emulator approach, *Journal of Marine Systems* **96-97**:32-47
- Hu, J., Fennel, K., Mattern, J.P., Wilkin, J.* (2012) Data assimilation with a local Ensemble Kalman Filter applied to a three-dimensional biological model of the Middle Atlantic Bight, *Journal of Marine Systems* **94**:145-156
- 2011** *He, R., Chen, K., Fennel, K., Gawarkiewicz, G. G., and D. J. McGillicuddy Jr.* (2011) Seasonal and interannual variability of physical and biological dynamics at the Shelfbreak Front of the Middle Atlantic Bight: nutrient supply mechanisms, *Biogeosciences*, **8**:2935-2946
- Fennel, K., Cetinić, I., D'Asaro, E., Lee, C., Perry, M.J.* (2011) An interdisciplinary autonomous data set of the 2008 North Atlantic spring bloom, *EOS Transactions AGU*, **92**:465-466
- Fennel, K., Hetland, R., Feng, Y., DiMarco, S.* (2011) A coupled physical-biological model of the Northern Gulf of Mexico shelf: Model description, validation and analysis of phytoplankton variability, *Biogeosciences* **8**, 1881-1899, doi:10.5194/bg-8-1881-2011
- Bagniewski, W., Fennel, K., Perry, M.J., D'Asaro, E.* (2011) Optimizing models of the North Atlantic spring bloom using physical, chemical and bio-optical observations from a Lagrangian float, *Biogeosciences* **8**, 1291-1307, doi:10.5194/bg-8-1291-2011
- Hofmann, E.E., Cahill, B., Fennel, K., Friedrichs, M., Hyde, K., Lee, C., Mannino, A., Najjar, R., O'Reilly, J., Wilkin, J., Xue, J.* (2011) Continental shelf carbon budgets, pathways and forcing functions, *Annual Reviews of Marine Sciences* **3**, 93-122
- 2010** *Druon, J.N., Mannino, A., Signorini, S., McClain, C., Friedrichs, M., Wilkin, J., Fennel, K.* (2010) Modeling the dynamics and export of Dissolved Organic Matter in the Northeastern U.S. continental shelf. *Estuarine, Coastal and Shelf Science* **88**, 488-507
- Mafra, L., Bricelj, V.M., Fennel, K.* (2010) Domoic acid uptake and detoxification kinetics in oysters and mussels in relation to body size and anatomical distribution of toxin. *Aquatic Toxicology* **100**, 17-29
- Fennel, K.* (2010) Nitrogen and Carbon Cycling on Continental Shelves. *Ocean Science* **6**:539-548, doi:10.5194/os-6-539-2010
- Mattern, J.P., Fennel, K., Dowd, M.* (2010) Introduction and Assessment of Measures for Quantitative Model-Data Comparison using Satellite Images. *Remote Sensing* **2**:794-818; doi:10.3390/rs2030794

- Mattern**, J.P., Dowd, M., **Fennel**, K., (2010) Sequential Data Assimilation Applied to a Physical-Biological Model for the Bermuda Atlantic Time Series Station. *Journal of Marine Systems* **79**:144-156, doi: 10.1016/j.jmarsys.2009.08.004
- 2009** **Fennel**, K., Wilkin, J., (2009) Quantifying biological carbon export for the northwest North Atlantic continental shelves. *Geophysical Research Letters* **36**, L18605, doi:10.1029/2009GL039818
- Lehmann**, M.K., **Fennel**, K., He, R., (2009) Statistical validation of a 3-D bio-physical model of the western North Atlantic. *Biogeosciences* **6**:1961-1974, doi:10.5194/bg-6-1961-2009
- Previdi**, M., **Fennel**, K., Wilkin, J., Haidvogel, D.B., (2009) Interannual Variability in Atmospheric CO₂ Uptake on the Northeast U.S. Continental Shelf. *Journal of Geophysical Research* **114**, G04003, doi:10.1029/2008JG000881
- O'Dor, R.K., **Fennel**, K., Vanden Berghe, E., (2009) A One Ocean Model of Biodiversity, *Deep-Sea Research II* doi:10.1016/j.dsr2.2009.05.023
- Fennel**, K., Brady, D., DiToro, D., Fulweiler, R., Gardner, W.S., Giblin, A., McCarthy, M.J., Rao, A., Seitzinger, S., Thouvenot-Korppoo, M., Tobias, C., (2009) Modelling denitrification in aquatic sediments. *Biogeochemistry* **93**:159–178 DOI 10.1007/s10533-008-9270-z
- 2008** **Fennel**, K., Wilkin, J., **Previdi**, M., Najjar, R. (2008) Denitrification effects on air-sea CO₂ flux in the coastal ocean: Simulations for the Northwest North Atlantic. *Geophysical Research Letters* **35**, L24608, doi:10.1029/2008GL036147
- Fennel**, K., (2008) Widespread implementation of controlled upwelling in the North Pacific Subtropical Gyre would counteract diazotrophic N₂ fixation. *Marine Ecology Progress Series* **371**:301-303
- Berman-Frank, I., Chen, Y., Gao, Y., **Fennel**, K., Follows, M., Milligan, A., Falkowski, P.G. (2008) Feedbacks between the Nitrogen, Carbon and Oxygen Cycles. In: *Nitrogen in the Marine Environment*, edited by Mulholland, M., Carpenter, E., Capone, D., Bronk, D. Elsevier doi:10.1016/B978-0-12-372522-6.00035-9
- Hofmann, E., Druon, J.-N., **Fennel**, K., Friedrichs, M., Haidvogel, D., Lee, C., Mannino, A., McClain, C., Najjar, R., O'Reilly, J., Siewert, J., Pollard, D., **Previdi**, M., Seitzinger, S., Signorini, S., Wilkin, J. (2008) Eastern U.S. Continental Shelf Carbon Budget: Integrating Models, Data Assimilation, and Analysis. *Oceanography* **21**(1):32-50
- Haidvogel, D.B., Arango, H., Budgell, W.P., Cornuelle, B.D., Curchitser, E., Di Lorenzo, E., **Fennel**, K., Geyer, W.R., Hermann, A.J., Lanerolle, L., Levin, J., McWilliams, J.C., Miller, A. J., Moore, A.M., Powell, T.M., Shchepetkin, A.F., Sherwood, C.R., Signell, R.P., Warner, J.C., Wilkin, J. (2008) Regional Ocean Forecasting in Terrain-following Coordinates: Model Formulation and Skill Assessment. *Journal of Computational Physics* **227**:3595–3624
- 2007** Katz, M., **Fennel**, K., Falkowski, P.G. (2007) Geochemical and biological consequences of phytoplankton evolution. In: *Evolution of Primary Producers in the Sea*, edited by

Falkowski, P.G., Knoll, A. pp. 405-430

Fennel, K., Collier, R., Larson, G., Crawford, G., Boss, E. (2007) The seasonal cycle of nutrients and plankton in Crater Lake, OR. *Hydrobiologia* **574**:265–280
doi:10.1007/s10750-006-0356-0

Boss, E., Collier, R., Larson, G., **Fennel, K., Pegau, W. S. (2007)** Measurements of spectral optical properties and their relation to biogeochemical variables and processes in Crater Lake, Crater Lake National Park, OR. *Hydrobiologia* **574**:149–159
doi:10.1007/s10750-006-2609-3

2006 **Fennel, K., Wilkin, J., Levin, J., Moisan, J., O'Reilly, J., Haidvogel, D. (2006)** Nitrogen cycling in the Mid-Atlantic Bight and implications for the North Atlantic nitrogen budget: Results from a three-dimensional model. *Global Biogeochemical Cycles* **20**, GB3007, doi:10.1029/2005GB002456

Rothstein, L.M., Cullen, J.J., Abbott, M., Chassignet, E., Denman, K., Doney, S., Ducklow, H., **Fennel, K., Follows, M., Haidvogel, D., Hoffman, E., Karl, D., Kindle, J., Lima, I., Maltrud, M., McClain, C., McGillicuddy, D., Olascoaga, J., Spitz, Y., Wiggert, J., Yoder, J. (2006)** Modeling Ocean Ecosystems: The PARADIGM Program. *Oceanography* **19**(1):16-45

2005 Falkowski, P.G., Katz, M.E., Milligan, A., **Fennel, K., Cramer, B., Pierre Aubry, M., Berner, R., Zapol, W.M. (2005)** The rise of atmospheric oxygen levels over the past 205 million years and the evolution of large placental mammals. *Science* **309**:2202-2204

Fennel, K., Follows, M., Falkowski, P.G. (2005) The Co-evolution of the nitrogen, carbon and oxygen cycles in the Proterozoic Ocean. *American Journal of Science* **305**:526-545

Katz, M.E., Wright, J.D., Miller, K.G., Cramer, B.S., **Fennel, K., Falkowski P.G. (2005)** Biological Overprint of the Geological Carbon Cycle. *Marine Geology* **217**:323-338

2003 **Fennel, K., Boss, E. (2003)** Subsurface maxima of phytoplankton and chlorophyll: Steady state solutions from a simple model. *Limnology & Oceanography* **48**:1521-1534

Fennel, K., Abbott, M.R., Spitz, Y.H., Richman, J.G., Nelson, D.M. (2003) Modeling controls of phytoplankton production in the southwest Pacific sector of the Southern Ocean. *Deep-Sea Research II* **50**:769-798

Fennel, K., Abbott, M.R., Spitz, Y.H., Richman, J.G., Nelson, D.M. (2003) Impacts of iron control on phytoplankton production in the modern and glacial Southern Ocean. *Deep-Sea Research II* **50**:833-851

2002 **Fennel, K., Spitz, Y.H., Letelier, R.M., Abbott, M.R., Karl, D.M. (2002)** A deterministic model for N₂ fixation at Station ALOHA in the subtropical North Pacific Ocean. *Deep-Sea Research II* **49**:149-174

2001 **Fennel, K., Losch, M., Schröter, J., Wenzel, W. (2001)** Testing a marine ecosystem model: Sensitivity analysis and parameter optimization. *Journal of Marine Systems* **28**:45-63

Fennel, K. (2001) The generation of phytoplankton patchiness by mesoscale current

patterns. *Ocean Dynamics* **52**:58-70

- 2000** Humborg, C., **Fennel**, K., Pastuszak, M., Fennel, W. (2000) A box model approach for the long-term assessment of estuarine eutrophication, Szczecin Lagoon, southern Baltic. *Journal of Marine Systems* **25**:387-403
- 1999** **Fennel**, K. (1999) Interannual and regional variability of chemical-biological variables in a coupled 3-D model of the western Baltic. *Hydrobiologia* **393**:25-33
- Fennel**, K. (1999) Convection and the timing of phytoplankton spring blooms in the western Baltic Sea. *Estuarine Coastal and Shelf Science* **49**:113-128
- 1998** **Fennel**, K., Neumann, T. (1998) A coupled physical-chemical-biological model for the western Baltic. In: Harff, J., W. Lemke and K. Stattegger (eds.) *Computerized Modeling of Sedimentary Systems*, Springer Berlin, pp.169-181

PUBLICATIONS IN PREPARATION (my students and post-doctoral fellows in *bold-italics*)

- Zhang, W., Hetland, R.D., DiMarco, S.F., **Fennel**, K., The impact of shelf stratification on hypoxia over the Texas-Louisiana Shelf, *Ocean Modelling* (submitted)
- Ibarra**, D., **Fennel**, K., Cullen, J., Two-way coupling of macrobiota and planktonic dynamics in shallow embayments using a hybrid (IBM/Eulerian) end-to-end model, *Ecological Modelling* (in preparation)
- Laurent**, A., **Fennel**, K., **Wilson**, R., Lehrter, J., Devereux, R., Parameterization of biogeochemical sediment-water fluxes using in-situ measurements and a steady-state diagenetic model, to be submitted to the *Special Issue on Low Oxygen Environments, Biogeosciences* (in prep.)
- Yu**, L., **Fennel**, K., **Laurent**, A., Murrell, M.C., Lehrter, J.C., Numerical analysis of the primary processes controlling oxygen dynamics on the Louisiana shelf, to be submitted to the *Special Issue on Low Oxygen Environments, Biogeosciences* (in prep.)
- Bianucci**, L., **Fennel**, K., **Mattern**, J.P., What drives phytoplankton growth during deep winter mixing? A model study for the Northwest Atlantic, *Ocean Modelling* (in preparation)
- Sharples, J., Middelburg, J.J., **Fennel**, K., Jickells, T., Physical controls of riverine delivery of nutrients and carbon to the oceans, *Nature Geoscience* (in preparation)

NON-REFEREED REPORTS AND ABSTRACTS (my students and post-doctoral fellows in *bold-italics*)

- Fennel**, K., J. **Hu**, A. **Laurent**, M. Marta-Almeida, R. Hetland. Sensitivity of hypoxia predictions for the Texas-Louisiana shelf to sediment oxygen consumption and model nesting, EGU General Assembly, April 27 – May 2, Vienna, Austria, 2014
- Fennel**, K., Aikman, F., Hetland, R., Justic, D., Ko., D.-S., **Laurent**, A., Lehrter, J., Murrell, M., Wang, L., **Xu**, J., Yu, L., Zhang, W., Intercomparison of Hypoxia Models for the Northern Gulf of Mexico, EGU General Assembly, April 27 – May 2, Vienna, Austria, 2014

- Laurent, A., Fennel, K., Wilson, R., Lehrter, J., Devereux, R.**, Parameterization of biogeochemical sediment-water fluxes using in-situ measurements and a steady-state diagenetic model, EGU General Assembly, April 27 – May 2, Vienna, Austria, 2014
- Laurent, A., Fennel, K.**, Phosphorus limitation reduces hypoxia in the northern Gulf of Mexico: results from a physical-biogeochemical model, EGU General Assembly, April 27 – May 2, Vienna, Austria, 2014
- Nissen, C., Schrum, C., Daewel, U., Fennel, K., Castaño Primo, R.**, Quantifying the importance of sediment resuspension for the North Sea and Baltic Sea ecosystem, April 27 – May 2, Vienna, Austria, 2014
- Brennan, C., Bianucci, L., Fennel, K.**, Sensitivity of northwestern North Atlantic shelf circulation to surface and boundary forcing: A regional model assessment, April 27 – May 2, Vienna, Austria, 2014
- Brennan, C., Blanchard, H., Fennel, K.**, Putting temperature and oxygen thresholds of marine animals in context of environmental change in coastal seas: A regional perspective for the Scotian Shelf and Gulf of St. Lawrence, April 27 – May 2, Vienna, Austria, 2014
- Fennel, K., J. Hu, A. Laurent, M. Marta-Almeida, R. Hetland.** Sensitivity of hypoxia predictions for the Texas-Louisiana shelf to sediment oxygen consumption and model nesting, ALSO 2013 Aquatic Sciences Meeting, February 17 – 22, New Orleans, 2013
- Laurent, A., K. Fennel, R. Hetland.** Effects of phosphorus limitation on oxygen dynamics in the Mississippi and Atchafalaya river plumes, ALSO 2013 Aquatic Sciences Meeting, February 17 – 22, New Orleans, 2013
- Yu, L., K. Fennel, A. Laurent, R. Hetland, M. C. Murrell, J. C. Lehrter.** Primary processes controlling oxygen dynamics on the Texas-Louisiana Shelf, ALSO 2013 Aquatic Sciences Meeting, February 17 – 22, New Orleans, 2013
- Harris, C.K., K. **Fennel**, R. Hetland, R. **Wilson**. Effects of resuspension on sediment bed oxygen consumption: a numerical modeling study, ALSO 2013 Aquatic Sciences Meeting, February 17 – 22, New Orleans, 2013
- Lohrenz, S. E., W.-J. Cai, H. Tian, R. He, Z. Xue, K. **Fennel**, C. Hopkinson, S. Howden. Characterizing Climate and Human Influences on Land-Ocean Fluxes in a Large River System Using Coupled Terrestrial-Coastal Ocean Models, ALSO 2013 Aquatic Sciences Meeting, February 17 – 22, New Orleans, 2013
- Rose, K. A., S. Creekmore, R. Miller Neilan, J. K. Craig, P. Thomas, S. Rahman, K. **Fennel**, R. Hetland, S. F. DiMarco. Prediction of the population-level effects of hypoxia on Atlantic Croaker (*micropogonias undulates*) in the northern Gulf of Mexico, ALSO 2013 Aquatic Sciences Meeting, February 17 – 22, New Orleans, 2013
- Lohrenz, S. E., W.-J. Cai, H. Tian, R. He, Z. Xue, K. **Fennel**, C. Hopkinson, S. Howden. Sustainable Management of Coastal Environments Through Coupled Terrestrial-Coastal Ocean Models, 2012 AGU Fall Meeting, December 2 – 7, San Francisco, 2012
- Laurent, A., K. Fennel, J. Hu** and R. Hetland. Simulating the effects of phosphorus limitation in the Mississippi and Atchafalaya River plumes. *CMOS Congress*, May 29 - June 1, Montreal, 2012

- Yu, L., Laurent, A., Murrell, M., Lehrter, J., Fennel, K.,** Predicting hypoxia in the Northern Gulf of Mexico: A comparison of observed and model-simulated respiration and primary production rates. *CMOS Congress*, May 29 - June 1, Montreal, 2012
- Lagman, K., Fennel, K., Bianucci, L., Bowen, D., Cullen, J., Davies, R., Lidgard, D., Iverson, S.,** Can light attenuation estimates from electronic seal tags be used as phytoplankton proxies on the Scotian Shelf? *CMOS Congress*, May 29 - June 1, Montreal, 2012
- Kuhn, A.M., Fennel, K., Li, W.,** Assessing the dilution-recoupling hypothesis for the spring blooms. *CMOS Congress*, May 29 - June 1, Montreal, 2012
- Mattern J.P., Dowd M., Fennel K.,** Particle Filter-based Data Assimilation for a 3D Biological Ocean Model and Satellite Observations. *CMOS Congress*, May 29-June 1, Montreal, 2012
- Bianucci, L., Fennel, K., Mattern, J. P.,** Temporal and spatial variability of net phytoplankton growth rates in the North Atlantic: a modelling approach. *CMOS Congress*, May 29 - June 1, Montreal, 2012
- Bianucci, L., Fennel, K., Mattern, J. P.,** Improving ecosystem models to study animal migration in the North Atlantic. *ICES/PICES Early Career Scientists Conference 'Oceans of Change'*, April 23-27, Palma de Mallorca, Spain, 2012
- Laurent, A., K. Fennel, J. Hu and R. Hetland.** Simulating the effects of phosphorus limitation in the Mississippi and Atchafalaya River plumes. *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, Utah, 2012
- Harris, C. K., **Fennel, K., Hetland, R., Wilson, R.,** Coupling sediment transport to biogeochemical processes: Effects of resuspension on oxygen consumption, *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, Utah, 2012
- Feng, Y., Jackson, G., DiMarco, S., Hetland, R., **Fennel, K., Friedrichs, M.A.,** Understanding hypoxic area variability in the Northern Gulf of Mexico from a three-dimensional coupled physical-biogeochemical model, *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, Utah, 2012
- Mattern J.P., Fennel K., Dowd M.,** Temporal and Spatial Dependence of Plankton Parameters in a Biological Ocean Model, *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, USA, 2012
- Bianucci, L., Fennel, K., Mattern, J. P.,** An emulator approach for constraining net phytoplankton growth rates in the North Atlantic in winter, *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, UT, 2012
- Xue, Z., He, R., **Fennel, K., Cai, W.-J., Lohrenz, S.,** Modeling Seasonal and Interannual Variability of Circulation and Biogeochemical Processes in the Gulf of Mexico, *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, Utah, 2012
- Hu, J., Fennel, K., Mattern, J.P., Wilkin, J.,** (2012) The localized ensemble Kalman Filter applied to a 3-dimensional biological ocean model of the middle Atlantic Bight, *2012 Ocean Sciences Meeting*, February 20-24, Salt Lake City, Utah
- Fennel, K., Hu, J., Hetland, R., DiMarco, S.,** (2011) Simulating hypoxia on the Texas-Louisiana shelf in the northern Gulf of Mexico, *CERF 21th Biennial Conference*, November 6-10, Daytona Beach, Florida, Abstract ID: 1092738

- Wilson, R., Fennel, K.** (2011) Optimization of two diagenetic models, 45th CMOS Congress, June 5 – 9, Victoria, ID:5018
- Mattern, J.P., Fennel, K., Dowd, M.** (2011) Using polynomial chaos to uncover time dependence of optimal parameter values in a biological ocean model, 45th CMOS congress, June 5 – 9, Victoria, 1C4.6, ID: 4880
- Bianucci, L., Denman, K., Fennel, K.** (2011) Effect of sedimentary denitrification on near-bottom oxygen concentrations, 45th CMOS congress, June 5 – 9, Victoria, 2D5, ID: 4765
- Bianucci, L., Fennel, K.** (2011) Modelling the continental shelf of Atlantic Canada, 45th CMOS congress, June 5 – 9, Victoria, 1P306, ID: 4766
- Lagman, K.B., Bianucci, L., Fennel, K.** (2011) Application of Spectral Nudging to NPZD-type Models, 45th CMOS congress, June 5 – 9, Victoria, 3P706, ID: 4806
- Fennel, K.** (2010) Data-assimilative models for coastal ocean ecosystems: Challenges and opportunities (Invited) *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract PO24A-03
- Dowd, M., **Mattern, J.P. Fennel, K.** (2010) State Space Models and Data Assimilation for Ocean Biogeochemical Models (Invited) *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract PO14C-02
- Cooley, S.R., **Fennel, K., Doney, S.** (2010) Modeling ocean acidification's potential to impact commercial marine harvests at regional scales *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT43D-04
- Mattern, J.P. Fennel, K., Dowd, M., Wilkin, J., Mannino, A.** (2010) Satellite Data Assimilation for a 3D Physical-Biological Model using a Particle Filter *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract PO25A-08
- Wilson, R., Fennel, K., Brady, D., DiToro, D.** (2010) Parameter Optimization of a Two-Layered Sediment Model Through Variational Assimilation *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT45C-06
- Xiao, Y., Friedrichs, M.A.M., **Fennel, K., Hyde, K., O'Reilly, J.** A Model Study of Phytoplankton Phenology on the Northeast U.S. Continental Shelf *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT45C-07
- Feng, Y., Jackson, G.A., DiMarco, S.F., Hetland, R. **Fennel, K.** (2010) Beyond the Story of Nitrogen, Why was the Area of Hypoxia Off the Mississippi River Smaller than the Prediction in 2009? *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT45D-03
- Bagniewski, W.J., Fennel, K., Perry M.J., D'Asaro, E.A., Briggs, N., Rehm, E.** (2010) Diatom-driven carbon export during the North Atlantic Spring Bloom: coupled physical-biological modelling and variational data assimilation *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT15L-05
- Coble, P.G., Daly, K.L., Cai, W., **Fennel, K., Lohrenz, S.E., Robbins, L.L.** (2010) A Preliminary Carbon Budget for the Gulf of Mexico (Invited) *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract CO53A-01

- Xue, J., Friedrichs, M.A.M., Cahill, B.E., Wilkin, J., Mannino, A., **Fennel**, K., Hofmann E.E., Najjar, R. (2010) The effect of river discharge on U.S. Eastern continental shelf carbon cycling *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT51B-04
- Lee, C.M., D'Asaro, E.A., Perry, M.J., **Fennel**, K., Briggs, N., Cetinic, I., Gray, A., Gudmundsson, K., Kallin, E., Lampitt, R.S., Martin, P., Poulton, N., Rehm, E., Rynearon, T., Sackmann, B.S., Sieracki, M.E., **Bagniewski**, W. (2010) The 2008 North Atlantic Spring Bloom Experiment: Autonomous Sampling in a Lagrangian Frame (*Invited*) *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract IT51A-06
- Fennel**, K., Harris, C.K., Hetland, R., Kaihatu, J., Xu, K., (2009) A coupled physical-biogeochemical-sediment model for the TX-LA shelf in the northern Gulf of Mexico, *CERF 20th Biennial Conference*, November 1-5, Portland, Oregon, Abstract ID: 32-F
- Feng, Y., Jackson, G., DiMarco, S., **Fennel**, K., Hetland, R., (2009) Numerical Scenario Testing of Nutrient, Freshwater and Wind limitations and their Effect on the Louisiana Deadzone, *CERF 20th Biennial Conference*, November 1-5, Portland, Oregon, Abstract ID: 32-C
- Fennel**, K., Wilkin, J., Najjar, R. (2009) Nitrogen and carbon cycling on the North American east coast continental shelf, *CMOS 43rd Annual Congress*, Halifax, NS May 31 – June 4, Abstract 1C-203.2
- Ibarra**, D., **Fennel**, K., Cullen, J. J. (2009) A 3-D physical-biological coupled model to assess water-column impacts of bivalve aquaculture in a mussel farm in Ship Harbour, Nova Scotia, *CMOS 43rd Annual Congress*, Halifax, NS May 31 – June 4, Abstract 1B-203.5
- Laurent A., Vezina, A. F., **Fennel**, K., Cullen, J. J., (2009) Modelling the biological effects of summer upwelling events in Lunenburg Bay, Canada, *CMOS 43rd Annual Congress*, Halifax, NS May 31 – June 4, Abstract 1D-203.3
- Wilson**, R., **Fennel**, K. (2009) Parameter optimization of a two-layered diagenetic model through variational data assimilation, *CMOS 43rd Annual Congress*, Halifax, NS May 31 – June 4, Abstract 2D-100-I5.4
- Bagniewski**, W., **Fennel**, K., Perry M. J., D'Asaro, E., Briggs, N., Gray, A., Lee, C., Rehm, E. (2009) Application of variational data assimilation to coupled physical-biological models of the North Atlantic Bloom, *CMOS 43rd Annual Congress*, Halifax, NS May 31 – June 4, Abstract 1D-203.5
- Fennel**, K., **Lehmann**, M., Wilkin, J., He, R. (2008) Modelling biogeochemical processes on the North American east coast continental shelf, *ICES Meeting*, Halifax, NS, September 22-26, Abstract L:15
- Mattern**, P., **Fennel**, K., Dowd, M. (2008) Application of two Statistical Data Assimilation Procedures to a 1D Biological Model of the BATS Site, *ICES Meeting*, Halifax, NS, September 22-26, Abstract L:23
- Lehmann**, M., **Fennel**, K., He, R., Wilkin, J. (2008) A bio-optical product for a coupled bio-physical ocean circulation model of the Western North Atlantic, *ICES Meeting*, Halifax, NS, September 22-26, Abstract L:27
- Bagniewski**, W., **Fennel**, K., Perry, M.J. (2008) Application of variational data assimilation to coupled physical-biological models of the North Atlantic Bloom, *ICES Meeting*, Halifax, NS, September 22-26, Abstract L:22

- Ibarra**, D.A., Hasegawa, D., **Fennel**, K., Cullen, J.J. (2008) Water-column impacts of bivalve aquaculture: Bio-optical assessment and 3D modeling in a mussel farm on ship harbour, Nova Scotia, *ASLO Summer Meeting*, St. John's, Newfoundland, June 8-13, Abstract SS04
- Fennel**, K., Hetland, R.D., DiMarco, S.F. (2008) Coupled physical-biogeochemical modeling of the Louisiana Dead Zone, *Ocean Sciences Meeting Abstract*, S094
- Lehmann**, M., **Fennel**, K., He, R., Wilkin, J. (2008) Quantitative Validation of Coupled Bio-physical Ocean Circulation Models, *Ocean Sciences Meeting Abstract*, S094
- Mattern**, P., Dowd, M., **Fennel**, K. (2008) Application of the Ensemble Kalman Filter on a one-dimensional, biogeochemical model of the Bermuda Time-series Station, *Ocean Sciences Meeting Abstract*, S116
- Previdi**, M., **Fennel**, K., Wilkin, J., Haidvogel, D., (2006) Varying Uptake of Atmospheric CO₂ on the Northeast U.S. Continental Shelf Associated With the North Atlantic Oscillation, *Eos Trans. AGU*, **87**(52), Fall Meet. Suppl., Abstract A43D-08
- Fennel**, K., Wilkin, J. (2006) A Biogeochemical Model for the Northwestern Atlantic Continental Shelf, *EOS Trans. AGU*, **87**(36), Ocean Sci. Meet. Suppl., Abstract OS33D-05
- Hofmann, E.E., McClain, C.R., Haidvogel, D.B., Wilkin, J., Lee, C., Mannino, A., Najjar, R., O'Reilly, J., Yoder, J., **Fennel**, K., Seitzinger, S., Signorini, S., Pollard, D., Friedrichs, M. (2006) Eastern U.S. continental shelf carbon budget: Modeling, data assimilation and analysis, *Eos Trans. AGU*, **87**(36), Ocean Sci. Meet. Suppl., Abstract OS25G-22.
- Katz, M.E., **Fennel**, K., Berner, R.A., Falkowski, P.G. (2005) Long-Term Trends in the Global Carbon Cycle: Biogeochemical Records of the Past 205 myrs. *Eos Trans. AGU*, **86**(52), Fall Meet. Suppl., Abstract PP42A-01
- Katz, M.E., Milligan, A., Cramer, B., **Fennel**, K., Miller, K., Wright, J., Falkowski, P.G. (2004) Effects of Organic Carbon/Carbonate Burial Ratios and Biological Carbon Fixation on the Global Carbon Cycle Over the Past ~200 Myr. *EOS Trans. AGU*, **85**(47), Fall Meet. Suppl., Abstract PP53D-05
- Collier, R., Crawford, G., **Fennel**, K., Larson, G., Buktenica, M., Dymond, J. (2004) Long-term Observations of Crater Lake, Oregon: Energy, Carbon, and Nutrient Cycles in an Ultra-oligotrophic Ecosystem. *EOS Trans. AGU*, **85**(47), Fall Meet. Suppl., Abstract OS43A-0541
- Fennel**, K., Wilkin, J., Goodman, P., Haidvogel, D. (2004) Nitrogen and Carbon budgets for the U.S. continental shelves—a coupled physical-biological modeling study. *ASLO/TOS Ocean Research Conference*, SS2.07, SS5.15
- Wilkin, J., Arango, H., **Fennel**, K., Goodman, P., Haidvogel, D. (2004) Modeling the U.S. East Coast Shelf. *EOS Trans. AGU*, **84**(52), Abstract OS42H-05
- Falkowski, P.G., Follows, M., **Fennel**, K. (2003) The Co-evolution of the Nitrogen and Oxygen Cycles on Earth, *Eos Trans. AGU*, **84**(46), Fall Meet. Suppl.
- Katz, M., Wright, J., Miller, K., Cramer, B., **Fennel**, K., Falkowski, P.G. (2003) Biological overprint of the geological carbon cycle. *GSA Abstracts* **35**(6), no. 63602

- Fennel, K., Abbott, M.R., Spitz, Y.H., Richman, J.G., Nelson, D.M. (2002)** Modeling controls of phytoplankton production in the Southern Ocean—Modern and glacial scenarios, *EOS Trans. AGU*, Abstract OS11L-11
- Spitz, Y.H., Richman, J.G., Abbott, M.R., **Fennel, K. (2002)** Comparison of one- and three-dimensional simulations of the oligotrophic ecosystem in the North Pacific, *EOS Trans. AGU*, Abstract OS321-08
- Fennel, K. (1999)** Convection and the timing of the phytoplankton spring bloom in the western Baltic Sea. *Geophysical Research Abstracts* **1**(2):407, OA5.
- Fennel, K. (1998)** A coupled, three-dimensional model of the nutrient and plankton dynamics in the western Baltic Sea. (Ph.D. thesis, in German) *Marine Science Reports*, No.**30**, Baltic Sea Research Institute, 97 pages

INVITED PRESENTATIONS (LAST 7 YEARS ONLY)

- Speaker (invited), 2014 High Performance Computing Symposium (HPCS), June 27, 2014, Halifax, Canada
- Speaker (invited), Geophysical Fluids Dynamics Laboratory, April 10, 2014, Princeton, New Jersey
- Speaker (invited), Gordon Research Conference on Coastal Ocean Circulation, June 12, 2013, Biddeford, ME, USA
- Speaker (invited), Marine Biogeochemical Data Assimilation Symposium, CSIRO Cutting Edge Science Symposium Series, May 28-30, 2013, CSIRO, Hobart, Australia
- Seminar speaker (invited), Louisiana State University, April 19, 2013, Baton Rouge, LA, USA
- Speaker (invited), Gulf of Mexico Hypoxia Research Coordination Workshop, April 17-18, 2013, Stennis Space Center, MS, USA
- Speaker (invited), Gulf of Mexico Coastal Carbon Synthesis Workshop, March 26-27, 2013, St. Petersburg, FL, USA
- Plenary speaker (invited), Ocean Optics XXI Conference, October 9, 2012, Glasgow, Scotland
- Seminar speaker (invited), Horn Point Lab, University of Maryland, September 26, 2012, Cambridge, MD, USA
- Plenary speaker (invited), Ocean Carbon and Biogeochemistry Workshop, July 18, 2012, Woods Hole, MA, USA
- Speaker (invited), First Canada-Brazil Bi-lateral Workshop on Ocean Science and Technology, May 2012, Rio de Janeiro, Brazil
- Plenary speaker (invited), 3rd Hypoxia Coordination Workshop, Mar 27, 2012, Bay St. Louis, MS
- Seminar speaker (invited), Freshwater Institute, DFO, Dec 3, 2010, Winnipeg, MB
- Seminar speaker (invited), Department of Earth and Ocean Sciences, University of British Columbia, Dec 2, 2010, Vancouver, BC
- Seminar speaker (invited), Applied Environmental Research Laboratory, Vancouver Island University, Dec 1, 2010, Nanaimo, BC
- Seminar speaker (invited), School of Earth and Ocean Sciences, University of Victoria, Nov 30, 2010, Victoria, BC
- Seminar speaker (invited), Institute of Ocean Sciences, DFO, Nov 30, 2010, Victoria, BC
- Seminar speaker (invited), Department of Earth and Atmospheric Sciences, University of Alberta, Nov 29, 2010, Edmonton, AB

Seminar speaker (invited), School of Marine Sciences, University of Maine, May 20, 2010, Orono, MN, USA

Speaker (invited), CIFAR Oceans Meeting, May 18, 2010, Montreal, QC

Conference speaker (invited), 2010 Ocean Sciences Meeting, February 22-26, 2010, Portland, OR, USA

Seminar speaker (invited), Bedford Institute of Oceanography, January 2010, Halifax, NS

Speaker (invited), SCOR workshop on Biological Ocean Observatories, September 2009, Mestre, Italy

Conference speaker (invited), MOCA-09 Conference, Joint Assembly of IAMAS, IAPSO and IACS, July 19-29, 2009, Montreal, QC

Speaker (invited), CIFAR Oceans Meeting, November 14, 2008, Toronto, ON

Seminar speaker (invited), Virginia Institute of Marine Science, April 15, 2008, Gloucester Point, VA, USA

Speaker (invited), CIFAR Oceans Meeting, February 1, 2008, Vancouver, BC

CONFERENCE PRESENTATIONS (1ST AUTHOR ONLY)

Speaker (invited), 2014 High Performance Computing Symposium (HPCS), June 27, 2014, Halifax, Canada

Speaker, EGU General Assembly, April 29, 2014, Vienna, Austria

Speaker, ASLO/TOS Aquatic Sciences Meeting, February 20, 2013, New Orleans, MS, USA

Plenary speaker (invited), Ocean Optics XXI Conference, October 9, 2012, Glasgow, Scotland

Speaker, Coastal and Estuarine Research Foundation Conference, November 2011, Daytona Beach, FL, USA

Speaker (invited), Ocean Sciences Meeting, February 2010, Portland, OR, USA

Speaker (invited), MOCA-09 Joint Assembly, July 2009, Montreal, QC

Speaker, CMOS 43rd Congress, June 2009, Halifax, NS

Speaker, ICES Annual Conference, September 2008, Halifax, NS

Poster presenter, Ocean Sciences Meeting, March 2008, Orlando, FL, USA

Speaker, Estuarine Research Federation 2007 Conference, November 7, 2007, Providence, RI, USA

Speaker, 2006 Ocean Sciences Meeting, February 20-24, 2006, Honolulu, HI, USA

Speaker, ROMS Users Meeting, October 2005, La Jolla, CA, USA

Speaker, International Marine Environmental Modeling Seminar, October 2004, Washington, DC, USA

Speaker, ASLO/TOS Ocean Research Conference, February 2004, Honolulu, HI, USA

Poster presenter, JGOFS SMP Workshop, July 2002, Woods Hole, MA, USA

Speaker, AGU/ASLO Ocean Sciences conference, February 2002, Honolulu, HI, USA

Poster presenter, NASA/EOS IWG Meeting, October-November 2001, San Antonio, TX, USA

Speaker, ASLO Aquatic Sciences Meeting, February 2001, Albuquerque, NM, USA

Speaker (invited), 5th International Scientific Conference of the Maritime Research Institute, May 1999, Szczecin, Poland

Speaker, 24th EGS General Assembly, April 1999, Den Haag, The Netherlands

Speaker, 15th Baltic Marine Biologists Symposium, June 1997, Mariehamn, Finland

WORKSHOPS

Participant (invited), Gordon and Betty Moore Foundation workshop on modeling –omic data, March 2013, Miami, FL, USA

Participant (invited), CIFAR Oceans Meeting, November 13-14, 2009, Montreal, QC

Participant (invited), OCB Scoping Workshop “Floats and Gliders”, April 2009, Monterey, CA, USA

Participant (invited), PAGSE Symposium “Leaders in Canadian Environmental Research”, May 2008, Ottawa
 Participant, Terrain-following Ocean Models Users Workshop, August 2003, Seattle, WA, USA
 Participant (invited), Crater Lake Workshop, February 2003, Corvallis, OR, USA
 Participant (invited), Carbon Data-Model Assimilation Institute, May 2002, UCAR, Boulder, CO, USA
 Participant, JGOFS Southern Ocean Data Workshop, February 2002, Honolulu, HI, USA
 Participant (invited), WOCE Young Investigator Workshop, June 2000, UCAR, Boulder, CO, USA
 Participant, SOLAS Open Science Conference, February 2000, Damp, Germany
 Participant, “Summer School on Inverse Methods and Data Assimilation”, July 1999, OSU, Corvallis, OR, USA

TRAINING OF HQP

Advisor

Rui Zhang	Ph.D. student, 01/2014 – present
Catherine Brennan	Post-doctoral fellow, 09/2012 – present
Jann Paul Mattern	Post-doctoral fellow, 09/2012 – 08/2013, completed
Jonathan Lemay	Undergraduate honours student, 06/2012 – 03/2013, completed
Bruce Delo	Research Assistant, 06/2012 – 05/2013
Liuqian Yu	Ph.D. student, 01/2012 – present
Angela Kuhn-Cordova	Ph.D. student, 09/2011 – present
Arnaud Laurent	Post-doctoral fellow, 06/2011 – present
Karl Lagman	M.Ss. student, 11/2010 – 06/2013, completed, now Oceanographer/Data Analyst with AMEC in Halifax
Laura Bianucci	Post-doctoral fellow, 09/2010 – present
Irene Jantz Lee	Undergrad summer student, 05/2010 – 09/2011
Catriona Campbell	M.Sc. student, 01/2010 – 05/2010, withdrew
Jiatang Hu	Post-doctoral fellow, 09/2009 – 08/2011, now Lecturer at Sun-Yat Sen University, Guangzhou, China
Robin Wilson	M.Sc. student, 09/2008 – 09/2011, completed, now Programmer at Nerd Corps Animation Studios
Jing Zhang	Undergraduate Co-op student, 05/2008 – 12/2008
Witold Bagniewski	M.Sc. student (visiting), 09/2007 – 05/2010, completed, now PhD student at University of New South Wales
Christine Richey	M.Sc. student, 08/2007 – 12/2007, withdrew, new student at UC Davis medical school
Moritz Lehmann	Post-doctoral fellow, 05/2007 – 04/2009, now Consultant with CBCL Consulting, Halifax
Michael Previdi	Post-doctoral fellow, 01/2006 – 12/2006, now Assistant Research Professor at LDEO, Columbia University, NY, USA

Co-advisor/Co-supervisor

Eyram Apetcho	Ph.D. student at GEOMAR Kiel, Germany, 09/2012 – present, co-supervised with Andreas Oschlies
Cara Nissen	M.Sc. student at Bergen University, Norway, 09/2012 – present, co-advised with Corinna Shrum
Jann Paul Mattern	Ph.D. student (Department of Statistics), 01/2009 – 08/2012, co-advised with Michael Dowd, completed
Diego Ibarra	Ph.D. student, 10/2008 – 12/2012, co-advised with John Cullen, completed
Jann Paul Mattern	M.Sc. student (visiting), 05/2007 – 12/2008, co-advised with Michael Dowd, completed
Daniel Morrison	Research Technician, 02/2008 – present, co-supervised with 12 others
Susanne Craig	Research Associate, 01/2009 – 05/2009, co-supervised with John Cullen
Michael Casey	Research Technician, 04/2007 – 08/2007, co-supervised with 2 others
Timothy Chipman	Research Technician, 09/2006 – 02/2008, co-supervised with 12 others

Member of supervisory committee (excluding students directly supervised by me)

Yi Sui	Ph.D. student, 2014 – present
Jing Tao	Ph.D. student, 2013 – present
Jean-Pierre Auclair	Ph.D. student, 2013 – present
Shiliang Shan	Ph.D. student, 2012 – present
Micheal Brown	M.Sc. student, 2010 – 2013
Mathieu Dever	Ph.D. student, 2010 – present
Martha Baldwin	M.Sc. student, 2010 – 2012
Anna Katavouta	Ph.D. student, 2010 – present
William Burt	Ph.D. student, 2010 – present
Elizabeth Shadwick	Ph.D. student, 2010
Julie Sperl	M.Sc. student, 2008 – 2009
Romero Advincula	Ph.D. student, 2007 – 2008
Adam Comeau	M.Sc. student, 2007 – 2010
Tara Tapics	M.Sc. student, 2007 – 2009
Katie Hastings	M.Sc. student, 2007 – 2010
Oliver Berreville	Ph.D. student, 2006 – 2009
Nathalie Dubois	Ph.D. student, 2006 – 2010
Jeffrey Barrell	Ph.D. student, 2006 – 2014

Other supervisory activities (excluding students directly supervised by me)

Melissa Nacke	Reader, 2013, Honours thesis
Jordana Lacoste	Reader, 2013, Honours thesis
Yi Xu	External reader and examiner, 2012, Ph.D. defense (Rutgers University)
Mathieu Dever	Examiner, 2012, Ph.D. qualifying exam
Shiliang Shan	Examiner, 2012, Ph.D. qualifying exam
Kimberly Davis	Examiner, 2010, Ph.D. qualifying exam
Yi Xu	Examiner, 2010, Ph.D. qualifying exam (Rutgers University)
Mehera Kidston	Reader, 2010, Ph.D. thesis (University of New South Wales, Australia)
Katie Hastings	Reader and examiner, 2010, M.Sc. defense
Elizabeth Shadwick	Reader and examiner, 2010, Ph.D. defense
Adam Comeau	Reader and examiner, 2010, M.Sc. defense
Remi Daigle	Examiner, 2009, Ph.D. qualifying exam
Oliver Berreville	Reader and examiner, 2009, Ph.D. defense
Tara Tapics	Reader and examiner, 2009, M.Sc. defense
Jianwei Wei	Examiner, 2008, Ph.D. qualifying defense
Scott Ryan	External reader and examiner, 2008, M.Sc. thesis defense (Acadia University)
Lauren McLean	Reader, 2008, Honours thesis
Arnaud Laurant	Examiner, 2007, Ph.D. proposal defense
Elisabeth Shadwick	Examiner, 2007, Ph.D. qualifying Exam
Jeffrey Barrell	Examiner, 2007, Ph.D. qualifying Exam, 2010: Ph.D. proposal defense
Romero Advincula	Examiner, 2007, Ph.D. qualifying Exam
Nathalie Dubois	Examiner, 2007, Ph.D. qualifying Exam; 2008, Ph.D. proposal defense; Reader and examiner, 2010, Ph.D. defense
Megan Saunders	Examiner, 2007, Ph.D. qualifying Exam
Angelina Vanderlaan	Examiner, 2006, Ph.D. qualifying Exam

Teaching

Biological Oceanography (OCEA 5140)	Winter 2014 (enrollment 35 students)
Oceans and Global Change (OCEA	Winter 2012, co-taught with 1 other (enrollment 10 students)

4000)

Special Topics in Oceanography (OCEA 5240) Fall 2010, Fall 2011 (module worth 30% of the full course; enrollment 5 students)

Marine Modelling (OCEA4380/5380) Winter 2014; Winter 2012; Winter 2011; Winter 2010; Winter 2009; Winter 2008; 5 guest lectures in Winter 2007 (enrollment between 5 and 15 students)

Introduction to Oceanography Spring 2006, Rutgers University (enrollment: 120 students)

Modelling of Coupled Systems Winter 2005, Rutgers University, co-taught with 2 others (enrollment between 5 and 10 students)

Guest lecturer Introduction to Oceanography, OSU, 3 lectures in 2002
Graduate Oceanography Seminar, Rutgers University, 2 lectures in 2003 and 2004
Global Biogeochemical Cycling (ENVS 3600), 1 lecture in 2010
Biological Oceanography (OCEA 4140/5140), 1 lecture in 2010, 1 lecture in 2012

SERVICE

Member Senate review committee for Dalhousie's Institute of Research in Materials, 2014

Co-chair Search committee for faculty position in Aquaculture Modeling, 2014

Member Search committee for CRC in Marine Chemistry, 2012 – 2014

Member Departmental Space Committee, 2011, 2013 – present

Member FoS Travel Advisory Committee, 2011 – present

Member FoS Nominating Committee, 2010 – present

Member Departmental Strategic Planning Committee, 2010, 2014 – present

Chair Organizing Committee for 2009 Killam Public Lecture Series "Oceans and Global Change"

Member Ocean Tracking Network Council, 2009 – 2012

Member Writing team, CERC Phase II proposal for Oceans and Technology, 2009

Member Departmental Recruitment Committee, 2009 – 2011

Chair Departmental Web Committee, 2008 – 2012

Organizer Departmental Seminar Series, 2006 – 2007, with Barry Ruddick

RESEARCH GRANTS AND CONTRACTS

At Dalhousie:

ExxonMobil: Knowledge Build Grant, 2014, \$55,000

NSERC: Discovery Grant, 2014 – 2019, \$295,000

ExxonMobil: Knowledge Build Grant, 2013, \$16,500

NOAA: A community coastal and ocean modeling testbed to improve understanding and operational forecasts of extreme events and chronic environmental conditions, 2013 – 2015 (with Rick Luettich and 20 others), Total budget: \$4M

Compute Canada: Resource allocation, 2014, Valued at \$53,750

MEOPAR NCE: Biogeochemical projections under a changing climate (lead PI with 3 others), 2012 – 2015, Total budget: \$738,000

ACEnet: Novel assimilation techniques for data streams from emerging ocean observation systems, 2010 – 2011, Budget: \$20,000

NOAA: A super-regional testbed to improve models of environmental processes on the U.S. Atlantic and Gulf of Mexico coasts (with Don Wright and 30 others), Total budget: \$4M

NSERC: Ocean Tracking Network Canada (with Sara Iverson and 27 others), 2010 – 2015, Total budget: \$10M

NSERC: Year-round automated observations of ecological processes in coastal waters (equipment grant; with J. Cullen and W. Li), 2009, Total budget: \$138,007

NOAA: NGOMEX 2008 Mechanisms Controlling Hypoxia: Integrated Causal Modeling, 2009 – 2014, My budget: US\$ 246,279

ONR: Rapid environmental assessment using and integrated coastal ocean observation modeling system, 2-year extension (with O. Schofield and 7 others), 2009 – 2010, My budget: US\$ 189,493

MMS: Integrated bio-physical modeling of the Texas-Louisiana Shelf, (with S. DiMarco and 2 others), 2007 – 2010, My budget: US\$ 62,398

NOAA: Modeling hypoxia and ecological responses to climate and nutrients (with W.M. Kemp and 5 others), 2007 – 2012, My budget: US\$ 181,191

NSERC: Discovery Grant, 2007 – 2013, Budget: \$115,000

ONR: Rapid environmental assessment using and integrated coastal ocean observation modeling system (with O. Schofield and 7 others), 2006 – 2008, My budget: US\$ 282,560

CFI: Environmental Simulation and Analysis Laboratory (equipment grant), 2006, CFI Budget: \$124,991 (matched by NSRIT to a total of \$249,982)

NOAA: Mechanisms controlling hypoxia on the Louisiana Shelf: Real-time Observations (with S. DiMarco and 10 others), 2006 – 2008, My budget: US\$ 62,450

At Rutgers:

NOAA: Multi-scale coupled climate modeling system (with D. Haidvogel and 5 others), 2006, Total budget: US\$ 114,000

NASA: Biosignatures in evolving planetary atmospheres, (with P. Falkowski and L. Godfrey), 2005, Total budget: US\$ 123,200

USGS: Ecological Modeling of Crater Lake, 2002 – 2003, Budget: US\$ 30,000

ACRONYMS (INSTITUTIONS AND ORGANIZATIONS)

ACEnet—Atlantic Computational Excellence network

AGU—American Geophysical Union

ASLO—American Society of Limnology and Oceanography

CFI—Canada Foundation for Innovation

CIFAR—Canadian Institute for Advanced Research

CMOS—Canadian Meteorological and Oceanographic Society

CCPO ODU—Center for Coastal Physical Oceanography Old Dominion University

DOE—U.S. Department of Energy

EGS—European Geophysical Society

IACS—International Association of Cryospheric Sciences

IAMAS—International Association of Meteorology and Atmospheric Sciences

IAPSO—International Association for the Physical Sciences

ICES—International Council for the Exploration of the Sea

LDEO—Lamont-Doherty Earth Observatory

MEOPAR NCE—Marine Environmental Observation, Prediction and Response Network of Centres of Excellence

MMS—U.S. Minerals Management Service

NASA—U.S. National Aeronautics and Space Administration

NOAA—U.S. National Oceanic and Atmospheric Administration

NSERC—Natural Sciences and Engineering Research Council of Canada

NSF—U.S. National Science Foundation

ONR—U.S. Office of Naval Research

OSU—Oregon State University

SCOR—Scientific Committee on Oceanic Research

UCAR—University Corporation for Atmospheric Research

USGS—U.S. Geological Survey