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September 2024
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EDUCATION 1987 B.A., *cum laude*, Engineering Sciences, Harvard College
1989 M.S., Applied Physics, Harvard University
1993 Ph.D., Earth and Planetary Sciences, Harvard University

PROFESSIONAL EXPERIENCE

1987-1990 Graduate Fellowship, Office of Naval Research
1989 Visiting Scientist, Institut Für Meereskunde, Kiel, Germany
1990-1993 Research Assistant, Harvard University
1993-1995 Modeling Fellowship, University Corporation for Atmospheric Research
1993-1995 Postdoctoral Scholarship, Woods Hole Oceanographic Institution
1995-1999 Assistant Scientist, Department of Applied Ocean Physics and Engineering,
Woods Hole Oceanographic Institution
1999-2003 Associate Scientist, Department of Applied Ocean Physics and Engineering,
Woods Hole Oceanographic Institution
2003-2007 Associate Scientist with tenure, Department of Applied Ocean Physics and
Engineering, Woods Hole Oceanographic Institution
2007-Present Senior Scientist, Department of Applied Ocean Physics and Engineering,
Woods Hole Oceanographic Institution
2016-Present Department Chair, Department of Applied Ocean Physics and Engineering,
Woods Hole Oceanographic Institution

HONORS AND AWARDS

1987 Office of Naval Research Graduate Fellowship
1993 Woods Hole Oceanographic Institution Postdoctoral Scholarship
1993 UCAR Postdoctoral Fellowship in Ocean Modeling
1998 Office of Naval Research Young Investigator Award
2000 Lindeman Award, American Society of Limnology and Oceanography
2003 AGU Editors' Citation for Excellence in Refereeing
2008 Rosenstiel Award, University of Miami
2013 Antarctica Service Medal

RESEARCH INTERESTS

Influence of physical forcing on planktonic ecosystems and elemental cycling; mesoscale ocean dynamics; primary production; coastal circulation; zooplankton population dynamics; harmful algal blooms; larval dispersal; numerical modeling and data assimilation.

PROFESSIONAL AFFILIATIONS

Member, American Geophysical Union
Member, American Meteorological Society
Member, The Oceanography Society
Member, American Society of Limnology and Oceanography

PROFESSIONAL ACTIVITIES

1994-2002 Scientific Steering Committee, U.S. Joint Global Ocean Flux Study
1996-1999 NSCAT Science Team
1997-Present SeaWiFS Science Team
1997-1998 *Ad hoc* Committee on the Future for Ocean Biogeochemical Research
1997-Present NASA Earth Observing System Interdisciplinary Science Working Group
1998 Participant and white paper author in NSF decadal planning activity for Biological Oceanography (OEUVRE)
1999-2001 Organizing Committee, Ecological Determinants of Ocean Carbon Cycling
1999-2002 National Ocean Partnership Program Committee on Oceanographic Information Technology Infrastructure
1999-2004 Organizing Committee, U.S. Surface Ocean - Lower Atmosphere Study
2000 Organizing Committee, Symposium on Harmful Marine Algae in the U.S.
2000-2005 Ocean Vector Winds Science Team
2000-2008 Editorial Advisory Board, Encyclopedia of Ocean Sciences
2001 Session Chair, The Oceanography Society Biennial Scientific Meeting
2001-2003 NSF Ocean Carbon Cycle Research Program Committee
2001-2002 Co-Chair, Sargasso Sea Ocean/Atmosphere Observatory (S2O2)
2003-2006 Steering Committee, Biological Oceanography of Harmful Algal Blooms (BOHAB)
2003-2005 Steering Committee, U.S. National Plan for Algal Toxins and Harmful Algal Blooms Workshop
2004-Present Deputy Director, Woods Hole Center for Oceans and Human Health
2004-2011 Scientific Steering Committee, U.S. Global Ecosystem Dynamics Program
2004-2009 Scientific Steering Committee, Global Ecology and Oceanography of Harmful Algal Blooms
2005 Convener of special session, EGS/AGU
2005 CIMAS Visiting Fellow
2006 Acting Chair, U.S. National HAB Committee
2012-2013 NSF Office of Polar Programs Advisory Committee
2013-2014 NSF Advisory Committee for Geosciences
2013 Organizing Committee, 7th U.S. HAB Symposium
2014 Organizing Committee, Workshop for an International Research Program on the Coupled North Atlantic-Arctic System
2016-2018 Ocean Carbon and Biogeochemistry Scientific Steering Committee
2016-2018 The Oceanography Society Council (At-Large Councilor)
2020-Present East Coast Oceanographic Consortium Program Advisory Committee

EDUCATIONAL ACTIVITIES

- Teaching Assistant, "Introduction to Physical Oceanography," Harvard University, Fall 1988.
- Taught unit on Physical Oceanography in Biology Mega-Course, WHOI/MIT Joint Program,

- April 1994.
- Co-taught “Topics in Quantitative Marine Science: Ocean Biological/Physical Interaction,” WHOI/MIT Joint Program, Spring 2006.
 - Co-taught “Topics in Quantitative Marine Science: Linking Models and Observations in Marine Planktonic Ecosystems,” WHOI/MIT Joint Program, Spring 2008.
 - Co-taught “Modeling the Biology and Physics of the Ocean,” WHOI/MIT Joint Program, Spring 2013, 2015, 2019, 2021.

EDUCATIONAL SUPERVISION

Postdoctoral Fellows

Xingwen Li (2003-2004)
Ruoying He (2003-2004)
Beatriz Mouriño Carballido (2003-2005)
Alfredo Aretxabaleta (2006)
Phillip Wallhead (2008-2010)
Weifeng Gordon Zhang (2009-2011)
Lourdes Velo-Suarez (2011-2013)
Peter Gaube (2012-2014)
Yizhen Li (2014-2016)
Ute Hausmann (2016)
Zuchuan Li (2017-2018)
Hilde Oliver (2019-2021)

Doctoral Students

Charles Stock, MIT/WHOI Joint Program (Principal advisor, 1998-2005)
Elise Olson MIT/WHOI Joint Program (Principal advisor, 2008-2015)
Suzi Clark, MIT/WHOI Joint Program (Co-advisor, 2017-2021)
Andrew Hirzel, MIT/WHOI Joint Program (Principal advisor, 2017-2023)

Doctoral Students Thesis Committee Member

Wendy Gentleman, Thayer School of Engineering, Dartmouth College (1997-1999)
Walter Cho, MIT/WHOI Joint Program (2005-2008)
Yizhen Li, NCSU (2010-2012)
Peter Zhang, Rutgers University (2011-2014)
Christian Petitpas, University of Massachusetts Dartmouth (2011-2015)
Stefanie Mack, Old Dominion University (2013-2016)
Jay Brett, MIT/WHOI Joint Program (2014-2018)
Camrin Braun, MIT/WHOI Joint Program (2015-2018)
Kevin Archibald, MIT/WHOI Joint Program (2017-2021)
Yingjun Zhang, USF St. Petersburg (2020-2022)
Filipe Pereira dos Santos, University of Sao Paolo (2021-2023)

Masters Students

Erin Sweeney, MIT/WHOI Joint Program (Co-advisor, 1998-2001)

Masters Students Thesis Committee Member

Caixia Wang, MIT/WHOI Joint Program (1998-1999)
Qingling Du (2004-2005)
Igor Uchôa Farias, University of Sao Paolo (2019)

Undergraduate Students Thesis Committee Member
Christian Casillas, Harvard College (1997-1998)

Summer Student Fellows

Peter Hlavaty, Lafayette College (1997)
Joanna Siudak, University of Gdansk, Poland (1998)
Andrew Thompson, Dartmouth College (1999)

Guest Students

Aoife Ni Rathaille (2005)
Ilaria Nardello (2005)
Michael Oats (2011-2012)

INTERNAL SERVICE

1996 AOPE Department Seminar Coordinator
1996-1997 WHOI Strategic Planning Committee
1997-1999 WHOI Staff Committee
1998-Present WHOI Partnership Program
2000 AOPE Department Chair Search Committee
2000-Present WHOI Summer Student Fellow Lecture Series
2001 WHOI Associates Summer Science Supper Lecture
2001-2003 Ocean Life Institute Advisory Council
2001-2003 WHOI Internet-2 Working Group
2002 Ad Hoc Committee for Assessment of Offering a Master's Degree in Applied
Ocean Science and Policy, Andy Solow, chair
2003-2005 AOPE Postdoc Coordinator
2004 Bigelow Medal Nominating Committee
2005-2014 Coastal Ocean Institute Advisory Committee
2010 Joint Committee on Physical Oceanography, General Exam Committee
2010-2011 MIT/WHOI Joint Program Strategic Planning Committee
2011 AOPE Recruitment Committee (Chair)
2015 WHOI Presidential Search Committee
2015-2016 WHOI task force on business analytics
2015-2016 WHOI task force for Navy issues
2017-2018 WHOI Strategic Marketing Task Force
2018 Search Committee (co-Chair) Vice President for Advancement and Chief
Marketing Officer
2018 Search Committee for Director of Marine Operations
2020 Search Committee for Chief Financial Officer
2020-2021 WHOI Navy task force
2020-2021 WHOI Committee for Diversity and Inclusion, Community Building Working
Group
2021-Present WHOI Technical Staff Mentoring Program

FIELD RESEARCH EXPERIENCE

2024 GU-24-01 Leg 3 R/V *Gordon Gunter*
Collected *Sargassum* tissue and nutrient samples in the eastern tropical Atlantic along the
PIRATA Northeast Extension.

- 2021 RR2004 R/V *Roger Revelle*
Investigated biogeochemical and physical conditioning of sub-Antarctic mode water in the Southern Ocean.
- 2020 TN376 R/V *Thomas G. Thompson*
Same objectives as RR2004.
- 2019 TN369 R/V *Thomas G. Thompson* (Chief Scientist)
NSF/INSURV Inspection
- 2019 TN368 R/V *Thomas G. Thompson* (Chief Scientist)
Investigated physical, biological, and chemical dynamics at the shelf break front south of New England.
- 2019 RB1904 R/V *Ronald H. Brown* (Chief Scientist)
Same objectives as TN368.
- 2018 AR29 R/V *Neil Armstrong* (Chief Scientist)
Same objectives as TN368.
- 2012 NBP12-01 R/V *Nathaniel B. Palmer* (Chief Scientist)
Investigated processes regulating iron supply in the Ross Sea.
- 2011 OC471, R/V *Oceanus* (Chief Scientist)
Measured the distribution, abundance, and nitrogen fixation rates of *Trichodesmium* spp. together with the hydrodynamic environment in the western North Atlantic.
- 2010 OC469, R/V *Oceanus* (Chief Scientist)
Same objectives as OC471.
- 2010 OC460, R/V *Oceanus* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity on Georges Bank and in the Gulf of Maine.
- 2010 EN476, R/V *Endeavor* (Chief Scientist)
Same objectives as OC460.
- 2010 OC465, R/V *Oceanus* (Chief Scientist)
Same objectives as OC460.
- 2010 OC467, R/V *Oceanus* (Chief Scientist)
Same objectives as OC460.
- 2009 TI383, R/V *Tioga* (Chief Scientist)
Conducted rapid response sampling of an extreme *Alexandrium fundyense* bloom in the Gulf of Maine.
- 2009 TI386, R/V *Tioga* (Chief Scientist)
Same objectives as TI383.
- 2008 EN451, R/V *Endeavor* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the Gulf of Maine and Bay of Fundy.
- 2008 EN448, R/V *Endeavor* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity on Georges Bank.
- 2008 OC447, R/V *Oceanus* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the Gulf of Maine and Georges Bank.
- 2008 OC445, R/V *Oceanus* (Chief Scientist)
Same objectives as OC447.
- 2007 EN437, R/V *Endeavor* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the coastal ocean from Massachusetts Bay to the Bay of Fundy and Georges Bank.

- 2007 EN435, R/V *Endeavor* (Chief Scientist)
Same objectives as EN437.
- 2006 OC425, R/V *Oceanus* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the coastal ocean from Massachusetts Bay to the Bay of Fundy.
- 2006 KN182-15b, R/V *Knorr*
Participated in underway Video Plankton Recorder survey while in transit from Panama to Woods Hole. Used satellite altimetry to guide survey track through mesoscale features of interest.
- 2005 OC412, R/V *Oceanus* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the coastal ocean from Massachusetts Bay to the Bay of Fundy.
- 2005 *Tioga 96* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the coastal ocean from Cape Cod Bay to Cape Ann (NOAA rapid response sampling).
- 2005 OC415-1, R/V *Oceanus* (Chief Scientist)
Led a multidisciplinary study to assess the impacts of eddies and mixing on plankton community structure and biogeochemical cycling in the Sargasso Sea.
- 2005 OC415-3, R/V *Oceanus* (Chief Scientist)
Same objectives as OC415-1.
- 2004 OC404-1, R/V *Oceanus* (Chief Scientist)
Same objectives as OC415-1.
- 2004 OC404-4, R/V *Oceanus* (Chief Scientist)
Same objectives as OC415-1.
- 2004 OC402, R/V *Oceanus* (Chief Scientist)
Conducted synoptic mapping of *Alexandrium fundyense*, hydrography, and velocity in the coastal current offshore of Casco and Penobscot Bays; velocity measurements were assimilated into a circulation model to provide real-time nowcasts and forecasts of the flow field.
- 2003 OC391, R/V *Oceanus* (Chief Scientist)
Same objectives as OC402.
- 2001 EN361, R/V *Endeavor*
Used hydrography, satellite altimetry, and AVHRR imagery to guide mesoscale sampling of phytoplankton populations in the Sargasso Sea.
- 1999 EN323, R/V *Endeavor*
Conducted real time nowcasting and forecasting of the currents on Georges Bank; assimilated species-level biological data from the Video Plankton Recorder into the circulation fields.
- 1999 EN324, R/V *Endeavor*
Same objectives as EN323.
- 1996 BVAL16, R/V *Weatherbird II*
Conducted mesoscale hydrographic survey of physical and biogeochemical properties near Bermuda.
- 1988 CI8809, R/V *Columbus Iselin*
Conducted a synoptic mapping of the mesoscale eddy field near Bermuda; provided real time dynamical forecasts of the flow field while at sea in support of a suite of biological experiments.
- 1988 R/V *Jere Chase*
Conducted a hydrographic section across the mouth of the Boston Harbor.

- 1986 KN122, R/V *Knorr*
Assisted in nitrogen isotope analysis of selected zooplankton and particulate matter collected in and around warm core ring 86-A.
- 1985 OPTOMA XVI-AI, R/V *Acania*
Participated in a hydrographic survey of the shelf and slope waters inshore of the NOCAL region of the California Current System from Pt. Reyes to Cape Mendocino; responsibilities included data acquisition and analysis.

REFEREED JOURNAL PUBLICATIONS (* indicates student or postdoctoral advisee)

1. Robinson, A.R., **McGillicuddy, D.J.**, Calman, J., Ducklow, H.W., Fasham, M.J.R., Hoge, F.E., Leslie, W.G., McCarthy, J.J., Podewski, S., Porter, D.L., Saure, G., and J.A. Yoder, 1993. Mesoscale and upper ocean variabilities during the 1989 JGOFS bloom study. *Deep-Sea Research*, **40**(1), 9-35.
2. **McGillicuddy, D.J.**, 1995. One dimensional numerical simulation of new primary production: Lagrangian and Eulerian formulations. *Journal of Plankton Research*, **17**(2), 405-412.
3. **McGillicuddy, D.J.**, McCarthy, J.J., and A.R. Robinson, 1995a. Coupled physical and biological modeling of the spring bloom in the North Atlantic: I. Model formulation and one dimensional bloom processes. *Deep-Sea Research*, **42**(8), 1313-1357.
4. **McGillicuddy, D.J.**, Robinson, A.R., and J.J. McCarthy, 1995b. Coupled physical and biological modeling of the spring bloom in the North Atlantic: II. Three dimensional bloom and post-bloom processes. *Deep-Sea Research*, **42**(8), 1359-1398.
5. Muller-Karger, F., Richardson, P.L., and **D.J. McGillicuddy**, 1995. On the offshore dispersal of the Amazon's Plume in the North Atlantic. *Deep-Sea Research*, **42**(11/12), 2127-2137.
6. **McGillicuddy, D.J.** and A.R. Robinson, 1997a. Eddy induced nutrient supply and new production in the Sargasso Sea. *Deep-Sea Research*, **44**(8), 1427-1450.
7. **McGillicuddy, D.J.** and A.R. Robinson, 1997b. Interaction between the oceanic mesoscale and the surface mixed layer. *Dynamics of Atmospheres and Oceans*, **27**, 549-574.
8. Lynch, D.R., Gentleman, W.C., **McGillicuddy, D.J.**, and C.S. Davis, 1998. Biological/physical simulations of *Calanus finmarchicus* population dynamics in the Gulf of Maine. *Marine Ecology Progress Series*, **169**, 189-210.
9. **McGillicuddy, D.J.**, Robinson, A.R., Siegel, D.A., Jannasch, H.W., Johnson, R., Dickey, T.D., McNeil, J., Michaels, A.F., and A.H. Knap, 1998a. Influence of mesoscale eddies on new production in the Sargasso Sea. *Nature*, **394**, 263-265.
10. **McGillicuddy, D.J.**, Lynch, D.R., Moore, A.M., Gentleman, W.C., Davis, C.S., and C.J. Meise, 1998b. An adjoint data assimilation approach to diagnosis of physical and biological controls on *Pseudocalanus* spp. in the Gulf of Maine - Georges Bank region. *Fisheries Oceanography*, **7**(3/4), 205-218.
11. **McGillicuddy, D.J.**, Johnson, R.J., Siegel, D.A., Michaels, A.F., Bates, N.R., and A.H. Knap, 1999. Mesoscale variations of biogeochemical properties in the Sargasso Sea. *Journal of Geophysical Research*, **104**(C6), 13,381-13,394.
12. McNeil, J.D., Jannasch, H.W., Dickey, T.D., **McGillicuddy, D.J.**, Brzezinski, M. and C.M. Sakamoto, 1999. New chemical, bio-optical and physical observations of upper ocean response to the passage of a mesoscale eddy off Bermuda. *Journal of Geophysical Research*, **104**(C7), 15,537-15,548.
13. Siegel, D.A., **McGillicuddy, D.J.** and E.A. Fields, 1999. Mesoscale eddies, satellite altimetry and new production in the Sargasso Sea. *Journal of Geophysical Research*, **104**(C6), 13,359-13,379.

14. Bucklin, A., Guarnieri, M., **McGillicuddy, D.J.** and R.S. Hill, 2001. Spring-summer evolution of *Pseudocalanus* spp. abundance on Georges Bank based on molecular discrimination of *P. moultoni* and *P. newmani*. *Deep-Sea Research II*, **48**, 589-608.
15. Garcon, V.C., Oschlies, A., Doney, S.C., **McGillicuddy, D.J.** and J. Waniek, 2001. The role of mesoscale variability on plankton dynamics in the North Atlantic. *Deep-Sea Research II*, **48**, 2199-2226.
16. Lynch, D.R. and **D.J. McGillicuddy**, 2001. Objective analysis for coastal regimes. *Continental Shelf Research*, **21**, 1299-1315.
17. Marine Zooplankton Colloquium 2 (G.A. Paffenhöfer and 41 others), 2001. Future marine zooplankton research — a perspective. *Marine Ecology Progress Series*, **222**, 297-308.
18. **McGillicuddy, D.J.** and V.K. Kosnyrev, 2001. Dynamical Interpolation of Mesoscale Flows in the Topex/Poseidon Diamond Surrounding the U.S. JGOFS Bermuda Atlantic Time-series Site. *Journal of Geophysical Research*, **106**(C8), 16,641-16,656.
19. **McGillicuddy, D.J.**, Kosnyrev, V.K., Ryan, J.P. and J.A. Yoder, 2001a. Covariation of mesoscale ocean color and sea surface temperature patterns in the Sargasso Sea. *Deep-Sea Research II*, **48**, 1823-1836.
20. **McGillicuddy, D.J.**, Lynch, D.R., Wiebe, P., Runge, J., Durbin, E.G., Gentleman, W.C., and C.S. Davis, 2001b. Evaluating the synopticity of the U.S. Globec Georges Bank Broad-scale sampling pattern with Observational System Simulation Experiments. *Deep-Sea Research II*, **48**, 483-499.
21. Flierl, G.R. and **D.J. McGillicuddy**, 2002. Mesoscale and submesoscale physical-biological interactions. In: Biological-Physical Interactions in the Sea, A.R. Robinson, J.J. McCarthy and B.J. Rothschild, eds. *The Sea*, Volume **12**. John Wiley and Sons, Inc., New York, 113-185.
22. Hetland, R.D., **McGillicuddy, D.J.** and R.P. Signell, 2002. Cross-frontal entrainment of plankton into a buoyant plume: the frog tongue mechanism. *Journal of Marine Research*, **60**, 763-777.
23. **McGillicuddy, D.J.** and A. Bucklin, 2002. Intermingling of two *Pseudocalanus* species on Georges Bank. *Journal of Marine Research*, **60**, 583-604.
24. Goldman, J.C. and **D.J. McGillicuddy**, 2003. Effect of large marine diatoms growing at low light on episodic new production. *Limnology and Oceanography*, **48**, 1176-1182.
25. **McGillicuddy, D.J.**, Anderson, L.A., Doney, S.C., and M.E. Maltrud, 2003. Eddy-driven sources and sinks of nutrients in the upper ocean: results from a 0.1 degree resolution model of the North Atlantic. *Global Biogeochemical Cycles*, **17**(2), 1035, doi:10.1029/2002GB001987.
26. **McGillicuddy, D.J.**, Signell, R.P., *Stock, C.A., Keafer, B.A., Keller, M.D., Hetland, R.D. and D.M. Anderson, 2003. A mechanism for offshore initiation of harmful algal blooms in the coastal Gulf of Maine. *Journal of Plankton Research*, **25**(9), 1131-1138.
27. Shulman, I., Haddock, S., **McGillicuddy, D.J.**, Paduan, J. and P. Bissett, 2003. Numerical modeling of bioluminescence on the coastal ocean. *Journal of Atmospheric and Oceanic Technology*, **20**, 1060-1068.
28. *Sweeney, E.N., **McGillicuddy, D.J.** and K.O. Buesseler, 2003. Biogeochemical impacts due to mesoscale eddy activity in the Sargasso Sea as measured at the Bermuda Atlantic Time Series (BATS) site. *Deep-Sea Research II*, **50**, 3017-3039.
29. Proehl, J.A., Lynch, D. R., **McGillicuddy, D.J.** and J.R. Ledwell, 2005. Modeling turbulent dispersion on the North Flank of Georges Bank using Lagrangian Particle Methods. *Continental Shelf Research*, **25**, 875-900.
30. **McGillicuddy, D.J.**, Anderson, D.M., Lynch, D.R. and D.W. Townsend, 2005. Mechanisms regulating the large-scale seasonal fluctuations in *Alexandrium fundyense* populations in the Gulf of Maine. *Deep-Sea Research II*, **52**, 2698-2714.

31. **McGillicuddy, D.J.**, Anderson, D.M., Solow, A.R., and D.W. Townsend, 2005. Interannual variability of *Alexandrium fundyense* abundance and shellfish toxicity in the Gulf of Maine. *Deep-Sea Research II*, **52**, 2843-2855.
32. *He, R., **McGillicuddy, D.J.**, Lynch, D.R., Smith, K.W., *Stock, C.A. and J.P. Manning, 2005. Data assimilative hindcast of the Gulf of Maine coastal circulation. *Journal of Geophysical Research*, **110**, C10011, doi:10.1029/2004JC002807.
33. *Stock, C.A., **McGillicuddy, D.J.**, Solow, A.R. and D.M. Anderson, 2005. Evaluating hypotheses for initiation and development of *Alexandrium fundyense* blooms in the western Gulf of Maine using coupled physical-biological model. *Deep-Sea Research II*, **52**, 2715-2744.
34. Anderson, D.M., *Stock, C.A., Keafer, B.A., Bronzino, A., **McGillicuddy, D.J.**, Keller, M.D., Thompson, B., Matrai, P.A. and J. Martin, 2005. *Alexandrium fundyense* cyst dynamics in the Gulf of Maine. *Deep-Sea Research II*, **52**, 2522-2542.
35. Keafer, B.A., Churchill, J.H., **McGillicuddy, D.J.**, and D.M. Anderson, 2005. Bloom development and transport of toxic *Alexandrium fundyense* populations within a nearshore coastal plume in the Gulf of Maine. *Deep-Sea Research II*, **52**, 2674-2697.
36. Shulman, I., **McGillicuddy, D.J.**, Moline, M.A., Haddock, S.H.D., Kindle, J.C., Nechaev, D., and M.W. Phelps, 2005. Bioluminescence intensity modeling and sampling strategy optimization. *Journal of Atmospheric and Oceanic Technology*, **22**, 1267-1281.
37. Anderson, D.M., Keafer, B.A., **McGillicuddy, D.J.**, Mickelson, M.J., Keay, K.E., Libby, P.S., Manning, J.P., Mayo, C.A., Whittaker, D.K., Hickey, J.M., *He, R., Lynch, D.R. and K.W. Smith, 2005. Initial observations on the 2005 *Alexandrium fundyense* bloom in southern New England: general patterns and mechanisms. *Deep-Sea Research II*, **52**, 2856-2876.
38. Sedwick, P.N., Church, T.M., Bowie, A.R., Marsay, C.M., Ussher, S.J., Achilles, K.M., Lethaby, P.J., Johnson, R.J., Sarin, M.M., and **D.J. McGillicuddy** 2005. Iron in the Sargasso Sea (Bermuda Atlantic Time-series Study region) during summer: Eolian imprint, spatiotemporal variability, and ecological implications. *Global Biogeochemical Cycles*, **19**, GB4006, doi:10.1029/2004GB002445.
39. Davis, C.S. and **D. J. McGillicuddy**, 2006. Transatlantic Abundance of the N₂-Fixing Colonial Cyanobacterium *Trichodesmium*. *Science*, **312**, 1517-1520.
40. *Mouriño Carballido, B. and **D.J. McGillicuddy**, 2006. Mesoscale variability in the metabolic balance of the Sargasso Sea. *Limnology and Oceanography*, **51**(6), 2675-2689.
41. *Li, X., **McGillicuddy, D.J.**, Durbin, E.G., and P.H. Wiebe, 2006. Biological control of the vernal population increase of *Calanus finmarchicus* on Georges Bank. *Deep-Sea Research II*, **53**(23-24), 2632-2655, doi:10.1016/j.dsr2.2006.08.011.
42. **McGillicuddy, D.J.**, Anderson, L.A., Bates, N.R., Bibby, T., Buesseler, K.O., Carlson, C.A., Davis, C.S., Ewart, C., Falkowski, P.G., Goldthwait, S.A., Hansell, D.A., Jenkins, W.J., Johnson, R., Kosnyrev, V.K., Ledwell, J.R., Li, Q.P., Siegel, D.A. and D.K. Steinberg, 2007. Eddy/Wind Interactions Stimulate Extraordinary Mid-Ocean Plankton Blooms. *Science*, **316**, 1021-1026.
43. Friedrichs, M.A.M., Anderson, L.A., Armstrong, R., Chai, F., Christian, J., Doney, S., Dunne, J., Fujji, M., Hood, R., **McGillicuddy, D.J.**, Schartau, M., Spitz, Y. and J. Wiggert. 2007. Assessment of skill and portability in regional marine biogeochemical models: the role of multiple planktonic groups. *Journal of Geophysical Research*, **112**, C08001, doi:10.1029/2006JC003852.
44. *Ralston, D.K., **McGillicuddy, D.J.** and D.W. Townsend, 2007. Asynchronous vertical migration and bimodal distribution of motile phytoplankton. *Journal of Plankton Research*, **29**(9), 803-821.

45. *Stock, C.A., **McGillicuddy, D.J.**, Anderson, D.M., Solow, A.M. and R.P Signell, 2007. Blooms of the toxic dinoflagellate *Alexandrium fundyense* in the western Gulf of Maine in 1993 and 1994: A comparative modeling study. *Continental Shelf Research*, **27**, 2486-2512.
46. **McGillicuddy, D.J.**, Ledwell, J.R., L.A. Anderson, 2008. Response to comment on “Eddy/Wind Interactions Stimulate Extraordinary Mid-Ocean Plankton Bloom.” *Science*, **320**, 448c, doi:10.1126/science.1148974
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- Oliver, H., Zhang, W., Archibald, K., Hirzel, A., Smith, W., Sosik, H., Stanley, R., and **D.J. McGillicuddy**. Ekman Restratification Drives Ephemeral Surface Chlorophyll Enhancements at the New England Shelf Break. Presented in session PI05.
- Petitpas, C., Turner, J., **McGillicuddy, D.J.**, and W. Zhang. Two-point Dilution Experiments to Estimate Microzooplankton Grazing Rates in Cross-shelf Water Mass Regimes of the Middle Atlantic Bight. Presented in session PI05.
- Stanley, R., Baldwin, L., Beato, E., Sandwith, Z., Smith, W., Sosik, H., Zhang, W., and **D.J. McGillicuddy**. Limited Enhancement of Net Community Production at the Shelfbreak Front on the Northeastern Atlantic Shelf. Presented in session PI05.
- Turner, J., Petitpas, C., Alatalo, P., Zhang, W., and **D.J. McGillicuddy**. Zooplankton Biogeography of the Continental Shelf, Continental Slope, Shelf-Slope Front, Gulf Stream Streamers and Rings off Southern New England: Plankton from the Gulf of Maine to the Gulf of Mexico. Presented in session PI05.

Zhang, W., **McGillicuddy, D.J.**, Walker, S., Sosik, H., and R. Stanley. Characterization of the Cross-shelf Exchange Associated with a Shelf-water Streamer at the Mid-Atlantic Bight Shelf Edge. Presented in session PI05.

Zhu, Y., Mulholland, M., **McGillicuddy, D.J.**, Selden, C., Chappell, D., Zhang, W., and S. Clayton. Ammonium Dynamics in the Mid-Atlantic Shelf Break Frontal Zone. Presented in session PI05.

2024 Ocean Sciences Meeting:

Kronberg, Z., Stanley, H.R.H., Baldwin, L., O'Hern, N., Sandwith, Z., Sosik, H., Zhang, W.G., and **D.J. McGillicuddy**. Ephemeral Enhanced Productivity at the Shelfbreak Front on the Northeastern U.S. Shelf. Abstract ED34B-0150.

McGillicuddy, D.J., Morton, P.L., Brewton, R.A., Hu, C., Kelly, T.B., Solow, A.R., and B.E. Lapointe. Nutrient and arsenic biogeochemistry of *Sargassum* in the western Atlantic. Abstract PI44B-1747.

Zhang, W., Alatalo, P., Crockford, T., Hirzel, A.J., Meyer, M.G., Oliver, H., Peacock, E., Petitpas, C.M., Sandwith, Z., Smith, W.O., Sosik, H.M., Stanley, R.H.R., Stevens, B.L.F., Turner, J.T., and **D.J. McGillicuddy**. Cross-shelf exchange associated with a shelf-water streamer at the Mid-Atlantic Bight shelf edge. Abstract OB14D-0744.

Zhang, Y., Hu, C., **McGillicuddy, D.J.**, Barnes, B.B., Liu, Y., Kourafalou, V.H., Zhang, S., and F.J. Hernandez. Pelagic *Sargassum* in the Gulf of Mexico driven by ocean currents and eddies. Abstract PI44B-1741.

INVITED LECTURES

- Guest Lecture in Biological Oceanography, Harvard University, Cambridge, MA, April 1996.
- Physical Oceanography Seminar, Massachusetts Institute of Technology, Cambridge, MA, September 1996.
- Departmental Seminar, Horn Point Environmental Labs., Cambridge, MD, February 1997.
- Gordon Research Conference in Chemical Oceanography, Meriden, NH, August 1997.
- Globec International Modeling Workshop, Chapel Hill, NC, January 1998.
- AGU/ASLO Ocean Sciences Meeting Special Session on Theory and Modeling of Ocean Circulation, Data Assimilation and Interdisciplinary Applications: A Tribute to Professor Allan R. Robinson, San Diego, CA, February 1998.
- Monday Night at Mote Lecture Series, Mote Marine Laboratory, Sarasota, FL, March 1998.
- Oceanography Seminar Series, Harvard University, Cambridge, MA, April 1998.
- Physical Oceanography Seminar, University of Rhode Island, Narragansett, RI, April 1998.
- Biological Oceanography Seminar, Scripps Institution of Oceanography, La Jolla, CA, May 1998.
- Oceanography Seminar, Bermuda Biological Station for Research, St. Georges, Bermuda, July 1998.
- Departmental Seminar, Center for Coastal Physical Oceanography, Old Dominion University, Norfolk, VA, February 1999.
- CMAST Seminar, University of Massachusetts Dartmouth, Dartmouth, MA, April 1999.
- Guest lecture, Biological Oceanography, University of New Hampshire, Durham, NH, April 1999.
- Gordon Research Conference in Coastal Ocean Modeling, New London, NH, June 1999.
- Middle Atlantic Bight Physical Oceanography and Meteorology (MABPOM) Workshop, Woods Hole, MA, October 1999.

- AGU/ASLO Ocean Sciences Meeting Special Session on Coastal Ocean Dynamics and Prediction, San Antonio, TX, January 2000.
- AGU/ASLO Ocean Sciences Meeting Special Session on Marine Ecosystem Modeling on Regional to Global Scales, San Antonio, TX, January 2000.
- University of Connecticut Department of Marine Sciences Seminar Series, Avery Point, CT, February 2000.
- ONR Bioluminescence Workshop, San Diego, CA, February 2000.
- ONR Workshop on a Pilot Bioluminescence Experiment, Monterey, CA, May 2000.
- Physical Oceanography / Geochemistry Seminar, Lamont-Doherty Earth Observatory, Palisades, NY, May 2000.
- Department of Earth and Planetary Sciences Seminar, Johns Hopkins University, Baltimore, MD, November 2000.
- MIT Sack Lunch seminar, Massachusetts Institute of Technology, Cambridge, MA, November 2000.
- Estuarine Research Federation Conference Special Session on Ecological Forecasting, St. Petersburg, FL, November 2001.
- Guest Lecture, Sea Education Association, Woods Hole, MA, January 2002.
- College of Marine Science Seminar Series, University of South Florida, St. Petersburg, FL, April 2002.
- Virginia Institute of Marine Science Seminar Series, Gloucester Point, VA, September 2002.
- Departmental Seminar, School of Marine Science and Technology, University of Massachusetts Dartmouth, New Bedford, MA, March 2003.
- Earth Science Colloquium, Lamont-Doherty Earth Observatory, Palisades, NY, March 2003.
- Oceanography Seminar, Texas A&M University, College Station, TX, March 2003.
- Guest lecture, Martin Ryan Institute, National University of Ireland, Galway, Ireland, April 2003.
- JGOFS Final Open Science Conference, National Academy of Sciences, Washington, DC, May 2003.
- Workshop on real time coastal observing systems for ecosystem dynamics and harmful algal blooms. Villefranche-sur-mer, France, June 2003.
- Topics in Atmospheric and Oceanic Sciences Seminar Series, Marine Sciences Research Center, State University of New York, Stony Brook, NY, November 2003.
- Institute of Marine and Coastal Sciences Seminar Series, Rutgers University, New Brunswick, NJ, November 2003.
- Visiting Scientist Lecture, Cooperative Institute for Marine and Atmospheric Studies, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL, January 2004.
- University of Maine School of Marine Sciences Seminar Series, Orono, ME, February 2004.
- Biological Oceanography of Harmful Algal Blooms (BOHAB) Steering Committee Meeting, Martin Ryan Institute, National University of Ireland, Galway, February 2005.
- Basin workshop. Reykjavik, Iceland, March, 2005.
- Earth System Initiative Seminar Series, MIT, Cambridge, MA, April 2005.
- Laboratoire d'Océanographie de Villefranche, Villefranche-sur-mer, France, January 2006.
- BOHAB Seminar, Galway, Ireland, March 2006.
- National Oceanography Center, Southampton, UK, November 2006.
- Environmental fluid mechanics seminar, Department of Civil and Environmental Engineering, MIT, Cambridge, MA, April 2007.

- Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL, April 2008.
- Committee on Evolution of the Nation Oceanographic Research Fleet, Ocean Studies Board of the National Research Council, Woods Hole, MA, March 2009.
- Ocean Carbon and Biogeochemistry Workshop, Monterey Bay Aquarium Research Center, Moss Landing, CA, May 2009.
- *Calanus* Life History Workshop, Portland ME, March 2010.
- Old Dominion University, Department of Ocean, Earth, and Atmospheric Sciences Seminar, April 2010.
- Gordon Conference on Oceans and Human Health, University of New England, Biddeford, ME, June 2010.
- US GLOBEC Final Symposium, Washington, DC, October 2011.
- University of Massachusetts Dartmouth School of Marine Sciences Seminar, April 2012.
- Okinawa Institute of Marine Science and Technology, MarVel Workshop, May 2012.
- Mote Marine Laboratory Special Lecture Series, Mote Marine Laboratory, Sarasota, FL, March 2013.
- Trinity Preparatory School, Winter Park, FL, March 2013.
- NOAA North Atlantic Regional Team Ecological Forecasting Workshop, Woods Hole, MA, May 2013.
- Departmental Seminar, Commonwealth Center for Coastal Physical Oceanography, Old Dominion University, Norfolk, VA, November 2013.
- University of Southern Mississippi Department of Marine Sciences Seminar, Stennis, MS, February 2014.
- Workshop for an International Research Program on the Coupled North Atlantic-Arctic System, Washington DC, April 2014.
- Ocean Carbon and Biogeochemistry Workshop, Woods Hole, MA, July 2014.
- Science Made Public lecture series, WHOI Exhibit Center, Woods Hole MA, July 2015.
- Falmouth Newcomer's Club, Falmouth MA, February 2016.
- Road Scholar / Elderhostel program on Cape Cod and Woods Hole: Oceanography and Natural History, Falmouth MA, June 2016.
- U.S. CLIVAR Process Study and Model Improvement Panel, Woods Hole MA, June 2016.
- Falmouth Retired Men's Club, Falmouth Senior Center, Falmouth MA, June 2016.
- OceanObs Regional Coordination Network Conference (virtual), July 2016.
- Mechanisms of physical-biological interaction at the oceanic mesoscale. Third Xiamen Symposium on Marine Environmental Sciences (XMAS-III), Xiamen, China, January 2017.
- Mesoscale variability in intact and ghost colonies of *Phaeocystis antarctica* in the Ross Sea: Distribution and abundance. Institute of Oceanology Chinese Academy of Sciences, Qingdao, China, January 2017.
- A red tide of *Alexandrium fundyense* in the Gulf of Maine. Ocean University of China, Qingdao, China, January 2017.
- Modeling blooms of *Alexandrium fundyense* in the Gulf of Maine: from climatology to forecasting. NOAA HAB/Hypoxia review, Silver Spring, MD, February 2018.
- Observations and models of harmful algal blooms in the Gulf of Maine: from the present-day ocean to future climate impacts. Bedford Institute of Oceanography, Dartmouth NS Canada, September 2023.
- Nutrient and Arsenic Biogeochemistry of Sargassum in the Western Atlantic. NCSU Marine, Earth and Atmospheric Sciences Departmental Seminar, December 2023.

PH.D. THESIS

McGillicuddy, D.J., 1993. Mesoscale Ocean Dynamics and Biological Productivity. Reports in Meteorology and Oceanography, Number 48, Harvard University, 315 pp.

PH.D. ADVISORS

Allan R. Robinson, Harvard University
James J. McCarthy, Harvard University

POSTDOCTORAL ADVISOR

Kenneth H. Brink, Woods Hole Oceanographic Institution

REVIEWER FOR JOURNALS

Bulletin of Marine Science
Continental Shelf Research
Deep-Sea Research I
Deep-Sea Research II
Dynamics of Atmospheres and Oceans
Encyclopedia of Ocean Sciences
Environmental Health Sciences
Fisheries Oceanography
Geophysical Research Letters
Global Biogeochemical Cycles
Harmful Algae
Journal of Climate
Journal of Geophysical Research: Biogeosciences
Journal of Geophysical Research: Oceans
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Journal of Marine Systems
Journal of Physical Oceanography
Journal of Plankton Research
Limnology and Oceanography
Marine Ecology Progress Series
Nature
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National Oceanic and Atmospheric Administration
National Science Foundation
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International

Centre National de la Recherche Scientifique, France
Chilean National Science and Technology Commission (CONICYT)
Deutsche Forschungsgemeinschaft (DFG), German Research Foundation
European Research Council
Israel Science Foundation
National Environmental Research Council, United Kingdom
Natural Science and Engineering Research Council of Canada
CSIRO Marine National Facility