

## **Charles A. Stock**

Research Oceanographer, NOAA/Geophysical Fluid Dynamics Laboratory  
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### **Education**

- 2005 Ph.D., Woods Hole Oceanographic Institution/MIT Joint Program  
Civil, Environmental and Ocean Engineering
- 1998 M.S.E., Stanford University  
Environmental Fluid Mechanics and Hydrology
- 1993 B.S.E., Princeton University (*magna cum laude*)  
Civil and Environmental Engineering

### **Professional Experience**

- 2008-present Research Oceanographer, NOAA Geophysical Fluid Dynamics Laboratory
- 2007-2008 Associate Research Scholar, NOAA/GFDL and Princeton University
- 2005-2007 Postdoctoral Investigator, UC Berkeley and Princeton University
- 2005 Postdoctoral Investigator, Woods Hole Oceanographic Institution
- 1998-1999 Visiting Investigator, Woods Hole Oceanographic Institution

### **Honors and Awards**

- 2009 Presidential Early Career Award for Scientists and Engineers
- 2006 Outstanding reviewer, American Society of Limnology and Oceanography
- 2000 Environmental Protection Agency Science to Achieve Results (STAR) graduate fellowship
- 1997 Sigma Xi book award for excellence in undergraduate research, Department of Civil and Environmental Engineering, Princeton University

### **Research Interests**

Marine ecosystem and biogeochemical dynamics at global and regional scales; impacts of climate on living marine resources; interactions between physical and biological processes within marine ecosystems; harmful algal blooms

### **Professional affiliations**

Member, the American Society of Limnology and Oceanography  
Member, the American Geophysical Union

### **Professional and Service Activities**

- 2011 Co-convended session on “The future of marine fish stocks and food webs – advancing methods for projections in the face of uncertainty”, ICES Annual Science Conference, Gdansk, Poland.

- 2011 Co-convoked session on “Connecting Climate Science to Fisheries Management and Ecology In a Changing World”, American Fisheries Society Annual Meeting, Seattle Washington
- 2010 Member of the climate change impacts on cusk assessment team
- 2010 Contributor to the NOAA Ocean and Great Lakes Acidification Research Plan
- 2009 Organized workshop: "Applying IPCC-class models of global warming to fisheries prediction", June 15-17, Princeton University
- 2009 NOAA Office of Atmospheric and Oceanic Research representative to the second National Ecosystem Modeling Workshop
- 2006 Conducted workshop on the use of aquatic ecosystem models for ecosystem-based marine resource management, March 19-22, Trieste, Italy
- 2001-2002 Graduate student representative for the Applied Ocean Sciences and Engineering Department, Woods Hole/MIT Joint Program

Reviewer for Limnology and Oceanography, Continental Shelf Research, Journal of Marine Systems, Journal of Plankton Research, Deep-sea Research, Ocean Dynamics, Dynamics of Atmospheres and Oceans, Global Biogeochemical Cycles,

### Articles in Referred Journals

- McGillicuddy, D. J., Signell, R. P., **Stock, C. A.**, Keafer, B. A., Keller, M. D., Hetland, R. D., Anderson, D. M., 2003. A mechanism for offshore initiation of harmful algal blooms in the coastal Gulf of Maine. *Journal of Plankton Research* 25 (8), 1131-1139.
- Anderson, D. M., **Stock, C. A.**, Keafer, B. A., Nelson, A. B., McGillicuddy, D. J., Keller, M. D., Thompson, B., Matrai, P. A., Martin, J. L., 2005. Mapping, experimental observations, and modeling of *Alexandrium fundyense* cyst dynamics in the Gulf of Maine. *Deep-Sea Research Part II*, 52 (19-21), 2522-2542.
- He, R., McGillicuddy, D. J., Lynch, D. R., Smith, K. W., **Stock, C. A.**, Manning, J. P., 2005. Data Assimilative Hindcast of the Gulf of Maine Coastal Circulation. *Journal of Geophysical Research*, 110 (C10011), doi:10.129/2004JC002807.
- Stock, C. A.**, McGillicuddy, D. J., Solow, A. R., Anderson, D. M., 2005. Evaluating hypotheses for the initiation and development of *Alexandrium fundyense* blooms in the western Gulf of Maine using a coupled physical-biological model. *Deep Sea Research, Part II*, 52 (19-21), 2715-2744.
- Stock, C. A.**, McGillicuddy, D. J., Anderson, D. M., Solow, A. R., Signell, R. P., 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.
- McGillicuddy, D.J., Anderson, D.M., **Stock, C.A.**, Lynch, D.R., Townsend, D.W., 2008 Modeling blooms of *Alexandrium fundyense* in the Gulf of Maine. In: Babin, M., Roesler, C., and Cullen J. (Eds.), *Real-time Observing Systems for Marine Ecosystems Dynamics and Harmful Algal Blooms*, UNESCO publishing.
- Stock, C.A.**, Powell, T.M., Levin, S.A., 2008. Bottom-up and top-down forcing in a simple size-structured aquatic ecosystem model. *Journal of Marine Systems*, 74, 134-152.
- Stock, C.A.**, Dunne, J.P., 2010. Controls on the ratio of mesozooplankton production to primary production in marine ecosystems. *Deep-sea Research, Part I*, 57, 95-112.
- Song, H., Ji, R., **Stock, C.A.**, & Wang, Z. (2010). Phenology of phytoplankton blooms in the Nova Scotian Shelf - Gulf of Maine region: remote sensing and modeling analysis. *Journal of Plankton Research*, 32(11), 1485-1499.

Song, H., Ji, R., **Stock, C.A.**, Kearney, K., Wang, Z. (2011). Interannual variability of phytoplankton blooms and plankton productivity in the Nova Scotian Shelf and Gulf of Maine. *Marine Ecology Progress Series*, 426, 105-118

**Stock, C.A.**, Alexander, M., Bond, N.A., Brander, K.B., Cheung, W., Curchitser, E., Delworth, T.L., Dunne, J., Griffies, S.M., Haltuch, M., Hare, J., Hollowed, A.B., Lehoudey, P., Levin, S., Link, J.S., Rose, K.A., Rykaczewski, R., Sarmiento, J.L., Schwing, F., Stouffer, R., Vecchi, G., & Werner, C. (2011). On the use of IPCC-class climate models to assess the impact of climate on living marine resources. *Progress in Oceanography*, 88, 1-27.

### **Submitted**

Friedland, K.D., **Stock, C.A.**, Drinkwater, K.F., Link, J.S., Leaf, R., Shank, B., Rose, J., Pilskaln, C.H., Forgarty, M. (submitted) Pathways between primary production and fisheries yields of Large Marine Ecosystems, submitted to PLoS ONE.

Saba, V.S., **Stock, C.A.**, Spotila, J.R., Paladino, F.V., Santidrian-Tomilo, P. (submitted) Population response of an endangered marine vertebrate to climate change, submitted to *Nature Climate Change*.

### **Invited Seminars and Talks**

- 2003            HABWatch Workshop on Real Time Coastal Observing Systems for Ecosystems Dynamics and Harmful Algal Blooms, Villefranche-sur-Mere, France
- 2004            Departmental Seminar, University of Massachusetts at Dartmouth, School of Marine Science and Technology, Dartmouth MA
- 2005            Departmental Seminar, University of California, Santa Cruz, Department of Ocean Sciences, Santa Cruz, CA
- 2006            Departmental Seminar, Department of Civil and Environmental Engineering, UC Berkeley, Berkeley, CA
- 2006            Workshop on Climate Change, Upwelling, Fisheries, and Coastal Communities, Trieste, Italy
- 2006            Workshop on Skill Assessment for Coupled Biological/Physical Models of Marine Systems, Durham, NC
- 2007            Gordon Research Conference on Coastal Ocean Modeling, "Skill assessment and parameter constraints in physical-biological models: recent examples and challenges." New London, NH
- 2007            Departmental Seminar, Bigelow Laboratory for Ocean Sciences, Boothbay Harbor, ME
- 2007            Departmental Seminar, MIT department of Earth Atmosphere and Planetary Sciences, Boston MA
- 2008            Departmental Seminar, Old Dominion University Center for Coastal Physical Oceanography, Norfolk VA
- 2008            Seminar, Horn Point Environmental Laboratory, Cambridge Maryland
- 2009            Departmental Seminar, Biological Oceanography Department, Woods Hole Oceanographic Institution, Woods Hole MA
- 2009            Invited Speaker, Sea Grant Climate Network Workshop, Climate Adaptation in Coastal Communities: A Network Approach to Outreach, Charleston, SC

- 2010 Invited Plenary, Annual Science Meeting of the Regional Association for Research in the Gulf of Maine, "The impact of climate variability and change on ecosystem productivity across trophic levels", Portsmouth NH
- 2011 2011 Plenary speaker, CINAR workshop on climate and ecosystem change in the NW Atlantic, "Connecting climate and regional ecosystems", Woods Hole, MA
- 2011 Invited speaker, NOAA Science Advisory Board Meeting, "Connecting climate and marine ecosystems: progress and challenges", Washington D.C.
- 2011 Invited Speaker, American Fisheries Society Annual Meeting, "On the use of IPCC-class models to assess the impact of climate change on living marine resources", Seattle Washington
- 2011 Invited speaker, Rutgers University Institute of Marine and Coastal Sciences, "Connecting climate and living marine resources in global-scale Earth System Models", New Brunswick NJ