

CURRICULUM VITAE



Charles H. Greene

**Director
Ocean Resources and Ecosystems Program
Department of Earth & Atmospheric Sciences
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EDUCATION

Ph.D. Biological Oceanography, 1985, University of Washington, Seattle
B.A. Biological Oceanography, 1978, University of Colorado, Boulder

PROFESSIONAL APPOINTMENTS

2006 - Affiliate Professor, University of Hawaii Hilo
2006 Senior Scientist, Pacific Ocean Shelf Tracking Project
2003 - Professor, Department of Earth and Atmospheric Sciences,
Cornell University
2000 - 2001 Sabbatical Fellow, National Center for Ecological Analysis and Synthesis, University of
California Santa Barbara
1995 - 2002 Associate Professor, Department of Earth and Atmospheric Sciences,
Cornell University
1995 Adjunct Associate Professor, Section of Ecology and Systematics,
Cornell University
1992 - Director, Ocean Resources and Ecosystems Program, Cornell University
1991 - 1994 Adjunct Assistant Professor, Section of Ecology and Systematics,
Cornell University
1988 - 1992 Director, Biological Resources Program, Cornell University
1986 - 1990 Visiting Assistant Professor, Section of Ecology and Systematics,
Cornell University
1986 - 1989 Visiting Scientist, Ecosystems Research Center, Cornell University
1986 - Visiting Investigator, Biology Department, Woods Hole Oceanographic Institution
1985 - 1986 Postdoctoral Scholar, Biology Department, Woods Hole Oceanographic Institution

RESEARCH INTERESTS

Oceans and climate change; sustainable Earth, energy, and environmental systems; conservation oceanography; marine bioacoustics

SYNERGISTIC ACTIVITIES

In 1991, Dr. Greene chaired a panel discussion on training and human resources development at a National Science Foundation-sponsored workshop on *GLOBEC Acoustic Instrumentation*. Recommendations from this panel discussion led the Office of Naval Research to fund several series of marine bioacoustics courses that he first organized in 1993 and will continue to coordinate through 2017. By bringing together many of the top researchers in marine bioacoustics, biological oceanography, and marine biology, these courses have provided students with a unique opportunity to work side by side with world experts using state-of-the-art tools and technologies. The courses also have provided a setting for developing and testing new technologies. In this manner, they have served as a research magnet, attracting leading scientists to conduct their own research in a creative teaching and learning environment that has catalyzed interactions across the various disciplines associated with marine bioacoustics. During the past 20 years, the courses have trained over 325 students from 32 different countries.

In 2000, Dr. Greene organized a special symposium and workshop at the summer ASLO Meeting in Copenhagen, Denmark on *The Response of North Atlantic Shelf Ecosystems to Climate Variability and Change*. These activities led to the formation of a working group dedicated to investigating Marine Ecosystem Responses to Climate In the North Atlantic (MERCINA). The synthesis research conducted by MERCINA is ongoing and has produced paradigm-altering contributions to our understanding of marine ecosystem responses to remote climate forcing in the North Atlantic.

Since 2011, Dr. Greene has facilitated a partnership between Cornell, other universities, and the private sector to advance research in marine microalgal bioenergy and food production. The eventual goal of this research is to develop an integrated approach for society to achieve climate, energy, and food security in the 21st century.

In recognition of his contributions to the oceanographic community in research, teaching, and service, Dr. Greene was elected a Fellow in The Oceanography Society in 2008 and a Sustaining Fellow in the Association for the Sciences of Limnology and Oceanography in 2016.

PROFESSIONAL COMMUNITY LEADERSHIP AND SERVICE

2012	Chair, Committee on Fellows, The Oceanography Society
2010 -	Member, Advancement Board, Friday Harbor Laboratories, University of Washington
2009 - 2012	Member, Committee on Fellows, The Oceanography Society
2008 - 2011	Member, Ocean Observing Initiative Program Advisory Committee
2008 -	Education Coordinator, Ocean Tracking Network
2001 -	Associate Editor, <i>Oceanography</i> , The Oceanography Society
2000 -	Coordinator, MERCINA Working Group
1989 - 1992	United States Representative, Krill Working Group, Commission for the Conservation of Antarctic Marine Living Resources
1988 - 1991	Executive Committee Representative for Water-Column Biology, Office of Naval Research Flow Over Abrupt Topography Accelerated Research Initiative

UNIVERSITY COMMUNITY LEADERSHIP AND SERVICE

2015 - 2017	Departmental Representative, University Faculty Senate
2010 - 2013	At-Large Member, College of Agriculture and Life Sciences Faculty Senate
2009 -	Director, Cornell - Woods Hole Oceanographic Institution Master of Engineering Ocean Science and Technology Program
2009 - 2012	Coordinator, Sustainable Earth, Energy and Environmental Systems Seminar Series, Cornell Center for a Sustainable Future
2006 - 2010	Chairman, Science of Earth Systems Curriculum Committee
2005 - 2007	At-Large Member, University Faculty Senate
1997	Chairman, Marine Sciences Program Review Committee, College of Agriculture and Life Sciences
1992 -	Director, Ocean Resources and Ecosystems Program, Cornell University
1988 - 1992	Director, Biological Resources Program, Cornell University

HONORS AND AWARDS

2016	Sustaining Fellow, Association for the Sciences of Limnology and Oceanography
2010 - 2012	Sustainable Tompkins County Awards (a separate award for each year)
2008	Fellow, The Oceanography Society
2001	Faculty Innovation in Teaching Fellow, Cornell University
1999	Merrill Presidential Scholar Outstanding Educator, Cornell University
1998	J.P. and Mary Barger Excellence in Teaching Award, College of Engineering, Cornell University
1993	Rolex Awards for Enterprise Selected Project: Acoustic Visualization of Predator-Prey Interactions in the Southern Ocean Food Web
1985 - 1986	Woods Hole Oceanographic Institution Postdoctoral Fellowship
1983 - 1984	Seaspace Academic Scholarship
1982 - 1983	Havana Bradner Academic Scholarship
1979	Award for Excellence in Teaching Undergraduate Oceanography, School of Oceanography, University of Washington
1978	Chancellor's Medal, Recognition of Outstanding Academic Achievement, College of Arts and Sciences, University of Colorado
1978	Member, Phi Beta Kappa

SEAGOING RESEARCH LEADERSHIP

Chief Scientist; Research Vessel Endeavor; Gulf of Maine; 12-day cruise; December 1999
Chief Scientist; Research Vessel Endeavor; Gulf of Maine; 12-day cruise; October 1999
Chief Scientist; Research Vessel Oceanus; Gulf of Maine; 12-day cruise; December 1998
Chief Scientist; Research Vessel Oceanus; Gulf of Maine; 12-day cruise; October 1998
Chief Scientist; Research Vessel Endeavor; Gulf of Maine; 10-day cruise; October 1997
Chief Scientist; Research Vessel Roger Revelle; Monterey Bay; 7-day cruise; August 1997
Chief Scientist; Research Vessel Seward Johnson and Research Submersible Johnson Sea Link; Gulf of Maine; 6-day cruise; September 1993
Chief Scientist; Research Vessel Seward Johnson and Research Submersible Johnson Sea Link; Gulf of Maine; 8-day cruise; August 1992
Chief Scientist; Research Vessel Endeavor; Gulf of Maine; Chief Scientist; 10-day cruise; August 1992
Chief Scientist; Research Vessel Seward Johnson and Research Submersible Johnson Sea Link; Gulf of Maine and submarine canyons south of Georges Bank; 8-day cruise; September 1989
Bioacoustics Team Leader; Coordinated Eastern Arctic Research Experiment, Ice Camp A; Arctic Ocean; 11-day deployment; April 1989

TEACHING LEADERSHIP

Undergraduate Summer Internship Programs

1996	Coordinator, Center for the Environment - Akumal Ecological Center Summer Internship Program, Akumal, Mexico; June 9 - August 4, 1996
1995	Coordinator, Center for the Environment - Akumal Ecological Center Summer Internship Program, Akumal, Mexico; June 15 - August 15, 1995
1994	Coordinator, Center for the Environment - Akumal Ecological Center Summer Internship Program, Akumal, Mexico; June 1 - August 15, 1994

Advanced Summer Workshops

- 2013 Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA; July 22 - August 16, 2013
- 2011 Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA; June 20 - July 22, 2011
- 2009 Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA; July 20 - August 21, 2009
- 2007 Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA; July 16 - August 17, 2007
- 2005 Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA; August 1 - 15, 2005
- 2004 Coordinator, Marine Bioacoustics, Hawaii Preparatory Academy, Waimea, HI; February 23 - March 12, 2004
- 2003 Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA; July 14 - August 15, 2003
- 1998 Coordinator, Bioacoustical Oceanography Advanced Workshop: Top Predators and their Prey in the Marine Environment, Shoals Marine Laboratory, Appledore Island, ME/University of New Hampshire, Durham, NH; July 15 - August 8, 1998
- 1997 Coordinator, Bioacoustical Oceanography Workshop III: Top Predators and their Prey in the Marine Environment, University of California Santa Cruz, Santa Cruz, CA; July 21 - August 14, 1997
- 1996 Coordinator, Bioacoustical Oceanography Advanced Workshop: Top Predators and their Prey in the Marine Environment, University of California Santa Cruz, Santa Cruz, CA; August 5 - 30, 1996
- 1995 Coordinator, Bioacoustical Oceanography Workshop II: Top Predators and their Prey in the Marine Environment, University of California, Santa Cruz, Santa Cruz, CA; August 1 - 25, 1995
- 1993 Coordinator, Bioacoustical Oceanography Workshop, Friday Harbor Laboratories, Friday Harbor, WA; July 19 - August 21, 1993

SIGNIFICANT RECENT PUBLICATIONS

- In press Meyer-Gutbrod, E., and C.H. Greene. Uncertain recovery of the North Atlantic right whale in a changing ocean. *Glob. Chang. Biol.*
- 2017 Greene, C.H., et al. Geoengineering, marine microalgae, and climate stabilization in the 21st century. *Earth's Future*. DOI: 10.1002/2016EF000486.
- 2017 Greene, C.H. Arctic sea ice loss, mid-latitude extreme weather, and Superstorm Sandy. Pages 437-438 in K.A. Sverdrup and R.M. Kudela, authors. *Investigating Oceanography*, 2nd Edition. McGraw Hill Education, New York.
- 2016 Walsh, M.J., et al. Algal food and fuel coproduction can mitigate greenhouse gas emissions while improving land and water-use efficiency. *Environ. Res. Lett.* 11 (2016) 114006. doi: 10.1088/1748-9326/11/11/114006.
- 2016 Greene, C.H., et al. Marine microalgae: climate, energy, and food security from the sea. *Oceanography* 29(4): 10-15.
- 2016 Greene, C.H. North America's iconic marine species at risk due to unprecedented ocean warming. *Oceanography* 29(3): 14-17.
- 2016 Greene, C.H. Wading in the footsteps of an ecological giant. *Oceanography* 29(2): 5-6.
- 2015 Rau, G.H., and C.H. Greene. Emissions reduction is not enough. *Science* 349: 1459.
- 2015 Meyer-Gutbrod, E., C.H. Greene, A.J. Pershing, and P. Sullivan. Climate-associated changes in prey availability drive reproductive dynamics of the North Atlantic right whale population. *Mar. Ecol. Progr. Ser.* 535: 243-258.
- 2015 Meyer-Gutbrod, E., C.H. Greene, L. McGarry. Wave Glider technology: Expanding the fisheries acoustics toolbox. *Sea Technol.* 56(12): 16-19.
- 2015 Huntley, M.E., et al. Demonstrated large-scale production of marine microalgae for fuels and feed. *Algal Res.* 10: 249-265.
- 2015 Conversi, A., V. Dakos, A. Gårdmark, S. Ling, C. Folke, P. Mumby, C. Greene, M. Edwards, T. Blenckner, M. Casini, A. Pershing, and C. Möllmann. A holistic view of marine regime shifts. *Phil. Trans. R. Soc. B.* 370: 20130279.

- 2015 Beaugrand, G., A. Conversi, S. Chiba, M. Edwards, S. Fonda-Umani, C. Greene, N. Mantua, S. A. Otto, P. C. Reid, M. M. Stachura, L. Stemmann and H. Sugisaki. Synchronous marine pelagic regime shifts in the Northern Hemisphere. *Phil. Trans. R. Soc. B.* 370: 20130272.
- 2015 Beal, C.M., et al. Algal biofuel production for fuels and feed in a 100-ha facility: a comprehensive techno-economic analysis and life cycle assessment. *Algal Res.* 10: 266-279.
- 2014 Greene, C.H., et al. A Wave Glider approach to fisheries acoustics: transforming how we monitor the nation's commercial fisheries in the 21st century. *Oceanography*: 27(4): 168–174.
- 2014 Meyer-Gutbrod, E., and C.H. Greene. Climate-driven regime shifts drive decadal-scale variability in recovery of North Atlantic right whale population. *Oceanography* 27(3): 132-137.
- 2013 Sills, D.L., V. Paramita, M.J. Franke, M.C. Johnson, T.M. Akabas, C.H. Greene, and J.W. Tester. Quantitative uncertainty analysis of life cycle assessment for algal biofuel production. *Environ. Sci. Technol.* 47: 687–694.
- 2013 Greene, C.H., et al. Remote climate forcing of decadal-scale regime shifts in Northwest Atlantic shelf ecosystems. *Limnol. Oceanogr.* 58: 803-816.
- 2013 Greene, C.H., J.A. Francis, and B.C. Monger. Superstorm Sandy: A series of unfortunate events? *Oceanography* 26(1): 8–9.
- 2013 Greene, C.H. Towards a more balanced view of marine ecosystems. *Fish. Oceanogr.* 22: 140-142.
- 2012 MERCINA (Greene, C.H., et al.). Recent Arctic climate change and its remote forcing of Northwest Atlantic shelf ecosystems. *Oceanography* 25(3): 208-213.
- 2012 Greene, C.H., and B.C. Monger. An Arctic wildcard in the weather. *Oceanography* 25(2): 7-9.
- 2012 Greene, C.H. The winters of our discontent. *Scientific American* 307: 50-55.
- 2010 Greene, C. Monger, B. Huntley, M. 2010. Geoengineering: the inescapable truth of getting to 350. *Solutions* 1(5): 57-66.
- 2010 Greene, C.H., D.J. Baker, and D.H. Miller. A very inconvenient truth. *Oceanography* 23 (1): 214-218.
- 2009 Greene, C.H., B.C. Monger, and L.P. McGarry. Some like it cold. *Science* 324: 733-734.
- 2009 Greene, C.H., B.A. Block, D. Welch, G. Jackson, and G.L. Lawson. Advances in conservation oceanography: new tagging and tracking technologies and their potential for transforming the science underlying fisheries management. *Oceanography* 22 (1): 210-223.
- 2008 Greene, C.H., A.J. Pershing, T.M. Cronin, and N. Cecci. Arctic climate change and its impacts on the ecology of the North Atlantic. *Ecology* 89(11) Supplement 2008: S24-S38.
- 2007 Greene, C.H., and A.J. Pershing. Climate drives sea change. *Science* 315: 1084-1085.
- 2005 Pershing, A.J., C.H. Greene, J.W. Jossi, L. O'Brien, J.K.T. Brodziak, and B.A. Bailey. Interdecadal variability in the Gulf of Maine zooplankton community with potential impacts on fish recruitment. *ICES J. Mar. Sci.* 62: 511-523.
- 2004 MERCINA (Greene, C.H., et al.). Supply-side ecology and the response of zooplankton to climate-driven changes in North Atlantic Ocean circulation. *Oceanography* 17(3): 10-21.
- 2004 Greene, C.H., and A.J. Pershing. Climate and the conservation biology of North Atlantic right whales: the right whale at the wrong time? *Frontiers Ecol. Environ.* 2: 29-34.
- 2003 MERCINA (Greene, C.H., et al.). Trans-Atlantic responses of *Calanus finmarchicus* populations to basin-scale forcing associated with the North Atlantic Oscillation. *Progr. Oceanogr.* 58: 301-312.
- 2003 Greene, C.H., A.J. Pershing, R.D. Kenney, and J.W. Jossi. Impact of climate variability on the recovery of endangered North Atlantic right whales. *Oceanography* 16(4): 96-101.
- 2001 MERCINA (Pershing, A.J., et al.). Oceanographic responses to climate in the Northwest Atlantic. *Oceanography* 14(3): 77-83.

ADVISING

POSTDORAL ASSOCIATES

- Dr. Sam McClatchie. 1990. Cornell University (Current position: Supervisory Fisheries Oceanographer, NOAA Southwest Fisheries Science Center)
- Dr. Bruce Monger. 1993-1994. Cornell University (Current position: Senior Lecturer, Cornell University)
- Dr. Andrew Pershing. 2001-2003. Cornell University (Current position: Chief Scientist, Gulf of Maine Research Institute)
- Dr. Deborah Sills. 2011-2013. Cornell University (Current position: Assistant Professor, Bucknell University)
- Dr. Leda Gerber. 2013- 2016. Cornell University (Current position: Assistant Professor, University of North Carolina)
- Dr. Louise McGarry. 2014-2016. (Current position: Research Associate, University of Maine)
- Dr. Erin Meyer-Gutbrod. 2016-2017. (Current position: Postdoctoral Associate, University of California Santa Barbara)

DOCTORAL STUDENTS

- Dr. Shonali Chandy. 1997. Estimating the predatory impact of gelatinous zooplankton. Ecology and Evolutionary Biology, Cornell University
- Dr. Gideon Gal. 1999. The biological and physical interactions of *Mysis relicta* in Lake Ontario. Ecology and Evolutionary Biology, Cornell University (Current position: Head/Senior Scientist/ Kinneret Limnological Laboratory, Israel)
- Dr. Andrew Pershing. 2001. Response of large marine ecosystems to climate variability: patterns, processes, concepts, and methods. Ecology and Evolutionary Biology, Cornell University (Current position: Chief Scientist, Gulf of Maine Research Institute)
- Dr. Karen Fisher Favret. 2002. Intermittency of spatial and temporal plankton patterns. Ecology and Evolutionary Biology, Cornell University (Current position: Chief Scientist, Spatial Temporal Earth, LLC, Montreal, Canada)
- Dr. Yianna Samuel-Rhoads. 2008. Climatic impacts on ocean ecosystems: a study of climate variability and conservation oceanography. Geological Sciences, Cornell University (Current position: Research Associate, University of Cyprus, Cyprus)
- Dr. Andrew Fischer. 2008. An estuarine plume and coastal ocean variability: discerning a land-sea linkage in Monterey Bay, California. Geological Sciences, Cornell University (Current position: Lecturer, University of Tasmania, Australia)
- Dr. Louise McGarry. 2014. An examination of blue whale foraging and its krill prey field in the Monterey Bay submarine canyon. Geological Sciences, Cornell University (Current position: Research Associate, University of Maine)
- Dr. Ian Brosnan. 2014. Death of a salmon: An investigation of the processes affecting survival and migration of juvenile yearling Chinook salmon (*Oncorhynchus tshawytscha*) in the lower Columbia River and ocean plume with acoustic telemetry, mark-recapture statistics, and individual-based modeling. Ecology and Evolutionary Biology, Cornell University (Current position: Associate Chief for Strategic Planning, NASA Ames Research Center)
- Dr. Erin Meyer-Gutbrod. 2016. Impacts of climate-associated changes in prey availability on population dynamics of the North Atlantic right whale. Atmospheric Science, Cornell University (Current position: Postdoctoral Associate, University of California Santa Barbara)

ORGANIZED WORKSHOPS AND SYMPOSIA

- Workshop (co-organizer) on “Forecasting Ecosystem Indicators with Process-Based Models.” GLOBEC/PICES/ICES Workshop, Friday Harbor, WA; September 2012.
- Special Symposium (organizer) on “The Challenges of Getting to 350.” American Association for the Advancement of Science Annual Meeting, Vancouver, British Columbia; February 2012.
- Workshop (organizer) on “Remote Climate Forcing of NW Atlantic Shelf Ecosystems,” Ecological Studies of Subarctic Seas Meeting, Seattle, Washington; June 2011.

Research Symposium (organizer) on "Global Ocean Ecosystems and Climate." US Global Ocean Ecosystems Pan Regional Synthesis Symposium, Friday Harbor, Washington; August 2010.

Special Symposium (organizer) on "Marine Ecosystem Regime Shifts: Observations and Predictions." American Geophysical Union/American Society of Limnology and Oceanography/The Oceanography Society Ocean Sciences Meeting, Portland, Oregon; February 2010.

Workshop (organizer) on "Remote Climate Forcing of NW Atlantic Shelf Ecosystems," American Geophysical Union/American Society of Limnology and Oceanography/The Oceanography Society Ocean Sciences Meeting, Portland, Oregon; February 2010.

Workshop (organizer) on "Responses of NW Atlantic Shelf Ecosystems to Climate Forcing," Shoals Marine Laboratory's Creek Farm Campus, Portsmouth, New Hampshire; October 2008.

Special Symposium (organizer) on "Influences of Recent Changes in the Arctic on Subarctic and Mid-Latitude Marine Ecosystems." American Geophysical Union/American Society of Limnology and Oceanography/The Oceanography Society Ocean Sciences Meeting, Orlando, Florida; March 2008.

Special Symposium (organizer) on "Emergence of Conservation Oceanography." American Association for the Advancement of Science Annual Meeting, San Francisco, California; February 2007.

Workshop (organizer) on "Responses of NW Atlantic Shelf Ecosystems to Arctic Climate Change," Gulf of Maine Research Institute, Portland, Maine; November 2006.

Workshop (organizer) on "Climate-Based Assessment and Forecasting of Ecosystems (CAFÉ) in the Gulf of Maine," Boston, Massachusetts; December 2004.

Special Symposium (organizer) on "Ocean Observing Systems: Novel Approaches to Studying and Monitoring Large Marine Ecosystems and their Living Resources." American Society of Limnology and Oceanography/The Oceanography Society Ocean Research Conference, Honolulu, Hawaii; February 2004.

Workshop (organizer) on "Hawaiian Ocean Resources and Ecosystems Observatory," Keauhou Beach Resort, Keauhou, Hawaii; February 2003.

Special Symposium and Workshop (organizer) on "Marine Ecosystem Responses to Climate: The Responses of Large Marine Ecosystems to Interdecadal-Scale Climate Variability." American Geophysical Union/American Society of Limnology and Oceanography Ocean Sciences Meeting, Honolulu, Hawaii; February 2002.

Workshop (organizer) on "Response of NW Atlantic Marine Ecosystems to Climate Variability," National Center for Ecological Analysis and Synthesis, Santa Barbara, California; Spring 2001.

Special Symposium and Workshop (organizer) on "The Response of Northeast and Northwest Atlantic Shelf Ecosystems to Climate Variability and Change. American Society of Limnology and Oceanography Summer Meeting, Copenhagen, Denmark; June 2000.

Workshop (organizer) on "Spatio-Temporal Dynamics: New Statistical and Modeling Approaches for Analyzing Spatially and Temporally Indexed Data from Pelagic Ecosystems," Cornell University, Ithaca, New York; Autumn 1996.

