

Resume



Charles H. Greene

Senior Fellow
Ocean Visions Consortium

Senior Research Fellow
Friday Harbor Laboratories
University of Washington

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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

2021 - Senior Research Fellow, Friday Harbor Laboratories, University of Washington
2020 - Senior Fellow, Ocean Visions Consortium
2006 - Affiliate Professor, University of Hawaii Hilo
2006 Senior Scientist, Pacific Ocean Shelf Tracking Project
2003 - 2021 Professor, Department of Earth and Atmospheric Sciences,
Cornell University
2001 - Senior Scientist, The Kohala Center
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 - 2021 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 AND SYNERGISTIC ACTIVITIES

Dr. Greene's research interests range from the ecological dynamics of marine animal populations to the impacts of climate variability and change on ocean ecosystems and the Earth system. During recent years, his interests have evolved towards seeking solutions to society's grand challenges in achieving a sustainable biosphere.

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 continued to coordinate until 2021. 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 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 25 years, the courses have trained over 350 students from 32 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 revealed that decadal-scale regime shifts in Northwest Atlantic shelf ecosystems are often remotely forced by atmosphere-cryosphere-ocean interactions in the Arctic's climate system.

Dr. Greene and his students have used the oceanographic insights from this research to advance the management of commercially exploited and protected animal populations in the Gulf of Maine, including cod and the critically endangered North Atlantic right whale. In the case of the right whale, they were able to demonstrate that variability in the population's recovery rate is strongly coupled to food availability, which in turn is linked to climate-driven changes in the ecosystem.

Since 2010, Dr. Greene has served on the leadership team of a consortium of universities and other organizations that are conducting marine microalgae research to develop an integrated approach for society to achieve climate, energy, food, and water security during the 21st century. In 2020, he initiated an Ocean Visions task force on the Marine Circular Bioeconomy. The goal of this task force is to develop a new algae-based conceptual framework for aquaculture, one that can contribute significantly to human nutrition while simultaneously improving environmental sustainability and biodiversity conservation.

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

2021 -	Chair, Center for Ocean Art, Science, and Technology Steering Committee
2019 - 2022	Member, Executive Leadership Team, Ocean Visions Consortium
2018	Chair, Award Committee for Jerlov Medal in Ocean Optics, The Oceanography Society
2018 - 2021	Council Member, Biological Oceanography, The Oceanography Society
2017	Chair, Award Committee on Fellows, The Oceanography Society
2010 -	Member, Advancement Board, Friday Harbor Laboratories, University of Washington
2009 - 2012	Member, Award Committee on Fellows, The Oceanography Society
2008 - 2011	Member, External Advisory Committee, Ocean Observing Initiative
2008 - 2013	Education Coordinator, Ocean Tracking Network
2001 -	Associate Editor, <i>Oceanography</i> , The Oceanography Society
2000 - 2013	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

2014 - 2017	Departmental Representative, University Faculty Senate
2010 - 2013	At-Large Member, College of Agriculture and Life Sciences Faculty Senate
2009 - 2021	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 Committee, College of Agriculture and Life Sciences
1992 - 2021	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	Rolux 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 EXPERIENCE

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

FIELD TEACHING EXPERIENCE

Undergraduate Summer Internship Programs

1994 - 1996	Coordinator, Center for the Environment - Akumal Ecological Center Summer Internship Program, Akumal, Mexico: June 9 – August 4, 1996
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Advanced Workshops

2003 - 2013	Coordinator, Marine Bioacoustics, Friday Harbor Laboratories, Friday Harbor, WA
2004 - 2020	Coordinator, Marine Bioacoustics, Hawaii Preparatory Academy, Waimea, HI
1998	Coordinator, Bioacoustical Oceanography Workshop, Shoals Marine Laboratory, Appledore Island, ME/University of New Hampshire, Durham, NH
1995 - 1997	Coordinator, Bioacoustical Oceanography Workshop, University of California, Santa Cruz, CA
1993	Coordinator, Bioacoustical Oceanography Workshop, Friday Harbor Laboratories, Friday Harbor, WA;

SIGNIFICANT RECENT PUBLICATIONS

2021	Meyer-Gutbrod, E.L. C.H. Greene, K.T.A. Davies, and D.G. Johns. 2021. Ocean regime shift is driving collapse of the North Atlantic right whale population. <i>Oceanography</i> 34(3): 22–31.
2019	Bindoff, N.L., et al. Changing ocean, marine ecosystems, and dependent communities. Chapter 5, pages 1-198, in H.-O. Pörtner et al., editors, <i>IPCC Special Report on the Ocean and Cryosphere in a Changing Climate</i> .
2019	Beaugrand, G., et al. Prediction of unprecedented biological shifts in the global ocean. <i>Nat. Clim. Chang.</i> 9(3): 237-243.
2019	Scott-Buechler, C.M., and C.H. Greene. Role of the ocean in climate stabilization, Pages 109-130, in J.C.M. Pires and A.L.C. Goncalves, editors. <i>Bioenergy with Carbon Capture and Storage: Using Natural Resources for Sustainable Development</i> . Elsevier, London.
2018	Beal, C.M., et al. Marine microalgae commercial production improves sustainability of global fisheries and aquaculture. <i>Scientific Reports</i> 8: 15064.
2018	Beal, C.M., et al. Integrating algae with bioenergy carbon capture and storage (ABECCS) increases sustainability. <i>Earth's Future</i> 6: 524-542.
2018	Brosnan, I., et al. A description of a non-invasive surgical training pathway using translational tools to teach intracoelomic implantation of acoustic transmitters in fish. <i>J. Aquat. Anim. Health</i> 30: 226–232.
2018	Meyer-Gutbrod, E., and C.H. Greene. Uncertain recovery of the North Atlantic right whale in a changing ocean. <i>Glob. Chang. Biol.</i> 24: 455–464.
2018	Meyer-Gutbrod, E.L. C.H. Greene, and K.T.A. Davies. Marine species range shifts necessitate advanced policy planning: the case of the North Atlantic right whale. <i>Oceanography</i> 31(2): 16-20.
2017	Greene, C.H., et al. Geoengineering, marine microalgae, and climate stabilization in the 21 st century. <i>Earth's Future</i> 5: 278-284.
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. <i>Investigating Oceanography</i> , 2 nd 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. <i>Environ. Res. Lett.</i> 11 (2016) 114006.
2016	Greene, C.H., et al. Marine microalgae: climate, energy, and food security from the sea. <i>Oceanography</i> 29(4): 10-15.
2016	Greene, C.H. North America's iconic marine species at risk due to unprecedented ocean warming. <i>Oceanography</i> 29(3): 14-17.
2016	Greene, C.H. Wading in the footsteps of an ecological giant. <i>Oceanography</i> 29 (2): 5-6.
2015	Rau, G.H., and C.H. Greene. Emissions reduction is not enough. <i>Science</i> 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. <i>Mar. Ecol. Progr. Ser.</i> 535: 243-258.
2015	Meyer-Gutbrod, E., C.H. Greene, L. McGarry. Wave Glider technology: Expanding the fisheries acoustics toolbox. <i>Sea Technol.</i> 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. 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

POSTDOCTORAL ASSOCIATES

- Dr. Sam McClatchie. 1990. Cornell University (Retired: 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: Director of Climate Science, Climate Central)
- Dr. Evija Smite. 2002-2003. Hubert H. Humphrey Fellowship Program. Cornell University (Current position: Director of the State Environmental Services Fisheries Control Department, Valsts Vides Dienests)
- Dr. Deborah Sills. 2011-2013. Cornell University (Current position: Associate Professor, Bucknell University)
- Dr. Colin Beal. 2013-2014. Cornell University (Current position: Researcher, B&D Engineering and Consulting)
- Dr. Leda Gerber. 2013- 2016. Cornell University (Current position: Assistant Professor, University of North Carolina)
- Dr. Louise McGarry. 2014-2016. (Current position: Research Scientist, Fundy Ocean Research Centre for Energy)
- Dr. Erin Meyer-Gutbrod. 2016-2017. (Current position: Assistant Professor, University of South Carolina)

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: Director of Climate Science, Climate Central)
- 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 Scientist, Fundy Ocean Research Centre for Energy)
- 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: Assistant Professor, University of South Carolina)

ORGANIZED SYMPOSIA AND WORKSHOPS

- Special Session (organizer) on “The Marine Circular Bioeconomy Workshop.” Algal Biomass Organization Summit, Remote; October 2021.
- Special Session (organizer) on “The Marine Circular Bioeconomy.” Ocean Visions Summit, Remote; May 2021.
- Special Symposium (organizer) on “Ocean Visions: Finding Ocean-Based Solutions to Society’s Greatest Global Challenges.” American Geophysical Union/American Society of Limnology and Oceanography/The Oceanography Society Ocean Sciences Meeting, San Diego, California; February 2020.
- Workshop (organizer) on “Conservation Oceanography of Right Whales.” Lenfest Ocean Program Workshop, Friday Harbor, Washington; August 2019.
- Workshop (organizer) on “Conservation Oceanography of Right Whales.” Lenfest Ocean Program Workshop, Friday Harbor, Washington; August 2018.
- Workshop (co-organizer) on “Forecasting Ecosystem Indicators with Process-Based Models.” GLOBEC/PICES/ICES Workshop, Friday Harbor, Washington; 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.

HISTORY OF GRANT SUPPORT

Funding Agency: Advanced Research Projects Agency - Energy
Title: Marine Circular Bioeconomy Workshop
Principal Investigators: Charles H. Greene (University of Washington)
Project Duration: September 15, 2021 – April 14, 2022
Award Amount: \$10,000

Funding Agency: Engage Cornell, Cornell University
Title: A Model for Sustainable Resource Use: Leveraging Science and Traditional Ecological Knowledge in Environmental Education
Principal Investigators: Charles H. Greene (Cornell)
Project Duration: September 1, 2019 – August 31, 2020
Award Amount: \$79,950

Funding Agency: Department of Agriculture (subcontract from University of Arkansas)
Title: Empowering US Broiler Production for Transformation and Sustainability
Principal Investigators: Xingen Lei et al. (Cornell)
Project Duration: September 1, 2019 – August 31, 2014
Award Amount: \$4,653,825

Funding Agency: Office of Naval Research
Title: Marine Bioacoustics: Applications in Mobile Ocean Observing Network
Principal Investigator: Charles H. Greene (The Kohala Center)
Project Duration: June 1, 2018 – May 31, 2021
Award Amount: \$74,307

Funding Agency: Lenfest Ocean Program, Pew Charitable Trusts
Title: Climate Change and the Conservation Oceanography of the North Atlantic Right Whale Population
Principal Investigators: Charles H. Greene (Cornell University)
Project Duration: May 24, 2018 - May 31, 2020
Award Amount: \$285,200

Funding Agency: Atkinson Center for a Sustainable Future, Cornell University
Title: Transforming Fisheries Science and Management
Principal Investigators: Charles H. Greene (Cornell University), Helen Takade-Heumacher, and Jake Kritzer (Environmental Defense Fund)
Project Duration: April 1, 2016 - March 31, 2017
Award Amount: \$87,570

Funding Agency: Department of Energy
Title: Marine Algae Industrialization Consortium
Principal Investigator: Zackary Johnson (Duke)
Project Duration: October 1, 2015 – September 30, 2022
Award Amount: \$5,240,313

Funding Agency: Atkinson Center for a Sustainable Future, Cornell University
Title: Developing Surrogates for Advanced Liquid Transportation Fuels
Principal Investigators: C. Thomas Avedisian et al. (Cornell University)
Project Duration: July 15, 2014 - July 14, 2015
Award Amount: \$103,084

Funding Agency: National Science Foundation
Title: Development of a Large-Area, High-Resolution Marine Acoustic Tracking System
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: July 1, 2013 - June 30, 2016
Award Amount: \$500,036

Funding Agency: Office of Naval Research
Title: Marine Bioacoustics: Soundtracks for the Future
Principal Investigator: Charles H. Greene (The Kohala Center)
Project Duration: April 1, 2013 – March 31, 2018
Award Amount: \$250,007

Funding Agency: Department of Defense
Title: National Defense Science and Engineering Predoctoral Fellowship: Erin L. Meyer-Gutbrod
Principal Investigators: Charles H. Greene and Erin L. Meyer-Gutbrod (Cornell University)
Project Duration: August 1, 2012 - July 31, 2015
Award Amount: \$92,500

Funding Agency: National Oceanic and Atmospheric Administration
Title: Pilot study utilizing a Wave Glider towed echo-sounder system for fisheries acoustic surveys.
Application to acoustic surveys of Pacific hake (*Merluccius productus*)
Principal Investigators: Larry Hufnagle (NMFS), Dezhang Chu (NMFS), Charles Greene (Cornell), Janusz Burczynski (BioSonics), Alan Declerk (Liquid Robotics)
Project Duration: August 1, 2012 – July 31, 2014
Award Amount: \$205,776

Funding Agency: Atkinson Center for a Sustainable Future, Cornell University
Title: Sustainable Hawaii
Principal Investigators: Charles H. Greene et al. (Cornell University)
Project Duration: July 1, 2012 – December 31, 2014
Award Amount: \$20,000

Funding Agency: Department of Energy
Title: Algal Biofuels Consortium: Large-Scale Production of Fuels and Feeds from Marine Microalgae
Principal Investigators: Charles H. Greene and Mark E. Huntley (Cornell)
Project Duration: July 29, 2011 – September 30, 2015
Award Amount: \$8,713,416

Funding Agency: Atkinson Center for a Sustainable Future, Cornell University
Title: Sustainable Energy Pathways: The Qatar Connection
Principal Investigators: Charles H. Greene et al. (Cornell University)
Project Duration: July 1, 2011 – December 31, 2013
Award Amount: \$16,000

Funding Agency: Department of Agriculture (subcontract from Cellana)
Title: Developing a New Generation of Animal Feed Protein Supplements: Co-Products from Marine Algae Biofuel Production
Principal Investigators: Charles H. Greene and Xingen Lei (Cornell)
Project Duration: March 1, 2011 – February 28, 2015
Award Amount: \$499,972

Funding Agency: Cellana
Title: Algal Biofuels Life Cycle Analysis
Principal Investigator: Charles H. Greene (Cornell)
Project Duration: December 1, 2010 – June 1, 2011
Award Amount: \$51,041

Funding Agency: National Science Foundation
Title: Wave Gliders in the Development of a Continental-Scale Integrated Ocean-Observing System
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: October 1, 2010 - September 30, 2013
Award Amount: \$452,190

Funding Agency: Department of Defense
Title: National Defense Science and Engineering Predoctoral Fellowship: Ian G. Brosnan Principal Investigator: Charles H. Greene and Ian G. Brosnan (Cornell University)
Project Duration: August 1, 2010 - July 31, 2013
Award Amount: \$92,500

Funding Agency: National Science Foundation (subcontract from Rutgers)
Title: U.S. GLOBEC: Global Ocean Ecosystems and Climate: A Pan-Regional Synthesis Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: January 1, 2009 – February 28, 2013
Award Amount: \$150,070

Funding Agency: Office of Naval Research
Title: Marine Bioacoustics: Back to the Future
Principal Investigator: Charles H. Greene (The Kohala Center)
Project Duration: January 1, 2008 – December 31, 2012
Award Amount: \$530,235

Funding Agency: College of Engineering, Cornell University
Title: Plug in the Big Island – Clearing the Gridlock for a Sustainable Energy Future
Principal Investigators: Max Zhang, Robert Thomas, and Charles H. Greene (Cornell University)
Project Duration: July 1, 2007 – June 30, 2008
Award Amount: \$30,000

Funding Agency: National Science Foundation
Title: U.S. GLOBEC: NWA/Georges Bank – Marine Ecosystem Responses to Climate- Associated Remote Forcing from the Labrador Sea
Principal Investigators: Charles H. Greene and Andrew J. Pershing (Cornell University)
Project Duration: January 1, 2006 – June 30, 2009
Award Amount: \$256,920

Funding Agency: National Oceanic and Atmospheric Administration (Subcontract from GOMOOS)
Title: A Regional Association Project to Observe Ocean Climate in the Gulf of Maine in Support of Marine Resource Management: A Sentinel Buoy in the Northeast Channel with Predictive Tools for Shrimp Stocks and Marine Mammals
Principal Investigators: Gulf of Maine Ocean Observing System (GOMOOS)
Project Duration: October 1, 2003-September 30, 2004
Award Amount: \$35,972

Funding Agency: Office of Naval Research
Title: Bioacoustical Oceanography Workshops: The Next Generation
Principal Investigator: Charles H. Greene (The Kohala Center, Cornell University)
Project Duration: January 1, 2003 – December 31, 2007
Award Amount: \$510,087

Funding Agency: National Oceanic and Atmospheric Administration
Title: Synthesis: Climate-Based Forecasts for the Gulf of Maine Ecosystem
Principal Investigators: Andrew J. Pershing and Charles H. Greene, (Cornell University), Barbara A. Bailey (University of Illinois), Jon K.T. Brodziak, Loretta O'Brien, and Jack W. Jossi (National Marine Fisheries Service)
Project Duration: September 1, 2002 – August 31, 2004
Award Amount: \$350,546

Funding Agency: National Oceanic and Atmospheric Administration
Title: Right whales, *Calanus*, and climate: understanding the distribution and abundance of right whales relative to their prey
Principal Investigators: Andrew J. Pershing, Charles H. Greene, and Bruce C. Monger (Cornell University)
Project Duration: July 1, 2001 – June 30, 2003
Award Amount: \$210,756

Funding Agency: National Aeronautics and Space Administration
Title: Undergraduate Course on Satellite Remote Sensing in Biological Oceanography Principal
Investigators: Bruce C. Monger and Charles H. Greene (Cornell University)
Heidi Sosik (Woods Hole Oceanographic Institution)
Project Duration: July 1, 2001 – June 30, 2002
Award Amount: \$89,482

Funding Agency: National Aeronautics and Space Administration
Title: Undergraduate Course on Satellite Remote Sensing in Biological Oceanography Principal
Investigators: Bruce C. Monger and Charles H. Greene (Cornell University), Heidi Sosik
(Woods Hole Oceanographic Institution), and James J. Bisagni (University of Massachusetts)
Project Duration: July 1, 1999 – March 31, 2001
Award Amount: \$152,501

Funding Agency: National Oceanic and Atmospheric Administration
Title: Estimating the *in situ* Acoustic Target Strength, Distribution and Abundance of Diapausing *Calanus finmarchicus* and its Invertebrate Predators in the Deep Basins of the Gulf of Maine
Principal Investigators: Mark C. Benfield, Richard F. Shaw (Louisiana State University), Charles H. Greene (Cornell University), Peter H. Wiebe, Timothy K. Stanton (Woods Hole Oceanographic Institution),
Project Duration: May 1, 1998 – December 31, 1999
Award Amount: \$102,156

Funding Agency: National Science Foundation
Title: U.S. GLOBEC: Broad-Scale Patterns of the Distribution of Zooplankton and Nekton in Relation to Micro-, and Coarse-scale Physical Structure in the Georges Bank Region
Principal Investigators: Peter H. Wiebe, Timothy K. Stanton, and Charles H. Greene (Woods Hole Oceanographic Institution)
Project Duration: February 15, 1998 – January 31, 1999
Award Amount: \$90,000

Funding Agency: National Aeronautics and Space Administration
Title: Biological and Physical Controls of Primary Production and its Subsequent Fate in the Georges Bank Region: an Integration of Satellite Imagery and US-GLOBEC Survey Cruises
Principal Investigators: Charles H. Greene and Bruce C. Monger (Cornell University)
Project Duration: September 1, 1997 – October 31, 2000
Award Amount: \$218,223

Funding Agency: National Aeronautics and Space Administration
Title: Volumetric Assessment of Factors Governing Seasonal and Interannual Fluxes of Phytoplankton from Georges Bank 1994-1999 and Applications to SeaWiFS Data for Large-Scale New Production Estimates
Principal Investigators: Charles H. Greene and Karen Fisher (Cornell University)
Project Duration: September 1, 1998 – August 31, 2001
Award Amount: \$66,000

Funding Agency: National Oceanic and Atmospheric Administration
Title: U.S. GLOBEC: Processes Controlling the Recruitment of *Calanus finmarchicus* Populations from the Gulf of Maine to Georges Bank
Principal Investigators: Charles H. Greene (Cornell University), Mark C. Benfield (Louisiana State University), and Peter H. Wiebe (Woods Hole Oceanographic Institution)
Project Duration: January 1, 1997 – June 30, 2001
Award Amount: \$645,846

Funding Agency: Department of Defense
Title: National Defense Science and Engineering Predoctoral Fellowship: Andrew J. Pershing Principal
Investigators: Charles H. Greene and Andrew J. Pershing (Cornell University)
Project Duration: August 1, 1996 – July 31, 1999
Award Amount: \$86,352

Funding Agency: Office of Naval Research
Title: Bioacoustical Oceanography Workshops: Top Predators and their Prey in the Marine Environment
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: January 1, 1996 – September 30, 1998
Award Amount: \$225,000

Funding Agency: Department of Defense
Title: A High-Performance Towed Platform for Bio-Optical, Acoustical, and Physical Data Acquisition
Principal Investigators: Peter H. Wiebe, Timothy K. Stanton, and Charles H. Greene
(Woods Hole Oceanographic Institution)
Project Duration: July 1, 1995 – June 30, 1996
Award Amount: \$458,100

Funding Agency: National Science Foundation
Title: U.S. GLOBEC: Broad-Scale and Time Series Acoustic Measurements of Zooplankton and Nekton in the Georges Bank Region
Principal Investigators: Peter H. Wiebe, Timothy K. Stanton, and Charles H. Greene
(Woods Hole Oceanographic Institution)
Project Duration: March 1, 1995 – February 28, 1997
Award Amount: \$399,477

Funding Agency: National Science Foundation
Title: Bioacoustical Oceanography Workshop II
Principal Investigators: Timothy K. Stanton, Peter H. Wiebe, and Charles H. Greene
(Woods Hole Oceanographic Institution)
Project Duration: March 1, 1995 – December 31, 1995
Award Amount: \$25,000

Funding Agency: New York State Sea Grant
Title: Dynamics of the Mysid Population in Lake Ontario
Principal Investigators: Lars G. Rudstam, Edward L. Mills, Charles H. Greene (Cornell University) and Ora Johansson (Great Lakes Laboratory)
Project Duration: February 1, 1995 – January 31, 1997
Award Amount: \$150,000

Funding Agency: Office of Naval Research
Title: Bioacoustical Oceanography Workshop II
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: January 1, 1995 – December 31, 1995
Award Amount: \$52,636

Funding Agency: Office of Naval Research
Title: Marine Mammals and Acoustic Remote-Sensing Initiative
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: May 1, 1994 – April 30, 1996
Award Amount: \$44,693

Funding Agency: Office of Naval Research
Title: Bioacoustical Oceanography Workshop
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: Apr. 15, 1993 – Dec. 31, 1994
Award Amount: \$50,357

Funding Agency: National Oceanic and Atmospheric Administration
Title: GLOBEC Field Studies in the NW Atlantic: Predatory Impact of Euphausiids on Overwintering *Calanus finmarchicus* Populations in the Gulf of Maine
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: Feb. 1, 1992 – Jan. 1, 1994
Award Amount: \$11,187 and 2 weeks of Johnson Sea Link submersible time

Funding Agency: Department of Defense (subcontract from WHOI)
Title: Modeling Biological-Physical Interactions: A Population Biological Approach
Principal Investigator: Charles H. Greene (Cornell)
Project Duration: April 1, 1992 – March 31, 1997
Award Amount: \$662,735

Funding Agency: National Science Foundation
Title: Bioacoustical Oceanography: Dual-Beam Acoustics Deployed on a Multiple Opening/Closing Net and Environmental Sensing System (D-BAD MOCNESS)
Principal Investigators: Charles H. Greene (Cornell University) and Peter H. Wiebe (Woods Hole Oceanographic Institution)
Project Duration: June 1, 1991 – May 30, 1993
Award Amount: \$133,027 (to Cornell University); \$250,013 (to Woods Hole Oceanographic Institution)

Funding Agency: Office of Naval Research
Title: Bioacoustical Signatures of Seamounts
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: Oct. 1, 1988 – Sept. 30, 1993
Award Amount: \$440,051

Funding Agency: New York Sea Grant
Title: Cornell's Year of Ocean Awareness Open House and Distinguished Ocean Scholar Seminar Series
Principal Investigator: Charles H. Greene (Cornell University)
Project Duration: Sept. 1, 1989 – May 30, 1990
Award Amount: \$9,000

Funding Agency: National Oceanic and Atmospheric Administration
Title: The Distributional Patterns of Antarctic Krill: Collection and Analysis of Hydroacoustic Survey Data off Elephant Island
Principal Investigators: Charles H. Greene and Simon A. Levin (Cornell University)
Project Duration: Dec. 1, 1989 – Sept. 30, 1990
Award Amount: \$75,126

Funding Agency: Office of Naval Research
Title: Arctic Zooplankton Ecology
Principal Investigators: Charles H. Greene (Cornell University) and Peter H. Wiebe (Woods Hole Oceanographic Institution)
Project Duration: Jan. 1, 1988 – Sept. 30, 1990
Award Amount: \$362,503

Funding Agency: Office of Naval Research
Title: Variability in Zooplankton Vertical Migration Behavior
Principal Investigators: Charles H. Greene and Peter H. Wiebe (Woods Hole Oceanographic Institution)
Project Duration: Feb. 1, 1987 – Sept. 30, 1988
Award Amount: \$168,333