Michael P. Lesser

University of New Hampshire
Department of Molecular, Cellular and Biomedical Sciences and
School of Marine Science and Ocean Engineering
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EDUCATION

1989	**University of Maine,** Orono, Maine Ph.D., Zoology, Advisor: Dr. J. Malcom Shick
1985	**University of New Hampshire,** Durham, N.H. M.S., Microbiology, Advisors: Drs. Richard Blakemore and Charles W. Walker
1983	B.A., Microbiology, Minor: Zoology
1978	**George Washington University,** Washington, D.C. A.S., Medical Laboratory Science, MLT/MT (American Society of Clinical Pathologists), MT (Department of Health and Human Services)

PRIMARY RESEARCH INTERESTS

1) Ecology, photobiology and microbiology of coral reefs and corals including nutrient cycling in corals and sponges.

2) Physiological ecology of marine invertebrates and phytoplankton, physiological responses to changes in the environment related to global climate change, bacterial- and algal-invertebrate symbioses and the trophic ecology of suspension-feeding invertebrates.

3) Biochemistry and molecular genetics of oxidative stress in marine organisms associated with exposure to ultraviolet radiation, elevated temperatures, hyperoxia and ocean acidification.

4) Underwater technology, use of technical diving for scientific research.

PROFESSIONAL EXPERIENCE

May 2019	Retired, **University of New Hampshire,** Department of Molecular, Cellular and Biomedical Sciences and School of Marine Science and Ocean Engineering, Research Professor
2015-2019	**University of Hawaii**, Hawaii Institute of Marine Biology, Affiliate Faculty
2007-2019	**University of New Hampshire,** Department of Molecular, Cellular and Biomedical Sciences, Research Professor
2011-2014	**National Science Foundation,** Program Director, Biological Oceanography (IPA rotator)
2007-2008	**University of New Hampshire,** Department of Microbiology,

	Research Professor
2006-2008	**National Science Foundation,** Program Director, Biological Oceanography (IPA rotator)
2002-2007	**University of New Hampshire,** Department of Zoology and Center for Marine Biology, Research Professor
1999-2002	**Shoals Marine Laboratory,** Isle of Shoals, Maine. Associate Director, Cornell University and University of New Hampshire
1998-2008	**Sea Education Association,** Woods Hole, MA. Member of the Corporation, Education Committee
1997-2002	**University of New Hampshire,** Department of Zoology and Center for Marine Biology, Research Associate Professor
1993-1997	**University of New Hampshire,** Departments of Zoology and Microbiology, Center for Marine Biology, Research Assistant Professor
1992-1993	**Bigelow Laboratory for Ocean Science,** West Boothbay Harbor, Maine, Research Scientist.
1989-1992	**Bigelow Laboratory for Ocean Science,** West Boothbay Harbor, Maine, Post-doctoral Research Associate.
1993-2019	United States Coast Guard License; Master 100 GT Near Coastal, Mate 200 GT Near Coastal, sail auxiliary and commercial towing endorsements, Z-Card-ABS-sail.
1976-1984	**United States Navy,** Honorable discharge, Hospital Corpsman (HM1), Field Medical Service Technician (MOS 8404), Medical Technologist (MOS 8506), Hyperbaric Chamber Medical Technician (DMT).

AWARDS AND HONORS

2024, 2025	ScholarGPS Highly Ranked Scholar-Lifetime
2024	Fellow of the American Association for the Advancement of Science, Biological Sciences
2022	Fellow of the International Coral Reef Society
2021	Fellow of the Association for the Sciences of Limnology and Oceanography
2021, 2023	Excellence in Citations-Lifetime
2019	Research Professor, Emeritus, University of New Hampshire
2008	National Geographic Explorer
1991	Antarctic Service Award and Medal, United Sates Navy

TEACHING EXPERIENCE

Spring 2009	**University of New Hampshire**, Ecology and Evolution of Nitrogen Fixation, Graduate Seminar
Spring 2008, 2009	**University of New Hampshire,** General Microbiology
Fall 2008	**University of New Hampshire,** Immunology
Summer 2007	**University of Hawaii, Hawaii Institute of Marine Biology** Edwin W. Pauley Foundation Summer Program, “The Biology of Corals: Developing a Fundamental Understanding of the Coral Stress

	Response".
Fall 2004	**University of New Hampshire,** Biological Oceanography
Spring 2003	**Northeastern University, Marine Science Center,** East/West Program, Adaptations of Marine Organisms
Summer 2002	**University of Hawaii, Hawaii Institute of Marine Biology** Edwin W. Pauley Foundation Summer Program, "Molecular Ecology of Corals".
Spring 2002	**University of New Hampshire,** Biological Oceanography
Summer 2000, 2001	**Shoals Marine Laboratory,** Isle of Shoals, Maine. NSF funded Research Experience for Undergraduate Program.
	Sea Education Association/Shoals Marine Laboratory, Chief Scientist, Oceanography of the Gulf of Maine
Spring 1999	**University of New Hampshire,** Marine Biology
Spring 1997	**Sea Education Association,** Woods Hole, MA. Chief Scientist, Cruise W148.
Spring 1996	**University of New Hampshire,** Introductory Zoology
Fall 1994, 1995	**University of New Hampshire,** Marine Microbiology
Summer 1994	**University of Hawaii, Hawaii Institute of Marine Biology** Edwin W. Pauley Foundation Summer Program, "Effects of Ultraviolet Radiation in Tropical Ecosystems".
Spring 1994, 1995	**University of New Hampshire,** Marine Biology
Fall 1993	**University of New Hampshire,** Human Anatomy and Physiology
Summer 1992, 1993	**Sea Education Association/Shoals Marine Laboratory,** Chief Scientist, Oceanography of the Gulf of Maine
Summer 1988-1990 1992,1993	**Shoals Marine Laboratory,** Isle of Shoals, Maine. Adaptations of Marine Organisms.
Spring 1992	**Northeastern University, Marine Science Center,** Nahant, MA, East/West Program, Adaptations of Marine Organisms
Spring 1991, 1992	**Sea Education Association,** Woods Hole, MA. Chief Scientist, Cruises W117, 122A.
Summer 1991	**University of Hawaii, Hawaii Institute of Marine Biology** Edwin W. Pauley Foundation Summer Program, "Diffusion Barriers and Carbon Limitation in Reef Corals".

MAJOR GRANTS AWARDED

2025-2027 **USDA Specialty Crop Block Grant,** Integrated Pest Management, Pollinator Gardens, Education and Citizen Science Resources for Beekeepers in New Hampshire

2016-2022 **NSF-Dimensions of Biodiversity,** Evolutionary Ecology of Sponges and Their Microbiome Drives Sponge Diversity on Coral Reefs

2016-2021 **NSF-Biological Oceanography,** Sponge Growth is Nitrogen Limited Over the Shallow to Mesophotic Depth Gradient

2017-2018 **National Science Foundation (NSF)-Biological Oceanography,** Gordon Research Conference: Mesophotic Coral Reef Ecosystems

2014-2018 **NSF-Division of Environmental Biology,** Nitrogen Fixing Prokaryotes in Corals: Is Nitrogen Fixation a Core Function of the Coral Microbiome?

2014-2016 **University of New Hampshire Sea Grant**, Gene Expression During Development of Clam Leukemia: Interactive Effects of Temperature and Ocean Acidification on Viral Loading and Onset of Disease

2012-2015 **NSF-Biological Oceanography,** Using Next Generation Sequencing to Quantify the Symbiotic Prokaryotic Communities of the Coral *Montastraea cavernosa* and the Response of the Holobiont to Thermal Stress

2009-2012 **NSF-Biological Oceanography,** RAPID: Phase Shift to Algal Dominated Mesophotic Reef Communities in Response to the Lionfish Invasion

2009-2010 **U.S. ARMY-Life Sciences,** A Sea Anemone Model to Study the Pathophysiology of Oxidative Stress: Proof of Concept

2008-2010 **National Geographic Society,** Distribution, Taxonomy and Abundance of Nitrogen Fixing Cyanobacteria in Corals

2006-2011 **NOAA-National Institute of Undersea Science and Technology**, Ocean Acidification and Mesophotic Coral Reefs

2006-2011 **NOAA-Ocean Exploration**, Ecology of the Mesophotic Zone on Coral Reefs of the Bahamas

2002-2009 **World Bank/Global Environmental Fund,** Bleaching Working Group

2002-2006 **NOAA-Cooperative Institute of New England Mariculture,** The Effects of Fishing Closures on Ecosystem Structure in the Gulf of Maine

2004-2006 **NOAA-Coastal Observations and Analysis**, Development of Algorithms for Primary Productivity

2004-2006 **NOAA-National Undersea Research Program-Bahamas**, Trophic Biology of Sponges in the “Twilight Zone”

1999-2004 **NSF-Biological Oceanography,** The Effect of UV Radiation on Planktonic Life-History Phases of Benthic Echinoderms from the Gulf of Maine, with supplements for International Research (New Zealand Antarctic Program) and a Research Opportunity Award (Dr. Michael Russell, Villanova)

1995-2004 **Office of Naval Research-Optics Program**, Coastal Benthic Optical Properties (CoBOP) of Coral Reef Ecosystems

2000-2002 **United States Department of Agriculture,** Sea Urchin Aquaculture

1998-2001 **NOAA-Ocean Exploration**, Using Mixed Gas Technical Diving to Study Deep Coral Reef Sponge Communities

1998-2001 **NOAA-National Undersea Research Program-Bahamas**, Use of Fluorescence Kinetics *in situ* to Detect Coral Bleaching

1997-2002 **University of New Hampshire Sea Grant**, Developing a Second High Quality Crop for the Northeastern Green Sea Urchin Using Land-Based Aquaculture

1994-1996 **NOAA-National Undersea Research Program-Bahamas**, Effects of Ultraviolet Radiation on Scleractinian Corals

1992-1995 **NSF-Biological Oceanography,** Role of Oxidative Stress in Coral Bleaching

1989-1991 **NSF-Polar Programs,** Effects of Ultraviolet Radiation on Antarctic Phytoplankton with REU Supplement

PROFESSIONAL ACTIVITIES

Professional Organizations (*currently active)

American Association for the Advancement of Science*
International Society for Reef Studies*
American Society of Clinical Pathologists
American Society of Limnology and Oceanography*
American Society for Microbiology*
Society of Integrative and Comparative Biologists
National Shellfisheries Association

Invited/Guest Editor

Special volume on Mesophotic Coral Reefs published in Coral Reefs, Volume 35, 2016
Serial Editor, Advances in Marine Biology, 2010-2014
Echinoderms 2006: Durham. L.G. Harris, S.A. Böttger, C.W. Walker, and **M.P. Lesser**, (eds.), Proceedings of the 12th International Echinoderm Conference, CRC Press
Special volume on Shallow Water Optics and Remote Sensing published in Limnology and Oceanography, Volume 48, 2003
Special volume on Sea Urchin Aquaculture published in Journal of Shellfish Research, Volume 17, 1998

Panel/Working Group Member/Conference Organizer

-Central Caribbean Marine Institute 2025, Science Advisory Panel
-Gordon Research Conference 2018, Mesophotic Coral Reef Ecosystems, Chair
-NSF Biological Oceanography Panel, 2005, 2016
-KAUST 2014-2016, 2018, 2020 CRG-Competitive Research Grant Program Panel
-NCEAS 2013, “EarthCube: Cyberinfrastructure Needs for the Coral Reef

Community"
-NCEAS 2012, "Tropical Coral Reefs of the Future: Modeling Ecological Outcomes from the Analyses of Current and Historical Trends"
-World Bank 2000-2010, Coral Reef Targeted Research and Capacity Building for Management-Coral Bleaching Working Group
-EPA 2004, Effects of Global Climate Change on Ecosystem Services Panel
-NOAA 1993, Global Climate Change Program Panel
-NSF/EPA/NOAA 1991, Workshop on Coral Bleaching, Coral Reef Ecosystems and Global Change, Invited Participant, Miami, FL.
-ASLO 1991 Workshop, What Controls Phytoplankton Production in Nutrient Rich Areas of the Open Ocean, Participant, San Diego, CA.

Reviewer for the Following Journals/Programs

Applied and Environmental Microbiology
Biology Letters
Bulletin of Marine Science
Cell Stress and Chaperones
Communications Biology
Coral Reefs (Editorial Board 1994-1997; Biology Editor 2006-2008)
Ecology
Ecology Letters
FEMS Microbiology Ecology
Frontiers in Marine Sciences
Frontiers in Microbiology
Functional Ecology
Gene
ICES Journal of Marine Science
International Society of Microbial Ecology Journal
Journal of Experimental Biology
Journal of Experimental Botany
Journal of Experimental Marine Biology and Ecology (Associate Editor 2002-2016)
Journal of Phycology
Journal of Shellfish Research
Limnology and Oceanography (Associate Editor 1998-2006)
Marine Biology
Marine Ecology Progress Series
Marine Environmental Research
Microbiome
Molecular Ecology
National Oceanic and Atmospheric Administration
National Science Foundation
Natural Environmental Research Council, United Kingdom
Nature
Nature Climate Change
Nature Communications
Nature Geoscience

Nature Methods
Oceans
PeerJ
Photochemistry and Photobiology
PLoS ONE
Polar Biology
Proceedings of the National Academy of Sciences
Proceedings of the Royal Society-Biology
Schmidt Ocean Institute
Research Grants Council, Hong Kong
Science
Science Advances
Science of the Total Environment
Scientific Reports
Scientific Data
Sea Grant
The Biological Bulletin
Trends in Ecology and Evolution
Trends in Microbiology
US-Israel Binational Science Foundation

RESEARCH, COMMENTARY AND OPINION PUBLICATIONS (*=graduate student, †=undergraduate student, #=post-doctoral researcher)

Journal Articles

1. **Lesser, M. P.** and J. M. Shick. Effects of Irradiance and Ultraviolet Radiation on Photoadaptation in the zooxanthellae of *Aiptasia pallida*: Primary Production, Photoinhibition, and Enzymic Defences Against Oxygen Toxicity. Marine Biology, 102: 243-255, 1989
2. Walker, C. W. and **M. P. Lesser**. Nutrition and Development of Brooded Embryos in the Brittlestar, *Amphipholis squamata*: Do Endosymbiotic Bacteria Play a Role? Marine Biology, 103: 519-530, 1989
3. **Lesser, M. P.** Photobiology of Natural Populations of Zooxanthellae from the Sea Anemone, *Aiptasia pallida*: Assessment of the Host's Role in Protection Against Ultraviolet Radiation. Flow Cytometry in the Aquatic Sciences, Cytometry, 10: 653-658, 1989
4. **Lesser, M. P.** and J. M. Shick. Photoadaptation and Defences against Oxygen Toxicity in Zooxanthellae from Natural Populations of Symbiotic Cnidarians. Journal of Experimental Marine Biology and Ecology, 134: 129-141, 1989
5. Ackleson, S. G., Cullen, J. J., Brown, J. and **M. P. Lesser**. Changes in the Optical Properties of Marine Phytoplankton in Response to High Light Intensity. Proc. SPIE 1302: 238-249, 1990
6. **Lesser, M. P.**, Stochiaj, W. R., Tapley, D. W., and J. M. Shick. Bleaching in Symbiotic Anthozoans: Effects of Irradiance, Ultraviolet Radiation, and

Temperature on the Activities of Protective Enzymes Against Active Oxygen. Coral Reefs, 8: 225-232, 1990

7. **Lesser, M. P.** and W. R. Stochaj. Photoadaptation and Protection Against Active Forms of Oxygen in *Prochloron* sp. Applied and Environmental Microbiology, 56: 1530-1535, 1990
8. **Lesser, M. P.** and R. P. Blakemore. Description of a Novel Symbiotic Bacterium from the Brittle Star, *Amphipholis squamata.* Applied and Environmental Microbiology 56: 2436-2440, 1990
9. **Lesser, M. P.** and J.M. Shick. Effects of Visible and Ultraviolet Radiation on the Ultrastructure of Zooxanthellae (*Symbiodinium* sp.) in Culture and *in situ.* Cell and Tissue Research, 261: 501-508, 1990
10. Shick, J. M., **M. P. Lesser**, and W. R. Stochaj. Ultraviolet Radiation and Photooxidative Stress in Zooxanthellate Anthozoa: The Sea Anemone *Phyllodiscus semoni* and the Octocoral *Clavularia* sp. Symbiosis, 10:145-173, 1991
11. **Lesser, M. P.**, S. Shumway, T. Cucci, †J. Barter, and †J. Edwards. Size Specific Selection of Phytoplankton in Juvenile Filter-Feeding Bivalves: Comparison of the Sea Scallop *Placopecten magellanicus* with *Mya arenaria* and *Mytilus edulis*. An International Compendium of Scallop Biology and Culture, Selected Papers from the 7th International Pectinid Workshop, pp 341-347, 1991
12. Cullen, J. J. and **M. P. Lesser**. Inhibition of Photosynthesis by UV-B Radiation as a Function of Dose and Dosage Rate: Results for a Marine Diatom. Marine Biology, 111:183-190, 1991
13. **Lesser, M. P.** and C. W. Walker. Comparative Study of the Uptake of Dissolved Amino Acids in Sympatric Brittle Stars with and Without Endosymbiotic Bacteria. Comparative Biochemistry and Physiology, 101B, 1/2: 217-223, 1992
14. Cullen, J. J, P. J. Neale, and **M. P. Lesser**. Biological Weighting Function for the Inhibition of Phytoplankton Photosynthesis by Ultraviolet Radiation. Science, 258: 646-650, 1992
15. **Lesser, M. P.**, S. E. Shumway, T. Cucci, and †J. Smith. Impact of Fouling Organisms on Mussel Rope Culture: Interspecific Competition for Food Among Suspension-Feeding Invertebrates. Journal of Experimental Marine Biology and Ecology, 165: 91-102, 1992
16. Gattuso, J-P., D. Yellowlees, and **M. P. Lesser**. Depth and Light Dependent Variation of Carbon Partitioning and Utilization in the Zooxanthellate Scleractinian Coral, *Stylophora pistillata*. Marine Ecology Progress Series, 92: 267-276, 1993
17. S. E. Shumway, **M. P. Lesser**, and D. J. Crisp. Specific Dynamic Action Demonstrated in the Herbivorous Marine Periwinkles, *Littorina littorea* L. and *Littorina obtusata* L. (Mollusca, Gastropoda). Comparative Biochemistry and

Physiology, 106A: 391-395, 1993
18. **Lesser, M. P.**, and S. E. Shumway. Effects of Toxic Dinoflagellates on Clearance Rates and Survival. In: Juvenile Bivalve Mollusks. Journal of Shellfish Research, 12: 377-381, 1993
19. Ackelson, S. G., J. J. Cullen, J. Brown, and **M. P. Lesser**. Irradiance-induced Variability in Light Scatter from Marine Phytoplankton in Culture. Journal of Plankton Research, 15: 737-759, 1993
20. Neale, P. J., **M. P. Lesser**, and J. J. Cullen. Effects of Ultraviolet Radiation on the Photosynthesis of Phytoplankton in the Vicinity of McMurdo Station, Antarctica. Antarctic Research Series, 62: 125-142, 1994
21. **Lesser, M. P.**, J. J. Cullen, and P. J. Neale. Carbon Uptake In a Marine Diatom During Acute Exposure to Ultraviolet B Radiation: Relative Importance of Damage and Repair. Journal of Phycology, 30: 183-192, 1994
22. **Lesser, M. P.**, V. Weiss, M. Patterson, and J. Jokiel. Effects of Morphology and Water Flow on Carbon Delivery and Productivity in the Reef Coral, *Pocillopora damicornis*: Diffusion Barriers, Inorganic Carbon Limitation, and Biochemical Plasticity. Journal of Experimental Marine Biology and Ecology, 178: 153-179, 1994
23. Kirk, J. T. O., B. R. Hargreaves, D. P. Morris, R. Coffin, B. David, D. Fredrickson, D. Karentz, D. Lean, **M. P. Lesser**, S. Madronich, J. H. Morrow, N. Nelson, and N. Scully. Measurement of UV-B Radiation in Two Freshwater Lakes: An Instrument Comparison. Archiv für Hydrobiologie, 43: 71-99, 1994
24. Karentz, D., M. L. Bothwell, R. B. Coffin, A. Hanson, G. J. Herndl, S. S. Kilhan, **M. P. Lesser**, M. Lindell, R. E. Moeller, D. P. Morris, P. J. Neale, R. W. Sanders, C. S. Weiler, and R. G. Wetzel. Impact of UVB Radiation on Pelagic Freshwater Ecosystems: Report of the Working Group on Bacteria and Phytoplankton. Archiv für Hydrobiologie, 43: 31-69, 1994
25. **Lesser, M. P.**, Witman, J. W., and K. P. Sebens. Effects of Seston Availability on Scope for Growth in Suspension Feeding Invertebrates from Onshore and Offshore Sites in the Gulf of Maine. The Biological Bulletin, 187: 319-335, 1994
26. Shick, J. M., **M. P. Lesser**, W. C. Dunlap, W. R. Stochaj, B. E. Chalker, and J. Wu Won. Depth-Dependent Responses to Solar Ultraviolet Radiation and Oxidative Stress in the Zooxanthellate Coral *Acropora microphthalma*. Marine Biology, 122: 41-51, 1995
27. **Lesser, M. P**. Acclimation of Phytoplankton to UV-B Radiation: Oxidative Stress and Photoinhibition of Photosynthesis Are Not Prevented by UV Absorbing Compounds in the Dinoflagellate, *Prorocentrum micans*. Marine Ecology Progress Series, 132: 287-297, 1996
28. **Lesser, M. P.** Exposure of Symbiotic Dinoflagellates to Elevated Temperatures and Ultraviolet Radiation Causes Oxidative Stress and Inhibits Photosynthesis.

Limnology and Oceanography, 41: 271-283, 1996

29. **Lesser, M. P**., and *S. Lewis. Action Spectrum for the Effects of UV Radiation on Photosynthesis in the Hermatypic Coral, *Pocillopora damicornis.* Marine Ecology Progress Series, 134: 171-177, 1996
30. **Lesser, M. P.,** P. J. Neale, and J. J. Cullen. Acclimation of Antarctic Phytoplankton to Ultraviolet Radiation: UV Absorbing Compounds and Carbon Fixation. Molecular Marine Biology and Biotechnology, 5: 314-325, 1996
31. **Lesser, M. P.,** F. H. Martini, and J. B. Heiser. Ecology of the Hagfish, *Myxine glutinosa* L. in the Gulf of Maine: I. Metabolic Rates and Energetics. Journal of Experimental Marine Biology and Ecology, 208: 215-225, 1996
32. Shick, J. M., **M. P. Lesser,** and P. Jokiel. Effects of Ultraviolet Radiation on Corals and Other Coral Reef Organisms. Global Change Biology, 2: 527-545, 1996
33. Shumway, S. E., T. L. Cucci, **M. P. Lesser**, N. Bourne, and B. Bunting. Particle Clearance and Selection in Three Species of Juvenile Scallops. Aquaculture International, 5: 89-99, 1997
34. *Shashar, N., *A. T. Banaszak, **M. P. Lesser**, and *D. Amrami. Coral Endolithic Algae-Life in a Protected Environment. Pacific Science, 51: 167-173, 1997
35. Martini, F., J. B. Heiser, and **M. P. Lesser**. A Population Profile for Hagfish, *Myxine glutinosa* (L.) in the Gulf of Maine: I. Morphometrics and Reproductive State. Fishery Bulletin, 95: 311-320, 1997
36. Martini, F., **M. P. Lesser,** and J. B. Heiser. Ecology of the Hagfish, *Myxine glutinosa* L. In the Gulf of Maine: II. Potential Impact on Benthic Communities and Commercial Fisheries. Journal of Experimental Marine Biology and Ecology, 214: 97-106, 1997
37. **Lesser, M. P.** Oxidative Stress Causes Coral Bleaching During Exposure to Elevated Temperatures. Coral Reefs, 16: 187-192, 1997
38. Jokiel, P. J., **M. P. Lesser**, and *M. Ondrusek. UV-Absorbing Compounds In the Coral *Pocillopora damicornis*: The Effects of UV Radiation, Photosynthetically Active Radiation, and Water Flow. Limnology and Oceanography, 42: 1468-1473, 1997
39. *Hazzard, C., **M. P. Lesser**, and R. A. Kinzie III. Effects of Ultraviolet-B Radiation on Photosynthesis in the Sub-Tropical Marine Diatom, *Chaetoceros gracili.* Journal of Phycology, 33: 960-968, 1997
40. Martini, F., **M. P. Lesser,** and J. B. Heiser. Population Profile for Hagfish, *Myxine glutinosa* (L.) in the Gulf of Maine: II. Morphological Variation in Populations of *Myxine* in the North Atlantic Ocean. Fishery Bulletin, 96: 516-524, 1998
41. Walker, C. W., and **M. P. Lesser**. Manipulation of Diet and Photoperiod Can Promote Out-of-Season Gametogenesis in the Green Sea Urchin,

Strongylocentrotus droebachiensis-Implications for Land-Based Aquaculture. Marine Biology, 132, 663-676, 1998

42. Kinzie, R., *A. Banaszak, and **M. P. Lesser**. UV Photobiology in a High Altitude Tropical Lake. Hydrobiologia, 385: 23-32, 1998
43. *Banaszak, A. T., **M. P. Lesser**, *I. B. Kuffner, and *M. Ondrusek. Relationship Between Ultraviolet (UV) Radiation and Mycosporine-like Amino Acids (MAAs) in Marine Organisms. Bulletin Marine Science, 63: 617-628, 1998
44. **Lesser, M. P.** and Walker, C. W. Introduction to the Special Section on Sea Urchin Aquaculture. Journal of Shellfish Research, 17: 1505-1506, 1998
45. Walker, C. W., *N. A. McGinn, *L. M. Harrington, and **M. P. Lesser**. New Perspectives on Sea Urchin Gametogenesis and Their Relevance to Urchin Aquaculture. Journal of Shellfish Research, 17: 1507-1514, 1998
46. **Lesser, M. P**., C. Mazel, D. Phinney, and C. S. Yentsch. Light Absorption and Utilization by Colonies of the Congeneric Hermatypic Corals, *Montastraea faveolata* and *Montastraea cavernosa*. Limnology and Oceanography, 45: 76-86, 2000
47. **Lesser, M. P.** Depth-dependent Effects of Ultraviolet Radiation on Photosynthesis in the Caribbean Coral, *Montastraea faveolata*. Marine Ecology Progress Series, 192: 137-151, 2000
48. †Lombardi, M. R., **Lesser, M. P.,** and M. Y. Gorbunov. Fast repetition rate (FRR) fluorometry: variability of chlorophyll *a* fluorescence yields in colonies of the corals, *Montastraea faveolata* (w.) and *Diploria labyrinthiformes* (h.) recovering from bleaching. Journal of Experimental Marine Biology and Ecology, 252: 75-84, 2000
49. **Lesser, M. P.,** Farrell, J. H., and C. W. Walker. Oxidative Stress and *p*53 Expression in the Larvae of Atlantic Cod (*Gadus morhua*) Exposed to Ultraviolet (290-400 nm) Radiation. Journal of Experimental Biology, 204: 157-164, 2001 *Featured in New Scientist*
50. Gorbunov, M. Y., Kolber, Z. S., **Lesser, M. P.**, and P. G. Falkowski. Photosynthesis and Photoprotection in Symbiotic Corals. Limnology and Oceanography, 46: 75-85, 2001
51. **Lesser, M. P.,** and M. Y. Gorbunov. Diurnal and bathymetric changes in Chlorophyll Fluorescence Yields of Reef Corals Measured *in situ* With a Fast Repetition Rate Fluorometer. Marine Ecology Progress Series, 212: 69-77, 2001
52. Kelly, M. L., Winge, P., Heaney, J. D., Stephens, R. E., Farell, J. H., Van Beneden, R. J., Reinisch, C. L., **Lesser, M. P.**, and C. W. Walker. Expression of Homologues for *p*53 and *p*73 in the Softshell Clam (*Mya arenaria*), a Naturally Occurring Model for Human Leukemia. Oncogene, 20: 748-758, 2001
53. **Lesser, M. P., ***Turtle, S. L, Farrell, J. H., and C. W. Walker. Exposure to Ultraviolet Radiation (290-400 nm) Causes Oxidative Stress, DNA Damage, and

Expression of *p*53/73 in Laboratory Experiments on Embryos of the Spotted Salamander, *Ambystoma maculatum*. Physiological and Biochemical Zoology, 74: 733-741, 2001

54. **Lesser, M. P.**, Barry, T. M., and A. T. Banaszak. Effects of Ultraviolet Radiation on a Chlorophyte Alga (*Scenedesmus* sp.) Isolated from the Fumarole Fields of Mt. Erebus, Antarctica. Journal of Phycology, 38: 473-481, 2002
55. Mazel, C., **Lesser, M. P.**, Gorbunov, M., Barry, T., Farrell, J., Wyman, K., and P. G. Falkowski. Green Fluorescent proteins in Caribbean Corals. Limnology and Oceanography, 48: 402-411, 2003
56. Mazel, C., Strand, M., **Lesser, M. P.,** Crosby, M., Coles, B., and A. Nevis. High-resolution Determination of Coral Reef Bottom Cover from Multispectral Fluorescence Laser Line Scan Imagery. Limnology and Oceanography, 48: 522-534, 2003
57. †Apprill, A., and **M. P. Lesser.** Effects of Ultraviolet Radiation on *Laminaria saccharina* in Relation to Depth and Tidal Height in the Gulf of Maine. Marine Ecology Progress Series, 256: 75-85, 2003
58. **Lesser, M. P.** and T. Barry. Survivorship, Development, and DNA Damage in Echinoderm Embryos and Larvae Exposed to Ultraviolet Radiation (290-400 nm). Journal of Experimental Marine Biology and Ecology, 292: 75-91, 2003
59. **Lesser, M. P.**, Kruse, V, and T. Barry. Exposure to Ultraviolet Radiation Causes Apoptosis in Sea Urchin Embryos. Journal of Experimental Biology, 206: 4097-4103, 2003
60. **Lesser, M.P.,** and V. Kruse. Seasonal Temperature Compensation in the Horse Mussel, *Modiolus modiolus*: Metabolic Enzymes, Oxidative Stress, and Heat Shock Proteins. Comparative Biochemistry and Physiology, 137: 479-488, 2004
61. **Lesser, M. P.** Experimental Coral Reef Biology (Invited Review). Journal of Experimental Marine Biology and Ecology, 300: 217-252, 2004
62. **Lesser, M. P.**, Mazel, C. M., Gorbunov, M. Y., and P. G. Falkowski. Discovery of Symbiotic Nitrogen-Fixing Cyanobacteria in Corals. Science, 305: 997-1000, 2004 *Featured in Research Highlights for Nature Reviews-Microbiology, Science News and The New York Times*
63. **Lesser, M. P.**, Lamare, M. D., and M. F. Barker. Transmission of Ultraviolet Radiation Through the Antarctic Annual Sea Ice and its Biological Effects on Sea Urchin Embryos. Limnology and Oceanography, 49: 1957-1963, 2004
64. **Lesser, M. P.,** and J. H. Farrell. Solar Radiation Increases Damage to Both Host Tissues and Algal Symbionts of Corals Exposed to Thermal Stress. Coral Reefs, 23: 367-377, 2004
65. Lamare, M. D., **Lesser, M. P.**, Barker, M. F., Barry, T. M. and †K. B. Schimanski. Variation in Sunscreen Compounds (Mycosporine-like Amino Acids) for Marine Species Along a Gradient of Ultraviolet Radiation Transmission Within Doubtful

Sound. New Zealand Journal of Marine and Freshwater Science, 38: 775-793, 2004

66. Walker, C. W., *Harrington, L. H., **Lesser, M. P.**, and W. R. Fagerberg. Nutritive Phagocyte Incubation Chambers Provide a Structural, and Nutritive Microenvironment, for Germ Cells of *Strongylocentrotus droebachiensis*, the Green Sea Urchin. Biological Bulletin, 209: 31-48, 2005
67. **Lesser, M. P.**, Barry, T. M., Lamare, M. D., and M. F. Barker. Biological Weighting Functions for DNA Damage in Sea Urchin Embryos Exposed to Ultraviolet Radiation. Journal of Experimental Marine Biology and Ecology, 328: 10-21, 2006
68. **Lesser, M. P.** Benthic-pelagic Coupling on Coral Reefs: Feeding and growth of Caribbean Sponges. Journal of Experimental Marine Biology and Ecology, 328: 277-288, 2006
69. **Lesser, M. P.** Oxidative Stress in Marine Environments: Biochemistry and Physiological Ecology. Annual Review of Physiology, 68: 253-278, 2006
70. Banaszak, A. T., Santos, M. G. B., LaJeunesse, T. C., and **M. P. Lesser**. The Distribution of Mycosporine-like Amino Acids (MAAs) and the Phylogenetic Identity of Symbiotic Dinoflagellates in Cnidarian Hosts from the Mexican Caribbean. Journal of Experimental Marine Biology and Ecology, 337: 131-146, 2006
71. *Trussell, G. C., **Lesser, M. P.,** and M. R. Patterson. Depth-specific Differences in the Growth of the Reef Sponge *Callyspongia vaginalis*: Role of Bottom-up Effects. Marine Ecology Progress Series, 323: 149-158, 2006
72. *Bou-Abdallah, F., Chasteen, N. D., and **M. P. Lesser.** Quenching of Superoxide Radicals by Green Fluorescent Protein. Biochimica et Biophysica Acta (General Subjects) 1760: 1690-1695, 2006
73. *Lamare, M. D., Barker, M. F., **Lesser, M. P.**, and C. Marshall. DNA Photorepair in Echinoid Embryos: Effects of Temperature on Repair Rate in Antarctic and Non-Antarctic Species. Journal of Experimental Biology, 209: 5017-5028, 2006
74. *Torregiani, J. H., and **M. P. Lesser**. Response of the Hawaiian Coral, *Montipora verrucose* to Short-term Exposure of Ultraviolet Radiation. Journal of Experimental Marine Biology and Ecology, 340: 194-203, 2007
75. **Lesser, M. P.**, Bythell, J. C., Gates, R. D., Johnstone, R. W., and O. Hoegh-Guldberg. Are Infectious Diseases Really Killing Corals? Journal of Experimental Marine Biology and Ecology, 346: 36-44, 2007
76. *Harrington, L. H., Walker, C. W., and **M. P. Lesser**. Gametogenesis in the Green Sea urchin *Strongylocentrotus droebachiensis*. Invertebrate Biology, 126: 202-209, 2007
77. Lamare, M. D., Barker, M. F., and **M. P. Lesser**. *In situ* Rates of DNA Damage and Abnormal Development in Antarctic and Non-Antarctic Sea Urchin Embryos.

Aquatic Biology, 1: 21-32, 2007

78. **Lesser, M. P.,** Falcón, L. I. Rodríguez-Román, A., Enríquez, S., Hoegh-Guldberg, O., and R. Iglesias-Prieto. Nitrogen Fixation by Symbiotic Cyanobacteria Provides a Source of Nitrogen for the Scleractinian Coral, *Montastraea cavernosa.* Marine Ecology Progress Series, 346: 143-152, 2007
79. *Fuda, K., †Smith, B., **Lesser, M. P.**, †Legare, B., †Breig, H., †Stack, R., and D. Berlinsky. The effects of environmental factors on rainbow smelt, *Osmerus mordax*, embryos and larvae. Journal of Fish Biology, 71: 539-549, 2007
80. **Lesser, M. P.**, and C. Mobley. Bathymetry, Water Optical Properties, and Benthic Classification of Coral Reefs Using Hyperspectral Remote Sensing Imagery. Coral Reefs, 26: 819-829, 2007
81. **Lesser, M. P.** Coral Reef Bleaching and Global Climate Change: Can Corals Survive the Next Century? Proceedings of the National Academy of Sciences, 104: 5259-5260, 2007
82. **Lesser, M. P**. Effects of Ultraviolet Radiation on productivity and Nitrogen Fixation in the Cyanobacterium, *Anabaena* sp. (Newton's strain). Hydrobiologia, 598: 1-9, 2008
83. *Rodrigues, R. J., Grottoli, A. G., and **M. P. Lesser**. Long-term Changes in the Chlorophyll Fluorescence of Bleached and Recovering Corals from Hawaii. Journal of Experimental Biology, 211: 2502-2509, 2008
84. *Blakeslee, A. M. H., Byers, J. E., and **M. P. Lesser**. Solving Cryptogenic Histories Using Host and Parasite Molecular Genetics: The Resolution of *Littorina littorea*'s North American origin. Molecular Ecology, 17: 3684-3696, 2008
85. Walker, C., Böttger, S., *Low, B., †Mulkern, J., †Jerszyk, E., Litvaitis, M., and **M. Lesser**. Mass Culture and Characterization of Tumor Cells from a Naturally Occurring Invertebrate Cancer Model: Applications for Human and Animal Disease and Environmental Health. Biological Bulletin, 216: 23-39, 2009
86. Manzello, D., Warner, M., Stebenau, E. Hendee, J. **Lesser, M**., and M. Jankulak. Remote Monitoring of Chlorophyll Fluorescence in Two Reef Corals During the 2005 Bleaching Event on Lee Stocking Island, Bahamas. Coral Reefs, 28: 209-214, 2009
87. Fitt, W., Gates, R., Hoegh-Guldberg, O., Grottoli, A., Gomez, M., Fisher, P., Lajuenesse, T., Pantos, O., Iglesias-Prieto, R., Rodriguez, L., *Torregiani, J. M., van Woesik, R., **Lesser, M. P.** Response of Two Species of Indo-Pacific Corals, *Porites cylindrica* and *Stylophora pistillata,* to Thermal Stress: The Host Does Matter in Determining the Tolerance of Corals to Bleaching. Journal of Experimental Marine Biology and Ecology, 373: 102-110, 2009
88. **Lesser, M. P.**, Slattery, M., and J. J. Leichter. Ecology of Mesophotic Coral Reefs. Journal of Experimental Marine Biology and Ecology, 375: 1-8, 2009

89. Banaszak, A. T. and **M. P. Lesser.** Effects of Ultraviolet Radiation on Coral Reef Organisms. Photochemical and Photobiological Sciences, 8: 1276-1294, 2009
90. **Lesser, M. P.** Survivorship, Oxidative Stress, and DNA Damage of Sea Urchin (*Strongylocentrotus droebachiensis*) Embryos and Larvae Exposed to Ultraviolet Radiation (290-400 nm) in the Gulf of Maine. Photochemistry and Photobiology, 86: 382-388, 2010
91. **Lesser, M. P.,** M. Slattery, M. Stat, M. Ojimi, R. Gates, and A. Grottoli. Photoacclimatization by the Coral *Montastraea cavernosa* in the Mesophotic Zone: Light, Food, and Genetics. Ecology, 91: 990-1003, 2010
92. †Lombardi, M. R., and **M. P. Lesser**. The Annual Gametogenic Cycle of the Sea Anemone *Metridium senile* from the Gulf of Maine. Journal of Experimental Marine Biology and Ecology, 390: 58-64, 2010
93. **Lesser, M. P.**, *M. Bailey, †D. Merselis, and J. R. Morrison. Physiological Response of the Blue Mussel *Mytilus edulis* to Differences in Food and Temperature in the Gulf of Maine. Comparative Biochemistry and Physiology A, 156: 541-551, 2010
94. **Lesser, M. P.** Interactions Between Stressors on Coral Reefs: Analytical Approaches, Re-analysis of Old Data, and Different Conclusions. Comment to Dunne (2010). Coral Reefs, 29: 615-619, 2010
95. *Fiore, C. L., *Jarett, J. K., *Olson, N. D., and **M. P. Lesser**. Nitrogen Fixation and Nitrogen Transformations in Marine Symbioses. Trends in Microbiology, 18: 455-463, 2010
96. **Lesser, M. P.**, and M. Slattery. Phase Shift to Algal Dominated Communities at Mesophotic Depths Associated with Lionfish (*Pterois* volitans) Invasion on a Bahamian Coral Reef. Biological Invasions, 13: 1855-1868, 2011
97. **Lesser, M. P.,** Carleton, K. L., Böettger, S. A., Barry, T. M. and C. W. Walker. Sea Urchin Tube Feet are Photosensory Organs that Express a Rhabdomeric-like opsin and PAX6. Proceedings of the Royal Society: Biological Sciences, 278: 3371-3379, 2011
98. Slattery, M., **M. P. Lesser,** D. Brazeau J. Leichter, and D. Stokes. Connectivity and Stability of Mesophotic Coral Reefs. Journal of Experimental Marine Biology and Ecology, 408: 32-41, 2011
99. Slattery, M., and **M. P. Lesser**. Mesophotic Coral Reefs: A Global Model of Community Structure and Function. Ecology of Mesophotic Coral reefs, Proceedings of the 12th International Coral Reef Symposium, Cairns, Australia, 9-13, 2012
100. **Lesser MP**. Using Energetic Budgets to Assess the Effects of Environmental Stress on Corals: Are We Measuring the Right Things? Coral Reefs, 32: 25-33, 2013
101. Brazeau, D., **M. P. Lesser**, and M. Slattery. Genetic Structure in the Coral,

Montastraea cavernosa: Assessing Population Differentiation Among and Within Mesophotic Reefs. PLoS ONE, 8: e65845, 2013

102. **Lesser, M. P**., Stat, M., and R. D. Gates. The Endosymbiotic Dinoflagellates (*Symbiodinium* sp.) of Corals Are Parasites and Mutualists. Coral Reefs, 32: 603-611, 2013
103. *****Jarett, J. K., *Fiore, C., C. Mazel, **Lesser, M. P.** High Throughput Sequencing of the Fluorescent Microbial Community on the Carapace of an Ostracod (Ostracoda: Myodocopida)**.** Archives of Microbiology, 195: 595-604, 2013
104. *****Fiore, C. L., Baker, D. M., and **M. P. Lesser**. Nitrogen Biogeochemistry in the Caribbean Sponge, *Xestospongia muta*: A Source or Sink of Dissolved Inorganic Nitrogen? PLoS ONE, 8: e72961, 2013
105. *****Fiore, C. L., *Jarett, J. K., †Labrie, M. S., and **M. P. Lesser**. Symbiotic Prokaryotic Communities from Different populations of the Giant Barrel Sponge, *Xestospongia muta*. MicrobiologyOpen, 2: 938-952, 2013
106. *****Olson, N. and **M. P. Lesser**. Diversity of Nitrogen Fixing Bacteria Associated with Different Color Colonies of the Coral, *Montastraea* cavernosa. Archives of Microbiology, 195: 853-859, 2013
107. **Lesser, M. P.** and M. Slattery**.** Ecology of Caribbean Sponges: Are Top-down or Bottom-up Processes More Important? PLoS ONE, 8: e79799, 2013
108. Slattery, M. and **M. P. Lesser**. Allelopathy in the Tropical Alga *Lobophora variegata* (Phaeophyceae): Mechanistic Basis for a Phase Shift on Mesophotic Coral Reefs? Journal of Phycology, 50: 493-505, 2014
109. **Lesser, M. P.**, and *J. J. Jarett. Culture Dependent and Independent Analyses Reveal No Prokaryotic Community Shifts or Recovery of *Serratia marcescens* in *Acropora palmata* with White Pox Disease. FEMS Microbiology Ecology, 88: 457-467, 2014
110. Edmunds, P. J., Burgess, S. C., *Putnam, H. M., Baskett, M. L., *Bramanti, L., *Fabina, N., *Han, X., **Lesser, M. P.**, *Wall, C. B., Yost, D. M., and R. D. Gates. Evaluating the Causal Basis of Ecological Success Within the Scleractinia. Marine Biology, 161: 2719-2734, 2014
111. **Lesser, M. P.** and M. Slattery**.** Picoplankton Consumption Supports the Ascidian *Cnemidocarpa verrucosa* in McMurdo Sound, Antarctica. Marine Ecology Progress Series, 525: 117-126, 2015
112. *Fiore, C. L., †Labrie, M., and **M. P. Lesser**. Transcriptional Activity of the Giant Barrel Sponge, *Xestospongia muta,* Holobiont: Molecular Evidence for Metabolic Interchange. Frontiers in Microbiology, 6: 364, 2015
113. Slattery, M. and **M. P. Lesser**. Trophic Ecology of Sponges from Shallow to Mesophotic Depths (3 to 150 m): Comment on Pawlik et al. (2015). Marine Ecology Progress Series, 527: 275-279, 2015

114. **Lesser, M. P.**, *Fiore, C. L., M. Slattery and J. Zaneveld. Interactive Effects of Ocean Acidification and Thermal Stress on the Caribbean Sponge, *Xestospongia muta* Microbiome. Journal of Experimental Marine Biology and Ecology, 475: 11-18, 2016
115. Loya, Y., Eyal, G., Treibitz, T., **Lesser, M.P.**, and R. Appeldoorn. Theme Section on Mesophotic Coral Ecosystems; Advances in Knowledge and Future Perspectives. Coral Reefs, 35: 1-9, 2016
116. Slattery, M., Gochfeld, D. J., Diaz, M. C., Thacker, R. W., and **M. P. Lesser.** Variability in chemical defence across a shallow to mesophotic depth gradient in the Caribbean sponge *Plakortis angulospiculatus*. Coral Reefs, 35: 11-22, 2016
117. Morrow, K., *Fiore, C. L., and **M. P. Lesser**. Environmental Drivers of Microbial Community Shifts in the Giant Barrel Sponge, *Xestospongia muta* Over a Shallow to Mesophotic Depth Gradient. Environmental Microbiology, 18: 2025-2038, 2016
118. *Jarett, J., Gochfeld, D. J., and **M. P. Lesser**. Aposematic Coloration Does Not Deter Corallivory by Fish on the Coral *Montastraea cavernosa*. Coral Reefs, 35: 883-887, 2016
119. **Lesser, M. P.** Climate Change Stressors Cause Metabolic Depression in the Mussel, *Mytilus edulis,* From the Gulf of Maine. Limnology and Oceanography, 61: 1705-1717, 2016
120. Bhattacharya, D., Agrawal, S., Aranda, M., Baumgarten, S., Belcaid, M., Drake, J.L., Erwin, D., Foret, S., Gates, R.D., Gruber, D.F., Kamel, B., **Lesser, M.P.,** Levy, O., Liew, Y.J., MacManes, M., Mass, T., Medina, M., Mehr, S., Meyer, E., Price, D.C., Putnam, H.M., Qiu, H., Shinzato, C., Shoguchi, E., Stokes, A.J., Tambutté, S., Tchernov, D., Voolstra, C.R., Wagner, N., Walker, C.W., Weber, A.P., Weis, V., Zelzion, E., Zoccola, D., Falkowski, P.G. Comparative Genomics Explains the Evolutionary Success of Reef-forming Corals. eLife, 5: e13288, 2016
121. Laverick, J.H. Exton, D.A., Bongaerts, P., Bridge, T.C.L., **Lesser, M.P.**, Pyle, R.L., Slattery, M., Wagner, D., Rogers, A.D. To What Extent Do Mesophotic Coral Ecosystems and Shallow Reefs Share Species of Conservation Interest? Environmental Evidence, 5: 16, 2016
122. **Lesser, M.P.** and M. MacManes. Transcriptomic Resources for the Rocky Intertidal Blue Mussel, *Mytilus edulis*, From the Gulf of Maine. Journal of Shellfish Research, 35: 435-465, 2016
123. Andradi-Brown, D., Vermeij, M.J.A., Slattery, M., **Lesser, M.P.**, Bejarano, I., Appledoorn, R., Goodbody-Gringley, G., Chequer, A.D., Pitt, J.M., Eddy, C., Smith, S.R., Brokovich, E., Pinheiro, H.T., Jessup, M.E., Shepherd, B., Rocha, L.A., Curtis-Quick, J., Eyal, G., Noyes, T.J., Rodgers, A.D., and D. A. Exton. Large-scale Invasion of Western Atlantic Mesophotic reefs by Lionfish Potentially

Undermines Culling-based Management. Biological Invasions, 19: 939-954, 2017

124. Slattery, M. and **M.P. Lesser**. Allelopathy Mediated Competition in Microbial Mats from Antarctic Lakes. FEMS Microbiology Ecology, 93: fix019, 2017
125. *Jarett, J.K., MacManes, M.M., #Morrow, K.M., #Pankey, M.S. and **M. P. Lesser**. Comparative Genomics of the Coral, *Montastraea cavernosa* From the Bahamas. Scientific Reports, 7: 16039, 2017. *Featured in Scientific Reports Top 100 Papers in Ecology for 2017*
126. **Lesser, M.P.**, #Morrow, K.M., #Pankey, M.S., and S. Noonan. Diazotroph Diversity and Nitrogen Fixation in the Coral *Stylophora pistillata* from the Great Barrier Reef. ISME J, 12: 813-824, 2018
127. Morrow, K.M., †Tedford, A.R., #Pankey, M.S., and **M.P. Lesser**. A Member of the *Roseobacter* Clade, *Octadecabacter* sp., is the Primary Symbiont in the Brittlestar, *Amphipholis squamata.* FEMS Microbiology Ecology, 94: fiy030, 2018
128. Laverick, J.H. Piango, S., Andradi-Brown, D.A., Exton, D.A., Bongaerts, P., Bridge, T.C.L., **Lesser, M.P.**, Pyle, R.L., Slattery, M., Wagner, D., and A. D. Rogers. To What Extent Do Mesophotic Coral Ecosystems and Shallow Reefs Share Species of Conservation Interest? A Systemic Review. Environmental Evidence, 7: 15, 2018
129. **Lesser, M.P.**, Slattery, M., and C. D. Mobley. Biodiversity and Functional Ecology of Mesophotic Coral Reefs. Annual Review Ecology, Evolution, and Systematics, 49: 49-71, 2018
130. **Lesser, M.P.,** and M. Slattery. Sponge Density Increases with Depth Throughout the Caribbean. Ecosphere, 9: e02525, 2018
131. **Lesser, M.P.** Phylogenetic Signature of Light and Thermal Stress for the Endosymbiotic Dinoflagellates of Corals (Family Symbiodiniaceae). Limnology and Oceanography, 64: 1852-1863, 2019
132. **Lesser, M.P.** and M. Slattery. Sponge Density Increases with Depth Throughout the Caribbean-Reply. Ecosphere, 10: e02690, 2019
133. Slattery, M., Pankey M.S., and **M. P. Lesser**. Annual Thermal Stress Increases a Soft Coral's Susceptibility to Bleaching. Scientific Reports, 9: 8064, 2019
134. **Lesser, M.P**., Slattery, M., Laverick, J.H., *Macartney, K.J., and T. Bridge. Global Community Breaks at 60 m on Mesophotic Coral Reefs. Global Ecology and Biogeography, 28: 1403-1416, 2019
135. **Lesser, M.P.**, #Morrow, K.M., and M. S. #Pankey. N_2 Fixation, and the Relative Contributions of Fixed N, in Corals from Curacao and Hawaii. Coral Reefs, 38: 1145-1158, 2019
136. **Lesser, M.P.**, #Thompson, M.M., and C. W. Walker. Effects of Thermal Stress and Ocean Acidification on the Expression of the Retrotransposon *Steamer* in

the Softshell Clam, *Mya arenaria*. Journal of Shellfish Research, 38: 535-541, 2019.

137. Shih, J.L., Selph, K.E., Wall, C.B., Wallsgrove, N.J., **Lesser, M.P.**, and B. N. Popp. Trophic Ecology of the Tropical Pacific Sponge *Mycale grandis* Inferred from Amino Acid Compound Specific Isotopic Analyses. Microbial Ecology, 79: 495-510, 2020
138. **Lesser, M.P.**, Mueller, B., #Pankey, M. S., *Macartney, K.J., Slattery, M.,and J. M. de Goeij. Depth-dependent Detritus Production in the Sponge, *Halisarca caerulea*. Limnology and Oceanography, 65: 1200-1216, 2020
139. *Fiore, C.L., *Jarett, J.K., Steinert, G., and **M. P. Lesser**. Trait-based Comparison of Coral and Sponge Microbiomes. Scientific Reports, 10: 2340, 2020
140. **Lesser, M.P.**, and M. Slattery. Will Coral Reef Sponges Be Winners in the Anthropocene? Global Change Biology, 26: 3202-3211, 2020
141. **Lesser, M.P.**, *Jarett J.K., *Fiore C.L., #Thompson, M. M., #Pankey, M.S. and K. J. *Macartney. A New "Business as Usual" Climate Scenario and the Stress Response of the Caribbean Coral *Montastraea cavernosa*. Frontiers in Marine Science, 7: 728, 2020
142. *Macartney, K. J., #Pankey, M.S., Slattery, M., and **M. P. Lesser**. Trophodynamics of the Sclerosponge *Ceratoporella nicholsoni* Along a Shallow to Mesophotic Depth Gradient. Coral Reefs, 39: 1829-1839, 2020.
143. Plachetzki, D., #Pankey, M.S., MacManes, M.D., **Lesser, M.P.**, and C. W. Walker. The genome of the softshell clam *Mya arenaria* and the Evolution of Apoptosis. Genome Biology and Evolution, 12: 1681-1693, 2020, *Featured as Journal Cover*.
144. *Macartney, K.J., Slattery, M., and **M. P. Lesser**. Trophic Ecology of Sponges in the Mesophotic Zone. Limnology and Oceanography, 66: 1113-1124, 2021.
145. **Lesser, M. P.**, and M. Slattery. Mesophotic Coral Reef Community Structure: The Constraints on Imagery Collected by Unmanned Vehicles. Marine Ecology Progress Series, 663: 229-236, 2021.
146. Slattery M., and **M. P. Lesser**. Gorgonians are Foundation Species on Sponge-dominated Mesophotic Coral Reefs in the Caribbean. Frontiers in Marine Science, 8: 654268, 2021.
147. **Lesser, M.P.**, Mobley, C.M., Hedley, J. H., and M. Slattery. Incident Light on Mesophotic Corals Constrained by Reef Topography and Colony Morphology. Marine Ecology Progress Series, 670: 49-60, 2021.
148. *Clayshulte, A., Gochfeld, D.J., Mellor, A., *Macartney, K., **Lesser, M.P.**, and M. Slattery. Biochemical variability in sponges across the Caribbean basin. Invertebrate Biology, 140: e12341, 2021.

149. *Macartney, K.J., *Clayshulte, A., Slattery, M., and **M. P. Lesser**. Growth and Feeding in the Sponge, *Agelas tubulata*, From Shallow to Mesophotic Depths on Grand Cayman Island. Ecosphere, 12: e03764, 2021
150. **Lesser, M.P.** Eutrophication on Coral Reefs: What is the Evidence for Phase Shifts, Nutrient Limitation and Coral Bleaching? BioScience, 71:1216-1233, 2021. *Featured as Editor's Choice,* Podcast: https://bioscience-talks.aibs.org/episodes/coral-reefs-insults-and-prospects
151. **Lesser, M.P.**, Mobley, C.M., and M. Slattery. Incident Light and Morphology Determine Coral Productivity Along a Shallow to Mesophotic Depth Gradient. Ecology and Evolution, 11: 13445-13454, 2021.
152. #Pankey, M.S., Plachetzki, D., *Macartney, K.J., #Gastaldi, M., Slattery, M., Gochfeld D.J., and **M. P. Lesser**. Cophylogeny and Convergence Shape Holobiont Evolution in Sponge-Microbe Symbioses. Nature Ecology and Evolution, 6: 750-762, 2022. *Featured in ScienceDaily, NSF Research News* https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=305089&org=NSF&from=news, and *Phys Org*.
153. *Abraham, A.C., Gochfeld, D.J., Avula, B., *Macartney, K. J., **Lesser, M.P.**, and M. Slattery. Variability in antimicrobial chemical defences in the Caribbean sponge *Agelas tubulata*: implications for disease resistance and resilience. Marine Ecology Progress Series, 690: 51-64, 2022.
154. *Macartney K.J., #Pankey M.S., *Clayshulte-Abraham A.M., Slattery M., and **M. P. Lesser**. Depth Dependent Shifts in Sponge Microbial Communities and Trophic Strategies on Caribbean Mesophotic Coral Reefs. Marine Ecology Progress Series, 693: 125-140, 2022.
155. #Morrow, K.M., #Pankey, M.S., and **M. P. Lesser**. Community Structure of Coral Microbiomes Are Dependent on Host Morphology. Microbiome, 10: 113, 2022, See Research Square video, https://www.researchsquare.com/article/rs-2818814/v1
156. **Lesser, M.P.**, #Pankey, M.S., Slattery, M., *Macartney, K.J., and D. J. Gochfeld. Sponge Microbiome Diversity and Metabolic Capacity Determines the Trophic Ecology of the Holobiont in Caribbean Sponges. ISME Communications, 2: 112, 2022.
157. **Lesser, M. P.**, Slattery M., *Macartney K. J. Using Stable Isotope Analyses to Assess the Trophic Ecology of Scleractinian Corals. Oceans, 3: 527-545, 2022.
158. **Lesser, M. P.**, *Macartney, K. J., Slattery M. Production of Phytodetritus by a Coral Reef Sponge Increases from Shallow to Mesophotic Depths. Limnology and Oceanography, 68: 1247-1255, 2023.
159. **Lesser, M. P.**, Macartney, K. J., Slattery M. Quantifying Sponge Communities from Shallow to Mesophotic Depths Using Orthorectified Imagery. Marine Biology, 170: 111, 2023.

160. **Lesser, M. P.** Size Effects on Pumping in High microbial versus Low microbial Abundance Marine Sponges. Oceans, 4: 394-408, 2023.
161. Slattery, M., **Lesser, M. P.**, Rocha, L. A., Spaulding, H. L., Smith, T. B. Stability and Functionality of Mesophotic Reefs. Trends in Ecology and Evolution, 39: 585-598, 2024.
162. #Pankey, M. S., Gochfeld, D. J., Gastaldi, M., Macartney, K., Abraham, A. C. Slattery, M., **Lesser, M. P.** Phylosymbiosis and Metabolomics Resolve Phenotypically Plastic and Cryptic Species in the Genus *Agelas* Across the Caribbean Basin. Molecular Ecology, 33: e17321, 2024.
163. **Lesser, M. P.**, Slattery M. Reply to Comment: How are Single-shot Photographs Orthorectified?: Comment on "Quantifying Sponge Communities from Shallow to Mesophotic Depths Using Orthorectified Imagery" (Lesser et al. 2023). Marine Biology, 171: 136, 2024.
164. #Gastaldi, M., Pankey, M. S., Svendsen, G. M., Medina, A. I., Firstater, F. N., Navarte, M. A., Lozada, M., **Lesser, M. P.** Holobiont Dysbiosis or Acclimatization? Shift in Microbial Taxonomic Diversity and Functional Composition of a Cosmopolitan Sponge Subjected to Chronic Pollution in a Patagonian Bay. PeerJ, 12: e17707, 2024.
165. **Lesser, M. P.**, Slattery M., Macartney K. J. Reply to Kahng, S.E. Comment on "Using Stable Isotope Analyses to Assess the Trophic Ecology of Scleractinian Corals. Oceans, 2022. 3: 527-546". Oceans, 5: 476-490, 2024.
166. **Lesser, M. P.** Irradiance Dependency of Oxidative Stress and Coral Bleaching. Coral Reefs, 43: 1393-1403, 2024.

Papers in Preparation or Submitted

1. Slattery, M., **Lesser, M. P.,** Gochfeld, D. J. Sponges as Energetic Drivers of Coral Reef Ecosystem Structure and Function, in preparation for Coral Reefs.

Book Chapters Published

1. Neale, P. J., Cullen, J. J., **Lesser, M. P.**, Melis, A. Physiological Bases for Detecting and Predicting Photoinhibition of Aquatic Photosynthesis by PAR and UV Radiation. In: *Yamamoto, H. and Smith, C. (eds.) Photosynthetic Responses to the Environment*, pp. 60-77, 1993, American Society of Plant Physiologists.
2. Walker, C. W., Unuma, T., *McGinn, N. A., *****Harrington, L. M., and **M. P. Lesser**. Reproduction of Sea Urchins. In: *Lawrence, J. M. (ed.), Edible Sea Urchins: Biology and Ecology,* pp 5-26, 2001, Amsterdam, Elsevier
3. Walker, C. W., Unuma, T., and **M. P. Lesser**. Gametogenesis and Reproduction of Sea Urchins. In: *Lawrence, J. M. (ed.), Edible Sea Urchins: Biology and Ecology. 2nd edition, pp 11-33, 2006*, Amsterdam, Elsevier
4. Warner, M. E., **Lesser, M. P.**, and P. Ralph. Chlorophyll Fluorescence in Reef Building Corals. In: *Suggett, D., Prasil, O. and M. Borowitzka (eds.), Chlorophyll a*

Fluorescence in Aquatic Sciences: Methods and Applications, pp. 209-222, 2011, Springer

5. **Lesser, M. P**. Coral Bleaching: Causes and Mechanisms. In: *Dubinsky, Z. and N. Stambler (eds.), Coral Reefs: An Ecosystem in Transition* pp. 405-420, 2011, Springer
6. **Lesser, M. P.** Oxidative Stress in Tropical Marine Ecosystems. In: *D. Abele, J. P. Vázquez-Medina, and T. Zenteno-Savín (eds.), Oxidative Stress in Aquatic Ecosystems,* pp. 9-19, 2011, Wiley-Blackwell UK
7. Liñán-Cabello, M. A., **Lesser, M. P.**, Flores-Ramírez, L. A., Zenteno-Savín, T., and H. Reyes-Bonilla. Oxidative Stress in Coral-photobiont Communities. In: *D. Abele, J. P. Vázquez-Medina, and T. Zenteno-Savín (eds.)*, *Oxidative Stress in Aquatic Ecosystems*, pp. 127-138, 2011, Wiley-Blackwell. UK
8. Walker, C. W., **Lesser, M. P.** and T. Unuma, T. Sea Urchin Gametogenesis - Structural, Functional and Molecular/Genomic Biology. In: *Lawrence, J. M. (ed.), Sea Urchins: Biology and Ecology. 3rd edition*, pp 25-44, 2013, Amsterdam, Elsevier
9. de Goeij, J.M., **Lesser, M.P.** and J. Pawlik. Chapter 8, Nutrient Fluxes and Ecological Functions of Coral Reef Sponges in a Changing Ocean. In: *Climate Change, Ocean Acidification and Sponges*, Carballo, J.L. and J. Bell (*eds*.), pp 373-410, 2017, Springer.
10. #Morrow, K.M., Muller, E and **M. P. Lesser**. Role of the coral microbiome in coral bleaching and the coral bleaching response. In: *Coral Bleaching: Patterns, Processes, Causes and Consequences*, Second Edition, van Oppen M.J.H and J.M. Lough (*eds.*), pp 153-188, 2018, Springer.
11. Slattery, M. and **M.P. Lesser**. Biogeography of Mesophotic Coral Reefs in the Bahamas and Cayman Islands. In: *Mesophotic Coral Ecosystems*, Coral Reefs of the World 12, Loya, Y., Puglise, K.A., Bridge, T.C.L. (*eds*.), pp. 47-56, 2019, Springer.
12. Walker, C. W., **Lesser, M. P.** and T. Unuma, T. Gametogenesis in Regular Sea Urchins: Structural, Functional and Molecular/Genomic Biology. In: *Lawrence, J. M. (ed.), Sea Urchins: Biology and Ecology. 4th edition*, pp 29-50, 2020, Amsterdam, Elsevier
13. **Lesser, M. P**. Systematics and Evolutionary Relationships of *Mya arenaria*. In: Kennedy, V. and B. Beal (eds.), *The Soft-Shell Clam Mya arenaria: Biology, Fisheries, and Mariculture,* pp 1-9, 2024, American Fisheries Society.

Non-peer Reviewed Contributions

Lesser, M.P. Speaking for Coral. Caribbean Boats and Harbors, 2: 11-13, 1991

Neale, P.J., **Lesser, M.P.**, Cullen, J.J., and J. Goldstone. Detecting UV-induced Inhibition of Photosynthesis in Antarctic Phytoplankton. Ant. J. US, 27: 122-124, 1992

Hoegh-Guldberg, O., **Lesser, M.P.,** and R. Iglesias Prieto. Bleaching and physical/chemical stress on coral reefs. In: Understanding the Stress Response of Corals and Symbiodinium in a Rapidly Changing Environment (O. Hoegh-Guldberg, ed.), Workshop Report, pp 107–110, 2007, Unidad Académica Puerto Morelos.

Lesser, M. P., and R. van Woesik. Modelling Climate-Change Effects on Coral Disease. Reef Encounters, 30: 31-35, 2015

Slattery, M., **Lesser, M.P.**, Gochfeld, D.J., Diaz, C. and E. Kintzing. Biogeographic Connectivity of Caribbean Mesophotic Sponge Communities. In: Proceedings of the AAUS 36th Scientific Symposium. Gochfeld, D.J., Wright, C.S. (*eds.*), pp 67–70, 2017

Roberts, T. E., Bridge, T. C. L., Caley, M. J., Rowley, S., Sinniger, F., Harii, S., **Lesser, M. P.**, Slattery, M., and A. H. Baird. The Challenge of the Deep Should Not Preclude Robust Ecological Analysis. Science. sciencemag.org/content/361/6399/281/tab-e-letters, 2019

Book Reviews
Lesser, M.P. The Effects of UV Radiation in the Marine Environment. de Mora, S. Demers, S., and M. Vernet (*eds*.), Cambridge University Press, 2000. Limnology and Oceanography 46: 211, 2001.

SELECTED ORAL/POSTER PRESENTATIONS AT SCIENTIFIC MEETINGS

International Coral Reef Symposium, 2026, Spatial and Temporal Studies of Mesophotic Reef Sponges in the Caribbean. Presented by Michael Lesser.

European Coral Reef Symposium, 2024, The Functional Ecology of Sponges on Mesophotic Reefs. Presented by Marc Slattery.

Gordon Research Conference 2023, Mesophotic Coral Reef Ecosystems. Transitions from Autotrophy to Heterotrophy on Mesophotic Coral Reefs (Invited keynote speaker).

International Coral Reef Symposium, 2022, Trophic Ecology of Corals and Sponges on Mesophotic Coral Reefs. Presented by Michael Lesser.

Benthic Ecology Meetings, 2022, Sponge Microbial Communities and Trophic Strategies on Caribbean Mesophotic Coral Reefs. Presented by Michael Lesser.

Benthic Ecology Meetings, 2019, Depth-dependent Detritus Production in the Sponge, *Halisarca caerula*. Presented by Michael Lesser.

Gordon Research Conference 2018, Mesophotic Coral Reef Ecosystems. Compound Specific Isotopic Analysis of Amino Acids and the Trophic Ecology of *Xestospongia muta* from Shallow to Mesophotic Depths. Presented by Keir Macartney.

International Coral Reef Symposium, 2016, Hawaii, USA. Methodological Underestimation of Nitrogen Fixation in *Stylophora pistillata?* Presented by Michael Lesser.

2nd International Workshop on Mesophotic Coral Reefs, 2014, Eilat, Israel. Mesophotic Coral Reef Research: How Much Progress Have We Made? Presented by Michael Lesser (Invited plenary speaker).

National Shellfisheries Association, Baltimore, MD, 2011. The Ecological and Commercial Future of "Shellfish" in an Acidified Ocean. Presented by Michael Lesser (Invited plenary speaker).

1st International Workshop on Mesophotic Coral Reefs, 2010, Eilat, Israel. *Montastraea cavernosa* in the Mesophotic Zone of the Caribbean: Phenotypic Plasticity or Directional Selection? Presented by Michael Lesser (Invited plenary speaker).

The Omics in the Ocean -The 2nd International Symposium for Marine Biotechnology, 2009, National Museum of Marine Biology and Aquarium, Pingtung, Taiwan. Coral bleaching: What Does Genomics Tell Us About the Causes and Mechanisms? Presented by Michael Lesser (Invited plenary speaker).

INVITED SEMINARS

Bigelow Laboratory for Ocean Science, 1987, 1990, 1999
Boston University, 1994, 2008
Northeastern University (Marine Science Center,) 1989, 1995, 1997
University of Maryland, (Chesapeake Biological Laboratory), 1990
University of Maine, 1992
University of New Hampshire, 1993, 1994, 2006
Southampton College, 1994
Brown University, 1996
University of South Florida, 1996
SUNY Buffalo, 1998, 2013
Bowdoin College, 2003
Tufts University, 2003
Villanova, 2005
University of Queensland, 2005
University of Rhode Island (GSO), 2006
University of Connecticut, 2006
University of South Florida, 2006
University of Mississippi, 2007
Hood College, 2007
University of Georgia, 2008
University of New England, 2009
New England Aquarium, 2009
Rivier University, 2009
Woods Hole Oceanographic Institute, 2011

Western Washington University, 2013
Hawaii Institute of Marine Biology (University of Hawaii), 2015
Salem State University, Darwin Lecture [invited], 2017

GRADUATE STUDENTS (as principal adviser)

Jill Torregiani (M.S., 2003)
Meredith Bailey (M.S., 2006)
April Blakeslee (Ph. D., 2007; co-advised with Dr. Jeb Byers)
Nate Olson (M.S., 2010)
Jessica Jarett (Ph. D., 2012)
Cara Fiore (Ph. D., 2013)
Keir Macartney (Ph. D., 2020)
Committee member for an additional 17 graduate students at UNH and other institutions

Post-doctoral Scholars

M. Sabrina Pankey, 2016-2021
Megan Thompson, 2017- 2018; High School Science Teacher, Oyster River High School, Durham, NH
Marianela Gastaldi, 2018, Visiting post-doctoral scholar from Argentina
Kathy Morrow, 2014-2017; High School Science Teacher, Thomas Jefferson High School for Science and Technology, Alexandria, VA