



Jason Seth Goldstein, Ph.D.
Research Director

Wells National Estuarine Research Reserve
 Research Department, Maine Coastal Ecology Center
 342 Laudholm Farm Road, Wells, ME 04090

Phone: (207) 646.1555 (x136)

Email: jgoldstein@wellsnerr.org

Online References:

<http://www.wellsreserve.org>

<https://www.researchgate.net/profile/Jason-Goldstein-4>

ACADEMIC TRAINING

U.S. Fulbright Post-Doctoral Research Fellowship, University of Haifa, Israel

Ph.D. (Zoology) University of New Hampshire

M.S. (Marine Ecology) Old Dominion University

C.M.S. (Museum Studies and Administration) Harvard University Extension School

B.S. (Biology) University of Massachusetts, Dartmouth

PROFESSIONAL APPOINTMENTS

2016-current Research Director, Wells National Estuarine Research Reserve (NOAA-OCM)

2021-current Affiliate Research Professor, University of New Hampshire, School of Marine Science and Ocean Engineering (SMSOE)

2015-current Adjunct Assistant Professor, York County Community College

2014-2015 Assistant Professor, Eastern Connecticut State University (1-yr faculty appointment)

ACADEMIC HONORS & AWARDS

2012-2014 Fulbright Post-doctoral Research Fellow, Leon Recanati Institute for Maritime Studies, Department of Maritime Civilizations, University of Haifa, Israel

2011-2012 NOAA National Estuarine Reserve Research (NERRS) Fellowship, Great Bay Estuary

2011 George M. Moore Scholarship Fund, Univ. New Hampshire

2008 Crustacean Society Graduate Fellowship in Ecology

2007-2010 Graduate Teaching Fellowships, Univ. New Hampshire

2003 NSF East Asia Fellowship, National Fisheries Research Center, Japan

PUBLICATIONS IN REVIEW & PREPARATION

Watson, W.H. III, B.C. Gutzler, **J.S. Goldstein**, and S.H. Jury. (in review). Effects of increasing water temperature on American lobster (*Homarus americanus*) metabolic rates using multiple approaches. *Biological Bulletin*.

Goldstein, J.S., R. Grizzle, and W.H. Watson III. (in review). A comparison of habitat composition to seasonal lobster movements and residency in the Great Bay Estuary, New Hampshire. *Estuaries and Coasts*.

Goldstein, J.S., B.C. Gutzler, A. Lemmon, J.T. Carloni, M. Betka, and S.H. Jury. (in-prep). Swimming in hot water: Active transport in postlarval American lobsters (*Homarus americanus*) in the context of climate change in the Gulf of Maine.

Miller, J., E. Bjorkstedt, and **J. S. Goldstein** (in prep). Estuary-based sampling reveals pattern and change in the coastal ichthyoplankton assemblage in the western Gulf of Maine.

Burke, E.A., **J.S. Goldstein**, B.C. Gutzler, and N.B. Furey. (in prep). Meter-scale movements of the invasive European green crab *Carcinus maenas* measured with acoustic telemetry in a Gulf of Maine estuary. Marine Ecology Progress Series.

Jury, S.H., B.C. Gutzler, **J.S. Goldstein**, J.T. Carloni, W.H. Watson (in prep). Behavioral thermoregulation of ovigerous American lobsters (*Homarus americanus*). Marine Ecology Progress Series.

Dombrowski, E., L. Crane, B.C. Gutzler, S. Jury, G. Bradt, and **J.S. Goldstein**. (in prep). Expanding a New England European green crab (*Carcinus maenas*) pilot fishery by providing a molt detection assay. Journal of Shellfish Research.

Koontz, E.L., J.R. Holmquist, S. Parker, A. Stearns, **J.S. Goldstein**, and 41 co-authors. (in prep). Controls on spatial variation in porewater methane concentration across U.S. tidal wetlands. Environmental Research Letters.

Burdick, D., C. Peter, **J. Goldstein**, M. Tyrrell, K. Raposa, B. Fischella, and J. Allen. (in prep). Changes in plant communities associated with sea level rise across New England salt marshes.

PEER-REVIEWED PUBLICATIONS (44, H-INDEX = 8)

44. Gutzler, B.C., S. Jury, **J.S. Goldstein**, and W.H. Watson III. 2023. A novel method for quantifying the attractiveness of lobster trap baits. Fisheries Research. 267: 106815.
43. Watson, W.H., S.H. Jury, B.C. Gutzler, T.C. Lippmann, J.G. Choi, J.T. Carloni, and **J.S. Goldstein**. 2023. How might climate change affect American lobsters? Frontiers for Young Minds. 11:1031267. doi: 10.3389/frym.2023.1031267.
42. **Goldstein, J.S.** and E. Spanier. 2023. Increasing seawater temperatures in the Levantine basin, eastern Mediterranean may elicit increased activity in slipper lobsters, *Scyllarides latus* (Latreille, 1803) (Decapoda: Achelata: Scyllaridae). J. Crustacean Biology. 42: 1-8.
41. **Goldstein, J.S.**, K.A. Zarrella Smith, and T.L. Pugh. 2022. Recent declines in American lobster fecundity in southern New England: drivers and implications. ICES J. Marine Science. 79: 1662-1679.
40. Zarrella-Smith, K.A., J.N. Woodall, A. Ryan, N.B. Furey, and **J.S. Goldstein**. 2022. Seasonal estuarine movements of green crabs revealed by acoustic telemetry. Marine Ecology Progress Series. 681: 129-143.
39. Dorrance, A.N., **J.S. Goldstein**, J.T. Carloni, B.C. Gutzler, and W.H. Watson III. 2021. Sublethal behavioral and physiological effects of claw removal on Jonah Crabs (*Cancer borealis*). J. Experimental Marine Biology & Ecology. 545: 151642.

38. **Goldstein, J.S.**, and Carloni, J.T. 2021. Assessing the implications of live claw removal on Jonah crab (*Cancer borealis*), an emerging fishery in the Northwest Atlantic. Fisheries Research. 106046.
37. Crane, L.C., **J.S. Goldstein**, D. Thomas, K. Rexroth, and A. Watts. 2021. Effects of life state on eDNA detection of the invasive European green crab (*Carcinus maenas*) in estuarine systems. Ecological Indicators. 124: 107412.
36. Carloni, J.T., **J.S. Goldstein**, and W.H. Watson III. 2021. Movement and activity patterns of acoustically-monitored egg-bearing American lobsters, *Homarus americanus*. Marine Ecology Progress Series. 661: 163-173.
35. **Goldstein, J.S.** and E. Spanier. 2020. Potential effects of elevated temperature on seasonal movements in slipper lobsters, *Scyllarides latus* (Latreille, 1803), in the eastern Mediterranean. Mediterranean Marine Science. 21: doi: <http://dx.doi.org/10.12681/mms.22074>.
34. Moore, E.M., T.G. Langley, **J.S. Goldstein**, and W.H. Watson III. 2020. American lobster, *Homarus americanus*, reproduction and recruitment in a New England Estuary. Estuaries & Coasts. <https://doi.org/10.1007/s12237-020-00759-4>.
33. **Goldstein, J.S.**, T. Matthews, H. Matsuda, F. Abe, and T. Yamakawa. 2019. Development of larval spotted spiny lobster *Panulirus guttatus* (Latreille, 1804) in culture. J. Crustacean Biology. 39: 574-581. doi:10.1093/jcbiol/ruz055.
32. Raposa, K.B., **J.S. Goldstein**, K. Wilson-Grimes, J. Mora, P. Stacey, and R.A. McKinney. 2019. A comparative assessment of salt marsh crabs (Decapoda: Brachyura) across the National Estuarine Research Reserves in New England, USA. J. Crustacean Biology. 40: 67-75doi:10.1093/jcbiol/ruz083.
31. Furbeck, M.E., L.W. Pollock, J.W. Miller, and **J.S. Goldstein**. 2019. Presence of tholichthys-stage Spotfin Butterflyfish, *Chaetodon ocellatus* (Chaetodontidae) in a southern Maine estuary, Gulf of Maine. Northeast Naturalist. 26: N52-N55.
30. Wasson, K., K. Raposa, M. Almeida, K. Beheshti, J. Crooks, A. Deck, N. Dix, M. Ferner, **J. Goldstein**, D. Johnson, S. Lerberg, P. Marcum, C. Peter, B. Puckett, J. Schmitt, E. Smith, K. St. Laurent, K. Swanson, M. Tyrrell, and R. Guy. 2019. Pattern and scale: evaluating generalities in crab distributions and marsh dynamics from small plots to a national scale. Ecology. e02813. 10.1002/ecy.2813.
29. **Goldstein, J.S.** and W.H. Watson III. 2019. Biochemical changes throughout early- and middle-stages of embryogenesis in lobsters (*Homarus americanus*) under varying thermal regimes. Peer-J. 7:e6952 <http://doi.org/10.7717/peerj.6952>.
28. Lavalli, K.L., C.N. Malcom, and **J.S. Goldstein**. 2018. Description of pereopod setae of Scyllarid lobsters, *Scyllarides aequinoctialis*, *S. latus*, and *S. nodifer*, with observations on the feeding during consumption of bivalves and gastropods. Bulletin of Marine Science. 94: 571-601.
27. Jury, S.H., T.G. Langley, B.C. Gutzler, **J.S. Goldstein**, and W.H. Watson III. 2018. Monitoring the behavior of freely moving lobsters with accelerometers. Bulletin of Marine Science. 94: 533-553.

26. **Goldstein, J.S.** and J.D. Shields. 2018. Bait-subsidized diets and their effects on ovigerous American lobsters (*Homarus americanus*). *Aquaculture International*. 26: 1311-1326.
25. Clark, A.S., S.H. Jury, **J.S. Goldstein**, T.G. Langley, and W.H. Watson III. 2018. Underwater video surveillance of American lobsters (*Homarus americanus*) to understand saturation levels in lobster traps. *Fishery Bulletin*. 116: 161-170.
24. Watson, W.H. III, **J.S. Goldstein**, E.M. Morrissey, H.A. Cole, and T.L. Pugh. 2017. Evidence of mating by sexually immature female American lobsters *Homarus americanus* (H. Milne Edwards, 1837) (Decapoda: Nephropidae). *J. Crustacean Biology*. 37: 2-6.
23. **Goldstein, J.S.**, E.M. Morrissey, E.D. Moretti, and W.H. Watson III. 2017. A comparison of the distribution and abundance of European green crabs and American lobsters in Great Bay Estuary, New Hampshire, USA. *Fisheries Research*. 189: 10-17.
22. Canto-García, A.A., **J.S. Goldstein**, E. Sosa-Cordero, and L. Carrillo. 2016. Abundance and spatial distribution of *Panulirus spp.* phyllosomas off the coast of the Mexican Caribbean. *Bulletin of Marine Science*. 92: 207-227.
21. **Goldstein, J.S.** and W.H. Watson III. 2015a. Seasonal movements of American lobsters in southern Gulf of Maine coastal waters: Patterns, environmental triggers, and implications for larval release. *Marine Ecology Progress Series*. 524: 197-211. doi: 10.3354/meps11192.
20. **Goldstein, J.S.** and W.H. Watson III. 2015b. Quantifying the influence of natural inshore and offshore thermal regimes on egg development in the North American lobster, *Homarus americanus*. *Biological Bulletin*. 228: 1-12.
19. **Goldstein, J.S.**, E.A. Dubofsky, and E. Spanier. 2015. Into a rhythm: Diel activity patterns and behavior in Mediterranean slipper lobsters, *Scyllarides latus*. *ICES Journal of Marine Science*. doi: 10.1093/icesjms/fsv008.
18. Spanier, E., K.L. Lavalli, **J.S. Goldstein**, and 14 other co-authors. 2015. A concise review of lobster utilization by worldwide human populations from prehistory to the modern era. *ICES Journal of Marine Science*. doi: 10.1093/icesjms/fsv066.
17. Clark, A.S., S.H. Jury, **J.S. Goldstein**, T.G. Langley, and W.H. Watson. 2015. A comparison of American lobster size structure and abundance using standard and ventless traps. *Fisheries Research*. 167: 243-251.
16. **Goldstein, J.S.**, T.L. Pugh, E.A. Dubofsky, K.L. Lavalli, M. Clancy, and W.H. Watson. 2014. A non-invasive method for *in-situ* determination of mating success in female American lobsters (*Homarus americanus*). *J. Visualized Experiments*. 84: e50498. doi:10.3791/50498.
15. Pugh, T., **J.S. Goldstein**, K. Lavalli, M. Clancy, and W.H. Watson III. 2013. At-sea determination of female American lobster (*Homarus americanus*) mating activity: Patterns vs. expectations. *Fisheries Research*. 147: 327-337.

14. Johnson, K.J., **J.S. Goldstein**, and W.H. Watson III. 2011. Two methods for determining the fertility status in early-stage American lobster, *Homarus americanus*, eggs. *Journal Crustacean Biology*. 31: 693-700.
13. Butler, M.J. IV, C.B. Paris, **J.S. Goldstein**, H. Matsuda, and R.K. Cowen. 2011. Behavior constrains the dispersal of long-lived spiny lobster larvae. *Marine Ecology Progress Series*. 422: 223-237.
12. **Goldstein, J.S.** and B. Nelson. 2011. Application of a gelatinous zooplankton tank for the mass production of larval Caribbean spiny lobster, *Panulirus argus*. *Aquatic Living Resources*. 24: 45-51.
11. **Goldstein, J.S.** and M.J. Butler IV. 2009. Behavioral enhancement of onshore transport by postlarval Caribbean spiny lobster (*Panulirus argus*). *Limnology and Oceanography*. 54: 1669-1678.
10. **Goldstein, J.S.**, H. Matsuda, T. Takenouchi, and M.J. Butler IV. 2008. The complete development of larval Caribbean spiny lobster *Panulirus argus* (Latreille, 1804) in culture. *Journal Crustacean Biology*. 28: 306-327.
9. Tlusty, M., A. Kim, E. Malkin, **J.S. Goldstein**, D. Fiore, and M. Koneval. 2008. Microecological impacts of global warming on crustaceans– temperature induced shifts in the distribution of larval release in American lobsters. *Journal Shellfish Research*. 27: 443-447.
8. Matsuda, H., T. Takenouchi, and **J.S. Goldstein**. 2006. The complete larval development of the pronghorn spiny lobster *Panulirus penicillatus* (Decapoda, Palinuridae) in culture. *Journal Crustacean Biology*. 26: 579-600.
7. **Goldstein, J.S.** 2006. ‘Connecting the Dots’ in the Caribbean: An overview and directed approach for long-term spiny lobster puerulus settlement studies. *Proceedings of the Gulf and Caribbean Fisheries Institute*. 57: 833-845.
6. Tlusty, M.T., D.R. Fiore, and **J.S. Goldstein**. 2005. Formulated diets as replacements for *Artemia* in the rearing of juvenile American lobsters (*Homarus americanus*). *Journal Aquaculture*. 250: 781-795.
5. Tlusty, M.T., **J.S. Goldstein**, and D.R. Fiore. 2005. Hatchery performance of early benthic juvenile American lobsters (*Homarus americanus*) fed enriched frozen adult *Artemia* diets. *Journal Aquaculture Nutrition*. 11: 191-200.
4. **Goldstein, J.S.** and M.F. Tlusty. 2003. Substrate determinants and development rate of claw asymmetry in American lobsters, *Homarus americanus*. *Journal Crustacean Biology*. 23: 890-896.

PUBLICATIONS – BOOK CHAPTERS

3. Jury, S., C. Chabot, **J. Goldstein**, and S. Harzsch. 2024. Sensory Biology and Behaviour. In: *Ecophysiology of the European Green Crab (Carcinus maenas) and Related Species*. D. Weihrauch and I. McGaw, Eds. Academic Press.

2. Lavalli, K.L, E. Spanier and **J.S. Goldstein**. 2019. Scyllarid Lobster Biology and Ecology. In: Crustaceana Vol. II. DOI: 10.5772/intechopen.88218.
1. **Goldstein, J.S.** 2013. Lobster Migration. In: Encyclopedia of Estuaries, M.J. Kennish (ed.). Springer Pub., New York.

PUBLICATIONS – REPORTS AND WHITE PAPERS

- Strong, A., P. Gassett, **J. Goldstein**, C. Feurt, S. Jones, M. White, R. Young-Morse, J. Brewer, J. Motyka, and J. LeBlanc. 2022. Northeast regional ocean council management guidance for the use of ocean and coastal acidification regional model outputs in the northeast. to the Northeastern Regional Association of Coastal Ocean Observing Systems (NOAA Ocean Acidification Program) Final Report. 17p.
- Goldstein, J.S.**, B.C. Gutzler, M. Nash. 2022. Evidence of microplastic ingestion by American lobsters. John Sage Foundation Final Report. 14p.
- Burdick, D., C. Peter, B. Fischella, M. Tyrrell, J. Allen, J. Mora, K. Raposa, **J. Goldstein**, C. Feurt, L. Crane. 2020. Synthesizing NERR Sentinel Site Data to Improve Coastal Wetland Management Across New England Data Report. NEERS Science Collaborative. 34pp.
- Goldstein, J.S.** 2015. Tropical lobster aquaculture: Bridging the gaps and forging new frontiers. In: Spiny lobster aquaculture development in Indonesia, Vietnam, and Australia. C.M. Jones (Ed.). ACIAR Proceedings No. 145. Australian Centre for International Agricultural Research: Canberra. Pp. 104-109.
- Goldstein, J.S.** 2013. Atlantic States Marine Fisheries Commission (ASMFC-NOAA). Preparation of the American Lobster Habitat Section to the Amendment 3 Fisheries Management Plan. 23p.
- Goldstein, J.S.**, S. Bartko, and D. Cone. 1999. Laboratory Culture Manual for the American Lobster, *Homarus americanus*. New England Aquarium pub. 56 p.
- Mooney-Seus, M.L, J.S. Goebel, H.C. Tausig, **J.S. Goldstein**, and M.S. Sweeney (eds). 1998. Lobster Summit II. A New England Aquarium Aquatic Forum. Report 98-2, 30-31 January 1998. Hyannis, Massachusetts.
- Mooney-Seus, M.L, J.S. Goebel, H.C. Tausig, and **J.S. Goldstein** (eds). 1997. Lobster Summit. A New England Aquarium Aquatic Forum. Report 97-2, 26-27 February 1997. Rockland, Maine.
- Sears, J. and **J.S. Goldstein** (eds.). 1993. Nature Trail Guide and Natural History of the Landscape at the Children’s Museum of Dartmouth. UMass Dartmouth Press. 35p.

PUBLICATIONS – FILM MEDIA

- Goldstein, J.S.**, H. Matsuda, and T. Takenouchi. 2014. Film production and contribution, 'Metamorphosis: The Science of Change'. BBC Film Series (D. Briggs, Director). <http://www.bbc.co.uk./programmes/p00zv0wk>.

RESEARCH GRANTS (29 AWARDS)

- 2024-2026 Maine Sea Grant (NOAA). Evaluating the northward range expansion of the blue crab through monitoring and collaborative capacity building”. \$139,780 (**Role: Primary Investigator**)

- 2023-2024 National Estuarine Research Reserve Science Collaborative Grant (NOAA). *Testing low-cost, ultra-portable, CO₂ and CH₄ sensors for better monitoring of salt marsh ecosystem services, resilience, and restoration.* \$200,000 (**Role: Co-Investigator**)
- 2023-2024 Lenfest Ocean Program. *Bringing indigenous science into climate-ready management of marine protected areas: A network pilot from the Northeastern United States.* \$390,618 (**Role: Co-Investigator**)
- 2023-2024 Maine Climate Action Initiative-Broad Reach Fund. *Maine ocean climate collaborative's tech team pilot: Technological & quality assurance advancements towards ocean acidification monitoring.* \$255,000 (**Role: Co-Investigator**)
- 2022-2024 NY-CT Sea Grant. *20-year retrospective review of American lobster research.* \$15,000 (**Role: Primary Investigator**)
- 2022-2023 Casco Bay Estuary Partnership Community Grant. *Training Community Scientists to Monitor Blue Crabs in Casco Bay.* \$5,000 (**Role: Co-Investigator**)
- 2021-2023 National Sea Grant American Lobster Initiative (NOAA). *Connecting the Dots': Environmental drivers of egg production and stability in ovigerous American lobsters in the Gulf of Maine.* \$203,000 (**Role: Primary Investigator**).
- 2021-2023 National Sea Grant American Lobster Initiative (NOAA). *The influence of season and temperature on the distribution and abundance of juvenile lobsters assessed via traditional ventless and novel early benthic phase traps.* \$265,000 (**Role: Co-Investigator**).
- 2020-2022 NOAA NMFS S-K Fisheries Grant. *Expanding a New England green crab pilot fishery by providing a molt detection assay and identifying seasonal aggregations for harvest.* \$261,000 (**Role: Primary Investigator**).
- 2020-2021 John Sage Foundation. *Evidence of microplastic ingestion by adult and juvenile lobsters – A pilot study.* \$10,000 (**Role: Primary Investigator**).
- 2020-2024 NASA (CubeSat Launch Initiative). MESAT1: Maine's First CubeSat. \$522,000 (**Role: Scientific Advisor**).
- 2020-2021 NOAA-OCM (315 Competition). *Improvements to regional monitoring networks and assessment of coastal ocean acidification through the lens of four New England estuaries.* \$50,000 (**Role: Primary Investigator**).
- 2019 – 2021 National Sea Grant American Lobster Initiative (NOAA). *The potential influence of increased water temperatures in the Gulf of Maine on the distribution of female American lobsters and the impacts of these distribution shifts on larval recruitment.* \$250,000 (**Role: Primary Investigator**).
- 2018 - 2020 New Hampshire Sea Grant (NOAA). *Evaluating growth & sustainable harvesting practices for Jonah crabs in New England waters.* \$124,000 (**Role: Co-Investigator**).
- 2018 - 2019 National Estuarine Research Reserve Collaborative Catalyst Grant (NOAA).

- Synthesizing NERR Sentinel Site data to improve coastal wetland management across New England.* \$105,000 (**Role: Co-Investigator**).
- 2018-2021 National Centers for Coastal Ocean Science (NCCOS-NOAA). *A generic predictive model for ocean and coastal acidification thresholds from Long Island Sound to the Nova Scotian Shelf.* \$20,500 (sub-award to WellsNERR) (**Role: End-User**).
- 2018 - 2019 Maine Space Grant Consortium (NASA). *Student designed nanosatellites and sensor packages for observations of remote environments.* \$20,148 (**Role: Co-Investigator**).
- 2017 – 2019 National Estuarine Research Reserve Science Collaborative Grant (NOAA). *New technology for old problems: Using DNA methods to monitor invasive species and biodiversity in estuarine systems.* \$496,000 (**Role: Co-Investigator**).
- 2016 – 2018 Saltonstall-Kennedy (NOAA) Fisheries Grant. *Can climate change induce reproductive failure in American lobster? Case study of a collapsed stock.* \$227,000 (**Role: Co-Investigator**).
- 2017 – 2018 Maine Outdoor Heritage Fund (MOHF). *Strategies to improve sea-run brown trout stock enhancement in York County, Maine.* \$30,000 (**Role: Co-Investigator**).
- 2017 - 2018 Maine Space Grant Consortium (NASA). *Developing a sensor-based platform for evaluating climate change in estuarine and coastal ecosystems.* \$22,000 (**Role: Primary Investigator**).
- 2016 - 2017 Maine Sea Grant (Project Development Grant). *A fishery in flux: Claw removal and its impacts on survivorship and behavior in the Jonah crab (*Cancer borealis*).* \$2,500 (**Role: Primary Investigator**).
- 2015 - 2016 Eastern Connecticut State University Research Grant. *Biological sustainability of Jonah crab in Southern New England waters.* \$4,000 (**Role: Primary Investigator**).
- 2015 - 2016 Connecticut Space Grant Consortium (NASA). *Circadian rhythms in tropical slipper lobsters: Correlates for humans in space.* \$6,000 (**Role: Primary Investigator**). Eastern Connecticut State University.
- 2015 - 2016 AAUP Faculty Development Grant. \$1,500: Program Enhancement (Animal Behavior). Eastern Connecticut State University.
- 2013 – 2014 Maurice Hatter Research Fellowship. *Utilization and selected population dynamics of the Mediterranean slipper lobster in the Achziv Marine Reserve, northern Israel.* \$12,000 (**Role: Primary Investigator**). The Leon Recanati Center for Maritime Studies, University of Haifa.
- 2012 – 2014 Israeli Taxonomy Initiative (ITI). *A preliminary survey of the biological diversity of decapod plankton in the Mediterranean coastal waters of Israel.* \$25,000, (**Role: Primary Investigator**). University of Haifa.
- 2012 – 2014 NH Sea Grant (NOAA). *Does the Great Bay Estuary support a self-recruiting lobster population?* \$160,000, (**Role: Associate Investigator**), University of New Hampshire.

2011 – 2013 Northeast Consortium (NOAA). *Biological and oceanographic mechanisms influencing lobster larvae dispersal in New Hampshire coastal waters*. \$35,000, (**Role: Associate Investigator**), University of New Hampshire.

Student awards

2010 William R. Spaulding Marine Research Award
 2009 Lerner-Gray Fund for Marine Research
 2007-2010 Company of Biologists Travel Award
 2006 PADI Foundation Grant for Field Research
 2006 Explorer's Club Award for Field Research
 2006-2009 University of New Hampshire Marine Program Grants
 2005 Darden Environmental Trust Fund Award

RESEARCH & WORK EXPERIENCE

- 2016 - **Research Director & Lead Scientist**, Maine Coastal Ecology Center, Wells National Estuarine Research Reserve. Oversees research and monitoring activities of the Wells Reserve; responsible for the administration, management, and development of all facets of the Research Program, including individual research and direct supervision of staff, interns, and graduate students; grantsmanship, managing a program budget, and conducting individual and team research; Supervise and direct a staff of four technical staff on programmatic activities through the Reserve in addition to graduate and undergraduate students and interns (31 to-date)
- 2013-2014 **Fulbright Post-Doctoral Fellow**, University of Haifa, Israel. Projects: *Crustacean biodiversity and invasive species in coastal Mediterranean waters; Slipper lobster reproductive dynamics and ecology*.
- 2012-2013 **Post-doctoral Researcher**, UNH. Project title: *Does the Great Bay Estuary support a self-recruiting lobster population?* (NOAA- Sea Grant).
- 2005-2012 **Graduate Research Assistant**, UNH. Projects:
- Biological and oceanographic mechanisms influencing larval lobster dispersal in New Hampshire coastal waters*. (NOAA-NEC Grant).
 - Properties of a circadian pacemaker and its regulation of locomotion*. INBRE (IDeA Networks of Biomedical Research Excellence, funded by the National Institutes of Health).
 - Calibrating lobster ventless trap and standard trap surveys to optimize measurements of lobster abundance* (NOAA -Sea Grant).
 - Sperm limitation in the American lobster fishery: Does it occur and why?* (NOAA-SeaGrant).
 - The relationship between seasonal migrations of ovigerous female lobsters (*Homarus americanus*), egg development and larval survival* (NOAA-Sea Grant).
- 2003-2005 **Research Associate**, Florida Marine Research Institute: Project coordinator for Florida Keys comprehensive ecological monitoring of hard-bottom communities (corals, sponges, mobile invertebrates, fishes).

- 2002-2003 **Research Assistant**, Old Dominion University, Norfolk, VA. Project title: *The behavioral and ecological effects of viral disease in Caribbean spiny lobster* (NSF – Biological Oceanography, with M. Butler).
- 1994-2001 **Research Associate and Project Manager**, Edgerton Research Laboratory, New England Aquarium, Boston, MA. Responsible for the operation, management, and maintenance of the Lobster Rearing and Research Facility, an intensive, recirculating seawater system, providing year-round healthy stocks of lobster embryos, larvae, and juveniles for biomedical research to consortium recipients and research institutes regionally and abroad.

Associated activities included: **1)** conducting research on egg growth and larval development; **2)** overseeing exhibit design, development, and implementation of lobster life-cycle exhibit and life-support incorporated into special exhibits gallery; **3)** organizing a variety of focus groups, summits, and public talks concerning lobster conservation and current fishery issues to various stakeholders; **4)** supervising and mentoring volunteers, interns, and other support staff.

EDUCATIONAL MENTORING AND SUPERVISING

- 2022- Johanna Koshak (Ph.D. Student), **Committee Member (current)**. Thesis Topic: Characterization of crustacean microbiomes and their effect on health and development. VIMS.
- 2022- Brandon Henry (Ph.D. Student), **Committee Member (current)**. Thesis Topic: Blue crab population dynamics in southern Maine. University of Maine.
- 2022- Kelsey Meyer (M.S. Student), **Committee Advisor (current)**. Thesis Topic: Green crabs in Great Bay Estuary. University of New Hampshire.
- 2021- Kaitlin Van Volkom (Ph.D. Student), **Committee Member (current)**. Thesis Topic: Trophic changes in Gulf of Maine crabs. University of New Hampshire.
- 2021 Emily Burke (M.S. Student), **Committee Member**. Thesis Topic: Movement dynamics and ecology of European green crab in the Webhannet River Estuary, Maine. University of New Hampshire.
- 2019 Maureen Madray (M.S. Student), **Committee Member**. Thesis Topic: Movement ecology of Jonah crab (*Cancer borealis*). University of New Hampshire.
- 2020 Sofia Licht (M.S. Student), **Committee Member**. Thesis Topic: Applying island biogeography theory and ecoacoustic approaches to explore species composition and richness in the northern temperate salt pools of the Webhannet and Little river estuaries. University of New Hampshire.
- 2019 Luvia Lorei Garcia Echaury (PhD.). **External dissertation reviewer**. University of Auckland, New Zealand. Dissertation Title: *Energetics of successful settlement in spiny lobsters*.
- 2018 Kelly Giraud (PhD. Student). **Committee Member**. Thesis Topic: *Increasing habitat restoration on private lands*. University of New Hampshire.

- 2018 Bayu Priyambodo (PhD.). **External dissertation reviewer.** James Cook University, Australia. Dissertation Title: *The development of spiny lobster aquaculture in Indonesia through the enhancement of puerulus catch and technology transfer.*
- 2016 Benjamin Gutzler (PhD.). **Committee Member.** Dissertation Title: *Lobsters in a sea of stressors: impacts of a changing ocean on American lobster (*Homarus americanus*) physiology, reproduction and behavior,* University of New Hampshire.
- 2014 Elizabeth Morrissey (M.S.). **Committee Member.** Thesis Title: *Reproduction and recruitment of the American lobster (*Homarus americanus*) in the Great Bay Estuary, New Hampshire.* University of New Hampshire.
- 2013 Richard O'Rorke (PhD.). **External dissertation reviewer.** University of Auckland, New Zealand. Dissertation Title: *Determining the diet of spiny lobster phyllosomas: Using a prey enriched, amplicon pyrosequencing approach.*
- 2013 Joshua Carloni (M.S.). **Committee Member.** Thesis title: *Distribution and habitat use by large ovigerous American lobsters (*Homarus americanus*) at the Isles of Shoals, NH, USA.* University of New Hampshire.
- 2013 Ashanti Canto (M.S.). **Committee Member.** Thesis Title: *Systematics and identification of spiny lobster larvae in waters of the Mesoamerican Reef.* University of Chetumal & ECOSUR, Mexico.

TEACHING EXPERIENCE

- 2015-present **Adjunct Assistant Professor**, I teach these courses: *Marine and Estuarine Biology, General Biology, Biodiversity & Sustainability*, York County Community College.
- 2014-2015 **Assistant Professor (visiting)**, *Ecology and Environmental Ecology*, Eastern Connecticut State University.
- 2013-2014 **Instructor**, *Scientific Writing and Communications*, Graduate course, The University of Haifa, Recanati Institute for Maritime Studies, International Program, Israel.
- 2010-present **Faculty**, *Marine Immersion: UNH Introductory Marine Biology* course for first-year undergraduate students. Shoals Marine Laboratory, Appledore Island, Maine.
- 2006 **Instructor**, Intertidal Ecology Workshop for UNH Marine docents. Shoals Marine Laboratory, Appledore Island, Maine.
- 2006-2010 **Graduate Teaching Assistantships**, University of New Hampshire.
 Developmental Biology
 Animal Behavior
 Animal Physiology
- 2008 **Co-Instructor**, 'Biology of the Lobster' for advanced undergraduates and professionals. Shoals Marine Laboratory, Appledore Island, Maine.
- 2001-2003 **Graduate Teaching Assistantships**, Old Dominion University and Keys Marine Laboratory.
 Tropical Marine Ecology
 Organismal Biology

SELECTED CONFERENCE & SYMPOSIA PRESENTATIONS

- 2023 *Egg-bearing American lobsters in a sea of trouble: Reduced fecundity in southern New England – drivers and implications.* International Conference and Workshop on Lobster Biology & Management, Perth, Australia
- 2023 *A fishery in flux: The potential impacts of live claw removal and sublethal effects on the rapidly emerging Jonah crab (*Cancer borealis*) fishery in New England USA.* International Conference and Workshop on Lobster Biology & Management, Perth, Australia
- 2023 *Swimming in a sea of trouble: Effect of warming waters on postlarval lobster (*Homarus americanus*) swimming performance.* Benthic Ecology Meeting, Miami, FL
- 2023 *Warming Gulf of Maine waters and their impact on postlarval (*H. americanus*) swimming activity.* American Lobster Initiative (National Sea Grant) Summit, Portland, ME
- 2022 *Egg-bearing American lobsters in a sea of trouble: Reduced fecundity in southern New England – drivers and implications.* Benthic Ecology Meeting, Portsmouth, NH
- 2020 *The effects of a warming Gulf of Maine on the distributions of egg-bearing lobsters and their larvae.* Regional Association for Research on the Gulf of Maine (RARGOM), University of Maine, Orono, ME (virtual).
- 2020 *The green crab 100: Meshing citizen science & fishery data.* Manomet Green Crab Workshop, Wells, ME (virtual).
- 2019 *An overview of research & monitoring initiatives at the Wells National Estuarine Research Reserve. U.S. NE Atlantic Biological Observations Workshop (NERACOOS ATN-MBON-OTN),* University of New Hampshire, Durham, NH
- 2018 *Jonah crab (*Cancer borealis*) growth and claw removal in an emerging fishery scenario.* 9th International Crustacean Congress, Washington, D.C.
- 2017 *Observations on ichthyoplankton community structure, abundance, and diversity in a temperate North American estuary, Webhannet river, Wells National Estuarine Research Reserve, Wells, Maine, USA.* NERRS National Meeting, Corpus Christi, TX.
- 2017 *Developing a low-cost sensor-based platform for evaluating environmental variability in estuarine and coastal ecosystems.* NERRS National Meeting, Corpus Christi, TX.
- 2017 *A fishery in flux: Claw removal and its impacts on survivorship and physiological stress in the Jonah crab (*Cancer borealis*).* Society for Integrated & Comparative Biology, New Orleans, LA.
- 2017 *'In the heat of the moment': Effects of thermal stress on seasonal movements in slipper lobsters (*Scyllarides latus*) in the eastern Mediterranean.* The 11th International Conference and Workshop on Lobster Biology and Management, Portland, ME.
- 2016 *'Brave New Sea': Marine Biodiversity and Resource Management in Coastal Mediterranean Waters in the Levant.* "Lunch-n-Learn" Seminar, Wells NERR, Wells, ME

- 2016 *The Wells Reserve Community: Research & Conservation Initiatives*. The Wells Rotary Club, Wells, ME
- 2015 *Clash of the crustaceans: Interactions between European green crabs and American lobsters in Great Bay Estuary, NH USA*. The 2nd U.S.-Canada Lobster Symposium on Lobsters and Climate Change, Charlottetown, PEI, Canada.
- 2014 *Evidence of mating in immature, pre-reproductive female American lobsters*. The 10th International Conference and Workshop on Lobster Biology and Management, Cancun, Mexico.
- 2014 *A historical overview of lobster use by pre- and post-Columbian cultures in the Caribbean and Mesoamerica*. The 10th International Conference and Workshop on Lobster Biology and Management, Cancun, Mexico.
- 2013 *Brave New Sea: Patterns and estimates of zooplankton biodiversity in the Mediterranean coastal waters of Israel*. Fulbright Scholar Enrichment Seminar, Cairo, Egypt.
- 2013 *Patterns, motivations, and implications for the seasonal movements of lobsters in coastal waters*. Israeli Association of Aquatic Sciences, Miahmoret, Israel.
- 2012 *The impact of ovigerous lobster movements on egg development, larval hatch, and settlement*. The American Lobster in a Changing Ecosystem: A US-Canada Science Symposium, Portland, Maine.
- 2012 *Seasonal movements, egg development and larval hatch in ovigerous American lobsters*. The 41st Benthic Ecology Meetings, Norfolk, Virginia.
- 2010 *Spinning, drifting, and bobbing: The use of GPS-ocean drifters to model larval lobster dispersal along the New Hampshire Seacoast*. UNH Graduate Research Conference, Durham, New Hampshire.

SELECTED INVITED TALKS, SEMINARS & WORKSHOPS

- 2023 Central Queensland University Department Seminar, *Connections and partnerships in crustacean climate change research between the USA and Australia*. **Invited seminar speaker**, Gladstone, Queensland, Australia.
- 2023 University of Palermo, Laboratory of Ecology, Department of Earth and Marine Science (DiSTeM), *Crustaceans as sentinels of climate change in the Gulf of Maine USA and beyond!*, **Invited seminar speaker**, Palermo, Sicily (Italy).
- 2023 UMass Lowell Department Seminar Series, *Crustaceans as sentinels of climate change*. **Invited seminar speaker**, Lowell, MA.
- 2022 New England Young Fishermen's Alliance (NEYFA), *Collaborative research opportunities in lobster science and the fishery*, **Invited speaker**, Portsmouth, NH.
- 2021 Maine Sierra Club Annual Meeting, *Climate change and fisheries in the Gulf of Maine*, **Invited panel speaker** (virtual).

- 2021 Nantucket Science Center (Maria Mitchell Association), *Closing 'Vacationland' to green crabs: Research, monitoring, and collaborative initiatives for a prolific invasive species in the Gulf of Maine*, **Invited speaker** (virtual).
- 2021 U.S. Coastal Research Program (USCRP), *Crustaceans as harbingers of change in the Gulf of Maine*, **Invited speaker** (virtual).
- 2020 *Seacoast Environmental Film Festival, "Lobster Wars"*, **Invited Panel Speaker**, Kittery, ME.
- 2019 *Marine, Coastal & Fisheries Science in the Gulf of Maine Region: Lessons & Opportunities for the Yellow Sea*. Convened by Environmental Defense Fund & University of Maine, Hosted by Friends Forever International, **Invited Speaker**, Durham, NH.
- 2019 U.S. NE Atlantic Biological Observations Workshop NERACOOS. **Invited Session Speaker**, University of New Hampshire, Durham, NH
- 2018 *New Technology for Old Problems – Using DNA Methods to Monitor Invasive Species and Biodiversity in Estuarine Systems*. **Invited Seminar Speaker**, Southern Maine Community College, Portland, ME
- 2016 *Lobsters and their kids 'on the move' in the Gulf of Maine: Applied technology to investigate the American lobster in a changing ecosystem*. **Invited Speaker**, York County Community College, NASA-STEM Seminar Series, Wells, Maine.
- 2016 *Crustaceans in a Changing World: Where behavior meets physiology*. **Invited Speaker**, Wells National Estuarine Reserve at Laudholm Farm, Wells, Maine.
- 2014 Tropical lobster aquaculture: Bridging the gaps and forging new frontiers. **Invited Speaker**, Australian Center for International Agricultural Research, Spiny lobster aquaculture in the Asia Pacific Workshop. Lombok, Indonesia.
- 2013 Biodiversity of selected zooplankton in the coastal Levant: Baselines & indicators for a changing ecosystem. **Invited Speaker**, Eastern Mediterranean Ecosystems Workshop, Israel.
- 2012 Systematics & identification of spiny lobster phyllosomas in waters of the Mesoamerican Reef. **Invited Workshop leader and instructor**, ECOSUR & Chetumal University, Mexico.
- 2012 Careers in Marine Biology: Talk given to UNH Project Connect (minority students).
- 2012 Marine Ecology in the Gulf of Maine Symposium. Bowdoin College, Brunswick, Maine.
- 2012 Connectivity in marine populations. **Guest lecturer** for UNH Biological Oceanography class.
- 2012 *A Lobster State of Mind: Seasonal movements, traps and eggers in the Gulf of Maine*. **Invited Speaker**, Penobscot East Resource Center, Stonington, Maine.
- 2012 *A Tail of Two Lobsters: Seasonal movements and reproduction in American lobsters along coasts and estuaries*. **Invited Speaker**, North and South Rivers Watershed Association, Norwell, Massachusetts.
- 2011 *Lobsters and their kids on the move in the Gulf of Maine*. **Invited Speaker**, New England Aquarium Lowell Lecture Series, Boston, Massachusetts.

2010 *Advances and considerations for tropical spiny lobster culture: Updates from Japan and Florida, USA. Invited Speaker*, Bahamas Lobster Association, Nassau, Bahamas.

COMMUNITY SERVICE

2019- National Estuarine Research Reserve (NERRS) – Ecoacoustics Working Group
 2018- National Estuarine Research Reserve (NERRS) – Ocean Acidification Working Group
 2017- Maine Space Grant Consortium (NASA) – CubeSat Development Committee
 2017- Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) Board Member
 2016- Wells National Estuarine Research Reserve – Dorothy Fish Library Committee
 2014 Conference session organizer and Chair: Lobster Reproduction, Development, and Physiology. The 10th International Conference and Workshop on Lobster Biology and Management, Cancun, Mexico.
 2013 Gundalow Company, Maritime Heritage and Environment: Summer Series Speaker
 2012 Undergraduate Research Conference, University of New Hampshire.
 2011- University of New Hampshire 'Coastal Discovery Day'.
 2011 Conference session organizer and Chair: Lobster Aquaculture. The 9th International Conference and Workshop on Lobster Biology and Management, Bergen, Norway.
 2009 Marine Advanced Technology Education (MATE) Center, consortium partner.
 2010- Scientific Judge, NOAA Ocean Sciences Bowl, University of New Hampshire, Durham.

LEADERSHIP & INTEGRATED ACTIVITIES

- Supervisory and/or mentorship role for over 35 undergraduate and graduate students, 30 volunteers, and several staff.
- International collaborations with lobster researchers from Japan, New Zealand, Brazil, Mexico and Israel on projects where I have been a co-investigator.
- Project collaborations where I have been a co-investigator with individuals from non-profit, for-profit, state, and federal agencies.
- Project leader with strong team ethics on a variety of lab and field projects (as mentioned in work experience descriptions) with budgets and strict deadlines.

SPECIAL TRAINING & CERTIFICATIONS

- DAN First Responder and CPR Certified (updated 2022)
- DAN Oxygen SCUBA Certification (updated 2022)
- Commercial Fishermen Basic Safety Training, U.S. Coast Guard (cert. 2011)
- ASMFC Fisheries Stock Assessment workshop, Virginia Beach, VA. (cert. 2009)
- AAUS SCUBA Certification (cert. 2005)
- SSI Nitrox SCUBA Certification (cert. 2004)
- U.S. Coast Guard Boating Skills and Seamanship Course (cert. 1996)
- PADI Open-water Advanced SCUBA (cert. 1995)