LISA A. KERR

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RESEARCH PROFILE

The overarching goal of my research is to inform progress toward sustainable management of fisheries and ecosystems as a whole. Core objectives underlying my current work include: 1) understanding the influence of climate, harvest, and management on fishery resources, 2) advancing the study of fish population structure and its implications to sustainable management of fishery resources, and 3) applying management strategy evaluation to develop improved approaches to fisheries stock assessment and management.

EDUCATION

Ph.D. – University of Maryland, Chesapeake Biological Laboratory, 2008 Major: Marine, Estuarine, & Environmental Sciences, concentration in Fisheries Science Dissertation: Cause, consequence, and prevalence of spatial structure of white perch (Morone americana) populations in the Chesapeake Bay

M.S. – Moss Landing Marine Laboratories, San Francisco State University, 2003 Major: Marine Science, concentration in Ichthyology Thesis: Bomb radiocarbon in otoliths of yelloweye rockfish (*Sebastes ruberrimus*) as a chronometer for age validation of quillback rockfish (*Sebastes maliger*).

B.S. – *Tufts University*, 1997 Major: Biology Senior thesis: Fitness costs of salinity fluctuation on the marine polychaete, *Capitella* sp. I.

APPOINTMENTS

Senior Research Scientist, Gulf of Maine Research Institute, 2012-present

Adjunct Graduate Faculty, University of Maine, School of Marine Sciences, 2012-present

Adjunct Graduate Faculty, University of Massachusetts Dartmouth, School of Marine Science & Technology, 2012-present

Post-doctoral Researcher/Research Associate, University of Massachusetts Dartmouth, School of Marine Science & Technology 2008-2012

Graduate Student Researcher, University of Maryland Center for Environmental Science, 2004-2008

Research Technician, Moss Landing Marine Laboratories, 2003-2004

Graduate Student Researcher, Moss Landing Marine Laboratories, 2001-2003

Research Assistant, California Sea Grant College Program, 2001-2002

Research Assistant, Pacific States Marine Fishery Commission, 2000-2002

Environmental Scientist/Consultant, All Environmental, Inc., 1999

PUBLICATIONS

Peer-reviewed Publications

- 1. Morse, M.R., Kerr, L.A., Galuardi, B. Cadrin, S. 2020. Performance of stock assessments for mixed-population fisheries: the illustrative case of Atlantic bluefin tuna. ICES Journal of Marine Science. doi:10.1093/icesjms/fsaa082
- 2. Kerr, L.A, Whitener, Z.T., Cadrin, S.X., Morse, M.R., Secor, D.H., Golet. W. 2019. Mixed stock origin of Atlantic bluefin tuna in the U.S. rod and reel fishery (Gulf of Maine) and implications for fisheries management. Fisheries Research. 224. https://doi.org/10.1016/j.fishres.2019.105461
- 3. Cadrin, S.X., Goethel, D.R, Morse, M.R., Fay, G., **Kerr, L. A.** 2019. "So, where do you come from?" the impact of assumed spatial population structure on estimates of recruitment. Fisheries Research. https://doi.org/10.1016/j.fishres.2018.11.030
- 4. Clucas, G., Kerr, L.A., Cadrin, S.X., Sherwood, G.D., Goethel, D. Whitener, Z. Kovach, A. I. 2019. Adaptive Genetic Variation Underlies Biocomplexity of Atlantic Cod in the Gulf of Maine and on Georges Bank. PLOS ONE. https://doi.org/10.1371/journal.pone.0216992
- 5. Guan, L., Chen, Y., Wilson, J.A., Waring, T., Kerr, L., Shan, X. 2019. Ecological and management implications of spatially variable and connected recruitments for a Metapopulation. Canadian Journal of Fisheries and Aquatic Science. 76(6): 937-949.
- Kerr, L.A., Kritzer, J.P., Cadrin, S.X. 2019. Strengths and limitations of Before-After-Control-Impact analysis for testing the effects of marine protected areas on managed populations. ICES Journal of Marine Science. 76(4): 1039-1051.
- 7. Wang, L., Kerr, L.A., Record, N.R., Bridger, E., Tupper, B., Mills, K.E., Armstrong, E.M., Pershing, A.J. 2018. Modeling marine pelagic fish species spatiotemporal distributions utilizing a maximum entropy approach. Fisheries Oceanography. 27(6): 571-586.
- 8. Hidalgo, M., Kaplan, D.M., **Kerr, L.A.**, Watson, J.R., Paris, C.B., and Browman, H.I. Advancing the link between ocean connectivity, ecological function and management challenges. ICES Journal of Marine Science, 74: 1702-1707.
- Kerr, L.A., Hintzen, N.T., Cadrin, S.X., Clausen, L.W., Dickey-Collas, M., Goethel, D.R., Hatfield, E.M.C., Kritzer, J.P., Nash R.D.M. 2016. Lessons learned from practical approaches to reconcile mismatches between biological population structure and stock units of marine fish. ICES Journal of Marine Science DOI: 10.1093/icesjms/fsw188
- Kerr, L.A., Cadrin, S.X., Secor, D.H., Taylor, N.G. 2016. Modeling the implications of stock mixing and life history uncertainty of Atlantic bluefin tuna. Canadian Journal of Fisheries and Aquatic Sciences, DOI: 10.1139/cjfas-2016-0067
- Christiansen, H.M., Campana, S.E., Fisk, A.T., Cliff, G., Wintner, S., Dudley, S.F.J., Kerr, L.A., Hussey, N.E. 2016. Using bomb radiocarbon to estimate age and growth of the white shark, *Carcharodon carcharias*, from the southwestern Indian Ocean. Marine Biology 163: 144. doi:10.1007/s00227-016-2916-9
- 12. Goethel, D.R., Kerr, L.A., Cadrin, S.X. 2016. Incorporating spatial population structure into the assessment-management interface of marine resources. In: Management Science in Fisheries: A Practical Introduction to Simulation-based Methods (Eds. D. Dankle, C.T.T Edwards). Taylor & Francis Group.

- Pershing, A.J., Alexander, M.A., Hernandez, C.M., Kerr, L.A., Le Bris, A. Mills, K.E., Nye J.A., Record, N. R., Scannell, H.A., Scott, J.D., Sherwood, G.D., Thomas, A.C. 2015. Slow Adaptation in the Face of Rapid Warming Leads to the Collapse of Atlantic Cod in the Gulf of Maine. Science. DOI:10.1126/science.aac9819
- 14. Andrews, A.H., **Kerr, L.A**. 2014. Validated age estimates for large white sharks of the northeastern Pacific Ocean: altered perceptions of vertebral growth shed light on complicated bomb Δ^{14} C results. Environmental Biology of Fishes. DOI: 10.1007/s10641-014-0326-8
- 15. Cadrin, S.X., Kerr, L.A., Mariani, S. 2014. Stock Identification: An Overview. *In*: Stock Identification Methods (Eds. S. Cadrin, L. Kerr, S. Mariani). 2nd Edition. Elsevier. 566 pp.
- Cadrin, S.X., Kerr, L.A., Mariani, S. 2014. Interdisciplinary evaluation of spatial population structure for definition of fishery management units. *In*: Stock Identification Methods (Eds. S. Cadrin, L. Kerr, S. Mariani). 2nd Edition. Elsevier. 566 pp.
- 17. Kerr, L.A., Cadrin, S.X., Kovach, A. 2014. Consequences of a mismatch between biological and management units of Atlantic cod off New England. ICES Journal of Marine Science doi:10.1093/icesjms/fsu113
- Kerr, L.A., Campana, S.E. 2014. Chemical composition of fish hard parts as a natural marker of fish stocks. *In*: Stock Identification Methods (Eds. S. Cadrin, L. Kerr, S. Mariani). 2nd Edition. Elsevier. 566 pp.
- 19. Kerr, L.A., Goethel, D.R. 2014. Simulation modeling as a tool for synthesis of stock identification information. *In*: Stock Identification Methods (Eds. S. Cadrin, L. Kerr, S. Mariani). 2nd Edition. Elsevier. 566 pp.
- 20. Zemeckis, D.R., Martins, D., Kerr, L.A., Cadrin, S. X. 2014. Stock identification of Atlantic cod (*Gadus morhua*) in US waters: an interdisciplinary approach. ICES Journal of Marine Science. doi: 10.1093/icesjms/fsu032.
- 21. Kerr, L.A., Secor, D.H. 2012. Partial migration across populations of white perch (*Morone americana*): a flexible life history strategy in a variable estuarine environment. Estuaries and Coasts. 35(1): 227-236.
- 22. Andrews, A.H., Natanson, L.J., Kerr L.A., Burgess, G.H., Cailliet, G.M. 2011. Bomb radiocarbon and tag-recapture dating of sandbar shark (*Carcharbinus plumbeus*). Fishery Bulletin. 109: 454-465.
- 23. Cadrin S.X., Mariani, S., Pampoulie, C., Kerr, L., Reinert J. Stransky, C. 2011 Counter-comment on: Cadrin et al. 2010. Population structure of beaked redfish, *Sebastes mentella*: evidence of divergence associated with different habitats. ICES Journal of Marine Science. 68(10): 2016-2018.
- Cadrin S.X., Bernreuther, M., Daníelsdóttir, A.K., Hjörleifsson, E., Johansen, T., Kerr, L., Kristinsson, K., Mariani, S., Nedreaas, K., Pampoulie, C., Planque, B., Reinert, J., Saborido-Rey, F., Sigurdsson, T., C Stransky, C. 2010 Population Structure of beaked redfish, *Sebastes mentella*: evidence of divergence associated with different habitats. ICES Journal of Marine Science 67: 1617-1630.
- 25. Kerr, L.A., Cadrin, S.X., Secor, D.H. 2010. Simulation modeling as a tool for examining the consequences of spatial structure and connectivity to local and regional population dynamics. ICES Journal of Marine Science. 67(8): 1631-1639.

- 26. Kerr, L.A., Cadrin, S.X., Secor, D.H. 2010. The role of spatial dynamics in the stability, resilience, and productivity of an estuarine fish population. Ecological Applications. 20(2): 497-507.
- 27. Kerr, L.A., Secor, D.H. 2010. Latent effects of early life history on partial migration for an estuarinedependent fish. Environmental Biology of Fishes. 89: 479-492.
- Runge, J., Kovach, A., Churchill, J., Kerr, L., et al. 2010. Understanding Climate Impacts on Recruitment and Spatial Dynamics of Atlantic Cod in the Gulf of Maine: Integration of Observations and Modeling. Progress in Oceanography. 87(1-4): 251-263.
- 29. Kerr, L., Connelly W., Martino, E., Peer, A., Woodland, R. 2009. Climate change in the US Atlantic affecting recreational fisheries. Reviews in Fisheries Science. 17(2): 267-289.
- Kerr, L.A., Secor, D.H. 2009. Bioenergetic trajectories underlying partial migration in Patuxent River (Chesapeake Bay) white perch (*Morone americana*). Canadian Journal Fisheries and Aquatic Science. 66(4): 602-612.
- 31. Kerr, L.A., Secor, D.H., Piccoli, P. 2009. Partial migration of fishes as exemplified by the estuarinedependent white perch. Fisheries. 34(3): 114-123.
- 32. Secor, D.H., Kerr L.A. 2009. A lexicon of life cycle diversity in diadromous and other fishes. In: Haro, A. J., K.L. Smith, R.A. Rulifson, C.M. Moffitt, R.J. Klauda, M.J. Dadswell, R.A. Cunjak, J.E. Cooper, K.L. Beal, and T.S. Avery, editors. 2009. Challenges for Diadromous Fishes in a Dynamic Global Environment. American Fisheries Society Symposium 69: 537-556.
- 33. Secor, D.H., Kerr, L.A, Cadrin, S.X. 2009. Connectivity effects on productivity, stability, and response diversity in an Atlantic herring metapopulation. ICES Journal of Marine Science. 66: 1726-1732.
- Kerr, L.A., Secor, D.H., Kraus, R.T. 2007. Stable isotope (δ¹³C and δ¹⁸O) composition of otoliths as a proxy for environmental salinity experienced by an estuarine fish. Marine Ecology Progress Series. 348: 245-253.
- 35. Andrews, A.H., **Kerr, L.A.,** Cailliet, G.M., Lundstrom, C.C., Brown, T.A., and Coale, K.H. 2007. Age validation of the canary rockfish (*Sebastes pinniger*) from the northeastern Pacific Ocean using ²¹⁰Pb:²²⁶Ra disequilibria and bomb ¹⁴C. Marine and Freshwater Research. 58(6): 531-541.
- Ardizzone, D., Cailliet G.M., Natanson, L.J., Andrews, A.H., Kerr, L.A., Brown, T.A. 2006. Application of bomb radiocarbon chronologies to shortfin mako (*Isurus oxyrinc*hus) age validation. Environmental Biology of Fishes. 77: 355-366.
- 37. **Kerr, L.A.,** Andrews, A.H., Cailliet, G.M., Brown, T.A., Coale K.H. 2006. Investigations of Δ^{14} C, δ^{13} C, and δ^{15} N in vertebrae of white shark (*Carcharodon carcharias*) from the eastern North Pacific Ocean. Environmental Biology of Fishes. 77: 337-353.
- Andrews, A.H., Burton, E.J., Kerr, L.A., Cailliet, G.M, Coale, K.H., Lundstrom, C.C., DeVogelaere, A.P. 2005. Bomb radiocarbon and lead-radium disequilibria in otoliths of bocaccio rockfish (*Sebastes paucispinis*): a determination of age and longevity for a difficult-to-age fish. Marine and Freshwater Research. 56: 517-528.
- Andrews, A.H., Cailliet, G.M, Kerr, L.A., Coale, K.H., Lundstrom, C.C., DeVogelaere, A.P. 2005. Determining the age and growth of three species of deep-sea coral from the Davidson Seamount off central California. *In*: Cold-water Corals and Ecosystems. A. Freiwald and J.M. Roberts eds. pp. 965-982.

- 40. Kerr, L.A., Andrews, A.H., Munk, K., Coale, K.H., Frantz, B.R., Cailliet G.M., Brown, T.A. 2005. Age validation of quillback rockfish (*Sebastes maliger*) using bomb radiocarbon. Fishery Bulletin. 103: 97-107.
- 41. Kerr, L.A., Andrews, A.H., Frantz, B.R., Coale, K.H., Brown, T.A., Cailliet G.M. 2004. Radiocarbon in otoliths of yelloweye rockfish *(Sebastes ruberrimus)*: a reference time series for the coastal waters of southeast Alaska. Canadian Journal of Fisheries and Aquatic Science. 61: 443-451.
- 42. Peckenik, J., Berard, R., **Kerr, L.A.** 2000. Effects of reduced salinity on survival, growth, reproductive success, and energetics of the euryhaline polychaete *Capitella* sp. I. Journal of Experimental Marine Biology and Ecology. 254(1): 19-35.

Technical Reports

- Kerr L.A., Weston A.E., Mazur, M.D., Cadrin S.X. 2020. Evaluating the Impact of Inaccurate Catch Information on New England Groundfish Management. Report to the New England Fishery Management Council. https://s3.amazonaws.com/nefmc.org/2.-Report_-Eval_of_Inaccurate-Catch_7.15.20.pdf
- McBride, R. and Smedbol, K. 2020. An Interdisciplinary Review of Atlantic Cod (Gadus morhua) Stock Structure in the Western North Atlantic Ocean. NOAA Technical Memorandum. https://s3.amazonaws.com/nefmc.org/9C_Interdisciplinary-Review-of-Atlantic-Cod-Stock-Structure_200505_090723.pdf
- 3. Hansell, A., Walter, J., Cadrin, S., Golet, W., Hanke, A., Lauretta, M., and **Kerr, L.** 2020.Incorporating the Atlantic multidecadal oscillation into the Western Atlantic bluefin tuna stock assessment. ICCAT SCRS/2020/071
- 4. ICES. 2020. Report of the Stock Identification Methods Working Group (SIMWG). ICES Scientific Reports. 2:94. 32 pp. http://doi.org/10.17895/ices.pub.7485
- 5. ICES. 2019. Report of the Stock Identification Methods Working Group (SIMWG), 7–8 August 2018, Portland, USA. ICES CM 2019.
- 6. Cadrin, S.X., **Kerr, L.A.**, Weston, A.E. Golet, W. 2019. Engagement of U.S. Stakeholders in Management Strategy Evaluation of Atlantic Bluefin Tuna Fisheries ICCAT SCRS/2019/126.
- 7. Weston, A.E. **Kerr, L.A.**, Cadrin, S.X., Morse, M.R., 2019. Performance of an F_{0.1} management procedure using alternative operating models. ICCAT SCRS/2019/127.
- McNamee, J., Holland, D. Kerr, L. Uchida, H. 2019. New England Fishery Management Council: Peer Review Report for the Groundfish Plan Development Team Analyses of Groundfish Monitoring. https://s3.amazonaws.com/nefmc.org/4.-190513_SSC_Sub_Panel_Peer-Review-Report_OEMethods_FINAL.pdf
- 9. Morse, M.R., **Kerr, L.A.**, and Cadrin, S.X. 2019. Evaluation of an F_{0.1} management procedure using an alternative management strategy evaluation framework for Atlantic bluefin tuna. ICCAT SCRS/2019/017.
- 10. ICES. 2018. Interim Report of the Stock Identification Methods Working Group (SIMWG), 7–8 August 2018, Portland, USA. ICES CM 2018/HAPISG:14. 46 pp.

- 11. Kerr, L. A. 2018. New England Fishery Management Council: External peer review of ecosystem-based fishery management strategy https://www.nefsc.noaa.gov/program_review/2018-review-ebfm/docs/reviewer-reports/final-summary-report.pdf
- 12. Kerr, L.A., Morse, M.R., Cadrin, S.X., and Galuardi, B. 2018. Application of an Atlantic bluefin tuna operating model to generate pseudodata for stock assessment testing. ICCAT Collect. Vol. Sci. Pap. 74(6): 3405-3426.
- 13. Kerr, L., G. Fay, D. Lipton, and J. Wiedenmann. 2017. External peer review of Atlantic herring management strategy evaluation. Report to the New England Fishery Management Council. 42 pp. http://s3.amazonaws.com/nefmc.org/Final-Peer-review-report.pdf
- 14. Cadrin, S., Morse, M., **Kerr, L**. Secor, D., and Siskey, M. 2017. Exploratory stock assessment of eastern and western population-of-origin Atlantic bluefin tuna accounting for stock composition. ICCAT Col Vol. Sci. Pap. Vol. 74. SCRS 2017/174.
- 15. Morse, M., Cadrin, S., **Kerr, L.**, Secor, D., Siskey, M. Arrizabalaga, H. Hanke, A., and Porch, C. 2017. An updated analysis of bluefin tuna stock mixing. ICCAT Col Vol. Sci. Pap. Vol. 74. SCRS 2017/190.
- Kerr, L., Morse, M., Cadrin, S, and Galuardi B. 2017. Application of an Atlantic bluefin tuna operating model to generate psuedodata for stock assessment testing. ICCAT Col Vol. Sci. Pap. Vol. 74. SCRS 2017/170.
- 17. Morse, M., Kerr, L., and Cadrin, S. 2017. Simulation virtual population analysis of mixed Atlantic bluefin tuna stocks. ICCAT Col Vol. Sci. Pap. Vol. 74. SCRS 2017/178.
- 18. ICES 2017. Interim Report of the Stock Identification Methods Working Group (SIMWG), By correspondence. ICES CM 2017/SSGEPI:14. https://archimer.ifremer.fr/doc/00396/50716/
- 19. SEDAR 50 Stock ID Work Group. 2016. Recommendations from the SEDAR 50 (Blueline Tilefish) Stock ID Work Group Meeting. SEDAR50-DW12. SEDAR, North Charleston, SC. 40 pp.
- ICES. 2016. Report of the Stock Identification Methods Working Group (SIMWG). ICES CM 2016/ SSGEPI:16. 49 pp.
- 21. ICES. 2015. Report of the Stock Identification Methods Working Group (SIMWG). ICES CM 2015/SSGEPI:13. 67 pp.
- 22. ICES. 2014. Report of the Stock Identification Methods Working Group (SIMWG). ICES CM 2014/SSGSUE:02. 31 pp.
- 23. Galuardi, B., Cadrin, S.X., Kerr, L.A., Miller, T.J., Lutcavage, M. 2014. Using electronic tag data to provide transition matrices for movement inclusive population models. ICCAT SCRS/2014/177, Madrid.
- 24. Kerr, L.A., Cadrin, S.X., Secor, D.H., Taylor, N. 2014. Evaluating the effect of Atlantic bluefin tuna movement on the perception of stock units ICCAT SCRS/2014/170, Madrid.
- 25. Pershing, A.J., Annala, J.H., Eayrs, S., Golet, W., Kerr, L.A., Labaree, J., Mills, K.E., Runge, J.A., Sherwood, G.D., Sun, J.C., Tallack Caporossi, S. 2013. Future of cod in the Gulf of Maine. http://www.gmri.org/resources/resource-archive/future-cod-gulf-maine

- 26. Kerr, L.A., Cadrin, S.X., Secor, D.H., Taylor, N. 2012. A simulation tool to evaluate effects of mixing between Atlantic bluefin tuna stocks. ICCAT SCRS/2012/138, Madrid.
- 27. Annala, J. and others. 2012. Report of the workshop on stock structure of Atlantic cod in the Gulf of Maine region. June 12-14, 2012, Portsmouth, NH.
- 28. ICES. 2011. Report of the workshop on the implications of stock structure (WKISS), April 5-7, 2011, ICES Headquarters, Copenhagen. ICES CM 2011/SSGSUE:03. 53 pp.
- ICES. 2011. Annex 11: Technical minutes of the Arctic and North-Western Review Group (RGANW) 2011. In: Report of the Arctic Fisheries Working Group (AFWG), 28 April - 4 May 2011, Hamburg, Germany. ICES CM 2011/ACOM:05. 659 pp
- ICES. 2011. Annex 5: Technical minutes of the Arctic and North-Western Review Group (RGANW). In: Report of the North-Western Working Group (NWWG), April 26-May 3 2011, ICES Headquarters, Copenhagen. ICES CM 2011/ACOM:7. 975 pp.
- 31. ICES. 2009. Report of the workshop on redfish stock structure (WKREDS). ICES CM 2009/ACOM: 37.
- 32. Kerr, L.A., Secor, D.H. 2009b. Demographic reference points for white perch in Chesapeake Bay. Report submitted to NOAA (NA07NMF4570331).
- 33. Connelly W., Kerr, L., Martino, E., Peer, A., Woodland, R. 2007. Climate and saltwater sport fisheries: prognosis for change. Report submitted to the FishAmerica Foundation (FAF-6093R).
- 34. Starr, R.M., Cope, J.C., Kerr, L.A. 2002. Trends in fisheries and fishery resources associated with the Monterey Bay National Marine Sanctuary from 1981-2000. 2nd Edition. California Sea Grant College System, La Jolla, CA. 156 pp.
- 35. Cailliet, G.M., Burton, E.J., Cope, J.M., **Kerr, L.A.** 2000. Biological characteristics of nearshore fishes of California. Report submitted to the Pacific State Marine Fisheries Commission. Available on CD or at http://www.dfg.ca.gov/mrd/lifehistories/

GRANTSMANSHIP

Pending Support

- 1. Bluefin Tuna Research Program: Incorporating the influence of ocean climate conditions into the western Atlantic bluefin tuna stock assessment. (Kerr PI, \$142,486, 9/1/2021-8/31/2022)
- 2. Bluefin Tuna Research Program: Development of age structured assessment program Applications for Atlantic Bluefin: Tuna. (Kerr coPI, \$98,981, 9/1/2021-8/31/2020)
- 3. Bluefin Tuna Research Program: Age, Growth, and Stock of Origin for Western Atlantic Bluefin Tuna. (Kerr coPI, \$276,721, 9/1/2021-8/31/2022)

Current and Past Support

1. New England Fishery Management Council (FNA20NMF4410001): Evaluation of Alternative Harvest Control Rules for New England Groundfish. (Kerr PI, \$76,676, 6/1/2020-02/15/2021)

- 2. New England Fishery Management Council (NA10NMF4410007): Evaluating the Impact of Inaccurate Catch Information on Groundfish Management. (Kerr PI, \$39,374, 9/1/2019- 08/31/2020)
- 3. NOAA Coastal and Ocean Climate Applications: Northeast climate integrated modeling to meet ocean decision challenges (Kerr PI, \$1,274,908, 9/1/2020-8/30/23)
- 4. NSF Convergence Accelerator Program (1936950). Convergence Research to meet Ocean Decision Challenges. (Kerr PI, \$1,000,000, 9/1/19-5/31/20)
- NOAA Coastal and Ocean Climate Applications (NA19OAR4310385): Stakeholder engagement in management strategy evaluation of New England groundfish in a changing ocean (Kerr PI, \$170,582, 9/1/19-8/30/21)
- NOAA Coastal and Ocean Climate Applications (NA17OAR4310272): Evaluating the Performance of Northeast Groundfish Fisheries Management in a Changing Climate. (Kerr PI, \$1,122,313, 7/1/2/17-6/30/20)
- 7. NOAA Bluefin Tuna Research Program (NA19NMF4720096): Spatio-temporal associations of western bluefin tuna indices of abundance with ocean climate conditions. (Kerr PI, \$155,258, 9/1/19-8/31/20)
- 8. NOAA Saltonstall Kennedy Program (NA17NMF4270213): Addressing the issue of "choke" species in a changing climate. (Kerr PI, \$ 288,888, 9/1/17-8/31/20)
- Maine Seagrant: Understanding climate impacts on the Maine coastal fish and invertebrate community through synthesis of the Maine-New Hampshire Inshore Trawl Survey. (Kerr PI, \$149,943, 02/01/18-01/31/20)
- Lenfest: Assessing Allocation Strategies for Fisheries Affected by Climate Change (Kerr coPI, \$296,200, 9/18-8/21)
- 11. NOAA Bluefin Tuna Research Program (NA18NMF4720045): Stakeholder engagement in management strategy evaluation of Atlantic bluefin tuna fisheries. (Kerr coPI, \$141,143, 9/1/18-8/31/20)
- 12. NOAA Bluefin Tuna Research : Evaluating Age Structure, Aging Bias and Mixed Stock Composition of Atlantic Bluefin Tuna in the Northwest Atlantic. (\$232,349, 9/1/19-8/31/20)
- NOAA Bluefin Tuna Research Program (NA17NMF4720151): Evaluating the performance of alternative assessment and management procedures of mixed Atlantic bluefin tuna stocks. (Kerr coPI, \$142,425, 9/1/17-8/31/19)
- NOAA Bluefin Tuna Research Program (NA17NMF4720153): The Use of Biological Samples to Refine Estimates of Age, Growth, and Stock Mixing for Atlantic Bluefin Tuna in the NW Atlantic. (\$208,578, 9/1/17-8/31/19)
- 15. NOAA Bluefin Tuna Research Program: Operational use of otolith chemistry to inform stock assessment and forward projections Atlantic bluefin tuna populations (\$154,268, Kerr PI, 9/1/2015-8/31/2016)
- 16. NOAA Saltonstall-Kennedy Program: Do closed areas promote healthy age structures in New England groundfish? (Kerr co-PI, \$236,198, 6/1/2015-5/31/2017)

- 17. NASA (NNX16AG59G): Incorporating marine and coastal phenology into the National Climate Assessment. (Kerr co-PI \$598,289, 9/1/16-8/31/19)
- NOAA Bluefin Tuna Research Program (NA14NMF4720085): Incorporation of stock mixing in the assessment and forward projection of Atlantic bluefin tuna populations (Kerr PI, \$151,334, 9/1/2014-8/31/2015)
- 19. NOAA Saltonstall-Kennedy Program (NA14NMF4270014): Ecological diversity of Atlantic cod in the Gulf of Maine and its role in resiliency of a fishery (Kerr PI, \$332,741, 9/1/2014-8/31/2016)
- 20. NASA-EPSCoR Program (EP-15-03): Earth system data solutions for detecting and adapting to climate change in the Gulf of Maine (Kerr co-PI, \$749,794, 9/1/2014-8/31/2017)
- NOAA Bluefin Tuna Research Program (NA13NMF4720059): Age-structured simulation model of stock mixing for US Atlantic bluefin tuna populations: historical stock composition, changing demographic states, and influence on management advice (Kerr co-PI, \$132,903, 9/1/13-8/31/15)
- 22. National Fish and Wildlife Foundation (10-MASS-12): Identification and modeling of alewife stock structure (Kerr PI, \$137,178, 11/01/2012 08/31/2014)
- 23. Davis Conservation Foundation: Identification and modeling of alewife stock structure (Kerr PI, \$10,000, 5/1/2013-4/30/2014)
- 24. Margaret Burnham Foundation: Identification and modeling of alewife stock structure (Kerr PI, \$12,925, 2013-2014)
- 25. Curtis and Edith Munson Foundation: Identification and modeling of alewife stock structure (Kerr PI, \$15,000, 3/2013-3/2014)
- 26. Environmental Defense Fund: Evaluating the effectiveness of groundfish closed areas (Kerr co-PI, \$50,000, 6/1/2001-3/31/2011)
- 27. NOAA Chesapeake Bay Office (NA07NMF4570331): Demographic reference points for white perch in Chesapeake Bay (Kerr co-PI, \$33,870, 01/1/08-12/31/08)
- California Sea Grant (R/F-190): Bomb carbon in the yelloweye rockfish, Sebastes ruberrimus, as a chronological benchmark for age validation of commercially important fishes. (\$149,142, Kerr Sea Grant Student Trainee, 3/1/2002-2/28/2004)
- 29. Center for Accelerator Mass Spectrometry at Lawrence Livermore National Laboratory: Bomb carbon in the yelloweye rockfish, *Sebastes ruberrimus*, as a chronological benchmark for age validation of commercially important fishes. (Kerr PI, \$50,000, 2002-2004)
- 30. Packard Foundation: Bomb radiocarbon age validation of commercially important rockfishes. (Kerr PI, \$1,000, 2002)
- 31. San Francisco State University Project Scholarship: Bomb carbon in the yelloweye rockfish, *Sebastes ruberrimus*, as a chronological benchmark for age validation of commercially important fishes. (Kerr PI, \$1,000, 2001)

- 32. Dr. Earl H. Myers & Ethel Myers Oceanographic and Marine Biology Trust: Bomb carbon in deep-water corals as chronological benchmarks for age validation of commercially important deep-water fishes. (Kerr PI, \$1,000, 2001)
- 33. Project Aware: Bomb carbon in the yelloweye rockfish, *Sebastes ruberrimus*, as a chronological benchmark for age validation of commercially important fishes. (Kerr PI, \$1,000, 2001)

CONFERENCE PRESENTATIONS AND INVITED SEMINARS

Climate Challenges to Fisheries Management in a Rapidly Changing Ecosystem. Oral presentation at Southern New England AFS Annual Meeting. Keynote speaker (January 2020)

Addressing the impact of climate change on "choke" species issues in a multispecies fishery Oral presentation and symposium organized at the Annual ICES conference (Gothenburg Sweden, September 2019).

Origin of Atlantic bluefin tuna in the U.S. rod and reel fishery and application of mixed stock information to fisheries management. Oral presentation and symposium organized at the Annual ICES conference (Gothenburg Sweden, September 2019).

Climate Challenges to Fisheries Management in a Rapidly Changing Ecosystem. Oral presentation given at IMBeR Open Science Conference (June 2019, Brest, France)

Drivers of change in Gulf of Maine ecosystems. Oral presentation at 2019 RARGOM Annual Science Meeting (October 2019, Portland, Maine) **Keynote speaker**.

Monsters of Climate Change Symposium, Oral presentation at American Fisheries Society meeting (August 2018, Atlantic City, NJ) Invited Speaker.

Climate Challenges to Fisheries Management in a Rapidly Changing Ecosystem. Oral presentation given at ICES/PICES Effects of Climate Change on the Worlds Oceans (June 2018 Washington, DC)

Incorporating Mixed Stock Information into Assessment and Management. Oral presentation at CAPAM workshop on Spatial Stock Assessment Models (October 2018, San Diego, CA) **Invited speaker**.

Incorporating Mixing into Atlantic Bluefin Tuna Assessments. Oral presentation at the U.S. ICCAT Advisory Committee, Atlantic Bluefin Tuna Workshop (March 2017, Fort Lauderdale FL)

Application of an Atlantic bluefin tuna operating model to generate pseudodata for stock assessment testing. Oral presentation at ICCAT meeting (July 2017, Madrid, Spain).

Biocomplexity of Atlantic cod in the Gulf of Maine and its role in resiliency of a fishery. Oral presentation at the Annual ICES conference (September 2017, Ft. Lauderdale, FL).

Reconstructing growth and environmental histories of Atlantic cod in the Gulf of Maine. Oral presentation and symposium organizer at the American Fisheries Society meeting (August 2017, Tampa, FL).

Modeling the implications of stock mixing and life history uncertainty and Atlantic bluefin tuna. Oral presentation at the IMBeR IMBIZO workshop (October 2017, Woods Hole, MA).

Ecological diversity of Atlantic cod in the Gulf of Maine. Oral presentation at the Annual Benthic Ecology meeting (March 2016, Portland, Maine).

Reconstructing environmental histories of Atlantic cod in the Gulf of Maine. Oral presentation at the International Sclerochrology Conference (Portland, Maine, June 2016).

Incorporating stock mixing into the assessment and long-term expectations of Atlantic bluefin tuna. Oral presentation at ICAAT Science Committee of Research and Statistics Species Group Meeting (July 2016, Madrid, Spain)

Invited speaker at Bates College, Bowdoin College, University of New Hampshire (Spring 2016)

Incorporating stock mixing in the assessment and long-term expectations of Atlantic bluefin tuna. Oral presentation at the annual AFS meeting (Portland, Oregon, August 2015)

Invited speaker at Virginia Institute of Marine Science Seminar Series (Dec 2015)

A conceptual framework for understanding the implications of and potential solutions for mismatches in scale of biological population structure and stock units. Oral presentation at the Annual ICES conference (September 2015, Copenhagen, Denmark)

Understanding fish population structure: a key to sustainable fishery management. Oral presentation at Southern Maine Community College Biology Department (December 2014): **Invited Speaker**

Evaluating the Impacts of Movement of Atlantic Bluefin Tuna on the Perception of Stock Units ICAAT Science Committee of Research and Statistics Species Group Meeting (September 2014, Madrid Spain).

Invited speaker at UMass Dartmouth SMAST Seminar Series (April 2014)

Identification of Alewife Stock Structure in the Gulf of Maine Using Otolith Microstructure. Oral presentation at AFS Annual Meeting (August 2014).

Evaluating the Effect of Atlantic Bluefin Tuna Movement on the Perception of Stock Units. Oral presentation at AFS Annual Meeting (August 2014), University of Maine School of Marine Science Seminar Series (October 2014): **Invited Speaker**.

Snap-a-Striper. Oral presentation at Coastal Conservation Association of Maine Annual Meeting (February 2014): Invited Speaker.

Evaluating the effects of mixing rates between Atlantic bluefin tuna stocks using simulation. Oral presentation at World Conference on Stock Assessment Methods (July 2013, Boston MA)

Evaluating the effects of mixing rates between Atlantic bluefin tuna stocks using simulation. Oral presentation at ICCAT Meeting on Bluefin Tuna Stock Assessment Methods (July 2013, Gloucester MA): Invited Speaker.

Evaluating the Impact of Closed Areas in the Gulf of Maine and Georges Bank on Groundfish Productivity. Oral presentation to NEFMC Groundfish PDT (February 27, 2012). **Invited Speaker.**

Consequences of a mismatch between biological and management units of Atlantic cod in U.S. waters. Oral presentation at Gadoid Fisheries Symposium (October 15-18, 2013), and World Biodiversity Conference (September 26-20, 2011).

Linkages between Habitats, Metapopulations, Communities and Ecosystem-based management. Oral presentation at ICES Working Group on the Northwest Atlantic Regional Sea (WGNARS) Meeting (March 6-8, 2012, Woods Hole, MA): **Invited Speaker**.

Consequences of a spatial mismatch of biological and management units of Atlantic cod in U.S. waters. Oral presentation at World Fisheries Congress (May 7-11, 2012, Aberdeen, Scotland)

Impact of alternative stock structure assumptions on the perception of stock status and yield of Atlantic cod. Oral presentation at Cod Stock Structure Workshop (June 12-14, 2012): **Invited Speaker**.

Oh my cod! The extraordinary life and times of cod in New England, Keynote Speaker at High School Marine Science Symposium: (March 16, 2011): Invited Speaker.

Consequences of spatial structure and connectivity to productivity and persistence of local and regional populations. Oral presentation at ICES Annual Science Conference (September 21-25, 2009).

Partial migration of fishes as exemplified by the estuarine-dependent white perch. Oral presentation at 4th International Otolith Symposium (August 23-28, 2009).

Stock composition of Atlantic cod (*Gadus morhua*) using otolith chemistry. Poster presented at Exploring Fine-scale Ecology for Groundfish in the Gulf of Maine and Georges Bank Meeting (April 2-3, 2009).

The role of spatial dynamics in the stability, resilience, and productivity of fish populations: An evaluation based on white perch (*Morone americana*) in the Chesapeake Bay. Oral presentation at Mote International Symposium in Fisheries Ecology (Nov. 11-13, 2008) and Tidewater Chapter American Fisheries Society Annual Meeting (March 6-8, 2008).

Partial migration of an estuarine fish. Oral presentation at University of Massachusetts, Dartmouth, School for Marine Science and Technology Seminar Series (Nov 9, 2007): **Invited Speaker**; University of Maryland, Marine, Estuarine, and Environmental Science Colloquium (Oct 6, 2007): **Invited Speaker**; and Northeast Fishery Science Center Seminar Series (June 29, 2007): **Invited Speaker**.

Application of the nursery-role hypothesis to five sub-populations of white perch (*Morone americana*) in the Chesapeake Bay. Oral presentation at Estuarine Research Federation Meeting. (Nov 4-8, 2007): Invited Speaker.

Retrospective analysis of juvenile habitat use across populations of white perch (*Morone americana*) in the Chesapeake Bay. Oral presentation at American Fisheries Society Annual Meeting (Sept 2-6, 2007).

Bioenergetic implications of alternative habitat use by juvenile white perch (*Morone americana*) within an estuarine environment. Oral presentation at Mote International Symposium in Fisheries Ecology (Nov 14-16, 2006).

Measurements of δ^{18} O and δ^{13} C in otoliths as a tool in identifying divergent spatial behavior of white perch (*Morone americana*) in the Patuxent River Estuary, Maryland. Oral presentation at Tidewater Chapter American Fisheries Society Annual Meeting (Jan 26-28, 2006).

The effect of salinity on δ^{18} O and δ^{13} C values in otoliths of white perch (*Morone americana*) in the Patuxent River Estuary, Maryland. Oral presentation at American Fisheries Society Annual Meeting (Sept 11-15, 2005).

Investigations of Δ^{14} C, δ^{13} C, and δ^{15} N in the white shark (*Carcharodon carcharias*) from the eastern Pacific Ocean. Oral presentation at Third International Symposium on Fish Otolith Research and Application (July

11-16, 2004) and Age and Growth of Chondrichthyan Fishes Symposium at the Annual Meeting of American Society of Ichthyologists and Herpetologists (July 6-11, 2005): **Invited Speaker**.

Radiocarbon in otoliths of yelloweye rockfish (*Sebastes ruberrimus*) as a chronometer for age validation of quillback rockfish (*Sebastes maliger*). Oral presentation at Annual Meeting of the Western Division and California-Nevada Chapter of the American Fisheries Society (April 14-17, 2003) and Annual Meeting of American Society of Ichthyologists and Herpetologists (June 26-July 1, 2003).

Radiocarbon in otoliths of yelloweye rockfish (*Sebastes ruberrimus*). A unique chronometer for the waters of southeast Alaska. Oral presentation at California and the World Ocean conference, Sea Grant Graduate Researcher Symposium (Oct 27-30, 2002).

Bomb carbon in the yelloweye rockfish, *Sebastes ruberrimus*, as a chronological benchmark for age validation of commercially important fishes. Poster presented at Western Groundfish Conference (Feb 12-14, 2002), Annual Meeting of American Society of Ichthyologists and Herpetologists (July 3-8, 2002), San Jose State University Exhibition of Excellence (Oct 25, 2002), and Monterey Bay National Marine Sanctuary Symposium (Mar 15, 2003).

SCIENCE SYMPOSIA

Organizer of Annual ICES conference Symposium: Management objectives, trade-offs and strategies in a changing ocean. (Gothenburg Sweden, September 2019).

Organizer of Annual ICES conference Symposium: Integrating information on population structure and migration into fisheries stock assessment and management. (Gothenburg Sweden, September 2019).

Symposium organizer at the American Fisheries Society meeting: Understanding Impacts of Climate Change on Fish and Fisheries (Tampa, FL, August 2017).

Organizer of Annual ICES conference Symposium: Beyond ocean connectivity: embracing advances on early life stages and adult connectivity to assessment and management challenge (Copenhagen, Denmark, September 2015)

Organizer of Annual ICES conference Symposium: Examining the implications of complex population structure on fish resources, fisheries, assessment, and management (Copenhagen, Denmark, 2012)

Organizer of World Fisheries Conference Symposium: Spatial scales in the structure and management of fisheries resources (Aberdeen, Scotland, 2012)

STAKEHOLDER ENGAGEMENT

New England Fishery Management Council Groundfish Plan Development Team and Groundfish Committee meetings. This series of meetings was aimed at soliciting input on groundfish management strategy evaluation (Presenter, Target audience: fishery managers and fishing industry, 2019-2020)

Maine Fishermen's Forum: An Introduction to Management Strategy Evaluation: A Bridge, Not a Trap (Panelist, Target audience: fishing industry, March 2020)

Maine Fishermen's Forum: Reconsideration of Atlantic Cod Stock Structure in U.S. Waters (Panelist, Target audience: fishing industry, March 2020)

Fisheries Convening Workshop: Assessing Opportunities and Risks in Fisheries (Organizer and Presenter, Target audience: fishing industry, January 2020)

Trawl to Table: Climate Impacts workshop (Organizer and Presenter, Target Audience: seafood supply chain, November 2019)

Atlantic Bluefin Tuna Management Strategy Evaluation Workshop (Organizer and Presenter, Target audience: fishing industry, April 2019)

Cod Population Structure Symposium I and II: Building a Shared Vision of Atlantic Cod Population Structure and New England Fisheries (Presenter and Panelist, Target audience: fishing industry, June 2018 and June 2019)

Management Strategy Evaluation: An Approach for Improved Fisheries Management Marine Resource Education Program (Presenter, Target audience: fishing industry, 2018)

Groundfish Trawl Task Force (Member, Target audience: fishing industry and academic collaboration, 2016-2020)

GMRI Fish Tank Regional Workshops (Presenter, Target audience: fishing industry, 2015)

Snap-a-striper program. Data collection initiative with recreational anglers and the Coastal Conservation Association of Maine. https://www.gmri.org/projects/snap-striper/ (2014-present)

SERVICE

Vice Chair, New England Fisheries Management Council Science and Statistical Committee, 2015-present.

New England Fishery Management Council-Management Strategy Steering Committee for Ecosystem based fisheries management, 2019-present.

NOAA Atlantic cod stock structure working group, 2017-present.

Chair of ICES Stock Identification Working Group, 2013-2020.

U.S. Delegate to International Commission for Conservation of Atlantic Tunas Meetings, 2013- present.

Massachusetts Marine Fisheries Institute Advisory Council Member, 2018-present.

Regional Cod Stock Assessment Working Group member, 2016-2020.

River Herring Technical Expert Working Group, member, 2014-2017.

Wells National Estuarine Research Reserve Research Advisory Committee, 2017-present.

Seminar Series Organizer for Gulf of Maine Research Institute, 2017-2019.

SEDAR Blueline Tilefish stock structure review panelist, 2016.

Co-Chair of ICES Review Group for Artic and North-Western Stocks, 2011.

Co-Chair of ICES Workshop on the Implications of Stock Structure (WKISS), 2011.

Reviewer for ICES stock assessments, NOAA Fisheries and the Environment Program Proposals, Virginia Sea Grant Proposal Review Panel, Canadian Journal of Fisheries and Aquatic Sciences, Ecological Applications, Marine Ecology Progress Series, Marine Biology, Estuarine, Coastal, and Shelf Science, Fishery Bulletin, Fisheries Oceanography, Environmental Biology of Fishes, Transactions of the American Fisheries Society, and ICES Journal of Marine Science.

Vote Auditor for the American Fisheries Society, 2008-2017.

Seminar Series Organizer for Department of Fisheries Oceanography, UMass Dartmouth, 2009 & 2010.

AFS Northeastern Division Representative for the Executive Committee of the Education Section, 2010.

President of University of Maryland American Fisheries Society Student Subunit, 2005-2007.

Organizer of Graduate Student Skills Workshop at Chesapeake Biological Laboratory. 2007.

Participant in Snowbird Charrette in Environmental Research Design, 2006.

Mentor in NSF Research Experiences for Undergraduates Program, Summer 2005 & 2007.

Chesapeake Biological Laboratory tour guide/outreach educator, 2005-2007. Treasurer of Moss Landing Marine Laboratories Student Body, 2000-2001. Seminar Series Organizer, Moss Landing Marine Laboratories, 2000-2001. LORAX Environmental Education Program Educator, Tufts University, 1997.

TEACHING

Contributing Lecturer: Fisheries Oceanography course, University of Maine, 2015 Instructor: R Training short course, Gulf of Maine Research Institute, 2014 Contributing Lecturer: Stock Assessment course, University of Massachusetts Dartmouth, 2012 Contributing Lecturer: Scientific Writing course, University of Massachusetts Dartmouth, 2011 Contributing Lecturer: Stock Identification course, University of Massachusetts Dartmouth, 2010 Instructor: Ecological Modeling Course, University of Massachusetts Dartmouth, 2009 Teaching Assistant: Fish Biology Course, Chesapeake Biological Laboratory, 2007 Teaching Assistant: Ichthyology Course, Moss Landing Marine Laboratories, 2001 Marine Educator: Roundhouse Marine Studies Laboratory, 1998-1999 Naturalist Educator: Center for Coastal Studies, 1998

MENTORSHIP

Postdoctoral Mentor: Lifei Wang, Ph.D. Samuel Truesdell, Ph.D. Alex Hansell, Ph.D. Mackenzie Mazur, Ph.D. Graduate Committee member: Kohma Arai, University of Maryland Center for Environmental Science Rachel Dixon, Virginia Institute of Marine Science Molly Morse, M.S. candidate, University of Massachusetts, Dartmouth Julek Chawarski, M.S. candidate, University of Maine, School of Marine Science Brenda Rudnicky, M.S. candidate, University of Maine, School of Marine Science Mathew Siskey, Ph.D. candidate, Stoneybrook University Lisha Guan, Ph.D., University of Maine, School of Marine Science Doug Zemeckis, Ph.D., University of Massachusetts, Dartmouth Greg Decelles, Ph.D., University of Massachusetts, Dartmouth Technical Assistance in Modeling:

Jen Devine, Ph.D., Institute of Marine Research, Bergen, Norway

Clementine Harma, Ph.D., Galway-Mayo Institute of Technology

Benjamin Galuardi, Ph.D. candidate, PhD. candidate, University of Massachusetts, Dartmouth

Brian Gallagher, M.S. candidate, University of Maryland

Internship mentor:

Liam Kehoe, NSF Research Experience for Undergraduates intern, 2019, undergraduate at Stockton University.

Drew Shane, GMRI summer intern 2018, undergraduate at University of Southern Maine

Chris Mullen, GMRI summer intern 2017, undergraduate at University of Maine, Machias

Grace Roberts, GMRI summer intern 2017, high school student at Cape Elizabeth High School

Tyler Gagne, GMRI summer intern 2016, M.S., University of Massachusetts

Nathaniel Jermain, GMRI summer intern 2014 & 2015, undergraduate at University of Vermont

Miguel Barajas, GMRI summer intern 2013, undergraduate at University of Southern Maine

Lisa Guy, Research Experience for Undergraduates (REU) Summer Program, Chesapeake Biological Laboratory, undergraduate at Salisbury University

Mathew Lusk, REU Summer Program, Chesapeake Biological Laboratory, undergraduate at Longwood University

GRADUATE AND POSTDOCTORAL ADVISORS

M.S. Advisor: Dr. Gregor M. Cailliet, Moss Landing Marine Laboratories

Ph.D. Advisor: Dr. David H. Secor, University of Maryland Center for Environmental Science

Postdoctoral Supervisor: Dr. Steven X. Cadrin, University of Massachusetts Dartmouth

AWARDS AND HONORS

Staff Recognition Award, Gulf of Maine Research Institute (2013)

American Institute of Fisheries Research Biologists W.F. Thompson Best Student Paper Award (2012)

NSF/WHOI young scientist travel award to attend International Council for Exploration of the Seas (ICES, 2009)

Award for student oral presentation: Annual Tidewater-Mid-Atlantic American Fisheries Society (AFS) Meeting (2007 & 2008)

Skinner Memorial Award: American Fisheries Society (2005 & 2007)

Best Student Poster Award: Monterey Bay National Marine Sanctuary Symposium (2003)

Poster selected for San Jose State University Exhibition of Excellence (2002)

Student award for oral presentation: Sea Grant Graduate Researcher Symposium California and the World Ocean Conference (2002).