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EDUCATION

- 1996 **Doctor of Philosophy.** *Biological Oceanography*. School of Oceanography, University of Washington, Seattle, Washington. Major Professor: J. W. Deming.
- 1988 **Master of Science.** *Marine Geology and Geophysics*. School of Oceanography, University of Washington, Seattle, Washington. Major Professor: A. R. M. Nowell.
- 1985 **Bachelor of Science.** *Geology-Biology*. Brown University, Department of Geology, Providence, Rhode Island. Advisor: W. L. Prell.

PROFESSIONAL EXPERIENCE

- 2016– **Professor.** Department of Marine Sciences, University of Georgia, Athens, Georgia.
- 2013–16 **Visiting Professor.** Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil. *Science without Borders (Ciência sem Fronteiras)*. Host: F.L. Thompson.
- 2012– **Affiliate Faculty.** Latin American and Caribbean Studies Institute, University of Georgia.
- 2010– **Director.** Georgia Initiative for Climate and Society. University of Georgia
- 2007–16 **Associate Professor.** Department of Marine Sciences, University of Georgia.
- 1999– **Affiliate Faculty.** Institute for Women's Studies (IWS), University of Georgia.
- 1998–07 **Assistant Professor.** Department of Marine Sciences, University of Georgia.
- 1996–98 **Assistant Professor.** Department of Oceanography, Florida State University.
- 1996 **Postdoctoral Fellow.** *University Corporation for Atmospheric Research (UCAR) Postdoctoral Program in Ocean Modeling*. Advisor: Dr. R. G. Wiegert.
- 1991–96 **Graduate Fellow.** *Department of Energy, Graduate Fellowship for Global Change*. University of Washington, Seattle, Washington. Major professor: Dr. J. W. Deming.
- 1989–91 **Research Scientist** (*Oceanographer I, II*). University of Washington, Seattle, Washington. Laboratory and field research technician for Dr. J. W. Deming.
- 1986–89 **Teaching Assistant.** School of Oceanography, University of Washington, Seattle, Washington. Drs. A. Duxbury, C. M. Emerick, A. R. M. Nowell, and P. A. Jumars.
- 1985–88 **Research Assistant.** School of Oceanography, University of Washington, Seattle, Washington. Dr. A. R. M. Nowell, P. A. Jumars.

PROFESSIONAL SERVICE AND ADMINISTRATIVE EXPERIENCE

- 2010– **Director** of the **Georgia Initiative for Climate and Society** (climateandsociety.uga.edu)
- 2017– **Board Member** of the **Georgia Climate Project** (GCP; georgiaclimatoproject.org)
- 2017– **Editorial: Co-Editor-in-Chief**, *Encyclopedia of the Oceans* (Elsevier).
Associate Editor, *Frontiers* journal.
- 2016– **Steering committee** member for **West Antarctic Ice Sheet** project and co-author of WAIS Science Plan (2016).

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- 2018– **Member, Subcommittee on *Ocean-Atmospheric Interactions***, Ocean Carbon & Biogeochemistry (OCB; www.us-ocb.org) program.
- 2012 **Antarctic Service Medal** of the United States of America. National Science Foundation. For exemplary service as Chief Scientist.
- 2010–12 **Chief Scientist** and lead principal investigator on 4 global-class research expeditions to Antarctica (1) and the western tropical North Atlantic Ocean (3).
- 2009–11 **Chair (2011) and Vice Chair (2009) of Gordon Research Conferences on Polar Marine Sciences**. Ventura, California (March 2011); Il Ciocco, Italy (2009).
- 1998– **Lead Principal Investigator** on collaborative extramural grants (includes non-UGA components): \$12.3 million.

RESEARCH DESCRIPTION

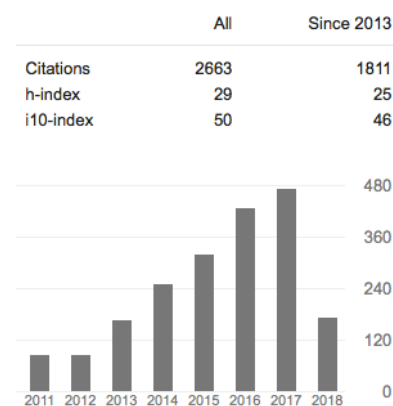
Yager's research investigates how climate and climate-driven processes affect marine biota and the global carbon cycle. She works across disciplinary boundaries to synthesize ideas about complex earth systems. Her research focuses on the ocean's role of absorbing excess carbon dioxide from the atmosphere. Carbon uptake by marine organisms can be altered when the ocean responds to changes in climate, thus affecting the ocean's exchange with the atmosphere. Regions of interest span the globe, with projects in Antarctica and the Arctic, as well as the western tropical North Atlantic. Recent efforts have explored the impact of changing rivers, glacial melt, and sea ice melt on net community production in the coastal ocean. As primary agents for carbon and nutrient cycling, marine microorganisms are the focus of her efforts, but interests and international collaborations include the discovery of a coral reef system near the mouth of the Amazon River. Climate change makes more robust reefs such as this one even more important, since scientists can study them to better understand how corals survive in warmer and harsher ocean conditions. Yager's observational and experimental fieldwork combines with numerical modeling approaches to straddle biological, chemical, and physical oceanography.

EVIDENCE OF EXPERTISE AND RESEARCH PRODUCTIVITY

PEER-REVIEWED PAPERS

I am an author of 68 published, peer-reviewed papers. My research is highly collaborative and I was the Lead Principal Investigator of several large, international, multi-disciplinary field efforts generating many of my papers since 2010. These papers are in top-tier, high-impact journals, and have been cited over 2663 times. My H-index is 29 (29 of my papers have been cited at least 29 times) and my i10-index (number of papers cited more than 10 times) is 50. My citation trajectory is rising (see figure on the right from Google Scholar, as of May 23, 2018). Following these field efforts, I am currently in “synthesis and modeling” phase. Two recent projects use numerical modeling in coastal Greenland or Antarctica to understand the mechanisms behind the impact of melting ice sheets on coastal polar ecosystems.

See papers listed below, arranged by topic. Underline indicates Yager's students or postdocs; dashed underline indicates project students or postdocs.



Georgia Climate Project

A multi-disciplinary team of experts developed the "Georgia Climate Research Roadmap," a first-of-its-kind list of 40 key research questions that can help policymakers and practitioners better understand and address climate change in Georgia. The Roadmap is an initiative of the Georgia Climate Project, a state-wide consortium founded by Emory University, the Georgia Institute of Technology, and the University of Georgia to improve understanding of climate impacts and solutions in Georgia.

Rudd, M.A., A.F.P. Moore, D. Rochberg, L. Bianchi-Fossati, M.A. Brown, D. D'Onofrio, C.A. Furman, J. Garcia, B. Jordan, J. Kline, L.M. Risse, **P.L. Yager**, J. Abbinett, M. Alber, J.E. Bell, C. Bhedwar, K.M. Cobb, J. Cohen, M. Cox, M. Dormer, N. Dunkley, H. Farley, J. Gambill, M. Goldstein, G. Harris, M. Hopkinson, J.-A. James, S. Kidd, P. Knox, Y. Liu, D.C. Matisoff, M.D. Meyer, J.D. Mitchem, K. Moore, A.J. Ono, J. Philipsborn, K.M. Sendall, F. Shafiei, M. Shepherd, J. Teebken, A.N. Worley (2018). Climate research priorities for policy-makers, practitioners, and scientists in Georgia, USA. *Environmental Management*. DOI 10.1007/s00267-018-1051-4.

Ice-sheet meltwater impacts on coastal marine ecosystems (Greenland ISS and Antarctic INSPIRE)

*In the Arctic, the **Greenland Ice Sheet to the Sea** (NASA-IDS) brought together oceanographers and glaciologists to explore the fate of Greenland meltwater and its potential impact on phytoplankton. We used numerical models to understand the fate of Greenland meltwater, we have observed a correlation in time between the arrival of meltwater and increased ocean color in coastal Greenland, and we have demonstrated a mechanism for increased fall phytoplankton blooms and community shifts in response to this meltwater.*

*In the Antarctic (**INSPIRE**; NSF-OPP), we investigated the glacial meltwater pump mechanism behind iron delivery to the extremely productive Amundsen Sea Polynya (ASP) using a numerical model validated with field data from an earlier project (ASPIRE; see below). We are currently incorporating biogeochemical cycling into the ROMS model to examine climate-sensitive mechanisms behind the massive phytoplankton bloom.*

Oliver, H., H. Luo, R. Castelao, G. van Dijken, K. Mattingly, J.J. Rosen, T.L. Mote, KR Arrigo, AK Rennermalm, M. Tedesco, **P.L. Yager** (2018). Extreme surface melting of the Greenland Ice Sheet increases growth potential for light-limited phytoplankton in the Labrador Sea. *J. Geophys. Res. Oceans*. doi: 10.1002/2018JC013802.

Arrigo, K.R., G.L. van Dijken, R.M. Castelao, H. Luo, Å.K. Rennermalm, M. Tedesco, T.L. Mote, H. Oliver, **P.L. Yager** (2017). Melting glaciers stimulate large summer phytoplankton blooms in southwest Greenland waters. *Geophys. Res. Lett.* 44. doi: 10.1002/2017GL073583.

St-Laurent, P., **P.L. Yager**, R.M. Sherrell, S.E. Stammerjohn, and M.S. Dinniman (2017). Pathways and supply of dissolved iron in the Amundsen Sea (Antarctica). *J. Geophys. Res. Oceans* 122, doi:10.1002/2017JC013162.

See also: **Research Features**. Dec. 2017. *Exploring the links between melting ice and ecosystems*. 121:14–17. http://cdn.researchfeatures.com/3d_issues/issue121/html5/index.html

Luo, H., R.M. Castelao, A.K. Rennermalm, M. Tedesco, A. Bracco, **P.L. Yager**, T.L. Mote (2016). Oceanic transport of surface meltwater from the southern Greenland Ice Sheet. *Nature Geosciences*. doi: 10.1038/ngeo2708.

ArcticNitro: Climate change impacts on the coastal Arctic carbon and nitrogen cycling

A multi-seasonal Arctic field effort, this collaborative project explored how competition for nitrogen between autotrophic and heterotrophic microorganisms (and thus the net community production) would shift with losses in sea ice cover, ocean warming, and the increase in riverine delivery of terrestrial organic matter. We sampled north of Barrow, Alaska during January, April, and August 2010–12.

- Sipler, R.E., C.T.E. Kellogg, T.L. Connelly, Q.N. Roberts, **P.L. Yager**, D.A. Bronk (2017). Microbial community response to terrestrially-derived dissolved organic matter in the coastal Arctic. *Front. Microbiol.* 8: 1018. doi.org/10.3389/fmicb.2017.010181018.
- Baer, S.E., R.E. Sipler, Q.N. Roberts, **P.L. Yager**, M.E. Frischer, D.A. Bronk (2017). Seasonal nitrogen uptake and regeneration in the western coastal Arctic. *Limnology and Oceanography* doi: 10.1002/lno.10580.
- Sipler, R.E., S.E. Baer, T.L. Connelly, M.E. Frischer, Q.N. Roberts, **P.L. Yager**, D.A. Bronk (2017). Chemical and photophysiological impact of terrestrially-derived dissolved organic matter on nitrate uptake in the coastal western Arctic. *Limnol. Oceanogr.* doi: 10.1002/lno.10541.
- Baer, S.E., T.L. Connelly, R.E. Sipler, **P.L. Yager**, D.A. Bronk (2014). Effect of temperature on rates of ammonium uptake and nitrification in the western coastal Arctic during winter, spring, and summer. *Global Biogeochemical Cycles.* 28(12): 1455–1466. doi: 10.1002/2013GB004765.

Antarctic Ice Sheet - Ocean - Sea Ice - Ecosystem interactions (Amundsen Sea, Antarctica)

Antarctic research began onboard Oden Southern Ocean in 2007, which led to the Amundsen Sea Polynya International Research Expedition (ASPIRE, part of IPY) onboard the Research Icebreaker N. B. Palmer in 2010–11. As Chief Scientist, I led the 40 international scientists onboard. The project examined the massive algal bloom of the Amundsen Sea polynya, and explored the climate driven mechanisms relieving iron- and light-limitation there. The project generated more than 20 publications, including a special feature in Elementa (collections.elementascience.org/aspire), and captured the interest of the West Antarctic Ice Sheet (WAIS) working group.

- Scambos, T. A., R. E. Bell, R. B. Alley, S. Anandakrishnan, D. H. Bromwich, K. Brunt, K. Christianson, T. Creyts, S. B. Das, R. DeConto, P. Dutrieux, H. A. Fricker, D. Holland, J. MacGregor, B. Medley, J. P. Nicolas, D. Pollard, M. R. Siegfried, A. M. Smith, E. J. Steig, L. D. Trusel, D. G. Vaughan, **P. L. Yager** (2017). How much, how fast? A science review and outlook for research on the instability of Antarctica's Thwaites Glacier in the 21st century. *Global and Planetary Change* 153: 16–34. doi.org/10.1016/j.gloplacha.2017.04.008.
- Dinasquet, J., I. Richert, R. Logares, **P. L. Yager**, S. Bertilsson, L. Riemann (2017). Mixing of water masses caused by a drifting iceberg affects bacterial activity, community composition and substrate utilization capability in the Southern Ocean. *Environ. Microbiol.* 19(6): 2453–2467. doi: 10.1111/1462–2920.13769.
- Yager, P. L.**, R. M. Sherrell, S. E. Stammerjohn, H. W. Ducklow, O. M. E. Schofield, E. D. Ingall, S. E. Wilson, K. E. Lowry, C. M. Williams, L. Riemann, S. Bertilsson, A. C. Alderkamp, J. Dinasquet, R. Logares, I. Richert, R. E. Sipler, A. J. Melara, L. Mu, R. G. Newstead, A. F. Post, R. Swailethorp, and G. L. van Dijken (2016). A carbon budget for the Amundsen Sea Polynya, Antarctica; estimating net community production and export in a highly productive polar ecosystem. *Elem. Sci. Anth.* 4(1): 000140. doi: 10.12952/journal.elementa.000140.
- Williams, C. M., A. M. Dupont, J. Loevenich, A. F. Post, J. Dinasquet, **P. L. Yager** (2016). Pelagic microbial heterotrophy in response to a highly productive bloom of *Phaeocystis antarctica* in the Amundsen Sea Polynya, Antarctica. *Elem. Sci. Anth.* 4: 000102. doi: 10.12952/journal.elementa.000102.
- Sherrell, R. M., M. Lagerström, K. O. Forsch, S. E. Stammerjohn, and **P. L. Yager** (2015). Dynamics of dissolved iron and other bioactive trace metals (Mn, Ni, Cu, Zn) in the Amundsen Sea polynya, Antarctica. *Elem. Sci. Anth.* 3: 000071. doi: 10.12952/journal.elementa.000071.
- Schofield, O., T. Miles, A. C. Alderkamp, S. H. Lee, C. Haskins, E. Roaglsky, R. Sipler, R. Sherrell, **P. L. Yager** (2015). In situ phytoplankton distributions in the Amundsen Sea polynya measured by autonomous gliders. *Elem. Sci. Anth.* 3: 000073. doi: 10.12952/journal.elementa.000073.

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- Randall-Goodwin, E., M. P. Meredith, A. Jenkins, **P. L. Yager**, R. M. Sherrell, E. P. Abrahamsen, R. Guerrero, X. Yuan, R. A. Mortlock, K. Gavahan, A. -C. Alderkamp, H. Ducklow, R. Robertson, and S. E. Stammerjohn (2015). Freshwater distributions and water mass structure in the Amundsen Sea Polynya region, Antarctica. *Elem. Sci. Anth.* 3: 000065. doi:10.12952/journal.elementa.000065
- Stammerjohn, S. E., T. Maksym, R. A. Massom, K. E. Lowry, K. R. Arrigo, X. Yuan, M. Raphael, E. Randall-Goodwin, R. M. Sherrell, and **P. L. Yager** (2015). Seasonal sea ice changes in the Amundsen Sea, Antarctica, over the period of 1979–2014. *Elem. Sci. Anth.* 3: 000055. doi:10.12952/journal.elementa.000055.
- Ducklow, H. W., S. E. Wilson, A. F. Post, S. E. Stammerjohn, M. Erickson, S. -H. Lee, K. E. Lowry, R. M. Sherrell, **P. L. Yager** (2015). Particle flux over the continental shelf in the Amundsen Sea Polynya and Western Antarctic Peninsula. *Elem. Sci. Anth.* 3(1) 000046. doi: 10.12952/journal.elementa.000046.
- Richert, I., J. Dinasquet, R. Logares, L. Riemann, **P. L. Yager**, A. Wendeberg, S. Bertilsson (2015). The role of light and water mass in controlling bacterial population dynamics in the Amundsen Sea Polynya. *Elem. Sci. Anth.* 3(1) 000044. doi: 10.12952/journal.elementa.000044.
- Alderkamp, A. -C., G. L. van Dijken, K. E. Lowry, T. L. Connelly, M. Lagerstrom, R. M. Sherrell, T. Haskins, E. Rogalsky, O. Schofield, S. E. Stammerjohn, **P. L. Yager**, K. R. Arrigo. (2015). Fe availability drives phytoplankton photosynthesis rates in the Amundsen Sea Polynya, Antarctica. *Elem. Sci. Anth.* 3(1) 000043. doi: 10.12952/journal.elementa.000043.
- Wilson, S. E., R. Swalethrop, S. Kjellerup, M. A. Wolverton, H. W. Ducklow, and **P. L. Yager** (2015). Meso- and macro-zooplankton community structure of the Amundsen Sea Polynya, Antarctica (Summer 2010–2011). *Elem. Sci. Anth.* 3(1): 000033 doi: 10.12952/journal.elementa.000033.
- Delmont, T. O., K. M. Hammar, H. W. Ducklow, **P. L. Yager**, and A.F. Post (2014). *Phaeocystis antarctica* blooms strongly influence bacterial community structures in the Amundsen Sea polynya. *Frontiers in Microbiology* 5: 646. doi: 10.3389/fmicb.2014.00646.
- Mu, L., S.E. Stammerjohn, K.E. Lowry, **P.L. Yager** (2014). Spatial variability of surface $p\text{CO}_2$ and air-sea CO_2 flux in the Amundsen Sea Polynya, Antarctica. *Elem. Sci. Anth.* 2: 000036 doi: 10.12952/journal.elementa.000036.
- *Garay, L., Wotkyns A.M., Lowry KE, Warburton J, Alderkamp A-C, and **P.L. Yager** (2014). ASPIRE: Teachers and researchers working together to enhance student learning. *Elem. Sci. Anth.* 2: 000034 doi: 10.12952/journal.elementa.000034. (*Garay is a middle-school science teacher working with Yager.)
- Ingall, E.D., J.M. Diaz, A.F. Longo, M. Oakes, L. Finney, S. Vogt, B. Lai, **P.L. Yager**, B.S. Twining, and J.A. Brandes (2013). Role of biogenic silica in the removal of iron from Antarctic Seas. *Nature Communications*: doi: 10.1038/ncomms2981.
- Alonso-Sáez, L., A. S. Waller, D. R. Mende, K. Bakker, H. Farnelid, **P.L. Yager**, C. Lovejoy, J.E. Tremblay, M. Potvin, F. Heinrich, M. Estrada, L. Riemann, P. Bork, C. Pedrós-Alió, S. Bertilsson (2012). Role for urea in nitrification by polar marine Archaea. *Proc. Nat. Acad. Sci.* 109(44): 17989–17994. doi/10.1073/pnas.1201914109.
- Ghiglione, J.-F., P.E. Galand, T. Pommier, C. Pedrós-Alió, E.W. Maas, K. Bakker, S. Bertilson, D.L. Kirchman, C. Lovejoy, **P.L. Yager**, A.E. Murray (2012). Pole to pole biogeography of surface and deep marine bacterial communities. *Proc. Nat. Acad. Sci.* 109(43): 17633–17638. doi/10.1073/pnas.1208160109.

Yager, P.L., R.M. Sherrell, S.E. Stammerjohn, A.-C. Alderkamp, O. Schofield, E.P. Abrahamsen, K.R. Arrigo, S. Bertilsson, D.L. Garay, R. Guerrero, K.E. Lowry, P.-O. Moksnes, K. Ndungu, A.F. Post, E. Randall-Goodwin, L. Riemann, et al. (2012). ASPIRE: The Amundsen Sea Polynya International Research Expedition. *Oceanography* 25(3): 30–43.

Fransson, A., M. Chierici, **P.L. Yager**, and W.O. Smith Jr. (2011) Antarctic sea ice carbon dioxide system and controls. *Journal Geophysical Res.* 116(C12). doi:10.1029/2010JC006844.

River-Ocean Continuum of the Amazon (ROCA and ANACONDAS projects)

My contributions to 2001–2003 “MANTRA-PIRANA” expeditions led to the discovery of the Amazon plume as a globally significant carbon sink. This finding motivated me to lead 15 co-PIs in the next field effort (ANACONDAS / ROCA): 3 international oceanographic expeditions in 2010–2012 to explore the climate-sensitive controls and mechanisms of this carbon sink. NSF funded most of the plume work offshore and the Gordon and Betty Moore Foundation supported sampling the lower reaches of the Amazon River itself. The three-year field effort has generated more than 20 papers, with additional works in preparation. Collaborations with Brazilian collaborators were critical to the outcome, including the sampling of the microbial biogeochemistry of the lower reach and the discovery of a new coral reef located near the mouth.

Coles, V. J., M. R. Stukel, M. T. Brooks, A. Burd, B. C. Crump, M. A. Moran, J. H. Paul, **B. M. Satinsky**, **P. L. Yager**, **B. L. Zielinski**, R. R. Hood (2017). Ocean biogeochemistry modeled with emergent trait-based genomics. *Science* 358(6367): 1149–1154. doi: 10.1126/science.aan5712.

de O. Silva, B. S., F. H. Coutino, G. B. Gregoracci, L. Leomil, L. S. de Oliveira, A. Fróes, D. Tschoeke, A. C. Soares, A. S. Cabral, **N. D. Ward**, J. E. Richey, A. V. Krusche, **P. L. Yager**, C. E. Rezende, C. C. Thompson, F. L. Thompson (2017). Virioplankton assemblage structure in the lower river and ocean continuum of the Amazon. *mSphere* 2(5). doi: 10.1128/mSphere.00366–17.

Satinsky B. M., C. B. Smith, S. Sharma, **N. D. Ward**, A. V. Krusche, J. E Richey, **P. L. Yager**, B. C. Crump, and M. A. Moran (2017). Patterns of bacterial and Archaeal gene expression through the lower Amazon River. *Front. Mar. Sci.* 4:253. doi: 10.3389/fmars.2017.00253.

Doherty, M., **P. L. Yager**, M. A. Moran, V. J. Coles, C. S. Fortunato, A. V. Krusche, P. M. Medeiros, J. P. Payet, J. E. Richey, B. M. Satinsky, H. O. Sawakuchi, **N. D. Ward**, B. C. Crump (2017). Bacterial biogeography across the Amazon river-ocean continuum. *Front. Microbiol.* 8: 882. doi: 10.3389/fmicb.2017.00882.

Stenegren, M., C. Berg, C. C. Padilla, S. S. David, J. P. Montoya, **P. L. Yager**, **R. A. Foster** (2017). Piecewise Structural Equation Model (SEM) disentangles the environmental conditions favoring Diatom Diazotroph Associations (DDAs) in the western tropical North Atlantic (WTNA). *Front. Microbiol.* 8: 810. doi: 10.3389/fmicb.2017.00810.

Satinsky, B. M., C. B. Smith, S. Sharma, M. Landa, P. M. Medeiros, V. J. Coles, **P. L. Yager**, B. C. Crump, M. A. Moran (2017). Expression patterns of elemental cycling genes in the Amazon River plume. *ISME J.* doi:10.1038/ismej.2017.46.

Weber, S. C., E. J. Carpenter, V. J. Coles, **P. L. Yager**, J. I. Goes, and J. P. Montoya (2017). Amazon River influence on nitrogen fixation and export production in the western tropical North Atlantic. *Limnology and Oceanography* 62(2): 618–631. doi: 10.1002/lno.10448.

Seidel, M., T. Dittmar, N. D. Ward, A. V. Krusche, J. E. Richey, **P. L. Yager**, P. M. Medeiros (2016). Seasonal and spatial variability of dissolved organic matter composition in the lower Amazon River. *Biogeochemistry.* doi: 10.1007/s10533-016-0279-4.

Zielinski B. L., A. E. Allen, E. J. Carpenter, V. J. Coles, B. C. Crump, M. Doherty, R. A. Foster, J. I. Goes, H.

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- R. Gomes, R. R. Hood, J. P. McCrow, J. P. Montoya, A. Moustafa, B. M. Satinsky, S. Sharma, C. B. Smith, **P. L. Yager**, J. H. Paul (2016). Patterns of transcript abundance of eukaryotic biogeochemically-relevant genes in the Amazon River plume. *PLoS ONE* 11(9): e0160929. doi: 10.1371/journal.pone.0160929.
- Medeiros, P. M., M. Seidel, J. Niggemann, R. G. M. Spencer, P. J. Hernes, **P. L. Yager**, W. L. Miller, T. Dittmar, and D. A. Hansell (2016). A novel molecular approach for tracing terrigenous dissolved organic matter into the deep ocean. *Global Biogeochem. Cyc.* 30:689–699. doi: 10.1002/2015GB005320.
- Moura, R. L., et al. (2016). An extensive reef system at the Amazon River mouth. *Science Advances* 2(4):e1501252. doi: 10.1126/sciadv.1501252.
- Seidel, M., **P. L. Yager**, N. D. Ward, E. J. Carpenter, H. R. Gomes, A. V. Krusche, J. E. Richey, T. Dittmar, P. M. Medeiros (2015). Molecular-level changes of dissolved organic matter along the Amazon River-to-ocean continuum. *Mar. Chem.* doi:10.1016/j.marchem.2015.06.019.
- Ward, N. D., A. V. Krusche, H. O. Sawakuchi, D. C. Brito, A. C. Cunha, J. M. S. Moura, R. da Silva, **P. L. Yager**, R. G. Keil, J. E. Richey (2015). The compositional evolution of dissolved and particulate organic matter along the lower Amazon River – Óbidos to the Ocean. *Mar. Chem.* doi:10.1016/j.marchem.2015.06.013.
- Medeiros, P. M., M. Seidel, N. D. Ward, E. J. Carpenter, H. R. Gomes, J. Niggemann, A. V. Krusche, J. E. Richey, **P. L. Yager** and T. Dittmar (2015). Fate of the Amazon River dissolved organic matter in the tropical Atlantic Ocean. *Global Biogeochemical Cycles* 29(5): 677–690. doi: 10.1002/2015GB005115.
- Satinsky, B. M., B. C. Crump, C. B. Smith, S. Sharma, B. L. Zielinski, M. Doherty, J. Meng, S. Sun, P. M. Medeiros, J. H. Paul, V. J. Coles, **P. L. Yager**, and M. A. Moran (2014). Microspatial gene expression patterns in the Amazon River Plume. *Proc. Nat. Acad. Sci.* 111(30): 11085–11090. doi: 10.1073/pnas.1402782111.
- Chong, L. S., W. M. Berelson, J. McManus, D. E. Hammond, N. E. Rollins, **P. L. Yager** (2014) Carbon and biogenic silica export influenced by the Amazon River plume: patterns of remineralization in deep-sea sediments. *Deep-Sea Research Part I.* 85: 124–137. doi: 10.1016/j.dsr.2013.12.007.
- Goes, J. I., H. R. Gomes, A. M. Chekalyuk, E. J. Carpenter, J. P. Montoya, V. J. Coles, **P. L. Yager**, W. M. Berelson, D. G. Capone, R. A. Foster, D. K. Steinberg, A. Subramaniam, M. A. Hafez (2014). Influence of the Amazon River discharge on the biogeography of phytoplankton communities in the western tropical North Atlantic. *Progress in Oceanography* 120: 29–40. <http://dx.doi.org/10.1016/j.pocean.2013.07.010>.
- Coles, V. J., M. T. Brooks, J. Hopkins, M. R. Stukel, **P. L. Yager**, and R. R. Hood (2013). The pathways and properties of the Amazon River plume in the tropical North Atlantic Ocean. *J. Geophys. Res.* 118 (12): 6894–6913. doi: 10.1002/2013JC008981.
- Ward, N. D., R. G. Keil, P. M. Medeiros, D. C. Brito, A. C. Cunha, T. Dittmar, **P. L. Yager**, A. V. Krusche, J. E. Richey (2013). Degradation of terrestrially-derived lignin macromolecules in the Amazon River. *Nature Geoscience* 6(7): 530–533. doi:10.1038/ngeo1817.
- Moran, M. A., B. Satinsky, S. M. Gifford, H. Luo, A. Rivers, L. -K. Chan, J. Meng, B. P. Durham, C. Shen, V. A. Varaljay, C. B. Smith, **P. L. Yager**, and B. M. Hopkinson (2013). Sizing up metatranscriptomics. *ISME Journal* 7(2): 237–243. doi:10.1038/ismej.2012.94.
- Yeung, L. Y., W. M. Berelson, E. D. Young, M. G. Prokopenko, N. Rollins, V. J. Coles, J. P. Montoya, E. J. Carpenter, D. K. Steinberg, R. A. Foster, D. G. Capone, and **P. L. Yager** (2012). Impact of diatom-

diazotroph associations on carbon export in the Amazon River plume. *Geophysical Research Letters*. 39: L18609. doi:10.1029/2012GL053356.

Subramaniam, A., **P. L. Yager**, E. J. Carpenter, C. Mahaffey, K. Björkman, S. Cooley, A. B. Kustka, J. P. Montoya, S. A. Sanudo-Wilhelmy, R. Shipe, and D. G. Capone (2008). Amazon River enhances diazotrophy and carbon sequestration in the tropical North Atlantic Ocean. *Proc. Nat. Acad. Sci.* 105(30): 10460–10465. doi: 10.1073/pnas.0710279105.

Cooley, S. R., V. Coles, A. Subramaniam, and **P. L. Yager** (2007). Seasonal variations in the Amazon plume-related atmospheric carbon sink. *Global Biogeochemical Cycles* 21(3) GB3014, doi: 10.1029/2006GB002831.

Cooley, S. R. and **P. L. Yager** (2006). Physical and biological contributions to the western tropical North Atlantic Ocean carbon sink formed by the Amazon River plume. *Journal of Geophysical Research* 111(C8), C08018, doi: 10.1029/2005JC002954.

Arctic papers prior to 2010 (Chukchi Sea, Northwater and Northeast Water polynyas)

My doctoral research was part of an Arctic System Science effort to understand climate sensitive carbon cycling in the Northeast Water polynya in coastal Greenland. One paper from my dissertation (Yager et al., 1995) was described as “canonical” at a recent Gordon Research Conference. Early career efforts followed up on this research in other Arctic regions such as the Northwater polynya and the Chukchi Sea.

Ducklow, H. and **P. L. Yager** (2007). Pelagic bacterial processes in polynyas. pp. 323–362 in: *Polynyas: Windows to the World* (W. O. Smith, Jr., and D. Barber, editors), Elsevier Oceanography Series, 74 (David Halpern, series editor). doi: 10.1016/S0422-9894(06)74010-7.

Connelly, T. L., C. M. Tilburg, and **P. L. Yager** (2006). Evidence for psychrophiles outnumbering psychrotolerant marine bacteria in the springtime coastal Arctic. *Limnology and Oceanography* 51(2): 1205–1210. doi: 10.4319/lo.2006.51.2.1205.

Mei, Z. -P., L. Legendre, J. -E. Tremblay, L. Miller, Y. Gratton, C. Lovejoy, **P. Yager**, and M. Gosselin (2005). Carbon to nitrogen (C:N) stoichiometry of the spring-summer phytoplankton bloom in the North Water Polynya (NOW). *Deep Sea Research I*. 52(12): 2301–2314. doi:10.1016/j.dsr.2005.07.001.

Hodges, L. R., N. Bano, J. T. Hollibaugh, and **P. L. Yager** (2005). Illustrating the importance of particulate organic matter to pelagic microbial abundance and community structure – an Arctic case study. *Aquatic Microbial Ecology* 40(3): 217–227. doi: 10.3354/ame040217.

Miller, L. A., **P. L. Yager**, K. A. Erickson, J. Bâcle, J. K. Cochran, M. -È. Garneau, M. Gosselin, D. J. Hirschberg, B. Klein, B. LeBlanc, and W. L. Miller (2002). Carbon distributions and fluxes in the North Water, northern Baffin Bay, 1998 and 1999. *Deep-Sea Research II* 49(22–23): 5151–5170. doi: 10.1016/S0967-0645(02)00183-2.

Yager, P. L., T. L. Connelly, B. Mortazavi, K. E. Wommack, N. Bano, J. E. Bauer, S. Opsahl, and J. T. Hollibaugh (2001). Dynamic bacterial and viral response to an algal bloom at sub-zero temperatures. *Limnology and Oceanography* 46(4): 790 – 801. doi: 10.4319/lo.2001.46.4.0790.

Yager, P. L., and J. W. Deming (1999). Pelagic microbial activity in an Arctic polynya: testing for temperature and substrate interactions using a kinetic approach. *Limnology and Oceanography* 44(8):1882–1893.

Daly, K. L., D. W. R. Wallace, W. O. Smith, Jr., A. Skoog, R. Lara, M. Gosselin, E. Falck, **P. L. Yager** (1999). Non-Redfield carbon and nitrogen cycling in the Arctic: Effects of ecosystem structure and dynamics. *Journal of Geophysical Research* 104(C2): 3185–3199. doi: 10.1029/1998JC900071.

Yager, P. L., D. W. R. Wallace, K. M. Johnson, W. O. Smith, Jr., P. J. Minnett, and J. W. Deming (1995). The Northeast Water Polynya as an atmospheric CO₂ sink: a seasonal rectification hypothesis. *Journal of Geophysical Research* 100(C3): 4389–4398. doi: 10.1029/94JC01962.

Other papers prior to 2010

My masters thesis explored the relationships between boundary layer fluid dynamics, benthic organisms, and the seafloor sediments. Early publications also reflect my developing interest in the role of marine microorganisms.

Jiang, L. -Q., W. -J. Cai, Y. Wang, J. Diaz, **P. L. Yager**, and X. Hu (2010). Pelagic community respiration on the continental shelf off Georgia, USA. *Biogeochem.* 98(1–3): 101–113. doi: 10.1007/s10533-009-9379-8.

Smith, C. R., H. L. Maybaum, A. R. Baco, R. H. Pope, S. D. Carpenter, **P. L. Yager**, S. A. Macko, and J. W. Deming (1998). Sediment community structure around a whale skeleton in the deep NE Pacific: macrofaunal, microbial, and bioturbation effects. *Deep-Sea Res. II.* 45(1–3): 335–364. doi: 10.1016/S0967-0645(97)00043-X.

Jumars, P. A., J. W. Deming, P. S. Hill, L. Karp-Boss, **P. L. Yager**, and W. B. Dade (1993). Physical constraints on marine osmotrophy in an optimal foraging context. *Marine Microbial Food Webs* 7(2): 121–159.

Yager, P. L., A. R. M. Nowell, and P. A. Jumars (1993). Enhanced deposition to pits: a local food source for benthos. *Journal of Marine Research* 51(1): 209–236. doi: 10.1357/0022240933223819.

Deming, J. W., and **P. L. Yager** (1992). Natural bacterial assemblages in deep-sea sediments: towards a global view. In: G. T. Rowe and V. Pariente (eds.), *Deep-Sea Food Chains and the Global Carbon Cycle*. Kluwer Academic Publishers, Netherlands, pp. 11–27.

RESEARCH GRANTS

Lead PI on collaborative extramural grants (includes non-UGA components): **\$12.2 million**

Lead PI on extramural grants to UGA: **\$6 million**

Total grants to Yager Lab: \$3.3 million

- 2018 **Ray C. Anderson Foundation.** *Georgia Climate Project.* \$100K to UGA; 3 yr; Yager is co-PI for UGA. Project led by D. Rochberg (Emory University) with 5 co-PIs for a total of \$650K;
- 2017 **National Academy Keck Futures Initiative (NAKFI).** *Mapping Deep Blue Habitats in a Changing Climate.* \$100K to UGA; 2 yr; **Yager is lead PI** with 2 co-PIs: J. Spivey (UGA) and C. Deutsche (UW subcontract).
- 2016 **Gordon and Betty Moore Foundation.** *Supplement to ROCA for special feature in Frontiers Aquatic Microbiology Journal.* \$25K to UGA; 100% to Yager.
- 2015 **National Science Foundation / Office of Polar Programs.** *Collaborative research: investigating the role of mesoscale processes and ice dynamics in carbon and iron fluxes in a changing Amundsen Sea (INSPIRE).* \$50K to UGA; 3 yr.; 100% to Yager (sole PI at UGA). Project led by P. St-Laurent (ODU) with 5 co-PIs for total of \$300K.
- 2014 **Gordon and Betty Moore Foundation.** *High-throughput functional gene fitness measurements for microbial models.* \$165K to UGA; 2 yr.; 25% to Yager. Project led by M. Moran (UGA) with 2 co-PIs (Yager and Coles) for a total of \$165K.

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- 2014 **National Aeronautics and Space Administration.** *From the Ice Sheet to the Sea: An interdisciplinary study of the impact of extreme melt on ocean stratification and productivity near West Greenland.* NNH12ZDA001N-IDS; \$496K to UGA; 4 yr.; 30% to Yager. Project led by T. Mote (UGA Geography) with 5 other co-PIs for total of \$1.5 million.
- 2013 **Gordon and Betty Moore Foundation.** *Supplement to ROCA* for data synthesis meeting (April 2013). \$25K; 12 months. **Yager is lead PI** for the project with 9 co-PIs on subcontracts.
- 2011 **Gordon and Betty Moore Foundation.** *Supplement to ROCA* for additional sampling effort (May 2012). \$504K; 12 months. **Yager is lead PI** for the project with 9 co-PIs on subcontracts.
- 2010 **Gordon and Betty Moore Foundation.** *The River Ocean Continuum of the Amazon (ROCA).* \$2.4 million; 30 months. **Yager is lead PI** for the project with 9 co-PIs on subcontracts. Project extended until September 2013.
- 2009 **National Science Foundation / ETBC / Ocean Sciences.** *Collaborative Research: ETBC: Amazon influence on the Atlantic: carbon export from nitrogen fixation by diatom symbioses (ANACONDAS).* OCE-0934095; **Yager is lead PI** for the project and sole PI at UGA. \$358K, 3 yr. Project includes 9 PIs for a total of \$3.2 million. Supplement for 3rd cruise (**\$120K** received July 2012 and project extended until Sept. 2013).
- 2009 **National Science Foundation / Office of Polar Programs.** *Collaborative Research: does competition for nitrogen between autotrophs and heterotrophs control carbon fluxes in the western coastal Arctic?* ARC-0910252; **Yager is lead PI** and sole PI at UGA). \$314K, 3 yr. Project is 3 PIs for a total of \$950K.
- 2009 **National Science Foundation / Office of Polar Programs.** *Collaborative Research onboard Icebreaker Oden: ASPIRE: Amundsen Sea Polymya International Research Expedition.* (ANT-0839069; **Yager is lead PI** and sole PI at UGA). \$290K, 30 mo. Project is 5 PIs for a total of ~\$1.5 million.
- 2008 **National Science Foundation / Office of Polar Programs.** *Collaborative Research: Controls on climate-active gases by Amundsen Sea ice biota.* (ANT-0836144; OSO-2008; **Yager is lead PI** and sole PI at UGA). \$192K, 2 yr. Project is 3 PIs for a total of \$700K.
- 2007 **National Science Foundation / Office of Polar Programs.** *SGER: Science-of-opportunity aboard Icebreaker Oden - Antarctic bacterial remineralization.* (ANT-0741409; **Yager, sole PI**). \$80K, 1 yr.
- 2007–10 **National Oceanic and Atmospheric Administration – Oceans and Human Health Initiative.** Georgia Oceans and Health Initiative (GOHI) Graduate Training Consortium. PI is E. Lipp (Env. Health), Yager is one of 6 co-PIs. \$518K, (Graduate student support only) 3 yr.
- 2002–05 **National Oceanic and Atmospheric Administration/Office of Global Programs – Global Carbon Cycle Program.** *Underway pCO₂ measurements in the western equatorial North Atlantic and subtropical North Pacific: The Importance of synchronous supporting measurements* (GC02-373; **Yager sole PI**). \$127K, 3 yr.
- 2002–06 **U.S. Department of Energy – Ocean Carbon Sequestration Research Program.** *The impact of nitrogen fixation on carbon sequestration: a reassessment of the inorganic carbon system in LNLC regions* (DE-FG02-02ER63472; **Yager sole PI**). \$150K, 3 yr.
- 2002–06 **National Aeronautics and Space Administration** *Quantifying the role of the western tropical Atlantic Ocean in global carbon budgets: the intersection of physics, chemistry, and biology.* (O25074-01–Earth System Science Fellowship to S. Cooley, doctoral student, **Yager is PI**). \$72K, 3 yr.
- 2002 **University of Georgia Faculty Research Grant.** *The microbial fate of anthropogenic dissolved organic nitrogen in Georgia coastal waters: developing a method for combining identification techniques with substrate uptake kinetics.* \$5K, 1 yr.

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- 2001 **University of Georgia Faculty Research Grant.** *The effects of enhanced marine nitrogen fixation on atmospheric carbon dioxide transport into the tropical Atlantic Ocean.* \$10K, plus \$1.5K matching from Marine Sciences, 1 yr.
- 2000 University of Georgia **Faculty Research Grant.** *Investigating viral control of bacterial community structure and carbon cycling in Arctic seas.* \$6500, 1 yr.
- 1997–99 **National Science Foundation.** *An Arctic Ocean time series of dissolved inorganic carbon* (Professional Opportunities for Women in Research and Education; POWRE, Research Enhancement Award; NSF OCE-9753170; **Yager sole PI**), \$85K plus \$34K matching; 2 yr.).
- 1997 **Council on Research and Creativity** (CRC) First-Year Assistant Professor Award, Florida State University, Tallahassee, Florida (*Arctic Ocean uptake of atmospheric carbon dioxide: using stable carbon isotopes to detect potential feedbacks to global climate change*; \$10K; FSU CRC; 3 mo.).
- 1995 **University Corporation for Atmospheric Research** (UCAR) Postdoctoral fellowship in Ocean Modeling (\$36K; 1 yr.).
- 1991–96 **Department of Energy**, Graduate Fellowship for Global Change (\$74K; 4.5 yr.).

OTHER AWARDS AND HONORS

- 2017 **Franklin International Faculty Exchange** (FIFE) award. University of Georgia - Universidade Federal Fluminense (Niteroi, Brazil). With Alberto Figueiredo (Depto. de Geologia - LAGEMAR). Franklin College of Arts and Sciences, University of Georgia.
- 2013 ***Science without Borders*** (*Ciência sem Fronteiras*) - Visiting Professorship at UFRJ in Rio de Janeiro, Brazil. One month per year for three years.
- 2012 **Antarctic Service Medal** of the United States of America. National Science Foundation. For exemplary service as Chief Scientist onboard a two-month, oceanographic expedition to Antarctica.
- 2011 **American Academy of Microbiology.** Invited participant. Colloquium: Incorporating Microbial Processes into Climate Change Models. February 21–23, 2011. Dallas, Texas. Report available online: <http://academy.asm.org/index.php/colloquium-program/browse-all-reports/396-incorporating-microbial-processes-into-climate-models>
- 2000 **Invited Co-chair**, Arctic Microbial Ecology. American Society of Limnology and Oceanography (ASLO) International Meeting, Copenhagen, Denmark. June 2000.
- 1999–11 **Gordon Research Conferences on Polar Marine Sciences:** Invited discussion leader in 1999, 2007; Invited speaker in 2003; elected Vice Chair of 2009 meeting, and **Chair of 2011 meeting.** Ventura, California (March 1999, 2003, 2007, 2011); Il Ciocco, Italy (March 2009).
- 1997 **DIALOG II:** Dissertations Initiative for the Advancement of Limnology and Oceanography, invited participant. October, 1997. Bermuda.
- 1997 **Invited Chair**, Biogeochemical Cycles and Fluxes IV: Oxygen and CO₂, American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Santa Fe, 1997.
- 1996 **DISCO XIII:** Dissertations Symposium on Chemical Oceanography, invited participant. May, 1996. Honolulu, Hawaii.

SERVICE TO MY DEPARTMENT, UNIVERSITY, PROFESSION, AND SOCIETY

Director, Georgia Initiative for Climate and Society (GICS; climateandsociety.uga.edu), a faculty-driven network of faculty and professional staff working on climate issues at UGA. Our mission is to foster a

scientific community that will: 1) *investigate* the processes, effects, risks, and potential impacts of climate variability and change, and develop strategies and solutions for mitigation and adaptation. 2) *integrate* research, outreach and instructional efforts to build adaptive capacity and resilience to climate variability and change; and 3) *engage* users and stakeholders in developing information and tools needed to prepare for and respond to the challenges of climate variability and change.

Board member, Georgia Climate Project (georgiaclimatoproject.org): a 3-university consortium of faculty and staff working on climate issues in Georgia; with Emory University and Georgia Institute of Technology.

Member, Subcommittee on *Ocean-Atmospheric Interactions*, Ocean Carbon & Biogeochemistry (OCB; www.us-ocb.org) program.

Research planning boards: Steering committee member for WAIS (since 2016) and co-author of West Antarctic Ice Sheet Initiative Science Plan (2016). American Society for Microbiology: *Incorporating Microbial Processes into Climate Models* (2011). Plenary speaker and working group contributor to National Academy's Polar Research Board report on *Frontiers in Understanding Climate Change and Polar Ecosystems* (2010). Co-author of white paper produced (2006) for the North Pacific Research Board intended to set priorities for future research in the Bering and Chukchi Seas.

Editorial: co-Editor-in-Chief, *Encyclopedia of the Oceans* (Elsevier / Science Direct), **Associate Editor**, *Frontiers* journal.

Proposal reviewer, *National Science Foundation* (individual proposals and panelist), *NASA* (individual proposals and panelist), *NOAA Global programs* (panelist), Ocean Frontier Institute (Canada), Ocean Research Frontiers (Canada); NOAA *National Estuarine Research Reserve System*, *US Environmental Protection Agency* (individual proposals and STAR panelist), *Natural Environmental Research Council* (NERC; UK) *Maryland SeaGrant*, *Florida SeaGrant*, etc.

Manuscript reviewer, *Nature*, *Journal of Geophysical Research*, *Global Biogeochemical Cycles*, *Scientific Reports*, *Geology*, *Limnology and Oceanography*, *Marine Ecology Progress Series*, *Hydrobiologia*, *Aquatic Microbial Ecology*, *Deep-Sea Research (I & II)*, *Geophysical Research Letters*, *Polar Biology*, *ISME-J*, *Journal of Sea Research*, *Simon & Schuster*, *AGU Antarctic Research Series*, *McGrawHill*, etc.

Outreach: Young Dawgs: summer research experience for local high school students; UGA Summer Undergraduate Research Program (SURP), minority recruitment program; public speaker on oceanography and other topics as a public service to Georgia's citizens (schools, Kiwanis club, Rotary Club, OLLI, churches, etc); mentor for PolarTrec teachers on Antarctic and Arctic expeditions, includes some curriculum development; more than a dozen local school (K–12) presentations about my research. Currently on Local School Governance Team (LSGT; 2016–2019), assisting with improving STEM education at Cedar Shoals High School, Athens, GA.

University Committees: Currently serving on Provost's Gender Trend / Equity committee. Franklin College of Arts and Sciences, Promotion and Tenure Committee (Life Sciences). University Council, UC Executive Committee, Integrated Life Sciences program, Climate Change Interdisciplinary Group (Lead), Marine Sciences Graduate Affairs Committee; Past service on UC Human Resources Committee (Chair), University of Georgia - Research Foundation Board. Marine Sciences Undergraduate Committee,

OTHER EVIDENCE OF NATIONAL AND INTERNATIONAL STATURE
INVITED PRESENTATIONS**International meetings**

- 2017 **West Antarctic Ice Sheet workshop** *Meltwater pump mechanisms directly links the extreme Amundsen Sea phytoplankton bloom to the melting ice shelf.* WAIS meeting, Whidbey Island, Washington. October 9.
- 2016 **Gordon Research Conference** *Melting ice and green oceans: climate sensitive carbon cycling in the Amundsen Sea Polynya, Antarctica.* GRC on Molecular Basis of Microbial One-Carbon Metabolism: Exploring, Understanding and Applying the Diversity of One-Carbon Metabolism. Waterville Valley, New Hampshire. July–August.
- 2016 **Ocean Sciences Meeting.** *Climate-sensitive carbon cycling on the western Antarctic continental shelf: results from the Amundsen Sea Polynya International Research Expedition (ASPIRE).* AGU-ASLO Ocean Sciences Meeting, New Orleans, Louisiana. February.
- 2015 **West Antarctic Ice Sheet workshop.** *Coastal marine ecosystems and the West Antarctic Ice Shelf.* 2015 WAIS Workshop. Loveland, Colorado. September.
- 2014 **Gordon Research Conference.** *Climate change and the ocean's health.* GRC on Oceans & Human Health: Anthropogenic Impacts on Coastal Communities and Ecosystems. Biddeford, Maine. June.
- 2014 **American Society of Microbiology** *Climate change and marine microbial ecosystems.* ASM General meeting, Boston, Massachusetts. May.
- 2013 **American Geophysical Union. Yager, PL,** J Richey, B Page, N Ward, A Krusche, S Weber, S. Burns, J Montoya, and C Rezende. *Contributions from the Amazon River mouth to the carbonate and nutrient dynamics of the tropical Atlantic Ocean.* AGU - Fall Meeting. Invited abstract #OS51C-05. San Francisco, California. December.
- 2013 **American Geophysical Union.** Crump, B., M. Doherty, C. Fortunato, A. Krusche, D. Brito, A. Cunha, M. Fernandes, B. Satinsky, B. Zielinski, C. Smith, N. Ward, J. Richey, **P. Yager.** *Microbial community structure and metagenomics across the river-to-ocean continuum of the Amazon River.* AGU - Fall Meeting. San Francisco, California. December.
- 2011 **Gordon Research Conference.** *Climate and the polar marine biosphere: complex responses and emergent feedbacks.* GRC on Polar Marine Science: Exploring Complex Systems in Polar Marine Science. Ventura, California. March.
- 2011 **Mathematical Biosciences Institute.** *Climate connections to marine ecosystems; from Amazon to Antarctica.* - Workshop 6: Ocean Ecologies and Their Physical Habitats in a Changing Climate (June 20 – July 1, 2011). Organizers: Ken Golden, Chris Jones, Hans Kaper, and Mary Lou Zeeman. <http://mbi.osu.edu/2010/ws6abstracts.html>. June.
- 2003 **Gordon Research Conference.** Does shelf depth matter to climate change? GRC Polar Marine Science. Ventura, California. March.
- 2000 **ASLO Aquatic Sciences Meeting** *Microbial ecology of the Arctic Ocean - a tutorial discussion of old boundaries and new insights on low temperature microbial ecosystems.* Copenhagen, Denmark. May.

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- 1997 **DIALOG II.** *The microbial fate of carbon in high-latitude seas: impact of the microbial loop on oceanic uptake of CO₂.* Dissertations Initiative for the Advancement of Limnology and Oceanography. Bermuda. October.
- 1996 **DISCO XIII.** *The microbial fate of carbon in high-latitude seas: impact of the microbial loop on oceanic uptake of CO₂.* Dissertations Symposium on Chemical Oceanography. Honolulu, Hawaii. May.

National or regional symposia

- 2017 **American Museum of Natural History.** *The Amazon River plume and reef ecosystem.* Amazon Day at the AMNH. New York, New York. April 8.
- 2016 **National Academy Keck Futures Initiative (NAKFI).** *Melting enhances coastal biological productivity.* NAKFI 2016 Conference Discovering the Deep Blue Sea. Irvine, California. November 9–12.
- 2016 **Portland Public Library.** *Climate change impacts on polar marine ecosystems.* The Maine Arctic Speaker Series. Sponsored by University of New England. September 12.
- 2015 **Rutgers Climate Institute.** *Climate connections to polar marine ecosystems.* Regional Climate Symposium: Climate Change and Polar Regions: Natural and Social System Implications. Rutgers University, New Brunswick, New Jersey. November 20.
- 2015 **Barrow Arctic Research Center.** *What did we learn during Arctic Nitro?* Schoolyard Saturday. Barrow, Alaska. February.
- 2011 **Institute of Native American Studies (UGA).** *Global climate change.* Invited plenary speaker. The Impact of Climate Change on Tribal Resource Management. Organized by Jace Weaver. Athens, Georgia. August 26.
- 2010 **U.S. National Academy of Sciences.** *Climate and the Polar Marine Biosphere: complex responses and emergent feedbacks.* Plenary talk. Frontiers in Understanding Climate Change and Polar Ecosystems. Cambridge, Maryland. August.
- 2010 **Barrow Arctic Science Consortium.** *Microbial control on the productivity of Barrow's coastal waters - Will the battle for nitrogen intensify under climate change?* Schoolyard Saturday. Barrow, Alaska. February.
- 1996 **Oak Ridge National Laboratory (DOE).** *The high-latitude marine carbon cycle: responses and feedbacks to climate change.* A Forum for Integrating Multidisciplinary Research to Advance the Science of Global Change. Oak Ridge, Tennessee. October.

University seminars (not UGA)

- 2017 **University of Rhode Island.** Graduate School of Oceanography. **Vetlesen Distinguished Speaker Series.** *Climate change impacts on Antarctic marine ecosystems.* October 18.
- 2016 **Federal University of Rio de Janeiro.** *A new reef along the river-ocean continuum of the Amazon.* October 25.
- 2015 **Old Dominion University.** Center for Coastal Physical Oceanography. *Climate change and the coastal Antarctic ecosystem: results from the ASPIRE project.* Norfolk, Virginia.

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- 2015 **University of Alaska, Fairbanks.** Institute of Marine Sciences. *Antarctic connections between climate and the marine carbon cycle: a report from the Amundsen Sea Polynya International Research Expedition (ASPIRE)*. Fairbanks, Alaska. February 18.
- 2015 **Duke University.** Division of Earth and Ocean Sciences. *Microbes, carbon, and climate change along the River-Ocean Continuum of the Amazon*. Raleigh, North Carolina. January 30.
- 2014 **Skidaway Institute of Oceanography.** *Climate connections to the marine biosphere: the Amundsen Sea Polynya International Research Expedition*. Savannah, Georgia.
- 2014 **Universidade Estadual do Norte Fluminense.** *Carbon, microbes, and climate change in the river-ocean continuum of the Amazon*. Darcy Ribeiro, Campos dos Goytacazes - Rio de Janeiro, Brazil. August 25.
- 2014 **Universidade Federal do Rio de Janeiro.** *Microbes, carbon, and climate in the river-ocean continuum of the Amazon*. Rio de Janeiro, Brazil. August 21.
- 2009 **Skidaway Institute of Oceanography.** *The River Ocean Continuum of the Amazon*. Savannah, Georgia. October.
- 2000 **University of Maryland.** Chesapeake Biological Laboratories. *A dynamic bacterial and viral response to an Arctic algal bloom – connections to the global carbon cycle*. Solomons, Maryland.
- 2000 **Rutgers University,** Institute of Marine and Coastal Sciences. *Microbial activities in Arctic seas: links to seasonal primary productivity and the global CO₂ cycle*. New Brunswick, New Jersey. April.
- 1998 **Texas A & M University.** Department of Oceanography. *Carbon cycling in the Arctic: Why go all the way to the North Pole to study climate change?* College Station, Texas. May.
- 1998 **Florida A & M University.** Department of Engineering. *The Arctic Ocean carbon cycle: why go all the way to the North Pole to study climate change?* Tallahassee, Florida. January.

UGA and other Georgia venues

- 2018 **Marine Science Graduate Student Association (MSGSA).** *Finding a faculty position after grad school*. Athens, Georgia. April 5.
- 2017 **UGA Institute of Ecology.** *Climate change impacts on coastal Antarctic ecosystems*. Conservation Seminar Series (ECL 8400). Athens, Georgia. November 1.
- 2017 **Ciné Athens.** Invited panelist for discussion following the showing of *An Inconvenient Sequel*, a US film about climate change. Athens, Georgia. August 17.
- 2017 **Georgia Museum of Art.** *The common ground between environmental science and art*. Healing the World thru the Arts. Athens, Georgia. April 28.
- 2017 **Gwinnett School of Mathematics, Science, and Technology.** *An exciting career in oceanography*. GSMST. Lawrenceville, Georgia. February 17.
- 2017 **Ciné Athens.** Invited panelist for discussion following the showing of *Demain*, a French film about sustainability. Athens, Georgia, January 11.
- 2016 **UGA School of Marine Programs.** *Climate change and the coastal Antarctic ecosystem: results from the Amundsen Sea Polynya*. Athens, Georgia. November 10.
- 2016 **UGA Institute of Ecology.** *Climate change and the coastal Antarctic ecosystem: results from the Amundsen Sea Polynya*. EDGE seminar series. Athens, Georgia. October 28.

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- 2016 **Osher Lifelong Learning Institute.** *Climate, the Ocean, and the Marine Biosphere.* Luncheon Program. Athens, Georgia. Sept 20.
- 2016 **Athens Clarke County Library.** *A climate scientist inspired by nature poetry.* Poem-Making and Nature panel. **The Big Read:** Robinson Jeffers' Observations in nature: eco-poetry and sustainability in today's Georgia. Athens, Georgia. April 12.
- 2015 **Women in Science (WiSci) Career Symposium.** *What would you attempt to do if you knew you could not fail? Cultivating bravery and persistence during a career in science.* Keynote address to UGA WiSci career symposium: mapping your path in science. Athens, Georgia. November 14.
- 2015 **UGA Institute of Ecology.** *The effects of climate change on coastal Antarctic ecosystems.* Conservation Seminar Series (ECL 8400). Athens, Georgia.
- 2015 **UGA Retired Educators Association.** *Climate and the ocean.* Athens, Georgia.
- 2013 **UGA Department of Geography.** *Climate connections to the marine biosphere - from the Amazon to Antarctica.* Departmental Seminar. Athens, Georgia. October 22.
- 2013 **UGA Institute for Women's Studies.** *Climate Change and the ocean ecosystem: hot spots and cool adventures on the high seas.* Friday Speaker Series. Athens, Georgia. November 15.
- 2013 **UGA Institute of Ecology.** *The effects of climate change on Antarctic ecosystems.* Conservation Seminar Series (ECL 8400). Athens, Georgia. November 20.
- 2011 **Gainsville Rotary.** *Climate connections to marine ecosystems from the equator to the poles.* Gainsville, Georgia. February 27.
- 2011 **Georgia Initiative for Climate and Society.** *Climate connections to marine ecosystems; from Amazon to Antarctica.* Working Group 1 - Brown Bag Seminar Series. Athens, Georgia. May 18.
- 2011 **UGA Department of Comparative Literature.** *Global climate change and feedbacks.* Invited lecture: CMLT 3210. Ecocriticism. Athens, Georgia.
- 2011 **UGA Department of Geology.** *Climate connections to the marine carbon cycle.* Athens, Georgia. February 24.
- 2007 **UGA Department of Geology.** *Climate and the marine biosphere.* Athens, Georgia. April.
- 2007 **UGA Institute for Women's Studies** *Women in Oceanography – a case study for women in science.* Athens, Georgia. April.
- 2000 **UGA Department of Geology.** *The Arctic Ocean: a climate sensitive source or sink for atmospheric CO₂?* Geochemistry Seminar. Athens, Georgia. April.
- 1999 **UGA School of Marine Programs.** *Microbial activities in arctic seas: links to seasonal primary productivity and the global CO₂ cycle.* Athens, Georgia. October.

BROADCAST INTERVIEWS:

- 2016 **SciTech Now**, Corporation for Public Broadcasting / PBS. *Discovering 600 miles of coral reef.* Interviewer: A. Vasquez. November 1.
- 2016 **Quirks and Quarks**, CBCradio. *Amazon River hiding a massive reef ecosystem.* Interviewer: B. MacDonald. April 30.

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- 2016 **Radio FM Colombia.** *Amazon Reef*. Interviewer: A. Ruiz. April 29.
- 2016 **CJAD Radio Montreal**, BellMedia. *Amazon Reef*. Interviewer: D. Spector. April 27.
- 2016 **Top of Mind**, byuradio. *Climate Change, Amazon Coral Reef, Chinese Pipa Virtuosa*. Interviewer: Julie Rose. April 27.
- 2016 **Forum**, KQED (San Francisco Public Radio). *As Coral Bleaching Devastates Australia's Great Barrier Reef, Scientists Look for Solutions*. Interviewer: Michael Krasny. April 26.

PRINT INTERVIEWS:

- 2018 **Red and Black.** *Scientist of the Week: Patricia Yager's love for discovery*. K. Meyes. January 21.
- 2017 **Research Features.** *Exploring the links between melting ice and ecosystems*. 121:14–17.
http://cdn.researchfeatures.com/3d_issues/issue121/html5/index.html
- 2016 **Live Science.** *Amazon: Earth's Mightiest River*. T. Pedersen. December 19.
- 2016 **Revista Piaui.** *O Recife que ninguém viu. Um ecossistema insuspeito sob as águas turvas da foz do Amazonas*. B. Esteves. December 1.
- 2016 **Oceanography Journal**, Ripple Marks - The story behind the story. *Coral Reef Discovered in an Unlikely Locale*. C.L. Dybas. September 1.
- 2016 **Interesting Sh!t.** *The Amazon River's Coral Reef Madness*. J. Moon. July 1.
- 2016 **Voice of America.** *Amazing Amazon Hides Atlantic's Coral Reef*. A. Ball. May 8.
- 2016 **Upstream.** *Discovery of reef likely to affect permitting process*. G. Chetwynd. May 2.
- 2016 **How Stuff Works.** *An 'Impossible' Coral Reef System Discovered at Amazon River Mouth*. J. Shields. April 28.
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- 2016 **Take Part,** *There Is a Giant Reef Under the Amazon's Muddy Waters*. T. Hill. April 26.
- 2016 **Washington Post.** *Scientists find a massive coral reef just chilling in the Amazon*. S. Kaplan. April 25.
- 2016 **Live Science.** *Massive Coral Reef Discovered in the Amazon River*. Ghose T. April 24.
- 2016 **Science Alert.** *Scientists just discovered a 1,000-km-long coral reef at the mouth of the Amazon. Whoa. Just whoa*. F. Macdonald. April 22.
- 2016 **Los Angeles Times.** *Scientists discover coral reef near the mouth of the Amazon River*. A. Khan. April 22.
- 2016 **National Geographic.** *Surprising, Vibrant Reef Discovered in the Muddy Amazon*. C. Welch. April 22.
- 2016 **The Atlantic.** *Scientists Have Discovered a 600-Mile Coral Reef - It's at the mouth of the Amazon River*. R. Meyer. April 21.
- 2015 **AGU Blogosphere.** *In Antarctica, melting ice drives unusual phytoplankton growth*. A.F. Takemura.
- 2014 **University of California Press Blogs.** *Patricia L. Yager Explains the Significance of the ASPIRE Special Feature*.

CONTRIBUTED ABSTRACTS

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Oliver, H., R. Castelao, H. Luo, K. Mattingly, J. Rosen, and **P. L. Yager**, 2015: Coastal ocean primary production sensitivities to extreme melting of the Greenland ice sheet, *Regional Climate Symposium at Rutgers University: Climate Change and Polar Regions: Natural and Social System Implications*. Rutgers Climate Institute, New Brunswick, New Jersey, November 20, 2015

Mote, T., K. Arrigo, R. Castelao, A. Rennermalm, M. Tedesco, **P. Yager**, H. Luo, and E. Noble (2015). The impact of extreme melt on ocean stratification and productivity near West Greenland. Ilulissat Climate Days. Ilulissat, Greenland. June 2015.

Yager, P. L., R. Sherrell, S. Stammerjohn, O. Schofield, H. Ducklow, S. Wilson, A. Alderkamp (2015). An ELEMENTA special feature: The Amundsen Sea Polynya International Research Expedition (*ASPIRE*). Gordon Research Conference on Polar Marine Science. Il Ciocco, Italy. March 2015.

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Yager, P. L., A. R. M. Nowell, and P. A. Jumars (1989). Enhanced deposition to pits: the effect of microtopography on food sources for deposit feeders. *Annual meeting, North American Benthological Society*. Guelph, Ontario, May 1989.

PROFESSIONAL SOCIETIES:

ASLO: American Society of Limnology and Oceanography.

AGU: American Geophysical Union.

TOS: The Oceanography Society

AAAS: American Association for the Advancement of Science

ASM: American Society for Microbiology

ISME: International Society for Microbial Ecology

ADDITIONAL EDUCATION:

1997 **Fall 1997 College Teaching Conference.** Program for Instructional Excellence, Office of Graduate Studies, Florida State University. August 1997.

1994 **NASA-NOAA-JPL Summer School for Earth Sciences,** California Institute of Technology, Pasadena, California. Processes of Global Change. Drs. S. K. Ride and D. J. McCleese.

1992–93 **Research practicum** (DOE fellowship program), Brookhaven National Laboratory, Ocean and Atmospheric Sciences Division, Department of Applied Science, Upton, New York. Advisor: Dr. D.W.R. Wallace.

1991–92 **University of Georgia - Institute of Ecology and Department of Microbiology.** Courses in *Microbial Ecology, Microbiology,* and *Biochemistry*. Drs. Hodson, Pomeroy, Moran, Wiebe, Whitman, Shimkets, Wiegel, and Dailey. Athens, Georgia.

1991 **Friday Harbor Marine Laboratories,** University of Washington. Summer course: *Climate and the Marine Biosphere*. Dr. R.H. Gammon. Friday Harbor, Washington.

1989 **Friday Harbor Marine Laboratories,** University of Washington. Summer course: *Polychaetes*. Drs. K. Fauchald, S. Woodin, H. Wilson. Friday Harbor, Washington.

1984 **Friday Harbor Marine Laboratories.** University of Washington. Summer course: *Biological Sedimentary Dynamics*. Drs. A.R.M. Nowell, P.A. Jumars, and R.C. Aller. Friday Harbor, Washington.

1984 **S.E.P.M. Short Course,** Geological Society of America. Course: *Mechanics of Sediment Movement*. Drs. G.V. Middleton and J.B. Southard. Providence, Rhode Island.

1984 **Brown University - Department of Geology.** Micropaleontology Short Course in Benthic Foraminifera. Dr. W. A. Berggren. Providence, Rhode Island.

1983 **Friday Harbor Marine Laboratories**, University of Washington. Summer courses: *Marine Invertebrate Zoology* (Drs. E. Kozloff and T. Suchanek), *Comparative Invertebrate Embryology* (Dr. A. Whiteley). Friday Harbor, Washington.

FIELD EXPERIENCE:

- 2010–12 **Western tropical North Atlantic** - Barbados to Barbados, Onboard *RV Knorr*, May 22–June 25, 2010; *RV Melville*, Sept 3–Oct 8, 2011, *RV Atlantis* July 13–29, 2012. Chief Scientist for NSF- and Moore Foundation-funded project investigating biology and biogeochemistry of the Amazon River Plume.
- 2010–12 **Chukchi and Beaufort Seas**, Coastal Arctic - National Arctic Research Laboratory, Barrow Alaska. Lead investigator of “ArcticNITRO” microbial ecology and carbon cycling.
- 2010–11 **Amundsen Sea, Antarctica** - Punta Arenas, Chile to McMurdo Station, Antarctica. Onboard *Icebreaker Nathaniel B. Palmer*, November 26, 2007–January 18, 2011. Chief scientist and Lead Investigator of ASPIRE project, in charge of investigating carbonate system and pelagic microbial ecology.
- 2008–09 **Pacific sector of coastal Antarctica** - Montevideo, Uruguay to McMurdo Station, Antarctica. Onboard *Icebreaker Oden*, November 29, 2008–January 13, 2009. Principal investigator in charge of investigating sea ice microbial ecology and biogeochemistry.
- 2007–08 **Pacific sector of coastal Antarctica** - Punta Arenas, Chile to McMurdo Station, Antarctica. Onboard *Icebreaker Oden*, November 26, 2007 – January 9, 2008. Principal investigator in charge of investigating pelagic microbial ecology and biogeochemistry.
- 2006 **Pacific Continental Rise** southwest of Monterey Bay (35.8°N, 122.6°W; 3300 m) aboard the *RV Western Flier* and remotely operated vehicle *ROV Tiburon*, January 2006. Principal investigator collecting deep-sea sediment for analysis of bacterial abundance and activity following deep injection of liquid CO₂. Invited participant in DOE Carbon Sequestration research (Jim Barry, PI).
- 2001 **Western Equatorial Atlantic** (6–30°N, 41–75°W) aboard *RV Seward Johnson*, January–February 2001. Principal investigator for analysis of seawater for CO₂. Invited participant in NSF-Biocomplexity project to study tropical carbon cycle.
- 1999 **Northwater Polynya** (72–79°N, 72–79°W) aboard Canadian Coast Guard icebreaker *Pierre Radisson*, August 21–September 16, 1999. Principal investigator for collection and analysis of seawater for CO₂, other carbon inventories, and microbial activity.
- 1998 **Ice Station SHEBA, Canada Basin, Arctic Ocean** (75–81°N, 142–168°W) aboard Canadian Coast Guard icebreaker *Des Groseillers*, September 5–October 17, 1998). Principal investigator involved with hydrographic sampling. Collection and analysis of seawater for total dissolved inorganic carbon concentration and microbial activity.
- 1996–98 **Bering, Chukchi, and Beaufort Seas** (66–76°N, 157–168°W) aboard USCGC *Polar Sea*, May 29–June 25, 1996, June 1–July 7, 1998). Principal investigator in charge of microbial ecology and hydrologic biogeochemistry.
- 1992–93 **Northeast Water (NEW) Polynya** (77–81°N, 6–17°W), aboard USCGC *Polar Sea*, July–August 1992, 1993. Graduate student, part of interdisciplinary research team (funded by NSF Arctic System Science) studying carbon cycling in arctic polynyas.

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- 1993 **Northeast Water Polynya**, aboard German icebreaker FS *Polarstern*. Collaboration with Canadian and German research team studying Arctic polynyas.
- 1991 **Santa Catalina Basin, California**, aboard RV *Atlantis II* and DSRV *Alvin*. Effects of whale carcass eutrophication on deep-sea benthic community.
- 1990 **Norwegian Sea**, aboard German research vessel, FS *Meteor*. Effects of pressure and temperature on deep-sea benthic microbial processes. Collaborated with Drs. G. Graf and L. A. Meyer-Reil.
- 1987–88 **Hydrodynamics Laboratory**, Friday Harbor Laboratories, San Juan Island, Washington. Masters thesis research: experiments using race-track, straight-through, and annular flumes to study effect of biogenic microtopography on deposition of particles.
- 1987 **Santa Catalina Basin, California**. Onboard research platform using Remote Underwater Manipulator (*RUM II*). Deep-sea biological-sedimentary interactions.
- 1987 **Santa Catalina Basin, California**, aboard RV *Atlantis II* and DSRV *Alvin*. Deep-sea biological-sedimentary interactions; *Alvin* dive to 1200 m.
- 1986 **California continental shelf**, aboard RV *Thomas G. Thompson*. STRESS project: sediment transport and storm effects on continental shelf and slope.
- 1985 **Hundred Acre Cove**, Barrington, Rhode Island. Fieldwork using canoe and motorized raft. Undergraduate research project: collected estuarine benthic samples using grabs and corers for sediment analysis and hydrodynamics study.
- 1984 **False Bay, San Juan Island**, Washington. Intertidal fieldwork. Effect of biogenic roughness density on local erosion and deposition.

CONTRIBUTIONS TO THE TRAINING OF HIGHLY QUALIFIED PERSONNEL

*My appointment at the University of Georgia is 9-month salary with 0.25 teaching and 0.5 research. I teach 1–3 courses per year. I teach undergraduate and graduate classes to students both from within and from outside Marine Sciences. I am frequently invited to give guest lectures in other department's courses. An important component of my instructional program occurs outside of the classroom in mentoring research and career development at the undergraduate, graduate, and postdoctoral levels. I also participate in other **early-career mentoring** programs at AGU and ASLO annual meetings, and serve as a supportive senior faculty to junior faculty in my department and elsewhere, including them in larger group proposals and supporting their career development.*

TEACHING

I have taught or co-taught more than 17 different courses during my faculty career. To illustrate my commitment to training the next generation, I briefly describe three courses below that I developed and have taught for several years.

Graduate Students (MARS 8050 - Climate, Oceans, and Marine Biosphere). This graduate-level course focuses on the climatic role of the ocean and its biosphere, with particular emphasis on connections between human activities, climate, ocean circulation, and marine ecosystems; it is open to all graduate students. We read and discuss classic and recent papers of climate change and carbon cycle science. Each time this class is taught, I update it to include new material from this rapidly changing field and tailor it to meet the needs and interests of a diverse group of graduate students from across campus (Marine Sciences, Geography, Geology, Ecology,

Anthropology and Environmental Health Sciences). Each student leads a paper discussion and prepares a research proposal, review, or original research paper as their final term project.

Undergraduate science majors (MARS 4200/6200 - Biological and Chemical Oceanography). This mixed-level grad/undergrad course provides an introduction to life in the ocean and the processes controlling its distribution and productivity, including ecology and biogeochemistry. We also explore the distribution of salts, gases, and other compounds to discover how they support life in the ocean. Oceanography is a highly interdisciplinary field of study, and we use coastal and open-ocean environments around the world to illustrate key principles. This is an elective course for Biology majors, but required for Marine Biology concentrators. Graduate students who arrive with little marine science background also take this class before they take our grad core curriculum.

Undergraduate non-science majors (MARS 1025H: Biology of the Marine Environment – Honors). I emphasize teaching students the process of scientific inquiry by assigning group projects for environmental monitoring of real time data and independent research papers on topics of student interests. Although a class for non-science majors, every year at least one student expresses an interest at the end in doing marine research or changing their major to marine science.

MENTORING AND DIRECTING INDEPENDENT RESEARCH

Undergraduate Research. I have recently increased my already significant efforts to train and mentor UGA undergraduates in marine science research, through the MARS 4960 or BIOL 4960 series. I host at least 1 and recently up to 3 undergraduate researchers in my lab each semester, who also interact with graduate students and postdocs during weekly lab group meetings. Many of these students return for a second or third semester of independent research or thesis. Some became co-authors on research papers. I help these students find summer REU programs, help with grad school decisions, and write them letters of recommendation for further education or careers. Most have gone on to medical or dental school, or graduate school in marine or other environmental sciences. I was just nominated this year (by a student) for a **Research Mentoring Award** from UGA Center Undergraduate Research Opportunities.

Graduate students at UGA Marine Science are supported primarily by Research Assistantships. Without an undergraduate major we have limited Teaching Assistantships for students. We do not accept graduate students without being able to support them financially. Masters level students are best to take on with a typical 3-year research grant cycle, so that is what I have done usually. My philosophy with masters-level students is to get them quickly doing science, analyzing samples and data, attending scientific meetings, and writing a paper. They are always first author of their thesis papers. When I recruit doctoral students, it is often via extramural (UGA Presidential Scholars, NASA, NOAA, NSF) graduate fellowships for which I assist the student in applying. My doctoral students are usually successful getting these awards. I believe that doctoral students should be the primary drivers of their research; I provide support but encourage as much independence as possible. I take them to meetings and introduce them around the first few years and then encourage them to attend meetings on their own wherever possible.

Undergraduate mentoring at UGA

Directed independent research for undergraduates (BIOL 4960, 4960H; MARS 4960, MIBO 4900L, MIBO4960H). I have supervised independent research for more than 40 undergraduates between 1998–2018: (30 since 2008; 28 female, 12 male; 7 non-white, since 1999): J. Levitt, J.G. Harper, R. Nishimuta, B. Glover, N. Harris, J. Bauman, L. Gardner, A. Goodrich, C. Lozo, E. Wright, S. Mitchell, M. Patel, L. Jarrell, M. Camp, J. Diaz, and M. Dhillon, B. Heimlich, C. Barber, W. Spence, M. Shill, J. Loevenich, A.

MacDougall, M. Floyd, C. Hammond, K. Karle, C. Young, S. Collins, A. DuPont, P. Cray, D. Goetz, H. Fabian, S. Burns, J. Melara, A. Speese, T. Eberhard, H. Campbell, J. Honeycutt, E. Malsbury, E. Barber, P. Houlihan.

Undergraduate thesis advisor or committee member: Principal thesis advisor for 6 undergraduates (A. Goodrich, J. Diaz (honors), M. Shill, D. Goetz, S. Burns (honors), A. Speese. Committee member for 2 other undergraduate IDS majors in Marine Science (J. Oliver, D. Tamarack).

Graduate student mentoring at UGA

Masters thesis advisor: Principal advisor for 7 students: T. Connelly, L. Hodges, E. Romer, A. Mass, K. Bakker, C. Williams, L. Mu.

Masters thesis committee member for 9 other students: T. Popp, K. Liptay, R. Wong, H. Tian, A. Johnson, J. Green, J. Xiang, J. Wang, M. OMalley (Environmental Health Science).

Doctoral advisor or committee member for 4 Ph.D. students (S. Cooley, A. Vislova, H. Oliver, L. Mu).

Doctoral committee member for 14 other Ph.D. students: A. deBoer (FSU), R. Ji, G. LeClerc, C. Burbage, J. Fisher, L.-Q. Jiang, W.-J. Huang, B. Chen, C. Shen, J. Westrich (UGA Environ. Health Sci), V. Ramenzoni (UGA Anthropology), J. Weger (UGA Anthropology), K. Mattingly (UGA Geography), S. Plummer.

Post-doctoral mentoring at UGA: T. Connelly (UTMSI, Memorial U.), A. Mehring (Scripps).

Undergraduate, Graduate Students, and Postdocs at Other Institutions:

Some of my most rewarding interactions have occurred with students or postdocs from outside UGA that have been part of my collaborative projects. While these scientists have another primary advisor who is a co-PI on the project, being at sea together (often without their advisor) creates both necessity and opportunity for relationships to develop. I consider all these early career scientists part of my team, and I have tried to contribute significantly to their success by guiding and supporting their work at sea and staying engaged with them as they write papers and move through their career. I have served them as an “external” letter writer for many grad-school, postdoc, and faculty applications, and connected them to opportunities through my professional network.

Undergraduates mentored while lead PI: K. Lowry (Stanford Univ.), S. Weber (GA Tech).

Graduate students mentored while lead PI: L. Chong (USC), N. Ward (UW), I. Richert (U. Uppsala), J. Dinasquet (Kalmar), B. Sergio (UFRJ).

Project postdocs mentored: S. Wilson (MBL), A.-C Alderkamp (Stanford Univ.), R. Sipler (VIMS), R. Logares (U. Uppsala), L. Yeung (USC), Pierre St-Laurent (ODU).

Other Training Activities:

Visiting Professorship in Brazil (August 2013, Sept 2014, Oct 2016). Graduate short course (1 week at 8 h per day) taught at Federal University of Rio de Janeiro, Rio de Janeiro, Brazil. 20 graduate students and postdocs. When I was at UFRJ (and also UENF), much of my time was spent working with Brazilian graduate and undergraduate students there. Nine Brazilian graduate students also came onboard as part of the 2012

Amazon expedition where I was Chief Scientist. I've stayed in touch with many of them and tried to help them with careers.

PolarTrec Researcher (2007–present). Part of teacher-researcher partnerships (<http://www.polartrec.com>) aimed at improving the teaching of K–12 science through research. Teacher partners: **Lollie Garay, Jeff Peneston**. Peneston went on to win “New York Teacher of the Year.” Garay and I continued to work together on all three of the field efforts, published a paper together, and have chaired several science education panels at Ocean Sciences Meetings. I supported Garay’s Toyota Tapestry grant that established long distance connections and relationships between Garay’s students in Houston, Texas and middle school science classrooms in Barrow, Alaska (the SMORE project).

Research professionals: **C. Tilburg** (now at the EcoSystem Indicator Project, Gulf of Maine Council on the Marine Environment); **K. Sines** (now working in health sciences); **B. Page** (now at NASA).