SAMUEL R. LANEY, PHD MED

(508) 289-3647 slaney@whoi.edu
Woods Hole, MA, 02543 linkedin.com/in/samuellaney

PROFESSIONAL OVERVIEW

I am a scientist, engineer, and educator with over 30 years of experience working at the interface of ocean science, technology innovation, and interdisciplinary education. My career focus has been on creating conceptual frameworks, innovative approaches, and multidisciplinary teams to address complex challenges in ocean research. As an ocean researcher my perspectives are heavily informed by my broad academic training in science and engineering. As a technologist my efforts are strongly influenced by early experiences with technology development, transfer, and commercialization in federal research and in industry. My educational efforts focus on developing new curricula, programs, and partnerships that enhance both institutional and student outcomes. As an organizational leader I bring skills in strategic planning, change management, boundary spanning, and higher education that have fostered outcome-oriented collaborations with diverse stakeholders, including those historically excluded from ocean fields.

EDUCATION

University of Massachusetts, Amherst, Massachusetts M.Ed., Higher Education, 2/2024
College of Education
Concentration: Higher Education
Scholarship focus: Design and implementation of professional doctorate (PD) programs in geosciences.
Advisor: Dr. Kate Hudson

Oregon State University, Corvallis, Oregon Ph.D., Oceanography, 9/2006
College of Oceanic & Atmospheric Sciences + College of Engineering
Major: Biological Oceanography Minor: Electrical and Computer Engineering
Thesis: Seconds to hour scale photosynthetic responses in marine microalgae.
Advisors: Dr. Mark R. Abbott & Dr. Ricardo M. Letelier (COAS) + Dr. Thomas Plant (COE)

Oregon State University, Corvallis, Oregon M.S., Oceanography, 12/2000
College of Oceanic & Atmospheric Sciences
Major: Biological Oceanography Minor: Physical Oceanography
Thesis: Environmental sources of variability in the natural fluorescence signal of phytoplankton.
Advisor: Dr. Mark R. Abbott

Cornell University, Ithaca, New York B.S., Agricultural & Biological Engineering, 1/1993
Joint program: College of Engineering + College of Agriculture & Life Sciences
Concentration: Instrumentation and sensors in biological systems.

Deep Springs College, Deep Springs, California 6/1987 - 6/1989
Completed the two-year Program of Study (Liberal Arts).

PROFESSIONAL APPOINTMENTS & EXPERIENCE

Scientist, Biology Department, Woods Hole Oceanographic Institution, Woods Hole MA. Senior Scientist 7/2023-present; Associate Scientist with Tenure, 7/2017-7/2023; Associate Scientist 8/2013-7/2017; Assistant Scientist, 5/2009-8/2013.

Faculty, Massachusetts Institute of Technology / Woods Hole Oceanographic Institution Joint Program in Oceanography / Applied Ocean Science and Engineering. 1/2010-present.

Director, Engineering Development Division, Pacific Marine Environmental Laboratory, National Oceanic & Atmospheric Administration, Seattle WA. 1/2024-10/2024.

Director, AVAST (Autonomous Vehicles and Sensing Technologies), Woods Hole Oceanographic Institution. 6/2021-11/2023.

Postdoctoral Investigator, Woods Hole Oceanographic Institution, Woods Hole MA. 7/2008-5/2009.

Postdoctoral Scholar, Ocean Life Institute, Woods Hole Oceanographic Institution, Woods Hole MA. 9/2006–6/2008.

Graduate Research Assistant, Oregon State University, Corvallis OR. 1997-2000 & 2003-2004.

Graduate Research Assistant, University of Maine, Orono ME. 2000-2002.

Technology Transfer Engineer, Chelsea Instruments Ltd., West Molesey, Surrey, U.K. 1996-1997.

Engineering Consultant, Oceanographic & Atmospheric Sciences Division, Brookhaven National Laboratory, US Department of Energy, Upton, NY, 1994-1996.

Instrumentation Engineer, Oceanographic & Atmospheric Sciences Division, Brookhaven National Laboratory, US Dept. of Energy, Upton, NY. Supervisors: Drs. Z. Kolber & P. Falkowski, 1992-1994.

VISITING APPOINTMENTS

Chercheur Invité, Départment de biologie, Université Laval, Québec, PQ Canada. Sept-Dec 2023.

Visiting Professor, Deep Springs College, Deep Springs CA. Spring term 2007, Fall term 2011.

AWARDS, SCHOLARSHIPS, FELLOWSHIPS, & HONORS

Fulbright Canada Research Chair on Advancing Transdisciplinary Research on the Changing North, Université Laval, Québec, PQ Canada, 2023.

James E. and Barbara V. Moltz Fellowship for Climate-Related Research, Woods Hole Oceanographic Institution, 2020-2023.

NASA New Investigator Program awardee, 2010-2013.

Santa Fe Institute, 2008 Complexity Science Summer School, selectee & participant.

NSF Office of Polar Programs, New Generation of Polar Researcher (NGPR) selectee, 2008.

Ocean Life Institute Postdoctoral Scholarship, Woods Hole Oceanographic Institution, 2006.

NSF International Research Fellowship Program Postdoctoral Fellowship, 2006 (declined).

NSF International Graduate Training Course in Antarctic Biology Scholarship, 2005.

Link Foundation Ocean Engineering and Instrumentation Fellow, 2002-2004.

Cobler Graduate Student Achievement Award, Oregon State University, 2000.

US Dept. of Energy Student Research Scholar, Brookhaven National Laboratory, 1992-1993.

OTHER ACADEMIC RECOGNITIONS

Selectee, NSF 2021 ‘Ocean Shots’ competition, with K. Meyer-Kaiser (WHOI): “An autonomous seafloor observatory on the Arctic shelf.”

2012 NASA Group Achievement Award (for contributions to ICESCAPE), December 2012.

NONACADEMIC RECOGNITIONS AND PROFESSIONAL AWARDS

Maine Science and Technology Fund, Business Plan Competition Winner, 2002. A $10,000 prize to support exploratory R&D of new fluorometric protocols for examining marine photosynthesis.

LEADERSHIP ROLES & PROFESSIONAL SERVICE

NOAA Pacific Marine Environmental Laboratory (2024)

Director, PMEL Engineering Development Division (EDD), 1/2024-10/2024. I led engineering development at NOAA’s west-coast marine research laboratory, responsible for a $3M+ annual budget and a hybrid staff of ~15 including federal employees, contractors, and cooperative institute staff.

Woods Hole Oceanographic Institution (2009-2024)

Director, AVAST (Autonomous Vehicles and Sensing Technologies), 6/2021-11/2023. I launched and led WHOI’s AVAST program for ocean innovation, reporting directly to the WHOI Deputy Director / Vice President for Science and Engineering. I was responsible for a $1M+ annual budget, several staff, and resource pools available in WHOI’s new David Center for Ocean Innovation. I ensured that AVAST sets and meets evolving goals and demonstrates institutional outcomes during its initial years.

Chair, AVAST Advisory Group, 2020-2021. I was appointed by WHOI’s President to lead an institutional advisory group to gather input and develop an implementation plan to foster new organizational models to synergize ocean research, technology, education, and outreach within WHOI’s new AVAST initiative.

Biology Department Hiring Committee. Member 2013-2014. Chair, 2015-16. As Chair I led the annual departmental faculty recruitment and selection process and improved the structure of the process.

Other Leadership: National and International

BRAID-CMC Alliance (BRinging together Allies in Diversifying Climate and Marine Careers), 2021-2023. I served on the leadership backbone for this 12-institution alliance and as a liaison to its Racial Equity Research team. As leadership I contributed strongly to BRAID’s 2023 proposal to NSF INCLUDES.

UNOLS Arctic Icebreaker Coordinating Committee, 2015-2022, Chair 2019-2022. As AICC Chair I increased the level of tribal and regional input in our AICC deliberations, expanded participation opportunities for committee members, and piloted new initiatives. As a UNOLS Chair I also served in international advisory roles, including on Canada’s 2019 review panel for its icebreaker Amundsen.

Session chair, “Linking technology and oceanography to improve polar observation”, 2019 Gordon Polar Marine Science Conference, Barga, Italy, March 2019. I was tapped to develop a framing presentation for this session, to coordinate the presentations of its two panelists, and to design and moderate a half-hour cross-cutting question and answer period between audience and panelists.

Steering Committee, AQUAFLUO II, Sydney, Australia, December 2017. In addition to leadership duties on the conference international steering committee, I initiated and oversaw a NASA award to provide conference travel for early-career participants from US institutions.

INSTITUTIONAL SERVICE AND COMMITTEES

Woods Hole Oceanographic Institution, Woods Hole, MA

Biology Department, Diversity Hiring Scoping Committee, 2021.

Biology Department Chair Selection and Advisory Committee, 2010, 2019.

WHOI Scientific Staff Executive Committee, 2018.

Seminar Co-coordinator, WHOI Biology Department, 2010-2012.

Scientific Staff Search Committees, WHOI Biology Department, 2010, 2012.

Service on multiple mentoring committees for junior tenure-track staff.

Deep Springs College, Deep Springs, CA

Faculty Advisor, Applications Committee, 2007.

PROFESSIONAL MEMBERSHIPS, SERVICE, & RECOGNITIONS

Subject matter expert: Technical Advisory Committee, Maine Space Grant Consortium, 2013-2021.

Manuscript reviewer: journals including Botanica Marina, Deep-Sea Research, Environmental Science & Technology, Journal of Atmospheric and Oceanic Technology, Journal of Geophysical Research, Journal of Photobiology, Journal of Phycology, Journal of Plankton Research, Limnology and Oceanography, Limnology and Oceanography: Methods, Marine Ecology Progress Series, Optics Express, IEEE Photonics, Journal of Sensors, and others.

Proposal reviewer or panelist: NSF, NASA, NOAA, EPA, Australian Antarctic Program, NSF Ocean Observing Initiative, Maine Space Grant Consortium, North Pacific Research Board, Czech Science Foundation, and others.

Professional memberships: American Geophysical Union, Association for the Sciences of Limnology and Oceanography.

Professional service: ASLO Graduate Student Mentor at 2014 Ocean Sciences Meeting (2 students). 2015 Ocean Science Meeting (3 students), 2017 Aquatic Sciences Meeting (1 student).

PROFESSIONAL DEVELOPMENT AND TRAINING

Small Project Organization training workshop, Corporate and Professional Education, Worcester Polytechnic Institution. Woods Hole Oceanographic Institution, November 2012, (0.4 CEU).

Massachusetts Institute of Technology, Professional Development course PI.61s, “Leadership skills for engineering and science faculty”, MIT, June 2012 (1.4 CEU).

RESEARCH AND SCHOLARSHIP

RESEARCH INTERESTS

Integrative / interdisciplinary oceanography.

Algal ecology, particularly in polar oceans.

Optical methods for assessing phytoplankton photosynthesis and ecology.

Autonomous oceanographic instrumentation, sensors, and observing.

Nonlinear dynamics in algal ecophysiology.

PUBLICATIONS: PAPERS

* - Contribution of Laney student or postdoctoral advisee.

** - Contribution involving doctoral or postdoctoral guest research in Laney lab.

Catipovic, L. A.*, Longnecker, K., Okkonen, S. R., Koestner, D., and **S. R. Laney**. 2023. Optical insight into riverine influences on dissolved and particulate carbon in a coastal Arctic lagoon system. J. Geophys. Res.: Oceans. 128, e2022JC019453. Contribution: designed overarching research; led field study; trained student author; guided analyses and manuscript preparation.

Laney, S. R., and S. R. Okkonen. 2022. An autonomous buoy system for observing spring freshet plumes under landfast sea ice. Limnol. Oceanogr. Methods. 20, 15-25, doi:10.1002/lom3.10472.

Okkonen, S. R., and **S. R. Laney**. 2021. Optical, structural and kinematic characteristics of freshwater plumes under landfast sea ice during the spring freshet in the Alaskan coastal Arctic. J. Geophys. Res.: Oceans 126, e2021JC017549. Equal authorship. Contribution: developed and led overarching study; research lead in optical observing and analyses.

Meyer-Kaiser, K., H. Chen, X. Liu, and **S. R. Laney**. 2021. Oceanographic influence on the early life-history stages of benthic during the polar night. Polar Biol. 44, 1781-1793. Contribution: provided expertise with hydrographic sampling, analyses, and interpretation.

Stedmon, C. A., R. M. W. Amon, D. Bauch, A. Bracher, R. Gonçalves-Araujo, M. Hoppmann, R. Krishfield, **S. Laney**, B. Rabe, H. Reader, and M. A. Granskog. 2021. Insights Into water mass origins in the central Arctic Ocean from in-situ dissolved organic matter fluorescence. J. Geophys. Res. 126(7), doi:10.1029/2021JC017407. Contribution: provided expertise with historical ITP observations re-examined in this study.

O'Shea, R.*, and **S. R. Laney**. 2020. A simulation framework for evaluating lightweight spectral cameras in drone-based aquatic sensing applications. Appl. Opt. 59(10), C52-C62. Contribution: guided overarching research; framed simulation development; manuscript preparation.

O'Shea, R.*, **S. R. Laney**, and Z. Lee. 2020. Evaluation of glint correction approaches for fine-scale ocean color measurements by lightweight hyperspectral imaging spectrometers. Appl. Opt. 59(7), B18-B34. Contribution: guided overarching research; guided field study and data analysis; manuscript preparation.

Mills, M. M., Z. W. Brown, **S. R. Laney**, E. Ortega-Retuerta, K. E. Lowry, G. L. van Dijken, and K. R. Arrigo. Nitrogen limitation of the summer phytoplankton and heterotrophic prokaryote communities in the Chukchi Sea. 2018. Front. Mar. Sci. 5, 362. doi:10.3389/fmars.2018.00362. Contribution: provided expertise in Chukchi Sea algal assemblage data; contributed to synthesis.

Selz, V.**, **S. Laney**, A. E. Arnstead, K. Lewis, K. Lowry, H. Joy-Warren, M. M. Mills, G. L. van Dijken, and K. R. Arrigo. 2017. Ice algal communities in the Chukchi and Beaufort Seas in spring and early summer: composition, distributions, and coupling with phytoplankton assemblages. Limnol. Oceanogr. 63, 1109-

1133. doi:10.1002/lno.10757. Contribution: provided archive of Chukchi Sea algal assemblage data; hosted student researcher; supervised data analyses and synthesis.

Olsen, L. M.**, **S. R. Laney**, P. Duarte, H. M. Kauko, M. Fernández-Méndez, C. J. Mundy, A. Rösel, A. Meyer, P. Itkin, L. Cohen, I. Peeken, A. Tatarek, M. Różańska-Pluta, J. Wiktor, T. Taskjelle, A. K. Pavlov, S. R. Hudson, M. A. Granskog, H. Hop, and P. Assmy. 2017. The seeding of ice algal blooms in Arctic pack ice: The multiyear ice seed repository hypothesis. J. Geophys. Res. Biogeosci. 122, 1529-1548, doi:10.1002/2016JG003668. Contribution: facilitated algal assemblage analyses of N-ICE samples; hosted postdoctoral researcher; contributed to data analyses and synthesis.

Laney, S. R., R. A. Krishfield, and J. M. Toole. 2017. The euphotic zone under Arctic Ocean sea ice: vertical extents and seasonal trends. Limnol. Oceanogr. 62, 1910-1934, doi: 10.1002/lno.1054.

Islam, F., M. D. DeGrandpre, C. M. Beatty, M.-L. Timmermans, R. A. Krishfield, J. M. Toole, and **S. R. Laney**. 2017. Sea surface pCO2 and O2 dynamics in the partially ice-covered Arctic Ocean. JGR-Oceans. 122, doi:10.1002/2016JC012162. Contribution: provided bio-optical profile data sets; contributed phytoplankton ecology/biogeochemistry expertise.

Assmy, P., M. Fernandez-Mendez, P. Duarte, A. Meyer, A. Randelhoff, C. Mundy, L. Olsen, H. Kauko, A. Bailey, M. Chierici, L. Cohen, A. Doulgeris, J. Ehn, A. Fransson, S. Gerland, H. Hop, S. Hudson, N. Hughes, P. Itkin, G. Johnsen, J. King, B. Koch, Z. Koenig, S. Kwasniewski, **S. Laney**, M. Nicolaus, A. Pavlov, C. Polashenski, C. Provost, A. Rösel, M. Sandbu, G. Spreen, L. Smedsrud, A. Sundfjord, T. Taskjelle, A. Tatarek, J. Wiktor, P. Wagner, A. Wold, H. Steen, and M. Granskog. 2017. Leads in Arctic pack ice enable early phytoplankton blooms below snow-covered sea ice. Sci. Rep. 7, 40850. Contribution: member of N-ICE team; hosted postdoctoral researcher, contributed to manuscript.

Laney, S. R. 2017. A general-purpose, microcontroller-based framework for integrating oceanographic sensors, instruments, and peripherals. J. Atmos. Ocean. Tech. 34, 415-427.

Lotliker, A. A., M. M. Omand**, A. J. Lucas, **S. R. Laney**, A. Mahadevan, and M. Ravichandran. 2016. Penetrative radiative flux in the Bay of Bengal. Oceanogr. 29(2), 214-221. Contribution: adapted Laney 'smart cable' technology to enable field measurements of hyperspectral radiometry on specialized profilers; provided expertise in bio-optical analyses.

H. Wang*, Y. Chen, H. Song, and **S. R. Laney**. 2015. Correcting temperature dependence in miniature spectrometers used in cold polar environments. Appl. Opt. 54, 3162-3172. Contribution: directly supervised doctoral research that led to these new cold-temperature spectrometric corrective approaches.

H. Wang*, Y. Chen, H. Song, and **S. R. Laney**. 2014. A fiber optic spectrometry system for measuring irradiance distributions in sea ice environments. J. Atmos. Ocean. Tech. 31, 2844-2857. Contribution: developed the core spectroscopic method presented in this paper and directly supervised its refinement within engineering doctoral student research.

Laney, S. R., and H. M. Sosik. 2014. Phytoplankton assemblage structure in and around a massive under-ice bloom in the Chukchi Sea. Deep-Sea Res. II 105, 30-41.

Arrigo, K. R., D. K. Perovich, R. S. Pickart, Z. W. Brown, G. L. van Dijken, K. E. Lowry, M. M. Mills, M. A. Palmer, W. B. Balch, N. R. Bates, C. Benitez-Nelson, E. Brownlee, K. E. Frey, **S. R. Laney**, J. Mathis, A. Matsuoka, B. G. Mitchell, G. W. K. Moore, R. A. Reynolds, H. M. Sosik, J. H. Swift. 2014. Phytoplankton blooms beneath the sea ice in the Chukchi Sea. Deep-Sea Res. II 105, 1-16. Contribution: led research component to assess phytoplankton assemblage structure during ICESCAPE 2010-11.

Laney, S. R., R. A. Krishfield, J. M. Toole, T. R. Hammar, C. J. Ashjian, and M.-L. Timmermans. 2014. Assessing algal biomass and bio-optical distributions in perennially ice-covered polar ocean ecosystems. Polar Science 8, 73-85.

Laney, S. R., R. J. Olson, and H. M. Sosik. 2012. Diatoms favor their younger daughters. Limnol. Oceanogr. 57, 1572-1578.

Arrigo, K. R., D. K. Perovich, R. S. Pickart, Z. W. Brown, G. L. van Dijken, K. E. Lowry, M. M. Mills, M. A. Palmer, W. B. Balch, F. Bahr, N. R. Bates, C. Benitez-Nelson, B. Bowler, E. Brownlee, J. K. Ehn, K. E.

Frey, R. Garley, **S. R. Laney**, L. Lubelczyk, J. Mathis, A. Matsuoka, B. G. Mitchell, G. W. K. Moore, E. Ortega-Retuerta, S. Pal, C. M. Polashenski, R. A. Reynolds, B. Schieber, H. M. Sosik, M. Stephens, J. H. Swift. 2012. Massive phytoplankton blooms under Arctic sea ice. Science 336, 1408, doi:10.1126/science.1215065. Contribution: led and conducted field efforts to assess phytoplankton assemblage structure in ICESCAPE program.

Timmermans, M.-L., R. Krishfield, **S. Laney**, and J. Toole, 2010. Ice-Tethered Profiler measurements of dissolved oxygen under permanent ice cover in the Arctic Ocean. J. Atmos. Ocean. Tech. 27, 1936-1949, doi:10.1175/2010JTECHO772.1. Contribution: provided analysis and interpretation of biologically forced components of under-ice dissolved oxygen signatures.

Laney, S. R., R. M. Letelier, and M. R. Abbott. 2009. Using a nonanalytical approach to model nonlinear dynamics in photosynthesis at the photosystem level. J. Phycol. 45, 298-310.

Laney, S. R., and R. M. Letelier. 2008. Artifacts in measurements of chlorophyll fluorescence transients, with specific application to fast repetition rate fluorometry. Limnol. Oceanogr. Meth. 6 40-50.

Desiderio, R. A., **S. R. Laney**, R. M. Letelier, and S. J. Giovannoni. 2007. Using lasers to probe the transient light absorption by proteorhodopsin in marine bacterioplankton. Appl. Optics. 46 7329-7336. Contribution: helped develop and perform the transient absorption spectroscopic measurements of proteorhodopsin in lysed cell preparations and in actual P. ubique cultures.

Giovannoni, S. J., L. Bibbs, J.-C. Cho, M. D. Stapels, R. Desiderio, K. Vergin, M. S. Rappé, **S. Laney**, L. J. Wilhelm, H. J. Tripp, E. J. Mathur, and D. F. Barofsky. 2005. Proteorhodopsin phototrophy in the ubiquitous marine bacterium SAR11. Nature 438, 82-85, doi:10.1038/nature04032. Contribution: helped develop and perform the transient absorption spectroscopic measurements of proteorhodopsin in cell preparations and P. ubique cultures.

Laney, S. R., R. M. Letelier, and M. R. Abbott. 2005. Parameterizing the natural fluorescence kinetics of Thalassiosira weissflogii. Limnol. Oceanogr. 50, 1499-1510.

Laney, S. R. 2005. A generalized real-time signal processor for oceanographic applications. Research Papers of the Link Foundation Fellows 4, B. J. Thompson, ed., pp. 333-349.

Laney, S. R. 2003. Assessing the error in photosynthetic properties determined with Fast Repetition Rate fluorometry. Limnol. Oceanogr. 48, 2234-2242.

Laney, S. R., R. M. Letelier, R. A. Desiderio, D. A. Kiefer, C. R. Booth, and M. R. Abbott. 2001. Measuring the natural fluorescence of phytoplankton cultures. J. Atmos. Ocean. Tech. 18, 1924-1934.

Laney, S. R. 1997. Fast Repetition Rate fluorometry - Exploring phytoplankton fluorescence. Sea Technology 38, 99-102.

PUBLICATIONS: BOOK CHAPTERS

Laney, S. R. 2011. In situ measurement of chlorophyll fluorescence transients. In D.J. Suggett et al. (eds.), Chlorophyll a Fluorescence in Aquatic Sciences: Methods and Applications, Developments in Appl. Phycol. 4, doi:10.1007/978-90-481-9268-7_2, Springer Science+Business Media B.V. (Invited and peer-reviewed).

PATENTS AND OTHER PRODUCTS

“Optical sensor biofouling assessment and correction system”. U.S. Provisional Patent Application No. 61/696,369. Filed September 2012. S. Laney, sole inventor.

“Sensor Degradation Assessment and Correction System”. International Patent Application No. PCT/US2013/057951. Filed September 2103. S. Laney, sole inventor.

SELECTED FIELD RESEARCH

Coastal Alaskan Arctic fieldwork. 2017-2023: open water boat-based surveys, on-ice buoy deployment and sampling, land-based river sampling around Stefansson Sound AK and adjacent rivers. Primary collaborators: S. Okkonen (University of Alaska, Fairbanks), K. Longnecker (WHOI MCG), D. Stramski (Scripps Institution of Oceanography), T. Maksym (WHOI AOPE).

Bering Sea ice trials for RV SIKULIAQ. March-April 2015. Member of science party designing and conducting ice trials science training for new UNOLS ice-capable research vessel.

Bering/Chukchi Sea Winter cruise, USCGC HEALY. November-December 2011. Examined phytoplankton overwintering strategies in late fall/early winter Arctic ecosystems. Primary collaborators: C. Ashjian (WHOI), D. Stockwell (University of Alaska, Fairbanks).

WHOTS-ALOHA ocean color radiometry. June 2011-June 2015. Autonomous ocean color observations on open-ocean moorings near Hawaii. Collaborators: A. Pleuddemann, R. Weller (WHOI PO).

ICESCAPE 2010, ICESCAPE 2011, USCGC HEALY. June-July 2010, 2011. Examined mesoscale distributions of phytoplankton and optical properties in the Chukchi and Bering Seas.

Arctic ocean optics, NOAA Ship OSCAR DYSON. August-September 2007. Conducted three-week mesoscale survey of phytoplankton and ocean optical properties in the eastern Chukchi & Bering Seas from 70° N to 64° N.

Upwelling ecosystem microbiology, R/V Wecoma. September 2004. Investigated variability in photosynthesis and production during 13-day cross shelf transect at the Oregon shelf break.

Hawaii Ocean Time-series survey cruises HOT154, 172, 174, & 175. 2003 & 2005. Mooring deployment, August 2004. R/V Kilo Moana & R/V Ka`imikai-o-Kanaloa. Evaluated new optical methods for characterizing algal photophysiology in oligotrophic environments.

Gulf of Alaska Global Ocean Ecosystem, R/V Wecoma. May 2003. Thirty-day shelf survey off the Kenai Peninsula. Deployed active and passive fluorometric and bio-optical systems.

Persistent Small-Scale Biological Structure (Wec9808C), R/V Wecoma, August 1998. Oregon State University 15 day transect at the Oregon shelf break. Responsible for deployment of active and passive fluorometers.

ECOHAB (Ecology of Harmful Algal Blooms), R/V Cape Hatteras, July 1998. Fifteen-day ECOHAB survey cruise in the Gulf of Maine. Responsible for hydro casts and ADCP operation.

Coastal Benthic Optical Properties (COBOP), R/V Edwin Link, June 1996. SCUBA trials for initial prototype handheld Fast Repetition Rate (FRR) fluorometer on coral substrate.

Atlantic Meridional Transect 1 (AMT-1), RRS James Clark Ross, September - October 1995. British Antarctic Survey / Plymouth Marine Laboratory six-week 7000 nm transect survey. Responsible for operation and data interpretation of experimental active fluorometers.

Chesapeake Bay fluorometry evaluation, R/V Cape Henlopen, April 1995. Evaluation of performance and behavior of a profiling FRR fluorometer in estuarine environments.

Lake Biwa Transport Experiment (BITEX93), R/V Hakken-Go, Lake Biwa Research Institute, Shiga Prefecture, Japan August-September 1993. Responsible for physiological photosynthetic measurements in laboratory, shipboard, and enclosure experiments.

Ocean Margins Program (OMP) Cruise, R/V Gyre, May 1993. Responsible for chlorophyll analysis and experimental fluorometer deployment during US Department of Energy cruise.

WORKSHOPS ATTENDED

NASEM Polar Research Board – Antarctic Technologies workshop. May 2022 (virtual).

National Geographic Society, Systems Change in the Arctic Ocean Ecosystem, May 2022 (virtual).

2021 Ocean Carbon & Biogeochemistry Workshop, Woods Hole, MA, June 2021 (virtual).

Ocean Outlook 2017, Bergen Marine Cluster, Bergen, Norway, April 2017.

NASA Arctic COLORS workshop, Woods Hole Oceanographic Institution, Woods Hole MA July 2016

Ocean Outlook 2016, Woods Hole Oceanographic Inst., Woods Hole MA, April 2016.

Ocean Carbon & Biogeochemistry Summer Workshop, Woods Hole MA, July 2015.

Ocean Outlook 2015, Bergen Marine Cluster, Bergen, Norway, February 2015.

Ocean Carbon & Biogeochemistry Summer Workshop, Woods Hole MA, July 2014.

ZERO workshop, Ocean College Zhejiang University, Hangzhou, China, December 2013.

ICESCAPE synthesis workshop, Stanford University, Palo Alto CA, September 2013.

Ocean Carbon & Biogeochemistry Summer Workshop, Woods Hole MA, July 2013.

Towards Optics-Based Measurements in Ocean Observatories workshop, 2012 Ocean Optics XXI meeting, Glasgow Scotland, UK, October 2012.

ICESCAPE-Malina US/European Arctic science synthesis workshop, Villefranche-sur-mer, France, September 2012.

ICESCAPE 2011 cruise planning workshop, Stanford University, Palo Alto CA, USA, March 2011.

UNOLS vessel planning workshop for R/V Sikuliaq, Salt Lake City UT, USA, February 2011.

ICESCAPE 2010 cruise planning workshop, Victoria BC, Canada, December 2009.

2006 NSF Antarctic science and research logistics workshop, Arlington VA, USA, August 2006.

Fast Repetition Rate fluorometry workshop, Challenger Conference, University of Plymouth, UK, 2002.

INVITED SEMINARS AND LECTURES

Laney, S. R. “Observing annual, seasonal, & ephemeral processes in the coastal Alaskan Arctic”. Invited seminar, Quebéc-Océan, December 2023, Université Laval, Québec PQ, Canada.

Laney, S. R. “Bridging Disciplinary Boundaries in the Alaskan Coastal Arctic”. Invited keynote presentation, Sentinelle Nord – Sentinel North Annual Scientific Meeting, November 2023, Québec PQ, Canada.

Laney, S. R. “Observing ice-covered ocean ecosystems: Technologies & strategies for annual-scale observations”. Invited oral presentation, National Academies of Science, Engineering, and Medicine – Polar Research Board Antarctic Technologies workshop, May 2022.

Laney, S. R. “Examining biogeochemical aspects of river plumes under landfast sea ice in Arctic coastal waters during the spring freshet”. CEOAS Distinguished Scholar seminar, April 2021.

Laney, S. R. “Linking technology and oceanography to improve polar observation”. Special session overview oral presentation, 2019 Gordon Polar Marine Science Conference, Barga Italy, March 2019.

Laney, S. R. “Dante’s 9th circle of Hell is ice”. Invited institute seminar, International Arctic Research Center, University of Alaska Fairbanks, April 2019.

Laney, S. R. “Dante’s 9th circle of Hell is ice”. Departmental seminar, Graduate School of Oceanography, University of Rhode Island, February 2019.

Laney, S. R. “New frameworks for representing the dynamics of the fluorescence-irradiance relationship”. Invited oral presentation, AQUAFLUO II, Sydney Australia, December 2017.

Laney, S. R. “Phytoplankton and light under Arctic Ocean sea ice: vertical extents and seasonal trends”. Invited oral presentation, Norwegian Polar Institute, Tromsø Norway, April 2017.

Laney, S. R. “New insight into polar phytoplankton through automated & autonomous technologies”. Ocean University of China (Qingdao), Shanghai Ocean College (Shanghai), Second Institute of Oceanography (Hangzhou), and Zhejiang University Ocean College (Zhoushan), October 2015.

Laney, S. R. “Phytoplankton blooms in high latitude systems”. Oral presentation, 2015 Ocean Carbon & Biogeochemistry (OCB) workshop, Woods Hole Oceanographic Institution, Woods Hole MA, July 2015.

Laney, S. R. “Seasonal trends in Arctic ice, light, and phytoplankton measured under perennial sea ice cover using autonomous profilers”. Oral presentation, 2015 ESSAS Annual Science meeting, University of Washington, Seattle WA, June 2015.

Laney, S. R. “Monitoring ocean ecosystems under Arctic sea ice: Advances in observational Technology”. Oral presentation, 2015 Ocean Outlook Workshop, University of Bergen, Bergen, Norway, February 2015.

Laney, S. R. “New Insight into Polar Phytoplankton through Automated & Autonomous Technologies”. Institution seminar, University of Massachusetts Dartmouth, Dartmouth MA, April 2014.

Laney, S. R. “New Insight into Polar Phytoplankton through Autonomous Technologies”. Departmental seminar, University of Maine School of Marine Sciences, Orono ME, February 2014.

Laney, S. R. “Optical Approaches for Monitoring Ocean Biology and Ecology on Observatories”. ZERO workshop seminar, Ocean College, Zhejiang University, Hangzhou China, December 2013.

Laney, S. R. “New Insight into Polar Phytoplankton through Autonomous Technologies”. Institution seminar, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven Germany, May 2013.

Laney, S. R. “Balancing the scales in phytoplankton ecology”. Institution seminar, Bigelow Laboratory for Ocean Sciences, Boothbay Harbor ME, January 2013.

Laney, S. R. “The lives of some cells: binary division in diatoms (observed in situ and in the lab)”. Departmental seminar, School of Ocean and Earth Science and Technology, University of Hawaii at Manoa, November 2012.

Laney, S. R. “The lives of some cells: binary division in diatoms (observed in situ and in the lab)”. Departmental seminar, Graduate School of Oceanography, University of Rhode Island, February 2011.

Laney, S. R. “The lives of some cells: binary division in diatoms (observed in situ and in the lab)”. Invited seminar, Ecosystem Center, MBL, Woods Hole MA, April 2010.

Laney, S. R. “Interpreting variable fluorescence using a stochastic framework”. Invited lecture, at Chlorophyll Fluorescence in Aquatic Sciences Meeting (AQUAFLUO). June 2007, Nove Hrady, Czech Republic.

Laney, S. R. and M. J. Perry. “Using numerical simulations to explore physiological photosynthesis models: examining the influence of second-order physiological factors”. Invited lecture, Fast Repetition Rate fluorometry workshop, Challenger Conference. 2002, University of Plymouth, UK.

Laney, S. R. “Interdisciplinary graduate education in oceanography”. Invited lecture, ‘Oceanography: The Making of a Science’, Heinz Foundation – Office of Naval Research. 2000, Seattle WA.

OTHER FIRST AUTHOR PRESENTATIONS

Laney, S. R., K. Longnecker, L. Catipovic, & S. Okkonen. “Near-annual observations of pCO2 in a seasonally ice-covered coastal Arctic embayment”. Oral presentation, 2024 Ocean Sciences Meeting, New Orleans, LA, February 2024.

Laney, S. R., S. R. Okkonen, K. Longnecker, and L. Catipovic. “Using unattended approaches to enable multidisciplinary study of seasonal events in the coastal Arctic Ocean”. Oral presentation, 7th International Symposium on Arctic Research (ISAR-7), Tachikawa, Japan, March 2023.

Laney, S. R., S. R. Okkonen, K. Longnecker, and L. Catipovic. “In situ observations of dissolved CO2 in a coastal Arctic lagoon”. Poster presentation, 2021 Ocean Carbon & Biogeochemistry Workshop, Woods Hole, MA, June 2021 (virtual).

Laney, S. R. “Integrated observing systems for the Arctic”. Oral presentation, 2020 Ocean Outlook Workshop, Woods Hole, MA, May 2020 (virtual).

Laney, S. R., S. Okkonen, K. Longnecker, & L. Catipovic. “Directly measuring biogeochemical proxies of the Kuparuk and Sagavanirktok Rivers during the spring freshet, in ice-covered adjacent coastal waters”. Oral presentation, 2020 Ocean Sciences Meeting, San Diego, CA, February 2020.

Karentz, D., D. Manahan, & Laney, S. R. “NSF Advanced Training Program in Antarctica for Early Career Scientists: Biological adaptations to environmental change”. Poster presentation, 2019 Gordon Polar Marine Science Conference, Barga Italy, March 2019.

Laney, S. R., S. Okkonen, K. Longnecker, D. Stramski, & D. Koestner. “Assessing riverine carbon transport into Arctic coastal margins during the spring freshet”. Poster presentation, 2019 Gordon Polar Marine Science Conference, Barga Italy, March 2019.

Laney, S. R., S. Okkonen, K. Longnecker, D. Stramski, & D. Koestner. “Assessing the contribution of organic carbon to the coastal Beaufort shelf during the spring freshet of the Kuparuk and Sagavanirktok Rivers”. Oral presentation, 2019 Aquatic Sciences Meeting, San Juan, PR, February 2019.

Laney, S. R., & S. Okkonen. “Optical properties and hydrography associated with the spring freshet of the Kuparuk and Sagavanirktok Rivers in nearshore Beaufort Sea waters”. Oral presentation, 2019 Alaska Marine Science Symposium, Anchorage, AK, January 2019.

Laney, S. R., S. Okkonen, K. Longnecker, D. Stramski, and D. Koestner. “Optical assessment of riverine inputs into Arctic coastal margins”. Poster presentation, 2018 Ocean Optics Meeting, Dubrovnik Croatia, October 2018.

Laney, S. R., J. Toole, and R. Krishfield. “The euphotic zone under Arctic sea ice: seasonal assessment using autonomous systems”. Oral presentation, 2017 Ocean Outlook Meeting, Bergen Norway, April 2017.

Laney, S. R. “New frameworks for representing the dynamics of the photosynthesis-irradiance relationship”. Oral presentation, 2017 Aquatic Sciences Meeting, Honolulu, HI, February 2017.

Laney, S. R., J. Toole, and R. Krishfield. “The vertical distribution & seasonality of light under Arctic Ocean sea ice”. Oral presentation, 2016 Ocean Optics Meeting, Victoria, BC, Canada, October 2016.

Laney, S. R., J. Toole, R. Krishfield, and M.-L. Timmermans. “Light fields under Arctic Ocean sea ice”. Oral presentation, 2016 Ocean Outlook Workshop, Woods Hole, MA, April 2016.

Laney, S. R., J. Toole, R. Krishfield, and M.-L. Timmermans. “Autonomous observations of coupled physical-biological processes in the ice-covered Arctic Ocean over diel to annual scales”. Oral presentation, 2016 Ocean Sciences Meeting, New Orleans, LA, February 2016.

Laney, S. R., J. Toole, R. Krishfield, and M.-L. Timmermans. “Enhancing observational capabilities for Arctic Ocean ecosystems: Innovations using Ice-Tethered Profilers”. Oral presentation, 2015 Arctic Ocean Observing Science Meeting, Seattle, WA, November 2015.

Laney, S. R. and L. Eisner. “Using imaging flow cytometry to examine phytoplankton assemblage structure in the Bering Sea”. Oral presentation, 2015 PICES Conference, Qingdao, China, October 2015.

Laney, S. R., J. Toole, R. Krishfield, and M.-L. Timmermans. “Year-long, daily-scale ecosystem observations under perennial ice cover in the Arctic Ocean”. Oral presentation, 2015 Arctic Science Summit Week (ASSW2105), ISAR-4 / ICARP III (Fourth International Symposium on the Arctic Research / Third International Conference on the Arctic Research Planning), Toyama, Japan, April 2015.

Laney, S. R. and H. Sosik. “Phytoplankton assemblage structure in the Chukchi Sea: Insight from flow cytometry”. Poster presentation, 2015 Alaska Marine Science Symposium, Anchorage, AK, January 2015.

Laney, S. R., J. Toole, and R. Krishfield. “Year-long, daily-scale bio-optical observations under perennial ice cover in the Arctic Ocean”. Oral presentation, 2014 Ocean Optics Conference, Portland, ME, USA, October 2014.

Laney, S. R., and others. “Year-long, daily-scale bio-optical observations under perennial ice cover in the Arctic Ocean”. Oral presentation, 2014 FAMOS, Woods Hole, MA, USA, October 2014.

Laney, S. R., H. Sosik, and D. Stockwell. “Using imaging flow cytometry to examine phytoplankton assemblage structure in the Chukchi Sea”. Poster presentation, 2014 Ocean Science Meeting, Honolulu, HI, February 2014.

Laney, S. R., H. Sosik, and D. Stockwell. “Using imaging flow cytometry to examine phytoplankton assemblage structure in the Bering Sea”. Poster presentation, 2014 Bering Sea Ocean Science Meeting, Honolulu, HI, February 2014.

Laney, S. R. and H. Sosik. “Using imaging flow cytometry to examine phytoplankton assemblage structure in the Bering and Chukchi Seas”. Poster presentation, 2014 Alaska Marine Science Symposium, Anchorage, AK, January 2014.

Laney, S. R., J. Toole, and R. Krishfield. “Yearlong, Daily Assessments of Bio-Optical Distributions under Perennial Ice Cover in the Arctic Ocean”. AGU Fall Meeting, San Francisco CA. December 2013.

Laney, S. R., and H. Sosik. “Microplankton assemblage structure in ICESCAPE 2011”. Oral presentation, ICESCAPE workshop. Stanford University, Palo Alto CA. September 2013.

Laney, S. R. “A new paradigm for interpreting remotely sensed phytoplankton fluorescence”. Poster presentation, International Ocean Color Symposium. Darmstadt, Germany. May 2013.

Laney, S. R. and D. Stockwell. “Using imaging flow cytometry to examine phytoplankton assemblage structure in the Bering and Chukchi Seas”. Oral presentation, 2013 Alaska Marine Science Symposium, Anchorage, AK, January 2013.

Laney, S. R., J. Toole, R. Krishfield, and C. Ashjian. “Year-long monitoring of under-ice phytoplankton assemblages in the Arctic by Ice-Tethered Profilers”. Oral presentation, Third International Symposium on the Arctic Research (ISAR-3), Tokyo, Japan, January 2013.

Laney, S. R. “Long term, high-resolution assessment of sun-stimulated fluorescence in the oligotrophic Pacific”. Oral presentation, 2012 Ocean Optics XXI Meeting, Glasgow, Scotland, UK, October 2012.

Laney, S. R., and H. Sosik. “Microplankton assemblage structure in ICESCAPE 2011”. Oral presentation, ICESCAPE-Malina workshop. Villefranche-sur-mer, France. September 2012.

Laney, S. R. “Using active fluorescence to examine minutes-scale photosynthetic responses in phytoplankton”. Oral presentation, 2012 Aquatic Sciences Meeting, Otsu, Japan, July 2012.

Laney, S. R. “Effects of cloud cover on remotely sensed ocean phytoplankton fluorescence”. Poster presentation, 2012 Ocean Color Research Team Meeting, Seattle, WA, USA, April 2012.

Laney, S. R. “Automated, autonomous biosampling: Imaging FlowCytobot”. Oral presentation, UNOLS vessel planning workshop for R/V Sikuliaq, Salt Lake City UT, USA, February 2012.

Laney, S. R. “A new dynamical modeling framework for interpreting phytoplankton natural fluorescence”. Oral presentation, 2012 Ocean Sciences Meeting, Salt Lake City, UT, USA, February 2012.

Laney, S. R., R. Krishfield, C. Ashjian, M.-L. Timmermans, and J. Toole. “Optical Assessment of Under-Ice Biology in the Arctic using Ice-Tethered Profilers”. Poster presentation, 2011 AOMIP, Woods Hole, MA, USA, November 2011.

Laney, S. R. “Assessing Natural Fluorescence Dynamics using Radiometry on Long-term Ocean Moorings”. Poster presentation, 2011 NASA Carbon Cycle and Ecosystems Meeting, Washington, DC, USA, October 2011.

Laney, S. R., and H. Sosik. “Monitoring Climate-Driven Changes in Arctic Algal Assemblages”. Oral presentation, ICESCAPE 2011 planning workshop, Stanford University, Palo Alto CA, USA, March 2011.

Laney, S. R., H. Sosik and R. Olson. “Diatoms favor their younger daughters”. Oral presentation, 2010 Ocean Sciences Meeting, Portland, OR, USA, February 2010.

Laney, S. R. “The Dynamics of Sun-Stimulated Phytoplankton Fluorescence”. Poster presentation, 2010 Ocean Optics XX Meeting, Anchorage, AK, USA, September 2010.

Laney, S. R., and H. Sosik. “Monitoring Climate-Driven Changes in Arctic Algal Assemblages”. Oral presentation, ICESCAPE 2010 planning workshop, Vancouver BC, Canada, December 2009.

Laney, S. R., H. Sosik and R. Olson. “Examining cell-specific growth and division in phytoplankton using time-lapse photomicrography”. Oral presentation, 2009 Aquatic Sciences Meeting, Nice, France, January 2009.

Laney, S. R., and H. Sosik. “Optical Approaches for Monitoring Change in Coastal Arctic Marine Ecosystems”. Oral and poster presentations, 2008 International Polar Year New Generation of Polar Researchers, Colorado Springs, CO, USA, May 2008.

Laney, S. R. and R. M. Letelier. “Ocean productivity and the role of pelagic ecosystems in the carbon cycle: a remote sensing perspective”. Oral presentation, 2004 Conference of the International Society of Microbial Ecology. 2004, Cancun, Mexico.

Laney, S. R., and M. J. Perry. “Second-order controls on single-turnover chlorophyll fluorescence yield and their influence on oceanic productivity models. Poster presentation, at ‘Phytoplankton Productivity: an appreciation of 50 years of the study of production in oceans and lakes’. March 2002, Bangor, Wales, UK.

Laney, S. R., R. M. Letelier, and M. R. Abbott. “The effect of nitrate and irradiance on natural fluorescence: Assessing the influence of environmental variables”. Poster presentation, ASLO Ocean Sciences Meeting. February 2002, Honolulu HI.

Laney, S. R., R. M. Letelier, and M. R. Abbott. “Physiological variability in the natural fluorescence of Thalassiosira weissflogii”. Poster presentation, NASA Ocean Color Research Team meeting. May 2001, San Diego CA.

Laney, S. R., R. M. Letelier, and M. R. Abbott. “Electron transport models of photosynthesis: does reaction center connectivity enhance photosynthesis?” Poster presentation, ASLO Aquatic Sciences Meeting. February 2001, Albuquerque NM.

Laney, S. R., R. M. Letelier, R. A., Desiderio, and M. R. Abbott. “Laboratory time series of phytoplankton natural fluorescence”. Poster presentation, AGU Ocean Sciences Meeting. January 2000, San Antonio TX.

PUBLIC OUTREACH & SYNERGISTIC ACTIVITIES

‘v-code’ FRRF analysis software. Designed and maintained open-source software for interpreting variable fluorescence transients, 1999-2006.

“Outlaw Algae”, WHOI Ocean Science Exhibit Center kiosk project, 2013-2015. Developed content for an interactive kiosk presenting algal assemblages in the Alaskan Arctic. Supporting agency: NPRB. http://www.whoi.edu/feature/outlawalgae/

“Ocean Color”, WHOI Ocean Science Exhibit Center kiosk project, 2010-2013. Developed content for an interactive kiosk presenting ocean color research. Supporting agency: NASA (New Investigator Program). http://www.whoi.edu/graphics/oceancolor/

EDUCATIONAL EFFORTS AND ENGAGEMENT

FACULTY POSITIONS AND INSTRUCTIONAL EXPERIENCE

MIT-WHOI Joint Program in Biological Oceanography (JPBO), 2009-2024.

MIT-WHOI Joint Program in Applied Ocean Science and Engineering (JPAOSE), 2015-2024.

MIT-WHOI Joint Program in Chemical Oceanography (JPCO), 2018-2024.

Visiting Professor, Deep Springs College, Deep Springs CA, January-April 2007: Developed and led lower division courses in numerical methods and computer modeling, Calculus I, and Calculus II. September-October 2011: Developed and led lower division introductory and accelerated courses in single variable and multivariable calculus.

Instructor, 2018 NSF International Graduate Training Course in Antarctic Biology. McMurdo Station, USAP. Lead instructors: D. Manahan & D. Karentz.

Lecturer for WHOI educational programs: 2022 & 2023 APO Blue Economy Course; 2022 UMass Dartmouth invitational; 2012 British Petroleum Oceanography short course.

Teaching Assistant, Oregon State University. 2005: Introduction to Oceanography: freshman web-based University extension course, Dr. R. Keller, lead instructor. 2004: Marine Phytoplankton Physiology: graduate course for oceanography and chemical engineering students, Dr. R. M. Letelier, lead instructor.

Teaching Assistant, 2001 NSF-ONR-NASA Ocean Optics Course. 6-week summer course, University of Maine, Darling Marine Center. Dr. M. J. Perry, lead instructor.

EDUCATION AWARDS

WHOI Doherty Chair in Education, 2017-2018. Focus: New JPAOSE thematic area in optics and imaging.

PROFESSIONAL DEVELOPMENT: EDUCATIONAL

Yale/Poorvu Summer Institute for Scientific Teaching, July 2019, Louisiana State University, Baton Rouge LA.

EDUCATION SERVICE

<u>At Woods Hole Oceanographic Institution</u>

Woods Hole Partnership in Education Program (PEP) mentor, 2021.

WHOI Summer Student Fellow program coordinator, Biology Department, 2018-2020.

MIT/WHOI Joint Program Admissions committee, 2013-2016.

MIT/WHOI Joint Program in Biological Oceanography, Curriculum review committee, 2016-17.

MIT/WHOI Joint Program in Biological Oceanography, Exam review committee, 2011.

Postdoctoral Mentoring Committee, Biology Department, 2010-2012.

MIT/WHOI Joint Program in Biological Oceanography, Dissertation Defense Committee, Chair: Dr. Louie Wurch (August 2011), Dr. Harriet Alexander (December 2015), Dr. Emily Brownlee (March 2017), Dr. Justin Suca (July 2021).

MIT/WHOI Joint Program in Biological Oceanography, Exam Committee, Chair: Megan May (2015). Michael Meneses (2023).

National and International

External academic review panel, School of Marine Science, University of Maine, February 2023.

Invited participant, “Improving Geoscience Graduate Student Preparedness for the Future Workforce” workshop. Stanford University, August 18-19, 2022.

EDUCATIONAL LEADERSHIP AND CONTRBUTIONS

“Planning: BRAID-CMC Alliance Workshop”, as co-PI with Dr. Lauren Mullineaux (WHOI), Dr. Jennifer Johnson (Temple University), and Dr. Christina Yao (University of South Carolina). 2023 proposal to NSF RISE-Geoscience Education ($140k, 2 years).

“BRinging together Allies in Diversifying Climate and Marine Careers” (BRAID-CMC), as working group coordinator on BRAID’s Leadership Backbone, in 2021 proposal to NSF INCLUDES ($10M, 5 years).

“National Leadership in Arctic-STEM Higher Education”, as co-Director within the Education Office in a 2019 pre-proposal to NSF’s Science and Technology Center (STC) program. Collaborators: Dr. Katie Spellman (University of Alaska Fairbanks), Dr. Linda Nicholas-Figueroa (Iḷisaġvik Tribal College).

“Graduate Training in New Technologies for Arctic Research”. Collaborators: Dr. Anna Michel (WHOI AOPE), Drs. Eric Hochberg & James Hammerman (TERC, Cambridge MA). Lead PI on 2019 proposal to NSF NRT-NNA ($3M, 5 years).

INVITED LECTURES (EDUCATION)

Laney, S. R. “Parcours d'un chercheur interdisciplinaire: Leçons apprises des défis et collaborations qui mènent à l'innovation (Journey of an interdisciplinary researcher: Lessons learned from challenges and collaborations that lead to innovation)”. Sentinelle Nord – Université Laval graduate seminar, December 2023, Québec PQ, Canada. Invited presentation to launch year-long graduate seminar series on interdisciplinarity.

COURSES DEVELOPED AND LED

MIT/WHOI Joint Program

MIT 7.47 Biological Oceanography, 2009-2011. Graduate core course for first year JPBO students.

MIT 7.433 Marine Bio-optics, 2019, 2014. Advanced graduate topics course in JPBO.

MIT 2.688 Principles of Ocean Instrument Systems, 2017-2020. Required JPAOSE core course.

MIT 12.702 Elements of Modern Oceanography, 2018-2019. Graduate interdisciplinary course.

Deep Springs College

Single Variable Calculus, Multivariable Calculus. 2011. Undergraduate lower-division courses.

Precalculus, Single Variable, Numerical Methods. 2007. Undergraduate lower-division coursed.

STUDENTS AND ADVISEES

Doctoral students: MIT/WHOI Joint Program

Doctoral advisor, Luka Catipovic, MIT/WHOI Joint Program in Applied Ocean Science and Engineering. Massachusetts Institute of Technology (Department of Earth, Atmospheric, and Planetary Sciences) & Woods Hole Oceanographic Institution (Department of Marine Chemistry and Geochemistry). 2018-2023. – present.

Doctoral advisor, Ryan O'Shea, MIT/WHOI Joint Program in Applied Ocean Science and Engineering. Massachusetts Institute of Technology (Department of Mechanical Engineering) & Woods Hole Oceanographic Institution (Applied Ocean Physics and Engineering Department). 2015- 2020.

Doctoral students: other programs

Doctoral co-advisor, Hangzhou Wang (Ph.D. 2015, Department of Mechanical Engineering, Zhejiang University, China); Doctoral guest student, Woods Hole Oceanographic Institution, 2012- 2014.

Undergraduate advisees & mentees, WHOI

Undergraduate research advisor, WHOI Blue Economy program: Jack Driscoll (spring 2022, Cape Cod Community College).

Undergraduate research advisor, WHOI Summer Student Fellowship program: Paul Lerner (2012, University of California Berkeley). Erin Larragoite (2013, University of New Mexico). WHOI Winter Fellows: David Kenison (2014, Oberlin College). Naomi Roswell (2016, Oberlin College).

Undergraduate research advisor, Woods Hole PEP: Xzayana Henderson (summer 2021, Dakota State University).

Undergraduate research advisor, WHOI Guest Student program: Jack Driscoll (summer 2022, Cape Cod Community College); James Davis (summer 2022, Olin College).

Undergraduate advisees & mentees, other programs

Honors Thesis advisor, Kristin Landgren (Honors College, Oregon State University), Oregon State University, 2007.