

Hilde Oliver

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EDUCATION

Ph.D. , Marine Sciences University of Georgia Coadvised by Patricia L. Yager and Renato M. Castelao	2014 - 2019 Athens, GA
B.S. , Mathematics (emphasis in Applied Mathematics, minor in French) University of South Carolina Honors from the South Carolina Honors College, Magna Cum Laude	2010 - 2014 Columbia, SC

APPOINTMENTS

Assistant Scientist (tenure-track) Woods Hole Oceanographic Institution Department of Applied Ocean Physics and Engineering	Starting Fall 2021 Woods Hole, MA
Postdoctoral Scholar Woods Hole Oceanographic Institution Department of Applied Ocean Physics and Engineering Coadvised by Dennis J. McGillicuddy, Jr. and Weifeng Gordon Zhang	2019 - present Woods Hole, MA

RESEARCH INTERESTS

Bio-physical interactions. Effects of melting ice sheets and sea ice on ocean physics and biogeochemistry. Fjord dynamics. Deep ocean-shelf interactions. Frontal systems. Iron cycling. Coupled physical-biogeochemical numerical modeling. Plankton imaging.

REFEREED PUBLICATIONS

- [12] **Oliver, H.**, Zhang, W. G., Archibald, K. M., Hirzel, A. J., Smith, W. O., Sosik, H. M., Stanley, R. H. R., & McGillicuddy, D. J. (Submitted). Ephemeral surface chlorophyll enhancement at the New England shelf break driven by Ekman restratification.
- [11] **Oliver, H.**, Zhang, W. G., Smith, W. O., Alatalo, P., Chappell, P. D., Hirzel, A. J., Selden, C. R., Sosik, H. M., Stanley, R. H. R., Zhu, Y., & McGillicuddy, D. J. (2021). Diatom Hotspots Driven by Western Boundary Current Instability. *Geophysical Research Letters*, 48, e2020GL091943. <https://doi.org/10.1029/2020GL091943>
- [10] Smith, W. O., Zhang, W. G., Hirzel, A., Stanley, R. H. R., Meyer, M., Sosik, H. M., Alatalo, P., **Oliver, H.**, Sandwith, Z., Crockford, T., Peacock, E., Mehta, A., & McGillicuddy, D. J. (2021). A regional, early spring bloom of *Phaeocystis pouchetii* on the New England continental shelf. A Regional, Early Spring Bloom of *Phaeocystis pouchetii* on the New England Continental Shelf. *Journal of Geophysical Research: Oceans*, 126(2), 2020JC016856. <https://doi.org/10.1029/2020JC016856>
- [9] **Oliver, H.**, Castelao, R. M., Wang, C., & Yager, P. L. (2020). Meltwater-Enhanced Nutrient Export from Greenland's Glacial Fjords: A Sensitivity Analysis. *Journal of Geophysical Research: Oceans*, 125(7), 1–18. <https://doi.org/10.1029/2020JC016185>
- [8] Castelao, R. M., Luo, H., **Oliver, H.**, Rennermalm, Å. K., Tedesco, M., Bracco, A., Yager, P. L., Mote, T. L., & Medeiros, P. M. (2019). Controls on the transport of meltwater from the southern Greenland ice sheet in the Labrador Sea. *Journal of Geophysical Research: Oceans*, 124, 3551–3560. <https://doi.org/10.1029/2019JC015159>

- [7] **Oliver H.**, St-Laurent, P., Sherrell, R. M., & Yager, P. L. (2019). Modeling iron and light controls on the summer *Phaeocystis antarctica* bloom in the Amundsen Sea Polynya. *Global Biogeochemical Cycles*, 33, 570-596. <https://doi.org/10.1029/2018GB006168>
- [6] St-Laurent, P., Yager, P. L., Sherrell, R. M., **Oliver, H.**, Dinniman, M. S., & Stammerjohn, S. E. (2019). Modeling the Seasonal Cycle of Iron and Carbon Fluxes in the Amundsen Sea Polynya, Antarctica. *Journal of Geophysical Research: Oceans*, 124(3), 1544–1565. <https://doi.org/10.1029/2018JC014773>
- [5] Rognstad, R. L., Wetthey, D. S., **Oliver, H.**, & Hilbish, T. J. (2018). Connectivity modeling and graph theory analysis predict recolonization in transient populations. *Journal of Marine Systems*, 183, 13–22. <https://doi.org/10.1016/j.jmarsys.2018.03.002>
- [4] **Oliver, H.**, Luo, H., Castelao, R. M., van Dijken, G. L., Mattingly, K. S., Rosen, J. J., Mote, T. L., Arrigo, K. R., Rennermalm, Å. K., Tedesco M., & Yager, P. L. (2018). Exploring the Potential Impact of Greenland Meltwater on Stratification, Photosynthetically Active Radiation, and Primary Production in the Labrador Sea. *Journal of Geophysical Research: Oceans*, 2570–2591. <https://doi.org/10.1002/2018JC013802>
- [3] Arrigo, K. R., van Dijken, G. L., Castelao, R. M., Luo, H., Rennermalm, Å. K., Tedesco, M., Mote, T. L., **Oliver H.**, & Yager, P. L. (2017). Melting glaciers stimulate large summer phytoplankton blooms in southwest Greenland waters. *Geophysical Research Letters*, 44, 6278–6285. <https://doi.org/10.1002/2017GL073583>
- [2] **Oliver, H.**, Rognstad, R., & Wetthey, D. (2015). Using meteorological reanalysis data for multi-decadal hindcasts of larval connectivity in the coastal ocean. *Marine Ecology Progress Series*, 530, 47–62. <https://doi.org/10.3354/meps11300>
- [1] Deiterding, R., Glowinski, R., **Oliver, H.**, & Poole, S. (2013). A Reliable Split-Step Fourier Method for the Propagation Equation of Ultra-Fast Pulses in Single-Mode Optical Fibers. *Journal of Lightwave Technology*, 31(12), 2008–2017. <https://doi.org/10.1109/JLT.2013.2262654>

OTHER PUBLICATIONS

Clarke, A., L. S. Peck, and **H. Oliver** (2019), Polar Ecosystems, in *Encyclopedia of Ocean Sciences* (Third Edition), edited by J. K. Cochran, H. J. Bokuniewicz, and P. L. Yager, pp. 771–777, Academic Press, Oxford.

HONORS AND AWARDS

WHOI Weston Howland Jr. Postdoctoral Scholar Award	2019-2021
UGA Marine Sciences Departmental Graduate Research Award	2019
AGU Outstanding Student Presentation Award	2019
NSF Graduate Research Fellowship	2016-2019
UGA Presidential Graduate Fellowship	2014-2019
USC Jeong S. Yang Award for Excellence in Undergraduate Mathematics	2014
Phi Beta Kappa	2013

SEMINARS

UMass Dartmouth School for Marine Science & Technology “Diatom Hotspots Driven by Western Boundary Current Instability.”	Upcoming
WHOI Department of Applied Ocean Physics & Engineering “Diatom Hotspots Driven by Western Boundary Current Instability.”	Apr. 2021
WHOI Polar Ecology Group “How does discharge from the Greenland Ice Sheet affect coastal primary productivity?”	Nov. 2020
WHOI Department of Applied Ocean Physics & Engineering “Modeling the impacts of Greenland glacial runoff on phytoplankton light and nutrient limitation.”	Feb. 2020

UGA Department of Marine Sciences "Physical controls on light and nutrients in coastal regions receiving large fluxes of glacial meltwater." June 2019

SYNERGISTIC ACTIVITIES

WHOI Committees: Women's Committee (2019-present), Committee on Diversity and Inclusion (2020-present)

Community Committees and Working Groups: Ocean Observatories Initiative BGC Sensor Working Group (2021-2022), Ocean Observatories Initiative Innovations Lab, Phase II (2021), Southeastern Biogeochemistry Symposium (SBS) Graduate Student Steering Committee (2016-2017)

Session Co-Chair: Ocean Sciences Meeting 2022: "Shelf-break frontal dynamics: integrating biological, biogeochemical and physical observations for a holistic view of ecosystem function"

Proposal Reviewer: The National Fund for Scientific and Technological Development (FONDECYT, Government of Chile, 2020)

Reviewer: Nature Climate Change, Frontiers in Marine Science, Geophysical Research Letters, Biogeosciences, Journal of Plankton Research, Journal of Geophysical Research: Oceans

TEACHING AND MENTORING

Undergraduate student research mentor, Summer 2019

Guest lecturer on primary productivity, Spring 2019
Marine Biology (undergraduate), UGA

Online guest lecturer on Antarctic Ecosystems, Spring 2019
Introduction to the Marine Environment (undergraduate), UGA

Guest lecturer on low frequency variability, Spring 2019
Migrations in the Sea: From Larvae to Whales (undergraduate), UGA

Guest lecturer on trace metals in the sea, Fall 2018
Chemical and Biological Oceanography (undergraduate), UGA

Guest lecturer on El Niño, Fall 2018
Introduction to the Marine Environment (undergraduate), UGA

Supplemental Instructor, Fall 2013
Calculus II (undergraduate), University of South Carolina

OCEANOGRAPHIC RESEARCH CRUISES

R/V Roger Revelle, 60 days (2020-2021)
Video Plankton Recorder operations
Project: Biogeochemical and Physical Conditioning of Sub-Antarctic Mode Water in the Southern Ocean
Chief Scientist: Barney Balch (Bigelow)

R/V Thomas G. Thompson, 13 days (2019)
CTD profiling and real-time data analysis in the Middle Atlantic Bight
Project: Shelfbreak Productivity Interdisciplinary Research Operation at the Pioneer Array (SPIROPA)
Chief Scientist: Dennis McGillicuddy (WHOI)

R/V Ronald H. Brown, 13 days (2019)
CTD profiling and real-time data analysis in the Middle-Atlantic Bight
Project: Shelfbreak Productivity Interdisciplinary Research Operation at the Pioneer Array (SPIROPA)
Chief Scientist: Dennis McGillicuddy (WHOI)

R/V Nathaniel B. Palmer, 32 days (2014)
CTD profiling and microscopy near the West Antarctic Peninsula Project: Adaptive Responses of Phaeocystis populations in Antarctic ecosystems (Phantastic II)
Chief Scientist: Kevin Arrigo (Stanford)

OUTREACH

K-12 outreach with Skype-a-scientist	2019 - present
Program Director, Athens Science Café	2018 - 2019
Programming Board Member, Athens Science Café	2016 - 2019
Undergraduate Mentor, UGA Women in Science (WiSci)	2015 - 2019
Vice President of Marketing and Social Media, Athens Science Café	2016 - 2018
Associate Editor-in-Chief, Athens Science Observer	2016 - 2018
Assistant Editor, Athens Science Observer	2016
Outreach to 4th graders at Montgomery Elementary School, Atlanta, GA	2016
Outreach to K-2nd graders at Malcom Bridge Elementary School, Bogart GA	2015
Outreach to 9th graders at Oak Ridge High School, Oak Ridge, TN	2015

CONTRIBUTED ABSTRACTS

Oliver, H., Zhang, W. G., Smith, W. O., Alatalo, P., Chappell, P. D., Hirzel, A., Packard, G., Poole, J., Selden, C. R., Sosik, H. M., Stanley, R. H. R., Zhu, Y., McGillicuddy, D. J. "Western boundary current instability gives rise to extraordinary subsurface diatom blooms in the Middle Atlantic Bight slope sea." Poster presentation, Abstract #714713. American Geophysical Union, Annual Meeting, Virtual. December 2020.

Oliver, H., Castelao, R. M., Wang, C., Yager, P. L. "A sensitivity analysis to determine conditions necessary for meltwater- enhanced nutrient export from Greenland's glacial fjords." Oral presentation. Ocean Sciences Meeting, San Diego, CA. February 2020.

Oliver, H., Castelao, R. M., Yager, P. L. "Modeling meltwater-enhanced nutrient export from Greenland's glacial fjords." Poster. Gordon Research Conference for Polar Marine Science, Tuscany, Italy. March 2019.

Oliver, H., St-Laurent, P., Sherrell, R. M., Yager, P. L. "Controls on summer phytoplankton blooms in a highly productive Antarctic coastal polynya." Oral presentation, Abstract #OS34B-06. American Geophysical Union, Annual Meeting, Washington D.C. December 2018. **Outstanding Student Presentation Award winner, Ocean Sciences section.**

Yager, P. L., St-Laurent, P., **Oliver, H.**, Sherrell, R. M., Stammerjohn, S., Dinniman, M. "High-resolution ocean model illustrates how ice-sheet ocean interactions impact the biological pump of an Antarctic coastal polynya." Abstract #415135 (C12B-07). American Geophysical Union, Annual Meeting, Washington DC. December 2018.

Yager, P. L., St-Laurent, P., Sherrell, R. M., **Oliver, H.**, Dinniman, M., Stammerjohn, S. High resolution model illustrates how melting ice impacts coastal carbon cycle. West Antarctic Ice Sheet Initiative - Annual Meeting. Stony Point, New York. October 2018.

Oliver, H., St-Laurent, P., Sherrell, R. M., Yager, P. L. "Does light or iron control the Amundsen Sea Polynya phytoplankton bloom?" Poster. Ocean Carbon and Biogeochemistry Summer Workshop, Woods Hole, MA. June 2018.

Oliver, H., St-Laurent, P., Sherrell, R. M., Yager, P. L. "What controls the massive phytoplankton bloom in the Amundsen Sea Polynya?" Poster, Abstract #HE14B-2850. Ocean Sciences Meeting, Portland, OR. February 2018.

Oliver, H., St-Laurent, P., Sherrell, R. M., Yager, P. L. "Modeling physical and biological controls on phytoplankton blooms in the Amundsen Sea Polynya." Poster. Goldschmidt Conference, Paris, France. August 2017.

Oliver, H., St-Laurent, P., Sherrell, R. M., Yager, P. L. "Controls on phytoplankton blooms in an Antarctic coastal polynya." Poster. Southeastern Biogeochemistry Symposium, Athens, GA. March 2017.

Oliver, H., St-Laurent, P., Sherrell, R. M., Yager, P. L. "What makes a bloom in the Amundsen Sea Polynya? A 1-D biogeochemical modeling perspective." Poster. Gordon Research Conference for Polar Marine Science, Ventura, CA. March 2017.

Arrigo, K. R., van Dijken, G., Castelao, R. M., Luo, H., Rennermalm, A., Tedesco, M., Mote, T., **Oliver, H.**, Yager, P. L. "Melting glaciers stimulate large summer phytoplankton blooms in southwest Greenland waters." Poster. Gordon Research Conference for Polar Marine Science, Ventura, CA. March 2017.

Oliver, H., Luo, H., Castelao, R. M., van Dijken, G., Mattingly, K., Rosen, J., Mote, T., Arrigo, K. R., Rennermalm, A., Tedesco, M., Yager, P. L. "Extreme surface melting of the Greenland Ice Sheet increases growth potential for light-limited phytoplankton in the Labrador Sea." Oral presentation. American Geophysical Union, Annual Meeting, San Francisco, CA, December 2016.

Yager, P. L., St-Laurent, P., Sherrell, R., **Oliver, H.**, Dinniman, M., Stammerjohn, S. "Melting ice enhances coastal biological productivity." West Antarctic Ice Sheet (WAIS) Workshop, Sterling, VA, October 2016.

Mote, T., Castelao, R., Yager, P. L., Luo, H., **Oliver, H.**, Mattingly, K., Tedesco, M., Rennermalm, A., Arrigo, K. R. "The Impact of Extreme Atmospheric Circulation and Runoff on Ocean Stratification and Productivity near Greenland." 16th EMS Annual Meeting & 11th European Conference on Applied Climatology (ECAC), Trieste, Italy, September 2016.

Oliver, H., Luo, H., Mattingly, K., Rosen, J., Yager, P. L. "Modeling the sensitivity of coastal ocean Primary Production to Extreme Melting of the Greenland Ice Sheet." Poster. Ocean Sciences Meeting, New Orleans, LA. February 2016.

Yager, P. L., **Oliver, H.**, Castelao, R. M., Luo, H., Mattingly, K., Rosen, J., van Dijken, G., Rennermalm, A., Tedesco, M., Mote, T. Meltwater impacts on coastal biological productivity - models and observations for SW Greenland. 2016 PARCA Meeting. Greenbelt, Maryland. January 2016

Yager, P. L., **Oliver, H.**, Sherrell, R., Stammerjohn, S., St-Laurent, P., Hofmann, E., Mote, T., Tedesco, M., Rennermalm, A. K., Castelao, R. M. "Ice sheet meltwater impacts on biological productivity in high-latitude coastal zones - observations and models for the west Antarctic and southwest Greenland." Poster. AGU Fall Meeting, San Francisco, CA. December 2015.

Oliver, H., Castelao, R. M., Luo, H., Mattingly, K., Rosen, J., Yager, P. L. "Coastal Ocean Primary Production Sensitivities to Extreme Melting of the Greenland Ice Sheet." Poster. Rutgers Regional Climate Symposium, New Brunswick, NJ. November 2015.

Mote, T. L., Rosen, J., Arrigo, K. R., Castelao, R. M., Luo, H., Moustafa, S. E., Noble, E., **Oliver, H.**, Rennermalm, A. K., Tedesco, M., van Dijken, G. L., Yager, P. L. "From the Ice Sheet to the Sea: An Interdisciplinary Study of the Impact of Extreme Melt on Ocean Stratification and Productivity near West Greenland." Ilulissat Climate Days, Ilulissat, Greenland. June 2015.

Oliver, H., Castelao, R., Luo, H., Mote, T., Yager P. L. "Modeling the responses of primary production to extreme melting of the Greenland Ice Sheet." Poster. Gordon Research Conference for Polar Marine Science, Tuscany, Italy. March 2015.

PROFESSIONAL SOCIETIES

American Geophysical Union (AGU)	2015 – present
The Oceanography Society (TOS)	2016 – present