

## Claire G. Griffin

Postdoctoral Associate

Department of Ecology, Evolution and Behavior · University of Minnesota · Saint Paul, MN

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### Education:

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- 2016      **Ph.D., Marine Science**  
Marine Science Institute, University of Texas at Austin, Port Aransas, TX  
Dissertation: *Dissolved organic matter in major rivers across the pan-Arctic from remote sensing*  
Advisor: James W. McClelland, Ph.D.
- 2010      **B.A., Geography, summa cum laude**, with Highest Honors in Geography  
School of Geography, Clark University, Worcester, MA  
Honors thesis: *Mapping late summer dissolved organic matter in the Kolyma River using Landsat TM and ETM+ Imagery.*  
Advisor: Karen E. Frey, Ph.D.

### Research Interests:

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I am an ecosystem ecologist and landscape limnologist, exploring human impacts on carbon and nutrient cycling in freshwater and estuarine systems. I use a combination of satellite remote sensing, laboratory methods, and *in situ* sensors to trace terrestrial material as it moves from land to sea. I plan to establish an interdisciplinary research group that will improve our basic understanding of elemental cycling across broad spatial scales, and how humans are altering these interactions.

### Professional Experience:

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- 2016 - Present      **Postdoctoral Associate**, Department of Ecology, Evolution and Behavior, University of Minnesota, Saint Paul, MN. Supervisor: Jacques Finlay
- 2010 - 2016      **Graduate Research Assistant**, Marine Science Institute, University of Texas at Austin, Port Aransas, TX. Advisor: James W. McClelland
- 2012 - 2015      **NSF Graduate Research Fellow**

### Teaching Experience:

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- 2017      **Instructor of Record**, Biogeochemical Processes, undergraduate and graduate course, University of Minnesota, Saint Paul, MN.

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2012            **Teaching Assistant**, Coastal Watersheds, undergraduate summer field course.  
Marine Science Institute, University of Texas at Austin, Port Aransas, TX.

### Publications:

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**Griffin, C. G.**, P. L. Brezonik, J. C. Finlay, L. Olmanson, R. Hozalski (*in review*) Limitations on using CDOM as a proxy for DOC in temperate lakes. *Water Resources*.

**Griffin, C.G.**, J.W. McClelland, K. E. Frey, G. Fiske, R. M. Holmes. Estimating dissolved organic matter concentrations in major Arctic rivers using Landsat data. *Remote Sensing of Environment*, 209C pp. 395-409, doi: <https://doi.org/10.1016/j.rse.2018.02.060>.

Feng, X., J. E. Vonk, **C. G. Griffin**, N. Zimov, D. B. Montlucon, L. Wacker, T. I Eglington (2017).  $^{14}\text{C}$  variation of dissolved lignin in arctic river systems. *ACS Earth and Space Chemistry*, doi: 10.1021/acsearthspacechem.7b00055.

McClelland, J. W., R. M. Holmes, B. J. Peterson, P. A. Raymond, R. G. Striegl, A. V. Zhulidov, S. A. Zimov, N. Zimov, S. E. Tank, R. G. M. Spencer, R. Staples, T. Y. Gurtovaya, **C. G. Griffin** (2016). Particulate organic carbon and nitrogen export from major Arctic rivers. *Global Biogeochemical Cycles*, 30, 629-643, doi: 10.1002/2015GB005351.

Tavakoly, A. A., D. R. Maidment, J. McClelland, T. Whiteaker, Z. -L. Yang, **C. G. Griffin**, C. H. David, and L. Meyer (2015). A GIS Framework for Regional Modeling of Riverine Nitrogen Transport: Case Study, San Antonio and Guadalupe Basins. *Journal of the American Water Resources Association (JAWRA)*, doi: 10.1111/1752-1688.12355.

**Griffin, C. G.**, K. E. Frey, J. Rogan, and R. M. Holmes (2011). Spatial and interannual variability of dissolved organic matter in the Kolyma River, East Siberia, observed using satellite imagery. *Journal of Geophysical Research* 116, G03018, doi:10.1029/2010JG001634.

### Manuscripts in preparation (available upon request):

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**Griffin, C.G.**, K. E. Frey, R. M. Holmes, and J. W. McClelland (*in preparation*). Decadal-scale dissolved organic matter concentrations and fluxes across the pan-Arctic from remote sensing. *Global Biogeochemical Cycles*.

Brezonik, P.L., J. C. Finlay, **C.G. Griffin**, E. Boardman, W. A. Arnold, R.M. Hozalski, L.G. Olmanson (*in preparation*). Iron has minor influence on dissolved color in lakes of the Upper Great Lakes states.

### Fellowships and Grants:

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2015 – 2016	UT Marine Science Endowment Graduate Fellowship	\$24,000
2012 – 2015	NSF Graduate Research Fellowship	\$134,000
2010 – 2011	University of Texas, Graduate School, Recruitment Fellowship	\$22,000
2009	The Polaris Project: Rising Stars in the Arctic	\$1,500
2009	Condakes Fellowship, School of Geography, Clark University	\$2,000

**Honors and Awards:**

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- 2015 University of Texas Graduate School Professional Development Award
- 2015 Workshop on Organic Matter Spectroscopy, Student Travel Grant
- 2014 University of Texas Graduate School Prestigious Fellowship Supplement
- 2013 University of Texas Graduate School Prestigious Fellowship Supplement
- 2013 ASLO Student Travel Award
- 2012 University of Texas Graduate School Prestigious Fellowship Supplement
- 2012 Remote Sensing of Coastal and Inland Waters Workshop Travel Support
- 2010 Ellen Churchill Semple Award, School of Geography, Clark University
- 2010 *Phi beta kappa*, Clark University (inducted)
- 2010 *Gamma theta upsilon*, Honors Geography Society, Clark University (inducted)
- 2009 Strabo Prize for Excellence in Geography, School of Geography, Clark University
- 2006 – 2010 Dean’s List, Clark University

**Invited Seminars:**

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- 2018 Water chemistry through remote sensing: the past, present, and future of using satellites to map river and lake organic matter, Southwest Research Institute.
- 2018 From Land To Sea: Our changing understanding of terrestrial organic matter in inland waters, Kansas Biological Survey, University of Kansas.
- 2018 Optics, organic matter, and the carbon cycle, Chemistry Seminar, University of Minnesota – Duluth.
- 2017 Riverine dissolved organic matter across the pan-Arctic from remote sensing, Water Resources Seminar, University of Minnesota – Twin Cities.
- 2010 Field Notes from the Arctic: The Polaris Project, with Blaize Denfeld, Graduate School of Geography Seminar, Clark University.

**Conference Presentations (first author only):**

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- 2017 Lake color across seasons, years, and decades: Cross-scale temporal variability in Minnesota lake CDOM from field and remotely sensed data. Minnesota Water Resources Conference, St. Paul, MN, USA (oral).
- 2017 Remote sensing to map CDOM across time and space in the Upper Midwest. Gordon Research Conference in Catchment Science: Interactions of Hydrology, Biology, and Chemistry, Lewiston, ME, USA (poster).
- 2016 Multi-decadal shifts in riverine dissolved organic matter from across the pan-Arctic, derived from satellite remote sensing. American Geophysical Union Fall Meeting, San Francisco, CA, USA (oral).
- 2015 Developing a thirty year record of dissolved organic matter concentrations in Siberia’s Yenisey and Ob’ rivers using Landsat imagery. Workshop on Organic Matter Spectroscopy: Dissolved Organic Matter Characterization in Polar Regions using Spectroscopic Techniques, Sopot, Poland (oral).
- 2014 Dissolved organic matter in large arctic rivers from satellite remote sensing. Joint Aquatic Sciences Meeting, Portland, OR, USA (oral).

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- 2013 River export along a coastal climate gradient influenced by anthropogenic river modifications. Texas Bays and Estuaries Meeting, Port Aransas, TX, USA (oral).
- 2013 Nitrogen and organic carbon export under varying precipitation regimes along the Texas coast: The importance of dams, droughts and storms. Association for the Science of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA, USA (oral).
- 2012 Quantifying and correcting the impacts of freezing samples on dissolved organic matter absorbance. American Geophysical Union Fall Meeting, San Francisco, CA, USA (poster).
- 2012 Chromophoric dissolved organic matter during the Mackenzie River spring freshet: Observations and freeze-thaw experiments. European Geophysical Union General Assembly, Vienna, Austria (poster).
- 2011 Variations in CDOM concentration and quality during the spring freshet on the Mackenzie River. American Geophysical Union Fall Meeting, San Francisco, CA, USA (poster).
- 2010 Late summer variability of dissolved organic matter in the Kolyma River observed using satellite imagery. American Geophysical Fall Meeting, San Francisco, CA, USA (poster).
- 2010 Modeling dissolved organic matter in northeastern Siberian lakes and rivers using Landsat satellite imagery. American Association of Geographers Annual Meeting, Washington, DC, USA (poster).
- 2010 Modeling dissolved organic matter in northeastern Siberian lakes and rivers using Landsat TM and ETM+ satellite imagery. State of the Arctic Conference, Miami, FL, USA (poster).

## Field Activities:

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**Summer 2016 – present:** Upper Midwestern United States, studying organic matter, suspended particulate matter, and nutrients of lakes in relation to satellite remote sensing.

**Summer 2011 – Fall 2013:** Coastal Texas, characterizing nutrients and organic matter fluxes from Texas rivers during base flow and storm events.

**Summer 2013:** Northeast Science Station, Cherskiy, East Siberia, investigating the variability in organic matter from small streams to the estuary using optical measurements and photodegradation experiments.

**Summer 2012:** Pilot Station, Alaska, studying the export and optical properties of dissolved organic matter in early summer of the Yukon River and tributaries.

**Summer 2011:** Western Arctic Research Institute, Inuvik, Canada, studying export and optical properties of dissolved organic matter over spring freshet on the Mackenzie River and tributaries.

**Summer 2010:** Toolik Field Station, North Slope of Alaska, geochemistry and organic matter over the seasonal cycle in headwater streams.

**Summer 2009:** Northeast Science Station, Cherskiy, East Siberia, sampling for land-ocean carbon/nutrient linkages and optical properties of lakes and rivers.

## Professional Activities and Development:

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### Organization of Meetings

- 2014 Poster Session Chair of Gulf Estuarine Research Society Biennial Meeting, Port Aransas, TX  
2013 Co-Convener of Texas Bays and Estuaries Meeting, Port Aransas, TX

### Workshops Attended

- 2015 International Workshop on Organic Matter Spectroscopy: Dissolved Organic Matter Characterization in Polar Waters Using Spectroscopic Techniques, Sopot, Poland  
2014 Planning and Facilitating Collaborative Meetings Workshop, Port Aransas, TX  
2013 ASLO Emerging Issues Workshop: Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters, New Orleans, LA  
2012 Remote Sensing of Coastal and Inland Waters, Madison, WI

### Selected Informal Teaching Experience:

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- 2016 **Guest Lecture**, Limnology, undergraduate and graduate course, “Global Carbon Cycle and Global Change”, University of Minnesota, Saint Paul, MN.  
2014 **Guest Lecture**, Marine Biogeochemistry, graduate course, “65 million years of climate change”, Marine Science Institute, University of Texas at Austin, Port Aransas, TX.  
2014 **Guest Instructor**, Coastal Watersheds, undergraduate course, linking watersheds to river export, Marine Science Institute, University of Texas at Austin, Port Aransas, TX.

### Selected Outreach Activities:

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#### Programs:

- 2016 – 2017: Coordination of citizen scientists, Trout Lake LTER summer students, WI and MI DNR technicians, and local parks boards to sample CDOM in Upper Midwestern lakes  
2013 – 2015: Coordination of citizen science program to sample water quality in Texas Rivers

#### Presentations:

- 2015 “Riparian Zones and Water Quality” Teachers on the Estuary Workshop from the Mission-Aransas National Estuarine Research Reserve, Bayside, TX.  
2013 “Storm events and water quality in Texas rivers: Establishing a citizen science program” Texas Stream Team Event on the Neches River, Beaumont, TX

## **Griffin**

- 2013 “Longhorns on Ice: Arctic Research” UT Marine Science Institute’s Public Lecture Series, Ask a Scientist Panel, Port Aransas, TX.
- 2011 “The Arctic Great Rivers Observatory”, Inuvik High School and Elementary School, Inuvik, NWT, Canada
- 2009-2015 “Ticking Carbon Bomb: The Permafrost Climate Feedback” AP Environmental Science, Liberal Arts and Science Academy, Austin, TX (repeated annually)

### **Professional Affiliations:**

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*American Geophysical Union*  
*Earth Science Women’s Network*  
*American Society for Limnology and Oceanography*  
*Association for Polar Early Career Scientists*  
*Global Lake Ecological Observatory Network*  
*Out in Science, Technology, Engineering, and Mathematics*

### **Professional and Departmental Service:**

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#### **University of Texas at Austin, Marine Science Institute**

President, Graduate Student Association, 2014-2015  
Vice President, Graduate Student Association, 2013-2014  
Student Representative, Director Search Committee, 2012-2013

Referee for journals: *PLoS ONE*; *Biogeosciences*; *JGR – Biogeosciences*; *Remote Sensing; Environment, Society, and Technology Letters*

Reviewer for NSF Proposal: Geomorphology and Land-use Dynamics Program

Volunteer: Earth Science Women’s Network

### **Undergraduates and Technicians Mentored:**

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*University of Minnesota*  
Benjamin Allen  
Molly Bergum  
Noah Germolus  
Shannon Pappas  
Nicholas Framsted  
Maggie Noun  
Sally Donovan (technician)

*University of Minnesota (cont’d)*  
William Chapman (technician)  
Katie Kemmitt (technician)

*University of Texas*  
Jessica Smith

*Clark University*  
Samuel Berman

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## Griffin

### References:

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James W. McClelland  
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