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**Colleen A. Durkin, PhD**

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**RESEARCH INTERESTS**

Phytoplankton physiology, molecular mechanisms of biomineralization, evolution of phytoplankton physiological responses, environmental genetics, particle export from the surface ocean, particle and cell imaging methodologies.

**EDUCATION**

- 2012 PhD, Oceanography, University of Washington; Advisor: E. Virginia Armbrust  
Dissertation Title: Environmentally induced changes to the diatom cell wall and the implications of these changes on biogeochemical cycles
- 2008 M.S., Oceanography, University of Washington; Advisor: E. Virginia Armbrust  
Presentation and Paper Title: Chitin in diatoms and its association with the cell wall.
- 2004 B.S, Biology and Oceanography, University of Washington; Magna cum laudae

**PROFESSIONAL EXPERIENCE**

- 2012-present Postdoctoral Scholar, Woods Hole Oceanographic Institution
- 2014-present Our Radioactive Ocean coordinator, Woods Hole Oceanographic Institution
- 2013 Science filmmaker for the Centers for Ocean Science Education Excellence
- 2005-2012 Graduate Research Assistant, University of Washington
- 2004 Research Intern, EAWAG, Switzerland
- 2003-2004 Undergraduate Researcher, NOAA Northwest Fisheries Science Center
- 2003 Research Apprentice, Friday Harbor Laboratories, University of Washington,
- 2002-2003 Undergraduate Researcher, University of Washington, Botany

**TEACHING EXPERIENCE**

- 2006-2012 Advisor to undergraduate researchers, total undergraduates advised: 4
- 2011 Guest lecturer, graduate course: Biological Oceanography  
lesson: "Nutrients and Phytoplankton"
- 2010 Teaching assistant, undergraduate course: Design of Oceanographic Field Experiments
- 2010 Teaching assistant, undergraduate course: Advanced Field Oceanography
- 2008 Communicating Ocean Science course, taught lessons to 1st grade students
- 2006 Teaching assistant, undergraduate course: Biological Oceanography

## PEER-REVIEWED PUBLICATIONS

### In Revision

**Durkin, C. A.**, Estapa, M. L., K. O. Buesseler. 2014. Observations of carbon export by small sinking particles in the upper mesopelagic. *Marine Chemistry*. *In revision*.

### Published

Bender, S.J., **C.A. Durkin**, C.T. Berthiaume, R.L. Morales, E.V. Armbrust. 2014. Transcriptional responses of three model diatoms to nitrate limitation of growth. *Frontiers in Marine Science*, 1: 1-15. doi: 10.3389/fmars.2014.00003

**Durkin, C.A.**, S.J. Bender, K.Y.K. Chan, K. Gaessner, D. Grunbaum, E.V. Armbrust. 2013. Silicic acid supplied to coastal diatom communities influences cellular silicification and the potential export of carbon. *Limnology and Oceanography*. 58: 1707-1726.

**Durkin, C.A.**, A. Marchetti, S.J. Bender, T. Truong, R. Morales, and E.V. Armbrust. 2012. Frustule-related gene transcription and the influence of diatom community composition on silica precipitation in an iron-limited environment. *Limnology and Oceanography* 57: 1619-1633.

Marchetti, A.M., D.M. Schruth, **C.A. Durkin**, M.S. Parker, R. Kodner, C.T. Berthiaume, R. Morales, A.E. Allen, and E.V. Armbrust. 2012. Comparative metatranscriptomics identifies molecular bases for the physiological responses of phytoplankton to varying iron availability. *PNAS*. 109: E317-E325

Rhodes, L.D., C.A. Rice, C.M. Greene, D.J. Teel, S.L. Nance, P. Moran, **C.A. Durkin**, and S.B. Gezhegne. 2011. Nearshore ecosystem predictors of a bacterial infection in juvenile Chinook salmon. *Marine Ecology Progress Series* 432: 161-172

Ribalet, F., A. Marchetti, K.A. Hubbard, K. Brown, **C.A. Durkin**, R. Morales, M. Robert, J.E. Swalwell, P.D. Tortell, and E.V. Armbrust. 2010. Unveiling a phytoplankton hotspot at a narrow boundary between coastal and offshore waters. *PNAS*. 107: 16571-16576.

**Durkin, C.A.**, T. Mock, and E.V. Armbrust. 2009. Chitin in diatoms and its association with the cell wall. *Eukaryotic Cell*. 8: 1038-1050.

Mock, T., M. P. Samanta, V. Iverson, C. Berthiaume, M. Robison, K. Holtermann, **C. Durkin**, S.S. BonDurant, K. Richmond, M. Rodesch, T. Kallas, E. L. Huttlin, F. Cerrina, M. R. Sussmann, and E. V. Armbrust. 2008. Whole-genome expression profiling of the marine diatom *Thalassiosira pseudonana* identifies genes involved in silicon bioprocesses. *PNAS* 105:1579-1584.

Bowler, C., and others. 2008. The *Phaeodactylum* genome reveals the evolutionary history of diatom genomes. *Nature* 456: 239-244.

Rhodes, L.D., C.A. Durkin, S.L. Nance, C.A. Rice. 2006. Prevalence and analysis of *Renibacterium salmoninarum* infection among juvenile Chinook salmon *Oncorhynchus tshawytscha* in North Puget Sound. *Diseases of Aquatic Organisms* 71: 179–190.

### **ADDITIONAL TRAINING**

- 2014 International Marine Phytoplankton Identification Workshop  
Sir Alister Hardy Foundation, Marine Biological Association, Plymouth, UK
- 2011 ScienceFilm Workshop, Friday Harbor Laboratory
- 2011 Science Communication Fellow, Pacific Science Center, Seattle, Washington
- 2011 Surface Ocean Lower Atmosphere Studies Summer School, Cargese, Corsica

### **AWARDS/HONORS**

Devonshire Postdoctoral Scholar, 2012, Woods Hole Oceanographic Institution  
Best Oral Presentation, SOLAS Summer School, 2011

### **FUNDING**

- 2014 6-month extension of postdoctoral scholarship to coordinate and manage the citizen science and crowd sourcing program “Our Radioactive Ocean”  
Funded by: Woods Hole Oceanographic Institution
- 2014 \$1000 granted for the development and presentation of an interactive science exhibit for the SUBMERGE! Marine Science Festival in New York City.  
Funded by: Woods Hole Oceanographic Institution
- 2014 \$500 awarded for training at the Gears for Scientific Success workshop and the creation of a science film about the biological pump.  
Funded by: Centers for Ocean Science Education Excellence
- 2013 Paid to create a science film about invasive salt marsh grass  
Funded by: Centers for Ocean Science Education Excellence
- 2012 18-month postdoctoral scholar fellowship  
Funded by: Woods Hole Oceanographic Institution
- 2011 Science Film fellowship  
Funded by: University of Washington College of the Environment

### **FIELD EXPERIENCE (100+ days at sea)**

- June 2013 R/V Atlantic Explorer, 1 week  
Bermuda Atlantic Time Series cruise in the Sargasso Sea; deployed sediment traps and optical sensor to measure particle flux
- March 2013 R/V Knorr, 45 days  
Transect from Uruguay to Barbados to identify and quantify sinking particles using sediment traps
- Nov 2010 R/V Thomas G. Thompson, 2 days  
Puget Sound education and research cruise with undergraduates
- Sept 2010 R/V Wecoma, 1 week

- Transects along the Washington coast to survey the influence of nutrient input by the Columbia River on phytoplankton communities
- March 2010 M/V Alta and Barkley Star, 1 week  
Survey of Barkley Sound, British Columbia with undergraduate students conducting senior thesis projects
- Oct 2009 R/V Thomas G. Thompson, 2 days  
Puget Sound education and research cruise with undergraduates
- Sept 2009 R/V New Horizon, 2 weeks  
Transects along the Washington coast to survey the influence of nutrient input by the Columbia River on phytoplankton communities
- May 2009 R/V New Horizon, 2 weeks  
Transects along the Washington coast to survey the influence of nutrient input by the Columbia River on phytoplankton communities
- May 2008 CCGS John P. Tully, 3 weeks  
Transect to Station P in the NE subarctic Pacific Ocean to characterize the molecular and cellular response of diatoms to low iron

## **SERVICE**

- 2013-2014 Woods Hole Oceanographic Institution Postdoctoral Association  
2011 Search committee for director of the University of Washington School of Oceanography

## **PUBLIC OUTREACH**

- Our Radioactive Ocean Program Coordinator, 2014  
Communicate with public about radionuclides emitted from Fukushima, Japan, and coordinate crowdsourcing and sampling by citizen scientists
- Science films, [www.youtube.com/durkinca](http://www.youtube.com/durkinca)  
Titles: The Biological Pump; Ocean Particles Big and Small; DeepDOM set up  
Whale Talk; Team SeaFlow: 100 years at the microscope; The CTD Rosette;  
How to tie a bowline; Neptune's Realm; Finding good and evil in the marsh;  
Jellyfish: A lifetime of observation
- Exhibit Design  
SUBMERGE Ocean Science Festival, New York City, NY, 2014  
An interactive exhibit about phytoplankton and the biological pump  
Seattle Pacific Science Center, 2012  
An interactive exhibit about diatom diversity, silica, and sinking
- Primary and secondary school visits  
Laboratory tours, presentations, and demonstrations for visiting primary and middle school students; invited lecturer/teacher at local elementary and high schools

## **MEETING PRESENTATIONS**

- 2014 Influence of individual phytoplankton cells and their physiology on particle export in the South Atlantic Ocean  
AGU/ASLO Ocean Science Meeting, Honolulu, Hawaii

- Durkin, C.A.**, K. Chan, H. Alexander, B. Van Mooy, S. Dyhrman, M. Estapa, K.E. Buesseler
- 2012 Uptake limitation of silicic acid in coastal diatoms controls cellular silicification  
AGU/ASLO Ocean Science Meeting, Salt Lake City, Utah
- Durkin, C.A.**, S.J. Bender, K. Gaessner, E.V. Armbrust
- 2012 Environmentally induced changes to the diatom cell wall and the implications of these changes on biogeochemical cycles  
Dissertations in Chemical Oceanography (DisCO), Lihue, Hawaii
- Durkin, C.A.**
- 2011 Excessive silicic acid supply leads to increased silicification in coastal diatoms  
Eastern Pacific Ocean Conference, Fallen Leaf Lake, California
- Durkin, C.A.**, S.J. Bender, K. Gaessner, E.V. Armbrust
- 2011 Diversity in iron-limited diatoms has varied effects on silicon cycling  
PSA Annual Meeting, Seattle, Washington
- Durkin, C.A.**, A. Marchetti, S.J. Bender, T. Truong, R. Morales, E.V. Armbrust
- 2010 Common cell wall related genes in diatoms and their potential use as biological indicators in changing ocean environments  
AGU/ASLO Ocean Science Meeting, Portland, Oregon
- Durkin, C.A.**, S.J. Bender, T. Truong, A. Marchetti, E.V. Armbrust
- 2009 Contribution of different diatom genera to total community silicification in a coastal to open ocean transect and in response to iron fertilization.  
ASLO Aquatic Science Meeting, Nice, France
- Durkin, CA**, A Marchetti, R Morales, EV Armbrust
- 2009 Biogeochemical implications of diatom growth, silicification, and species composition in iron limited environments.  
Graduate Climate Conference, Pack Forest, Washington
- Durkin C.A.**, A. Marchetti, R. Morales, E.V. Armbrust
- 2008 Chitin as a component of the diatom cell wall.  
AGU/ASLO Ocean Science Meeting, Orlando, Florida
- Durkin, CA**, T. Mock, R. Marohl, E.V. Armbrust
- 2007 Unexpected presence, diversity, and expression of chitin synthase genes in diatoms.  
ASLO Aquatic Sciences Meeting, Santa Fe, New Mexico
- Durkin, C. A.**, T. Mock, E.V. Armbrust