

# Christina L Goethel

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## EDUCATION

### **University of Maryland Center for Environmental Science**

Ph.D. Marine and Estuarine Environmental Science; Beginning: January 2017

### **University of Maryland Center for Environmental Science**

M.S. Marine and Estuarine Environmental Science

**GPA: 3.77**

### **Smith College, Northampton, MA**

B.A. Environmental Science and Policy with honors; Minor: Marine Science **GPA: 3.69, Deans List 2010, 2011, 201**

## RESEARCH EXPERIENCE

### **DBO Research Cruise Student Researcher: University of Maryland**

July 2014-Present

- Assisted Dr. Grebmeier and Dr. Cooper as a Masters student (2014-2016) and Ph.D. student (beginning summer 2017) with research for the Distributed Biological Observatory (DBO) project aboard the Canadian Coast Guard Cutter Sir Wilfrid Laurier
- Aided with van Veen grab benthic collections, chlorophyll collection, nutrient collection, and sediment collection
- Maintained live collections of bivalves for Master's thesis work (July 2014-current)
- Processed sediment samples for grain size back at the lab for 2015 and 2016 cruises

### **AMBON Research Cruise Student Researcher: University of Maryland**

Aug. 2015-Sept. 2015, Aug. 2017

- Assisted Dr. Grebmeier and Dr. Cooper as a Masters student (2015) and Ph.D. student (2017) with research for the Arctic Marine Biodiversity Observing Network (AMBON) project aboard the Norsemen II
- Aided with van Veen grab benthic collections, chlorophyll collection, nutrient collection, and sediment collection
- Collected and identified three species of clams for later ocean acidification experiments
- Processed sediment samples for grain size back at the lab (September 2015- December 2015)

### **Student Researcher in Benthic Sorting and Identification Lab**

June 2014-Present

- Sorted and identified benthic invertebrates found in the Pacific Arctic Ocean including families of worms, bivalves, and various crustaceans in Dr. Jacqueline Grebmeier's lab at the University of Maryland Center for Environmental Science Chesapeake Biological Laboratory

### **COMIDA Research Cruise Student Assistant: University of Maryland**

July 2013-Aug. 2013

- Assisted Dr. Grebmeier and Dr. Cooper with research for the Chukchi Sea Offshore Monitoring in Drilling Area (COMIDA) project aboard the United States Coast Guard Cutter Healy
- Aided with van Veen grab benthic collections, chlorophyll tests, nutrient collection, and sediment collection

### **Summer Research Fellow: Smith College Biological Sciences Dept., Northampton, MA**

June 2013-July 2013

- Continued to investigate the data from undergraduate honors thesis examining the effects of increased pCO<sub>2</sub> on the morphological structure of *Emiliana huxleyi* by inspecting SEM images for physical malformations of coccoliths

### **Special Studies: Smith College Environmental Sci. & Policy Program, Northampton, MA**

Sept. 2012-May 2013

- Investigated the effects of climate change on the Western Massachusetts maple sugaring industry
- Conducted interviews with local sugaring houses

### **Honors Thesis: Smith College Environmental Sci. & Policy Program, Northampton, MA**

Sept. 2012-May 2013

- Examined the effects of increased pCO<sub>2</sub> on the calcification and morphological structure of *Emiliana huxleyi*

- Compared elemental carbon data with morphology of coccoliths using scanning electron microscopy (SEM)

**NSF REU Intern: Shannon Point Marine Center, Anacortes, WA** June 2012-Aug. 2012

- Researched the effects of elevated pCO<sub>2</sub> on the calcification of the coccolithophore *Emiliana huxleyi*
- Performed experiments measuring carbon content per cell using a Flash 1112 Series Elemental Analyzer

**Sea Education Association Semester: Oceans and Climate Program** Oct.-Dec. 2011

- Six week research cruise from Honolulu to Tahiti studying the ocean's role in the global carbon cycle
- Examined abundance and distribution of myctophid fish in oxygen minimum zones in the Equatorial Pacific
- Conducted a further literature review of the project as a special studies at Smith College (Jan.-May 2012)

**STRIDE Scholar (Undergraduate Research Assistant): Smith College, Northampton, MA** Sept. 2009-May 2011

- Developed an independent research project investigating the ecological and societal role of the Pacific Walrus

## TEACHING EXPERIENCE

**Teaching Assistant: Biological Science Dept., University of Maryland, College Park, MD** Jan. 2017-May 2017

- Teaching assistant for the Spring 2017 semester in the Biological Sciences department in the course 'The World of Biology' for the first semester of the Marine-Estuarine Environmental Science Ph.D. program as part of the University of Maryland Center for Environmental Science
- Ran two three hour lab sections for undergraduate students enrolled in the course

**Graduate Student Mentor to NSF REU: Chesapeake Biological Laboratory, Solomons, MD** May 2016-Present

- Aided and mentored REU student in project development for the summer of 2016 in examining changes in size class to four common Pacific Arctic bivalve species including a two week research cruise
- Continued mentorship of the same student through the 2016-2017 school year for laboratory experiments examining the effects of temperature on the growth of a common Arctic bivalve species

**Student Instructor: Smith College Biological Sciences Dept., Northampton, MA** July 2013

- Aided the primary instructor in teaching the methods of scanning electron microscopy (SEM), transmission electron microscopy (TEM), fluorescence microscopy, bright field microscopy, and the Picro-Mallory staining procedure

**Teaching Assistant: Smith College Biological Sciences Dept., Northampton, MA** Sept. 2012-Dec. 2012

- Assisted students in Marine Ecology with experiments and lab reports
- Provided help outside of class with assignments and independent research projects

**Camp Counselor: Camp Favorite, Brewster, MA** June 2011-Aug. 2011

- Ran the "Oceans of Opportunity" Program (2 weeks) for middle school girls exploring all aspects of the ocean
- Responsible for designing lesson plans and field trips about the ocean. Activities included an oil spill clean-up experiment, trips to the beach for organism identification, and a field trip to the Wellfleet Bay Wildlife Sanctuary- MA Audubon Society

## PUBLICATIONS AND PRESENTATIONS

- **Goethel, C.L.,** Grebmeier, J.M., Cooper, L.W. 2017. "Tracking changes in abundance, biomass, and dominant size class of the bivalve *Macoma calcarea* in the northern Bering Sea and southeastern Chukchi Sea from 1998-2012. Gordon Research Seminar and Conference on Polar Marine Science: Poster Sessions.
- **Goethel, C.L.,** Grebmeier, J.M., Cooper, L.W., Miller, T.J. "Implications of ocean acidification in the Pacific Arctic: Experimental responses of three Arctic bivalves to decreased pH and food availability". Deep Sea Research Part II. Submitted for review. 2016.

- **Goethel, C.L.**, Grebmeier, J.M., Cooper, L.W., 2016. “A Time-series for Recruitment and Size Distributions of the Bivalve *Macoma sp.* in the Southern Chukchi Sea and Experimental Responses of Arctic Bivalves to pH and Food Manipulations. Ocean Sciences Meeting: Poster Session.
- **Goethel, C.L.**, Love, B., Peckol, P., 2013. “Experimental Responses of Arctic Bivalves to pH and Food Manipulations”. National Conference on Undergraduate Research (NCUR): Presentation.
- Lane, K., Peake, E., **Goethel, C.L.**, 2013. “Effects of climate change on the production of maple sugar in New England”. Smith College Celebrating Collaborations: Poster Session.
- **Goethel, C.L.**, Yerxa, H.M., 2012. Biogeography of the myctophid in oxygen minimum zones in the Equatorial Pacific. Smith College Celebrating Collaborations: Poster Session.
- **Goethel, C.L.**, Litwin, T., 2011. “Ecological and societal role of the Pacific walrus”. Smith College Celebrating Collaborations: Poster Session.

### **FUNDING and AWARDS**

- Tomlinson Fund Award for Honors Research- Smith College
- Nancy Kay Holmes Fund for Continued Research for Graduating Seniors- Biological Sciences Smith College
- Agnes Shedd Andreae Fellowship - Smith College Environmental Science and Policy Program
- Congressional Award: Bronze and Silver Medals- United States Congress
- The Amey Randall Brown Prize for the Best Essay on a Botanical Subject- Smith College
- Chesapeake Biological Laboratory Graduate Education Committee Travel Grant (Feb. 2016 and March 2017)
- Southern Association of Marine Lab Student Support Program Award (2016)
- Jacob K. Goldhaber Travel Grant (2017)- University of Maryland

### **SKILLS**

- Geographic Information Systems (GIS) (ArcMap)
- PADI SCUBA Diver: Open Water
- RStudio

### **MEMBERSHIPS**

- American Geophysical Union Student Member Sept. 2015-Present
- Sigma Xi Scientific Research Society Associate Member April 2012-Present
- National Honor Society Sept. 2008-Present

### **VOLUNTEER**

- Explore the Ocean World- helped with school talks and the new museum run by Explore the Ocean World. Duties included answering questions about marine organisms and assisting with the touch table that held representative invertebrates from the Gulf of Maine.
- Local events in the Southern Maryland region promoting and teaching about the work conducted at the Chesapeake Biological Laboratory

### **CO-CURRICULAR ACTIVITIES**

- Smith College Swimming/Diving Team (Academic All Conference Team 2011, 2013) Sept. 2009-Feb. 2013
- Student Government Sustainability Representative Sept. 2010-May 2011