

# Mary Rose Gradoville

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## RESEARCH INTERESTS

*Marine microbial processes, microbial diversity, nitrogen fixation, phytoplankton ecology, biogeochemical cycling, marine disease, climate change, science communication*

## EDUCATION

**Ph.D., College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, Corvallis, OR**  
April 2013 – present. Expected December 2016. Ocean, Earth, and Atmospheric sciences major.  
Advisor: Angelicque White

**M.S., College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, Corvallis, OR**  
September 2010 – March 2013. Ocean, Earth, and Atmospheric sciences major. Advisor: Ricardo Letelier. Title:  
A study on the effects of enhanced pCO<sub>2</sub> on open ocean diazotrophic assemblages

**B.A., Barnard College, Columbia University, New York, NY**  
Completed May 2010; General Biology Major

## RESEARCH EXPERIENCE

**Graduate Research Fellow**, Oregon State University, EPA STAR fellowship F13E20903, October 2014 – 2016  
Project title: "Environmental Controls of the Abundance, Growth and Toxicity of the Known Shellfish Pathogen *Vibrio tubiashii*"

**Graduate Research Assistant**, Letelier/White Phytoplankton Physiology/Ecology Laboratory, Oregon State University, Corvallis, OR September 2010 – 2014. Designed and performed experiments for Master's thesis and PhD thesis, ran samples, attended research cruises, maintained laboratory culture collection.

**NSF REU Student**, Strom Plankton Ecology Laboratory, Shannon Point Marine Center, Anacortes, WA June 2009 – August 2009

Completed NSF REU research project, "Experiments using *Synechococcus* strains WH8102 and CC9311 show no evidence for preferential grazing in natural communities or mixed cultures."

**Undergraduate Research Student**, McGuire Soil Microbiology Laboratory, Barnard College, New York, NY September 2009 – August 2010

Completed undergraduate research project: The effects of coffee plantation management intensity on the community structure and function of soil fungi.

**Laboratory Volunteer**, Wasser Conservation Biology Laboratory, University of Washington, Seattle, WA June 2008 – August 2008

Performed DNA extractions, DNA purifications, and Polymerase Chain Reactions; analyzed DNA microsatellite sequence data.

## TEACHING EXPERIENCE

- Graduate Teaching Assistant, Principles of Biology 213: Genetics, Ecology, and Evolution, March 2012— June 2012 and March 2013 – June 2013.
- Co-teacher for 2<sup>nd</sup> grade science class, September 2009 – December 2009. Emily Dickenson School, New York City.
- Teaching coursework: "Science in the City" (elementary science education), Barnard College, 2009; "Communicating Ocean Sciences" (informal education), Oregon State University, 2012; "Making your Science Matter" (informal education), Oregon State University, 2014.
- Guest lecturer for high school AP Biology class: "Ocean Acidification and Marine Microbes." June 2 2010.

## HONORS AND AWARDS

- EPA STAR Awardee, Environmental Protection Agency, May 2014.  
Title: "Environmental Controls of the Abundance, Growth and Toxicity of the Known Shellfish Pathogen *Vibrio tubiashii*"

- Agouron Summer Microbial Oceanography Course Participant, May – June 2014
- Honorable Mention, NSF Graduate Research Fellowship Program, 2012.
- Recipient, Herbert Maule Richards Fund Grant, 2010. Research grant funded soil microbiology fieldwork conducted in Malaysia, August 2010.

## RELEVANT SKILLS

- Experienced in DNA and RNA extractions and quantification, clone library sequencing, sequence editing, high throughput sequencing, bioinformatic analysis (amplicon and metagenome), gel electrophoresis, polymerase chain reaction, acetylene reduction assays, <sup>14</sup>C, <sup>15</sup>N<sub>2</sub> and <sup>13</sup>C incubations, fluorometry, flow cytometry, bacterial and protist slide preparation and cell counts, filtration, Winkler titrations, acid-base titrations, water sample collection, shipboard incubation experiments, grazer feeding experiments, extracellular enzyme assays, culture maintenance, sterile technique, microscopy
- Proficient using gas chromatograph, Turner fluorometer, Pulse Amplitude Modulation fluorometer, spectrofluorometer, thermocycler, membrane inlet mass spectrometer, C/H/N analyzer, filtration rig, flow cytometer, LI-COR, pH meter, gas cylinder, regulator, and flow meter, peristaltic pump, micropipettor, Conductivity, Temperature, Depth (CTD) sensor, plankton net, plate reader, autoclave, microscope (epifluorescent, light, dissecting)
- Proficient using Microsoft Excel, Microsoft Word, Microsoft Powerpoint, Endnote, MATLAB, R Statistics, Unix, CO2sys

## PAPERS AND PRESENTATIONS

### REFEREED ARTICLES:

- **Gradoville, MR**, White, AE, Letelier, RM. Physiological response of *Crocospaera watsonii* to enhanced and fluctuating carbon dioxide conditions. PLoS ONE 9(10): e110660. doi:10.1371/journal.pone.0110660
- **Gradoville, MR**, White, AE, Böttjer, D, Church, MJ, Letelier, RM (2014) Diversity trumps acidification: Lack of evidence for carbon dioxide enhancement of *Trichodesmium* community nitrogen or carbon fixation at Station ALOHA. Limnology and Oceanography 59: 645–659.
- Wood-Charlson, EM, Bender, SJ, Bruno, BC, Diaz, JM, **Gradoville, MR**, Loury, E, Viviani, DA. 2015. Translating Science Into Stories. *ASLO Bulletin* August 2015, 1-4.
- McGuire, KL, D'Angelo, H, Brearley, FQ, Gedallovich, SM, Babar, N, Yang, N, Gillikin, CM, **Gradoville, MR**, Bateman, C, Turner, BL, Mansor, P, Leff, JW, Fierer, N. 2015. Responses of soil fungi to logging and oil palm agriculture in Southeast Asian tropical forests. *Microbial Ecology* 69: 733-747

### SCIENTIFIC PRESENTATIONS:

- **Gradoville, MR**, Letlier, RM, Bombar, D, White, AE. Searching for aphotic marine nitrogen fixation in the Pacific Northwest and the South Pacific. Joint Aquatic Sciences Meeting, May 2014, Portland, OR, oral presentation.
- **Gradoville, MR**, White AE, Böttjer D, Church MJ, Letelier RM (2014) Diversity trumps acidification: No CO<sub>2</sub> enhancement of N<sub>2</sub> fixation by the *Trichodesmium* community at Station ALOHA. Ocean Sciences Meeting, February 2014, Honolulu Hawaii, oral presentation.
- D'Angelo, H, McGuire, KL, Essene, A, Massmann, A, Mansor, P, Yang, N, Gillikin, CM, **Gradoville, MR**, Gedallovich, SM, Babar, N, Turner, BL, Merrer, D, Gilbert, JA, Peay, K, Leff, J, Fierer, N. Simultaneous analysis of fungal and bacterial composition across a soil edaphic gradient in Southeast Asian dipterocarp rain forest. *99th Ecological Society of America Annual Convention*, August 2014, Sacramento, CA, poster presentation.
- **Gradoville, MR**, White, AE, Zirbel, MJ, Bottjer, D, Church, MJ, Letelier, RM. 2012. Metabolic response of *Trichodesmium* and *Crocospaera* to pCO<sub>2</sub> perturbations on multiple time scales. *Ocean Sciences Meeting*, Salt Lake City, Utah, February 2012, poster presentation.
- **Gradoville, MR**, Watkins-Brandt, KS, White, AE, Church, MJ, Letelier, RM. 2011. Comparison of N<sub>2</sub> fixation response by *Trichodesmium* to pCO<sub>2</sub> perturbations using bas bubbling and acid/base approaches. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico, February 2011, oral presentation.

- McGuire, KL, Philpott, SM, **Gradoville, MR**, Gillikin, C. Coffee from the ground up: rustic coffee plantations provide better habitats for soil fungal communities than sun coffee plantations. *Argonne National Laboratory Soil Metagenomics Workshop*, Chicago, Illinois, October 2011, poster presentation.

## ACTIVITIES, OUTREACH AND SERVICE

- Promotion and Tenure Committee Student Committee Member, 2014 – 2015.
- Center for Microbial Oceanography: Research and Education Professional Development Organizing Committee (PDOC) member, March 2013 – April 2014.
- Student Advisory Committee Social Coordinator, August 2013 – August 2014.
- Science outreach activity leader: Teach and lead marine science outreach activities designed to teach children about microbial oceanography and climate change. Select outreach events:
  - Underwater Exploration – Hands on Activities about our Fascinating Ocean, Boy Scouts of America, Hoover Elementary, February 4, 2014 and April 15 2015
  - OceanFEST (Families Exploring Science Together), Hoover Elementary, April 20, 2012; Franklin Elementary, April 6, 2012; Jefferson Elementary, February 22, 2011
- NSF Week-Long Professional Development Workshop Participant, August 2015
- Center for Microbial Oceanography: Research and Education professional development training events
  - “Teaching Methods and Strategies” coordinator and participant, January 14, 2015
  - “Communicating your Science: A Professional Necessity” coordinator and participant, August 27, 2014
  - “Mentoring Workshop” coordinator and participant, July 15, 2014
  - “Effective Communication and Team-Building” coordinator and participant, February 23, 2014
  - “Proposal Writing Workshop” coordinator and participant, July 17, 2013
  - “Family-Career-Life Balance Workshop” coordinator and participant, July 2, 2013
  - “Workshop on Careers and Professional Skills” participant, October 26, 2012
  - “COMPASS Science Communication Training” participant, May 23, 2011

## OCEANOGRAPHIC FIELD EXPERIENCE

<i>Cruise</i>	<i>Vessel</i>	<i>Year</i>	<i>Days at Sea</i>
Zooplankton Sampling	Elahka	2015	1
Endurance	Oceanus	2014	4
Agouon Summer Course	Kilo Moana	2014	7
OC1404D Student Cruise	Oceanus	2014	4
HOE BOE	Kilo Moana	2014	13
NOAA West Coast Ocean Acidification	NOAA Fairweather and Pt. Sur	2013	16
HOE DYLAN VII	Kilo Moana	2012	10
KM1110	Kilo Moana	2011	12

**Total**

**67 days**