

JULIA (GRACE) KLINGES

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EDUCATION

--- **Oregon State University**, Corvallis, OR
Enrolled in PhD program in Microbiology
Expected degree date June 2021

2015 **Haverford College**, Haverford, PA
B.S. in Geology (at Bryn Mawr College) with Honors (GPA 3.6)
Focus on Environmental Studies and Biology

2011 **Princeton High School**, Princeton, NJ



PUBLICATIONS

Akob DM, Mumford A, Cozzarelli IM, Orem WH, Engle M, **Klinges JG**, Kent DB. 2016. Inorganic Indicators of Unconventional Natural Gas Wastewater Disposal Impacts on Surficial Streams. *Environ. Sci. Technol.*, **50** (11), pp 5517–5525

Cull S, Cravotta CA, **Klinges JG**, and Weeks C. 2014. Spectral masking of goethite in abandoned mine drainage systems: Implications for Mars. *Earth and Planetary Science Letters* **403**: 217-224.

RESEARCH EXPERIENCE

ORISE Fellow, U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation, Science Policy Branch

July 2015-August 2016

- Researched new methods for soil and groundwater bioremediation, including recent developments on microbial metal degradation, implementation of next-generation sequencing, and amendments to stimulate microbial activity
- Identified Superfund sites lacking completion strategies for groundwater, assisted in updating conceptual site model and creating site close-out plan
- Culled CERCLIS database for information to create an R-based statistical model relating lead cleanup level to site cleanup cost

Senior Thesis, Bryn Mawr College

September 2014-May 2015 (Awarded grade of 4.0)

Advisors: Dr. Denise M. Akob (U.S. Geological Survey) and Dr. Donald Barber (Bryn Mawr College)

Titled: *Microbe-Metal Interactions Along a Produced Water Impacted Stream System*

- Established enrichment cultures of iron-reducing bacteria to study effect of hydraulic fracturing chemical additives on microbial metabolism, using high-throughput sequencing to evaluate microbial population shifts
- Used high-throughput sequencing to evaluate microbial population shifts
- Presented at Geological Society of America 2015 Annual Meeting and Geological Society of America Northeastern Section 50th Annual Meeting (2014) and contributed to a journal article on this work

Research Associate, U.S. Geological Survey, Reston Microbiology Lab, Reston, VA

June 2014-August 2015 (full time for two summers; part-time during school year)

Supervisors: Dr. Denise M. Akob, Dr. Adam C. Mumford, and Darren Dunlap

- Conducted microbiology and water quality research to study the environmental effects of hydraulic fracturing wastewaters on stream microbial communities
- Performed fieldwork to assess water chemistry and microbial communities in impacted and pristine streams

- Performed molecular and genetic analysis, such as DNA extraction, PCR, cloning and DNA quantification, for environmental microbial samples
- Assessed microbial activity using gas chromatography, colorimetric assays, wet chemistry, HPLC, and SPME
- Constructed flow-through microcosms and other custom lab equipment
- Assisted in USGS Science Camp for elementary and middle school children

Field Intern, US Geological Survey, Pennsylvania Water Science Center

May 2013-December 2013 (full time during summer; part-time during school year)

Supervisors: Dr. Charles Cravotta III and Dr. Selby Cull

- Collected and analyzed samples from abandoned mine drainage (AMD) sites in Northeast PA using microscopy, mineralogy (visible- to near-infrared spectroscopy), and molecular biology
- Performed field experiments to assess the feasibility of aeration as a remediation technique for acid mine drainage

Field Camp, Cusuco National Park and Utila Island, Honduras, through Operation Wallacea

June-July 2011

- Assembled small mammal traps and bat/bird mist netting, forest quadrat surveys, and learned invertebrate and herpetofauna identification in Cusuco cloud forest. Attended lectures on relevant forestry and ecology topics at night
- Participated in Caribbean coral reef ecology course and obtained AWARE Fish Identification certification, performed SCUBA transects and line intercept video surveys to assess coral cover on Utila Island reefs

CONFERENCE ABSTRACTS

Mumford, A.C., Cozzarelli, I.M., Fraser, A., **Klinges, J.G.**, and Akob, D.M. (2015). Impact of Unconventional Gas Waste Water Disposal on the Structure and Activity of Surficial Stream Microbial Communities. Geological Society of America 2015 Annual Meeting (1-4 November 2015), Baltimore, MD. (Oral).

Klinges, J.G., Mumford, A.C., Akob, D.M., and Cozzarelli, I.M. (2015). Influences of Typical Hydraulic Fracturing Fluid Constituents on the Structure and Activity of Iron Reducing Microbial Communities. Geological Society of America 2015 Annual Meeting (1-4 November 2015), Baltimore, MD. (Poster; presenter).

Klinges, J.G., Akob, D.M. and Mumford, A.C. (2015). Influence of Organic Hydraulic Fracturing Fluid Additives on the Activity of Iron-Reducing Bacteria in a Produced Water Impacted System. Geological Society of America Northeastern Section 50th Annual Meeting (23–25 March 2015), Bretton Woods, NH. (Poster; presenter).

Mumford, A.C., Fraser, A., **Klinges, J.G.**, Akob, D.M., and Cozzarelli, I.M (2015). Impact of Unconventional Gas Waste Water Disposal on Surficial Stream Microbiology. Geological Society of America Northeastern Section 50th Annual Meeting (23–25 March 2015), Bretton Woods, NH. (Oral).

Cravotta, C. A., Burrows, J.E., **Klinges, J.G.**, and Burgos, W.D. (2014). Experiments and Modeling of Fe(II) Oxidation Rate for Design of Remediation of Net Alkaline Coal-Mine Effluent, Pennsylvania, USA. Geological Society of America Northeastern Section 49th Annual Meeting (23–25 March 2014), Lancaster, PA. (Oral).

Klinges, J.G., Cravotta, C.A., and Burrows, J.E (2013). Geomicrobiological and Mineralogical Characteristics of Iron-Oxide Sludge Associated with Abandoned Mine Drainage from the Oak Hill Boreholes in Eastern Pennsylvania. Geological Society of America 125th Anniversary Annual Meeting and Expo (27-30 October 2013). Denver, CO. (Poster; presenter).

AWARDS AND HONORS

Oregon State University, 2016 -

- Provost's Distinguished Graduate Fellow (2016-2017)
- President's Commission on the Status of Women Scholarship (2017)

Haverford College, 2011 - 2015

- Haverford College Honors in Geology
- John G. Wallace Class Night Award for contribution to performing arts on campus
- Bryn Mawr Summer Science Research Stipend, 2013

ADDITIONAL SKILLS/INFORMATION

Languages: Spanish (competent)

Competent with SpheriStat 3, GIS, GeoMapApp, Google Earth, and BASH and Python computer languages

PADI Rescue Diver- AWARE Fish ID Certification

HAZWOPER Certification

Early Professional Member of the Geological Society of America

LEADERSHIP AND CLUBS

Haverford College, 2011-2015

- Upper Class Advisor (academic advisor for 22 first-year students), 2014-2015
- Treasurer, Quaker Bouncers, 2014-2015, Board Member, 2013-2015
- President, Greasepaint Productions (theatre company), 2012-2015
Directed two musical productions; lead roles in multiple other musical productions
- Co-President, Counterpoint A Cappella Group, 2012-2013, member from 2011-2015

ADDITIONAL WORK AND VOLUNTEER EXPERIENCE

Theatre Technician, Bryn Mawr College, Bryn Mawr, PA

January 2013-May 2015

- Operated lighting, sound, and construction equipment
- Attended safety seminars each semester to ensure compliance with Bryn Mawr safety regulations and fire protocols
- Exposure to all phases of design and construction of sets and lighting plots

Sales Associate, Mandalay Trading Co., Princeton, NJ

May 2012- December 2013

- Performed customer service and coordinated stock between two stores, maintained shop cleanliness and organization
- Maintained professional and friendly attitude

Volunteer Naturalist, Locust Grove Nature Center, Bethesda, MD

September 2015- May 2016

Organized activities for visiting children, responded to visitor, telephone, and staff inquiries concerning natural history and conservation matters. Greeted visitors, provided interpretive program information, promoted positive public relations for the nature center