

# JESSICA L. BLACK

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## EDUCATION

- University of Colorado**      *PhD Geological Sciences*      **Boulder, CO**  
August 2008      Dissertation: Investigating Holocene climate change in Iceland using diatoms as a proxy for a fluctuating Holocene ice cap margin in glacial lake Hvítárvatn. Thesis advisor: Dr. Gifford H. Miller.
- University of Maine**      *MS Quaternary and Climate Studies*      **Orono, ME**  
May 2001      Thesis: Can a Little Ice Age signal be found in the Southern Alps of New Zealand? Thesis advisor: Dr. George H. Denton (National Academy of Sciences).
- Wellesley College**      *BA Geology*      **Wellesley, MA**  
December 1998      Awarded First Year Academic Distinction and Howard Hughes Minority Scholarship for Undergraduate Research. Research Advisor: Dr. Mary Allen. Geology Advisor: Dr. Margaret D. Thompson.
- University of St Andrews**      *BS in Geography (physical emphasis)*      **St Andrews, Scotland**  
May 1998      Senior Thesis: Geographic and climatological analysis of four glaciers in the North Cascades National Park, Washington, USA. Thesis Advisors: Dr. Colin K. Ballantyne, Dr. Jack Jarvis, Jon Riedel (NOCA).
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## ACADEMIC POSITIONS

**July 2016 – Present**      **Director, Center for Indigenous Health, Culture & the Environment at Heritage University**      **Toppenish, WA**

**Mission:** The Center for Indigenous Health, Culture and the Environment at Heritage University supports sustained community-based research and development, building regional and global partnerships to empower indigenous peoples

**July 2015 – Present**      **Associate Professor**      **Toppenish, WA**  
*Science Department, College of Arts and Sciences, Heritage University*

Course development and instruction for undergraduate level classes, advising Environmental Science and Studies (ESS) majors, grant writing, community partnership development, STEM outreach.

**July 2013 – June 2016**      **Interim Co-Director, Center for Native Health & Culture at Heritage University**      **Toppenish, WA**

**Outreach:** Direct STEM related environmental programs for high school students in White Swan High School and Yakama Nation Tribal School: EnvironMentors and Wild Horse Project.

- 2013 and 2014 brought 6 White Swan High School and 1 Yakama Nation Tribal School students to present their research posters at the EnvironMentors National Fairs in Washington, D.C.

**Scholarship:** Publications developed on Integrating Traditional Ecological Knowledge in High School STEM classrooms.

**Grant and Partnership Development:** Develop partnerships and grants with inland Pacific NW Indian Tribes. New partnerships with Nez Perce, Umatilla, Warm Springs, Spokane, Colville Tribes.

**July 2012 – June 2015      Assistant Professor      Toppenish, WA**

*Science Department, College of Arts and Sciences, Heritage University*

Course development and instruction for undergraduate level classes, advising Environmental Science and Studies (ESS) majors, grant writing, community partnership development, STEM outreach.

**January – June 2012      Adjunct Professor      Toppenish, WA**

*Science Department, College of Arts and Sciences, Heritage University*

Course development and instruction for undergraduate level classes, advising Environmental Science and Studies (ESS) majors, grant writing, community partnership development, STEM outreach. Taught 12 credits.

Classes Taught: PHSC 121	Principles of Geology	3 credits
PHSC 121L	Principles of Geology Lab	1 credit
ENSC 305	General Ecology	3 credits
ENSC 305L	Lab General Ecology	1 credit
BIOL 110	General Biology I	3 credits
BIOL 110L	General Biology I Lab	1 credit

**July 2011 – Dec. 2011      Adjunct Professor and Postdoctoral Researcher      St. Petersburg, FL**

*Department of Environmental Science, Policy & Geography, University of South Florida (USFSP)*

**Teaching:** Course development and instruction for a combination undergraduate and graduate level class. Department Chair: Dr. Henry Alegria.

- EVR4930/6934 - **Pollution of Lakes and Rivers – a Paleoenvironmental Approach**, Graduate and Undergraduate

**Research:** Using diatom analysis to develop the numerical nutrient standards (specifically chlorophyll *a* and phosphorus) for inland water bodies of Florida (outside of the South Florida Region) in response to a lawsuit filed against the US Environmental Protection Agency (EPA) and in conjunction with the Florida Department of Environmental Protection (FDEP). A diatom-based approach for this study was used and I was part of a team that provided the expertise for identifying and enumerating the Florida lacustrine diatom taxonomy.

**Jan. 2010 – June 2011      Postdoctoral Researcher      Aix-en-Provence, France**

*IRD-CEREGE (Institut de Recherche pour le Développement – Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement)*

High-resolution paleoenvironmental reconstruction of Lake Annecy and Lake Lemman using diatom oxygen isotopic composition. Primary research question: To what extent can a paleo-temperature record be reconstructed using the oxygen isotopic record preserved in fossil diatoms from Lake Annecy and Lake Léman sediments? Research Advisor: Dr. Florence Sylvestre.

- Co-supervision of 1 MS student.
- English grammar editor for various publications by researchers from the CEREGE

**Jan. 2008 – Dec. 2009      Postdoctoral Researcher      Fayetteville, AR & Québec City, Canada**

*Department of Geosciences, University of Arkansas & Centre d'études nordiques/Département de Géographie, Université Laval joint appointment*

Diatom analysis of sediments from Pingualuit Crater Lake, northern Quebec for reconstructions of environmental and climate change during past three interglacials. Research Advisors: Dr. Sonja Hausmann and Dr. Reinhard Pienitz.

- Paleolimnology Lab manager.
- Co-supervision of two PhD students and one MS student.
- Co-taught with S.Hausmann: *GEOG 5003 Ecology & Analysis of Fresh Water Diatoms*.
- Assisted S. Hausmann with teaching: *GEOG 3003 Conservation of Natural Resources*.
- 2008-2009 High School Science Fair Judge

**May 2002 – Dec. 2007      Research Assistant      Boulder, CO**

*INSTAAR (Institute of Arctic and Alpine Research) & Department of Geological Sciences, University of Colorado*

Researching Holocene sediments from an Icelandic glacial lake. Reconstruction of Iceland's second largest ice cap over the last 10,000 years. Specializing in diatom analysis.

- Co-supervision and training of 1 undergrad honors thesis and 4 undergrad laboratory assistants.
- Graduate Student Representative to INSTAAR Directorate 2006
- Graduate Student Retreat Committee Co-Chair 2005 and 2006

**Sept. 2001 – May 2002      Teaching Assistant      Boulder, CO**

*Department of Geological Sciences, University of Colorado*

Developed and instructed field based laboratory exercises for Global Changes: An Earth Science Perspective introductory geology class.

- Awarded University of Colorado Chancellor's Teaching Fellowship.

**Sept. 1999 – July 2001      Research Assistant      Orono, ME**

*Institute for Quaternary and Climate Studies, University of Maine*

Preparations for geology field research expeditions to New Zealand and for my advisor's field work in Antarctica.

- Awarded University of Maine Graduate Research Fellowship.

**Sept. 1994 – May 1996      Research Assistant      Wellesley, MA**

*Wellesley College Howard Hughes Minority Mentorship Program*

*In vivo* NMR spectroscopy of cyanobacteria. Research included oxygen electrode studies to measure their photosynthetic rate.

- Presented poster at the National Conference on Undergraduate Research, 1996.

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## ADVISORY COMMITTEES AND BOARDS

October 2014 – Present	Director's Council Member, National Science Foundation's (NSF) Alliance for Graduate Education in the Professoriate (AGEP) Transformation Grant: <i>Pacific Northwest Circle of Success for Mentoring Opportunities in STEM (PNW COSMOS)</i> * Invited
March 2015 – Present	Lower Yakima Valley Groundwater Management Area (GWAC) Advisory Committee Member * Invited
June 2014 – Present	National Council for Science and the Environment (NCSE) EnvironMentors Program Board Member *Elected

Fall 2012 – Present	Board Member, Yakima Area Arboretum * Elected
June 2014 – May 2015	National Planning Committee, NCSE EnvironMentors Program Strategic Planning for 2015-2018 Program Years * Invited
April 2014 – January 2016	Washington State Department of Health Neural Tube Defects Cluster Advisory Committee * Invited
2012	Education Committee Member: Cowiche Canyon Conservancy

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## UNDERGRADUATE AND GRADUATE STUDENT MENTORING

I assisted the principal advisors with the completion of each student's research project, providing much of the hands on guidance for laboratory work and document writing. I successfully trained each student in writing research grant proposals.

### **Undergraduate Honors Research Project, Thesis and Awards:**

While assisting in numerous student research projects, I was the primary research supervisor for the undergraduate students listed below:

Jacob Billy Sr.: *Nitrate mitigation of field drain water in the Lower Yakima Valley*. Research Project 2014, Heritage University.

- Presented poster at 2014 American Indian Science and Engineering Society (AISES) National Conference.
- HU Student Government Association Travel Award 2014: \$1,000
- TITLE V STEM research award 2014: \$1,500
- Institute for Washington's Future Research Grant: \$2,500

Daylen T. Isaac: *Utilizing biochar to mitigate nitrate leaching and increase crop yield in south central Washington State*. Research Project 2014, Heritage University.

- Presented poster at 2014 American Indian Science and Engineering Society (AISES) National Conference.
- ❖ **Awarded CHS Foundation Special Award for Undergraduate Research \$1,000**
- HU Student Government Association Travel Award 2014: \$1,500
- NSF REU Research Award 2014: \$4,500
- 2014 AMP Scholarship \$750

Francisco Ramirez: *Assessing Efficiency of Biochar as a Mediator for Nitrate Leaching in Soils*. Research Project 2014, Heritage University.

- Presented poster at 2014 American Indian Science and Engineering Society (AISES) National Conference.
- HU Student Government Association Travel Award 2014: \$1,500
- Institute for Washington's Future Research Grant: \$4,000

Cialita G. Keys: *Testing for Nitrates in the Lower Yakima Valley*.

- Presented in Sharing Circle at 2013 Gathering of Scholars Conference, Heritage University

- Presented at Mellon Mays Undergraduate Fellowship Fall 2013 Regional Conference, UC Berkeley, CA
- NSF REU Research Award 2013: \$4,500

Michelle George: *Effects of Spawned Pacific Lamprey Carcasses on Macroinvertebrate Population Dynamics in Two Tributary Streams to Yakima River in South-Central WA, USA.*

- Presented Talk at 2013 Gathering of Scholars Conference, Heritage University
- TITLE V STEM research award 2014: \$1,500

Anna Wagner: *Icelandic proglacial lake sediments: Evidence of seasonal laminations provide a means to interpret the Holocene climate on an inter-seasonal resolution.* University of Colorado. Successfully defended Thesis: April 2005.

- 2004 DOSECC (Drilling, Observation and Sampling of the Earth's Continental Crust) Internship Award (\$2,500), presented research at DOSECC Annual Meeting, 2005.
- 2004 Lakeside Merit Scholarship (\$780)
- 2003 UROP assistantship (\$800)

### MS Thesis:

Benjamin Quesada: *Etude des échanges hydro-isotopiques lac-atmosphère sur l'Altiplano Bolivien au Tardiglaciaire (18-14 ka). Apport de la composition isotopique en oxygène de la silice des diatomées lacustres.* IRD-CEREGE. Successfully defended MS Thesis: June 2010.

- 2010 Awarded fully funded PhD studentship at Laboratoire des Sciences du Climat et de l'Environnement, Université de Saint-Quentin en Yvelines, Gif-sur-Yvette, France.
- 2013 Awarded Outstanding Student Poster (OSP) Awards at European Geoscience Union General Assembly (EGU)

Raymond Keveren: *A 15,000-year reconstruction of paleolimnological change through diatom assemblage biostratigraphy of Greyling Lake, Chugach Range, south-central Alaska.* University of Arkansas. Successfully defended MS Thesis: August 2010.

- 2010 Awarded both Queen's University Studentship (£60,000) and NSF Graduate Research Fellowship (\$122,500) for PhD studies at Queens University, Belfast, UK.

### PhD Dissertation:

Darryl Reano: *GeoConnections: Evaluating the Impact of A Place-Based, Culturally-Relevant Geoscience Learning Module on Undergraduate Students' Connections to Geoscience Concepts Careers.* Purdue University. Anticipated defense date, Spring 2020.

- 2014-2016 Lighting the Pathway Mentor (AISES NSF Grant) to D. Reano.
- 2015 Geological Society of America Student Award (\$3,000). Mentored Student.
- 2017 NSF I-USE (Improving Undergraduate STEM Education: Education and Human Resources) Award No. 1712378, 05/15/2017 – 04/30/2019, (\$100,000). Mentored student. J. Black Co-PI

Ruchi Bhattacharya: *Reconstruction of past flood events from lower White River, Arkansas using diatoms and geochemistry as proxies.* University of Arkansas. Successfully defended dissertation: Fall 2010.

- 2009 Geological Society of America Student Award (\$1,600)
- 2009 Lakeside Merit Scholarship (\$780)
- 2009 North American Diatom Symposium Travel Award (\$200)

Byron Winston: *Determining the source and mechanisms of production of methyl-iso-borneol and geosmin at Beaver Reservoir.* University of Arkansas. Successfully defended dissertation: Fall 2011.

2009 GSA Student Award (\$1,240)

- 2009 Lakeside Merit Scholarship (\$780)

## PUBLICATIONS

- Black, J.L.** and M. Jacob, *In press*. Indigenous Environmental Science on the Columbia River Plateau – Traditional Ecological Knowledge and the People of the Big River Field Class. *On Indian Ground, Northwest*, IAP. Expected publication date June 15, 2018.
- Bhattacharya, Ruchi, Sonja Hausmann, J. Bradford Hubeny, Peter Gell, **Jessica L. Black**, 2016. Ecological response to changing hydrological variability and catchment development: insights from a shallow oxbow lake in Lower Mississippi Valley, Arkansas. *Science of the Total Environment*. 569-570:1087-97. doi: 10.1016/j.scitotenv.2016.06.174.
- Quesada, Benjamin, Florence Sylvestre, Françoise Vimeux, **Jessica Black**, Christine Paillès, Corinne Sonzogni, Anne Alexandre et al., 2015. Impact of Bolivian paleolake evaporation on the  $\delta^{18}\text{O}$  of the Andean glaciers during the last deglaciation (18.5–11.7 ka): diatom-inferred  $\delta^{18}\text{O}$  values and hydro-isotopic modeling. *Quaternary Science Reviews*, v. 120, p. 93-106.
- Marie-Elodie Perga, Victor Frossard, Jean-Philippe Jenny, Benjamin Alric, Fabien Arnaud, Vincent Berthon, **Jessica L. Black**, Isabelle Domaizon, Charline Giguët-Covex, Amy Kirkham, Michel Magny, Marina Manca, Aldo Marchetto, Laurent Millet, Christine Paillès, Cecile Pignol, Jérôme Poulenard, Jean-Louis Reyss, Frederic Rimet, Pierre Sabatier, Olga Savichtcheva, Florence Sylvestre, Valérie Verneaux, 2015. High-resolution paleolimnology opens new management perspectives for lakes adaptation to climate warming. *Frontiers in Ecology and Evolution*, v. 3, article 72, doi: 10.3389/fevo.2015.00072.
- Black, J.L.**, Edlund, M.B., Hausmann, S., Pienitz, R., 2012. Small freshwater thalassiosiroid diatoms from Pingualuit Crater Lake, northern Québec and description of *Cyclotella pingaluitii* sp. nov. *Diatom Research*, v. 27, no.1, p. 1-11, doi:10.1080/0269249X.2012.654825.
- Whitmore T.J., Riedinger-Whitmore, M.A., Stephens, T.W., Kenney, W.F., Price, R., and **J.L. Black**, 2011. Paleolimnological Assessment of Pre-disturbance Water Quality Conditions in Lake Bellows (East Lake), Hillsborough County, Florida. *Final Report, Florida Department of Environmental Protection*. 54 pp.
- Flowers, G.E., Björnsson, H., Geirsdóttir, A., Miller, G.H., **Black, J.L.**, and G.K.C. Clarke, 2008. Holocene climate conditions and glacier variation in central Iceland from physical modelling and empirical evidence. *Quaternary Science Reviews*, v. 27, p. 797–813.
- Shanahan, T. M., J. T. Overpeck, J. B. Hubeny, J. King, F. S. Hu, K. Hughen, G. Miller, and **J. Black**, 2008, Scanning micro-X-ray fluorescence elemental mapping: A new tool for the study of laminated sediment records. *Geochemistry Geophysics Geosystems*, v. 9, p. Q02016.
- Lowell, T.V., Schoenenberger, K., Deddens, J.A., Denton, G.H., Smith, C., **Black, J.** and C.H. Hendy, 2005. *Rhizocarpon* calibration curve for the Aoraki/Mount Cook area of New Zealand. *Journal of Quaternary Science*, v.20, p. 313-325.
- Black, J.** Miller, G., Geirsdóttir, Á., Manley, W., and H. Björnsson, 2004. Sediment thickness and Holocene erosion rates derived from a seismic survey of Hvítárvatn, central Iceland. *Jökull*, v. 54, p. 37-56.
- Karlén, W., and **J. L. Black**, 2002. Estimates of lichen growth-rate in northern Sweden. *Geografiska Annaler*, v. 84 A, p. 225-232.
- Geirsdottir, A., Miller, G.H., **Black, J.**, and T. Thordarson, 2002. Did Iceland's icecaps disappear in the Warm Early Holocene? *Eos Transactions American Geophysical Union*, v. 83, no. 47, Fall Meeting Supplement PP61A-0295.
- Black, Jessica L.**, Johnston, Ben C., Nestor, Rebecca A., Koblinsky, Corinn C., Hall, Jennifer L., Dickson, Stephen M. and Kelley, Joseph T., 2002. Coastal bluffs in the Newbury Neck quadrangle, Maine. *Maine Geological Survey (Department of Conservation)*, Open-File Map 02-198, scale 1:24000.

- Black, Jessica Laura**, 2008. Holocene climate change in south-central Iceland: A multi-proxy lacustrine record from glacial lake Hvítárvatn [PhD Thesis]: Boulder, University of Colorado.
- Black, J.L.**, 2001. Can a Little Ice Age climate signal be found in the Southern Alps of New Zealand? [Master's Thesis], University of Maine, Orono.

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#### GRANTS AND AWARDS

- 2017 National Science Foundation: AGEP-T: *Pacific Northwest Collaborative Opportunities For Success in Mentoring Of Students (PNW-COSMOS)*. Heritage University Sub-Award Supplement: Sub-Award Coordinator of Recruitment Activities and Advisor: **Jessica L. Black** (\$50,000).
- 2017 Bonneville Power Administration: Tribal Capacity Building Grant. Project Title: *People of Big River Field Class and Indigenous Natural Resources Leadership Lecture Series*. PI: **Jessica L. Black** (\$20,000).
- 2017 National Science Foundation: IUSE. Project Title: *GeoConnections: Evaluating the Impact of Place-Based, Culturally-Relevant Geoscience Learning Modules on Undergraduate Students' Connections to Geoscience Concepts and Careers*. PI Jonathan M. Harbor, Co-PI: Jessica L. Black (\$100,000).
- 2016 Environmental Protection Agency Science To Achieve Results (STAR) Research Program: Air Pollution Monitoring for Communities. Project Title: *Putting next generation sensors and scientists in practice to reduce wood smoke in a highly impacted, multicultural rural setting*. PI: Catherine Karr (\$746,021). Heritage University Sub-Award: Sub-Award PI: **Jessica L. Black** (\$239,500).
- 2015 National Science Foundation: IUSE. Project Title: *iNtegration of Aquatic sciences and Traditional Ecological Knowledge for undergraduate culturally Responsive Education (i-Nature)*. PI: Alexander Alexiades, Co-PI: **Jessica L. Black** (\$299,441)
- 2015 United States Department of Agriculture National Institute of Food and Agriculture Hispanic-Serving Institutions Grants Program. Project Title: *Human Resources for a New Agriculture: Educating a more Diverse, Capable and Resilient Workforce for the Era of Climate Change (HU-NEW-ACRE)*. PD: **Jessica L. Black** (\$269,675).
- 2014 Institute for Washington's Future. Project Title: *Investigating Efficacy of Biochar Use in Sustainable Agriculture Practices in South Central Washington State*. PI: Jessica L. Black (\$7,500)
- 2014 National Science Foundation: AGEP-T: *Pacific Northwest Collaborative Opportunities For Success in Mentoring Of Students (PNW-COSMOS)*. Heritage University Sub-Award: Sub-Award Coordinator of Recruitment Activities and Advisor: **Jessica L. Black** (\$38,458)
- 2014 EnvironMentors UPS Field Travel Grant: PI: Jessica L. Black (\$600)
- 2013 Yakima County, Ground Water Management Area (GWMA) Administering Public Informational Questionnaire: PI: **Jessica L. Black** (\$5,300)
- 2013 Muckleshoot Charity Fund. Project Title: *People of the Big River Field Class*. PI: Jessica L. Black (\$5,000)

- 2013 Bill & Melinda Gates Foundation Pacific Northwest Community Grants: Family and Community Roles in Supporting Student Success. Project Title: *Empowering Traditional Ecosystem Knowledge Through Inter-generational Mentoring*. PI: Winona Wynn, Co-PI: **Jessica L. Black** (\$50,000)
- 2013 National Environmental Education Foundation (NEEF) America's Great Outdoors: Connecting Youth to the Outdoors 2012 Grant. Project Title: *People of the Big River Environmental Education Field Class*. PI: **Jessica L. Black**, Co-PI: Kazuhiro Sonoda (\$15,000)
- 2009 PAGES 1<sup>st</sup> Young Scientist Meeting and 3<sup>rd</sup> Open Scientist Meeting Travel and Meeting Award (\$1,400)
- 2006 Colorado Diversity Initiative Summer Award, University of Colorado Graduate School (\$3,600)
- 2006 American Geological Institute Minority Participation Program Scholarship (\$1,000)
- 2005 Colorado Diversity Initiative Summer Award, University of Colorado Graduate School (\$3,600)
- 2005 American Geological Institute Minority Participation Program Scholarship (\$1,500)
- 2005 Geological Society of America Research Grant (\$1,200)
- 2005 Lakeside Merit Scholarship (\$585)
- 2004 American Geological Institute Minority Participation Program Scholarship (\$2,500)
- 2004 Geological Society of America Research Grant (\$3,000)
- 2004 Lakeside Merit Scholarship (\$780)
- 2003 American Geological Institute Minority Participation Program Scholarship (\$2,500)
- 2003 University of Colorado Beverly Sears Graduate Student Grant (\$400)
- 2003 Geological Society of America Research Grant (\$2,500)
- 2002 Geological Society of America Research Grant (\$2,800)
- 2000 Association for Graduate Students Grant for Research and Travel (\$490)
- 2000 Institute for Quaternary Studies Research and Travel Grant (\$2,500)

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#### CONFERENCES AND INVITED PRESENTATIONS

Stampfer, Orly, **Aiyana Holt-Zack** (HU ENSC student), and Mansel Nelson, 2017. High School Citizen Science Curriculum to Address Indoor and Outdoor Air Pollution at the ACTEM. *Alaska Tribal Conference on Environmental Management, November 14-17, 2017, Anchorage, AK*. Oral Presentation. \*Part of EPA Grant to C. Karr and J. Black.

**Black, Jessica L.**, 2017. Indigenous Environmental Science on the Columbia River Plateau. **Invited Talk:** *Session T105 Building an Inclusive Geoscience Community Today for Tomorrow II, Geological Society of America National Conference, Seattle, WA October 24, 2017.*



- Black, Jessica L.** and Catherine Karr, 2017. Yakama PM2.5 Issues, Wood Smoke and Research. **Invited Talk:** *Tribal - EPA Region 10 Biennial FARR Meeting, Seattle, WA, October 16-18, 2017.*
- Black, Jessica L.,** 2017. Integrando el Conocimiento Tenologico Tradicional con la Education de Las Ciencias del Medio Ambiente – Proyectos en Washington (EEUU) y Panamá. **Invited Talk:** *Conferencia: Experiencias de Investigaciones Ambientales en Poblaciones Indígenas de Universidades Norte Americanas, La Oficina de los Pueblos Indígenas (OPINUP) de la Universidad de Panamá, 16 de junio de 2017, Panama City, Panama.*
- Black, Jessica L.,** 2017. Human Resources for a New Agriculture: Educating a More Diverse, Capable, and Resilient Workforce for the Era of Climate Change. *USDA Hispanic Serving Institutions Principal Investigators Meeting: Workforce Diversity and Career Opportunities within the USDA, February 16- 18, 2017, Albuquerque, NM.* Poster.
- Black, J.L.** and Sonoda, K., 2016. Community-based undergraduate research as a mechanism for facilitating collaboration in response to a changing climate. Session: G-13 Role of Minority-Serving Institutions in Engaging and Empowering Communities in Sustainable Water Resource Stewardship. *Association for Environmental Studies and Sciences (AESS) 2016 Conference, Washington, D.C., Session Convener.* June 8-11, 2016.
- Black, Jessica L.,** 2015. Human Resources for a New Agriculture: Educating a More Diverse, Capable, and Resilient Workforce for the Era of Climate Change. *USDA Hispanic Serving Institutions New Principal Investigators Meeting. December 16- 18, 2015, Washington, D.C.* Poster.
- Black, J.L.,** 2015. Developing Multi-Faceted Tribal/University Partnerships for Research, Education and Workforce Development. **Invited Talk:** *National Indian Education Association (NIEA) Conference, Portland, OR October 14-17, 2015.*
- Black, J.L.,** 2015. Presented to Congressman Dan Newhouse on HU Environmental and agriculture programs and research initiatives, March 30, 2015.
- Black, J.L.** and Sonoda, K., 2015. Maximizing University Assets to Engage and Retain Hispanic and Native American Students in Culturally Responsive, Community-based Research: Biochar as a Soil Amendment for a Water-stressed Agricultural Community. In Session D-2 Utilizing Experiential Learning to Engage Underrepresented Minority Students in the Environmental and Natural Resources Fields. *Association for Environmental Studies and Sciences (AESS) 2015 Conference, San Diego, CA, Session Convener.* June 24-27, 2015.
- Isaac, D., Ramirez, F., Billy, J., **Black, J.,** Sonoda, K., 2015. Utilizing Biochar to Mitigate Nitrate Leaching and Increase Crop Yield in South Central Wa. 2015. *American Association for the Advancement of Science (AAAS) Annual Meeting 12-16 February, 2015.* Poster.
- Black, J.L.,** 2014. Environmental Science and Studies Programs at Heritage University – Undergraduate Research. **Invited Presentation:** *The Leadership Alliance, Heritage University November 17, 2014.*
- Billy, J.D., Isaac, D, Ramirez, F., **Black, J.L.,** Sonoda, K., 2014. Biochar: Nitrate mitigation of field drain water in the Lower Yakima Valley. *2014 American Indian Science and Engineering Society (AISES) National Conference.* Poster.
- Isaac, D., Ramirez, F., Billy, J., **Black, J.,** Sonoda, K., 2014. Utilizing biochar to mitigate nitrate leaching and increase crop yield in south central Washington State. *2014 American Indian Science and Engineering Society (AISES) National Conference.* Poster.
- Ramirez, F., Isaac, D., Billy, J., **Black, J.L.,** Sonoda, K., 2014. Assessing Efficiency of Biochar as a Mediator for Nitrate Leaching in Soils. *2014 American Indian Science and Engineering Society (AISES) National Conference.* Poster.

- Black, J.L.**, 2014. People of the Big River Field Class and Native American Initiatives at Heritage University. *Invited Talk: Heritage University Board Meeting October 24, 2014.*
- Black, J.L.**, 2014. Environmental Science and Studies Programs at Heritage University. *Invited Talk: Heritage University Board Meeting October 23, 2014.*
- Black, J.L.** and Sonoda, K., 2014. Minority youth-centered environmental education activism in rural Indian Country. *Panel Presentation Chair: Association for Environmental Studies and Sciences (AESS) 2014 Conference, New York, NY, Session Convener. June 11-14, 2014.*
- Black, J.L.**, 2014. Immersive Field Course Integrating Culturally-Based Traditional Ecological Knowledge with Environmental Science Education: Heritage University. *Yes We Must Coalition National Conference – “Fulfilling Our Responsibility: Higher Education for the New Student Majority”, Northbrook, IL, April 23-25, 2014.* Poster.
- Black, J.L.**, 2014. People of the Big River: Environmental Science and Culturally-Based Activist Education. *Invited Talk: 15<sup>th</sup> Annual American Indian Studies Association (AISA) Conference – “Activism: Continuity, Resistance, Obligation”, Arizona State University, Tempe, AZ, February 6-7, 2014.*
- Black, J.L.**, 2013. People of the Big River Field Class. *Invited Talk: Heritage University Board Meeting October 18, 2013.*
- Black, J.L.**, 2013. Diatoms as Environmental Indicators. *Invited Talk: Geological Sciences Department, Central Washington University, Ellensburg, WA, March 24, 2013.*
- Quesada, B.; Sylvestre, F.; Vimeux, F.; **Black, J.**; Paillès, C.; Sonzogni, C.; Alexandre, A.; Blard, P. H.; Bruneton, H., 2013. Diatom-inferred  $\delta^{18}\text{O}$  of a Bolivian paleolake during the last deglaciation (18.6-11.7 ka): Impact of paleolake evaporation and water recycling on the isotopic composition of Andean glaciers. *European Geosciences Union General Assembly 2013, Vienna, Austria. id. EGU2013-4965.* Poster.  
\*Awarded European Geosciences Union 2013 Outstanding Student Poster (OSP) Award
- Black, J.L.**, 2012. The role of diatoms in paleoenvironmental research - Reconstruction of paleoenvironmental changes from Pingualuit Crater Lake sediments during glacial-interglacial cycles – A case study. *Invited Talk: Geography Department, Worcester State University, Worcester, MA.*
- Black, J.L.**, 2011. The role of diatoms in paleoenvironmental research. *Invited Talk: Department of Marine and Ecological Sciences, Florida Gulf Coast University, Fort Meyers, FL.*
- Black, J.L.**, S. Hausmann, R. Pienitz, G. St-Onge, H. Guyard, V-P. Salonen, M. Lavoie, L. Cunningham, P. Rosen, A.M. Girard-Cloutier, and T. Luoto, 2011. Reconstruction of paleoenvironmental changes from Pingualuit Crater Lake sediments during glacial-interglacial cycles MIS 1 to MIS 8: a long-term terrestrial record from the Canadian Arctic: *Invited Talk: Department of Geology and Meteorology, Central Michigan University, Mount Pleasant, MI.*
- Black, J.L.**, S. Hausmann, R. Pienitz, G. St-Onge, H. Guyard, V-P. Salonen, M. Lavoie, A.M. Girard-Cloutier, and T. Luoto, 2010. Reconstruction of paleoenvironmental changes from Pingualuit Crater Lake sediments during glacial-interglacial cycles MIS 1 to MIS 8: a long-term terrestrial record from the Canadian Arctic: *European Geosciences Union General Assembly 2010, Vienna, Austria.* Poster.
- Black, J.L.**, Sonja Hausmann, Reinhard Pienitz, Veli-Pekka Salonen, Guillaume St-Onge, Michel Bouchard, Laura Cunningham, Pierre Francus, and Michel Lamothe, 2009. The "Crystal Eye of Nunavik" (Pingualuit Crater Lake): Diatom inferred paleoenvironmental record for three previous interglacial periods. *North American Diatom Symposium 2009, Iowa Lakeside Laboratory, Milford, IA.* Poster.
- Jessica L. Black**, S. Hausmann, R. Pienitz, G. St-Onge, V-P. Salonen, M.A. Bouchard, L. Cunningham, P. Francus, M. Lamothe, H. Guyard, N. Gantner, A-M. Girard-Cloutier, I. Larocque, M. Lavoie, T. Luoto, W. Michaud, D. Muir, M. Power, J. Reist, P. Rosen, J. Veillette, W. Vincent, B. Zolitschka, R.

- Niederreiter, 2010. A paleoenvironmental reconstruction of Pingualuit Crater Lake sediments: A long-term record in the terrestrial Canadian arctic spanning more than 200,000 years. *PAGES 1<sup>st</sup> Young Scientists Meeting and 3<sup>rd</sup> Open Scientists Meeting July 6-11 2009, Corvallis, OR*. Poster.
- Black, J.L.**, Hausmann, S., Pienitz, R., 2009. Analysis of diatom assemblages of the three most recent interglacial periods from Pingualuit Crater Lake sediments, northern Québec. *Invited Talk: Lakes and Environmental Change Symposia: Northeast Geological Society of America, Portland, ME*.
- Black, J.**, Miller, G., Geirsdottir, A., 2007. A multi-proxy lacustrine reconstruction from Hvítárvatn, of Holocene fluctuations of an ice cap margin in south-central Iceland. *Invited Talk: Department of Geosciences, University of Arkansas, Colloquium Series*.
- Black, J.**, Miller, G., Geirsdottir, A., 2006. Diatoms as proxies for a fluctuation Holocene Ice Cap margin in Hvítárvatn, Iceland. *American Geophysical Union Fall Meeting 2006*. Talk.
- Black, J.**, Miller, G., Geirsdottir, A., 2006. Diatoms as proxies for a fluctuation Holocene Ice Cap margin in Hvítárvatn, Iceland. *36<sup>th</sup> International Arctic Workshop, 2006*. Talk.
- Black, J.**, Miller, G., Geirsdottir, A., 2005. Hvítárvatn warm times. *Iceland Warm Times/Cold Times Project Meeting 25-26 February 2005 Boulder, CO*. Talk.
- Black, J.**, Miller, G., Geirsdottir, A., 2005. Diatoms as proxies for a fluctuating ice cap margin, Hvítárvatn, Iceland. *American Geophysical Union Fall Meeting 2005*. Poster.
- Black, J.**, Miller, G., Geirsdottir, A., 2005. Investigation Holocene climate change in glacial lake Hvítárvatn, Iceland. *35<sup>th</sup> International Arctic Workshop, 2005*. Poster.
- Black, J.**, Miller, G., Geirsdottir, A., 2004. Sediment thickness and Holocene erosion rates derived from a seismic survey of Hvítárvatn, central Iceland. *American Geophysical Union Fall Meeting 2004*. Poster.
- Black, J.**, Miller, G., Geirsdottir, A., 2004. Investigation Holocene climate change in glacial lake Hvítárvatn, Iceland. *34<sup>th</sup> International Arctic Workshop, 2004*. Poster.
- Black, J.**, Miller, G., Geirsdottir, A., 2003. Investigation the Holocene Thermal Maximum in Iceland. *33<sup>rd</sup> International Arctic Workshop, 2003*. Poster.
- Black, J.**, Miller, G., Geirsdottir, A., 2002. A seismic analysis of Hvítárvatn, Iceland to determine dominant sediment sources into the glacial lake basin during the Holocene. *Geological Society of America Annual Meeting, 2002*. Poster.
- Black, J.**, 2001. Investigating the Little Ice Age in the Southern Alps of New Zealand. *Geological Society of America 2001 NE Section 36<sup>th</sup> Annual Meeting*. Talk.
- Black, J.**, 2000. Can a Little Ice Age Climate Signal be Detected in the Southern Alps of New Zealand? *American Geophysical Union Fall Meeting 2000*. Poster.

## PROFESSIONAL WORKSHOPS, CONFERENCES AND SHORT-COURSES

- 2017 American Indian Science and Engineering Society (AISES) National Conference. November 13-15, 2014. Denver, CO.

- 6 Heritage University Environmental Science and Studies (ESS) students presented research posters at conference.
- 2017 EnvironMentors National Fair, June 1-3, 2017. Washington, D.C.
- 4 White Swan High School students presented research posters at conference.
- 2016 American Indian Science and Engineering Society (AISES) National Conference. November 13-15, 2014. Minneapolis, MN.
- 5 Heritage University Environmental Science and Studies (ESS) students presented research posters at conference.
- 2016 EnvironMentors National Fair, June 8-10, 2016. Washington, D.C.
- 4 White Swan High School students presented research posters at conference.
- 2015 American Indian Science and Engineering Society (AISES) National Conference. November 13-15, 2014. Denver, CO.
- 5 Heritage University Environmental Science and Studies (ESS) students presented research posters at conference.
- 2015 EnvironMentors National Fair, May 31- June 2, 2015. Washington, D.C.
- 3 White Swan High School students presented research posters at conference.
- 2014 American Indian Science and Engineering Society (AISES) National Conference. November 13-15, 2014. Orlando, FL.
- 6 Heritage University Environmental Science and Studies (ESS) students presented research posters at conference.
- 2014 Climate Change Adaption Planning Training at the 2014 National Tribal Forum on Air Quality (NTF), sponsored by the Institute for Tribal Environmental Professionals (ITEP) and National Tribal Air Association (NTAA). May 12-15, 2014. Swinomish Indian Tribal Community, WA.
- 2014 EnvironMentors National Fair, May 17-20, 2014. Washington, D.C.
- 3 White Swan High School students presented research posters at conference.
- 2014 Asset-Based Community Development (ABCD) Training, Wintertalk. February 15-17, 2014. Tulalip Resort Casino, Marysville, WA.
- 2013 22<sup>nd</sup> North American Diatom Symposium, August 13-16, 2014. College of the Atlantic, Bar Harbor, ME.
- 2013 Short Course: Analysis of Ecological and Palaeoecological Data with R, August 8-12, 2014. Taught by Dr. Steve Juggins (Newcastle University). University of Maine, Orono, ME.
- 2013 Association for Environmental Studies and Sciences (AESS) National Conference – Linking Rural & Urban Societies & Ecologies, June 19-22, 2013. Pittsburgh, PA.
- 2013 Northwest Biology Instructors' Organization (NWBIO) Conference, May 3-4, 2013. Tri-cities, WA.
- 2013 EnvironMentors National Fair, May 19-22, 2013. Washington, D.C.
- 2012 Association of American Colleges and Universities (AAC&U) Annual Conference, November 8-10, 2012, Kansas City. MO. Next Generation STEM Learning: Investigate, Innovate, Inspire.
- 2012 Washington Science Teachers Association (WSTA) 2012 Conference, October 19-21, 2012, Yakima, WA. Where Science, Technology, Engineering and Math Meet.
- 2012 SACNAS (Society for Advancement of Chicanos and Native Americans in Science) National Conference, October 11-14, 2012, Seattle, WA.
- 2012 Traditional Knowledge and Healthy Ecosystems Summit, August 29-31, 2012. Skamania Lodge, Columbia River Gorge, WA.

- 2012 Northwest Biology Instructors' Organization (NWBIO) Conference. April 27-29, 2012. Everett Community College, WA.
- 2012 Intertribal Timber Council Meeting, Yakama Nation. April 2012.
- 2012 Curriculum for the Bioregion Ellensburg Regional Conference February 24, 2012. Central Washington University. Strengthening Sustainability-across-the-Curriculum on Our Campuses.
- 2007 Postdoctorate Preparation Workshop April 16-18, 2007 hosted by the National Center for Atmospheric Research (NCAR) and University of Colorado Diversity Initiative.
- 2005 University of Iowa, Lakeside Laboratory: Analysis of Environmental Data by S. Juggins.
- 2005 VECO Polar Resources Learn to Return (LTR) Arctic Safety and Survival Course.
- 2004 University of Iowa, Lakeside Laboratory: Ecology and Systematics of Diatoms Intensive Field and Laboratory Class by Sarah Spaulding and Mark Edlund.
- 2002 University of Massachusetts Amherst: Short Course on image analysis and construction of thin sections of unconsolidated varved sediments by Pierre Francus.
- 2000 NCAR, Boulder, CO: Holocene Thermal Maximum Workshop for Paleoenvironmental Arctic Sciences (NSF-PARCS). Member and workshop participant.
- Resulting paper: Kaufman, D., et al., 2004. Holocene thermal maximum in the western Arctic (0–180 W), *Quaternary Science Reviews*, v.23 (5-6), p. 529-560.
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## FIELD EXPERIENCE

- 2016 – **Ngäbe-Bugle Comarca, Panama.** Micro-entrepreneurial and environmental science research Present projects with Traditional Congress of Ngabe-Bugle within three regions of their comarca.
- 2012-14 **Toppenish Creek, Yakima County, WA:** Sampling of benthic macroinvertebrates and diatoms found in local creeks for ecology lab and as part of long term study.
- 2011 **Florida freshwater lakes:** Collection of surface sediment samples and sediment cores of lakes for development of water quality index of Florida lakes.
- 2011 **Clam Bayou Estuary, Gulfport, FL and Tera Ceia Bay, Manatee County, FL:** Assisted in collection of sediment and water samples for analysis of PAH pollution study for MS student project.
- 2011 **Gum Slough Spring Run, Half Moon Wildlife Management Area, FL:** assisted in collection of algal samples for evaluation of minimum flow levels.
- 2009 **Beaver Reservoir, northwest Arkansas:** Assisted in deployment of limnocorral for assessment of MIB production in the reservoir for PhD student project.
- 2008 **White River flood plain, eastern Arkansas:** Project manager for oxbow lake coring expedition to recover Holocene paleo-flood record using UWITEC piston percussion coring system for PhD student project.
- 2008 **White River flood plain, eastern Arkansas:** Sampling of surface sediments and water chemistry of oxbow lakes during 100-year flood event (March-April, 2008) for PhD student project.
- 2007 **Weston Lake, Congaree National Park, South Carolina:** Lake coring of oxbow lake for PhD student project.

- 2003 **Hvítárvatn, Iceland:** Summer lake coring as part of GLAD4 drilling project, PhD
- 2002 **Hvítárvatn, Iceland:** Winter lake coring – recovered a series of short Nesje cores, PhD
- 2000 **Hooker and Mueller Glacier Valleys, Mount Cook National Park, New Zealand:** Glacial geomorphic mapping and development of Late Holocene lichenometric chronologies for two glacier valleys, MS
- 2000 **Lapland, northern Sweden:** Chronological study of three glaciers in Lapland with Prof. Wibjörn Karlén. Work based out of Tarfala and Abisko Scientific research stations, MS
- 2000 **Southern Maine Coast,** Maine Geologic Survey: Mapped bluffs along the coast of Maine to determine slope stability and potential for erosion and damage to structures.
- 1998 **Washington State:** Geologic Field Mapping, Pacific Lutheran University.
- 1997 **North Cascades National Park, WA.** Geology Intern: Assisted National Park Geologist Jon L. Riedel developing methodology for mass balance monitoring of small alpine glaciers.
- 1997 **Mount Rainier, WA:** Archaeology Field Experience, Pacific Lutheran University.
- 1996 **Bird Spring Range, Utah:** Field Geology, Massachusetts Institute of Technology.

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### SERVICE

- 2012-2015 Act Six Leadership and Scholarship Initiative Committee
- 2013-2016 Washington Science Olympiad – Event Supervisor
- 2012-Present El Proyecto Bienestar – CORE member (Community partnership between: Heritage University, UW PNASH – Pacific Northwest Agricultural Safety and Health Center, Radio KDNA, Yakima Valley Farmworker’s Clinic)

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### ENVIRONMENTAL EDUCATION POSITIONS

- 10/98-12/98, **Greenhouse Intern** *Friends of Horticulture, Wellesley College Greenhouse,*  
9/94-5/96 *Wellesley, MA*  
Assisted head of arboretum in maintaining 22-acre botanical gardens, groomed greenhouse, and studied ecological landscaping and horticulture through practical experience. Provided guided tours of arboretum and greenhouse.
- Summer 1999 **Volunteer Interpretive Ranger (Student Conservation Association -Conservation Career Development Program: SCA-CCDP)** *Knife River Indian Villages National Historical Site, Stanton, ND*  
Interpretive ranger at the KNRI Visitor Center. Educated visitors on the Earth Lodge Reconstruction and archeological sites, native cultures of the Upper Missouri River, and the travels of Lewis and Clark.
- Summer 1996 **Volunteer Ridgerunner, (SCA-CCDP)** *Appalachian Mountain Club CT and MA Corridor*  
Patrolled for extended periods on the Appalachian Trail as a ranger. Duties included trail maintenance, medical support and education. Focused on minimum impact and Leave No Trace education.
- Summer 1995 **Volunteer Backcountry Ranger (SCA-CCDP)** *North Cascades National Park, Marblemount, WA*

Maintained hiking trails, managed vegetation and wildlife at Cascade Pass, provided medical support and outdoor education. Trained in snow and ice travel, Wildland Fire-fighting red card.

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JOURNAL ARTICLE REFEREE

Diatom Research  
Canadian Journal of Fisheries and Aquatic Sciences  
Holocene  
Journal of Paleolimnology  
Quaternary Science Reviews

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PROFESSIONAL MEMBERSHIPS

American Geophysical Union (AGU), since 2000  
Geological Society of America (GSA), since 2000  
American Association for the Advancement of Science (AAAS), since 2005  
International Society for Diatom Research (ISDR), since 2005  
Sigma Xi, since 2008  
Association For Women in Science (AWIS), since 2008