HEATHER FAIR
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Education

The Ohio State University (Ohio, USA)	Environmental Science	Ph.D. 2017
The Ohio State University (Ohio, USA)	Environmental Science	M.S.
University of Miami (FL, USA)	International Business Mgt.	M.B.A.
The Ohio State University (Ohio, USA)	Business Management	B.S.B.A.

Appointments

2021-2024 **National Science Foundation (NSF) Postdoctoral Research Fellow in Biology, University of Minnesota, Chinese Academy of Sciences, and USDA Agricultural Research Services, Columbus, OH**

- Performing microbial ecology research in supra-glacial aquatic habitats in SE Tibet.
- Working towards building a mentoring platform for Deaf and hard of hearing (DHH) people in ecology, environmental science, and STEM careers.
- Mentored undergraduate students to perform independent aquatic ecology research projects in the NSF Research Experience for Undergraduates (REU) program.

1/2020-5/2020 **Instructor, Ohio Wesleyan University, Biology Department, Delaware, OH**

- Taught evolution, ecology, and physiology of plants, animals, protists, and fungi. Guided students in hypothesis generation, experimental design, data collection, and data analysis.
- Developed online content during COVID-19 pandemic, mentored student on presentations on international response of countries to **COVID-19**.

8/2019-6/2020 **Visiting Assistant Professor, Kenyon College, Biology Department, `Gambier, OH**

- Taught experimental biology incorporating biodiversity, RStudio statistical coding and analysis, DNA extraction, PCR, bioinformatics, and gene expression in plant roots.

6/2019-7/2019 **Visiting Professor, Middlebury College School of the Environment, Yunnan, China**

- Developed and taught aquatic entomology and guided student projects in conducting fieldwork, scientific tests, data analysis, and writing scientific reports of projects.
- Developed environmental studies course. Taught concepts of water resources, the business of water, life cycle analysis (LCA), and water policy. Guided students in developing and presenting projects using LCA, time lapse photography, and interviews using water footprint questionnaire interviews with expats and local Chinese.

2018-2019 **Sea Grant Knauss Fellow, US Geological Survey, Water Mission Area, Reston, VA**

- Developed initial Value of Information (VOI) project for USGS water quality modeling.
- Served as lead author on Water Mission area chapter in VOI circular "The Value of USGS Science: Information Analysis of Select Information Products"
- Analyzed USGS research and presented at Sea Grant/WRRI regional leadership meetings
- Assisted in development of employee survey and served as co-author on final report.

2007-2017 **Graduate Teaching Assistant and Fellow, The Ohio State University**

- Taught the following courses at Ohio State as a Graduate Teaching Assistant or Lecturer: 1) Human Physiology; 2) Introductory Biology; 3) Neurobiology of Animal Behavior; 4) Field Zoology at Stone Laboratory, Lake Erie; 5) Watershed Ecology (NSF Sugarcreek Watershed Program at Hiland High school); 6) Chinese interpersonal relations bilingual course; and 7) Intensive beginning Mandarin Chinese.
- Developed global language summit with international companies in Columbus, Ohio.

2013-2018 **Education Consultant, Reach Student Services, Hong Kong and United States**

- Part-time contractor assisting high school students with college application essays and English language skills. Successfully coached a student who was accepted into Harvard.

Corporate Experience

1999-2007 **WalMart Stores, Inc. Headquarters, Bentonville, AR**

2005-2007 **Business Strategy Analyst, Global Procurement Division Finance & Strategy Team**

- Initiated Green Bag Luncheon series to educate associates about environmental issues.
- Managed Hyperion Essbase database to support budget and forecasting reporting.
- Developed collaborative relationships with NGOs to determine key environmental projects to drive economic shareholder value while maintaining EDLP (everyday low price) cost structure. Founding team member of Waste and China networks.
- Developed balanced scorecard and marketing packet for $12 billion division that set the stage for corporate-wide supply chain proposal. Completed 40% ahead of schedule through team work, focus, exceptional organization and urgency.

2003-2005 **Global Systems Training Manager, Global Procurement and Information Systems**

- Mapped and analyzed purchase order (PO) process and reconfigured using Six-Sigma techniques to reduce PO creation time by 75%.
- Led multi-division effort to revise supplier agreement system for imports to achieve SOX compliance. Reduced manual work by 50%. Pulled together legal, customs, and IS team to implement in 25 offices with 2,000 suppliers in 5 months.
- Selected by Executive VP to automate digital catalog to leverage US buying decisions to international buy teams. Conceptualized initial platform that created vision for an "E-Bay" type system that is expected to bring substantial ROI.
- Selected by Seiyu conversion team to lead transition training program, and was immediately recruited by newly-formed sourcing division to lead global systems training program for the Americas, Asia, Europe, Middle East, and India regions.
- Initiated the unifying big picture processes for supplier and private label specification, quotation, and purchase order system. Provided vision to team, and analytical skills to level the field for suppliers and buy teams. Presented at Global Sourcing summits with hundreds of suppliers in attendance.

2001 **Retail Link Marketing and Training Manager - Tsim Shat Tsui, Hong Kong**

- Served on expatriate assignment during key acquisition period of sourcing division. Expanded supplier development program from 3-months to entire year program.
- Utilized methods to gather marketing data from systems utilized by 25,000 suppliers.

1999-2003 **Retail Link Trainer, Information Systems - Bentonville, AR**

- Developed and delivered Retail Link (teradata) analysis (Sales Analysis, Retail Math, Market Basket, replenishment and forecasting) and business-critical courses to over 4,500 US, Asian, Indian Sub-Continent, and Middle Eastern suppliers.
- Managed the rollout of systems programs in Korea and China Retail Markets and delivered corporate value by bringing suppliers into the supply-chain analysis partnership. Supplier involvement increased 0% to 75% within the first year.
- Brought together cross-section of high caliber suppliers in US, Hong Kong, China, and Brazil to form User Groups to share leading-edge technology, Wal-Mart standards, sourcing information, and keynote presentations.

Travel Grants for Postdoc Meetings

- National Postdoctoral Association Annual Conference and Workshop Award**,** March, 2022

Fellowships Awarded as Graduate Student

- I was awarded **$242,000 in fellowships** as a graduate student, including: 1) **Sea Grant Knauss Fellowship, US Geological Survey**; 2) **Fulbright-Hays Doctoral Dissertation Research Abroad Grant**, China & Hong Kong University; 3) **Robert H. Edgerley Environmental Toxicology Fellowship**; 4) **Helen M. and Milton O. Lee Aquatic Sciences Fellowship**, 5) **NSF East Asian Pacific Summer**

Institute Fellow (Taiwan and China), 6) **U.S. Department of Education Foreign Language Area Studies (FLAS) Fellow** (Chinese), 7) **Fulbright Research Fellowship**, and 8) **NSF GK-12 Teaching & Research Fellow, Sugarcreek Watershed**.

Grants Awarded as Student Principle Investigator (PI)

- As a student PI, I was a successful research grant writer and was awarded **$151,571 in research funds beyond fellowship funding**. These funds included: Robert H. Edgerley Environmental Toxicology Fund ($14,371, 2016 and 2014), Columbus Zoo Biodiversity Conservation Grant (3x) ($19,000, 2010, 2013, 2017), Ohio State Office of International Affairs Travel Grant ($8,000, 2009, 2013), Sophie Danforth Conservation Award ($1,200, 2011), University of Wisconsin NSF Yunnan IGERT grant ($9,000), and OARDC Seeds grant ($100,000, 2007).

International Field Research Experience and Relevant Skills

- 2008-present: Worked with indigenous Tibetan and Chinese with the Chinese Academy of Science to collect aquatic insects and habitat data in physically-demanding terrain of glaciers, glacial-melt streams, and alpine streams in remote high-altitude circum-Himalayan mountain ranges. Field research included: 1) Cryoconite hole pilot project on supra glacier environment of a debris-covered glacier (2018 & 2019); 2) High-altitude East-West mountain range comparison of glacial-melt stream community ecology, riparian characteristics, and glacial-melt hydraulic habitats at Mt. Gongga (2018); 3) Conducted glacial-melt stream ecology research at Meilixueshan, Yunnan (2009-2015), Mt. Gongga, Sichuan (2008, 2011, 2015, 2018), and Yulongxueshan, Lijiang, Yunnan (2010, 2013, 2015) which included field salinity experiments on glacial-melt and groundwater stream larvae, sacred stream site sampling following indigenous Tibetan customs and beliefs, preparation of aquatic insects to perform microscopy work and laboratory analysis for scanning-electron microscopy imaging at Hong Kong University; and 4) Performed subtropical stream ecology research in mountainous, rocky terrain in Taiwan (2009).

Scientific Publications

Lu, X.X., T. Zhang, B.L. Hsia, D.F. Li, **H. Fair**, S. Chua, L. Li, S.J. Li. *In Review.* Proglacial river sediment fluxes in the south-eastern Tibetan Plateau: Ming Yong Glacier in the Upper Mekong River. In Review: *Hydrological Processes*. March 28, 2022. DOI: 10.22541/au.164847433.35996858/v1

Fair, H., P.C. Smiley Jr., R. Lanno. (2022) Tolerance of glacial-melt stoneflies (Plecoptera) and morphological responses of chloride cells to stream salinity. *Chemosphere* 293. 1-10. 10.1016/j.chemosphere.2022.133655.

Fair, H., P.C. Smiley Jr., R. Lanno. (2021). Determinants of invertebrate community structure in glacial-melt streams of southeast Tibet. *Freshwater Biology* 66, 1282–1295. DOI: 10.1111/fwb.13716

Fair, H., P.C. Smiley Jr., and L. Qiao. (2020) Physical, chemical, and biological characteristics of supraglacial pools on a debris-covered glacier in Mt. Gongga, Tibetan Plateau. *Arctic, Antarctic, and Alpine Research* 52, 635-649. DOI: 0.1080/15230430.2020.1839165.

Fair, H., P.C. Smiley, and R. Lanno. *In Review*. Hydraulic characteristics determine the distribution of organic matter, substrate, and invertebrates in a glacial-melt stream. *Hydrobiologia*.

Fair, H., L. Bair, and E.A. Greene. *In review*. The Value of Water Quality Information for Targeting Agricultural Best Management Practices. United States Geological Survey (USGS) Circular.

Donohue, M.J., **Fair, H**. (2019). 10-Year USGS Water Resources Research Act Program Vision: Meeting Imperatives for our Nation's Water Resources. United States Geological Survey, 18p.

Fair, H., D. Dean. *In preparation.* Species Description of Nemouridae nymph and adult from Mt. Kawagebo, Yunnan.

Fair, H. 2017. Environmental and physiological factors influencing the distribution of aquatic insects in glacier melt streams. Ph.D. Dissertation. The Ohio State University.

Fair, H. 2010. Headwater landscape variations and biodiversity: applicability of Ohio habitat evaluation indices in a glacier catchment of the Mekong River. Master's Thesis, The Ohio State University.

Invited Presentations (*)

Fair, H.L.* June 2018. A departure from the Milner and Petts model and cryoconite hole study in Hailuogou. CAS Institute of Mountain Hazards and Environment, Chengdu, China.

Fair, H.* 2016. Fulbright life and research in a Tibetan Village. Fulbright Reception with President Michael Drake, Ohio State University.

Fair, H.*. 2015. Glacier stream conceptual model and physiological mechanisms of aquatic insects in southeast Tibet. Hong Kong University, Hong Kong, SAR.

Fair, H.* 2012. Distribution of aquatic invertebrate nymphs in glacier watersheds of southeast Tibet. Univ. of Wisconsin NSF Yunnan IGERT meeting, Madison, Wisconsin.

Fair, H.* 2009. Headwater Ecology in Taiwan. Academia Sinica, Taipei, Taiwan.

Presentations

Fair, H. and P.C. Smiley Jr. *forthcoming.* Takeaways from assessing abilities and experiences of Ecology and Environmental Science Mentoring Programs in mentoring Deaf and hard of hearing students. Ecological Society of America, August 2022.

Schultz, M., H. Fair, and W. Mitsch. *An Initial Investigation of the role of wetland age, hydrology, and physiochemical factors on nitrogen-fixing microbial communities in experimental wetlaculture mesocosms at Buckeye Lake, Ohio*. The Ohio Academy of Science, April 9, 2022.

Fair, H., T. Hamilton, P.C. Smiley Jr., and Q. Liu (2021). Environmental Predictors of Invertebrate and Microbial Communities within Supraglacial Pools on a Debris Covered Glacier in Tibet. American Geophysical Union, December 2021.

Fair, H. (2021). Assessing the Experiences, Abilities, and Challenges that Mentoring Programs in Ecology and Environmental Sciences have in Serving Deaf and Hard of Hearing Individuals. Society for the Advancement of Chicanos/Hispanics and Native Americans in Science, October 2021.

Schultze, M. and H. Fair (2021). The role of hydrology on the growth of diazotrophic (nitrogen-fixing) cyanobacteria in mature and recovering agricultural wetland mesocosms, August 2021.

Surikova, P and H. Fair (2021). Influence of Wetlaculture Mesocosm age and hydrology on Macrophyte, chironomid, and mosquito populations. National Science Foundation Research Experience for Undergraduates, Summer 2021 final paper and presentation, August 2021.

Fair, H., R. Lanno, D. Dean. 2016. Osmotic regulation as a potential factor in distribution of aquatic nymphs in glacier watersheds. Society for Freshwater Science, Sacramento, CA.

Sloane, C., A. Bonn, T. Gray, H. Fair. (*mentored students*) 2017. Primary Producers as an Indicator of Biodiversity in Glacial Streams. Denman Undergraduate Research Forum.

Gibson, J., H. Fair, R. Lanno. (*mentored student*) 2014. The long-term impacts of disturbance on insect biodiversity in a Chinese mountain stream. OSU Denman Undergraduate Research Forum.

Fair, H.L. R. Lanno, T.D. Yao, L. Zhang. 2012. Conservation in southeastern Tibet Hengduan Mountain range. 4th International Ecological Sustainability Summit, Columbus, Ohio.

Other Relevant Skills

Mentoring

- 2022: Mentored zoology major undergraduate in writing successful grant proposal for summer research
- 2022: Mentored DHH student in presenting NSF REU research results at the Ohio Academy of Science
- 2021: Mentored one DHH biology major undergraduate and one speech and hearing major with research projects examining the environmental effect of wetland mesocosms on cyanobacteria and aquatic insects.
- 2013-2017: Mentored 12 undergraduate volunteers in the laboratory (8 females, 4 males) with four conducting independent research under my guidance with presentations at undergraduate research forums.
- 2018: USGS Water Resources Research Act Program National Competitive Grant Reviewer
- Autumn 2019: Mentored two undergraduate Kenyon College students in Fulbright applications to Laos & Taiwan and served on Fulbright review panel committee.
- **Journal reviewer**: *Ecological Indicators* (7 manuscripts), *Journal of Environmental Protection* (1 manuscript), *Science of the Total Environment* (1 manuscript), *Limnology* (1 manuscript).
- **Statistical skills**: Proficiency in R Studio statistical coding, SPSS, PCORD multivariate statistical package, Sigma Plot statistical graphing software, and Minitab.
- **Computer program skills**: ArcGIS, ERDAS Remote Sensing, Fiji (ImageJ), Visio process flow software, Adobe InDesign, Chinese language software.
- **Field and laboratory skills:** eDNA sampling methods, qPCR techniques, scanning electron microscopy (SEM), transmission electron microscopy (TEM), chironomid mounting and identification.
- **Language skills:** Mandarin Chinese - advanced level (ACTFL Oral Proficiency Review); Spanish, beginner, American Sign Language (ASL) - intermediate. Chinese Sign Language (beginning)

Professional Societies

- Fulbright Alumni Association
- Ecological Society of America
- Society for Advancement of Chicanos/Hispanics & Native Americans in Science
- American Geophysical Union

Service to Professional Societies, University/Colleges, and Community

- Volunteer, Sustainable Grandview, 2022
- Ecological Society of America volunteer mentor and undergraduate poster judge
- Abstract Judge, Society for Advancement of Chicanos/Hispanics & Native Americans in Science, 2022
- Poster Judge, National Postdoctoral Association Annual Conference, 2022
- Research Poster Judge, Undergraduate Research Posters, Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (2021)
- Volunteer Reviewer, Kenyon Fulbright applicants and served on Fulbright review panel committee.
- Served on outreach team for Museum of Biological Diversity Open House (2013, 2016).
- Served as judge for The Ohio State Univ. Denman Undergraduate Research Forum (2014, 2016).
- Volunteered at Ohio Stadium for "Zero Waste" football events, performed waste stream audit.

Diversity, Equity, Accessibility, and Inclusion

- Conducted a survey examining experiences of Ecology and Environmental Science Mentoring Programs in serving Deaf and Hard-of-hearing participants
- Presented "Values, DEI, and Your Career" to University of Minnesota Hamilton Lab group
- Learning American Sign Language and Chinese Sign Language

- Researching and writing Wikipedia pages and blog entries for mid frequency sensorineural hearing loss

Professional Recognition

- Fulbright Hays DDRA brochure (2015-2018)
- Article in BusinessMiami, 2006
- "Your Contribution Made a Difference" award, Wal-Mart Stores, Inc. 2002