

# Brian M. Kelley | Curriculum Vitae | Fall 2022

The Pennsylvania State University Department of Geosciences

## Appointments

- Assistant Professor, Department of Geosciences, The Pennsylvania State University, 2020 – Present
  - Assistant Professor, Department of Geology & Geophysics, University of Wyoming, 2019 – 2020
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## Education

### PhD, Stanford University, Geological and Environmental Sciences, 2014

- Dissertation title: Physical, chemical, and biological controls on the stratigraphic evolution and spatial variability of an isolated carbonate platform
- Committee: Jonathan Payne (advisor), Stephan Graham, Daniel Lehrmann, James Ingle

### BSc, Kent State University, Department of Geology, 2006

- Honors in Geology, Summa Cum Laude, Phi Beta Kappa, Outstanding Geology Major
  - Honors Thesis: Pliocene decapod crustaceans from the Kowai Formation, South Island, New Zealand
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## Professional Experience

### ExxonMobil Corporation, 2014 – 2019

- Geoscientist, ExxonMobil Business Development Company, Houston, TX, 2019
- Geoscientist, ExxonMobil Exploration Company, Houston, TX, 2017 – 2019
- Geoscientist, ExxonMobil Upstream Research Company, Houston, TX, 2014 – 2017

### Great Lakes Energy Partners, 2003 – 2006

- Geologist, Hartville, Ohio
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## Honors and Awards

- Gladys Snyder Award, College of Earth and Mineral Sciences, Penn State University, 2022
  - Thomas D. and Janice H. Barrow Fellowship, Stanford University, 2010
  - National Science Foundation Fellowship, Honorable Mention, 2008
  - National Science Foundation Fellowship, Honorable Mention, 2007
  - Honors College Academic Achievement Award, Kent State University, 2005
  - Student Leader of the Year, Kent State University, 2005
  - Lillian Kroenke Award, Kent State University, 2005
  - Distinguished Student Leader, Kent State University, 2005
  - Leadership Excellence Award, Kent State University, 2004
  - Tuscarawas Valley Desk and Derrick Club Award, 2004
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## Publications

### In Review

- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Altiner, D., Jost, A.B., and Payne, J.L., Gradual and prolonged development of complex marine ecosystems in tropical reefs following the end-Permian extinction.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Li, X, Minzoni, M., and Payne, J.L. Influences on the occurrence of automicritic carbonate slopes: the Xiliang margin of the Great Bank of Guizhou, South China.

### In Revision

- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Lau, K.V., Li, X, Minzoni, M., Enos, P., and Payne, J.L., Role of platform to basin relief in carbonate platform evolution: the Late Permian to Late Triassic Great Bank of Guizhou.

### Published

- Li, X., Lehrmann, D.J., Luczaj, J., **Kelley, B.M.**, Cantrell, D.L., Yu, M., Ferrill, N.L., and Payne, J.L., (2022) Unraveling overprinted formation mechanisms of massive dolostone in the Lower Triassic sequence of an isolated carbonate platform in Nanpanjiang Basin, south China, *Sedimentary Geology*, v. 440.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Minzoni, M., Enos, P., Li, X., Lau, K.V., and Payne, J.L., (2021) Stratigraphic evolution of the latest Permian to Late Triassic Great Bank of Guizhou, SEPM/IAS Special Publication.
- Altiner, D., Payne, J.L., Lehrmann, D.J., Özkan-Altiner, S., **Kelley, B.M.**, Summers, M.M., Yu, M., (2021) Triassic foraminifera from the Great Bank of Guizhou, Nanpanjiang Basin, south China: taxonomic account, biostratigraphy, and implications for recovery from end-Permian mass extinction, *Journal of Paleontology*.

- Li, X., Trower, E.J., Lehrmann, D.J., Minzoni, M., **Kelley, B.M.**, Schaal, E.K., Altiner, D., Yu, M., Payne, J.L., (2021) Implications of Giant Ooids for the Carbonate Chemistry of Early Triassic Seawater, *Geology*, v. 49, p. 156–161.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Jost, A.B., Lau, K.V., Meyer, K.M., Altiner, D., Minzoni, M., Schaal, E.K., and Payne, J.L., (2020) Controls on carbonate platform architecture and reef recovery across the Paleozoic to Mesozoic transition: A high-resolution analysis of the Great Bank of Guizhou, *Sedimentology*, 67, p. 3119-3151.
- Fullmer, S.M., Moore, P.J., Buono, A.S., **Kelley, B.M.**, and Gao, B. (2019) Carbonate pore system influence on hydrocarbon displacement and recovery. In: *Carbonate Pore Systems: New Developments and Case Studies: SEPM* (Eds. McNeil, D.F., Harris, P., Rankey, E.C., Hsieh, J.C.C.), Special Publication, 112.
- Lau, K.V., Maher, K., Brown, S.T., Jost, A.B., Altiner, D., DePaolo, D.J., Eisenhauer, A., **Kelley, B.M.**, Lehrmann, D.J., Paytan, A. and Yu, M. (2017) The influence of seawater carbonate chemistry, mineralogy, and diagenesis on calcium isotope variations in Lower-Middle Triassic carbonate rocks. *Chemical Geology*, 471, pp.13-37.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Minzoni, M., Enos, P., Li, X., Lau, K.V., and Payne, J.L. (2017) The Late Permian to Late Triassic Great Bank of Guizhou: An isolated carbonate platform in the Nanpanjiang Basin of Guizhou Province, China. *AAPG Bulletin*, 101 (4), p. 553-562.
- Lau, K.V., Maher, K., Altiner, D., **Kelley, B.M.**, Lehrmann, D.J., Silva-Tamayo, J.C., Weaver, K.L., Yu, M., & Payne, J.L. (2016) Marine anoxia and delayed Earth system recovery after the end-Permian extinction. *Proceedings of the National Academy of Sciences of the United States of America* 113, 2360-2365.
- Lehrmann, D.J., Bentz, J.M., Wood, T., Goers, A., Dhillon, R., Akin, S., Li, X., Payne, J.L., **Kelley, B.M.**, Meyer, K.M. and Schaal, E.K. (2015) Environmental controls on the genesis of marine microbialites and dissolution surface associated with the end-Permian mass extinction: new sections and observations from the Nanpanjiang Basin, South China. *Palaios*, 30 (7), pp. 529-552.
- Lehrmann, D.J., Chaikin, D.H., Enos, P., Minzoni, M., Payne, J.L., Yu, M., Goers, A., Wood, T., Richter, P., **Kelley, B.M.**, Li, X., Qin, Y., Liu, L. and Lu, G. (2015) Patterns of basin fill in Triassic turbidites of the Nanpanjiang basin: implications for regional tectonics and impacts on carbonate platform evolution. *Basin Research*, 27, 587-612.
- Minzoni, M., Lehrmann, D.J., Payne, J.L., Enos, P., Yu, M., Wei, J., **Kelley, B.M.**, Li, X., Schaal, E. and Meyer, K. (2014) Triassic tank: platform margin and slope architecture in space and time, Nanpanjiang Basin, south China. In: *Deposits, Architecture, and Controls of Carbonate Margin, Slope, and Basinal Settings: SEPM, Special Publication* (Eds T. Playton, P. Harris and K. Verwer), 105, pp. 84-113.
- Lehrmann, D.J., Minzoni, M., Li, X., Yu, M., Payne, J.L., **Kelley, B.M.**, Schaal, E.K., and Enos, P. (2012) Lower Triassic Oolites of the Nanpanjiang Basin, south China: controls on facies architecture, giant ooids, diagenesis and implications for hydrocarbon reservoirs: *AAPG Bulletin*, v. 96, p. 1389-1414.
- Li, X., Yu, M., Lehrmann, D.J., Payne, J.L., **Kelley, B.M.**, and Minzoni, M. (2012) Factors controlling carbonate platform asymmetry: Preliminary results from the Great Bank of Guizhou, an isolated Permian–Triassic platform in the Nanpanjiang basin, south China: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 315-316, p. 158-171.
- Li, X., Yu, M., Payne, J.L., and **Kelley, B.M.** (2011) Comparison on rock and chemical strata of Lower Triassic series, the Great Bank of Guizhou, south China: *Guizhou Geology*, v. 28, p. 161-166.

- Meyer, K.M., Yu, M., Jost, A.B., **Kelley, B.M.**, and Payne, J.L. (2011) 13C evidence that high primary productivity delayed recovery from end-Permian mass extinction: *Earth and Planetary Science Letters*, v. 302, p. 378-384.
  - Feldmann, R.M., Schweitzer, C.E., Maxwell, P.A., and **Kelley, B.M.** (2008) Fossil isopod and decapod crustaceans from the Kowai Formation (Pliocene) near Makikihi, South Canterbury, New Zealand: *New Zealand Journal of Geology & Geophysics*, v. 51, p. 43-58.
  - Crawford, R.S., Feldmann, R.M., Waugh, D.A., **Kelley, B.M.**, and Allen, J.G. (2006) Decapod crustaceans from the Maastrichtian Fox Hills Formation: *Bulletin of the Peabody Museum of Natural History*, v. 47, p. 3-28
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## Teaching

- Field Camp, The Pennsylvania State University, Summer 2022 – Present
  - Geoscience Data Analytics, The Pennsylvania State University, Fall 2021 – Present
  - Introduction to Field Geology, The Pennsylvania State University, Fall 2021 – Present
  - Marine Geology, The Pennsylvania State University, Spring 2021 – Present
  - Stratigraphy and Sedimentation, University of Wyoming, Spring 2020
  - Advanced Stratigraphy, University of Wyoming, Fall 2019
  - Reservoir Geology for Engineers Field School (Texas and New Mexico), ExxonMobil, 2014 to 2019
  - Carbonate Sedimentology, lab instructor and TA, Stanford University, 2008
  - Invertebrate Paleontology, lab instructor and TA, Stanford University, 2007
  - Earth History Laboratory, Kent State University, 2005
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## Mentoring

### Research Advisees, The Pennsylvania State University

- Current
  - Graduate Students
    - \* Kate Grosswiler, MSc, 2020 – Present
    - \* Garrett Shepherd, PhD, 2022 – Present
  - Undergraduate Students
    - \* Sunday Siomades, BSc, Schreyer Honors College, 2021 – Present
    - \* Olivia Adams, BSc, 2021 – Present
    - \* Hunter Reeves, BSc, 2022 – Present
    - \* Ethan Leonetti, BSc, 2022 – Present
- Graduated
  - Garrett Shepherd, MSc, 2020 – 2022

## **Career-Development Mentees, University of Wyoming**

- Graduate Students
  - Grant Copeland, Olivia Terry, Garret Gay, Mohit Ayani
- Undergraduate Students
  - John Livingston, Kyle Rehmeier

## **Field Training Mentees**

- Graduate Students
    - Adam Jost, PhD Candidate, Stanford University
    - Li Xiaowei, PhD Candidate, Stanford University
    - Kimberly Lau, PhD Candidate, Stanford University
  - Undergraduate Student
    - James Shultz, Trinity University
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## **University Service**

- The Pennsylvania State University, Makai Marine Science Club, Faculty Advisor, 2020 – Present
  - University of Wyoming AAPG Student Chapter Faculty Advisor, 2019 – 2020
  - President, Kent State University Geological Society, 2004 – 2005
  - Secretary, Kent State University Geological Society, 2003 – 2004
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## **Professional Activities**

### **Conference Organization**

- AGU Conference session chair, 2021
- Mountjoy Virtual Conference organizer, 2021

### **Society Memberships**

- AGU
  - GSA
  - AAPG
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## Technology Development

- Pending Patent, (2019) – Fullmer, S., Al-Qassab, H.M., Moore, P.J., Buono, A.S., Kelley, B.M., and Gao, B. Method and System for Modeling in a Subsurface Region, US Patent App. 16/215,188.
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## Grants

- **Petroleum Research Fund of the American Chemical Society, 2022, \$110,000**
    - “Climatic controls on the origin of cyclothem in the Upper Pennsylvanian and Lower Permian of the US Midcontinent”
  - **Gladys Snyder Grant for Innovative Teaching, 2022, \$5,000**
    - “Fostering a Sense of Place with an Accessible Virtual Field Trip for Gold Rush: Geology and History, a New General Education Inter-Domain Course”
    - Co-authored by Kimberly Lau
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## Student Research Grants

### Garrett Shepherd, MSc and PhD student

- AAPG Grants-in-Aid, 2022, \$3,000
- Shell Geosciences Energy Research Facilitation Award, 2021, \$3,000
- The Paleontological Society of America, Stephen J. Gould Student Research Award, 2021, \$1,200

### Kate Grosswiler, MSc student

- The Paleontological Society of America, 2022, \$1,200
- The Geological Society of America, Sam Bowring Research Grant, 2022, \$3,000
- The Pennsylvania State University Department of Geosciences, Williams-Wright Scholarship, 2021, \$4,400

### Sunday Siomades, BSc student

- The Geological Society of America, Stephen G. Pollock Undergraduate Research Grant, 2022, \$1,500
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## Presentations

### Conference Presentations

- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Li, X., Minzoni, M., and Payne, J.L., (2022) Did microbial carbonate flourish when skeletal metazoans and algae were in low abundance in the aftermath of the end-Permian extinction?, American Geophysical Union, Chicago Illinois, December 12–16.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Altiner, D., Jost, A.B., and Payne, J.L., (2022) Gradual and long-term development of complex marine benthic ecosystems in the aftermath of the end-Permian extinction in the most stratigraphically extended Middle Triassic reef, Geological Society of America Annual Meeting and Exposition, Denver, Colorado, October 9–12.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Altiner, D., Jost, A.B., and Payne, J.L., (2021) Long-Term Assembly of Complex Marine Ecosystems in Tropical Reefs Following the Worst Extinction of Animal Life, American Geophysical Union, New Orleans, Louisiana, December 13–17.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Minzoni, M., Li, X., Payne, J.L., (2019) Influence of siliciclastic turbidites on the evolution of a latest Permian to Late Triassic isolated carbonate platform in the Nanpanjiang Basin of south China: American Geophysical Union, San Francisco, California, December 8-13.
- White, S.J., Minzoni, M., Lehrmann, D.J., Li, X., **Kelley, B.M.**, Yu, M., Payne, J.L., Enos, P., (2019) Anatomy of a prograding Lower Triassic giant ooid-microbial carbonate shelf margin, Nanpanjiang Basin, south China: Geological Society of America Annual Meeting and Exposition, Phoenix, Arizona, September 22-25.
- Moore, P.J., Bachtel, C.I., Buono, A.S., Fullmer, S.M., **Kelley, B.M.**, Gulley, J., and Kerans, C. (2017) Evaluating multiscale permeability in modern carbonate settings: implications for flow in carbonate reservoirs. Mountjoy Conference. June, 2017, Austin, Texas.
- Fullmer, S.M., Van Simaey, S., Rendall, B., Moore, P.J., **Kelley, B.M.**, Buono, A.S., and Gao, B. (2017) Micro-pore type controls on hydrocarbon displacement and recovery. Mountjoy Conference. June, 2017, Austin, Texas.
- Lau, K.V., Maher, K., Altiner, D., Brown, S., DePaolo, D., Eisenhauer, A., Jost, A., **Kelley, B.M.**, Kump, L., Lehrmann, D., Paytan, A., Silva-Tamayo J.C., Yu, M. & Payne, J. (2015) Ca Isotope Constraints on Early Triassic Marine Carbonate Chemistry. Goldschmidt Meeting.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Jost, A.B., Lau, K.V., Minzoni, M., and Payne, J.L., (2014) Controls on the temporal and spatial variability of carbonate platform architectures: a case study from the Nanpanjiang Basin, south China: AAPG Annual Convention and Exhibition, Houston, Texas, April 6-9.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Jost, A.B., Lau, K.V., Schaal, E.K., Li, X., and Payne, J.L. (2013). Patterns of reef ecosystem recovery indicate that adverse Early Triassic ocean conditions extended into Middle Triassic time: Geological Society of America Annual Meeting and Exposition, Denver, Colorado, October 27-30.
- Lau, K.V., Maher, K., **Kelley, B.M.**, Yu, M., Lehrmann, D.J., and Payne, J.L. (2013) Prolonged and recurrent global sea floor anoxia in the Early Triassic from uranium isotopic evidence: Geological Society of America Annual Meeting and Exposition, Denver, Colorado, October 27-30.
- **Kelley, B.M.**, Lehrmann, D.J., Yu, M., Lau, K.V., Watford, D., Shultz, J., Payne, J.L., and Minzoni, M. (2013) Comparative analysis of the western and eastern architectures of the northern margin of the

Great Bank of Guizhou, Guizhou Province, south China: AAPG Annual Convention and Exhibition, Pittsburgh, Pennsylvania, May 19-22.

- Lehrmann, D.J., Minzoni, M., Payne, J.L., Enos, P., Yu, M., Wei, J., **Kelley, B.M.**, Schaal, E.K., Meyer, K.M., Li, X., and Montgomery, P. (2013) Basin wide controls on carbonate platform evolution: the Triassic Nanpanjiang Basin of south China: AAPG Annual Convention and Exhibition, Pittsburgh, Pennsylvania, May 19-22.
- Minzoni, M., Enos, P., Lehrmann, D.J., Wei, J., Yu, M., Payne, J.L., **Kelley, B.M.**, Meyer, K.M., Schaal, E.K., and Li, X. (2012). Controls on seismic-scale geometries of mixed carbonate-siliciclastic reservoirs: examples from the Triassic Nanpanjiang Basin, south China: AAPG 2012 International Conference and Exhibition, Singapore, September 16-19.
- **Kelley, B.M.**, Yu, M., Lehrmann, D.J. and Payne, J.L. (2012) The first skeletal, platform-margin reefs of the Mesozoic: environmental distribution of reef-builders across a steep, shallow- to deep-water slope: AAPG 2012 Annual Convention and Exhibition, Long Beach, California, April 22-25.
- Minzoni, M, Lehrmann, D.J., Payne, J.L., Enos, P., Yu, M., Wei, J., **Kelley, B.M.**, Li, X., Schaal, E.K., Meyer, K.M., and Montgomery, P. (2012) Triassic Tank: platform margin and slope architecture in space and time, Nanpanjiang Basin, south China: AAPG 2012 Annual Convention and Exhibition, Long Beach, California, April 22-25.
- **Kelley, B.M.** (2011) The first skeletal, platform-margin reefs of the mesozoic and the appearance of scleractinian corals: environmental distribution of reef-builders across a steep, shallow-to deep-water slope
- **Kelley, B.M.**, Yu, M., Lehrmann, D.J., Jost, A.B., Meyer, K.M., and Payne, J.L. (2011) An updated model of the stratigraphic architecture of the Great Bank of Guizhou, an isolated carbonate platform in the Nanpanjiang Basin of south China: AAPG Annual Convention and Exhibition, Houston, Texas, April 22-25.
- Meyer, K.M., Yu, M., **Kelley, B.M.**, Jost, A.B., and Payne, J.L. (2010). Carbon isotope evidence for a vigorous biological pump during the Triassic recovery from end-Permian mass extinction: European Geosciences Union General Assembly Conference, Vienna, Austria, May 2-7.
- **Kelley, B.M.**, Yu, M., Lehrmann, D.J., Jost, A.B., Meyer, K.M., and Payne, J.L. (2010) The environmental context of reef recovery following end-Permian extinction on an isolated carbonate platform in the Nanpanjiang Basin, south China: Geological Society of America Annual Meeting and Exposition, Denver, Colorado, October 31–November 3.
- Meyer, K.M., Yu, M., Jost, A.B., **Kelley, B.M.**, and Payne, J.L. (2010) Carbon isotope evidence that high primary productivity delayed recovery from end-Permian mass extinction: Geological Society of America Annual Meeting and Exposition, Denver, Colorado, October 31–November 3.

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## Invited Speaker

- The Pennsylvania State University, State College, PA [January 2020]
- The University of Wyoming, Laramie, WY [September 2019]
- ExxonMobil Upstream Research Company, Houston, TX [February 2014]
- Schlumberger-Doll Research Center, Cambridge, MA [August 2013]
- Shell International Exploration and Production, Houston, TX [December 2011]