

*CURRICULUM VITAE*

**David H. Goodwin, Ph.D.**

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**EDUCATION**

- Ph.D., Geoscience, Department of Geosciences, University of Arizona, Tucson, 2003. [Dissertation title: Stable Isotope and Sclerochronologic Analysis of Environmental and Temporal Resolution in Modern and Fossil Bivalve Mollusk Shells.]
- M.S., Geology, Department of Geology, University of Montana, Missoula, 1998. [Thesis title: Paleontology, Paleoecology, and Depositional Environments within the Upper Triassic (Norian) Carbonate Strata of the Antimonio Formation, Northwest Sonora, Mexico.]
- B.S., Natural Science: Environmental Science Concentration, Lyndon State College, Lyndonville, Vermont, 1994.

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**ACADEMIC APPOINTMENTS**

- Professor, Department of Earth and Environmental Sciences, 2021–Present.
- Associate Professor, Department of Geosciences, Denison University, 2009–2021.
- Research Associate, California Academy of Sciences, San Francisco, 2020–Present.
- Research Associate, Department of Earth Sciences, University of California, Riverside, 2010.
- Assistant Professor, Department of Geosciences, Denison University, 2003–2009.
- Postdoctoral Researcher, Department of Geology and Geophysics, Louisiana State University, Baton Rouge, Louisiana, 2003.
- Research Assistant, Department of Planetary Sciences—Lunar and Planetary Laboratory, University of Arizona, 2001–2003.
- Teaching Assistant, Department of Geosciences, University of Arizona, 1999–2000.
- Research Assistant, Department of Geosciences, University of Arizona, 1998–2001.
- Teaching Assistant, Department of Geology, University of Montana, 1997.

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**RESEARCH INTERESTS**

My research involves documenting and interpreting records of environmental variation archived in the hard parts of modern and fossil organisms. This is accomplished primarily through calibration of environmental conditions with skeletal archives: specifically, geochemical variations and patterns of shell

growth. The geochemical component of my work focuses largely on stable-isotopes and trace-elements, while the analysis of growth patterns focuses on periodic increments deposited in response to biological and environmental stimuli as well as astronomical pacemakers. Together, these analytical techniques, commonly referred to as sclerochronology, have facilitated work in several different research areas. While each has a different focus, they are connected by a common theme: how are environmental conditions recorded in the geologic record in general, and in the skeletons of organisms in particular? And, how can these archives be used to address a variety of biological and geological questions? My current research focuses on three areas of primary interest:

1. understanding records of environmental variation recorded in the shells of bivalve mollusks, how these archives are influenced by the biology of the animal, and how to design sampling and analytical techniques that maximize the utility of sclerochronologic archives;
2. using sclerochronological archives to address ecological and paleoecological questions, particularly those related to the growth and geographic distribution of modern and fossil organisms, and to understand the environmental factors that control these variables—especially in times of rapid climate change; and
3. documenting and interpreting the fossil record of bivalve evolution through investigation of ontogenetic patterns of shell growth within a phylogenetic context.

The common thread that runs through each of these areas is the idea that organisms with accretionary skeletons are essentially biological chart recorders: their shells (teeth, bones, etc.) contain records of the environmental conditions experienced during growth.

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## PUBLICATIONS (\*denotes student author)

### 2021

- Goodwin, D.H., Gillikin, D.P., \*Jorn, E.N., \*Fratian, M.C., and Wanamaker, Jr., A.D., Comparing contemporary biogeochemical archives from *Mercanaria mercenaria* and *Crassostrea virginica*: Insights on paleoenvironmental reconstructions. *Palaeogeography, Palaeoclimatology, Palaeoecology* 562, 110110.

### 2020

- \*Saulsbury, J., Moss, D.K., Ivany, L.C., Kowalewski, M., Lindberg, D.R., Gillooly, J.F., Heim, N.A., McClain, C.R., Payne, J.L., Roopnarine, P.D, Schöne, B.R., Goodwin, D., and Finnegan, S. Idiographic and nomothetic approaches to heterogeneity are complementary: Response to comments on “Evaluating the influences of temperature, primary production, and evolutionary history on bivalve growth rates.” *Paleobiology* 46(2), 275-277.

### 2019

- Goodwin, D.H., Gillikin, D.P., \*Banker, R., Watters, T., Dettman, D.L., and Romanek, C.S., Reconstructing Intra-Annual Growth of Freshwater Mussels Using Oxygen Isotopes. *Chemical Geology* 526, 7–22.
- \*Saulsbury, J., Moss, D.K., Ivany, L.C., Kowalewski, M., Lindberg, D.R., Gillooly, J.F., Heim, N.A., McClain, C.R., Payne, J.L., Roopnarine, P.D, Schöne, B.R., Goodwin, D., and Finnegan, S. Evaluating the influences of temperature, primary production, and evolutionary history on bivalve growth rates. *Paleobiology* 45(3): 405-420.

- Flessa, K.W., Calderon-Aguilera, L., Cintra-Buenrostro, C.E., Dettman, D.L., 1, Dietl, G.P., Goodwin, D.H., Jacobs, D.K., Kowalewski, M., Nelson, S.M., Rowell, K., Schöne, B.R., Smith, J.A., and Zamora-Arroyo, F., Comment on Rojas-Bracho and Colleagues (2019): Unsubstantiated Claims Can Lead to Tragic Conservation Outcomes. *BioScience* 69(5), 321–322.
- Flessa, K.W., Calderon-Aguilera, L., Cintra-Buenrostro, C.E., Dettman, D.L., 1, Dietl, G.P., Goodwin, D.H., Jacobs, D.K., Kowalewski, M., Nelson, S.M., Rowell, K., Schöne, B.R., Smith, J.A., and Zamora-Arroyo, F., Vaquita Face Extinction from Bycatch. Comment on Manjarrez-Bringas, N. et al., Lessons for Sustainable Development: Marine Mammal Conservation Policies and Its Social and Economic Effects. *Sustainability* 2018, 10, 2185. *Sustainability* 11, 2161.

## 2018

- \*Geeza, T.J., Gillikin, D.P., Goodwin, D.H., \*Evans, S.D., Watters, T., and Warner, N.R., Controls on magnesium, manganese, strontium, and barium concentrations recorded in freshwater mussel shells from Ohio. *Chemical Geology* 526, 142–152.

## 2017

- \*Durham, S.R., Gillikin, D.P., Goodwin, D.H., and Dietl, G.P., Rapid determination of oyster lifespans and growth rates using LA-ICP-MS line scans of shell Mg/Ca ratios. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 485, 201–209.
- Gillikin, D.P., Verheyden, A., and Goodwin, D.H., Paleoclimate reconstruction from oxygen isotopes in a coral skeleton from East Africa: A data-enhanced learning experience. Hands-on-activity. *Oceanography* 30(1), 104–107.

## 2013

- Goodwin, D.H., Gillikin, D.P., and Roopnarine, P.D., Preliminary evaluation of potential stable isotope and trace element productivity proxies in the oyster *Crassostrea gigas*. *Palaeogeography, Palaeoclimatology, Palaeoecology* 373, 88–97.

## 2010

- Cleason, K.M., O’Leary, M.A., Roberts, E.M., Sissoko, F., Bouaré, M., Tapanila, L., Goodwin, D., and Gottfried, M.D., First Mesozoic record of the stingray *Myliobatis wurnoensis* from Mali and a phylogenetic analysis of Myliobatidae incorporating dental characters. *Acta Palaeontologica Polonica* 55, 655–674.
- Goodwin, D.H., Cohen, A.N., and Roopnarine, P.D., Forensics on the half shell: A sclerochronologic investigation of a modern biological invasion in San Francisco Bay, United States. *Palaios* 25, 742–753.

## 2009

- Goodwin, D.H., Paul, P. and, \*Wissink, C. L., MoGroFunGen: A numerical model for reconstructing intra-annual growth rates of bivalve molluscs. *Palaeogeography, Palaeoclimatology, Palaeoecology* 276, 47–55.

## 2008

- Goodwin, D.H., Anderson, L.A., and Roopnarine, P.D., Evolutionary origins of novel conchologic growth patterns in tropical American corbulid bivalves. *Evolution & Development* 10, 642–656.

**2007**

- Ward, P.D., Garrison, G.H., Williford, K.H., Kring, D.A., and Goodwin, D.H., The organic carbon isotopic and paleontologic record across the Triassic-Jurassic boundary at the GPPS section at Ferguson Hill, Muller Canyon, Nevada, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* 244, 281–289.

**2006**

- Goodwin, D.H., Geobiology, biogeology, and the colleague across the hall. *Palaios* 21, 1–2.
- Skudder, III, P.A., Backus, D.H., Goodwin, D.H., and Johnson, M.E., Sequestration of carbonate material in coastal dunes of the Gulf of California (Baja California Sur, Mexico). *Journal of Coastal Research* 22, 611–624.
- Schöne, B.R., Rodland, D.L., Fiebig, J., Oschmann, W., Goodwin, D.H., Flessa, K.W., and Dettman, D.L., Reliability of multitaxon, multiproxy reconstructions of environmental conditions from accretionary biogenic skeletons. *Journal of Geology* 114, 267–285.

**2004**

- Goodwin, D.H., Flessa, K.W., Téllez-Duarte, M.A., Dettman, D.L., Schöne, S.R., and Avila-Serrano, G.A., Detecting time-averaging and spatial mixing using oxygen isotope variation: A case study. *Palaeogeography, Palaeoclimatology, Palaeoecology* 205, 1–21.
- Dettman, D.L., Flessa, K.W., Roopnarine, P.D., Schöne, B.R., and Goodwin, D.H., Seasonal and annual estimates of Colorado River flow based on oxygen isotope variation in shells of estuarine mollusks. *Geochemica et Cosmochemica Acta* 68, 1253–1263.

**2003**

- Schöne, B.R., Flessa, K.W., Dettman, D.L., and Goodwin, D.H., Upstream dams and downstream clams: Growth rates of bivalve mollusks reveal impact of river management on estuarine ecosystems (Colorado River Delta, Mexico). *Estuarine, Coastal and Shelf Science* 58, 715–726.
- Goodwin, D.H., Schöne, B.R., and Dettman, D.L., Resolution and fidelity of oxygen isotopes as paleotemperature proxies in bivalve mollusk shells: Models and observations. *Palaios* 18, 110–125.

**2002**

- Schöne, B.R., Lega, J., Flessa, K.W., Goodwin, D.H., and Dettman, D.L., Reconstructing daily temperatures from growth rates of the intertidal bivalve mollusk *Chione cortezi* (northern Gulf of California, Mexico). *Palaeogeography, Palaeoclimatology, Palaeoecology* 184, 131–146.
- Schöne, B.R., Goodwin, D.H., Flessa, K.W., Dettman, D.L., and Roopnarine, P.D., Sclerochronology and growth of the bivalve mollusks *Chione (Chionista) fluctifraga* and *Chione (Chionista) cortezi* in the northern Gulf of Californiam Mexico. *Veliger* 45, 45–54.

**2001**

- Goodwin, D.H., Flessa, K.W., Schöne, B.R., and Dettman, D.L., Cross-calibration of daily growth increments, stable isotope variation, and temperature in the Gulf of California bivalve mollusk *Chione cortezi*: Implications for paleoenvironmental analysis. *Palaios* 16, 387–398.

## 1998

- Goodwin, D.H., and Stanley, G.D., Jr., Norian sponge and coral biostromes in the Antimonio Formation, northwestern Sonora, Mexico. *Revista Mexicana de Ciencias Geologicas* 14, 160–166.

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## BOOK REVIEWS

### 2010

- Goodwin, D.H., Evolutionary stasis and change in the Dominican Republic Neogene. *Palaios*.

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## HONORS, GRANTS AND AWARDS

### 2020

- Elected Fellow of the Geological Society of America.

### 2016

- Robert C. Good Faculty Fellowship; Denison University.

### 2014

- Tight Family Chair in the Natural Sciences, 2014–2019.

### 2013

- Great Lakes College Association Teagle Lattice Program; Promoting Student Understanding of Theoretical Morphology Using Three-Dimensional Computer Simulations of Stromatoporoid Growth; Co-PI with Co-PI Jessen Havill (Department of Mathematics and Computer Science, Denison University); \$2,000.
- Denison University Research Fund; Advancing Student Understanding of Theoretical Morphology: Development of a Three-Dimensional Computer Model of Stromatoporoid Growth; Co-Supervisor with Co-Supervisor Jessen Havill (Department of Mathematics and Computer Science, Denison University); \$7,318.

### 2011

- Keck Geology Consortium; Biogeochemical carbon cycling in fluvial systems from bivalve shell geochemistry: Using the modern to understand the past, Co-PI with Co-PI David Gillikin (Union College); \$40,000.

### 2010

- NOAA National Sea Grant College Program; Changes in coastal food webs caused by the Deepwater Horizon oil spill: responses and effects on oysters and other primary consumers; Associate Investigator with PI L. Anderson (Louisiana State University), and AI P. Roopnarine (California Academy of Sciences); \$9,000.
- Robert C. Good Faculty Fellowship; Denison University.

**2008**

- National Science Foundation; SGER: Intensive Collection of Paleocene-Eocene Mammal Fossils and Development of a Stratigraphic Section in the Trans-Saharan Seaway (Mali); Co-PI with Co-PI M. O’Leary (Stony Brook University), Co-PI E. Roberts (University of the Witwatersrand, South Africa), and Co-PI L. Tapanila (Idaho State University); \$29,998.
- San Francisco Academy of Sciences; Predicting and assessing impacts of the Cosco Busan San Francisco Bay oil spill; Co-PI with Co-PI P. Roopnarine (California Academy of Sciences), Co-PI J. Dumbacher (California Academy of Sciences), Co-PI K. Angielczyk (The Field Museum), and Co-PI S. Wang (Swarthmore College); \$36,988.

**2007**

- Mellon Foundation; Freshwater Bivalves as Archives of Past Environmental and Climatic Conditions; Co-PI with Co-PI D. Gillikin (Vassar College), and Co-PI D. Kesler (Rhodes College); \$23,200.
- National Geographic Society; The Trans-Saharan Seaway Project: An Examination of Cretaceous/Eocene Strata in a Section with Vertebrate Fossils in the Tropics of Continental Africa; Co-PI with Co-PI M. O’Leary (Stony Brook University), Co-PI E. Roberts (University of the Witwatersrand, South Africa), Co-PI R. Speijer (Katholieke Universiteit Leuven, Belgium), and Co-PI L. Tapanila (Idaho State University); \$24,564.
- Denison University Research Fund; Sequence stratigraphy of the non-marine strata of the Cretaceous Algoa Group, Eastern Cape, South Africa; \$3,500.

**2003**

- Outstanding Paper in Palaios: “Resolution and fidelity of oxygen isotopes as paleotemperature proxies in bivalve mollusk shells: Models and observations”

**2001**

- Geological Society of America Student Research Grant.
- Chevron Summer Research Grant.

**2000**

- Paleontological Society Student Grant-In-Aid.
- Chevron Summer Research Grant.

**1999**

- Best Student Presentation, Honorable Mention, Geological Society of America, Cordilleran Section Meeting, Berkeley California.

- Chevron Summer Research Grant.
- Robert J. and Ruth A. Weimer Fund Research Grant, SEPM Foundation.

**1997**

- Sigma Xi, Associate Member, University of Montana Chapter.

**1993**

- Sigma Zeta Math and Science Honor Society, Lyndon State College, Lyndonville, Vermont.

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**CONFERENCE PRESENTATIONS (\*denotes student author)**

**2022**

- \*Braniecki, G., Surge, D., Hyland, E., Goodwin, D., 2022. Refining a  $\Delta_{47}$  Paleotemperature Calibration Using Modern and Fossil *Mercenaria* Spp. (Bivalvia) To Reconstruct Deep-Time Seasonality. *Geological Society of America, Southeastern Section Meeting, Cincinnati, Ohio.*

**2021**

- \*Hilt, S., Goodwin, D.H., Gillikin, D.P., Wanamaker, A.D., and Verheyden, A., 2021. The influence of differential growth rates on high-resolution biogeochemical archives from bivalve mollusks. *Geological Society of America, Annual Meeting, Portland, Oregon.*
- \*Nederveld, D., Goodwin, D.H., Gillikin, D.P., Wanamaker, A.D., and Verheyden, A., 2021. Do different bivalve mollusk species record their shared environment in the same way? *Geological Society of America, Annual Meeting, Portland, Oregon.*

**2019**

- Goodwin, D.H., Gillikin, D.P., and Wannamaker, A.D., 2019. Bivalve Mollusk Sclerochronology in a Changing World: Environmental Controls on the Growth of *Mercenaria mercenaria* from North Carolina, USA. *5<sup>th</sup> International Sclerochronology Conference, Split, Croatia.*
- \*Jorn, E. N., Goodwin, D.H., Gillikin, D.P., and Wanamaker, A.D., 2019. Clams And Oysters—Apples And Oranges? Comparing Contemporary Biogeochemical Archives From *Mercenaria mearcenaria* and *Crassostrea virginica*. *Geological Society of America, Annual Meeting, Phoenix, Arizona.*
- Gillikin, D.P., Goodwin, D.H., \*Jorn, E. N., \*O’Hora, H., and Wanamaker, A.D., 2019. An Analysis of Carbon Isotopes in Bivalve Shells as a Salinity Proxy. *Geological Society of America, Annual Meeting, Phoenix, Arizona.*

**2018**

- \*Bennett, H.I., Gillikin, D.P., Goodwin, D.H., \*Carrigan, E., \*Cilia, E., \*Fratian, M., \*O’hora, H., and Wanamaker, A.D., 2018. Nitrogen Isotopes in Marine Mollusks as Indicators of Nitrogen Loading in Coastal North Carolina. *Geological Society of America, Annual Meeting, Indianapolis, Indiana.*

- \*Carrigan, E., Goodwin, D.H., Gillikin, D.P., \*Bennett, H.I., \*Cilia, E., \*Fratian, M., \*O'hora, H., and Wanamaker, A.D., 2018. Salinity and Water Oxygen Isotope Records of Hydrologic Variability in Jarrett Bay, North Carolina, USA. *Geological Society of America, Annual Meeting, Indianapolis, Indiana.*
- \*Cilia, E., Gillikin, D.P., Goodwin, D.H., \*Bennett, H.I., \*Carrigan, E., \*Fratian, M., \*O'hora, H., and Wanamaker, A.D., 2018. Detecting Sources of Eutrophication in Coastal North Carolina Using  $\delta^{15}\text{N}$  Values of Sea Grasses and Algae. *Geological Society of America, Annual Meeting, Indianapolis, Indiana.*
- \*Fratian, M., Goodwin, D.H., Gillikin, D.P., \*Bennett, H.I., \*Carrigan, E., \*Cilia, E., \*O'hora, H., and Wanamaker, A.D., 2018. Using Stable Isotopes to Reconstruct Growth of the Hard Clam *Mercenaria Mercenaria*. *Geological Society of America, Annual Meeting, Indianapolis, Indiana.*
- Kosloski, M.E., Dietl, G.P., \*Judd, E.J., and Goodwin, D.H., 2018. Space, Time and Shells: Using Stable Isotopes to Disentangle Geographic Variation in the Seasonal Timing of Growth in the Knobbed Whelk, *Busycon Carica*. *Geological Society of America, Annual Meeting, Indianapolis, Indiana.*
- \*O'hora, H., Gillikin, D.P., Goodwin, D.H., \*Bennett, H.I., \*Carrigan, E., \*Cilia, E., \*Fratian, M., and Wanamaker, A.D., 2018. Biogeochemical Cycling on a Salt Marsh Estuarine Ecosystem in Coastal North Carolina. *Geological Society of America, Annual Meeting, Indianapolis, Indiana.*
- Gillikin, D.P., Goodwin, D.H., LeFeuvre, L., Wanamaker, A.D., 2018. Using clamshells to reconstruct past climate variability – A test from coastal North Carolina. *2018 Ocean Sciences Meeting, Portland, OR. Abstract PC14C-0557.*

## 2017

- \*Durham, S.R., Gillikin, D.P., Goodwin, D.H., Dietl, G.P., 2017. LA-ICP-MS Line Scans of Shell Mg/Ca Ratios as a Rapid, Cost-Effective Alternative to Stable Isotope Analysis for Oyster Sclerochronology. *Geological Society of America, Annual Meeting, Seattle, Washington.*
- Saulsbury, J., Finnegan, S., Lindberg, D.R., Moss, D.K., Ivany, L.C., Gilooly, J.F., Goodwin, D., Heim, N.A., Kowalewski, M., McClain, C.R., Payne, J.L., Roopnarine, P.D., and Schöne, B.R., 2017. Evaluating the Influences of Temperature, Productivity, and Phylogenetic Constraint on Bivalve Growth Rates. *Geological Society of America, Annual Meeting, Seattle, Washington.*

## 2016

- Goodwin, D.H., and Dettman, D.L., 2016. High Resolution Environmental Reconstruction Using Stable Isotopes in Bivalve Mollusks Shells: A Closer Look at Sampling Strategies. *Geological Society of America, Annual Meeting, Denver, Colorado.*
- \*Scott, K.A., \*Bachmann, G.A., Goodwin, D.H., Muhs, D.R., and Gillikin, D.P., 2016. Reconstructing Seasonality During the Last Interglacial using the Bivalve Mollusk *Epilucina Californica*, Channel Islands, California. *Geological Society of America, Annual Meeting, Denver, Colorado.*
- Gillikin, D.P., \*Durham, S.R., and Goodwin, D.H., 2016. Rapid age determination of oysters using LA-ICP-MS line scans of shell Mg/Ca ratios. *Ocean Sciences Meeting, New Orleans, Louisiana.*

## 2015



- \*Smith, J.A., Goodwin, D.H., and Dietl, G.P., 2015. Complimentary processes structuring the Colorado River delta molluscan fauna as revealed by species abundance distributions. *Geological Society of America, Annual Meeting, Baltimore, Maryland.*

## 2014

- Gillikin, D.P., Goodwin, D.H., Davidson, M., and Hartman, J., 2014. Constraining riverine  $\delta^{13}\text{C}$ -DIC using Late Cretaceous and Early Paleogene freshwater bivalve mollusks (Unionoidea) from Montana. *American Geophysical Union Fall Meeting, San Francisco, California.*
- \*Kirch, B.M., and Goodwin, D.H., 2014. Assessing Sclerochronological Estimates of Season-of-Capture from Archeological Shell Middens: Models and Observations. *Geological Society of America, Annual Meeting: Vancouver, British Columbia, Canada.*
- Goodwin, D.H., Anderson, L.C., and Roopnarine, P.D., 2014. New Sclerochronological Insights into Heterochronic Evolution of Tropical American Corbulids. *North American Paleontological Convention, Gainesville, Florida.*
- \*Smith, J.A., Dietl, G.P., and Goodwin, D.H., 2014. Building a pre-dam baseline for molluscan predator-prey interactions in the northern Gulf of California. *North American Paleontological Convention, Gainesville, Florida.*
- Gillikin, D.P., Wanamaker, A.D., Lorrain, A., Goodwin, D.H., and \*Davidson, M.I., 2014. Carbon isotope fractionation in bivalve shells: temperature dependent fractionation or vital effect? *Ocean Sciences Meeting, Honolulu, Hawaii.*

## 2013

- \*Kirch, B.M., and Goodwin, D.H., 2013. Hot and salty on the tide flat: detecting intertidal position using high-resolution oxygen isotope variability in bivalve mollusk shells from arid regions. *Geological Society of America, Annual Meeting: Denver, Colorado.*
- \*Masters, T.E., Goodwin, D.H., and Havill, J.T., 2013, Bringing extinct sponges to life: StromoGrow a new program for modeling stromatoporoid growth. *Geological Society of America, Annual Meeting: Denver, Colorado.*
- \*Smith, J.A., Dietl, G.P., Goodwin, D.H., and Zamora, H.A., 2013. Can predation metrics be reliably calculated from size-biased target collected samples? *Geological Society of America, Annual Meeting: Denver, Colorado.*
- \*Weik, A.S., Goodwin, D.H., Smith, J.A., Dietl, G.P., and \*Zamora, H.A., 2013. Here yesterday, gone today: Preliminary investigation of anthropologically induced littoral community change in the Colorado River delta. *Geological Society of America, Annual Meeting: Denver, Colorado.*
- Goodwin, D.H., \*Banker, R.B., Gillikin, D.P., Watters, G.T., and Romanek, C.S., 2013. Calibration of environmental variables with stable isotopes from the freshwater bivalve mollusk *Lampsilis cardium*: I. Oxygen isotopes. *3<sup>rd</sup> International Sclerochronology Conference, Caernarfon, Wales.*
- \*Davidson, M.I., Gillikin, D.P., Goodwin, D.H., Watters, G.T., and Bouillon, S., 2013. Calibration of environmental variables with stable isotopes from the freshwater bivalve mollusk *Lampsilis cardium*: II. Carbon isotopes. *3<sup>rd</sup> International Sclerochronology Conference, Caernarfon, Wales.*

- \*Davidson, M.I., Gillikin, D.P., Goodwin, D.H., Watters, G.T., and Bouillon, S., 2013. Stable carbon isotope fractionation in freshwater mussel shells. *Geological Society of America, Northeastern Section Meeting: Bretton Woods, New Hampshire.*

## 2012

- \*Banker, R., Goodwin, D.H., D.P. R.B., Gillikin, D.P., Watters, G.T., and Romanek, C.S., 2012. Towards establishing pre-fracking geochemical baseline: intra-annual growth of *Lampsilis cardium* in central Ohio. *Geological Society of America, Annual Meeting: Charlotte, North Carolina.*
- \*Davidson, M.I., Gillikin, D.P., Goodwin, D.H., and Watters, G.T., 2012. Vital effects on stable carbon isotopes in freshwater mussels shells. *Geological Society of America, Annual Meeting: Charlotte, North Carolina.*
- \*Evans, S.D., Gillikin, D.P., Goodwin, D.H., Watters, G.T., and J.D. Over, 2012. Trace elements in the freshwater bivalve *Lampsilis cardium* from the O'shaughnessey Reservoir, Columbus, Ohio. *Geological Society of America, Annual Meeting: Charlotte, North Carolina.*

## 2011

- Roopnarine, P.D., Roopnarine, D., Gillikin, D.P., Anderson, L.C., Ballester, M., and Goodwin, D.H., 2011. Uptake of heavy metals and PAHs from the Deepwater Horizon oil spill by soft tissues and shells of the coastal oyster *Crassostrea virginica*. *American Geophysical Union Fall Meeting, San Francisco, California.*
- \*Byrne, D., Gillikin, D.P., Anderson, L.C., Goodwin, D.H., Roopnarine, D.H. D., and Roopnarine, D., 2011. Using oyster shells to track the 2010 Deepwater Horizon oil spill in the Gulf of Mexico. *Geological Society of America, Northeastern Section and North Central Section Joint Meeting: Pittsburgh, Pennsylvania.*
- Goodwin, D.H., Gillikin, D.P., and Watters, G.T., 2011, Aquatic chemistry archives from freshwater mussel shell geochemistry. *Freshwater Mollusk Conservation Society 7<sup>th</sup> Biennial Symposium: Louisville, Kentucky.*
- Spence, B., Gillikin, D.P., Goodwin, D.H., \*Byrne, D., Roopnarine, P., and Anderson, L., 2011. Rapid age determination of oysters using shell Mg/Ca ratios. *Goldschmidt Annual Conference. Prague, Czech Republic.*
- Anderson, L.C., Roopnarine, P.D., Gillikin, D.P., Goodwin, D.H., and Roopnarine, D., 2011. Trace element proxies for hydrocarbon exposure in oyster shells after the 2010 Deepwater Horizon oil spill. *Geological Society of America, South-Central Section Meeting: New Orleans, Louisiana.*

## 2010

- Goodwin, D.H., and Roopnarine, P.D., 2010, Stable Carbon Isotope Constraints on the Timing and Magnitude of Phytoplankton Blooms in San Francisco Bay. *American Geophysical Union, Annual Meeting: San Francisco, California.*
- Roopnarine, P.D., Anderson, L.C., Roopnarine, D., Gillikin, D.P., and Goodwin, D.H., 2010, Tracking responses to the 2010 Deepwater Horizon oil spill using trace elements in molluscan shells and tissues. *American Geophysical Union, Annual Meeting: San Francisco, California.*

- Anderson, L.C., Roopnarine, P.D., Gillikin, D.P., Roopnarine, D., and Goodwin, D.H., 2010, Use of historical and baseline specimens to track responses of molluscan primary consumers to the effects of the 2010 Deepwater Horizon hydrocarbon spill. *Geological Society of America, Annual Meeting: Denver, Colorado.*
- Carlson, S.J., Roopnarine, P.D., Anderson, L.C., and Goodwin, D.H., 2010, The bivalve bauplan: comparisons of modularity and integration in Lophotrochozoans. *Geological Society of America, Annual Meeting: Denver, Colorado.*
- Goodwin, D.H., Anderson, L.C., Roopnarine, P.D., and \*Kercher, P.M., 2010, New sclerochronological constraints for ontogenetic patterns in tropical American bivalves: heterochronic evolution associated with the emergence of the Central American Isthmus. *2<sup>nd</sup> International Sclerochronology Conference, Mainz, Germany.*
- Gillikin, D.P., Goodwin D.H., and Kesler D.H., 2010, Periodicity of growth lines in freshwater mussels: a stable isotope study. *2<sup>nd</sup> International Sclerochronology Conference, Mainz, Germany.*

## 2009

- Goodwin, D.H., Roberts, E.M., and de Klerk, W.J., 2009, Exceptionally preserved shell boring in the Mio-Pliocene Alexandria Formation, Eastern Cape, South Africa. *Geological Society of America, Annual Meeting: Portland, Oregon.*
- Paul, P., and Goodwin, D.H., 2009, Bayesian reconstruction of intra-annual accretion rates. *Geological Society of America, Annual Meeting: Portland, Oregon.*
- Gillikin, D.P., Goodwin, D.H., and Dehairs, F., 2009, Using mollusk shell shutdown temperature to constrain oxygen isotopes of water. *Geological Society of America, Annual Meeting: Portland, Oregon.*
- Winnick\*, M. J., D.P. Gillikin, D.H. Goodwin and D.H. Kesler, 2009. Salinity sensors—Freshwater mussel shells record stream salinization from road salt. *European Geosciences Union, General Assembly: Vienna, Austria,*

## 2008

- Goodwin, D.H., Paul, P., and Wissink\*, C.L., 2008, Modeling intra-annual growth of freshwater mussels. *Geological Society of America, Annual Meeting: Houston, Texas.*
- Winnick\*, M. J., D. P. Gillikin, D. H. Goodwin and D. H. Kesler, 2008, Freshwater mussel shells as a proxy for stream salinization from road salt. *Geological Society of America, Annual Meeting: Houston, Texas.*

## 2007

- Goodwin, D.H., Cohen, A.C., and Roopnarine, P.D., 2007, Bivalve forensics: Sclerochronological constraints on the timing of a biological invasion in San Francisco Bay. *American Geophysical Union, Annual Meeting: San Francisco, California.*

## 2006

- Goodwin, D. H., Anderson, L. C., and Roopnarine, P. D., 2006, Tropical American Corbulids: A new source of paleoenvironmental history. *Geological Society of America, Annual Meeting: Philadelphia, Pennsylvania.*

**2004**

- Goodwin, D. H., Anderson, L. C., Roopnarine, P. D., and Aronowsky, A., 2004, Heterochronic evolution in tropical American corbulids. *Geological Society of America, Annual Meeting: Denver, Colorado.*

**2003**

- Goodwin, D. H., Anderson, L. C., and Roopnarine, P. D., 2003, Observations on corbulid growth and their evolutionary significance. *Geological Society of America, Annual Meeting: Seattle, Washington.*
- Flessa, K.W., Dettman, D., Schöne, B.R., Goodwin, D.H., Cintra-Buenrostro, C.E., Rodriguez, C., Noggle, S., T'eliez-Duarte, M.A., Avila-Serrano, G., Kowalewski, M., and Goodfriend, G., 2003, Before the dams: historical ecology of the Colorado River estuary. *Joint Estuarine and Coastal Science Association—Estuarine Research Federation Symposium: San Carlos, Sonora, Mexico.*

**2002**

- Dettman, D.L., Flessa, K.W., Schöne, B.R., Goodwin, D.H., Rodriguez, C.A., Noggle, S.K., Cintra-Buenrostro, C.E., Rowell, K., and Taylor, T.A., 2002. Ecologies and environments of the pre-dam Colorado River Delta. *International Conference on the Applications of Stable Isotope Techniques to Ecological Studies: Flagstaff, Arizona.*

**2001**

- Goodwin, D.H., 2001, Elephants may never forget - but clams do: Geochemistry and ontogeny. *Geological Society of America, Annual Meeting: Boston, Massachusetts.*
- Flessa, K.W., Dettman, D. L. , Schöne, B.R., Rodriguez, C., Goodwin, D.H., Tellez-Duarte, M., Avila-Serrano, M., Kowalewski, M., and Goodfriend, G., 2001, Putting the dead to work: Constructing a paleoecological baseline to assess the environmental impact of upstream dams on the Colorado River. *American Association for the Advancement of Science, Annual Meeting: San Francisco, California.*
- Goodwin, D.H., Flessa, K.W., Schöne, B.R., and Dettman, D.L., 2001, Sclerochronologically-calibrated oxygen isotope profiles detect time-averaging in bivalve mollusk assemblages. *North American Paleontological Convention: Berkeley, California.*
- Flessa, K., Dettman, D., Schöne, B., Rodriguez, C., Goodwin, D.H., Noggle, S.K., Tellez-Duarte, M., Avila-Serrano, G. A. Kowalewski, M. and Goodfriend, G., 2001. Before the dams: Historical ecology of the Colorado River delta. *United States—Mexico Colorado River Delta Symposium, International Boundary and Water Commission, U.S. Department of Interior and the Mexican Secretariat of the Environment and Natural Resources: Mexicali, Baja California, Mexico.*
- Flessa, K., Dettman, D., Schöne, B., Rodriguez, C., Goodwin, D.H., Tellez-Duarte, M., Avila-Serrano, G.A., Kowalewski, M. and Goodfriend, G., 2001. Before the dams: Historical ecology of the Colorado River delta. *Annual Meeting American Fisheries Society: Phoenix, Arizona.*
- Flessa, K., Dettman, D., Schöne, B., Rodriguez, C., Goodwin, D.H., Tellez-Duarte, M., Avila-Serrano, G.A., Kowalewski, M. and Goodfriend, G., 2001. New uses for the dead: Reconstructing baseline conditions on the Colorado River delta. *Annual Meeting, Society for Conservation Biology: Hilo, Hawaii.*

- Schöne, B.R., Flessa, K.W., Goodwin, D.H., and Dettman, D.L. 2001. Do clams like dams? Effects of river discharge on growth rates in marine bivalve mollusks as revealed by sclerochronological and stable isotope techniques. *Annual Meeting of the Deutsche Geologische Gesellschaft e.V. (DGG) and the Geologische Vereinigung e.V. (GV): Kiel, Germany.*

## 2000

- Goodwin, D.H., Schöne, B.R., Flessa, K.W., and Dettman, D.L., 2000, Almost Weather: High Resolution Sclerochronological Calibration of Isotopic Variation in a Bivalve Mollusk. *Geological Society of America, Annual Meeting: Reno, Nevada.*
- Schöne, B.R., Goodwin, D.H., Flessa, K.W., and Dettman, D.L., 2000, Effect of river discharge on growth rates in marine bivalve mollusks. *Geological Society of America Annual meeting, Reno, Nevada.*
- Goodwin, D.H., Flessa, K.W., and Dettman, D.L., 2000, Hot and salty? Reconstructing temperature and salinity in the northern Gulf of California during the last interglacial. *V International meeting on the Geology of Baja California Peninsula, Baja California Sur, Mexico.*
- Flessa, K.W., Dettman, D.L., Goodwin, D.H., Téllez-Duarte, M.A., Goodfriend, G.A., Zachos, J., and Roopnarine, P.D., 2000, Colorado River flow during the past millennium: Isotopic evidence of above-average snowmelt discharge during the 16th, 17th, and 18th centuries. *V International meeting on the Geology of Baja California Peninsula, Baja California Sur, Mexico.*

## 1999

- Goodwin, D.H., Flessa, K.W., and Dettman, D.L., 1999, Detecting the limits of stratigraphic resolution: Assessing spatial and temporal mixing using annual isotopic profiles. *Geological Society of America, Annual Meeting: Denver, Colorado.*
- Goodwin, D.H., Flessa, K.W., and Dettman, D.L., 1999, Hot times in the Pleistocene: Estimates of winter and summer temperatures during the last interglacial. *Geological Society of America, Cordilleran Section Meeting: Berkeley, California.*
- Gonzales-Leon, C.M., Stanley, G.D., Jr., and Goodwin, D.H., 1998, Paleobiogeography and stratigraphy of the Antimonio Terrane, northwestern Sonora, Mexico. *Geological Society of America, Annual Meeting: Toronto, Ontario.*

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## INVITED WORKSHOPS

### 2015

- Marine Mollusk Energetics in Space and Time. University of California, Berkeley. May 29-31.

### 2014

- Stable Isotopes in Environmental Research and Undergraduate Research Training, Union College, Schenectady, New York. June 19–20.

### 2013

- 3<sup>rd</sup> International Sclerochronology Conference, Caernarfon, Wales. May 18-22.

**2011**

- Taphonomy Field Conference, Colorado River Delta, Baja California, Mexico. April 2–7.

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**INVITED PRESENTATIONS (\*denotes student author)**

**2014**

- Goodwin, D.H., 2014, Integrated Watershed Isotope Geochemistry: Potential Student Projects. *Stable Isotopes in Environmental Research and Undergraduate Research Training, Union College, Schenectady, New York.*
- Goodwin, D.H., 2014, One Hundred Eighty Two Years and Counting: A Look Back at the Development of a Discipline as seen in Geology Textbooks from the University Archives. *Annual Denison Gathering in Naples, Naples, Florida.*
- Goodwin, D.H., 2014, A Biogeochemical Whodunit: Stable Isotope and Trace Element Constraints on the Timing of a Modern Biological Invasion. *Miami University, Oxford, Ohio.*

**2013**

- Goodwin, D.H., 2013, Environmental monitoring with bivalve biogeochemical archives: methods, limitations, and future directions. KEYNOTE ADDRESS, 3<sup>rd</sup> *International Sclerochronology Conference, Caernarfon, Wales.*

**2011**

- Goodwin, D.H., 2011, Dams, clams, and megadroughts: A tragic story from the end of the Colorado River in three acts. *Union College, Schenectady, New York.*
- Goodwin, D.H., 2011, Damned clams and the end of the Colorado River: Estimating paleo-discharge of the southwestern United States' most important water source. *University of Toronto at Mississauga, Ontario, Canada.*

**2010**

- Goodwin, D.H., 2010, There are aliens among us: A sclerochronological investigation of a modern biological investigation. *Hewett Club Lecture, University of California, Riverside, California*
- Goodwin, D.H., 2010, Forensics on the half shell: Unraveling a modern biological invasion in San Francisco Bay. *California Academy of Sciences, San Francisco, California.*

**2008**

- Goodwin, D.H., 2008, Jack London, giant alien oysters, and the USGS: Unraveling a biological invasion. *Rhodes College, Nashville, Tennessee.*
- Goodwin, D.H., 2008, Forensics on the half-shell: Sclerochronologic investigation of a modern biological invasion event. *Sophomore Science Seminar, Otterbein College, Westerville, Ohio.*
- Goodwin, D.H., 2008, Forensics on the half-shell: Sclerochronologic investigation of a modern biological invasion event. *Department of Geological Sciences, University of North Carolina and Chapel Hill.*

**2007**

- Goodwin, D.H., \*Wissink, C.L., and Paul, P. 2007, Modeling intra-annual growth in bivalve mollusks. *Stable Isotopes in Archaeological Midden Shells: High-Resolution Paleoclimatic & Paleoenvironmental Archives, Hamilton, Ontario, Canada.*
- Goodwin, D.H., 2007, Growth patterns of Neogene marine mollusks: Heterochrony in tropical American corbulid bivalves. *Ohio University, Athens, Ohio.*

**2005**

- Goodwin, D.H., 2005, You can teach old clams new tricks: Reconstructing patterns and timing of growth - methods and applications. *Joint Annual Conferences of the American Malacological Society and the Western Society of Malacologists, Moss Landing, California.*

**2004**

- Goodwin, D.H., 2004, Tale of the dammed clam and other tragic stories from the end of the Colorado River. *Louisiana State University, Baton Rouge, Louisiana.*
- Goodwin, D.H., 2004, Tale of the dammed clam and other tragic stories from the end of the Colorado River. *Wooster College, Wooster, Ohio.*
- Goodwin, D.H., 2004, Tale of the dammed clam and other tragic stories from the end of the Colorado River. *University of Akron, Akron, Ohio.*
- Goodwin, D.H., 2004, Tale of the dammed clam and other tragic stories from the end of the Colorado River. *Miami University, Oxford, Ohio.*
- Goodwin, D.H., 2004, Tale of the dammed clam and other tragic stories from the end of the Colorado River. *The Ohio State University, Columbus, Ohio.*

**2002**

- Goodwin, D.H., 2002, Stable isotopes, sclerochronology and growth hiatuses: Sources of paleoenvironmental, paleoecological and evolutionary data. *Paleontological Society sponsored Topical Session, Geological Society of America Annual Meeting.*
- Goodwin, D.H., 2002, Stable isotope and sclerochronologic analysis of environmental resolution in bivalve mollusk shells: A new approach for environmental reconstruction. *Annual Western Society of Malacologists Conference: Pacific Grove, California. Moss Landing, California.*

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**PROFESSIONAL ACTIVITIES**

- External Ph.D. Examiner, James Cook University, 2016.
- Invited Participant, Bivalve Mollusk Energetics Workshop, University of California Museum of Paleontology, UC Berkeley, 2015
- Organizing Committee Member, 4<sup>th</sup> International Sclerochronology Conference, 2016.

- Co-organizer and Co-convener, Geological Society of America Annual Meeting, Vancouver, British Columbia, Canada, 2014. [Session Title: High-resolution geochemical proxies of global change: progress, problems, and utility].
- Administrator, Sclerochronology Listserv (sclerochronology@denison.edu), 2007–Present.
- Associate Editor *Palaios*, 2006–2015.
- Co-chair and organizer, Topical Session, Geological Society of America Annual Meeting, 2014. [Session Title: High-Resolution Geochemical Proxies of Global Change: Progress, Problems, and Utility.]
- Co-organizer and Co-convener, North American Paleontological Convention, Gainesville, FL, 2014. [Session Title: New advances and applications in sclerochronology.]
- Co-organizer and Co-convener, Paleooceanography and Paleoclimatology (PP) Poster Session, American Geophysical Union Fall Meeting, 2010. [Session Title: Advances at the Frontiers of Paleoproxy Validation III.]
- Co-organizer, Mellon Inter-Institutional Workshop, Computation for Scientists, Summer 2010.
- Workshop Participant, Teaching Paleontology in the 21<sup>st</sup> Century, Cornell University, August 2009.
- Workshop Participant, Computing and Mathematics Across the Sciences, Denison University, July 2009.
- Co-chair and organizer, Paleontological Society sponsored Topical Session, Geological Society of America Annual Meeting, 2008. [Session Title: Sclerochronological Archives from Rivers to the Sea: Documentation, Interpretation, and Utility.]
- Paleontological Society Co-representative, 2005 Geological Society of America Joint Technical Program Committee.
- Co-chair, Technical Session, Geological Society of America Annual Meeting, 2004. [Session Title: Paleontology I: Macroevolution from Genotype to Phenotype.]
- Co-chair and organizer, Paleontological Society sponsored Topical Session, Geological Society of America Annual Meeting, 2001. [Session Title: High-resolution geochemical bioarchives: Implications for Paleoecology, Paleoclimatology, and Evolution.]

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## COMMUNITY SERVICE

- Granville Public Library Board of Trustees, 2016–Present

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## PROFESSIONAL AFFILIATIONS (Recent Affiliations)

- American Association for the Advancement of Science
- American Geophysical Union
- Geological Society of America
- National Association of Geoscience Teachers



- Paleontological Society
- SEPM (Society of Economic Paleontologists and Mineralogists)
- Western Society of Malacologists

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## REVIEWS

- Aquatic Biology
- Biogeochemistry
- Biogeosciences
- Bulletin of Marine Science
- Estuarine, Coastal and Shelf Science
- Geochimica et Cosmochimica Acta
- Geochemistry, Geophysics, Geosystems
- Geological Society of America Bulletin
- Geological Society of America, Special Paper Series
- Geology
- International Journal of Earth Sciences
- Isotopes in Environmental & Health Studies
- Limnology and Oceanography
- Louisiana Board of Regents, Pilot Funding for New Research Program (Pfund)
- Marine and Freshwater Research
- Marine Biology
- Marine Geology
- National Science Foundation
- Palaeogeography Palaeoclimatology Palaeoecology
- Palaios
- PLoS ONE
- Terra Nova

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## INSTITUTIONAL SERVICE

- Department of Earth & Environmental Sciences Chair, 2020–Present.

- President's Senior Faculty Advisory Board, 2021–Present.
- Department of Geoscience Chair, 2020–2021.
- Chair of the Faculty, 2019–2020.
- Academic Affairs Council, 2017–2020.
- Search Committee Member: Vice President for Student Development, 2019–2020.
- Chair Elect of the Faculty, 2018–2019.
- Chair Academic Affairs Council, 2018–2019.
- Canoe Orientation, Co-organiser and Trip Leader, 2015–Present.
- First-Year Faculty Learning and Teaching Seminar, Co-Facilitator, 2015–2018.
- Faculty Representative to the Board of Trustees Academic Affairs Committee, 2015–2017.
- President's Advisory Board, 2013–2015.
- Annual Denison Alumni Gathering, Faculty Speaker, Naples, Florida, 2014.
- Restorative Justice Coordinator Trainee, 2012–2013.
- Student Conduct Board, 2012–2013.
- Faculty Appeals Committee, 2012–2013.
- Homestead Advisory Board, 2012–2013.
- Department of Geoscience Chair, 2011–2016.
- Department of Geosciences Computer Liaison, 2004–2013.
- Outdoor Orientation, Faculty Organizer, 2006–2009.
- Personnel Committee Chair, 2007–2008.
- Faculty Representative, Annual Admissions Reception, Pittsburgh, Pennsylvania, 2006, 2007, 2009.
- Personnel Committee, 2005–2008 (leave of absence 2006–2007 academic year).
- Outdoor Orientation, Trail Leader, 2004–2009; 2011–2012.
- Library Committee, 2004–2005.
- First Year Advisory Committee, 2004–2005.
- Department of Geosciences Library Liaison, 2004–2012.

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## **SUPERVISED STUDENT RESEARCH PROJECTS**

### **2020**

- Sawyer Hilt, Denison University, CLAMGROWR 2.0: Modeling clams shells in order to improve paleotemperature sampling efforts.

**2019**

- Eva Jorn, Denison University, Defining optimal growth conditions of *Crassostrea virginica* through stable oxygen isotope and growth band analysis with implications for enhancing knowledge of proxy records and the effects of climate change.

**2018**

- Mihai Fratian, Denison University, Using Stable Isotopes to Reconstruct Growth of the Hard Clam *Mercenaria Mercenaria*.
- Emily Carrigan, Denison University, Salinity and Water Oxygen Isotope Records of Hydrologic Variability in Jarrett Bay, North Carolina, USA.

**2017**

- Jake LaFeuvre, Denison University, The Accuracy of Stable Oxygen Isotopes in Various Bivalve Species from the Same Location and Time Period.
- Andrew Levy, Denison University, Growth Patterns Recorded in the Shell of the Marine Bivalve *Lirophora*.

**2016**

- Grace Bachmann and Katie Scott, Denison University, Reconstructing Seasonality During the Last Interglacial Complex: *Epilucina californica* in the Channel Islands, California.

**2014**

- Britney Kirch, Denison University, Comparison of Oxygen Isotope Profile Temporal Resolution in Bivalve Mollusk Shells.

**2013**

- Britney Kirch, Denison University, Reconstructing Intertidal Position of Bivalve Mollusks Using Oxygen Isotopes.
- Allen Weik, Denison University, The Anthropologic Impact on the Sediment Record of Cheniers in the Gulf of California.
- Trevor Masters, Denison University, Advancing Student Understanding of Theoretical Morphology: Development of a Three-Dimensional Computer Model of Stromatoporoid Growth.

**2012**

- Keck Geology Consortium Project, Biogeochemical carbon cycling in fluvial systems from bivalve shell geochemistry: Using the modern to understand the past.
  - Roxanne Banker, Denison University, Reconstructing Intra-Annual Growth of *Lampsilis Cardium* Using Stable Isotope Geochemistry and Environmental Parameters.
  - Nicollette Buckle, Oberlin College, The Life and Afterlife of K/PG Unionids : Quantifying taphonomic condition and geochemical viability.

- Max Davidson, Union College, Vital Effects On Stable Carbon Isotopes In Freshwater Mussel Shells: Investigation of Metabolic Carbon<sup>13</sup> Influence on the Geochemical Record Archived in Bivalve Shells.
- Scott Evans, SUNY Geneseo, Trace elements within the freshwater bivalve *Lampsilis cardium* from the O<sup>18</sup>Shaughnessy Reservoir, Ohio.
- Gary Linkevich, Vassar College, Linear and landmark-based morphometric comparison of two populations of *Cameloma*, sp. across the K-Pg boundary.
- Hannah Smith, Rensselaer Polytechnic Institute, Carbon Isotope Cycling: a comparison between fossil shells across the Cretaceous-Paleogene boundary and today.

## 2011

- Roxanne Banker, Denison University. Correlating Bivalve Geochemistry with Environmental Parameters in central Ohio.
- Pai Han, Denison University. Reconstructing the annual growth of *Lampsilis cardium*.

## 2010

- Kelsey Blongewicz, Denison University. The Impact of Ocean Acidification on Biogenic Carbonates.

## 2009

- Louis Wersan, Denison University. Cave monitoring and analysis of intra-annual speleothem growth.
- Paige Kercher, Denison University. Linking evolution with environmental change: Documenting heterochrony in tropical American bivalve mollusks.
- Lauren Keny, Denison University. Modeling the Intra-annual Growth of Freshwater Mollusks.

## 2008

- Sarah Grannemann, Denison University. Assessing the timing and impacts of a biological invasion in San Francisco Bay (*Crassostrea gigas*; Phylum: Mollusca; Class: Bivalvia). [Honors Thesis].

## 2007

- Christine Wissink, Denison University. Statistically constraining reconstructed intra-annual growth rates from fossil bivalve mollusks.

## 2006

- Greg Dellner, Denison University. An Investigation of Latitudinal Variation in Bivalve Shell Growth (*Mercenaria mercenaria*).
- Christine Wissink, Denison University. Reconstructing Intra-annual Growth Rates of the Common Mussel—*Mytilus edulis*.

## 2005

- Steve Faurie, Denison University. Examining heterochronic evolution in neogene tropical American corbulids using sclerochronology and isotope geochemistry.

## 2002

- Phil Fenberg, University of Arizona. Distribution and growth of modern and last interglacial *Porites* in the southern Gulf of California: A comparison based on oxygen isotope variation and growth rates.