

## C. Fred T. Andrus

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### EDUCATION

**Ph.D. – Geology** – University of Georgia, 2000. Major Advisor: Douglas E. Crowe.

Dissertation: Oxygen isotope analysis of ancient otoliths: A mid-Holocene record of El Niño variation and human adaptation from Peruvian archaeological sites.

**M.A. – Anthropology** – University of Georgia, 1995. Major Advisor: Elizabeth J. Reitz.

Thesis: Stable isotopic analysis of estuarine bivalves: towards a method of paleotemperature assessment.

**B.A. – Anthropology** – University of Georgia, 1990.

### EMPLOYMENT

2017-present Professor, University of Alabama, Department of Geological Sciences

2013-2020 Chair, University of Alabama, Department of Geological Sciences

2010-2017 Associate Professor, University of Alabama, Department of Geological Sciences

2008-2013 Undergraduate Program Director, University of Alabama, Department of Geological Sciences

2004-2010 Assistant Professor, University of Alabama, Department of Geological Sciences

2002-2004 Postdoctoral Research Associate, Advanced Analytical Center for Environmental Sciences, Savannah River Ecology Laboratory

2001-2002 Postdoctoral Fellow, University of Georgia, Department of Geology

### PEER-REVIEWED PUBLICATIONS

\* denotes students under my advisement

**Andrus, C. F. T.**, Bassett\*, C. N., Voorhies, B., and Moyes, H. 2024. Ritual schedule and worshippers' origin at an ancient Maya ritual cave site, Las Cuevas, Belize: a pilot study of *jute* snail shell sclerochemistry. *Journal of Archaeological Sciences: Reports* 53: 104371. 10.1016/j.jasrep.2023.104371.

Colcasure, C. B., **Andrus, C. F. T.**, and Blair, E. H., 2023. Of missions and marshes: stable isotope analysis of Mission-era Guale oyster harvesting seasonality on St. Catherines Island, Georgia. *Journal of Island & Coastal Archaeology*. 10.1080/15564894.2023.2192015

Hadden, C. S., Waselkov, G. A., Reitz, E. J., and **Andrus C. F. T.**, 2022 Temporality of fishery tasks capes on the north-central Gulf of Mexico coast (USA) during the Middle/Late

- Woodland Period (AD 325–1040). *Journal of Anthropological Archaeology*. 67: 10.1016/j.jaa.2022.101436.
- Garland, C. J., Thompson, V. D., Sanger, M. C., Smith, K. Y., **Andrus, C. F. T.**, Lawres, N. R., Napora, K. G., Colaninno, C. E., Compton, M. J., Jones, S., Hadden, C. S., Cherkinsky, A., Maddox, T., Deng, Y-T., Lulewicz, I. H., and Parsons, L. 2022. A multi-proxy assessment of the impact of climate change on Late Holocene (ca 4500-3800 BP) Native American villages of the Georgia coast. *PLoS ONE* 17(3): e0258979. 10.1371/journal.pone.0258979.
- Warner, J. P., DeLong, K. L., Chicoine D., Thirumalai, K., and **Andrus, C. F. T.** 2022 Investigating the influence of temperature and seawater  $\delta^{18}\text{O}$  on *Donax obesulus* (Reeve, 1854) shell  $\delta^{18}\text{O}$ . *Chemical Geology*. 588: 120638. 10.1016/j.chemgeo.2021.120638
- Reitz, E. J., Hadden, C. S., Waselkov, G. A., and **Andrus C. F. T.**, 2021 Woodland-period fisheries on the north-central coast of the Gulf of Mexico. *Southeastern Archaeology*. 10.1080/0734578X.2021.1922214.
- Bassett\*, C. N., and **Andrus, C. F. T.**, 2021 Examining the potential of Pacific abalone as a novel high-resolution archive of upwelling in the California Current. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 10.1016/j.palaeo.2021.110342.
- Trofimova, T., Alexandroff, S., Mette, M., Tray, E., Butler, P., Campana, S., Harper, E., Johnson, A., Morrongiello, J., Peharda Uljevic, M., Schöne, B. R., Andersson, C., **Andrus, C. F. T.**, Black, B., Burchell, M., Carroll, M., DeLong, K., Gillanders, B., Grønkvær, P., Killam, D., Prendergast, A., Reynolds, D., Scourse, J., Shirai, K., Thebault, J., Trueman, C., and de Winter, N. J., 2020. Fundamental questions and applications of sclerochronology: community-defined research priorities. *Estuarine, Coastal and Shelf Science*. 245: 106977. 10.1016/j.ecss.2020.106977.
- Fodrie J., Heck K. L., **Andrus C. F. T.**, and Powers S. P. 2020. Determinants of the nursery role of seagrass meadows in the sub-tropical Gulf of Mexico: inshore-offshore connectivity for snapper and grouper. *Marine Ecology Progress Series*. 647: 135–147. 10.3354/meps13403.
- Totten, R. L., Parker, L.E., Wallace, D. J., Lambert, W. J., Elliot, E. A., **Andrus C. F. T.**, Lehrmann, A. A. 2020. A 7,000-year record of floods and ecological feedbacks in Weeks Bay, Alabama, USA. *Science of the Total Environment*. 73. 10.1016/j.scitotenv.2020.140052.
- Sandweiss, D. H., **Andrus, C. F. T.**, Kelley, A. R., Maasch, K. A., Reitz, E. J., and Roscoe, P. B. 2020. Archaeological climate proxies and the complexities of reconstructing Holocene El Niño in coastal Peru. *Proceedings of the National Academy of Sciences*. 117: 8271-8279. 10.1073/pnas.1912242117.
- Mays, J.R., DeWitt, T.J., Dharampal, P., **Andrus, C. F. T.** and Findlay, R.H., 2019. Frequent habitat migration, phenotypic plasticity, and residual ecophenotypy revealed by isotope

based natal habitat inference in bluegill sunfish, *Lepomis macrochirus*. *Evolutionary Ecology Research*. 20: 639-656.

Collins, J., Scott, R. S., **Andrus, C. F. T.**, Moe-Hoffman, A., and Peacock, E., 2019 Refit and oxygen isotope analysis of freshwater mussel shells from the Tillar Farms Site (3DR30), southeast Arkansas. *Midcontinental Journal of Archaeology*. 45: 39-63. 10.1080/01461109.2019.1677999.

Gillikin, D., Wanamaker, A.D., and **Andrus, C. F. T.**, 2019 Chemical Sclerochronology. *Chemical Geology*. 526: 1-6. 10.1016/j.chemgeo.2019.06.016.

Zimmt, J. B., Lockwood, R., **Andrus, C. F. T.**, and Herbert, G. S., 2019 Sclerochronological basis for growth increment counting: a reliable technique for life-span determination of *Crassostrea virginica* from the Mid-Atlantic United States. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 516: 54-63. 10.1016/j.palaeo.2018.11.029.

Etayo-Cadavid\*, M. F., **Andrus, C. F. T.**, Jones, K. B., and Hodgins, G. W. L. 2018. Subseasonal variations in marine radiocarbon reservoir age from pre-bomb *Donax obesulus* and *Protothaca asperrima* shell carbonate. *Chemical Geology*. 526: 110-116. 10.1016/j.chemgeo.2018.07.001.

Bassett\*, C. N., **Andrus, C. F. T.**, and West, C. F. 2018. Implications for measuring seasonality in the marine bivalve, *Saxidomus gigantea*. *Chemical Geology*. 526: 36-48. 10.1016/j.chemgeo.2018.07.004.

West, C. F., Burchell, M., and **Andrus, C. F. T.** 2018. Molluscs and paleoenvironmental reconstruction in island and coastal settings: variability, seasonality, and sampling. In Giovas, C. M., and LeFebre, M. J., eds. *Zooarchaeology in Practice: Case Studies in Methodology and Interpretation in Archaeofaunal Analysis*. Springer. Cham, Switzerland p.191-208.

Lulewicz, I. H., Thompson, V. D., Pluckhahn, T. J., **Andrus, C. F. T.**, and Das, O. 2017. Exploring oyster (*Crassostrea virginica*) habitat collection via oxygen isotope geochemistry and its implications for ritual and mound construction at Crystal River and Roberts Island, Florida. *Journal of Island and Coastal Archaeology*. 13:3, 388-404. 10.1080/15564894.2017.1363096.

Wei\*, J., **Andrus, C. F. T.**, and Perez-Huerta, A., 2017. *Semele corrugata* microstructure and oxygen isotope profiles as indicators of seasonality. in Dillehay, T. D., ed. *Where the Land Meets the Sea: Fourteen Millennia of Human Prehistory on the North Coast of Peru*. University of Texas Press. Austin, TX p.714-722.

Sletten\*, H. R., Gillikin, D. P., Halfar, J., **Andrus, C. F. T.**, and Guzman, H., 2017. Skeletal growth controls on Mg/Ca and P/Ca ratios in tropical Eastern Pacific rhodoliths (coralline red algae). *Chemical Geology*. 465: 1-10. 10.1016/j.chemgeo.2017.05.010.

- Black\*, H. D., **Andrus, C. F. T.**, Lambert, W. J, Rick, T., and Gillikin, D. P., 2017.  $\delta^{15}\text{N}$  values in *Crassostrea virginica* shells provides earliest direct evidence for nitrogen loading to Chesapeake Bay. *Scientific Reports*. 7: 44241; 10.1038/srep44241.
- Sletten\*, H. R., **Andrus, C. F. T.**, Guzman, H. and Halfar, J., 2017. Re-evaluation of using rhodolith growth patterns for paleoenvironmental reconstruction: An example from the Gulf of Panama. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 465: 264–277. 10.1016/j.palaeo.2016.10.038.
- Darrow, E. S., Carmichael, R. H., **Andrus, C. F. T.**, and Jackson, E. H., 2017. From middens to modern estuaries, oyster shells sequester source-specific nitrogen. *Geochimica et Cosmochimica Acta*. 202: 39–56. 10.1016/j.gca.2016.12.023.
- Waselkov, G. A., **Andrus, C. F. T.**, and Plumb, G. E., eds. 2016. *A State of Knowledge of the Natural, Cultural, and Economic Resources of the Greater Mobile-Tensaw River Area*. Natural Resources Report NPS/NRSS/BRD/NRR 2016/1243. Biological Resources Division, National Park Service, Fort Collins, CO. pp.240.
- Plumb, G. E., Waselkov, G. A., **Andrus, C. F. T.**, and Finch B., 2016. A greater Mobile-Tensaw area: connections and consequences. In Waselkov, G. A., **Andrus, C. F. T.**, and Plumb, G. E., eds. *A State of Knowledge of the Natural, Cultural, and Economic Resources of the Greater Mobile-Tensaw River Area*. Natural Resources Report NPS/NRSS/BRD/NRR 2016/1243. Biological Resources Division, National Park Service, Fort Collins, CO. p. 185-193.
- Gagnon, C. M., **Andrus, C. F. T.**, Ida, J., and Richardson, N. 2015. Local water source variation and experimental chicha de maize brewing: implications for interpreting human hydroxyapatite  $\delta^{18}\text{O}$  values in the Andes. *Journal of Archaeological Science: Reports*. 4: 174–181.
- Thompson, V. D., Pluckhahn, T. J., Das, O. and **Andrus, C. F. T.** 2015, Assessing village life and monument construction (cal. AD 65-1070) along the Central Gulf Coast of Florida through stable isotope geochemistry. *Journal of Archaeological Science: Reports*. 4: 111–123.
- Blitz, J. H., **Andrus, C. F. T.**, and Downs, L. 2014 Sclerochronological measures of seasonality at a Late Woodland mound on the Mississippi Gulf Coast. *American Antiquity*. 79: 697-711.
- Thompson, V. D. and **Andrus, C. F. T.** 2013. Using oxygen isotope sclerochronology to evaluate the role of small islands among the Guale of the Georgia Coast, USA. *Journal of Island and Coastal Archaeology*. 8: 190-209. 10.1080/15564894.2012.708007.
- Etayo-Cadavid\*, M. F., **Andrus, C. F. T.**, Jones, K. B., Hodgins, G. W. L., Sandweiss, D. H.

- Uceda-Castillo, S., and Quilter, J. 2013. Marine radiocarbon reservoir age variation in *Donax obesulus* shells from Northern Peru: Late Holocene evidence for extended El Niño. *Geology*. 41: 599–602.
- Pérez-Huerta, A. Etayo-Cadavid\*, M. F., **Andrus, C. F. T.**, Jeffries, T. E., Watkins, C., Street, S.C., and Sandweiss, D. S. 2013. El Niño impact on mollusk biomineralization - Implications for trace element proxy reconstructions and the paleo-archeological record. *PLoS ONE* 8: e54274.
- Andrus C. F. T.** 2012. Isotope sclerochronology in southeastern US archaeology to estimate season of capture. *in* Reitz, E. J, Quitmyer, I. R., and Thomas, D. H. eds. Seasonality and Human Mobility along the Georgia Bight. *American Museum of Natural History Anthropological Papers*. 97: 123-133.
- Andrus, C. F. T.**, and Thompson, V. D. 2012. Determining the habitats of mollusk collection at the Sapelo Island Shell Ring complex, Georgia, USA using oxygen isotope sclerochronology. *Journal of Archaeological Science*. 39: 215-228.
- Andrus, C. F. T.** 2011. Shell midden sclerochronology. *Quaternary Science Reviews*. 30: 2892-2905.
- Thompson, V. D. and **Andrus, C. F. T.** 2011. Evaluating mobility, monumentality, and feasting at the Sapelo Island Shell Ring Complex. *American Antiquity*. 76: 315-343.
- Pérez-Huerta, A. and **Andrus, C. F. T.** 2010. Vital effects in the context of biomineralization. *in* Díaz, L. F. and García-Monge, J. M. A. eds., Biominerals and biomineralization processes. *Seminarios de la Sociedad Española de Mineralogía*: Madrid. 7: 31-41.
- Jones, K. B., Hodgins, G. W. L., Etayo-Cadavid\*, M. F., **Andrus, C. F. T.**, and Sandweiss, D. H., 2010. Centuries of marine radiocarbon reservoir age variation within archaeological *Mesodesma donacium* shells from southern Peru. *Radiocarbon* 52: 1207-1214.
- Jones, K. B., Hodgins, G. W. L., **Andrus, C. F. T.**, and Etayo-Cadavid\*, M. F., 2010. Modeling molluscan marine reservoir ages in a variable-upwelling environment: *Palaios*. 25: 126-131. 10.2110/palo.2009.p09-050r.
- Jones, K. B., Hodgins, G. W. L., Etayo-Cadavid\*, M. F., and **Andrus, C. F. T.** 2009. Upwelling signals in radiocarbon from early 20th century Peruvian bay scallop (*Argopecten purpuratus*) shells. *Quaternary Research*. 72: 452-456. 10.1016/j.yqres. 2009.07.008.
- Romanek, C. S., Beard, B. L., Anbar, A. D. and **Andrus, C. F. T.** 2009. Non-traditional stable isotopes in the environmental sciences, *in* Aelion, C. M., Hohener, P., Hunkeler, D., and Aravena, R. eds., *Environmental isotopes in bioremediation and microbial degradation processes*. Boca Raton, FL , CRC Press, p. 383-433.

- Andrus, C. F. T.**, and Rich\*, K. W., 2008, A preliminary assessment of oxygen isotope fractionation and growth increment periodicity in the estuarine clam *Rangia cuneata*. *Geo Marine Letters*. 28: 301-308. 10.1007/s00367-008-0109-3.
- Reitz, E. J., **Andrus, C. F. T.**, and Sandweiss, D. H. 2008. Ancient fisheries and marine ecology of coastal Peru, in Rick, T. C., and Erlandson, J. M. eds., *Human impacts on ancient marine ecosystems*. University of California Press, p. 125-145.
- Andrus, C. F. T.** and Crowe, D. E., 2008, Isotope analysis as a means for determining season of capture for *Mercenaria*, in Thomas, D. H., ed., Native American Landscapes of St Catherine's Island, Georgia. *American Museum of Natural History Anthropological Papers*. 88: 498-518.
- Andrus, C. F. T.**, Sandweiss, D. H. and Reitz, E. J., 2008, Climate change and archaeology: The Holocene history of El Niño on the coast of Peru, in Reitz, E. J., Scarry, M. C., and Scudder, S. J., eds. *Case Studies in Environmental Archaeology*, (Second Edition): New York, Plenum Press, p. 143-157.
- Jones, K. B., Hodgins, G. W. L., Dettman, D. L., **Andrus, C. F. T.**, Nelson, A., and Etayo-Cadavid\*, M. F. 2007. Seasonal variations in Peruvian marine reservoir age from pre-bomb *Argopecten purpuratus* shell carbonate. *Radiocarbon*. 49: 877-888.
- Sandweiss, D. H., Maasch, K. A., **Andrus, C. F. T.**, Reitz, E. J., Riedinger-Whitmore, M., Richardson, J. B., and Rollins, H. B. 2007. Mid Holocene climate and culture change in coastal Peru, in Anderson, D. G., Maasch, K. A. and Sandweiss, D. H., eds., *Climate change and cultural dynamics: A global perspective on mid-Holocene transitions*: Academic/Elsevier Press, p. 25-50.
- Andrus, C. F. T.**, Hodgins, G. W. L., Sandweiss, D. H., and Crowe, D. E. 2005. Molluscan radiocarbon as a proxy for El Niño-related upwelling variation in Peru, in Surge, D., and Mora, G., eds., *Isotopic and Elemental Tracers of Late Quaternary Climate Change*. *Geological Society of America Special Paper*. 395: 13-19.
- Jones, D. S., Quitmyer, I. R., and **Andrus, C. F. T.** 2005. Oxygen isotopic evidence for greater seasonality in Holocene shells of *Donax variabilis* from Florida. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 228: 96-108.
- Quitmyer, I. R., Jones, D. S. and **Andrus, C. F. T.** 2005. Seasonal shell growth and oxygen isotopes ( $\delta^{18}\text{O}$ ) in the variable coquina clam, *Donax variabilis* Say, 1822: A modern analogue to determine the season of resource procurement during the Late Archaic Period of coastal northeast Florida, USA, in Bar-Yosef Mayer, D., ed., *Archaeomalacology: Molluscs in Former Environments of Human Behavior*: Proceedings of the Archaeomalacology Symposium of the 9<sup>th</sup> International Council for Zooarchaeology, Oxford, UK, Oxbow Press, p.18-28.

- Sandweiss, D. H., Maasch, K. A., Chai, F., **Andrus, C. F. T.**, and Reitz, E. J. 2004. Geochronological evidence for fish regime shift linked to multidecadal Pacific climate change. *Quaternary Research*. 61: 330-334.
- Jones, D. S., Quitmyer, I. R., and **Andrus, C. F. T.** 2004. Seasonal shell growth and longevity in *Donax variabilis* from northeastern Florida: evidence from oxygen isotopes. *Journal of Shellfish Research*. 23: 707-714.
- Andrus, C. F. T.**, Crowe, D. E., Sandweiss, D. H., Reitz, E. J., Romanek, C. S., and Maasch, K. A., 2003, Comment on “Otolith  $\delta^{18}\text{O}$  record of mid-Holocene sea surface temperature in Peru” – response. *Science*. 299: 203b.
- Andrus, C. F. T.** and Crowe, D. E. 2002. Alteration of otolith aragonite: Effects of prehistoric cooking methods on otolith chemistry. *Journal of Archaeological Science*. 29: 291-299.
- Andrus, C. F. T.**, Crowe, D. E., Sandweiss, D. H., Reitz, E. J., and Romanek, C. S. 2002. Otolith  $\delta^{18}\text{O}$  record of mid-Holocene sea surface temperature in Peru. *Science*. 295: 1508-1511.
- Andrus, C. F. T.**, Crowe, D. E. and Romanek, C. S. 2000, Oxygen isotope record of the 1997-1998 El Niño in Peruvian sea catfish (*Galeichthys peruvianus*) otoliths. *Paleoceanography* 17: 1053-1060. 10.1029/2001PA000652.
- Andrus, C. F. T.** and Crowe, D. E. 2000. Geochemical analysis of *Crassostrea virginica* as a method to determine season of capture. *Journal of Archaeological Science*. 27: 33-42.
- Weinand, D. C., **Andrus, C. F. T.**, and Crook, M. R. 2000. The identification of cownose ray (*Rhinoptera bonasus*) as a seasonal indicator species and implications for coastal Mississippian subsistence modeling. *Southeastern Archaeology* 19: 156-162.

#### PEER-REVIEWED ABSTRACTS

- Andrus, C. F. T.** 2023 Sclerochronology's impact to subsistence and settlement modeling in southeastern US archaeology. *Geological Society of America Abstracts with Programs*. v. 55. 10.1130/abs/2023AM-393488.
- Harnik, P., Junium, C., **Andrus, C. F. T.**, Gunn, H., Hua, Q and McMahon, C. B., 2023 Shifts in nitrogen biogeochemistry and benthic biodiversity over the last two millennia in the Gulf of Mexico. *Geological Society of America Abstracts with Programs*. v. 55. 10.1130/abs/2023AM-394630
- Andrus, C. F. T.** 2023 Determining the habitats of archaeological mollusk collection revisited: limitations and possibilities. 6<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*: 83.
- Olmstead\*, S., and **Andrus, C. F. T.** 2023 Growth rates of boxwork rhodoliths in the Gulf of Mexico using radiocarbon dating. 6<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*: 75.

- Bassett\*, C. N., **Andrus, C. F. T.**, Schöne, B. R., and West, C. F. 2023 Variability in daily growth increment width indicate subtidal vs. intertidal habitat in specimens of *Saxidomus giganteus*. 6<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*: 66.
- Bassett\*, C. N., **Andrus, C. F. T.**, and West, C. F. 2023 Using the monitoring of modern stable oxygen isotope variability in ambient water to improve sea surface temperature reconstructions from *Saxidomus giganteus*. 6<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*: 62.
- Junium, C., Harnik, P., **Andrus, C. F. T.**, and McMahon, C. B., 2023 Temporal and spatial trends In Gulf of Mexico nitrogen biogeochemistry over the last two millennia revealed by the  $\delta^{15}\text{N}$  of bivalve shells. *Goldschmidt 2023 Abstracts*: 19908.
- Andrus, C. F. T.**, Bassett\*, C. N., Schöne, B. R. and West, C. F. 2022 Detecting ancient subtidal clam harvest by micro-increment measurement. *Geological Society of America Abstracts with Programs*. v. 54.
- Olmstead\*, S., and **Andrus, C. F. T.** 2022 Growth rates of rhodoliths in the Gulf of Mexico using radiocarbon dating. *Geological Society of America Abstracts with Programs*. v. 54.
- McMahon, C. B., Gun, H., Harnik, P., **Andrus, C. F. T.**, and Junium, C. 2022 Nitrogen isotopic analysis of modern and ancient bivalves from the Gulf of Mexico. *Geological Society of America Abstracts with Programs*. v. 54.
- Degirmen\*, G., Tobin, T. S., Andrus, C. F. T., and Perez-Huerta, A. 2022 Sequential isotopic analysis in ammonite aptychi. *Virtual International Sclerochronology Conference Book of Abstracts* C1-10.
- Warner, J. P., DeLong, K., Chicoine D., Thirumalai, K, **Andrus, C. F. T.** and Wanamaker, A. 2022. Using high-resolution marine archives to investigate marine climate, marine environment, and maritime societies through the Holocene. Past Global Changes Open Science Meeting 2022.
- Degirmen, G\*, **Andrus, C. F. T.**, and Tobin, T. S., 2021 Assessment of preservation and isotopic records in ammonite aptychi. American Geophysical Union Fall Meeting Abstract PP15E 0969.
- Bassett\*, C. N., and **Andrus, C. F. T.**, 2021 Abalone: a new tool for understanding upwelling in the California Current. *Geological Society of America Abstracts with Programs*. v. 53.
- Harnik, P., and **Andrus, C. F. T.**, Fluvial influence on time averaging and nutrient loads on the continental shelf, northern Gulf of Mexico. *Geological Society of America Abstracts with Programs*. v. 53.



- Warner, J. P., DeLong, K., Chicoine D., Thirumalai, K, **Andrus, C. F. T.** and Wanamaker, A. 2020 Eastern Pacific El Niño-Southern Oscillation variability~ 400-200 BCE: perspectives from a dual-archive approach. American Geophysical Union Fall Meeting Abstract OS015-0010.
- Voorhies, B., **Andrus, C. F. T.**, Bassett\*, C. N., and Moyes, H., 2020. Determination of ritual seasonality at a prehistoric Maya shrine: preliminary results. Society for American Archaeology *Program* 85: 580. (abstract published, but meeting cancelled due to pandemic)
- West, C. F., Etnier, M. A., **Andrus, C. F. T.**, Funk, C., and Partlow, M. 2020. On the Ice Edge: Abrupt Climate Change in the Aleutian Islands. Society for American Archaeology *Program* 85: 595-596. (abstract published, but meeting cancelled due to pandemic)
- Andrus, C. F. T.**, Bassett\*, C. N., Voorhies, B., Collins, J. D., and Peacock, E. 2019 Challenges and applications of oxygen isotope analysis of season of capture of freshwater mollusks. 5<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*. pp. 27.
- Bassett\*, C. N., **Andrus, C. F. T.**, West, C. F., and Etnier, M., 2019. Fact or Fiction? Exploring the possibility of neoglacial sea ice off the coast of Unalaska. 5<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*. pp. 28.
- Bassett\*, C. N., and **Andrus, C. F. T.**, 2019. Examining the potential of Pacific abalone as a novel high resolution archive of seasonal upwelling in the Channel Islands, CA, USA. 5<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*. pp. 101.
- Warner, J. P., DeLong, K., Chicoine D., **Andrus, C. F. T.**, Thirumalai, K, and Wanamaker, A. 2019. Local perspectives on ENSO mean states ~2300 B.P. and now:  $\delta^{18}\text{O}$  reconstructions from the short-lived bivalves *Donax obesulus* and *Mesodesma donacium*. 5<sup>th</sup> International Sclerochronology Conference, *Book of Abstracts*. pp. 91.
- Bassett\*, C. N., **Andrus, C. F. T.**, West, C. F., and Etnier, M., 2018. Fact or Fiction? Neoglacial sea ice off the coast of Unalaska. *Oceans Past VII Book of Abstracts*, pp 38.
- Warner, J. P., DeLong, K., Chicoine D., Wanamaker, A. **Andrus, C. F. T.**, and Thirumalai, K. 2018 Local perspectives on ENSO variability ~2300 BP and now: evidence from two short lived intertidal bivalves: *Mesodesma donacium* and *Donax obesulus*. American Geophysical Union Fall Meeting Abstract PP43D-1958.
- Andrus, C. F.T.**, Bassett\*, C., Black\*, H. D., Payne\*, T. N. 2017. Nitrogen isotope analyses in mollusk shell: applications to environmental sciences and archaeology. American Geophysical Union Fall Meeting Abstract PP53D-03.
- Reitz., E. J., Hadden, C. S., Little, M., Waselkov, G. A., **Andrus, C. F. T.**, and Peacock, E. 2017 Woodland-period Seasonality on the Northern Coast of the Gulf of Mexico. Southeastern Archaeological Conference *Bulletin* 60: 83.

- Andrus, C. F. T.,** Kelley, A, and Sandweiss, D. H. 2017 Productivity in a human context: creating and applying proxies relevant to Chicama Valley archaeology. Society for American Archaeology *Program* 82: 382.
- Andrus, C. F. T.** 2016. Human adaptation to seasonal climate variation in prehistoric coastal southeastern USA. *Geological Society of America Abstracts with Programs*. v. 48.
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#### **PUBLIC DATABASE/ARCHIVE CONTRIBUTIONS**

2022 NOAA/WDS Paleoclimatology-Coastal Nepena Valley, Peru modern surf clam stable isotope data

2015 Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC)

2011 Natural History Collections, Smithsonian Institution – Field samples from Peru and Chile

2003 NOAA National Centers for Environmental Information – Molluscan oxygen isotope data

2002 NASA Goddard Institute: Global Seawater Oxygen-18 Database – Peruvian coastal seawater

2002 NOAA National Centers for Environmental Information – Otolith and water oxygen isotope

and trophic data

**FUNDING**

2022-2024 \$110,000	Principal Investigator. “Coralline Algae Growth at the Flower Garden Banks, Gulf of Mexico” American Chemical Society Petroleum Research Fund.
2021 \$3671	Principal Investigator. “Measuring changes in seasons related to sea ice in the Bering Sea using clam growth increments” German Academic Exchange Network (DAAD) Scholarship for University Academics and Scientists.
2018-2020 \$201,695 (total) \$52,276 to Alabama	Co-Principal Investigator. (Collaborating PI’s Sally Walker, UGA, David Gillikin, Union College, Alberto Perez-Huerta, U. of Alabama) “Collaborative research: The Antarctic scallop as key to paleoenvironments and sea ice conditions: understanding the modern to predict the past” National Science Foundation - Polar Programs PLR- 1745064.
2016-2020 \$700,000 (total) \$132,780 to Alabama	Principal Investigator (Collaborating PI’s Catherine West, Boston U., and Michael Etnier, Portland State). “Collaborative research: An examination of human social and cultural adaptation through archaeological and paleoclimate data from the Aleutian Islands” National Science Foundation - Polar Programs PLR- 1523034.
2014-2015 \$4,255	Principal Investigator. “State of knowledge and synthesis of the natural, cultural, and economic conservation resources of the lower Alabama River area” National Park Service (pass through U. of S. Alabama PI Greg Waselkov).
2010-2013 \$139,965 (total) \$34,204 to Alabama	Principal Investigator (Collaborating PI’s Elizabeth Reitz, U. of Georgia and Greg Waselkov, USA). “Collaborative research: Woodland subsistence seasonality on the northern coast of the Gulf of Mexico” National Science Foundation - Archaeology BCS-1026166.
2010-2012 \$200,000	Principal Investigator (co-PI’s Alberto Perez-Huerta and Paul Aharon). “Acquisition of a gas-source isotope ratio mass spectrometer (GS-IRMS) to upgrade the University of Alabama Geological Sciences Stable Isotope Laboratory” National Science Foundation - Instruments and Facilities EAR 0949303.
2011-2012 \$31,050	Principal Investigator. “BP/MESC: Sentinel macrofauna: isotopic records of oil exposure in oyster shells” MESC Gulf Research Initiative (BP Oil Spill Research Fund).
2010-2011 \$50,000	Principal Investigator “Growth rates in deep-sea stlyasterid corals off the southeastern U.S.” NOAA Coral Reef Conservation Program. Pass-through George Sedberry, Gray’s Reef National Marine Sanctuary.

2008-2009 \$97,660	Co-Principal Investigator (PI Harold Stowell). "Upgrade of the University of Alabama JEOL 8600 electron probe microanalyzer" National Science Foundation - Instruments and Facilities EAR-0744467.
2007-2009 \$20,000	Principal Investigator. "Documentation of historical water quality and chemistry regimes in Mobile Bay and Choccolatta Bay through isotope analysis and mollusk species composition: evidence for hurricane impacts." Alabama Department of Conservation and Natural Resources.
2006-2007 \$20,000	Principal Investigator. "Isotopic records of historical salinity variation in Choccolatta and Mobile Bays." Alabama Department of Conservation and Natural Resources.
2005-2009 \$598,295 \$153,058 to Alabama	Principal Investigator (collaborating PI's Greg Hodgins, U. of Arizona and (total) Dan Sandweiss, U. of Maine). "Collaborative research: molluscan radiocarbon as a proxy for upwelling in Holocene Peru." National Science Foundation – Earth System History. OCE-0502533.
2006 \$9,000	Principal Investigator. "Documentation of historical water quality and chemistry regimes in Mobile Bay and Choccolatta Bay through isotope analysis and mollusk species composition" Alabama Department of Conservation and Natural Resources.
2005-2006 \$5,000	Principal Investigator. "Continuous multi-proxy paleoclimate reconstruction from Lake Jackson, Alabama" University of Alabama Research Advisory Committee.
2004-2006 \$119,320 (total) \$9,460 to Alabama	Primary Participant. (George Sedberry - PI) "Estuary to the abyss: exploring along the latitude 31-30 transect - coral research" NOAA – Explore.
2003-2006 \$86,237 (total) \$11,600 to Andrus	Collaborator. (George Sedberry – PI, in collaboration with Chris Romanek) "Mounds, depressions, scarps and caves: exploration of habitat and species diversity on the Charleston Bump and Blake Plateau." NOAA – Explore.
2003-2006 \$8,400	Collaborator. (George Sedberry – PI, in collaboration with Chris Romanek) Funding for wreckfish otolith oxygen isotope research. South Carolina Department of Natural Resources
1999 \$2,000	Principal Investigator. Funded field collections in Peru. Geological Society of America.
1999 \$1,200	Principal Investigator. "Mid-Holocene paleo-ENSO determination via geoarchaeological /geochemical analyses." Explorers Club International.

1998-1999 \$1,200	Principal Investigator. Funded field collections in Peru. Center for Latin American and Caribbean Studies.
1997-1999 \$5,500	Principal Investigator. Funded field collections in Peru and conference presentations. UGA Geology Department Wheeler-Watts fund.
1996-1997 \$2,000	Principal Investigator. Funded field collections in Peru. UGA Geology Department Allard and Levy Awards.
1994-1996 \$2,500	Principal Investigator. Funded field collections on St. Catherine's Island, GA American Museum of Natural History.

## **MANUSCRIPT AND GRANT PROPOSAL REVIEWS**

### National Science Foundation

- Antarctic Organisms and Ecosystems (1)
  - Archaeology (5)
  - Biological Oceanography (1)
  - Comparative Analysis of Marine Ecosystem Organization (1)
  - Earth Sciences Instrumentation and Facilities (1)
  - Earth System History Program (1)
  - Geology and Paleontology Program (1)
  - Ocean Sciences (2)
  - Paleo Perspectives on Climate Change (P2C2) program (8)
  - P2C2 review panelist (1)
  - Sedimentary Geology and Paleobiology Program (1)
- National Oceanic and Atmospheric Administration (1)
- National Geographic Society (4)
- The Research Council of Norway (1)
- United States Civilian Research and Development Foundation (1)
- Deutsche Forschungsgemeinschaft (German Research Foundation) (5)
- Hrvatska zaklada za znanost (Croatian Science Foundation) (1)
- Texas Sea Grant (1)
- American Journal of Science* (1)
- Archaeofauna* (1)
- Archaeological and Anthropological Sciences* (1)
- Chemical Geology* (3)
- Earth System Science Data* (1)
- Environmental Biology of Fishes* (2)
- Fisheries Research* (2)
- Geoarchaeology* (1)
- Geo Marine Letters* (1)
- Geochimica et Cosmochimica Acta* (1)
- Global and Planetary Change* (1)
- Gulf and Caribbean Research* (1)
- Holocene* (1)
- International Journal of Earth Sciences* (1)

*International Council of Archaeozoology* (1)  
*Journal of Archaeological Method and Theory* (1)  
*Journal of Archaeological Science* (8)  
*Journal of Archaeological Science Reports* (3)  
*Journal of Geology* (1)  
*Journal of Island and Coastal Archaeology* (3)  
*Journal of Quaternary Science* (1)  
*Limnology and Oceanography* (2)  
*Nature Communications* (4)  
*Palaios* (1)  
*Paleoceanography* (2)  
*Paleogeography, Paleoclimatology, Paleoecology* (7)  
*Proceedings of the National Academy of Sciences* (3)  
*Proceedings of the Royal Society B: Biological Sciences* (1)  
*PLOS ONE* (1)  
*Quaternary International* (2)  
*Radiocarbon* (1)  
*Rapid Communications in Mass Spectrometry* (1)  
*Scientific Reports* (1)  
*Southeastern Archaeology* (2)  
*Southeastern Naturalist* (1)

#### **SERVICE ACTIVITIES (PARTIAL LIST)**

2023-present Vice President/President Elect of the Geological Society of America Geoarchaeology Division  
 2022-present Geological Society of America Geoarchaeology Division Awards Committee  
 2021-present AGU Bridge Program Department Representative  
 2020-present Director of the Evolutionary Studies minor at the University of Alabama  
 2020-present Faculty advisor to Alabama Evolutionary Studies Club and the Sailing Club  
 2019- present Director of UA's partnership with the Cooperative Development Energy Program  
 2018-present External tenure and promotion reviewer for 5 universities  
 2015-present State of Alabama Articulation and General Studies Committee, Geology and Earth Science Committee  
 2015-present UA representative to Association of Public and Land-grant Universities' Board on Oceans, Atmosphere, and Climate  
 2005-present Member of UA Evolution Working Group and ALLELE speaker series organizer  
 2004-present Co-director of the University of Alabama Stable Isotope Laboratory  
 2004-present Served or chaired on an average of >4 departmental/university committees per year.  
 2023 Chair and organizer for 2023 Geological Society of America special session "Coastal and Island Geoarchaeology"  
 2022 Invited Direct Submission Editor for *Proceedings of the National Academy of Sciences* manuscript  
 2020-2021 Chair of the Geological Sciences Diversity Alliance  
 2012-2020 UA Dept. of Geological Sciences Academic Assessment Director  
 2015-2018 Advisory Committee for the Water Policy Summit  
 2017-2018 Guest editor for special issue of *Chemical Geology*

- 2017-2018 Alabama Science Olympiad Event Chair  
 2017 Co-chair and organizer for American Geophysical Union annual meeting session  
 2017 Discussant for special session at the Society for American Archaeology annual meeting in Vancouver, CA  
 2016 Panelist and moderator for Women in STEM Experience (WISE) Conference Professional Roundtable  
 2015-2016 4<sup>th</sup> International Sclerochronology Conference Planning Committee  
 2015 National Science Foundation P2C2 proposal review panelist  
 2013-2014 Co-chair and organize for 2014 International Goldschmidt Conference session “Trace Element and Isotope Geochemistry in Molluscs: Sclerochronology of Ancient and Modern Environmental Processes”  
 2012-2013 Co-Chair for College Committee on Active Learning  
 2012 Co-chair and organizer for GSA session “New Developments and Applications in Sclerochronology”  
 2010-2012 UA College of Arts and Sciences College Academy to Improve Student Success  
 2009-2012 Alabama Science Olympiad Event Chair  
 2009-2012 UA College of Arts and Sciences Curriculum Committee member  
 2008-2013 UA Dept. of Geological Sciences Undergraduate Program Committee Chair  
 2008 Co-chair and organizer for 2008 Geological Society of America special session “Geoarchaeological Records of Climate and Environmental Change”  
 2007 *Storm World* panel discussant with author Chris Mooney, New College, UA  
 2003 Panel discussant, Southeastern Archaeological Conference “Getting involved: specializations and subdisciplines in archaeology”

#### INVITED LECTURES

- November 27, 2023 University of Leiden, Netherlands  
 October 22, 2021 Georgia Laboratory of Archaeology, Athens GA (via internet)  
 August 18, 2021 DAAD RISE Meeting (keynote), Mainz, Germany and via internet  
 October 30, 2020 University of Memphis, Dept. of Earth Science, Memphis, TN (via internet)  
 September 13, 2018 Alabama Mineral Institute, Bryan Conference Center, Tuscaloosa, AL  
 May 24, 2018 Alabama Board of Licensure for Professional Geologists  
 7th Continuing Education Conference, Pelham, AL  
 February 5, 2018 Birmingham Paleontological Society, Hoover, AL  
 September 14, 2017 Dauphin Island Sea Laboratory, Dauphin Island, AL  
 August 13, 2017 Museum of the Aleutians, Dutch Harbor, Alaska  
 June 19, 2017 Hefei University of Technology, Hefei, China  
 June 14, 2017 Nanjing Institute of Geology Paleontology, Chinese Academy of Sciences  
 June 13, 2017 Hohai University, Nanjing, China  
 March 7, 2017 Oscher Lifelong Learning Institute, Tuscaloosa, AL  
 April 7, 2016 Society of American Archaeology, Orlando, FL  
 February 20, 2014 University of Kentucky, Department of Earth and Environmental Sciences  
 October 16, 2013 Geocycles Workshop (keynote), Guttentburg University, Mainz, Germany  
 May 21, 2013 3<sup>rd</sup> International Sclerochronology Conference (keynote) Caernarfon, Wales  
 March 21, 2013 Universidad Nacional Mayor de San Marcos, Lima, Peru  
 December 4, 2012 Birmingham Paleontological Society, Hoover Public Library, Hoover, AL  
 November 15, 2012 Mallet Assembly, Tuscaloosa, AL  
 September 20, 2012 University of Georgia, Department of Geology, Athens, GA



June 6, 2012 Oscher Lifelong Learning Institute, Tuscaloosa, AL  
 April 8, 2011 Louisiana State University, Baton Rouge, LA  
 April 6, 2011 College Academy to Improve Student Success, UA, Tuscaloosa, AL  
 January 11, 2011 Oscher Lifelong Learning Institute, Tuscaloosa, AL  
 November 15, 2010 Blount Undergraduate Initiative, Tuscaloosa, AL  
 October 6, 2010 NASA Marshall Space Flight Center, Huntsville, AL  
 October 4, 2010 Alabama Paleontological Society, Birmingham, AL  
 July 27, 2010 2<sup>nd</sup> Int. Sclerochronology Conference (keynote), Gutenberg Univ. Germany  
 March 6, 2010 University of Alabama Arts and Science Leadership Board, Tuscaloosa, AL  
 March 3, 2010 University of Montevallo, Montevallo, AL  
 June 1, 2009 Birmingham Paleontological Society, Birmingham, AL  
 March 19, 2009 University of Georgia, Department of Geology, Athens, GA  
 October 27, 2008 Mississippi State Univ., Dept. of Sociology, Anthropology and Social Work  
 March 20, 2008 Society for Mining, Metallurgy, and Exploration, Bessemer, AL  
 March 13, 2008 University of Alabama, Geography Department, Tuscaloosa, AL  
 March 6, 2008 Dauphin Island Sea Laboratory, Dauphin Island, AL  
 November 8, 2007 University of Alabama, Alabama Perspectives on Sustainability and Climate Change. Panel discussion of Chris Mooney's *Storm World*, Tuscaloosa, AL  
 October 25, 2007 Willamette University, Archaeological Institute of America, Willamette, OR  
 July 11, 2007 Past Global Changes (PAGES) Workshop, McMaster University, Ontario  
 April 13, 2007 University of Arizona, IGERT lecture, Tucson, AZ  
 March 19, 2007 University of Maine, Climate Change Institute, Orono, ME  
 March 3, 2007 Univ. of West Florida, Depts. of Environmental Studies and Anthropology  
 March 24, 2004 University of Alabama, Department of Geological Sciences, Tuscaloosa, AL  
 March 3, 2004 University of South Carolina, Department of Anthropology, Columbia, SC  
 November 13, 2003 Southeastern Archaeology Conference, Charlotte, NC  
 October 10, 2003 University of South Carolina, Marine Science Program, Columbia, SC  
 February 13-14, 2003 University of Iowa, Department of Geosciences, Iowa City, IA  
 October 16, 2002 Robust Redhorse Conservation Committee, Edgefield, SC  
 February 7, 2002 University of Kentucky, Department of Geosciences, Lexington, KY  
 February 25, 2000 University of South Carolina, Department of Geology, Columbia, SC  
 November 12, 1998 Center for Latin American and Caribbean Studies, Athens, GA

#### **HONORS AND AWARDS**

2023 Named Fellow of the Geological Society of America  
 2021 Keynote speaker at the DAAD RISE Scholars meeting, Heidelberg, Germany  
 2021 German Academic Exchange Network (DAAD) Scholarship for University Academics and Scientists  
 2021 U. of Alabama Arts and Sciences Outstanding Commitment to Students Award  
 2013 Keynote speaker to the Geocycles Workshop, Mainz, Germany  
 2013 Keynote speaker to the 3<sup>rd</sup> International Sclerochronology Conference  
 2009-2012 University of Alabama Leadership Board Faculty Fellow  
 2009 Keynote speaker to the 2<sup>nd</sup> International Sclerochronology Conference  
 2007 Inducted to Sigma Xi  
 1999 & 2000 Nominated for Excellence in Teaching Award, UGA  
 1999 American Geophysical Union Student Travel Award

1998-1999 Outstanding Graduate Teaching Award, UGA  
 1998-1999 Teaching Assistant of the Year, Department of Geology, UGA  
 1998 Geological Society of America Student Travel Award  
 1997 Gilles Allard Award for Field Geology, Department of Geology, UGA  
 1996 Sigma Gamma Epsilon National Honor Society in the Earth Sciences  
 1995-1996 Eugene Levy Marine Geology Award, Department of Geology, UGA

**COURSES TAUGHT**

The Dynamic Earth (Introduction to Geology)	Advanced Topics in Paleoclimatology
The Earth through Time (Historical Geology)	Paleo Seminar
Paleoclimatology	Quaternary Climate and Environments
Climate Change	Evolution for Everyone
Sclerochronology	Stable Isotope Analysis
Communicating Geology	Late Quaternary Sea-level Curves

**PROFESSIONAL AFFILIATIONS**

American Geophysical Union  
 Geological Society of America  
 Society for American Archaeology

**STUDENTS/POSTDOCTORAL SCIENTISTS ADVISED**

Christine Bassett	M.S. 2016, Ph.D 2016-present
Heather Black	McNair Scholar 2011, M.S. 2014
Robin M. Cobb	McNair Scholar 2009, M.S. 2014
Miguel F. Etayo-Cadavid	M.S. 2009, Ph.D. 2010
Oindrila Das	Post-doc 6/2013 - 12/2014
Gözde Degirman (co-advised with T. Tobin)	M.S. 2022
Teresa Dominguez	M.S. 2023 - present
Jamekia Durrough-Pritchard	M.S. 2018 - present
Jestina A. Hansen	M.S. 2011
Christie A. Jones	M.S. 2010
Kathleen Kingly (co-advised with J. Lambert)	M.S. 2016
Sarah Olmstead	M.S. 2023
Taylor Payne	M.S. 2016
Melissa R. Price (co-advised with C. Hofman at Leiden)	Ph.D. 2023
Bailey Sanders	McNair Scholar 2010
Hillary Sletten	Ph.D. 2016
Sandi Smart	Post-doc 9/26/2022 - present
Jeixin Wei	M.S. 2014

Served as graduate committee member to 53 students at UA in Geological Sciences, Biological Sciences (3), Anthropology (6), and Music (3), and external member at the University of Georgia (3), University of South Alabama (1), Louisiana State University (2) McMaster University (1), and the University of Leiden (1)