

Ethan A. Goddard
Scientific Researcher
College of Marine Science
University of South Florida
St. Petersburg campus

140 7th Ave S, St Petersburg, FL 33701
Tel: 727-553-1016
Fax: 727-553-1189
email: egoddard@usf.edu
web: usf.edu/marine-science

PROFESSIONAL EXPERIENCE

2002 - present Scientific Researcher. Stable Isotope Biogeochemistry Lab (2002-2016); Marine Environmental Chemistry Analytical Lab (2016-present); Tampa Bay Plasma Facility (2016-present). College of Marine Science, The University of South Florida, St. Petersburg, Florida.

Management of multiple core analytical facilities specializing in Stable Isotope and Molecular Biogeochemistry, Molecular Chromatography Mass-Spectrometry, and Plasma Mass Spectrometry. Combined facilities: ~5000 sf; ~ \$3M USD instrumentation; ~\$150K per annum expenditures.

Operational Oversight (acquisition, installation, operation, maintenance, repair, scheduling, QA/QC) for multiple laboratories housing a variety of instrumentation: *Please see TECHNICAL ADDENDUM (attached) for full list of instrumentation competencies.*

Management of laboratory operations (personnel, instrumentation, purchasing, and computing)

- Method development and implementation.
- Project management
- Data QA/QC, archiving, IT system management/maintenance
- User instruction (visiting faculty, post-docs, graduate and undergraduate students)
- Lab budgeting, purchasing, accounting
- Personnel hiring
- Fieldwork coordination, collection, archiving
- Coordination with Instrument Manufacturers and Service/Support Organizations

2002- present Adjunct Instructor, St. Petersburg College, St. Peterburg, FL

Courses Taught: The History of Earth and Life; Introduction to Oceanography; Introduction to Earth Science

1997-2002 Research Scientist, Laboratory for Geochemical Oceanography, Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA.

Instrument installation, operation and maintenance:
(see attached technical addendum for specific instrumentation)

Management of laboratory operations (personnel, instrumentation, purchasing, and computing)

- Method development (*ICP-OES high-precision Sr/Ca – see Schrag, D.P. Rapid determination of high-precision Sr/Ca ratios in corals and other marine carbonates. Paleoceanography, 14 (2), 97-102, 1999.*)
- Project management
- Data QA/QC, archiving
- Computer systems maintenance
- User instruction (visiting faculty, post-docs, graduate and undergraduate students)
- Lab budgeting, purchasing
- Personnel hiring
- Field collection

1997 Research Assistant. Stable Isotope Laboratory, Department of Geology. The University of Georgia, Athens, GA.

- Assisted lab director with sample preparation, extraction and stable isotope analyses on a variety of geologic materials. Experience with Finnegan Delta E and MAT 252 SIRMS systems and general vacuum line techniques. Solely responsible for installation and operation of the departmental Dionex LC system.

1995-1997 Analytical Technician. The Chemical Analysis Laboratory, Department of Research Services. The University of Georgia, Athens, GA.

- Performed digestions, extractions, and ICP-OES, GC and CHN analyses on soil, water, and plant tissue samples in accordance with EPA certified and published methods. Updated, maintained, and repaired the lab computer systems (Mac and PC).

EDUCATION

M.S. Geology, 1998, The University of Georgia, Athens, GA.

- Emphasis in geochemistry and hydrogeology
- Additional coursework in geophysics, soil physics, geo-statistics and oceanography.
- Masters thesis: "Late Pleistocene to Holocene global paleotemperature and paleoecology variations based on oxygen and carbon stable isotope analyses of two cave stalagmites, Tennessee, U.S.A. and Kuruman, South Africa".

B.S. 1993, Geology, The College of William & Mary, Williamsburg, VA.

- Major in Geology, minor in Religion.
- Thesis work in coastal plain hydrogeology and geochemistry.

AWARDS AND HONORS

2009 Outstanding Staff Award – The University of South Florida. The USF OSA is the highest annual staff honor awarded by USF, typically to academic support staff. I was the first exception to this rule as the first "research staff" awardee in College of Marine Science history.

2013 ARCS Foundation STEM Collaborative Partnership Award in recognition of work related to Gulf of Mexico Deepwater Horizon Oil Spill.

PUBLICATIONS AND PRESENTATIONS

2020 Leonard, J., Mitchell, J., Binary, R., Delaney, J., Sanders, J., Ellis, G., Goddard, E. Scott, K. Co-occurring activity of two autotrophic pathways in symbionts of hydrothermal vent tubeworm *Riftia pachyptila*. *Environmental Microbiology*. Submitted May 2020

2018 Schwing, P.T., Chanton, J.P., Romero, I.C., Hollander, D.J., Goddard, E.A., Brooks, G.A., Larson, R.A, Tracing the incorporation of carbon into benthic foraminiferal calcite following the Deepwater Horizon event, *Environmental Pollution*, Volume 237, June 2018, <https://doi.org/10.1016/j.envpol.2018.02.066>.

2016 Schwing, P. T., Romero, I. C., Larson, R. A., O'Malley, B. J., Fridrik, E. E., Goddard, E. A., et al. Sediment Core Extrusion Method at Millimeter Resolution Using a Calibrated, Threaded-rod. *J. Vis. Exp.* (114), e54363, doi:10.3791/54363 (2016).

Romero, I. C.; Patterson, W.; Sutton, Tracey; Quintana-Rizzo, E.; Ross, S.; Kane, A.; Murawski, S.; Goddard, E.; Torres, Joseph J.; and Hollander, D., "A Time-Series Assessment of Polycyclic Aromatic Hydrocarbons in Fish Communities Before and After the DWH Event" (2016). Gulf of Mexico Oil Spill & Ecosystem Science Conference, Tampa, FL, February 1-4, 2016

2015 Tzadik OE, Goddard EA, Hollander DJ, Koenig CC, Stallings CD. (2015) Non-lethal approach identifies variability of $\delta^{15}\text{N}$ values in the fin rays of Atlantic Goliath Grouper, *Epinephelus itajara*. *PeerJ* 3:e1010 <https://dx.doi.org/10.7717/peerj.1010>

Romero IC, Schwing PT, Brooks GR, Larson RA, Hastings DW, Ellis G, et al. (2015) Hydrocarbons in Deep-Sea Sediments following the 2010 Deepwater Horizon Blowout in the Northeast Gulf of Mexico. *PLoS ONE* 10(5): e0128371. doi:10.1371/journal.pone.0128371

Quintana-Rizzo, E , Torres, J.J. , Ross, S.W. , Romero, I.C. , Watson, K.M. , Goddard, E.A., and Hollander, D.J.. $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in deep-living fishes and shrimps after the Deepwater Horizon oil spill, Gulf of Mexico. *Marine Pollution Bulletin*. In Press.

Glabach, M.A., Schwing, P.T., Goddard, E.A., Hollander D.J., Machain-Castillo, M.L., Sánchez-Cabeza, J.A., Gracia, A., Ruiz, C.. Impacts from the Deepwater Horizon spill on deep-sea ecosystems: detection, causes, and effects on the benthos. Gulf of Mexico Oil Spill & Ecosystem Science Conference, Feb. 2014.

2014 Romero, I., D.J. Hollander, W. Patterson, S. W. Ross, A. S. Kane, S. Murawski, E. Quintana-Rizzo, E.B. Peebles, E.A. Goddard, J. J. Torres. Polycyclic aromatic hydrocarbons in fish: 2 years after the DWH oil spill. Gulf of Mexico Oil Spill & Ecosystem Science Conference, Jan. 2013.

2013 Romero, I., D.J. Hollander, W. Patterson, S. W. Ross, A. S. Kane, S. Murawski, E. Quintana-Rizzo, E.B. Peebles, E.A. Goddard, J. J. Torres. Spatio-Temporal Concentrations

And Composition Of Polycyclic Aromatic Hydrocarbons In Fish: Evidence For DWH Oil Spill Impact On Mesopelagic And Outer Shelf-Reef Fish In The Gulf Of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference, Jan. 2013.

Romero, I., D.J. Hollander, G.R. Brooks, W. Patterson, S.W. Ross, J.J. Torres, A.S. Kane, S. Murawski, P. Schwing, E. Quintana-Rizzo, R.A. Larson, E.A. Goddard, N. Zenzola,. Deposition and persistence of polycyclic aromatic hydrocarbons from the first DEEPWATER oil spill: from deep- sea sediments to fish communities (Gulf of Mexico, USA). *IMOG (International Meeting of Organic Geochemists)*. Sept. 2013

Romero, I.C., Hollander, D.J., Brooks, G.R., Schwing, P., Larson, R.A., Goddard, E.A., Zenzola, N. (2013) Event Stratigraphy of the Deepwater Horizon Blowout and its Record in the Deep-Sea: A Sedimentological and Geochemical Perspective. Gulf of Mexico Oil Spill and Ecosystem Science Conference

Romero, I.C., Hollander, D.J., Patterson, W., Ross, S.W., Kane A.S., Murawski, S., Quintana-Rizzo, E., Peebles, E.B., Goddard, E.A., Torres, J.J. (2013) Spatio-temporal Concentrations and Composition of Polycyclic Aromatic Hydrocarbons in Fish: Evidence for DWH Oil Spill Impact on Mesopelagic and Outer Continental Shelf Ecosystems. Gulf of Mexico Oil Spill and Ecosystem Science Conference

- 2012 Sinclair, D. J., Banner, J. L., Taylor, F. W., Partin, J., Jenson, J., Mylroie, J., Goddard, E., Quinn, T., Jocson, J., Miklavic, B., 2012, Magnesium and strontium systematics in tropical speleothems from the Western Pacific. *Chemical Geology*, Volumes 294–295, 10.1016/j.chemgeo.2011.10.008.
- 2011 Brown, E.A., Flower, B.P., Williams, C., and Goddard, E. (2011). Early Deglacial Laurentide Ice Sheet Meltwater Dynamics Explored from the Northern Gulf of Mexico. AGU, Fall Meeting, Session PP13. Poster Presentation.
- Lai, L., O. Fonzo, R.H. Tykot, E. Goddard, D. Hollander. 2011. Le due comunità di Scaba 'e Arriu (Siddi). Risorse alimentari nella Sardegna del III millennio a.C. indagate tramite analisi isotopiche di tessuti ossei. Studio antropologico dei reperti umani. In *Atti della XLIII Riunione Scientifica IIPP. L'età del Rame in Italia*. Bologna, 26-29 novembre 2008, pp. 401-408. Firenze: Istituto Italiano di Preistoria e Protostoria. PDF Full-text
- 2010 Williams, C., B. P. Flower, D. W. Hastings, T. P. Guilderson, K. A. Quinn, and E. A. Goddard (2010), Deglacial abrupt climate change in the Atlantic Warm Pool: A Gulf of Mexico perspective, *Paleoceanography*, 25, PA4221
- Brook, George A., Scott, Louis, Railsback, L. Bruce, and Goddard, Ethan A., (2010). A 35 ka pollen and isotope record of environmental change along the southern margin of the Kalahari from a stalagmite and animal dung deposits in Wonderwerk Cave, South Africa: *Journal of Arid Environments*, v. 74, p. 870-884. *M.S. Thesis
- Williams, C., Flower, B.P. Hastings, D.W., Guilderson, T.P., Goddard, E.A., Shiller, A.M. (2010), Meltwater routing and enhanced seasonality during the Younger Dryas and Mystery Interval based on Gulf of Mexico sediments., *International Conference for Paleoceanography*. Poster Presentation

Williams, C., Flower, B.P., Hastings, D.W., Shiller, A.M., Goddard, E.A. and Lea, D. (2010), A Multi-Proxy Approach to Deglacial Paleo-Salinity Reconstructions based on Gulf of Mexico Sediments, American Geophysical Union Fall Meeting. Poster presentation.

2008

Whitmore, T.J., M.A. Riedinger-Whitmore, J.M. Smoak, K.V. Kolasa, E.A. Goddard and R. Bindler (2008). Arsenic contamination of lake sediments in Florida: evidence of herbicide mobility from watershed soils. *Journal of Paleolimnology*. DOI 10.1007/s10933-008-9204-8

Greaves, M., Caillon, N., Rebaubier, H., Bartoli, G., Bohaty, S., Cacho, I., Clarke, L., Cooper, M., Daunt, C., Delaney, M., deMenocal, P., Dutton, A., Eggins, S., Elderfield, H., Garbe-Schönberg, C.-Dieter, Goddard, E., Green, D., Groeneveld, J., Hastings, D., Hathorne, E., Kimoto, N., Klinkhammer, G., Labeyrie, L., Lea, D. W., Marchitto, T., Martínez-Botí, M. A., Mortyn, P. G., Ni, Y., Nürnberg, Dirk, Paradis, G., Pena, L., Quinn, T., Rosenthal, Y., Russell, A., Sagawa, T., Sosdian, S., Stott, L., Tachikawa, K., Tappa, E., Thunell, R. and Wilson, P. A. (2008) Interlaboratory comparison study of calibration standards for foraminiferal Mg/Ca thermometry. *Geochemistry Geophysics Geosystems*, 9 (8). DOI 10.1029/2008GC001974.

L. Lai, R.H. Tykot, E. Goddard, D. Hollander, J.F. Beckett, R. Floris, O. Fonzo, E. Usai, M.R. Manunza . Understanding the Interplay of Climate Change and People's Agency in the Past: the Perspective of Isotopic Analyses on Prehistoric Sardinia. 37th International Symposium on Archaeometry, Siena, Italy.

L. Lai, O. Fonzo, R. Tykot, E. Goddard & D. Hollander . Le ossa raccontano: il tempo, il cibo e la società della comunità preistorica sepolta a Scaba 'e Arriu., Scaba 'e Arriu di Siddi: una finestra sulla vita e società di una comunità preistorica, organized by the Comune di Siddi and the Cultural Society Itzokor (Cagliari), Siddi, Italy.

L. Lai, R.H. Tykot, J.F. Beckett, R. Floris, E. Usai, O. Fonzo, E. Goddard & D.H. Hollander . A Biochemical Perspective on Diet in Sardinian Prehistory. 109th Annual Meeting of the Archaeological Institute of America, Chicago, IL

Lai, L., O. Fonzo, R.H. Tykot, E. Goddard, D. Hollander. 2011. Le due comunità di Scaba 'e Arriu (Siddi). Risorse alimentari nella Sardegna del III millennio a.C. indagate tramite analisi isotopiche di tessuti ossei. Studio antropologico dei reperti umani. In *Atti della XLIII Riunione Scientifica IIPP. L'età del Rame in Italia*. Bologna, 26-29 novembre 2008, pp. 401-408. Firenze: Istituto Italiano di Preistoria e Protostoria. PDF Full-text

2007

L. Lai, R.H. Tykot, J.F. Beckett, R. Floris, O. Fonzo, E. Usai, M.R. Manunza, E. Goddard & D. Hollander. Interpreting Stable Isotopic Analyses: Case Studies on Sardinian Prehistory in M.D. Glascock, R.J. Speakman & R.S. Popelka-Filcoff (eds.), *Archaeological Chemistry: Analytical Techniques and Archaeological Interpretation*. ACS Symposium Series 968: 114-136. Washington, DC: American Chemical Society.

L. Lai, R.H. Tykot, J.F. Beckett, R. Floris, L. Alba, R. Forresu, E. Goddard & D.J. Hollander. "Nutrizione ed economia nella Sardegna del Sudovest tra il neolitico recente e il medioevo: primi dati isotopici", XVII Congresso dell'Associazione Antropologica Italiana, Cagliari, Italy,

L. Lai, R.H. Tykot, J.F. Beckett, O. Fonzo, E. Usai, M.R. Manunza, E. Goddard & D. Hollander. "Diet and Society in Early Bronze Age Sardinia: An Isotopic Portrait of Two

Communities", 108th Annual Meeting of the Archaeological Institute of America, San Diego, CA

- 2001 Guilderson, T.P., D.P. Schrag, E.A. Goddard, M. Kashgarian, G.M. Wellington, and B.K. Linsley (2001). Southwest subtropical Pacific surface water radiocarbon in a high-resolution coral record, *Radiocarbon*, v.42, p. 249-256.
- 1996 Railsback, L.B., E.A. Goddard, *et. al.* (1996). A survey of the major-element geochemistry of Georgia groundwater, *Southeastern Geology*, v.36, p. 99-121.

SERVICE

- 2014-2016 CMS Dean's Advisory Committee
2012/13 CMS Marine Chemist Faculty Search Committee
2010- CMS Safety Committee
2011 CMS Paleoceanographer Faculty Search Committee
2010 CMS Fisheries/MRA Faculty Search Committee
2009-2011 CMS Dean's Advisory Committee

SYNERGISTIC ACTIVITIES

Novel method development of analytical techniques in paleoceanography. See Schrag, D.P. Rapid determination of high-precision Sr/Ca ratios in corals and other marine carbonates. *Paleoceanography*, 14 (2), 97-102, 1999.

COLLABORATORS AND OTHER AFFILIATIONS

Collaborators: S. Ceriani (UCF), A. Corcoran (FL-FWC-FWRI), D. Jones (USF), B. Flower (USF), P. Harries (USF), D. Hastings (Eckerd), G. Herbert (USF), C. Heil (FL-FWC-FWRI), D. Hollander (USF), L. Lai (Cambridge), E. Peebles (USF), T. Quinn (UTexas), H. Rashid (Ohio St. Univ.), J. Richey (USGS), K. Scott (USF), A. Shevenell (USF), D. Sinclair (Rutgers), C. Stallings (USF), R. Tykot (USF), P. Van Beynen (USF), T. Whitmore (USF),

Graduate Advisors: George A. Brook (UGA, M.S.), L. Bruce Railsback (UGA, M.S.)

Updated: 2020-10-15

Ethan A. Goddard
130 20th Ave NE
St. Petersburg, FL 33704
(727) 641-1772 (m)
ethan.a.goddard@gmail.com

Addendum to CV – Technical Specifics

I have broad and deep experience in the installation, operation and repair of the following analytical instrumentation. I am, or was (as noted ^{1,2}), the primary analyst and supervisor of the following instrumentation:

Isotope Ratio Mass Spectrometry (IRMS)

Thermo Electron DeltaV+, Trace 1310 GC, Isolink-II (compound-specific $\delta^{15}\text{N}$, $\delta^{13}\text{C}$, $\delta^{34}\text{S}$)

Thermo Electron MAT253, GasBench-II (carbonate $\delta^{13}\text{C}$, $\delta^{18}\text{O}$)

Thermo Electron Delta+XL, Kiel Carbonate-III device (carbonate $\delta^{13}\text{C}$, $\delta^{18}\text{O}$)

Thermo Electron Delta+XL, Carlo-Erab 2500 EA, TC/EA, GC-III and GasBench II (bulk and compound-specific $\delta^{15}\text{N}$, $\delta^{13}\text{C}$, $\delta^{18}\text{O}$, $\delta^2\text{H}$)

¹Fisons Optima, Fairbanks carbonate device (carbonate $\delta^{13}\text{C}$, $\delta^{18}\text{O}$)

¹Micromass Prism, H/Device (water, mineral $\delta^2\text{H}$)

Gas Chromatograph Mass Spectrometry (GC-MS/MS)

Agilent 7010 MS/MS, 7890GC

Varian 310-MS/MS, 3800-GC (decommissioned 2018)

Liquid Chromatograph Mass Spectrometry (LC-MS/MS)

Varian 320-MS/MS, ProStar HPLC (decommissioned 2018)

Agilent 6470 MS/MS, 1200 Series UHPLC (installation Jan 2019)

High Performance Liquid Chromatography (HPLC)

Agilent 1200 series HPLC (VWD, DAD, FLD, Fraction Collection)

Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

Thermo Electron Neptune Multi-Collector MC-ICP-MS (high-precision isotope analysis)

Thermo Electron Element XR HR-ICP-MS (high-resolution elemental analysis)

Agilent 7500cx ICP-MS (trace element analysis)

Photon Machines Analyte.193 excimer laser ablation solid sampling system

¹Micromass IsoProbe Multi-Collector MC-ICP-MS (high-precision isotope analysis)

Inductively Coupled Plasma Optical Spectrometry

²Perkin-Elmer Optima 4300 DV ICP-OES (trace element analysis)

¹Jobin-Yvon 46P ICP-OES

¹Operation and maintenance @ Harvard Univ. 1998-2002

²Operation and maintenance @ USF 2002-2008