

# DAVID K. WEINSTEIN, Ph.D.

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**RESEARCH INTERESTS** Coral reef and coastal sedimentology, mesophotic coral reefs, bioerosion, sedimentation, structural sustainability of coral reefs, carbonate shelf accretion, ecology and evolution of coral reefs, geomorphology, sea-level change, coastal erosion modeling and assessment, paleo-hurricane and storm deposition

## EDUCATION

**University of Miami**, Rosenstiel School of Marine and Atmospheric Science, Miami, FL  
Ph.D., Marine Geology and Geophysics, James Klaus (Adviser), GPA 3.8

Aug. 2008 – Dec. 2014

- Dissertation: *Deep reef bioerosion and deposition: Sedimentology of mesophotic coral reefs in the U.S. Virgin Islands*
- UM Fellowship (Graduate award)
- Teachers Assistant (TA): Four courses and labs
- Mentoring: 4 high school students, 10 undergraduates (2 senior thesis)
- Marine Science Graduate Student Organization (MSGSO) – Division Representative

**University of Maryland**, College Park, MD

June 2003 – Aug. 2007

B.S., Geology, Alan Jay Kaufman (Adviser), UMD major GPA 4.0, overall GPA 3.8

- Thesis: *Taphonomy of the Late Pleistocene Key Largo Limestone: A comparison of modern and ancient coral reef ecosystems*  
Awarded the J. R. Dorfman Prize for Outstanding Undergraduate Research
- Senior Marshal for 2007 Winter commencement
- Boise State University Geology field camp in Sardinia, Italy (summer 2007)
- University of Maryland Geology Club – President and Co-founder

**University of Rochester**, Rochester, NY

Sept. 2000 – May 2002

Institute of Optics, GPA 3.9

- Rush Rhees Scholar, Maryland Unique Majors Scholarship

## RESEARCH EXPERIENCE

**Interuniversity Institute for Marine Sciences, Zuckerman Post-doctoral Scholar**, Eilat, Israel

Sept. 2017 – Present

- Supervisor: Dr. Adi Torfstein
- Determine origin and geological history of Gulf of Aqaba (GOA) mesophotic reef terraces
- Interpret GOA bathymetry with ArcGIS to produce and interpret regional mesophotic benthic and geomorphology maps
- Technical diving to collect and analyze coral and rubble for growth and accretion experiments
- Give guest lectures on coral geology and mesophotic reefs for multiple institute courses

**University of the Ryukyus, JSPS Post-doctoral Fellow**, Okinawa, Japan

Mar. 2015 – Mar. 2016

- Supervisor: Dr. James Reimer, Molecular Invertebrate Systematics and Ecology Laboratory
- Analyzed shallow and mesophotic reef coral recovery after major typhoon damage
- Designed and implemented new mesophotic reef sedimentology research program including coral growth rate analysis and secondary carbonate accretion
- Conducted benthic surveys to identify the distribution of a newly discovered octocorallia
- Mapped new mesophotic reefs and analyzed benthos and local fauna with VideoRay ROV

**Rosenstiel School of Marine and Atmospheric Science, Research Assistant**, Miami, FL

June 2008 – Sept. 2008 &  
May 2006 – Aug. 2006

- Conducted carbonate reef comparative sedimentology research for Dr. Robert Ginsburg
- Used ArcGIS and nautical charts to identify and map spatial distribution of potential Caribbean mesophotic coral habitats and calculate potential areal coverage
- Participated in Bahamas research cruise to study sub-marine hardground development
- Conducted field work in northern Dominican Republic, studying facies progressions of Plio-Pleistocene fossil reef terraces

- Mapped out and analyzed the spatial distribution of sedimentary facies and laminations in previously collected Bahamian stromatolites (cyanobacteria-produced calcareous mounds)

**Isotope Geochemistry Laboratory, *Laboratory Assistant*, College Park, MD**

Oct. 2007 – June 2008 &  
Jan. 2006 – Mar. 2006

- Prepared sedimentary rock samples for petrographic and isotopic analysis
- Isolated carbonates and sulfides for isotopic analysis using continuous flow and dual inlet gas source mass spectrometric techniques
- Conducted chemical extraction of sulfates and sulfides to prepare silver sulfide for fluorination and isotopic analysis for study of Archean mass-independent sulfur

**Maryland Geology Department, *Field Assistant*, Great Falls, MD & VA**

Jan. 2006

- Measured joint, foliation, and mineral orientations of the Potomac River Mather Gorge

**Laboratory of Physical Science, *Research Assistant*, College Park, MD**

Aug. 2003 – July 2004

- Created and analyzed polymer waveguides for optical circuitry with senior optics team
- Experimented with single and array fiber alignments and optical packaging
- Authored user manual and trained senior staff in use of auto-aligner machine

## **TEACHING EXPERIENCE**

**Montgomery County Public Schools, *Substitute Teacher*, Rockville, MD**

Oct. 2016 – June 2017

- Taught and supervised high school and middle school students in math and science courses
- Enforced administration policies and rules governing students
- Discussed assigned duties with classroom teachers to coordinate instructional efforts

**University of Miami, *Teaching Assistant (TA) and Mentor*, Miami, FL**

Aug. 2008 – Dec. 2014

- Teaching Assistant (TA) for the following courses:
  - Evolution of the modern Earth's environment
  - Paleontology and stratigraphy
  - Natural disasters - Hollywood vs. reality
  - Historical geology
- Taught laboratory sections and course lectures, provided test preparation and office hours, graded course work (projects, tests, lab reports, homework), and helped with field trips

**Prep Tutors, *Tutor*, Washington, D.C.**

Sept. 2004 – June 2008

- Instructed high school students in math, SAT math techniques, and general study skills

## **RESEARCH GRANT AWARDS AND FELLOWSHIPS**

- *Zuckerman STEM Leadership Program* Postdoctoral Scholarship: \$50,000 per year (salary and research) - 2017
- *Interuniversity Institute for Marine Sciences in Eilat, Israel IUI* Postdoctoral Fellowship (declined) - 2017
- *Japan Society for the Promotion of Science (JSPS)* Postdoctoral Fellowship: ¥4,910,077 (salary and research) - 2015
- *Paleontology Society* Travel Grant (for GSA SE sectional meeting): \$425 - 2013
- *Rosenstiel School of Marine and Atmospheric Science (RSMAS)* Graduate Career Development Fund: \$750 - 2013
- *Geological Society of America (GSA)* SE Section Student Travel Grant: \$300 - 2013
- *GCSSEPM Ed Picou* Fellowship Grant for Graduate Studies in Earth Science: \$1,000 - 2012
- *Rosenstiel School of Marine and Atmospheric Science (RSMAS)* Graduate Student Fund (twice): \$2,000 (each) - 2012
- *Center for Latin American Studies (University of Miami)* Graduate Field Research Grant: \$1,000 - 2012
- *Sigma Xi* Grant in aid of research (GIAR): \$1,000 and \$800 - 2010 and 2011
- *Abess/Citizens Board (University of Miami)* Environmental travel grant: \$750 - 2011
- *National Science Foundation (NSF)* Graduate Research Fellowship: \$102,121 (3 year salary and research) - 2010
- *Exxon Mobil* Research Grant: \$5,000 - 2010
- *Geological Society of America (GSA)* Graduate Research Grant (Outstanding Mention Award): \$4,000 - 2010
- *American Underwater Arts and Sciences* Zale Parry Scholarship: \$2,500 - 2010
- *Southeastern Section of the Geological Society of America* Research Grant: \$625 - 2009
- *International Association of Sedimentologists* 1<sup>st</sup> Session Grant Scheme: €1,000 – 2009

## **PUBLICATIONS**

(Google scholar: <https://scholar.google.co.il/citations?user=NXDG6-QAAAAJ&hl=en>)

(Researchgate: [https://www.researchgate.net/profile/David\\_Weinstein2](https://www.researchgate.net/profile/David_Weinstein2))

**Weinstein, D.K.**, Maher, B., Correa, A.M.C., (in press), Bioerosion. In: Loya, Y., Puglise, K.A., Bridge, T. (eds). Mesophotic Coral Ecosystems of the World, Springer.

Sherman, C. E., Locker, S.D., Webster, J.M., **Weinstein, D.K.**, (in review), Geology and Geomorphology of Mesophotic Coral Ecosystems. In: Loya, Y., Puglise, K.A., Bridge, T. (eds). Mesophotic Coral Ecosystems of the World, Spinger.

Tuner, J.A., Andradi-Brown, D.A, Gori, A., Bongaerts, P., Burdett, H.L, Ferrier-Pagès. C., Voolstra, C.R., **Weinstein, D.K.**, Bridge, T., Costantini, F., Gress, E., Laverick, J., Loya, Y., Goodbody-Gringley, G., Rossi, S., Taylor, M.L., Viladrich, N., Voss, J., Williams, J., Woodall, L.C., Eyal, G., (in review), Twenty-Four Key Questions for Mesophotic Ecosystem Research and Conservation. In: Loya, Y., Puglise, K.A., Bridge, T. (eds). Mesophotic Coral Ecosystems of the World, Spinger.

White, K.N., \* **Weinstein, D.K.**, \* Ohara, T., Denis, V., Montenegro, J., Reimer, J.D., 2017, Shifting communities after typhoon damage on an upper mesophotic reef in Okinawa, Japan, *PeerJ*. 5:e3573; DOI 10.7717/peerj.3573.

\*denotes equal authorship

**Weinstein, D.K.**, Sharifi, A., Klaus, J.S., Smith, T.B., Giri, S.J., Helmle, K.P., 2016, Coral growth, bioerosion, and secondary accretion of living orbicellid corals from mesophotic reefs in the US Virgin Islands, *Marine Ecology Progress Series*, 559: 45–63.

Miyazaki, Y., Alves, M.E., Hunihiro, S., **Weinstein, D.K.**, Reimer, J.R., 2016, Rarity of *Nanipora kamurai* (Anthozoa: Octocorallia: Helioporacea) at its type locality, *Marine Biodiversity*, 1-5.

Smith, T.B., Ennis, R. S., Kadison, E., **Weinstein, D.K.**, Jossart, J., Gyory, J., Henderson, L., 2015, The United States Virgin Islands Territorial Coral Reef Monitoring Program. Year 15 Annual Report. Version 1. 288 pp.

**Weinstein, D.K.**, Klaus, J.S., McNeill, D.F., 2015, Syndepositional cementation in the reef ‘Twilight Zone,’ *Reef Encounters*, 30(2): 53-56.

**Weinstein, D.K.**, Klaus, J.S., Smith, T.B., 2015, Habitat heterogeneity reflected in mesophotic reef sediments, *Sedimentary Geology*, 329: 177-187.

**Weinstein, D.K.**, Smith, T.B., Klaus, J.S., 2014, Mesophotic bioerosion: Structural impact and changes with depth on U.S. Virgin Island deep reefs, *Geomorphology*: 222, 14-24.

**Weinstein, D.K.**, 2014, Deep reef bioerosion and deposition: Sedimentology of mesophotic coral reefs in the U.S. Virgin Islands, Open access dissertations. Paper 1347, [http://scholarlyrepository.miami.edu/oa\\_dissertations/1347](http://scholarlyrepository.miami.edu/oa_dissertations/1347).

## **PRESENTATIONS AND POSTERS**

**Weinstein, D.K.**, Klaus, J.S., Smith, T.B., 2016, Past, present, and future mesophotic reef shelf accretion potential: A carbonate budget approach, 13<sup>th</sup> International Coral Reef Symposium, Honolulu, HI, June 19-24.

Mizuyama, M., Ohara, T., **Weinstein, D.K.**, Fujii, T., McClelland, T., Montenegro, J., Shikiba, H., Asami, R., Yang, S.Y., Kawamura, I., Reimer, J.D., 2015, Research on the mesophotic coral reef ecosystems of the west coast of Okinawa Island, Okinawa Biological Conference, Naha, Okinawa, May 30.

**Weinstein, D.K.**, Klaus, J.S., Smith, T.B., 2014, Carbonate budgets of structurally distinct mesophotic reefs, Ocean Sciences Meeting, Honolulu, HI, Feb. 23-28.

**Weinstein, D.K.**, Klaus, J.S., Smith, T.B., Helmle, K.P., Marshall, D., 2013, Balance of constructive and destructive carbonate processes on mesophotic coral reefs, AGU Fall Meeting, San Francisco, CA, Dec. 9-13.

- Weinstein, D.K.**, Klaus, J.S., Smith, T.B., Reid, R.P. Kiene, W.E., 2013, Deeper reef bioerosion: Variability and implications of mesophotic reef modification in the U. S. Virgin Islands, Southeastern Section Geological Society of America 62nd Annual Meeting, San Juan, Puerto Rico, March 20-21.
- Ginsburg, R.N., Harrison, A., **Weinstein, D.K.**, Smith, T.B., 2012, Potential extent of mesophotic coral ecosystems across tropical North America, AGU Fall Meeting, San Francisco, CA, Dec. 3-7.
- Jones, M.G., **Weinstein, D.K.**, Klaus, J.S., Smith, T.B., 2012, Mesophotic bioaccretion: Variability in deep reef ecosystems, Undergraduate Research Creativity and Innovation Forum, University of Miami, Miami, FL.
- Kaiser, C.D., **Weinstein, D.K.**, Klaus, J.S., 2012, Sediments of mesophotic coral reefs, Undergraduate Research Creativity and Innovation Forum, University of Miami, Miami, FL.
- Weinstein, D.K.**, Klaus, J.S., Smith, T.B., Reid, R.P. Kiene, W.E., 2011, Impact of bioerosion on structure of mesophotic coral reefs, 21st annual conference for the Society of Environmental Journalists, Miami, FL, Oct. 19-23.
- Weinstein, D.K.**, Smith, T.B., Klaus, J.S., Reid, R.P. Kiene, W.E., 2011, Macroboring in the 'Twilight Zone': Spatial variability of biological alteration in mesophotic reefs, Abstract, 7th Inter. Bioerosion Workshop, Horta, Faial Island, Azores, Sept. 18-23.
- Weinstein, D.K.**, Klaus, J.S., Smith, T.B., Kiene, W.E., 2011, Mesophotic Bioerosion: Variability in different deep reef habitats, ExxonMobil Student Scientist Technology Conference, Houston, TX, Jan.5-8.
- Klaus, J., McNeill, D., **Weinstein, D.**, 2009, Pleistocene reef development and facies geometries of southern Hispaniola, CSL Annual Meeting, extended abstract vol., 27-30.
- Yun, V., Leng, Y., **Weinstein, D.**, Lucas, L., Herman, W., Lee, C., Goldhar, J., 2004, Direct dispensing polymer waveguides for photonic device integration, Polym. Mater. Sci. Eng. 91, 349-350.

### **INVITED GUEST SEMINARS, LECTURES AND COURSES**

- Weinstein, D.K., 2017, Reef geology (and mesophotic reefs), Introduction to the Marine System of the Gulf of Eilat course, Interuniversity Institute for Marine Sciences, Eilat, Israel, Dec. 28
- Weinstein, D.K., 2017, Can a modern deep reef accrete? Sedimentological development of mesophotic reefs in the U.S. Virgin Islands, Hebrew University of Jerusalem, Institute of Earth Sciences Seminar, Jerusalem, Israel, Dec. 6.
- Weinstein, D.K., 2015, Marine geology: Carbonate analysis, The School of Buisness and Tourism at Miguel Contreras Learning Complex, Los Angeles, CA (Via Skype from Japan), Nov. 20.
- Weinstein, D.K., 2015, Structural sustainability of U.S. Virgin Islands mesophotic reefs, Okinawa Underwater Photographic Society, Onna, Okinawa, Sept. 18.
- Weinstein, D.K., 2014, Deep reef structure: Mesophotic coral ecosystem carbonate budget analysis, University of Maryland Guest Seminar, Department of Geology, College Park, MD, Nov. 24.
- Weinstein, D.K., 2014, Geological applications of scientific diving, University of Miami Scientific Diving course (RSM500), Miami, FL, Nov. 12.
- Weinstein, D.K., 2014, Building deep reefs: Carbonate budgets of mesophotic coral ecosystems, Nova Southeastern University Oceanographic Center Guest Seminar, Ft. Lauderdale, FL, Aug. 15.
- Weinstein, D.K., 2013, Geological applications of scientific diving, University of Miami Scientific Diving course (RSM500), Miami, FL, Nov. 4.
- Weinstein, D.K., 2013, Geology in the Twilight Zone: Sedimentary analysis of structurally distinct mesophotic reefs, Museum of Discovery and Science, Ft. Lauderdale, FL, Jan. 6.
- Weinstein, D.K., 2012, Implications of bioerosion on the structural sustainability of mesophotic reefs, University of Miami Abess Center Guest Seminar, Miami, FL, March 1.

## **PEER REVIEWER SOURCES**

- Coral Reefs, PLoS One, Matters, Mesophotic Coral Ecosystems of the World (Chapter in book), International Society for Reef Studies Student Blog editor

## **SOFTWARE**

- ArcGIS, Coral CPCe, CoralXDS, R, Minitab, ImageJ, Adobe Suite (Photoshop and Illustrator), Microsoft Office

## **MARINE CERTIFICATIONS**

- AAUS (scientific diver), Motorboat Operator Certification Course (MOCC), PADI (Open water), NAUI (Nitrox, advanced), TDI (advanced Nitrox, Decompression procedures), CPR certification (DAN)

## **AFFILIATIONS**

- GSA, SEPM, IAS, Sigma Xi, CSL, AAPG, AGU, NCORE, ISRS

## **ACTIVITIES**

- Camp Airy – Counselor and assistant music director (Summer 2000-2003)
- Theta Chi Fraternity (University of Rochester) – Risk Manager
- Interests: Scuba Diving, Traveling, Rock climbing, Music (clarinet, saxophone, harmonica, guitar)

## **CURRENT REFERENCES**

### **Dr. Adi Torfstein**

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