

## *Wilford Schmidt, PhD*

### **Professional and Academic Positions**

2015-present Director – UPRM Center for Ocean Exploration, Research, and Education  
2015 Lead Scientist - Okeanos Explorer EX1502 Leg 2, Free vehicle deployments  
2013-present Professor, UPRM Department of Marine Sciences  
2013 Doctor on Call – OET RV Nautilus Cruises NA-35,37, and 39  
2013 Appointed to United Nations World Ocean Assessment Pool of Experts,  
Wider Caribbean Region United States Representative  
2011 Awarded tenure and recommended for full professorship, promotion held due  
to PR economic crisis. Full-professorship expected in summer 2013.  
2006-2013 Associate Professor, UPRM Department of Marine Sciences  
2006-2008 Support Scientist – UPRM Coastal Hazards Center  
2005-2006 Research Assist. Professor - University of Florida, Coastal Engineering  
2004-2005 ASEE Research Fellow - Naval Research Laboratory, Littoral Processes  
Group  
2003-2004 Post-Doctoral Research Associate - SIO Center for Coastal Studies

### **Education**

2003 Ph.D. Oceanography, Scripps Institution of Oceanography, UCSD  
2001 M.Sc. Oceanography, Scripps Institution of Oceanography, UCSD  
1996 B.Sc. Environmental Science, Texas A&M University, Corpus Christi,  
Summa cum laude, Minors – Geology, Chemistry, and Mathematics

### **Research Interests**

Oceanographic instrument development. Hadal research and instrumentation.  
Near-shore processes. Bathymetric influences on gravity-wave driven currents.  
Tsunami and hurricane coastal inundation. Internal wave and mesoscale eddy effects on  
mesophotic coral reef ecosystems.

### **Courses Taught**

Marine Sciences (graduate = G, undergraduate = U)  
Physical Oceanography (G)  
Coastal Physical Oceanography (G)  
Physical Oceanographic Data Analysis (G)  
Introduction to Oceanography (U)  
Introduction to Climate Change (U)  
Special Topics – Coastal Inundation Data Analysis Techniques (G)  
– Tsunami Inundation Modeling with Matlab (G)  
– Hadal Free Vehicle Payload Design (G)  
– Deep and Shallow Currents in Puerto Rico Coastal Waters (G)  
Mechanical Engineering (senior undergraduate)  
Special Topics - Design of Oceanographic Instrumentation

### **Professional Affiliations**

American Geophysical Union  
American Meteorological Society  
Geological Society of America  
Marine Technology Society

### **Professional Service**

United States Representative – United Nations World Ocean Assessment Pool of Experts  
Reviewer - Journal of Atmospheric and Oceanographic Technology  
Reviewer - Journal of Geophysical Research - Oceans  
Reviewer - Caribbean Journal of Science  
Reviewer – Limnology and Oceanography: Methods  
Chair/Past - UPRM DMS Marine Operations Committee  
- UPRM DMS Curriculum Committee

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### **Professional Service (cont.)**

- Member
- UPRM A&S Curriculum Committee
  - UPRM DMS Personnel Committee
  - UPRM DMS Graduate Policy Committee
  - UPRM DMS Applied Ocean Science Committee

### **Graduate and Undergraduate Advisees**

- Haibo Xu, DMS, Ph.D. candidate. Graduate committee Chair and advisor  
Zamara Fuentes, DMS Ph.D. candidate. Graduate committee co-Chair and advisor  
Myrna Santiago, DMS M.Sc. candidate. Graduate committee member  
Jesus Torrado, INCE M.Sc. candidate. Graduate committee member  
Danilo Rojas, INCE M.Sc. candidate. Graduate committee member  
Leonardo Ortiz, INCE undergraduate. Mentor and advisor

### **Publications**

- Sherman C, **W Schmidt**, R Appeldoorn, Y Hutchinson, H Ruiz, M Nemeth, I Bejarano, **submitted**. Sediment Transport and its Potential Influence on Insular-Slope Mesophotic Coral Ecosystems. Submitted to *Continental Shelf Research*.
- Kennedy B, A Quatrini, M Cheadle, G Garcia-Moliner, J Chaytor, M Ford, E Lobecker, D Sowers, K Cantwell, L McKenna, **W Schmidt**, J Torrado, D Rojas, R Veiten, Z Fuentes, H Xu, and M Jimenez, **submitted**. Océano Profundo 2015: Exploring Puerto Rico's Seamounts, Trenches, and Troughs. Submitted to *Oceanography*.
- Reyna J, A Bera, H Cho, W Douglas, R Folorunsho, F Hall, S Kim, T Komatsu, R Masetti, K Sabir, **W Schmidt**, H Tönisson, **2015**. United Nations World Ocean Assessment for the Wider Caribbean Region, Chapter 26 – Land/Sea Physical Interaction.
- Schmidt W** and E Siegel, **2011**. Free descent and on bottom ADCM measurements in the Puerto Rico Trench, 19.75 N, 66.40 W. *Deep-Sea Research I* 58 (2011) 970–977, doi:10.1016/j.dsr.2011.06.005.
- Eloe E, F Malfatti, J Gutierrez, K Hardy, **W Schmidt**, K Pogliano, J Pogliano, F Azam, and D Bartlett, **2011**. Isolation and characterization of the first psychropiezophilic Alphaproteobacterium. *Applied and Environmental Microbiology*. 77(22): 8145-53. doi: 10.1128/AEM.05204-11
- Schmidt W**, **2008**. A Tsunami Forecast Model for Ponce, Puerto Rico. NOAA OAR Special Report, PMEL Tsunami Forecast Series.
- Schmidt W**, **2008**. A Tsunami Forecast Model for Montauk, New York. NOAA OAR Special Report, PMEL Tsunami Forecast Series.
- Mercado A and **W Schmidt**, **2007**. A Tsunami Forecast Model for Mayagüez, Puerto Rico. NOAA OAR Special Report, PMEL Tsunami Forecast Series., Vol. 3.
- Mercado A and **W Schmidt**, **2007**. A Tsunami Forecast Model for San Juan, Puerto Rico. NOAA OAR Special Report, PMEL Tsunami Forecast Series.
- Spydell M, F Feddersen, R Guza, and **W Schmidt**, **2007**. Observing surfzone dispersion with drifters. *J. Phys. Ocean.* **37**, doi:10.1175/2007/JPO3580.1
- Schmidt W**, R Guza, and D Slinn, **2005**. Surfzone currents over irregular bathymetry: Drifter observations and numerical simulations. *J. Geophys. Res.*, **110**, C12015, doi:10.1029/2004JC002421.
- Schmidt W**, B Woodward, K Millikan, R Guza, B Raubenheimer, and S Elgar, **2003**. A GPS-tracked surfzone drifter. *J. Atmos. Oceanic Technol.*, **20**, 1069-1075.

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### **Recent Presentations (presenter underlined)**

- Rojas, D., M Jimenez, and **W Schmidt (2014)**. Physical Design For Free a Decent-Ascent Deep Sea Vehicle. Conferencia del Caribe Innovación y Tecnología Bioprocess Development & Training Complex, Mayaguez, PR, USA. 10 Oct. 2014
- Torrado, J., M Jimenez, and **W Schmidt (2014)**. Inertial Navigation System for Free Descent Deep Sea Vehicle. Conferencia del Caribe Innovación y Tecnología Bioprocess Development & Training Complex, Mayaguez, PR, USA. 10 Oct. 2014
- Cruz, L., C Díaz, R Cruz, M Jimenez, and **W Schmidt (2014)**. Deep Sea Imaging System. Conferencia del Caribe Innovación y Tecnología Bioprocess Development & Training Complex, Mayaguez, PR, USA. 10 Oct. 2014
- Schmidt W.**, M Jimenez, A Vega, and J Torrado, **2013**. Exploration of the Puerto Rico Trench and Muertos Trough with Untethered Free-Vehicles. 2013 Geological Society of America Southeastern Section Meeting, San Juan, PR.
- Fuentes Z., M Tuttle, and **W Schmidt, 2013**. St. Thomas, USVI Overwash Deposits From the Last 3,000 Years. 2013 Geological Society of America Southeastern Section Meeting, San Juan, PR.
- Schmidt W, 2013**. Observation and Parameterization of Rip Current Velocity Maxima and Extent. 8th International Multi-purpose Reef and Surfing Science Symposium, Rincón, PR.
- Schmidt W, 2011**. Evidence of internal waves and mesoscale eddies from mesophotic ADCP and temperature measurements, La Parguera, Puerto Rico. 2011 American Society of Limnology and Oceanography Ocean Sciences Meeting. San Juan, PR.
- Jimenez M and **W Schmidt, 2011**. Interfacing Analog Sensors to Low-power MCUs for Cost Effective Oceanography Instrumentation. Engibous Summit, Dallas, TX
- Schmidt, W.** and E. Siegel, **2011**. Voyage to the bottom of the Puerto Rico Trench: Tales from a free fall current meter. IEEE/OES 10th International Current, waves and turbulence measurement workshop. Monterrey, CA.
- Colon, B., E Suarez, A Gomez, A Castilla, **W Schmidt**, P Quintero, and M Smith., **2011**. An “Open Source” autonomous archival instrument for aquatic sampling. 2011 American Society of Limnology and Oceanography Ocean Sciences Meeting. San Juan, PR.
- Schmidt W.**, M Smith, F Rodriguez, and P Quintero, **2011**. Build it and they will come: Introducing engineering students to oceanography. 2011 American Society of Limnology and Oceanography Ocean Sciences Meeting. San Juan, PR.
- Schmidt W** and E Siegel, **2010**. On-bottom and free-fall ADCM measurements in the Puerto Rico Trench, 19.75° N, 66.40° W. Trench Connection, Tokyo, Japan.
- Schmidt W, 2010**. Mesophotic ADCP and temperature measurements from the El Hoyo transect, La Parguera, Puerto Rico. American Geophysical Union Ocean Sciences Meeting. Portland, OR.
- Eloe E, **W Schmidt**, and D Bartlett, **2009**. Isolation of a novel Puerto Rico Trench psychropiezophile.. Second Symposium: Frontiers in Environmental Microbiology: A Caribbean Perspective. Univ. of Turabo, Puerto Rico.
- Eloe, E, **W Schmidt**, and D Bartlett, **2009**. Characterization of the hadal microbial community in the Puerto Rico Trench and cultivation of a novel obligate psychropiezophile. ASLO Ocean Sciences Meeting. Nice, France.
- Schmidt W** and D Slinn, **2008**. Rip current velocity structure in drifter trajectories and numerical simulations. 2008 American Geophysical Union Fall Meeting, San Francisco, CA.
- Holland T, N Plant, J Calantoni, **W Schmidt**, T. Kooney, and A. Reed, **2006**. A field study of coastal dynamics on a muddy coast offshore of Cassino Beach, Brazil. 2006 American Geophysical Union Fall Meeting, San Francisco, CA.
- Spydell M, F Feddersen, R Guza, and **W Schmidt, 2006**. Drifter-based estimates of surfzone dispersion. 2006 American Geophysical Union Fall Meeting, San Francisco, CA.
- Schmidt W**, R Guza, and T Holland, **2005**. Surfzone drifters: Applications and observations. IEEE 8th Working Congress on Current Measurement, Southampton, U.K.

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- Schmidt W, 2004.** Surfzone currents: Recent advances in measurement and modeling. United States Lifesaving Association Board of Directors Meeting, San Francisco, CA.
- Schmidt W, R Guza, and D Slinn, 2004.** Observations of large, bathymetrically-controlled eddies in the surfzone. 2004 American Geophysical Union Fall Meeting, San Francisco, CA.
- Schmidt W, D Slinn, and R Guza, 2002.** Surfzone currents over irregular bathymetry: Drifter observations and model results. 2002 American Geophysical Union Fall Meeting, San Francisco, CA.
- Schmidt W and R Guza, 2001.** Observations of surfzone currents with drifters. 2001 American Geophysical Union Fall Meeting, San Francisco, CA.
- Schmidt W, B Woodward, K Millikan, R Guza, B Raubenheimer, and S Elgar, 2000.** A GPS-tracked surfzone drifter. 2000 American Geophysical Union Fall Meeting, San Francisco, CA.
- Schmidt W, 1996.** Beach profiles along a seawall, North Padre Island, Corpus Christi, Texas. Texas Academy of Sciences 99<sup>th</sup> Annual Meeting, Galveston, TX.

### **Funding History**

- 2014-2016, PI, Exploration of the Muertos Trough and Puerto Rico Trench via untethered free vehicles, NOAA OER, \$349,000
- 2011-2012, Co-PI, An Ultra-Deep Sea Water Buoy for Ocean Trench Studies, IAP \$2,500
- 2011-2012, Co-PI, Surf Zone Drifters Sensing System for the Study of Ocean Currents, IAP \$2,500
- 2010-2012, PI, Supplemental funding award, Collaborative Research: Pressure Effects on Microbial Life in the Puerto Rico Trench, NSF \$20,750.
- 2009-2011, Co-PI, IDBR: An Auto-sampler for Aquatic Microbial Sampling and Archiving, NSF, \$223,042.
- 2009-2011, Co-PI, Collaborative Research: Pressure Effects on Microbial Life in the Puerto Rico Trench, NSF \$107,831.
- 2006-2011, Co-PI, CRES 2006: Ecology, Integrity & Status of Deep Caribbean Coral Reefs, NOAA CSCOR, \$1,499,999.
- 2006-2007, PI, A Partnership for Deep Sea Research, UPRM Research and Development Center Seed Money Program, \$4,900.

### **Other Recently Submitted Proposals/Pre-Proposals**

- 2017-2023, Senior Scientist, LTER: La Parguera Mesophotic Coral Ecosystem (PME). NSF, \$1,100,000.
- 2014-2016, PI, Exploration of the Puerto Rico Trench via un-tethered free vehicles. NOAA OER, \$444,000
- 2011-2015, Co-PI, The impacts of episodic rainfall events on coral reefs as determined with remote sensing, hydrological and coastal modeling and water quality monitoring, NASA, 1,715,411 (pending).
- 2010-2012, PI, Multi-disciplinary Exploration of the Muertos Trough and Puerto Rico Trench via Untethered Free-Descent/Ascent Vehicles, NOAA OER, \$499,802
- 2010-2015, Co-PI, Hyperspectral, Radar, and EO/IR Signatures in the Littorals, ONR, \$7,500,000 (\$500,000 to UPRM).
- 2010-2013, PI, 2010-2012, PI, Hydrokinetic Energy Generation Using Vortex induced Vibrations. SRNL Sub- Contract, Environmental Measurements in Coastal Waters Over Prototype VIVACE. DOE, \$493,612 DOE, 306,740
- 2010-2012, PI, Hydrokinetic Energy Generation Using Vortex induced Vibrations. SRNL Sub- Contract, Environmental Measurements in Coastal Waters Over Prototype VIVACE. DOE, \$493,612

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2010-2012, PI, Lagrangian and Eulerian measurements of surfzone and nearshore currents in an *Acropora palmata* environment; Tres Palmas Marine Reserve, Rincón, Puerto Rico, PR Sea Grant, 218,039.

2009-2011, Co-PI, DURIP - An Autonomous Underwater Vehicle for Physical and Biological Oceanographic Research and Education, ONR, \$198,831.