

## CURRICULUM VITA

David M. Bush

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### Teaching and work experience

| <u>Date</u> | <u>Title</u>         | <u>Institution and Department</u>                    |
|-------------|----------------------|--|
| 2005-       | Professor of Geology | University of West Georgia, Dept of Geosciences      |
| 2000-2005   | Associate Professor  | St. Univ. West Georgia, Department of Geosciences    |
| 1995-2000   | Assistant Professor  | St. Univ. West Georgia, Department of Geology        |
| 1991-1995   | Research Associate   | Duke U Program for the Study of Developed Shorelines |
| 1989-1991   | Research Assistant   | Duke U Program for the Study of Developed Shorelines |
| 1987-1988   | Geologist            | U.S. Geological Survey, Marine Geology Branch        |
| 1983-1984   | Geologist            | U.S. Geological Survey, Marine Geology Branch        |
| 1983-1991   | Graduate RA/TA       | Duke University, Department of Geology               |
| 1977-1983   | Geophysicist         | Pennzoil Company, U.S. Offshore/International Divs.  |

### Service to Institution

Member, TEAC, 2010-2011  
Member, UWG Energy Committee, 2005-2007  
Member, UWG Faculty Senate, 2002-2005  
Senate Representative to Faculty and Administrative Staff Personnel Committee  
2003-2005  
Member, Faculty and Administrative Staff Personnel Committee 2005-  
Member, Master Planning Committee, College of Arts and Sciences, 2003  
Member, College of Education search committee Secondary/Middle Grades Science/Math  
faculty position, 2003; Middle Grades Education Generalist positions (two positions)  
Spring 2006  
Chair, Departmental Student Awards Committee, 2002-  
Chair, Departmental Student Scholarship Committee, 2002-  
Chair, Departmental Post-Tenure Review Committee, 2002  
UWG Promotion and Tenure Committee, 2001-2003  
UWG Council on Graduate Studies, 2002  
Faculty Advisory Committee, 1996-1999  
Sigma Xi Student Paper Competition Committee 1997-1999, Co-Chair 1998, 1999  
Sigma Xi Student Paper Competition Judge 1997, 1998, 1999, 2003, 2004, 2006, 2007,  
2010, 2011

### C. Academic Achievement

| <u>Degree</u>   | <u>School</u>   | <u>Years</u> |
|---|-----------------|--------------|
| Doctor of Philosophy (Geology)  | Duke University | 1983-1991    |
| Ph.D. Dissertation: Storm Sedimentation on the Northern Shelf of Puerto Rico (1991),<br>Advisor: Dr. Orrin H. Pilkey        |                 |              |
| Master of Science (Geology)   | Duke University | 1975-1977    |
| M.S. Thesis: Equilibrium Shelf Sedimentation: Northern Insular Shelf of Puerto Rico<br>(1977), Advisor: Dr. Orrin H. Pilkey |                 |              |
| Bachelor of Science (Geology)   | SUNY-Oneonta    | 1971-1975    |

### D. Professional Growth

Fellow, Program for the Study of Developed Shorelines  
Director, UWG Center for Coastal Studies

#### *Membership in professional societies:*

Geological Society of America

- Annual Program Committee 2001-2004; 2006-2012
- Technical Program Chair, 2011 Annual Meeting, Minneapolis
- Technical Program Chair, 2007 Annual Meeting, Denver
- Technical Program Chair, 2003 Annual Meeting, Seattle
- Technical Program Co-Chair, 2001 Annual Meeting, Boston
- Member, Globalization Review Board, 2002-
- Joint Technical Program Committee 1998-2001

Southeastern Section, Geological Society of America

- Vice Chair, 2011-2013
- General Chair, 2013 Southeastern Section Meeting, San Juan, Puerto Rico

National Association of Geoscience Teachers

SEPM (Society for Sedimentary Geology)

American Association of Petroleum Geologists (AAPG)

AAPG Division of Environmental Geosciences

American Geophysical Union

Coastal Education and Research Foundation

American Shore and Beach Preservation Association

Sigma Xi

Georgia Academy of Science

Georgia Geological Society

Licensed Professional Geologist: Alabama (License #711); Puerto Rico (License #083-GP)

#### *Editorships:*

- Editor, *Southeastern Geology*, 2005-
- Associate Editor, *Environmental Geosciences*
- Associate Editor, *Journal of Coastal Research*

#### *Publications*

##### Refereed Publications

- Jackson, Chester W., Jr., David M. Bush, and William J. Neal, 2012. Documenting Beach Loss in Front of Seawalls in Puerto Rico: Pitfalls of Engineering a Small

- Island Nation Shore, in J.A.G. Cooper and O.H. Pilkey (eds.), *Pitfalls of Shoreline Stabilization: Selected Case Studies*, Coastal Research Library 3, DOI 10.1007/978-94-007-4123-2\_4, Springer, p 53-72.
- Jackson, Chester W., Jr; Clark R Alexander, David M Bush, 2012. Application of the AMBUR R Package for Spatio-Temporal Analysis of Shoreline Change: Jekyll Island, Georgia, U.S.A., *Computers & Geosciences*, Volume 41, April 2012, Pages 199–207.
- Bush, David M., 2009, Marine features and processes, in Young, R., and Norby, L., eds., *Geological Monitoring*: Boulder, Colorado, Geological Society of America, p. 163-188.
- Bush, David M., and Young, Rob, 2009, Coastal features and processes, in Young, R., and Norby, L., *Geological Monitoring*: Boulder, Colorado, Geological Society of America, p. 47-67.
- Bush, David M., William J. Neal, and Chester W. Jackson, 2009. Summary Of Puerto Rico's Vulnerability To Coastal Hazards: Risk, Mitigation, And Management With Examples (in) Kelley, Joseph T., Orrin H. Pilkey, and J. Andrew G. Cooper (editors), *America's Most Vulnerable Coastal Communities*, Geological Society of America Special Paper 460, p. 149-165.
- Jackson, Chester W., Jr., David M. Bush And William J. Neal, 2009. The Coastal Compartment Management Plan:Using Puerto Rico As A Model, *Southeastern Geology*, v. 46, no.2, p. 69-84.
- Jackson, Chester W., Jr., Clark Alexander, and David M. Bush, 2007. Back-Barrier Shoreline Change History: Cumberland Island, Georgia, 1857-2002, *Southeastern Geology*, vol. 45, no. 2, p. 73-85.
- Langley, S.K., C.R. Alexander, D.M. Bush, and C.W. Jackson, 2003. Modernizing Shoreline Change Analysis in Georgia Using Topographic Survey Sheets in a GIS Environment. (In) Byrnes, Mark R., Crowell, Mark, and Fowler, Cindy, (eds.), *Shoreline Mapping and Change Analysis: Technical Considerations and Management Implications*, Journal of Coastal Research Special Issue 38, p. 168-177.
- Bush, David M., Bruce R. Richmond, and William J. Neal, 2001. Coastal Zone Hazard Maps: Eastern Puerto Rico. *Environmental Geosciences*, 8(1), p. 38-60.
- Thieler, E. Robert, Orrin H. Pilkey, Jr., Robert S. Young, David M. Bush, and Fei Chai, 2000, The Use of Mathematical Models to Predict Beach Behavior for U.S. Coastal Engineering: a Critical Review, *Journal of Coastal Research*, 16(1) 48-70.
- Young, Robert S., David M. Bush, Andrew S. Coburn, Orrin H. Pilkey, and William J. Cleary, 1999. Hurricanes Dennis and Floyd: Coastal Effects and Policy Implications, *GSA Today*, vol. 9, no. 12, p. 1-6.
- Hickey, R., D. Bush, and R. Boulay, 1999, GIS Applications in Coastal Risk Assessment. *Cartography*. v. 28, no. 2, pp. 11 - 19.
- Bush, David M., William J. Neal, Robert S. Young, and Orrin H. Pilkey, 1999. Utilization of Ge indicators for Rapid Assessment of Coastal-hazard Risk and Mitigation, *Ocean and Coastal Management*, vol. 42, no. 8, p. 647-670.
- Hickey, Robert J., Bush, David M., and Boulay, Rachel S., 1997. GIS Supports Coastal Risk Assessment, *GIS World*, June 1997, p. 54-58.
- Webb, Craig A., Bush, David M., and Young, Robert S., 1997. Property Damage Mitigation Lessons From Hurricane Opal. *Journal of Coastal Research* vol. 13, no. 1, p. 246-252.
- Bush, David M., Young, Robert S., Webb, Craig A., and Thieler, E. Robert, 1996.

- Soundside Impacts of a Northward Tracking Tropical Cyclone: Hurricane Emily (31aug93), Cape Hatteras Area, North Carolina. *Journal of Coastal Research*, vol. 12, no. 1, p. 229-239.
- Young, Robert S., Pilkey, Orrin H., Bush, David M., and Thieler, E. Robert, 1995. A Discussion of the Generalized Model for Simulating Shoreline Change (GENESIS). *Journal of Coastal Research*, vol. 11, no. 3, p. 875-886.
- Bush, David M. and Pilkey, Orrin H., 1994, Mitigation of Hurricane Property Damage on Barrier Islands: A Geological View, In: Finkl, C. W., Jr., (ed.), *Coastal Hazards: Perception, Susceptibility and Mitigation*, *Journal of Coastal Research* Special Issue No. 12, p. 311-326.
- Rodríguez, Rafael, W., Webb, Richard M. T., and Bush, David M., 1994, Another Look at the Impact of Hurricane Hugo on the Shelf and Coastal Resources of Puerto Rico, USA: *Journal of Coastal Research*, vol. 10, no. 2, p. 278-296.
- Bush, David M. and Pilkey, Orrin H., 1993, Focus on the Coast: A Tale of Two Lighthouses, *Oceanus*, v. 36, n. 1, p.
- Aguirre, Benigno. E. and Bush, David M., 1992, Disaster Programs as Technology Transfers: The Case of Puerto Rico in the Aftermath of Hurricane Hugo: *International Journal of Mass Emergencies and Disasters*, v. 10, n. 1, p., 161-178.
- Thieler, Edward Robert and Bush, David Michael, 1991, Hurricanes Gilbert and Hugo Send Powerful Messages for Coastal Development: *Journal of Geological Education*, v. 39, p. 291-99.
- Bush, David M., 1991, Impact of Hurricane Hugo on the Rocky Coast of Puerto Rico, (in) Finkl, Charles W., and Pilkey, Orrin H., (eds.), *Impacts of hurricane Hugo: September 10-22, 1989*, *Journal of Coastal Research*, Special Issue #8, p. 49-67.
- Pilkey, Orrin H., Jr., and Bush, David M., 1990, Eroding Shores: No Simple Solution: Sea Wind, *Bulletin of International Marinelife Alliance*, Ottawa, Ontario, Canada, v. 4, n. 3, p. 3-7.
- Pilkey, Orrin H., Jr., James V. A. Trumbull, and David M. Bush, 1978, Equilibrium sedimentation, Río de la Plata shelf, Puerto Rico, *Jour. Sed. Petrol*, vol. 48, no. 2, p. 389-400.

#### Published Discussions, Replies, and Short Notes

- Bush, David M., William J. Neal, and Robert S. Young, 2004. After the storms: Geologists look at coastal zone building. *Architectural Record*, November 2004, p. 65-66.
- Young, Rob, and Dave Bush, 2001. Don't Just Make the Meeting—Make the Meeting Happen. *GSA Today*, vol. 11, no. 6, p.13.
- Thieler, E. Rober, Orrin H. Pilkey, Jr., Robert S. Young, David M. Bush, and Fei Chai, 2002. Reply to: Dubois, R.N., 2000. Discussion of: Thieler, E. Robert, Orrin H. Pilkey, Jr., Robert S. Young, David M. Bush, and Fei Chai, 2000, The Use of Mathematical Models to Predict Beach Behavior for U.S. Coastal Engineering: a Critical Review, *Journal of Coastal Research*, 16(1) 48-70. *Journal of Coastal Research*, 18(1), 194-195.
- Pilkey, Orrin H., Robert S. Young, and David M. Bush, 2000. Comment to Leatherman, Stephen P., Keqi Zhang, and Bruce C. Douglas, 2000, Sea Level Rise shown to drive coastal erosion, *EOS*, vol. 81, no. 38, p. 436.
- Bush, David M., William J. Neal, and Bruce R. Richmond, 2000. Multi-Hazard Mapping of Complex Coasts: A Puerto Rico Case Study, FARO 2000: 3º Simpósio Sobre a Margem Continental Ibérica Atlântica, program with abstracts, University

- of the Algarve, Faro, Portugal, p. 365-366.
- Young, Robert S. and David M. Bush, 2000. Introduction to Special Issue: On the State of Coastal Hazards Mapping—Part II, in Bush, David M. and Young, Robert S. (eds.) *Environmental Geosciences* Special Issue on Coastal Hazards Mapping, vol. 7, no. 3, p. 117-118.
- Bush, David M. and Robert S. Young, 2000. On the State of Coastal Hazards Mapping, in Bush, David M. and Young, Robert S. (eds.) *Environmental Geosciences* Special Issue on Coastal Hazards Mapping, vol. 7, no. 1, p. 1-2.
- Pilkey, O.H., Thieler, E.R., Young, R.S. and Bush, D.M., 1999. Reply to Reply to Houston, 1998, *Journal of Coastal Research*, 15, 277-279.

### Books

- Bush, David M., William J. Neal, Norma J. Longo, Kenyon C. Lindeman, Deborah F. Pilkey, Luciana Slomp Esteves, John D. Congleton, and Orrin H. Pilkey, 2004. *Living with Florida's Atlantic Beaches: Coastal Hazards from Amelia Island to Key West*. Durham, NC: Duke University Press, 310 p.
- Bush, David M., Norma J. Longo, William J. Neal, Luciana S. Esteves, Orrin H. Pilkey, Deborah F. Pilkey, and Craig A. Webb, 2001. *The Alabama and West Florida Coasts: Living on the Edge of the Gulf*. Durham, NC: Duke University Press, 312 p.
- Pilkey, Orrin H., William J. Neal, Stanley R. Riggs, Craig A. Webb, David M. Bush, Deborah F. Pilkey, Jane Bullock, and Brian A. Cowan, 1998. *North Carolina and It's Barrier Islands: Restless Ribbons of Sand*. Durham, NC: Duke University Press, 318 p.
- Bush, David M., and Pilkey, Orrin H., Jr., and Neal, William J., 1996, *Living by the Rules of the Sea*. Durham, North Carolina and London: Duke University Press, 179 p.
- Lennon, Gered, Neal, William J., Pilkey, Orrin H., Bush, David M., Stutz, Matthew, and Bullock, Jane, 1996. *Living With the South Carolina Coast*, Durham, North Carolina and London: Duke University Press, 241 p.
- Bush, David M., Webb, Richard M. T., González Liboy, José, Hyman, Lisbeth, and Neal, William J., 1995. *Living With the Puerto Rico Shore*, Durham, North Carolina and London: Duke University Press, 193 p.

### Book Chapters

- Pilkey, Orrin H., David M. Bush, and William J. Neal, 2000. Lessons from Lighthouses: Shifting Sands, Coastal Management Strategies, and the Cape Hatteras Lighthouse Controversy, (in) Schneiderman, Jill S., *The Earth Around Us*, W.H.Freeman and Company, p. 198-220.
- Pilkey, Orrin H., Bush, David M., and Neal, William J. 1999. Storms and the Coast, (in), Pielke, Roger A., Jr., and Roger A Peilke Sr., (Editors), *Storms*, Routledge Publishing, p x-x..
- Young, Robert S., Bush, David M., Pilkey, Orrin H., and Neal, William J., 1996, an Inexpensive Approach for the Qualitative Evaluation of the Shoreline Change Geo-indicator and Associated Risk from Coastal Hazards, (in) Berger, A.R. (ed.), *Geological Indicators of Rapid Environmental Change*. Rotterdam: A.A. Balkema, p. 193-206.
- Pilkey, Orrin H., Jr., David M. Bush and Rafael W. Rodríguez, 1988, Carbonate-terrigenous sedimentation on the north shelf of Puerto Rico, (in) Doyle,

L. J. and Roberts, H. H. (eds.) Carbonate-Clastic Transitions: Developments in Sedimentology, v. 42, Amsterdam: Elsevier, p. 231-250.

### Encyclopedia Entries

- Bush, David M., and William J. Neal, 2006. Erosion and Sedimentation, (in) American Planning Association, Emina Sendich (Graphics Editor), *Planning and Urban Design Standards*, John Wiley and Sons, Inc., p 151-153.
- Neal, W.J., Bush, D.M. and Pilkey, O.H., 2005, Managed Retreat: p. 602 - 606, in Schwartz, M.L., editor, *Encyclopedia of Coastal Science*, Springer, Dordrecht, The Netherlands, 1211p.
- Pilkey, O.H., Neal, W.J., and Bush, D.M., 2004. Coastal Erosion. (in) *Encyclopedia of Life Support Systems (EOLSS)*, Developed under the auspices of the UNESCO, Eolss Publishers, Oxford, UK, [<http://www.eolss.net>].
- Bush, D.M., Pilkey, O.H., and Neal, W.J., 2001, Land-Sea Exchanges: Human Impact on the Coastal Topography. In Steele, J., Thorpe, S., and Turekian, K., editors, *Encyclopedia of Ocean Sciences*, Academic Press, London, vol. 1, p. 480-489.
- Pilkey, Orrin H. and David M. Bush, 2001. Storm Surge (in) *The Sea: The Global and Coastal Ocean*, New York: John Wiley and Sons.

### Book Reviews

- For Brooks/Cole Publishers, review of *Essentials of Oceanography*, Fourth Edition , by Tom Garrison.
- For McGraw-Hill, 2002. Review of *Fundamentals of Oceanography*, by Duxbury, Duxbury, and Sverdrup, 4<sup>th</sup> edition to prepare for 5<sup>th</sup> edition.
- For the American Geological Institute, 2000. Review of *Against the Tide: The Battle for America's Beaches* by Cornelia Dean. Columbia University Press, New York (1999), 279 p.

### Published Reports

- Bush, David M., Tracy Monegan Rice, Andrew S. Coburn, Robert S. Young, Matthew Stutz, 1999. Impact of Hurricane Bonnie (August 1998): North Carolina and Virginia With Special Emphasis on Estuarine/mainland Shores, And a Note about Hurricane Georges, Alabama,. The Natural Hazards Research and Applications Information Center, Boulder, CO: Quick Response Program, Report QR112, 1/15/99, 7 p.
- Robert S. Young, Graham M. Bates, and Bush, David M., 1997. Preliminary Quick Response Grant Field Report Submitted to the Natural Hazards Research and Applications Information Center: Hurricane Edouard (September 1-2) and Hurricane Fran (September 5-8). Quick-response Field Investigation. Boulder, Colorado: Natural Hazards Research and Applications Information Center, 4 p.
- Bush, David M., Richmond, Bruce R., and Neal, William J., 1996. Coastal Zone Hazard Maps: Puerto Rico, Hurricane Hugo Impacted Portion of the Shoreline, Cibuco (Punta Garaza) to Punta Viento. U.S. Geological Survey Open-File Report 96-506, 12 p., 1 figure, 5 tables, 12 sheets.
- Bush, David M. and Robert S. Young, 1996. Impact of Hurricane Luis on Antigua, West Indies: Quick-Response Field Investigation, with an Addendum: St. Thomas After Hurricane Marilyn. Quick-response Field Investigation. Boulder, Colorado: Natural Hazards Research and Applications Information Center, 7 p.
- Pilkey, Orrin H., Jr., and Bush, David, 1996. Coastal Risk Assessment Field Guide, to

- accompany the “Living on the Edge” 60-minute program, edited by Gwen Gerber, Beaufort, SC: Environmental Media Corporation, 20 p.
- Bush, David M., Craig A. Webb, Robert S. Young, Bryan D. Johnson, and Graham M. Bates, 1996. Impact of Hurricane Opal on the Florida/Alabama Coast: Quick-response Field Investigation. Boulder, Colorado: Natural Hazards Research and Applications Information Center, 11 p.
- Pilkey, Orrin H. Jr. and Bush, David M., 1994, Testimony of Orrin H. Pilkey, Jr., before the Subcommittee on Oceanography, Gulf of Mexico, and the Outer Continental Shelf of the House Merchant Marine and Fisheries Committee, and the Subcommittee on Energy and Mineral Resources of the House Natural Resources Committee, regarding Outer Continental Shelf Sand, Gravel, and Shell Resources, July 26, 1994. Washington, DC: U.S. Government Printing Office, Federal Register.
- Bush, David M. and Marshall, Richard D., 1994, Lifelines, In: National Research Council, Hurricane Hugo: Puerto Rico, the Virgin Islands, and Charleston, South Carolina, September 17-22, 1989. Washington, DC: National Academy Press, National Academy of Sciences, Natural Disaster Studies Volume Six, p. 115-129.
- Bush, David M., 1994, Coastal Processes, In: National Research Council, Hurricane Hugo: Puerto Rico, the Virgin Islands, and Charleston, South Carolina, September 17-22, 1989. Washington, DC: National Academy Press, National Academy of Sciences, Natural Disaster Studies Volume Six, p. 130-154.
- Bush, David M. and Richmond, Bruce R., 1992. Coastal Hazards Mapping, In: Schwab, W.C., and Rodríguez, R.W., (eds.), Progress of Studies on the Impact of Hurricane Hugo on the Coastal Resources of Puerto Rico: U.S. Geological Survey Open-File Report 92-717, p. 55-63.
- Rodríguez, Rafael W., Webb, Richard M.T., and Bush, David M., 1992. Hurricane Hugo: a description of the storm, In: Schwab, W.C., and Rodríguez, R.W., (eds.), Progress of Studies on the Impact of Hurricane Hugo on the Coastal Resources of Puerto Rico: U.S. Geological Survey Open-File Report 92-717, p. 9-20.
- Rodríguez, Rafael W., Webb, Richard, M. T., Bush, David M., and Scanlon, Kathryn M., 1992, Marine Geologic Map of the North Insular Shelf of Puerto Rico, Río Bayamón to Río Grande de Loíza: U. S. Geological Survey, Miscellaneous Investigation Series, Map I-2207, two sheets.
- Bush, David M., 1991, Mixed Carbonate/Siliciclastic Sedimentation: Northern Insular Shelf of Puerto Rico, (in) Lomando, A. J., and Harris, P. M., (eds.), Mixed Carbonate-Siliciclastic Sequences, SEPM Core Workshop #15, p. 447-484.
- Pilkey, Orrin H., Jr., David M. Bush, and Rafael W. Rodríguez, 1987, Bottom sediment types of the north insular shelf of Puerto Rico: Punta Peñón to Punta Salinas, Unites States Geol. Survey Miscellaneous Investigations Map I-1861 (one sheet).
- Brackett, Robert S. and David M. Bush, 1986, Sedimentary characteristics of modern storm-generated sequences: North insular shelf, Puerto Rico, *in* Moslow, Thomas F., and Eugene G. Rhodes, (eds.), 1986, Modern and ancient shelf clastics: a core workshop, Soc. Econom. Paleontol. and Minerol. core Workshop No. 9, p. 125-168.

#### Published Conference Proceedings

- Bush, David M., 2006. Barrier Island Hazard Mapping: An Example from Jekyll Island, Georgia, (in) Chowns, Timothy M. (Ed.), *Quaternary Stratigraphy and Depositional Environments; Jekyll Island and the Golden Isles Parkway*, 41th

Annual Field Trip of the Georgia Geological Society, Jekyll Island, Georgia, October 6-8, 2006, Georgia Geological Society Guidebooks Volume 26, Number 1, October 2006, p 15-24.

Jackson, C.W., D. M. Bush, and W.J. Neal, 2006. Gabions, A Poor Design Choice for Shore Hardening: The Puerto Rico Experience. (In) Proceedings of the 8<sup>th</sup> International Coastal Symposium, *Journal of Coastal Research*, Special Issue 39, p. 852-857.

Pilkey, Orrin H., Young, Robert S., Bush, David M., and Thieler, E. Robert, 1994. Predicting the Behavior of Beaches: Alternatives to Models. LITTORAL '94, September 26-29, 1994, Lisbon, Portugal, p. 53-60.

Bush, David M., 1994. Coastal Hazard Mapping and Risk Assessment, in Natural Disasters: Local and Global Perspectives, National Committee on Property Insurance (now the Institute for Business and Home Safety), Proceedings of the 1993 Annual Forum, December 9, 1993, San Francisco, California, p. 19-26.

Bush, David M., 1989, Replenishment is the Answer, But What's the Question? Shoreline Management Alternatives--Vieques, Puerto Rico. (in) Magoon, O. T., et al., (eds.) Coastal Zone '89, Proceedings of the Sixth Symposium on Coastal and Ocean Management. New York: American Society of Civil Engineers, p. 2021-2032.

Thieler, E. Robert, Bush, David M., and Pilkey, Orrin H., Jr., 1989, Shoreline Response to Hurricane Gilbert: Lessons for Coastal Management, (in) Magoon, O. T., et al., (eds.) Coastal Zone '89, Proceedings of the Sixth Symposium on Coastal and Ocean Management. New York: American Society of Civil Engineers, p. 765-775.

Pilkey, Orrin H., Jr., David M. Bush and Rafael W. Rodríguez, 1984, Storm sedimentation: north shelf of Puerto Rico, in Park, Y.A., Pilkey, O.H., and Kim, S.W. (eds.), 1984, Marine Geology and Physical Processes of the Yellow Sea, Proceedings of Korea-U.S. seminar and workshop held June 19-23, 1984, Published by Korea Institute of Energy and Resources, Seoul, Korea, p. 242-259.

#### Published Opinion Newspaper Articles

Don't confuse weather with climate, by David M. Bush and Robert Young, published February 4, 2010, *Atlanta Journal-Constitution*.

Prepared for hurricanes? Flooding in Missouri offers lessons to Florida, by Robert S. Young and David M. Bush, published April 2, 2008, *Orlando Sentinel*.

Who should care about hurricane forecasts? by Robert Young and David Bush, published July 1, 2007, *Orlando Sentinel*.

Forced Marsh, by Robert S. Young and David M. Bush, published: September 27, 2005, *New York Times*

Loss of Life: It's Wind, Not Water, by Robert S. Young and David M. Bush, published September 20, 2004, *Orlando Sentinel*.

#### Unpublished Reports

Bush, David M., William J. Neal, Pablo Llerandi-Román, and Chester W. Jackson, Jr., 2013. Potential Future Land Loss of Small Islands of Puerto Rico and the United States Virgin Islands, FINAL REPORT for Project Number: R-111-1-10 to University of Puerto Rico Sea Grant College Program, Mayagüez, Puerto Rico, 281 p.

Bush, David M., and Chester W. Jackson, 2003. Developing and Initiating a Coastal

- Compartment Management Plan in Puerto Rico. Report to the University of Puerto Rico Sea Grant College Program, revised June 26, 2003, 12 p.
- Bush, David M. and Chester W. Jackson, 2001. The Effect of Hard Stabilization on Shoreline Erosion Around Puerto Rico. Report to the University of Puerto Rico Sea Grant College Program, revised September 5, 2001, 10 p.
- Reesman, Amy and David M. Bush, 1993. Coastal Geologic Hazards and Mitigation Recommendation, Fenandina Beach, Venice Beach, and Wakulla County, Florida: A Reconnaissance Evaluation. Report prepared by Duke University, Department of Geology, Program for the Study of Developed Shorelines for the Federal Emergency Management Agency, August 1993, 25 pages.
- Bunce, Leah and David M. Bush, 1993. Coastal Development: Rating the Risks, Report prepared by Duke University, Department of Geology, Program for the Study of Developed Shorelines for the Federal Emergency Management Agency, February, 1993, 36 p.
- Bush, David M. and Andrew S. Coburn, 1992. Site-Specific Coastal Storm Hazard Assessment: Kitty Hawk, Kill Devil Hills, and Nags Head, North Carolina. Report prepared by Duke University, Department of Geology, Program for the Study of Developed Shorelines for State Farm Fire & Casualty Company, September 1992, 21 p.
- Bush, David M., Rodney Priddy, Kathie Dixon, and Orrin H. Pilkey, 1991. Principles of Property Damage Mitigation and the Impact of Hurricane Hugo: Folly Island, South Carolina to Bogue Banks, North Carolina. Field Trip Guide prepared by Duke University, Department of Geology, Program for the Study of Developed Shorelines, David M. Bush, editor, March 1991, 167 p.
- Bush, David M., Lisbeth Hyman, and Rodney Priddy, 1988. Heavy Mineral Resource Potential: Río de la Plata, Puerto Rico. Report prepared by the United States Geological Survey, Marine Geology Project Office, San Juan, Puerto Rico for the Puerto Rico Department of Natural Resources.

***Published Abstracts of Papers Presented***

- Young, Robert S., and Bush, David M., 2013. Hurricane Sandy Post-Storm Report: Another Failed Opportunity to Adapt to Coastal Hazards and Rising Seas, Geological Society of America Abstracts with Programs. Vol. 45, No. 7, p. 53.
- Perison-Parrish, Elizabeth M., Jackson, Chester W. Jr., Runyan, Ryann M., Bush, David M., Siemer, Kyle W., Llerandi-Román, Pablo A., And Neal, William J., 2013. A Coastal Vulnerability Index for Small Islands of Puerto Rico and the United States Virgin Islands, Geological Society of America Abstracts with Programs. Vol. 45, No. 7, p. 594.
- Runyan, Ryann M., Jackson, Chester W. Jr., Bush, David M., Perison-Parrish, Elizabeth M., Siemer, Kyle W., Llerandi-Román, Pablo A., And Neal, William J., 2013. An Assessment Of Shoreline Change for Small Associated Islands of Puerto Rico and the United States Virgin Islands, Geological Society of America Abstracts with Programs. Vol. 45, No. 7, p. 593.
- Young, Robert S., And Bush, David M., 2013. Hurricane Sandy Post-Storm Report: Another Failed Opportunity to Adapt to Coastal Hazards and Rising Seas, Geological Society of America Abstracts with Programs. Vol. 45, No. 7, p. 53.
- Bush, David M., Webb, Richard M.T., Hyman, Lisbeth, Liboy, Jose Gonzalez, and Neal, William J., 2013. Living With The Puerto Rico Shore, Geological Society of America Abstracts with Programs. Vol. 45, No. 2, p.24.

- Bush, David M., Jackson, Chester W. Jr., and Neal, William J., 2013. Puerto Rico's Vulnerable Coast, Geological Society of America Abstracts with Programs. Vol. 45, No. 2, p.2.
- Bush, David M., Neal, William J., and Richmond, Bruce, 2013. Multiple Coastal Hazards of Puerto Rico, Geological Society of America Abstracts with Programs. Vol. 45, No. 2, p.1.
- Runyan, Ryann M., Sanon, Paul A., Perison-Parrish, Elizabeth M., BUSH, David M., and JACKSON, Chester W. Jr., 2013, Developing a Coastal Compartment Management Plan: Palo Seco, Puerto Rico, Geological Society of America Abstracts with Programs. Vol. 45, No. 2, p.24.
- Perison-Parrish, Elizabeth M., Runyan, Ryann M., Siemer, Kyle W., Jackson, Chester W. Jr., Bush, David M., Llerandi-Román, Pablo A., and Neal, William J., 2013. A Modified Coastal Vulnerability Index (CVI) for Small Associated Islands of Puerto Rico and the U. S. Virgin Islands, Geological Society of America Abstracts with Programs. Vol. 45, No. 2, p.1.
- Perison-Parrish, Elizabeth M., Runyan, Ryann M., Siemer, Kyle W., Jackson, Chester W. Jr, Bush, David M., Llerandi-Román, Pablo A., And Neal, William J., 2012. A Modified Coastal Vulnerability Index For Small Associated Islands Of Puerto Rico And The U. S. Virgin Islands. Geological Society of America Annual Meeting, Abstracts with Programs. Vol. 44, No. 7, p.243
- Runyan, Ryann M., Perison-Parrish, Elizabeth M., Locurto, Patricia L., Siemer, Kyle W., Jackson, Chester W. Jr, Bush, David M., Llerandi-Román, Pablo A., And Neal, William J., 2012. Characterizing Small Associated Islands Of Puerto Rico And USVI: Providing A Basis For Forecasting Shoreline Response To Sea-Level Rise. Geological Society of America Annual Meeting, Abstracts with Programs. Vol. 44, No. 7, p.244.
- Perison-Parrish, Elizabeth M., Runyan, Ryann M., Bush, David M., and Jackson, Chester W. Jr., 2012. Quantitative Assessment of Coastal Dynamics for Hazard Management: Small Associated Islands of Puerto Rico, Geological Society of America Southeastern Section Meeting, April 2012, Abstracts with Programs, Vol. 44, No. 4, p. 2.
- Perison, Elizabeth M., Runyan, Ryann M., Siemer, Kyle W., Petruccelli, Rochelle F., Jackson, Chester W. Jr, Bush, David M., Llerandi-Román, Pablo A., And Neal, William J., 2011. Detailed Surficial Mapping Of Small Islands For Coastal Management, Puerto Rico, 2011 GSA Annual Meeting in Minneapolis (9–12 October 2011), Geological Society of America Abstracts with Programs, Vol. 43, No. 5, p. 120
- Runyan, Ryann M., Perison, Elizabeth M., Jackson, Chester W. Jr, Bush, David M., Petruccelli, Rochelle F., And Neal, William J., 2011. Monitoring Beach Profile Changes: Low-Cost Coastal Assessment Techniques For Coastal Compartment Management Planning, 2011 GSA Annual Meeting in Minneapolis (9–12 October 2011), Geological Society of America Abstracts with Programs, Vol. 43, No. 5, p. 120.
- Bush, David M., Jackson, Chester W. Jr, Runyan, Ryann M., Siemer, Kyle W., Perison, Elizabeth M., Petruccelli, Rochelle F., Llerandi-Román, Pablo A., And Neal, William J., 2011. Detailed Surficial Mapping Of Small Islands For Coastal Management, Puerto Rico, Southeastern Section - 60th Annual Meeting (23–25 March 2011), Geological Society of America Abstracts with Programs, Vol. 43, No. 2, p. 78.

- Petrucelli, Rochelle F., Bush, David M., Jackson, Chester W. Jr, And Alexander, Clark, 2011. Assessing Georgia's Coastal Hazards: A Low-Cost Approach, Southeastern Section - 60th Annual Meeting (23–25 March 2011), Geological Society of America Abstracts with Programs, Vol. 43, No. 2, p. 78.
- Jackson, Chester W. Jr, Alexander, Clark A., And Bush, David M., 2011. Analyzing Backbarrier Shoreline Change Along Georgia's Barrier Islands: Lessons Learned From Developing And Using Ambur. Southeastern Section - 60th Annual Meeting (23–25 March 2011), Geological Society of America Abstracts with Programs, Vol. 43, No. 2, p. 74.
- Bush, D.M., Jackson, C.W., Maloof, A., Petrucelli, R.F., and Neal, W.J., 2010, A Small Community's Dilemma: Case Study of Coastal Hazard Assessment and Mitigation, Palo Seco, Puerto Rico, *Coast To Coast 2010: Actions for Change*, Adelaide, South Australia 20-24 September 2010, Program and Abstract Book, p. 7.
- Llerandi-Román, P.A., Siemer, K.W., Neal, W.J., Bush, D.M., and Jackson, C.W., 2010, Assessing the Impact of Sea-Level Rise on small Isles and Cays: Reconnaissance Inventory, Puerto Rico: Abstract Contents, p. 28, Coast To Coast 2010 Meeting, Adelaide, South Australia.
- Johnson, Jacques R, Maloof, Andrew, Young, Rob, Petrucelli, Rochelle F., and Bush, David M., 2010. Historical Storm Surge Tables: One-Stop Shopping for All Your Storm Surge Data Needs, Geological Society of America Abstracts with Programs, Vol. 42, No. 1, p. 135.
- Maloof, Andrew, Petrucelli, Rochelle F., Jackson, Chester W. Jr, and Bush, David M., 2010. Coastal Hazards Assessment and Recommendations for a Severely Eroding Tropical Shoreline: Palo Seco, Puerto Rico, Geological Society of America Abstracts with Programs, Vol. 42, No. 1, p. 134.
- Petrucelli, Rochelle F., Jackson, Chester W. Jr., and Bush, David M., 2010. Geologic and Geomorphic Controls on Damage in Puerto Rico from Hurricane Georges (1998), Geological Society of America Abstracts with Programs, Vol. 42, No. 1, p. 135.
- Jackson, Chester W. Jr, Alexander, Clark A., and Bush, David M., 2010. Application of New Shoreline Analysis Tools to Coastal National Parks in Georgia: the Ambur Package for R, Geological Society of America Abstracts with Programs, Vol. 42, No. 1, p. 142.
- Maloof, Andrew, David M. Bush, and Chester W. Jackson, 2009. Coastal Hazards Assessment And Recommendations For A Severely Eroding Tropical Shoreline: Palo Seco, Puerto Rico. Geological Society of America, Annual Meeting. Portland.
- Petrucelli, Rochelle F., Jackson, Chester W., Bush, David M, 2009. Quantifying Coastal Hazards: Ranking Controls On Damage In Puerto Rico From Hurricane Georges. Geological Society of America, Annual Meeting. Portland.
- Petrucelli, Rochelle F., Jackson, Chester W., Bush, David M., and Alexander, Clark, 2009. Historical Changes of Goulds Inlet, Georgia, from Geospatial Analysis of Aerial Photographs, Geological Society of America, Southeastern Section Meeting, March 11-12, 2009, St. Petersburg, Florida.
- Maloof, Andrew, Petrucelli, Rochelle F., Young, Robert S., and Bush, David M., 2009. Creating a Historical Storm Surge Data Web Site, Geological Society of America, Southeastern Section Meeting, March 11-12, 2009, St. Petersburg, Florida.

- Jackson, Chester, Alexander, Clark A., and Bush, David M., 2009. Assessing Shoreline Change and Coastal Hazards for the Georgia Coast , Geological Society of America, Southeastern Section Meeting, March 11-12, 2009, St. Petersburg, Florida.
- Maloof , Andrew , Rochelle F. Legaspi , Robert S. Young , and David M. Bush, 2008. A Comprehensive Database of Storm Surge Data for Use In Coastal Hazards Research and Storm Surge Model Calibration, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 6, p. 181, 2008 Joint Annual Meeting, Houston, Texas(5–9 October 2008).
- Bush, David M., Robert S. Young, William J. Neal, 2008. Sea Level Is Risen. Storms Are a Certainty. Now What? *Geological Society of America Abstracts with Programs*, Vol. 40, No. 6, p.400, 2008 Joint Annual Meeting, Houston, Texas(5–9 October 2008).
- Legaspi, Rochelle F. Chester W. Jackson Jr, David M. Bush, and Clark Alexander, 2008. Shoreline Response to Changes within a Small-Scale, Mesotidal Inlet System: Goulds Inlet, Georgia, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 6, p. 182, 2008 Joint Annual Meeting, Houston, Texas(5–9 October 2008).
- Bush, David M., William J. Neal, Robert S. Young, and Chester W. Jackson, 2008. Student-Based, Coastal-Hazards Research in the Caribbean, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 6, p. 182, 2008 Joint Annual Meeting, Houston, Texas(5–9 October 2008).
- Young, Robert S., and David M. Bush, 2008. Restoring Coastal Louisiana Will Not Guarantee the Protection of Infrastructure from Storms: Policy Makers Should Also Plan for Strategic Relocation of Critical Infrastructure and Vulnerable Communities, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 6, p. 22, 2008 Joint Annual Meeting, Houston, Texas(5–9 October 2008).
- Legaspi, Rochelle F., Robert E. Werschmidt, Chester W. Jackson, David M. Bush, Robert S. Young, 2008. Can Geomorphic Controls of Hurricane Damage Be Quantified for a Katrina-size Storm? *Geological Society of America Abstracts with Programs*, Vol. 40, No. 4, p. 76, 2008 GSA Southeastern Section Meeting, Charlotte, North Carolina (10–11 April 2008).
- Legaspi, Rochelle F., Chester W. Jackson, David M. Bush, and Robert S. Young, 2007. A Quantitative Method for Ranking the Geomorphic Controls on Storm Surge Penetration along the Mississippi Coast During Hurricane Katrina, *Geological Society of America Abstracts with Programs*, Vol. 39, No. 6, p. 241, 2007 GSA Denver Annual Meeting (28–31 October 2007).
- Bush, David M., Neal, William J., and Jackson, Chester W. Jr, 2007. Puerto Rico's Vulnerable Coastal Communities: Risk, Mitigation, Management, *Geological Society of America Abstracts with Programs*, Vol. 39, No. 6, p. 241, 2007 GSA Denver Annual Meeting (28–31 October 2007).
- Young, Robert S., and Bush, David m., 2007. Is There a Downside to Mapping Coastal Hazards? *Geological Society of America Abstracts with Programs*, Vol. 39, No. 6, p. 97, 2007 GSA Denver Annual Meeting (28–31 October 2007).
- Jackson, Chester W. Jr, Bush, David M., Alexander, Clark, and Dodge, Rebecca L., 2007. Shoreline Erosion along One of Georgia's Most Vulnerable Barrier Islands: Jekyll Island, Ga, USA, *Geological Society of America Abstracts with Programs*, Vol. 39, No. 6, p. 241, 2007 GSA Denver Annual Meeting (28–31 October 2007).
- Jackson, Chester W. Jr., Neal, William J., and Bush, David M., 2007. The

- Contradiction of “Low Cost” Shore Protection: Puerto Rico's Gabions and Other Examples, *Geological Society of America Abstracts with Programs*, Vol. 39, No. 6, p. 241, 2007 GSA Denver Annual Meeting (28–31 October 2007).
- Jackson, Chester W. Jr, Alexander, Clark R., and Bush, David M., 2007. Assessment of Oceanfront and Back-barrier Shoreline Erosion for Resource Management: Cumberland and Jekyll Islands, Georgia. Geological Society of America, Southeastern Section–56th Annual Meeting (29–30 March 2007), Savannah, Georgia.
- Bush, David M., Young, Robert, and Jackson, Chester W., Geology, 2006. The Need for Evaluating the Relative Importance of Geomorphic Features on Hurricane Damage at the Coast. Geological Society of America, 2006 Philadelphia Annual Meeting (22–25 October 2006).
- Young, Robert S., and Bush, David M., 2006. Developing a Science-based Policy for a Federal Pullback from Vulnerable Coastal Areas. Geological Society of America, 2006 Philadelphia Annual Meeting (22–25 October 2006).
- Bush, David M., and Young, Robert, 2006. Hurricanes and the Media: It's Wind, Not Water. Geological Society of America, Southeastern Section–55th Annual Meeting (23–24 March 2006), Knoxville, Tennessee
- Bush, David M. and Robert S. Young, 2005. Media, Hurricanes, and Loss of Life: It's Wind, Not Water, Geological Society of America, Abstracts with Programs, Annual Meeting, Salt Lake City.
- Bush, David M., Robert S. Young, William J. Neal, and Chester W. Jackson, 2005. Low Cost Coastal Assessment Techniques: from Georgia to the Caribbean, Geological Society of America, Abstracts with Programs, Annual Meeting, Salt Lake City.
- Boothe, Thomas A., James E. Friedrich, David M. Bush, Robert S. Young, and Chester W. Jackson, 2005. Continuation of Development of a New Hurricane Impact Scale: WCI, the Shelf Width/shoreline Curvature Index, Geological Society of America, Abstracts with Programs, Annual Meeting, Salt Lake City.
- Bush, David M., Webb, Richard M.T., Hyman, Lisbeth, Liboy, Jose Gonzalez, Neal, William J., 2004. Does Scientific Information for the Public Have an Impact? Living with the Puerto Rico Shore, a Ten-Year Retrospect, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, Annual Meeting, Denver.
- Harris, M. Scott, Wright, Eric, Gayes, Paul, and Bush, David, 2004. Implementation of a Marine Data Model for a Regional Geologic Framework Study: Geoinformatics for Researchers, Managers, Students and the Public, Geological Society of America Abstracts with Programs, Vol. 36, No. 5, Annual Meeting, Denver.
- Jackson, C.W., D. M. Bush, and W.J. Neal, 2004. Gabions, A Poor Design Choice for Shore Hardening: The Puerto Rico Experience. ICS04, The International Coastal Symposium, Itapema, Brazil.
- Alexander, Clark, Bush, David, Langley, Susan, Foyle, Tony, Jackson, Chester, and Henry, Jim, 2004. An Integrated GIS-based Approach to Quantifying the Rates of Shoreline Change in the Georgia Bight: Final Results, Geological Society of America, Abstracts with Programs, Northeast/Southeast Section Meeting, Tysons Corner, Virginia.
- Bush, David M. and Young, Robert S., 2003. A New Hurricane Coastal Impact Scale–continued Work, Geological Society of America, Abstracts with Programs, 2003 Annual Meeting, Seattle.
- Wilber, R. Jude and Bush, David M., 2003. Mesoscale Response of a Mobile

- Sedimentary Shoreline: Basis for New Directions in Coastal Management at the Community Level; Falmouth, MA, Geological Society of America, Abstracts with Programs, 2003 Annual Meeting, Seattle.
- Young, Robert S. and Bush, David M., 2003. "P" as in "Papa": The Impact of Orrin H. Pilkey on U.S. Coastal Engineering and Management, an Ongoing Saga, Geological Society of America, Abstracts with Programs, 2003 Annual Meeting, Seattle.
- Wilber, R. Jude and Bush, David M., 2003. Coupled Mesoscale Sedimentary Response Dynamics of a Barrier-bay System: Nauset Island and Pleasant Bay, Outer Cape Cod, Geological Society of America, Abstracts with Programs, 2003 Annual Meeting, Seattle.
- Barrett, Stephen R., Boothe, Thomas A., Bush, David M., Young, Robert S., Neal, William J., and Jackson, Chester W., 2003. A Two-phase Coastal Evaluation Plan for Hazard Risk Assessments: an Example from Cumberland Island, Georgia, Geological Society of America, Abstracts with Programs, 2003 Annual Meeting, Seattle.
- Harris, M. Scott, Wright, Eric, Gayes, Paul T., Ojeda, Germán, Dufrene, Trinita, Bush, David M., Katuna, M.P., Putney, Thomas R., Schwab, William C., and Baldwin, Wayne E., 2003. Digital Shorelines and GIS: a Semi-quantitative Evaluation of Framework Geologic Influences on Historical Shoreline Change Rates, Geological Society of America, Abstracts with Programs, 2003 Annual Meeting, Seattle.
- Harris, M. Scott, Wright, Eric, Dufrene, Trinita, Poteet, Shelley, Gayes, Paul T., Ojeda, Germán, Bush, David M., Katuna, Michael P., Putney, Thomas, and Schwab, William C., 2003. Geologic Framework Influences on Shoreline Evolution, South-Central Section (37th) and Southeastern Section (52nd), GSA Joint Annual Meeting (March 12–14, 2003), Memphis, Tennessee.
- Bush, D. M., Wilson, C. G., Gibson, J. C., Langley, S. K., Alexander, C. R., Henry, V. J., Jackson, C. W., 2003. Quantitative Shoreline Change Analysis of the Georgia Coast from Aerial Photography and T-Sheets, NOAA Southeastern Coastal Ocean Science Meeting, Charleston, South Carolina, January 27-29, 2003.
- Young, Robert S., Bush, David M., and Wilson, Crystal G., 2002. Ranking the geomorphic factors that control coastal hazards. Geological Society of America, annual meeting, Denver, October 27-30.
- Gibson, Jaime C., Wilson, Crystal G., Jackson, Chester W., and Bush, David M., 2002. Comparison of tablet and onscreen digitization techniques of shorelines from Aerial photographs: a case study of coastal Georgia. Geological Society of America, annual meeting, Denver, October 27-30.
- Langley, Susan K., Clark R. Alexander, David M. Bush, Anthony M. Foyle, Vernon J. Henry, Chester Jackson, Emily A. Polonus, Peter A. Dolan, Kresha A. Jones, Anna J. Austin, 2002. Quantifying Rates of Shoreline Change for Islands in the Georgia Bight from Topographic Survey Sheets. NOAA Coastal Services Center Shoreline Change Conference, May 7-9, Charleston, SC.
- Bush, David M., Robert S. Young, and William J. Neal, 2002. Managing Compartmentalized Coasts: the Coastal Compartment Management Plan, International Coastal Symposium 2002, Templepatrick, Northern Ireland, March 25-29.
- Young, Robert S. and David M. Bush, 2002. A New, Quantitative Method for Ranking the Factors That Control Coastal Hazards, Geological Society of America combined North-Central and Southeastern sections annual meeting, Lexington,

- KY, April 3-5.
- Harris, M. Scott, Eric E. Wright, Triniti Dufrene, David M. Bush, Clark Alexander, and Terrence Edgar, 2002. Data Management and Dissemination Within a Large Cooperative Program: the USGC-South Carolina Sea Grant Consortium Coastal Erosion Study, Geological Society of America combined North-Central and Southeastern sections annual meeting, Lexington, KY, April 3-5.
- Bush, David M. Clark Alexander, Anthony M. Foyle, Susan K. Langley, Vernon J. Henry, Chester W. Jackson, and Crystal Wilson, 2002. Quantitative Shoreline Change Analysis of the Georgia Coast from Aerial Photography, Geological Society of America combined North-Central and Southeastern sections annual meeting, Lexington, KY, April 3-5.
- Susan K. Langley, Clark R. Alexander, Anthony M. Foyle, David M. Bush, Vernon J. Henry, Anna J. Austin, and Emily A. Polonus, 2002. Quantitative Shoreline Change Analysis of the Georgia Coast from Topographic Survey Sheets, Geological Society of America combined North-Central and Southeastern sections annual meeting, Lexington, KY, April 3-5.
- Foyle, Anthony M., Vernon J. Henry, Clark R. Alexander, David M. Bush, and Susan K. Langley, 2002. Developing a State-of-knowledge Report for the Georgia Bight as Part of the South Carolina-Georgia Coastal Erosion Study (Phase II): Initial Findings, Geological Society of America combined North-Central and Southeastern sections annual meeting, Lexington, KY, April 3-5.
- Bush, David M., Young, Robert S., and Neal, William J., 2001. Managing Caribbean Coasts: the Coastal Compartment Management Plan. Program with Abstracts, Geological Society of America Annual Meeting, Boston.
- Jackson, Chester W. Jr, and Bush, David M., 2001. A GIS Based Approach to Coastal Risk Mapping in Georgia. Program with Abstracts, Geological Society of America Annual Meeting, Boston.
- Alexander, Clark R., Bush, David M., Foyle, Anthony M., Langley, Susan K., Henry, Vernon J., and Jackson, Chester, 2001. An Integrated Gis-based Approach to Quantifying the Rates of Shoreline Change in the Georgia Bight: a Progress Report. Program with Abstracts, Geological Society of America Annual Meeting, Boston.
- Harris, M. Scott, Wright, Eric E., Bush, David M., Alexander, Clark, Edgar, Terrence, and Ennis, Jean, 2001. A GIS Data Compilation and Dissemination Model for Local-and Regional-scale Framework Geology Studies: an Example from the South Carolina–Georgia Coastal Erosion Study. Program with Abstracts, Geological Society of America Annual Meeting, Boston.
- Dufrene, Triniti, Chastain, Joshua, Young, Heather, Harris, M. Scott, Wright, Eric E., Bush, David M., Stauble, Donald K., and Edgar, N. Terence, 2001. Digital Shoreline Data for Coastal Analysis and Management: an Example from Historic and Recent Shorelines for South Carolina. Program with Abstracts, Geological Society of America Annual Meeting, Boston.
- Bush, David M., and Young, Robert S., 2001. Recent Advances in Problems with Using Mathematical Models to Predict Beach Behavior for Coastal Engineering, Association of Engineering Geologists, Annual Meeting, St. Louis.
- Bush, David M., Richmond, Bruce R., Neal, William J., and Jackson, Chester W., 2001. Multi-hazard Coastal Risk Mapping: Eastern Puerto Rico. University of Puerto Rico Sea Grant College Program, Conference Proceedings, Managing Beaches in the Caribbean: Investing in Our Future, June 18-21, San Juan, Puerto Rico.

- Jackson, Chester W., Bush, David M., Adams, A., Wright, E., and Neal, W.J., 2001. Beach Width and Profile Comparison Between Natural Beaches and Beaches Fronting Seawalls: Puerto Rico. University of Puerto Rico Sea Grant College Program, Conference Proceedings, Managing Beaches in the Caribbean: Investing in Our Future, June 18-21, San Juan, Puerto Rico.
- Bush, David M., Young, Robert S., and Jackson, Chester W., 2001. Shelf Width, Shoreline Curvature, and Hurricanes: Continued Development of a New Hurricane Impact Scale, Geological Society of America Southeastern Section Annual Meeting, Raleigh, North Carolina.
- Young, Robert S., and Bush, David M., 2001. Problems with Using Mathematical Models to Predict Beach Behavior for Coastal Engineering, Geological Society of America Southeastern Section Annual Meeting, Raleigh, North Carolina.
- Jackson, C.W., Adams, A.; Bush, D.M., Wright, E., and Neal, W.J., 2001. Beach Width and Profile Comparison Between Natural Beaches and Beaches Fronting Seawalls: Puerto Rico, Geological Society of America Southeastern Section Annual Meeting, Raleigh, North Carolina.
- Bush, D.M., Young, R.S., and Jackson, C.W., 2000. A New Hurricane Impact Scale Emphasizing Shoreline Erosion and Overwash Potential, Geological Society of America Annual Meeting, Reno, NV.
- Jackson, C.W., Adams, A., Bush, D.M., Wright, E., and Neal, W.J., 2000. The Effects of Hard Stabilization on the Shoreline of Puerto Rico, Geological Society of America Annual Meeting, Reno, NV.
- A. S. Adams, Neal, W. J., Jackson, C. W., and Bush, D. M., 2000. Beach Width Comparison Between Natural Beaches and Beaches Fronting Seawalls, Michigan Space Grant annual meeting.
- Dodge, Rebecca L., David M. Bush, and John Congleton, 2000. Remote Sensing Tools for GIS-Based Coastal Risk Mapping. Sixth International Conference on Remote Sensing for Marine and Coastal Environments, 1-3 May 2000, Charleston, South Carolina.
- Bush, David M., and Robert S. Young, 2000. Property Damage Mitigation Through Coastal Restoration. Geological Society of America, Southeastern Section Annual Meeting, Charleston, South Carolina (invited abstract).
- Jackson, Chester W., David M. Bush, and Robert S. Young, 2000. Recent North Carolina Hurricane Experience and the Need for a New Hurricane Impact Scale. Geological Society of America, Southeastern Section Annual Meeting, Charleston, South Carolina.
- Bush, David M., Bruce R. Richmond, and William J. Neal, 1999. Multi-hazard Coastal Risk Mapping: Eastern Puerto Rico. Geological Society of America Annual Meeting, Denver, CO, October, (invited abstract).
- Pilkey, Orrin H., David M. Bush, and William J. Neal, 1999. The Cape Hatteras Lighthouse Controversy: the Opposing Coastal Management Strategies of Armoring, Soft Solutions, and Relocation. Geological Society of America Annual Meeting, Denver, CO, October, (invited abstract).
- Bush, David M., 1999. Move it or Lose It: the Case for Relocation of the Cape Hatteras Lighthouse. Geological Society of America, Southeastern Section Annual Meeting, Athens, Georgia (invited abstract).
- Easoz, Jaime A., and David M. Bush, 1999. GIS-Based Coastal Risk Mapping of Florida. Georgia Academy of Science 1999 Annual Meeting, Lawrenceville, GA, published in *Georgia Journal of Science*, Vol. 57, No. 1, p. 53.

- Smith, R. Jason and David M. Bush, 1998. Coastal Risk Assessment of St. Simons and Sea Islands Using GIS Technology. Georgia Academy of Science Annual Meeting, Savannah, GA, published in *Georgia Journal of Science*, Vol. 56, No. 1, p. 47.
- Vick, Donald A., and David M. Bush, 1998. GIS in Support of Coastal Hurricane Damage Assessment and Post-Storm Mitigation. Georgia Academy of Science Annual Meeting, Savannah, GA, published in *Georgia Journal of Science*, Vol. 56, No. 1, p. 48.
- Bush, David M. and Orrin H. Pilkey, 1998. Mixed Carbonate/Siliciclastic Sedimentation: Northern Insular Shelf of Puerto Rico (invited abstract). American Association of Petroleum Geologist Annual Convention, Salt Lake City, Utah, May 17-20.
- Bush, David M., Robert S. Young, and William J. Neal, 1998. A Geoinicators-Based Coastal Hazards Assessment: Roatán, Honduras. Geological Society of America 1998 Annual Meeting Abstracts with Programs, p. 227.
- Daniels, Angela T., John Congleton, and David M. Bush, 1998. GIS-Based Coastal Risk Mapping of Florida. Geological Society of America 1998 Annual Meeting Abstracts with Programs, p. 227.
- Nolan, Kris J., William J. Neal, and David M. Bush, 1997. Barrier Island Hazard Assessment and Risk Mapping, Apalachicola Delta, West Florida. Michigan Academy of Sciences 1997 annual meeting, March 21-22.
- Boulay, Rachel S., 1997 (David M. Bush--faculty sponsor). Applying GIS Technology to Coastal Risk Assessment: Jekyll Island, Georgia, Georgia Academy of Science Annual Meeting, Carrollton, GA, published in *Georgia Journal of Science*, Vol. 55, No. 1, p. 71.
- King, Karen S., Joel Landers, and Donald A. Vick, 1997 (David M. Bush--faculty sponsor). Efficiency and Inefficiency of Digital Applications to Coastal Risk Mapping. Georgia Academy of Science Annual Meeting, Carrollton, GA, published in *Georgia Journal of Science*, Vol. 55, No. 1, p. 72.
- O'Quinn, James A., III, 1997 (David M. Bush--faculty sponsor). Risk Assessment and Flood Hazard Mitigation for Tybee Island, Georgia. Georgia Academy of Science Annual Meeting, Carrollton, GA, published in *Georgia Journal of Science*, Vol. 55, No. 1, p. 71.
- Boulay, Rachel S., David M. Bush, and Robert J. Hickey, 1997. Applying GIS Technology to Coastal Risk Assessment: Jekyll Island, GA. Coastal Zone '97 meeting, July, Boston.
- Bush, D. M., Pilkey, O.H., Neal, W.J., and Young, R.S., 1997. PAR for the Shore: "Preserve, Augment, Restore" to Mitigate Coastal Property Damage, American Geophysical Union Annual Spring Meeting, Baltimore, May 27-30, 1997.
- Young, R.S., Bates, G.M., Walker, L.J., and Bush, D.M., 1997. GIS-Based Coastal Hazard Risk Mapping, American Geophysical Union Annual Spring Meeting, Baltimore, May 27-30, 1997.
- Bush, David M., and Young, Robert S., 1997. Coastal Risk Mapping Teaches Geologic Processes. Geological Society of America Annual Meeting, Salt Lake City.
- Young, Robert S., Thieler, E. Robert, Pilkey, Orrin H., Jr., and Bush, David M., 1997. Applied Predictive Modeling in the Coastal Zone: We Can't Model What We Don't Understand. Geological Society of America Annual Meeting, Salt Lake City.
- Bates, Graham, M., Young, Robert S., and Walker, Laura, J., and Bush, David M., 1997. Logistic Regression Analysis of Post-storm Process Mapping to Rank Factors Controlling Coastal Hazards. Geological Society of America Annual

Meeting, Salt Lake City.

- Lin, Tsung-Yi, Pilkey, Orrin H., and Bush, David M., 1996, A New Approach to Using Sand Traps for Measuring Aeolian Sand Transport. Geological Society of America, Southeastern Sectional Meeting, Jackson, MS.
- Bush, David M., and Young, Robert S., 1996, Impact of Hurricane Luis on Antigua, West Indies: a Basis for a Coastal Compartment Management Plan. National Hurricane Conference, Orlando Florida.
- Bush, David M., and Young, Robert S., 1996. Coastal Hazards, Risk Assessment, and Coastal Zone Management: The Essential Role of the Geologist. Geological Society of America Annual Meeting, Denver, Colorado.
- Bush, David M., Neal, William J., and Pilkey, Orrin H., 1996. A Rapid Barrier Island Hazard Mapping Technique as a Basis for Property Damage Risk Assessment and Mitigation. Natural Hazard Reduction '96, Washington, DC, sponsored by the American Society of Civil Engineers.
- Boulay, Rachel S., Bryan D. Johnson, David M. Bush, Robert J. Hickey, Orrin H. Pilkey, and William J. Neal, 1996. Coastal Hazards, Risk Assessment, and Property Damage Mitigation: Jekyll Island, Glynn County, Georgia. In Davis, Richard A., Jr., and Petersen, Linda, Program with Abstracts, Tidalites '96, International Conference on Tidal Sedimentology, Savannah, Georgia, USA, May 12-16, 1996, p. 16.
- Young, Robert S., Bush, David M., Pilkey, Orrin H., and Neal, William J., 1995. Geo-indicators of Coastal Processes. Coastal Zone '95 Conference, Tampa, Florida.
- Bush, David M., Pilkey, Orrin H., and Coburn, Andrew S., 1995, Barrier Island Hazard Mapping for Property Damage Risk Assessment. Coastal Zone '95 Conference, Tampa, Florida.
- Young, Robert S., Pilkey, Orrin H., Bush, David M., and Thieler, E. Robert, 1995, A Geologic View of Coastal Engineering Shoreline Change Models. Coastal Zone '95 Conference, Tampa, Florida.
- Lin, Tsung-Yi, Pilkey, Orrin H., Jr., and Bush, David M., 1995. Eolian Sand Budget of Shackleford Banks, North Carolina. Southeastern Sectional Meeting, Geological Society of America, Knoxville, Tennessee, April 5-7.
- Lin, Tsung-Yi, Pilkey, Orrin H., Jr., and Bush, David M., 1995, A Statistical Model for Calculating Eolian Sand Transport Rates on Barrier Islands. American Geophysical Union 1995 Spring Meeting, Baltimore, MD.
- Thieler, E. R., Pilkey, O.H., Bush, D.M., and Young, R.S., 1995. The Validity of Coastal Processes Models for Predicting Beach Behavior. Assateague Shelf and Shore Workshop Twenty One, Pomona, New Jersey, April 21, 1995.
- Bush, David M., 1995. Shoreface Processes on a Shelf Scale: Northern Puerto Rico. Geological Society of America Annual Meeting, New Orleans, LA.
- Bush, David M., 1994, Sediment Transport Dynamics on a Steep, Narrow Shelf: Northern Insular Shelf of Puerto Rico. U.S. Geological Survey Coastal Studies Conference, San Juan, Puerto Rico, February 2-3, 1994.
- Bush, David M. and Bullock, Jane, 1994. The FEMA/Duke University Multi-hazards and Mitigation Project. U.S. Geological Survey Coastal Studies Conference, San Juan, Puerto Rico, February 2-3, 1994.
- Bush, David M., Richmond, Bruce R., and Neal, William J., 1994, Coastal Hazard Mapping in the Wake of Hugo: Puerto Rico. U.S. Geological Survey Coastal Studies Conference, San Juan, Puerto Rico, February 2-3, 1994.
- Bush, David M., 1994. Coastal Hazard Mapping and Risk Assessment. Casualty

- Actuarial Society Annual Meeting, Boston, MA, May 15-18, 1994.
- Young, Robert S., Bush, David M., and Pilkey, Orrin H., 1994, Geo-Indicators of Coastal Processes. Geological Society of America 1994 Annual Meeting, Seattle.
- Bush, David M., Young, Robert S., Thieler, E. Robert, and Pilkey, Orrin H., 1993. Geologic and oceanographic factors mitigating the coastal impact of Hurricane Andrew in south Florida. National Research Conference on Hurricane Hazard Mitigation, March 19-21, 1993, hosted by the University of Miami School of Architecture.
- Schwab, W. C., W. W. Danforth, C. M. Delorey, L. J. Poppe, R. W. Rodríguez, J. L. Trias, M. Carlo, B. R. Richmond, E. A. Shinn, R. B. Halley, E. R. Thieler, M. H. Gowen, and D. M. Bush, 1993, Impact of Hurricane Hugo on the Coastal Resources of Puerto Rico. American Association of Petroleum Geologists Annual Convention, New Orleans.
- Bush, David M., Richmond, Bruce R., and Neal, William J., 1993, Coastal Hazard Mapping in the Wake of Hugo: Puerto Rico. Geological Society of America, Southeastern Regional Meeting, Tallahassee, FL.
- Rodríguez, Rafael W., Bush, David M., Delorey, Cathy M., Trias, Juan L., Carlo, Milton, Richmond, Bruce R. and Schwab, William C., 1993, Two Sand Budget Stories Three Years After Hugo, Puerto Rico. Geological Society of America, Southeastern Regional Meeting, Tallahassee, FL.
- Thieler, E. Robert and Bush, David M., 1993, A Hurricane Hugo Retrospective: Lessons Learned and Not Learned. Geological Society of America, Southeastern Regional Meeting, Tallahassee, FL.
- Bush, David M., 1992, Effects of Development on Storm-Surge Ebb Damage: Lessons from Hurricanes Gilbert and Hugo. Geological Society of America Southeastern Regional Meeting, Winston-Salem, NORTH CAROLINA.
- Bush, D. M., Priddy, R. D., Dixon, K. L., and Pilkey, O. H., 1990, Property Damage Mitigation: Coastal Processes Perspective. Geological Society of America Annual Meeting Program with Abstracts.
- Rodríguez, Rafael W., Webb, Richard M. T., and Bush, David M., 1990, Hurricane Hugo's Impact of Puerto Rico Coastal Settings: Sandy Shores, Rocky Coasts and an Offshore Sand Deposit. Geological Society of America Annual Meeting, Program with Abstracts.
- Young, R., Bush, D. M., and Pilkey, O. H., 1990, Anomalous Barrier Island Stratigraphy, Cedar Island, Pamlico Sound, North Carolina. Geological Society of America Annual Meeting, Program with Abstracts.
- Golden, J. H., Aquirre, B. E., Bush, D. M., Vogel, J. A., and Marshall, R. D., 1990, Hurricane Hugo's Impacts on Puerto Rico and the U. S. Virgin Islands, Assessment from a National Research Council Quick-Response Study Team. American Meteorological Society Annual Meeting, Special Session on Hurricane Hugo.
- Thieler, E. Robert, Bush, David M., and Pilkey, Orrin H., 1989, Impact of Hurricane Gilbert on Developed Shorelines, Yucatan Peninsula, Mexico: Lessons for U. S. Coastal Management. Conference on the State of Our Coastal and Ocean Resources, New York.
- Wilber, R. Jude, Bush, David M., Packer, Elizabeth, and Lebel, Elise, 1988, Coralline algal shelves and platforms in the Caribbean; occurrence and distribution of rhodoliths and laminar growth forms. SEPM 1988 Mid-year meeting, Columbus, Ohio, August 21-24, 1988, Program with Abstracts, p. 58.
- Bush, David M. and Orrin H. Pilkey, Jr., 1987, Proximity trends on a storm-wave

- dominated allochthonous shelf: northern Puerto Rico. SEPM 1987 Mid-year meeting, Austin, TX, Program with Abstracts, p. 11.
- Bush, David M. and Rafael W. Rodríguez, 1987, Sea Level rise, net sediment accumulation and seismic stratigraphy on an allochthonous shelf: northern Puerto Rico. SEPM 1987 Mid-year meeting, Austin Tx Program with Abstracts, p. 11.
- Bush, David M., Orrin H. Pilkey, Jr., and Rafael W. Rodríguez, 1986, Impact of river-mouth migration on continental margin sedimentation. Amer. Assoc. Petrol. Geol. annual convention, Atlanta, Georgia.
- Bush, David M., and Paul R. Hall, Jr., 1982, Computer-assisted prospect generation in a frontier basin. Amer. Assoc. Petrol. Geol. annual convention, Calgary, Alberta, Canada.
- Bush, David M., Zev N. Grossman, Orrin H. Pilkey, Jr., Sam Fuerst, Rush Lincoln, and James V. A. Trumbull, 1981, Sedimentation on the north shelf of Puerto Rico. Amer. Assoc. Petrol. Geol. annual convention, San Francisco, California.
- Bush, David M., James V. A. Trumbull, and Orrin H. Pilkey, Jr., 1977, Equilibrium shelf sedimentation, Río de la Plata shelf, Puerto Rico. Geological Society of America, Southeastern Section 26th annual meeting, Winston-Salem, North Carolina.

### *Funding*

#### Current Internal:

#### Current External:

University of Puerto Rico Sea Grant College Program. Potential Future Land Loss Of Small Islands Of Puerto Rico And The United States Virgin Islands. Two-year grant, \$52,000, March 2010-December 2012.

#### Pending:

UWG Student Research Assistant Program, 2012-2013 funding cycle. "Potential Future Land Loss of Small Islands of Puerto Rico and the United States Virgin Islands," \$2,350.

#### Past

UWG Faculty Research Grant, 2011-2012. "Potential Future Land Loss of Small Islands of Puerto Rico," \$1,840.

UWG Faculty Research Grant, 2012-2013. "Coastal Compartment Management Plan: Palo Seco, Toa Baja, as a Model for Puerto Rico," \$1,500.

UWG Student Research Assistant Program, 2011-2012 funding cycle. "Potential Future Land Loss of Small Islands of Puerto Rico and the United States Virgin Islands," \$2,350.

UWG Student Research Assistant Program, 2012-2013 funding cycle. "Potential Future Land Loss of Small Islands of Puerto Rico and the United States Virgin Islands," \$2,350.

UWG Student Research Assistant Program, 2010-2011 funding cycle. "Potential Future Land Loss of Small Islands of Puerto Rico and the United States Virgin Islands," \$2,350.

UWG Student Research Assistant Program, 2009-2010 funding cycle. "Assessing Shoreline Change and Coastal Hazards for the Georgia Coast," \$2,100 for one year.

University of Georgia Sea Grant College Program. Assessing Shoreline Change and

- Coastal Hazards for the Georgia Coast. Part of a project with Co-PI Clark Alexander, Skidaway Institute of Oceanography, total of approximately \$70,000 per year for two years. Award to West Georgia is \$13,800 for 2008-2009, and \$13,300 for 2009-2010.
- Program for the Study of Developed Shorelines. Creating a Storm Surge Database. \$30,000 for two years, 2009-2011.
- UWG Faculty Research Enhancement Award, 2007-2008 funding cycle. Identifying Paleo-Hurricane Storm Surge Deposits in Jekyll Island, Georgia Marsh Sediments,” \$2,050 for one year.
- UWG Learning Resources Committee Grant, 2007-2008 funding cycle. “Understanding Wetland Ecosystem Dynamics to Develop Management Strategies for Jekyll Island, Georgia,” \$1,480 for one year.
- UWG Student Research Assistant Program, 2007-2008 funding cycle. “Assessing Shoreline Change and Coastal Hazards for the Georgia Coast,” \$2,100 for one year.
- UWG GEMS Grant: “Creating a storm surge database” Andrew Maloof was the student researcher. He received a \$1,600 stipend for two summer months of research.
- UWG Faculty Research Enhancement Award, 2006-2007 funding cycle. A Quantitative Method for Ranking the Geomorphic Controls on Storm Surge Penetration along the Mississippi Coast after Hurricane Katrina,” \$1,400 for one year.
- UWG Learning Resources Committee Grant, 2006-2007 funding cycle. “A Quantitative Method for Ranking the Geomorphic Controls on Storm Surge Penetration along the Mississippi Coast after Hurricane Katrina,” \$950 for one year.
- UWG Student Research Assistant Program, 2006-2007 funding cycle. “Historical Shoreline Change along the Northern Coast of Puerto Rico,” \$1,950 for one student researcher for one year.
- University of Puerto Rico, Sea Grant College Program. “Quantitative Ranking of Geomorphic and Development Controls On Coastal Hurricane Impact in Puerto Rico.” \$3,000 for one year, March 2004-February 2005.
- UWG Faculty Research Enhancement Award, 2004-2005 funding cycle. “Evaluating the Tools Used to Predict Coastal High-hazard Areas: An Example from the North Carolina Outer Banks,” \$1,310 for one year.
- UWG Learning Resources Committee Grant, 2004-2005 funding cycle. “Historical Shoreline Change along the Eastern Coast of Puerto Rico: Testing a New Digital Shoreline Analysis System,” \$1,440 for one year.
- UWG Student Research Assistant Program, 2004-2005 funding cycle. “Continued Work on Developing a New Hurricane Impact Scale,” \$1,800 for one student researcher for one year.
- UWG Learning Resources Committee Grant, 2003-2004 funding cycle. “Developing a New Hurricane Impact Scale Emphasizing Shoreline Erosion and Overwash Potential,” \$1,500 for one year.
- UWG Faculty Research Enhancement Award, 2003-2004 funding cycle. “Lake Ontario Coastal Hazards: Partnering with the Canadian Studies Program Initiative,” \$1,200 for one year.
- UWG Student Research Assistant Program, 2003-2004 funding cycle. “Developing a New Hurricane Impact Scale Emphasizing Shoreline Erosion and Overwash Potential,” \$1,800 for one student researcher for one year.

South Carolina Sea Grant Consortium, South Carolina-Georgia Coastal Erosion Study: GIS Data Compilation, Data Management, and Shoreline Change Study, Principle Investigator Scott Harris, Coastal Carolina University, \$1,500 for 2003.

South Carolina Sea Grant Consortium, “An Integrated GIS-Based Approach To Quantifying The Rates Of Shoreline Change In The Georgia Bight,” Principle Investigator Clark R. Alexander, Skidaway Institution of Oceanography, \$24,395 for year three of a three-year project.

South Carolina Sea Grant Consortium, South Carolina-Georgia Coastal Erosion Study: GIS Data Compilation, Data Management, and Shoreline Change Study, Principle Investigator Scott Harris, Coastal Carolina University, \$3,700 for 2002.

University of Puerto Rico, Sea Grant College Program. “Developing and Initiating a Coastal Compartment Management Plan in Puerto Rico,” \$3,000 for one year.

UWG Learning Resources Committe Grant, 2002-2003 funding cycle. “Initiating a Coastal Compartment Management Plan in Puerto Rico,” \$950 for one year.

UWG Faculty Research Enhancement Award, 2002-2003 funding cycle. “Detailed Coastal Hazard Mapping of St. Thomas, U.S. Virgin Islands,” \$3,510 for one year.

UWG Student Research Assistant Program, 2002-2003 funding cycle. “Quantifying Shoreline Change: Cumberland Island, Georgia,” \$1,800 for one student researcher for one year.

South Carolina Sea Grant Consortium, “An Integrated GIS-Based Approach To Quantifying The Rates Of Shoreline Change In The Georgia Bight,” Principle Investigator Clark R. Alexander, Skidaway Institution of Oceanography, \$28,200 for year two of a three-year project.

UWG Learning Resources Committe Grant, 2001-2002 funding cycle. “Intertidal Habitat and Sediment Assessment: Pleasant Bay, Massachusetts,” \$1,250 for one year.

UWG Faculty Research Enhancement Award, 2001-2002 funding cycle. “Beach Width and Profile Comparison Between Natural Beaches and Beaches Fronting Seawalls: Puerto Rico,” \$2,350 for one year.

UWG Student Research Assistant Program, 2001-2002 funding cycle. “Quantitative Ranking of Controls on Coastal Storm Impact for Management Use and Internet-Based Distribution,” \$1,800 for one student researcher for one year.

Virgin Islands Water Resources Research Institute, Teaching an Intensive Short Course on Water Resources, Coastal Hazards, and Coral Reef Degradation. One year, \$15,000, with Rob Young (Western Carolina) and Randy Kath (UWG).

South Carolina Sea Grant Consortium, An Integrated GIS-Approach to Quantifying the Rates of, and Geologic Controls on, Shoreline Change in the Georgia Bight, Principle Investigator Clark R. Alexander, Skidaway Institution of Oceanography, total grant, \$218,246 for 3 years, Bush share for year 1 \$32,200.

South Carolina Sea Grant Consortium, South Carolina-Georgia Coastal Erosion Study: GIS Data Compilation, Data Management, and Shoreline Change Study, Principle Investigator: Scott Harris, Coastal Carolina University. \$9,000 for 2001-2002.

Coastal Georgia Regional Development Center, Comprehensive Coastal Risk Assessment for McIntosh and Camden Counties, Georgia: A Model for Coastal Hazards Planning, A Project Impact Initiative, \$10,000, one year.

University of Puerto Rico Sea Grant, Impact of Hard Stabilization on the Beaches of Puerto Rico, \$3,000 for one year.

UWG Faculty Research Grant, 2000-2001 funding cycle. “The Effect of Hard Stabilization on Shoreline Erosion Around Puerto Rico,” \$1,000.

UWG Faculty Research Enhancement Award, 2000-2001 funding cycle. Quantitative Ranking of Controls on Coastal Storm Impact for Management Use and Internet-Based Distribution, \$2,100.

Federal Emergency Management Agency, Washington, DC. Duke University/State University of West Georgia Coastal Studies. 2000-2001, \$75,000 total, \$41,000 to West Georgia.

North Carolina Department of Crime Control and Public Safety, Division of Emergency Management. PAR for the Shore (Preserve, Augment, Restore to Mitigate Property Damage), Orrin H. Pilkey, Duke University, PI. 1998, amount awarded: \$75,000. Subcontract to David Bush: \$10,000.

University of the Virgin Islands, Intensive Short Course on Coastal Geology, Coastal Hazards, and Coastal Management, \$5,000.

State University of West Georgia, Learning Resources Grant, \$1,800, 1999-2000, Wetland Transgression and Evolution, Jekyll Island, Georgia.

State University of West Georgia, Student Research Assistantship Grant, \$1,650, 1999-2000, Wetland Transgression and Evolution, Jekyll Island, Georgia.

Jobos Bay National Estuarine Research Reserve, Coastal Hazards Mapping: Jobos Bay and Vicinity, Puerto Rico. David M. Bush, PI, 1999. Awarded amount: exchange for one-week's lodging for Regional Geology Field Trip participants, Summer, 1999, value approximately \$1,000.

Federal Emergency Management Agency, Washington, DC. Duke University/State University of West Georgia Coastal Studies. 1999-2000, \$75,000 total, \$42,000 to West Georgia.

Federal Emergency Management Agency, Post-Hurricane field investigation, to cover travel expenses to Puerto Rico after Hurricane Georges, October, 1998, approximately \$2,000

Federal Emergency Management Agency, Washington, DC. Duke University/State University of West Georgia Coastal Studies. 1998-1999, \$125,000 total, amount to UWG: \$59,567.

State University of West Georgia, Faculty Research Grant, "Coastal Risk Mapping: East Florida Shore," 1998-1999, \$1,440.

Natural Hazards Center, Boulder, CO, Quick Response Grant, \$1,000, August 1998, Impact of Hurricane Bonnie, North Carolina and Virginia.

Natural Hazards Center, Boulder, CO, approval for quick response grant for 1997-1998. Funding not guaranteed, made ready on an as-available basis if and when a hurricane strikes the coast.

Federal Emergency Management Agency, Washington, DC. Grant EMW-97-GR-0150, "Duke University/University of West Georgia Coastal Studies, FY 1997" (\$80,492 to West Georgia, \$69,508 to Duke University for 1997-1998).

State University of West Georgia, Sponsored Operations Faculty Research Enhancement Award, "Wetland Transgression and Evolution, Jekyll Island, Georgia," 1997-1998, \$2,392.

State University of West Georgia, Faculty Research Grant, "GIS Applications to Coastal Risk Assessment: St. Simons Island and Sea Island, Georgia," 1997-1998, \$1,530.

State University of West Georgia Student Research/Project Assistant Program. Creating A Jekyll Island Geology Display for the Jekyll Island Museum. 1997-1998, \$1,650.00 for student support.

State University of West Georgia, Faculty Research Enhancement Award, \$2,500, July, 1996-June, 1997, Coastal Hazards Assessment and Risk Mapping: Tybee Island, Chatham County, Georgia.

State University of West Georgia, Learning Resources Grant, \$1,550, July, 1996-June, 1997, Coastal Hazards Assessment and Risk Mapping: Jekyll Island, Glynn County, Georgia.

Federal Emergency Management Agency, Washington, DC. Grant EMW-96-GR-0163 "Living With the West Florida Shore Coastal Risk Mapping" (\$50,224 for 1996-1997).

Natural Hazards Center, Boulder, CO, Quick Response Grant, \$2700, September 1995, Impact of Hurricane Luis, Antigua, West Indies.

Natural Hazards Center, Boulder, CO, Quick Response Grant, \$632, October 1995, Impact of Hurricane Opal, Panhandle Counties of Florida.

State Farm Insurance Company "Coastal Property Damage Mitigation Insurance Affiliates Project" (\$10,000 in 1994 for first of 3-year commitment, to Duke University Program for the Study of Developed Shorelines)

Insurance Institute for Property Loss Reduction "Coastal Property Damage Mitigation Insurance Affiliates Project" (\$10,000 in 1994 for first of 3-year commitment, plus additional \$10,000 for 1995 to Duke University Program for the Study of Developed Shorelines)

Natural Hazards Center, Boulder, CO, approval for quick response grant for 1996-1997. Funding not guaranteed, made ready on an as-available basis if and when a hurricane strikes the coast.

Jekyll Island Museum, to develop a public information display on Jekyll Island Geology, \$500.

State University of West Georgia, Student Research Assistantship Grant, "Creating a Jekyll Island Geology Display for the Jekyll Island Museum," 1997-1998, \$1550.

Unsuccessful Recent Proposals:

University of Puerto Rico Sea Grant College Program. "Coastal Compartment Management Plans: Palo Seco, Toa Baja, As A Model For Puerto Rico," \$64,100 for two years.

University of Georgia Sea Grant College Program. Paleo-hurricane storm surge deposit based hurricane hazard assessment for coastal Georgia. Co-PI with Hermann Fritz, Georgia Institute of Technology, Savannah, GA, 2 years at approximately \$70,000 per year.

Subcontractor on proposal with Rob Young, Western Carolina University, to Sebastian Inlet, Florida, Tax District. Geological and Geophysical evaluation of sediment movement in and around Sebastian Inlet, Florida. One year, Bush share \$10,000.

Co-investigator with Rob Young, Western Carolina University, to the National Park Service. Developing a management plan for National Seashores. One year, Bush share \$5,000.

North Olympic Shoreline Monitoring and Education Project (NOSMEP), a three-year proposal to the National Science Foundation. Principal Investigators are Judith D'Amre of the Port Townsend (WA) Marine Science Center, Rob Young of Western Carolina University, and David M. Bush (UWG). Bush 3-year total request \$50,750.

University of Puerto Rico, Sea Grant College Program. "Historical Shoreline Change along the Eastern Coast of Puerto Rico: Testing a New Digital Shoreline Analysis

System,” \$3,000 for one year, submitted April 2004.

Canadian Studies Grant Program. “Living with the Lake Ontario Shore: Natural Hazards, Risk Assessment, and Property Damage Mitigation,” \$15,000 for one year, submitted September 2003.

Clayton County, Georgia, Emergency Management Agency, “Hazards Assessment of Clayton County, Georgia,” \$23,810 for one year, 2003-2004.

Turner Foundation, through the Jekyll Island Museum, “Sustenance and Restoration of Wildlife Habitats: Jekyll Island, Georgia,” with Tim Chowns, \$30,000 for one year, 2002.

Department of Planning, Hamilton, Bermuda, “Developing a Coastal Compartment Management Plan for Bermuda: Promoting Sustainable Coastal Development Through Geohazard Mitigation Planning,” \$88,325.78 for one year, 2002. Andrew S. Coburn, Duke University, Principal Investigator, Bush share approximately \$20,000.

Federal Emergency Management Agency, Washington, DC: Coastal Hazards, Risk Assessment, and Property Damage Mitigation. \$150,000 for three years beginning 2001.

Georgia Sea Grant College Program, Wetland Transgression and Evolution in a Mesotidal System, submitted May 1999, two years, \$78,974.

National Aeronautics and Space Administration, Coastal Landscape Response to Extreme Storms, Principal Investigator: Timothy F. Donato, University of Delaware and Naval Research Lab, three years starting 1999, \$375,000. Bush share \$26,000 over three years.

Georgia Department of Natural Resources, Coastal Resources Division, Coastal Incentive Grant Program, “Georgia Coastal Hazards Assessment and Risk Mapping,” two years, \$91,680.

Georgia Department of Natural Resources, Coastal Resources Division, Coastal Incentive Grant Program, “Producing an On-Line Coastal Risk Assessment Guide,” one-year, \$41,690.

State University of West Georgia, Sponsored Operations Faculty Research Enhancement Award, 1999 Competition Cycle, “A Site-Specific Coastal Property Damage Mitigation Plan,” one year, \$2,460.

State University of West Georgia, Sponsored Operations Faculty Research Enhancement Award, 1998 Competition Cycle, “Using Geoinicators to Assess Coastal Risk: Roatan, Honduras,” one-year, \$3,900.

State University of West Georgia Student Research Assistant Program, 1997: Coastal Risk Mapping, East Coast of Florida.

State University of West Georgia Student Research Assistant Program, 1996: Cooperative Geologic Research Opportunities with the United States Geological Survey, San Juan, Puerto Rico

Risk Prediction Initiative, Bermuda Biological Station for Research, Inc., 1996: Coastal Hazard Assessment and Risk Mapping. Amount Requested: \$68,586.

Jekyll Island Authority, 1996: Coastal Hazards Assessment and Risk Mapping: Jekyll Island, Glynn County, Georgia. Amount Requested: \$4,760.

State of Florida, Division of Emergency Management, 1997: Coastal Risk Maps for *Living With the Florida Shore Books*. Amount Requested \$29,075.

National Institute for Global Environmental Change, 1997 (Lisa Gezon, PI): Socioeconomic Consequences of Climatic Change on a Georgia Barrier Island: An Interdisciplinary Study.

Federal Emergency Management Agency, Region IV, Atlanta Georgia, 1996: Coastal Risk Maps for Living With the Shore Books. Amount Requested: \$23,720.

*Professional Activities*

National Park Service spokesperson at the Santa Rosa Island (Florida) Roadways Design & Technical Review Meeting, for Gulf Islands National Seashore, October 18-19, 2006, Gulf Breeze, Florida.

Member of Steering Committee for NOAA Shoreline Change Conference II: A Workshop on Managing Shoreline Change, May 3-5, 2006

General Advisor to Living With the Shore book series published by Duke University Press, edited by Orrin H. Pilkey and William J. Neal. Also, co-author of 6 volumes.

Post-Hurricane Luis field investigation, Antigua, West Indies, sponsored by the Natural Hazards Center, September 17-21, 1995.

Post-Hurricane Opal field investigation, Florida panhandle, sponsored by the Natural Hazards Center, Oct. 6-8, 1995.

Contributor to FEMA report on “Cost Effectiveness of Mitigation.”

Presented at special Hurricane Fran session at the Geological Society of America meeting in Denver, October 1996

Session Chair at Natural Hazards Reduction meeting in Washington, DC, December 1996

GSA abstract reviewer for Marine Geology Program, 1997 annual meeting

Facilitator of Eastern United States Mitigation Summit, Wilmington, North Carolina, December 8-10, 1997, for Federal Emergency Management Agency

Associate Editor of AAPG's Division of Environmental Geosciences journal, *Environmental Geosciences*, 1998-.

Member, Joint Technical Program Committee, Geological Society of America, 1998-

Co-coordinator of a Topical Session for 1999 Annual Meeting of the Geological Society of America titled Coastal Geologic Hazards: Mapping the Risks and Influencing Public Policy

Co-editor (with Robert S. Young) of three special issues of *Environmental Geosciences* dealing with Coastal Hazards Mapping (volume 7, issue 1, 2000; volume 7, issue 3, 2000; and volume 8, issue 1, 2001)

Coastal Erosion seminar presented at Jekyll Island Museum, October, 1997

Proposal Review Panel Member, National Science Foundation, 1997, 1998

Technical Review Panel Member, University of Puerto Rico Sea Grant College Program, 1999, 2003

Invited speaker, Association of Engineering Geologists Annual Meeting, St. Louis, October 2-6, 2001

Presented coastal hazards assessment project information to public hurricane information meetings in Savannah and Brunswick, August, 2001, sponsored by the Georgia Marine Extension Service

Evaluated Pleasant Bay MA, and portions of the Cape Cod National Seashore, October, 2001, for the Pleasant Bay Alliance

Attended and presented at the Coastal Georgia Colloquium, Coastal Georgia Center, Savannah, GA, June 30, 2002

Toured convention facilities in Seattle, WA, as part of preparation for duties as Chair of the Technical Program Committee, Geological Society of America 2003 Annual Meeting

Co-Coordinator, Special Topical Session, Geological Society of America 2003 Annual Meeting, *From the Abyss to the Beach: In Honor of Orrin H. Pilkey*

Professional conference attendance: Annually attend the Geological Society of America

annual meeting; often attend the Geological Society of America Southeastern Section meeting; frequently attend Georgia Academy of Science annual meeting; occasionally attend Georgia Geological Survey annual meeting; occasionally attend special meetings dealing with Georgia and Caribbean coastal issues.

*Community Activities:*

- Guest speaker, Carrollton Rotary Club, Golden K Club, Optimist Club, Retired Officers Club, Kiwanis Club, Great Decisions series
- Appeared on CNN Sunday Morning show with Miles O'Brien discussing approach of Hurricane Floyd, September, 1999
- Featured on a CNN chat discussing hurricane impacts and mitigation, September, 1999
- Prepared application to the Federal Emergency Management Agency for inclusion of Carrollton as a pilot Disaster-Resistant Community under Project Impact
- Co-Leader (with Orrin Pilkey), Field Trip to illustrate coastal hazards, relative risk, and property damage mitigation alternatives. Myrtle Beach, South Carolina, October 16-17, 1996. Held in conjunction with release of *Living by the Rules of the Sea* and *Living With the South Carolina Coast* books, and to publicize *Living on the Edge* video. Trip sponsored by Duke University, Office of Research Communications.
- Interviewed by Earth and Sky for background information for radio spot on the Cape Hatteras Lighthouse
- Evaluated risk of Dauphin Island, AL and presented findings to city council, February 12, 1997
- Assisted National Geographic magazine for article on Barrier Islands, February 1997
- Participated in First Coastal Issues Symposium, Dauphin Island Alabama, February 20, 1998
- Evaluated progress of coastal sand dune-building project for Isabel Institute, Puerto Rico, December 1997.
- Appointed Special Assistant of the Federal Emergency Management Agency, 1999
- Interviewed for several newspaper and magazine articles
- Organized "Hurricane Day" in 1997 and 1998 with student participation as part of Risk Assessment class project
- Presentation on Hurricanes to Optimist Club, March 1999
- Organized and led (with Rob Young, Western Carolina University) a short course, *Coastal Geology, Coastal Hazards, and Coastal Management*, for the University of the Virgin Islands. Taught at St. Croix, USVI, September 2000.
- Organized and led (with Randy Kath, UWG, and Rob Young, Western Carolina University) a short course, *Water Resources, Coastal Hazards, and Coral Reef Degradation*, for the University of the Virgin Islands. Taught at St. Thomas, USVI, July 2001.
- Hazards Assessment for Carroll County Emergency Management Agency, 2003. Risk Assessment class, along with Dr. Dodge's Remote Sensing Class, and Dr. Pearson's GIS class presented a semester-long evaluation to County and State officials. Website created as final class project ([www.westga.edu/~dbush/carrhaz](http://www.westga.edu/~dbush/carrhaz))
- Appeared on Atlanta NBC and Fox stations local news during approach of Hurricane Isabel, September 2003
- Featured on Discoveries and Breakthroughs in Science, produced by the American Institute of Physics, short program about new Hurricane Impact Scale developed with Robert S. Young, Western Carolina University, July 2004
- UWG Melson Society speaker, Global Warming, February 2012

Great Decisions discussion moderator, State of the Oceans, March 2012  
League of Women Voters, Carrollton, speaker, Global Warming, March 2012

Graduate Student Involvement

Member, PhD Committee, Chester W. Jackson, Jr., University of Georgia, Department of Geology and Geography, April, 2010.

Member, Master's Thesis Committee, Chester W. Jackson, University of North Carolina at Wilmington Earth Sciences Department, graduation: June 2004

Member, Master's Thesis Committee, Tracy Rice, Duke University Division of Earth and Ocean Sciences, completed 1999

Member, Master's Thesis Committee, Craig Webb, Duke University Department of Geology, completed 1997

Member of several graduate committees, UWG College of Education