

# Curriculum Vita

## Anna H. Wachnicka, PhD

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### Research Interest

My research interests include paleoecology, paleoclimatology, aquatic community ecology and algal taxonomy. I am interested in studies that examine impact of changing climate, sea level rise and humans on estuarine and coastal wetland ecosystems over short (intra- and inter- annual) and long (decadal to centennial) temporal scales

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### Professional Experience

- (2011-present) **Research Associate**, Southeastern Environmental Research Center, Florida International University, Miami, Florida, U.S.A.
  - (2011-present) **Lecturer**, Department of Earth and Environment, Florida International University, Miami, Florida, U.S.A.
  - (2009-2011) **Visiting Research Associate**, Southeast Environmental Research Center, Florida International University, Miami, Florida, USA
  - (2012-2013) **Visiting Research Fellow**, Department of Earth Sciences, University of Stettin, Stettin, Poland
  - (2011-2013) **Lecturer**, Department of Physics, Chemistry and Earth Sciences, Miami Dade College, Miami, Florida, U.S.A.
  - (2001-2009) **Research Assistant**, Southeastern Environmental Research Center, Florida International University, Miami, Florida, U.S.A.
  - (1999-2001) **Graduate Research Assistant**, Department of Earth Sciences, University of Stettin, Stettin, Poland
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### Education

- (2009) **Ph.D. in Geosciences**, Department of Earth and Environment, Florida International University, Miami, Florida, U.S.A.
  - (1999) **B.Sc. & MSc.**, Department of Earth Sciences, University of Stettin, Stettin, Poland
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### Research Grants, Awards, Scholarships

- 2013-2014 **Wachnicka (PI)** The History of Regime Shifts in South Florida Estuaries Based on Fossil Records in Biscayne Bay and Coastal Mangroves, *U.S. Geological Survey*, Reston,

Virginia, USA (**Phase III: \$25,000**)

- 2012-2013 **Wachnicka (PI)** and Gaiser (Co-PI) The History of Regime Shifts in South Florida Estuaries Based on Fossil Records in Florida Bay and Biscayne Bay, *U.S. Geological Survey*, Reston, Virginia, USA (**Phase II: \$45,000**)
  - 2011-2012 **Wachnicka (PI)** and Gaiser (Co-PI) The History of Regime Shifts in South Florida Estuaries Based on Fossil Records in Florida Bay and Biscayne Bay. *U.S. Geological Survey*, Reston, Virginia, USA (**Phase I: \$25,000**)
  - 2012-2013 **Wachnicka (PI)** Impact of the recent climate warming on shallow-water marine ecosystems in Dry Tortugas National Park and Marquesas Keys (Florida, USA) based on multi-proxy geochemical and biological data. National Center of Sciences Fellowship, (**\$165,000**)
  - 2007 **Best Student Poster Award**, Long-Term Ecological Research Program (LTER), All Scientists Meeting, Miami, Florida, USA (**\$100**)
  - 2006 **Faculty Research Seed Funds Endowment**, Southeast Environmental Research Center, Florida International University, Miami, FL, USA (**\$5,000**)
  - 2004 **Jessup and McHenry Scholarship**, The Academy of Natural Sciences, Philadelphia, USA (**\$1,200**)
  - 1999 **Faroe Islands Scholarship**, Biofar Laboratory, University of the Faroe Islands, Kaldback, Faroe Islands (**DKK 5,000**)
  - 1999 **Honorable Award for the Best Master Thesis in Geography**, National Geographical Society, Poland (2<sup>nd</sup> place in the nation)
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## PUBLISHED MANUSCRIPTS & BOOK CHAPTERS

- **Wachnicka, A.** and L. Wingard. Biological indicators of past environmental change in the coastal and estuarine areas of the Greater Everglades. In: *Microbiology of the Everglades ecosystem* (Eds. Entry, J., Jayajandrachan, Gottlieb, A., and A. Ogdam). Science Publisher (In review)
- Frankovich, T. and **A. Wachnicka**. Diatom communities in the Everglades and their relationships to water quality. In: *Microbiology of the Everglades ecosystem* (Eds. Entry, J., Jayajandrachan, Gottlieb, A., and A. Ogdam). Science Publisher (In review)
- **Wachnicka, A.**, Gaiser, E., Wingard, L., Briceño, H. and P. Harlem (2013). Impact of the late Holocene climate variability and anthropogenic activities on Biscayne Bay (Florida, U.S.A.) environment: evidence from diatoms. *Palaeogeography, Palaeoclimatology, Palaeoecology* 371: 80-92
- **Wachnicka, A.**, Collins L. and E. Gaiser. (2013). Response of diatom assemblages to 130 years of environmental change in Florida Bay (U.S.A.). *Journal of Paleolimnology* 49(1): 83-101
- **Wachnicka, A.**, Gaiser, E., and Collins. (2013). Correspondence of historic salinity fluctuations in Florida Bay, U.S.A., to atmospheric variability and anthropogenic changes. *Journal of Paleolimnology* 49 (1): 103-115
- Sanchez, C., Gaiser, E., Sounders C., **Wachnicka, A.** (2013). Inferences of past water level and hydroperiod in Everglades sloughs interpreted from siliceous microfossils. *Journal of*

- **Wachnicka, A.**, Gaiser, E., and J. Boyer (2011). Autecology and distribution of diatoms in Biscayne Bay, Florida: Implications for bioassessment and paleoenvironmental studies. *Ecological Indicators*, 11(2):622-632.
- **Wachnicka, A.**, Gaiser, E., Collins, L., Frankovich, T. & J. Boyer (2010). Distribution of diatoms and development of diatom-based models for inferring salinity and nutrient concentrations in Florida Bay and adjacent coastal wetlands (U.S.A.). *Estuaries and Coasts*, 33(5):1080-1098.
- Cooper, S., Gaiser, E. and **A. Wachnicka** (2010). Estuarine paleoenvironmental reconstructions using diatoms. In: *Diatoms: Applications for the Environmental and Earth Sciences*, Smol, J., Storer, G. (Eds.) Cambridge Univ. Press, U.K.
- Gaiser, E. E., J. M. La Hée, F. A. C. Tobias and **A. Wachnicka** (2010). *Mastogloia smithii* Thwaites ex Wm. Smith: A structural engineer of calcareous mats in karstic subtropical wetlands. In: *Proceedings of the Academy of Natural Sciences*, Philadelphia, 160(1):99-112.
- Frankovich, T.A., Armitage, **A. Wachnicka**, A., Fourqurean, J., and E. Gaiser (2009). Nutrient effects on seagrass epiphyte community structure in Florida Bay. *Journal of Phycology*, 45(5):1010-1020.
- **Wachnicka, A.** and Gaiser, E. (2007). Morphological characterization of *Amphora* and *Seminavis* (Bacillariacea) from South Florida, U.S.A. *Diatom Research*, 22(2), 387-455.
- Yunping, Xu, Jaffé R., **Wachnicka, A.**, and Gaiser, E.E. (2006). Occurrence of C25 highly branched isoprenoids in Florida Bay: implications for historical diatom change. *Organic Geochemistry*, 37(7):847-859.
- Frankovich, T.A., Gaiser, E., Zieman, J.C. and **A. Wachnicka** (2006). Spatial and temporal distributions of epiphytic diatoms growing on *Thalassia testudinum* Banks ex König: relationships to water quality. *Hydrobiologia*, 569 (1):259-271.
- Gaiser, E., **Wachnicka, A.**, Ruiz, P., Tobias, F. and M. Ross (2005). Diatom indicators of ecosystem change in coastal wetlands. Evidence from diatom records. In: *Estuarine Indicators*, S. Bortone (Ed.), CRC Press. Boca Raton, FL.
- Witak, M., **Wachnicka, A.**, Kuijpers, A., Troelstra, S., Prins, M, and Witkowski, A. (2005). Holocene North Atlantic surface circulation and climate variability. *Holocene Journal*, 15 (1):85-96.

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## MANUSCRIPTS IN PREPARATION

- **Wachnicka, A.**, Wingard, L, Williams, C., and T. Cronin. Multi-proxy study of the Late Holocene ecological regime shifts in South Florida estuaries (Florida, USA) as a result of climate variability and anthropogenic activities. The Holocene (In Preparation)
- **Wachnicka, A.**, and E. Gaiser. Effects of hydrology on interactions between periphyton abundance and plant community structure in Everglades marl prairies, Florida (USA). Wetlands (In Preparation)

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## TEACHING EXPERIENCE

- Oceanography (OCE 3014, Lecturer)
- The History of Life (GLY1101, Lecturer)
- Introduction to Earth Sciences (ECS1000, Lecturer)
- Introduction to Oceanography (OCE 1001, Lecturer)
- Energy in the Natural Environment (PSC 1515, Lecturer)
- Introduction to Marine Biology (OCB 3043, Guest Lecturer)
- Mentoring undergraduate and graduate students in statistics, laboratory and field methodologies

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## TECHNICAL REPORTS

- **Wachnicka, A.** (2012). A multi-proxy study of environmental change and ecological regime shift detection in Florida Bay and Biscayne Bay, Florida (USA) over the last ~ 1001000 years. Annual Report to U.S. Department of Interior, U.S. Geological Survey, Reston, Virginia, U.S.A., GRANT10920117
- Gaiser, E., **A. Wachnicka**, S. Lee and P. Minchin (2011). Developing periphyton-based hydrologic indicators for the Everglades marl prairie. Final Report to Everglades National Park, Grant # CA: H5000 06 0104
- Gaiser, E., **Wachnicka, A.**, Taylor, C, and R. Travieso (2006). Diatom-based water quality performance metrics for Biscayne Bay. Final Report to Everglades National Park, Contract CA 5284-AP00-371
- Ross, M.S., J.F. Meeder, E. Gaiser, P.L. Ruiz, J.P. Sah, D.L. Reed, J. Walters, G.T. Telesnicki, **A.**
- **Wachnicka**, M. Jacobson, J. Alvord, M. Byrnes, C. Weekley, Z.D. Atlas, M.T. Lewin, B. Fry, and A. Renshaw (2003). The L-31E Surface Water Rediversion Pilot Project Final Report to Everglades National Park

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## PUBLISHED ABSTRACTS PRESENTATIONS AT SCIENTIFIC MEETINGS

- 2013 **Wachnicka, A.** Impact of climate change on marine ecosystems in SE Florida (USA). *Atlantic Estuarine Research Society (AERS), Williamsburg, VA (Keynote Speaker)*
- 2011 **Wachnicka, A.**, Gaiser, E., Wingard, L, and H. Briceno. Late Holocene changes in diatom communities in South Florida estuaries caused by climate variability and anthropogenic alterations of watershed on the South Florida mainland. *21th Biennial Conference of the Coastal and Estuarine Research Federation (CERF), Daytona Beach, FL, USA*
- 2010 **Wachnicka, A.**, Gaiser, E., Johnson, D., Tobias, F, and R. Travieso. Interactions between periphyton and macrophytes in the southern Everglades marl prairies, Florida, USA. *Greater Everglades Ecosystem Restoration (GEER), Naples, Florida, USA*
- 2010 **Wachnicka, A.**, Gaiser, E., and L. Wingard. Response of Diatom Communities to the 20th Century Changes in Water Quality Conditions in Biscayne Bay. *Greater Everglades Ecosystem Restoration (GEER), Naples, Florida, USA*

- 2010 **Wachnicka, A.**, Gaiser, E. Distribution of diatoms in subtropical coastal mangrove zone of South Florida, USA. 21st International Diatom Symposium, St. Paul, Minnesota, USA
- 2009 **Wachnicka, A.**, Gaiser, E., Collins, L., and L. Wingard. Impact of Anthropogenic and Natural Factors on Environmental Conditions in South Florida Estuaries, 11th International Paleolimnology Symposium, Guadalajara, Jalisco, Mexico.
- 2009 **Wachnicka, A.**, Gaiser, E., Collins, L., and L. Wingard. Learning from Fossil Diatom Records about Past Environmental Conditions in Two Subtropical South Florida Estuaries, 20th North American Diatom Symposium, Milford, Iowa
- 2009 **Wachnicka, A.**, Gaiser, E. & L. Wingard. Diatom-Based Assessment of Past Water Quality in Biscayne Bay, Florida. 3rd. National Conference on Ecosystem Restoration, Los Angeles, California, USA.
- 2008 **Wachnicka, A.** & E. Gaiser. Diatom-Based Inferences of Environmental Change in Florida Bay and Adjacent Coastal Wetlands of South Florida. Florida Bay and Adjacent Marine Systems Science Conference, Naples, Florida, USA
- 2007 **Wachnicka, A.** & E. Gaiser. The Combined Effects of Climatic and Anthropogenic Factors on the Past Environmental Conditions in Biscayne Bay, Florida. 19th North American Diatom Symposium, Pellston, Michigan, USA
- 2007 **Wachnicka, A.** & E. Gaiser. Diatom-based water quality performance metrics for Biscayne Bay. Florida Coastal Everglades Long Term Ecological Research All Scientists Meeting, Miami, Florida, U.S.A.
- 2005 **Wachnicka, A.** & E. Gaiser. New species of the Amphora and Seminavis species from the marine and coastal environments of South Florida, USA, 18th North American Diatom Symposium, Mobil, Alabama, USA
- 2005 **Wachnicka, A.** & E. Gaiser. Diatom records of environmental changes in Biscayne Bay sediments, Florida Bay Science Conference, Duck Key, FL, USA.
- 2003 **Wachnicka, A.** & E. Gaiser. Putting recent salinity fluctuations in Florida Bay in perspective. A > 2000 years record of changes from diatoms. 17th North American Diatom Symposium, Islamorada, Florida, USA.
- 2003 **Wachnicka, A.** & E. Gaiser. Interpreting ecological response to changes in freshwater delivery from periphyton communities in the Biscayne Bay Coastal wetlands. Greater Everglades Ecosystem Restoration Meeting, Tampa, FL, USA.

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## INVITED SEMINARS

- 2012 **Wachnicka, A.** Impact of climate variability on shallow-water coastal ecosystems in the eastern Gulf of Mexico over the last ~100 years. National Center of Sciences, Cracow, Poland
- 2012 **Wachnicka, A.** Climate-driven changes in shallow-water marine ecosystems in along the Florida Keys, USA. Department of Earth Sciences, Stettin, Poland
- 2008 **Wachnicka, A.** Anthropogenic changes of natural environment in Florida Bay and Biscayne Bay, Florida, USA. Department of Earth Sciences, Stettin, Poland
- 2007 **Wachnicka, A. & E. Gaiser.** Developing diatom – based inference models for interpreting past environments from sediment cores in Florida Bay, USA. Brown Bag Seminar,

## PROFESSIONAL AFFILIATIONS

- Sigma Xi-The Scientific Research Society
  - International Society for Diatom Research
  - U.S. Long-Term Ecological Research Network (LTER)
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## SYNERGISTIC ACTIVITIES

- Co-organizer of diatom exhibition and co-developer of diatom species inventory for the Biscayne Bay National Park (with Dr. Thomas Frankovich (2010). The National Geographic-National Park Service BioBlitz, Biscayne Bay National Park
  - Co-developer of "The South Florida Diatom Image Database" (<http://fcelter.fiu.edu/data/database/diatom/index.htm?species=4303>)
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## SERVICE TO SCIENTIFIC COMMUNITY

### Reviewer for:

- Oceanological and Hydrobiological Studies
- Palaeogeography, Palaeoclimatology, Palaeoecology
- Wetlands
- Journal of Limnology
- Journal of Paleolimnology
- Florida Scientist
- Developments in Paleoenvironmental Research, Applications of Paleoenvironmental Techniques to Estuarine Systems. (Book Series, Springer, Berlin Heidelberg, New York)

### Long-Term Collaborator

- Florida Coastal Everglades Long-Term Ecological Research site (FCE-LTER)
- Marine and Estuarine Goal Setting for South Florida (MARES), Benthic Communities Experts Group

### Sessions Chaired/co-Chaired at Professional Meetings

- "Paleoecology's Role in Decision-making: Adapting to Change Over Many Time-scales", 21st Biennial conference of Coastal and Estuarine Research Federation, (2011), Daytona Beach, Florida USA (co-chaired with Dr. Lynn Wingard, USGS)
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## PERSONAL

- Nationality: US Citizen
- Languages: English (fluent), Polish (fluent), Russian (basic), Spanish (basic)
- Computer programs: SPSS, PcOrd, Primer, Tilia, C2, R, PaleoNet, All Microsoft Office programs, ArcGIS