

**Curriculum Vitae**  
**Mark A. Ross**

College of Engineering  
University of South Florida  
Tampa, FL 33620

**JOINT POSITIONS:**

Associate Professor Department of Civil Engineering & Mechanics	Director Center for Modeling Hydrologic and Aquatic Systems
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**EDUCATION:**

Ph.D. Civil Engineering - Coastal Hydraulics - University of Florida, 1988  
MSE Civil Engineering - Water Resources - University of South Florida, 1982  
BSE Civil Engineering - Water Resources - University of South Florida, 1982

**PROFESSIONAL EXPERIENCE:**

Associate Professor, Department of Civil Engineering & Mechanics, University of South Florida, September 1994-present.

Director, Center for Modeling Hydrologic and Aquatic Systems, University of South Florida, 1998-present.

President, Hydrosystems Associates, Inc., 1999-present.

Assistant Professor, Department of Civil Engineering & Mechanics, University of South Florida, 1990-1994.

Associate Director, Center for Modeling Hydrologic and Aquatic Systems, University of South Florida, 1988-1998.

Consultant and Chief Engineer, Hydrosystems Associates, Inc., 1998-1999.

Consultant and Sr Hydraulics Engineer, Hydrosystems Associates, Inc., 1984-1998.

Visiting Assistant Professor, Department of Civil Engineering & Mechanics, University of South Florida, 1987-1990.

Research Assistant, Department of Coastal and Oceanographic Engineering, University of Florida, 1985-1987.

Hydrologist, Hydrosystems Associates, Inc., 1982-1984.

Research & Teaching Assistant, University of South Florida, 1981-1982.

**PROFESSIONAL REGISTRATION**

Florida Professional Engineer (P.E.) License Number: 0042721

## **RECENT AND CURRENT UNIVERSITY RESEARCH:**

Dr Ross was the lead Principal Investigator of the following projects (please see separate listing for additional details):

### Water Resources Investigations: Modeling and Systems Management

#### Interaction of Surface & Groundwater and Integration of GIS and Hydrologic Modeling

- South Florida Water Management District, Impact of Rainfall Variability on Storm Water Modeling in South and Central Florida, 2000-01.
- Southwest Florida Water Management District, Development of Interfacial Boundary Conditions for the Southern District Groundwater Model, 1999-2000.
- Southwest Florida Water Management District, Technical Review and Training: Integrated Hydrologic Model, 1997-98.
- Florida Institute of Phosphate Research, Hydrologic Investigation of the Southern Phosphate District", 2000-2001.
- Florida Department of Environmental Protection, Supplemental Investigation of Phosphate-Mined Upper Saddle Creek Watershed, 1997-98.
- Florida Institute of Phosphate Research, Hydrologic Investigation of Phosphate Mined Upper Saddle Creek Watershed, 1996-98.
- Southwest Florida Water Management District, Integrated Flow Model Review for Northern Tampa Bay, 1996.
- Southwest Florida Water Management District, Integrated Modeling for District-Wide Water Resources Management, 1993-1996.
- Florida Institute of Phosphate Research, FHM Support, Maintenance and Research, 1992-1995.
- U.S. Fish and Wildlife Service, A GIS Based Refuge Water Management Modeling System, 1991-1994.
- University of South Florida Research Initiation Funding, Preliminary Investigation of GIS Based Water Management Model, 1991-1992.
- Florida Institute for Phosphate Research, FIPR Hydrology Project, 1988-1991.

#### Wetland Stormwater Quality Treatment, Surface, Groundwater Water Quality and Wastewater Reuse

- Florida Department of Environmental Protection, Microscopic Particulate Analysis Sampling, 2000.
- Zenon Environmental Systems, Inc., Ultra-filtration of Hillsborough River Water Pilot Study", 1999.
- Florida Department of Environmental Protection, Microscopic Particulate Analysis Sampling, 1999.
- Florida Department of Environmental Protection, Efficiency of Wetlands for Stormwater Treatment and Management, 1991-1993.

#### Hydraulic and Water Quality Modeling of Receiving Water and Estuary Systems

- Pinellas Co, Upgrade of the Lake Tarpon Water Quality Management Model, 1995.
- Pinellas County EPM, Upgrade Lake Tarpon, 1994
- Pinellas Co & SWFWMD, Lake Tarpon Water Quality Management Model Development, 1990-1992.
- DSR/COE Research Development Equipment Grant, 1991.
- DSR/COE Research Development Equipment Grant, 1990.

### Sediment Transport, Erosion, Fluidization, Coastal Scour

#### Cohesive Sediment Re-suspension in Coastal Environments

- USCOE-WES, Wave Fluidization Study, 1987.

#### Non-Cohesive Sediment Transport in Tidal Flows

- FDOT, District 2, District Wide Scour Study, 1992-1994.
- FDOT, Fundamental Sediment Scour in Tidal Inlets, 1991.

## PUBLICATIONS AND TECHNICAL REPORTS

### REFEREED PAPERS

Becker, M.L. and Ross, M.A., "Interaction of Tidal Inlets in a Multi-inlet Bay System: A Case Study Along the Central Gulf Coast of Florida." J. Coastal Resch., Paper accepted awaiting publication, 2000.

Geurink, J. S. and Ross, M. A., "Temporal dependency and parameter upscaling for overland flow with kinematic wave routing." J. Hydrologic Engrg., ASCE paper no: 19478-HE, accepted for publication pending edits, 2000.

Geurink, J. S. and Ross, M. A., "Temporal dependency of infiltration Errors in HSPF." J. Hydrologic Engrg., ASCE paper no: 18854, accepted for publication pending re-review of edits, 2000.

Trout, K., Stewart M., Ross M., and Tara P., "On Parameter Optimization and Uncertainty Analysis of an Integrated Hydrologic Model." Daniels, W.L., and S.G. Richardson (Eds.). 2000. Proceedings, 2000 Annual Meeting of the American Society for Surface Mining and Reclamation, Tampa, FL, June 11-15, 2000. Amer. Soc. Surf. Mining Rec., 2000.

Ross, Mark A., "Aplicación de los sistemas de información geográfica en la gestión de las aguas de tormenta." Uso del Subsuelo en el control y Gestión de Aguas del Tormenta, Ovieda, Spain, March 1997.

Ross, Mark A., "El control y las gestión de los aguas de tormenta en Florida: casos de las ciudades de Orlando y Tampa." Uso del Subsuelo en el control y Gestión de Aguas del Tormenta, Ovieda, Spain, March 1997.

Ross, Mark A., "Las aguas del tormenta en la minería. Caso de la minería de fosfatos en Florida." Uso del Subsuelo en el control y Gestión de Aguas del Tormenta, Ovieda, Spain, March 1997.

Ross, Mark A., and Stefanakou, Georgia I., "Investigation of Artificial Recharge on West Central Florida Wellfields: Cone Ranch, A Case Study", American Water Resources Association, Annual Conference, October 1997.

Perry, Robert G., and Ross, Mark A., "Non-Point Source Loading to The Surficial Aquifer", being submitted to Journal of Water Resources Planning and Management, American Water Resources Association, Fall 1997.

Perry, Robert G., and Ross, Mark A., "Synthetic Rainfall Data for Modeling Recharge and Runoff Events", submitted to Journal of Water Resources Planning and Management, American Water Resources Association, November 1995.

Ross, M.A., Geurink, J. and Tara, P.D., "On Integrated Modeling of Large Multi-Basin Areas: Costs and Benefits", submitted to Journal of Water Resources Planning and Management, August 1995.

Ross, M.A., "Status of GIS in Water Systems" in *GIS in Urban Water & Management*, Elgy, J. and Maksimovic, C. editors, Water Resources Publication, Publishers, H. Collins, Co., Fall 1995.

Ross, M.A., "Case Studies in Integrated Modeling in the United States", in *GIS in Urban Water & Management*, Elgy, J. and Maksimovic, C. editors, Water Resources Publication, Publishers, H. Collins, Co. 1995.

Halley, Mary C. and Ross, Mark A., "A Lake Water Quality and Stormwater Management for Lake Tarpon, Florida", submitted to Journal of the American Water Resources Association, September 1994.

Ross, M. A., and Tara, P. D., "Integrated Hydrologic Modeling with GIS", American Society of Civil Engineering, Journal of Water Resources Planning and Management, Vol. 119, No. 2, March/April 1993.

Vincent, M. S., Ross, M. A., and Ross, B. E., "A Tidal Inlet Bridge Scour Assessment Model", Transportation Research Board, National Research Council, Transportation Research Record, No. 1420, 72nd Annual Meeting, Washington, D.C., October 1993.

Ross, M. A., and Mehta, A. J., "Fluidization of Soft Muds by Waves", Microstructure of Fine-Grained Terrigenous Marine Sediments from Mud to Shale, Frontiers in Sedimentary Geology, R. H. Bennett, W. R. Bryant, and M. H. Hulbert, editors, Springer Verlag, 1991.

Ross, M. A., and Mehta, A. J., "On the Mechanics of Lutoclines and Fluid Mud", Journal Coastal Research, Special Issue on Physics of High Concentration Suspensions in Estuaries, Special Issue No.5, 1989.

Ross, M. A., Mehta, A. J., "On the Transport of High Concentration Suspensions", in Flocculation and Dewatering, Brij M. Moudgil and Bernard J. Scheiner, editors, Engineering Foundation, New York, NY, January 1988.

## **SYMPOSIA PUBLICATIONS**

Ross, M.A., Tara, P.D., and Geurink, J., "On Integrated Modeling of Large Multi-Basin Areas: Lessons Learned", Groundwater Management: Proc. of the International Symposium, Randall J. Charbeneau, ed., San Antonio, TX, August 1995.

Ross, M.A. and Tara, P.D., "Integrated Modeling for Reclamation and Regional Water Management", Peace River Planning Conference, Proc. of, Bartow, Florida, February 1995.

Ross, M. A., "Integrating GIS and Hydrologic Modeling for Evaluating Anthropogenic Activities on Aquatic Systems", Remote Sensing and GIS in Urban Waters, UDT 1994 Conference, Proceedings of the International Conference, Moscow, Russia, September 1994.

Tara, P.D., and Ross, M.A., "Advancements in Integrated Hydrologic Modeling for Mine Reclamation", Wetlands: 21st. Annual Conf. on Wetland Restoration and Creation, Tampa, Florida, May 1994.

Ross, M. A., Cunningham, L. L., and Maddock, T., "An Integrated Hydrologic Model for Water Management on U.S. Fish and Wildlife Service Refuges", 29th Annual American Water Resources Association Conference, Tucson, Arizona, September 1993.

Ross, M. A., Tara, P. D., Burdge, J., "New Directions in Integrated Hydrologic Modeling with GIS", American Water Resources Association, 1993 National Conference on Hydraulic Engineering, "Exemplary Systems for GIS Applications in Surface Water Hydrology", San Francisco, California, July 25-30, 1993.

Halley, M. C., and Ross, M. A., "A Lake Water Quality Management Model to Evaluate Watershed Stormwater Management Alternatives", American Society of Civil Engineers, 1993 National Conference on Hydraulic Engineering, "Exemplary Systems for GIS Applications in Surface Water Hydrology", San Francisco, California, July 25-30, 1993.

Vincent, M. S., and Ross, M. A., "A Tidal Inlet Bridge Scour Assessment Model", Annual ASCE Hydraulics Conference, San Francisco, California, July 1993

Cunningham, Leslie L., and Ross, Mark A., "An Integrated Hydrologic Model for Managing Water Resource Needs on United States Fish and Wildlife Service Refuges and Hatcheries", The Third National U.S. Fish and Wildlife Geographic Information Systems Workshop, La Cross, Wisconsin, May 1992.

Fielland, C. E., Ross, M. A., "Improved HSPF Infiltration Calibration Procedure with a Linked GIS", 1991 National Conference on Hydraulic Engineering and International Symposium on Groundwater, Nashville, Tennessee, July 1991.

Ross, M. A., Tara, P. D., Schwartz, M., "Groundwater Modeling with GIS", 1991 National Conference on Hydraulic Engineering and International Symposium on Groundwater, Nashville, Tennessee, July 1991.

Ross, B. E., Ross, M. A., "An Engineering Analysis of Sedimentation in Tidal Inlets", 1991 National Conference on Hydraulic Engineering and International Symposium on Groundwater, Nashville, Tennessee, July 1991.

Ross, M. A., "Watershed and Receiving Water Quality Modeling with a GIS", ASCE 18th National Water Resources Conference, New Orleans, Louisiana, May 1991.

Ross, B. E., Ross, M. A., "The Engineering of Mathematical Models", ASCE 18th National Water Resources Conference, New Orleans, Louisiana, May 1991.

Ross, M. A., Fielland, C. E., Tara, P.D., "An Integrated GIS/Hydrologic Model for Phosphate Mining Reclamation Design and Analysis", ASCE Special Conference on GIS and Remote Sensing, Washington, DC, May 1991.

Ross, M. A., Tara, P. D., "GIS Analysis for Hydrologic Modeling", 8th National Conference on Microcomputers in Civil Engineering, ASCE, Orlando, Florida, 1990.

Fielland, C. E., Ross, M. A., "An Input Data Preprocessor Linked to a GIS for HSPF Hydrologic Simulation", 8th National Conference on Microcomputers in Civil Engineering, Orlando, Florida, 1990.

Ross, M. A., Fielland, C. E., Tara, P. D., "An Integrated GIS/Hydrologic Model for Phosphate Mining Reclamation Design", 26th Annual AWRA Conference - The Science of Water Resources: 1990 and Beyond, Denver, Colorado, 1990.

Ross, M. A. and Ross, B. E., "Development of an Integrated GIS/Hydrologic Model on a 386 Microcomputer for Reclamation Design", 7th National Conference on Microcomputers in Civil Engineering, ASCE, Orlando, Florida, November 1989.

Powers, R. M., Davis, P. R., and Ross, M. A., "Modeling the Hydrologic Impacts of Phosphate Mining and Reclamation in Central Florida", AWRA 25th Annual Conference on Water: Laws and Management, Tampa, Florida, September 1989.

Ross, M. A., Mehta, A. J., and Lin C.-P., "On The Definition of Fluid Mud", ASCE Hydraulics Specialty Conference, Williamsburg, Virginia, August 1987.

Ross, B. E., and Ross, M. A., "Environmental Concern Related to Bridge Pier Protection", The Fourth Symposium on Coastal and Ocean Management, Coastal Zone 85, Baltimore, Maryland, July 1985.

Ross, B. E., and Ross, M. A., "Non-Point Pollution Abatement in Tampa Bay", Symposium on Nonpoint Pollution - Technical, Managerial, and Institutional Problems and Solutions, Marquette University, Milwaukee, Wisconsin, April 1985.

Ross, B. E. and Ross, M. A., "Circulation Patterns in Tampa Bay", William and Mary Charter Day Symposium on Circulation in Estuaries, Virginia Institute of Marine Science, Williamsburg, Virginia, February 1985.

## **PUBLISHED REPORTS**

Geurink, J. S., Nachabe, M., Ross, M. A., Tara, P. December 2000, "Development of Interfacial Boundary Conditions for the Southern District Groundwater Model of the Southwest Florida Water Management District", Prepared Southwest Florida water Management District, Center for Modeling Hydrologic and Aquatic Systems, Department of Civil and Environmental Engineering, University of South Florida, Tampa, Florida, 2000.

Tara, Patrick D., Trout, Ken, Vomacka, Jeffrey, Ross, Mark A., and Stewart, Mark T.. "Hydrologic Investigation of the Phosphate Mined Upper Saddle Creek Watershed, West-Central Florida." Univ. of South Florida, Tampa, Fl, 2000.

Ross, M.A., Tara, P. D., Geurink, J. S., and Stewart, M. T.. "FIPR Hydrologic Model Users Manual and Technical Documentation, Part IV, Application: SWFWMD Regional Database." Univ. of South Florida, Tampa, Fl, 1997.

Ross, Mark A. , Tara, Patrick D., Geurink, Jeffrey S., and Stewart, Mark T., "FIPR Hydrologic Model Users Manual and Technical Documentation", Prepared for Florida Institute of Phosphate Research and Southwest Florida Water Management District, Center for Modeling Hydrologic and Aquatic Systems, CMHAS Water Resources Report, FIPR.97.03, Department of Civil and Environmental Engineering, University of South Florida, Tampa, Florida, July 1997.

Geurink, Jeff S., Jodi Ann Baudean, Tara, Patrick D., Stewart, Mark T., and Ross, Mark A., "A GIS-Based Multi-Scale Integrated Model for Comprehensive Water Management Evaluation, Task Four Report: Surface Water and FHM Integrated Model Development and Simulation," prepared for Southwest Florida Water Management District, CMHAS Water Resources Report, SWFWMD.97.02, Department of Civil and Environmental Engineering, University of South Florida, Tampa, Florida, October 1995.

Geurink, Jeff S., Tara, Patrick D., Stewart, Mark T., and Ross, Mark A., "A GIS-Based Multi-Scale Integrated Model for Comprehensive Water Management Evaluation, Task Three Report: Multi-Scale Groundwater Model Development and Simulation," prepared for Southwest Florida Water Management District, CMHAS Water Resources Report, SWFWMD.97.01, Department of Civil and Environmental Engineering, University of South Florida, Tampa, Florida, October 1995.

Geurink, Jeff S., Langevin, Chris, Tara, Patrick D., Stewart, Mark T., and Ross, Mark A., "A GIS-Based Multi-Scale Integrated Model for Comprehensive Water Management Evaluation, Task Two Report: Groundwater Model Development and Simulation," prepared for Southwest Florida Water Management District, CMHAS Water Resources Report, SWFWMD.95.02, Department of Civil and Environmental Engineering, University of South Florida, Tampa, Florida, October 1995.

Geurink, Jeff S., Stewart, Mark T., and Ross, Mark A., "A GIS-Based Multi-Scale Integrated Model for Comprehensive Water Management Evaluation, Task One Report: Data Collection and Assessment," prepared for Southwest Florida Water Management District, CMHAS Water Resources Report, SWFWMD.95.01, Department of Civil and Environmental Engineering, University of South Florida, Tampa, Florida, April 1995.

Ross, Mark A., Geurink, Jeff S., and Tara, Patrick D., "The FHM Integrated Model Application to the Quivira National Wildlife Refuge", prepared for US Fish and Wildlife Service, CMHAS Water Resources Report, USFWS.94.1, Tampa, Florida, February 1994.

Vincent, Mark S., and Ross, Mark A., "Johns Pass Bridge Scour Assessment Model", prepared for The Florida Department of Transportation, by The Center for Modeling Hydrologic and Aquatic Systems, University of South Florida, Tampa, Florida, July 1992.

Halley, Mary C., Ross, Mark A., and Tara, Patrick D., "Lake Tarpon Water Quality Management Model", Prepared for The Pinellas County Department of Environmental Management, by The Center for Modeling Hydrologic and Aquatic Systems, University of South Florida, Tampa, Florida, April 1992.

Ross, M. A. (co-author), Florida Institute of Phosphate Research (FIPR), FIPR Hydrologic Model: Volumes 1 and 2, Technical and Users' Documentation, 1992, 93, 94.

Morgan, D. R., Ross, B. E., Ross, M. A., "Hydraulic and Water Quality Study of the Courtney Campbell Causeway One-Way Tidal Gates, Hillsborough County, Florida", for the Florida Department of Transportation, Department of Civil Engineering, College of Engineering, University of South Florida, Tampa, Florida, April 1984.

Ross, B. E., Ross, M. A. and Jerkins, P. D., "Wasteload Allocation Study, Tampa Bay, Florida", Volumes I-VI, for Florida Department of Environmental Regulation, Department of Civil Engineering and Mechanics, College of Engineering, University of South Florida, Tampa, Florida, March 1984.

Ross, B. E., Ross, M. A., and Jerkins, P. D., "Final Report: Further Design Considerations, Pier Protection Islands, Sunshine Skyway Bridge", Florida Department of Transportation, Tampa, Florida, January 1984.

Ross, B. E., Ross, M. A., Jerkins, P. D., "Hydrodynamic Considerations for Pier Protection Islands-Sunshine Skyway Bridge", Center for Mathematical Models, College of Engineering, University of South Florida, Tampa, Florida, January 1984.

Ross, B. E., Ross, M. A. and Jerkins, P. D., "Design Conditions for Pier Protection Islands, Sunshine Skyway Bridge, Tampa, Florida", for Florida Department of Transportation, Hydrosystems Assoc., September 1983.

## **PRIVATE REPORTS**

Dr Ross has authored more than 50 technical reports for public and private entities documenting various hydrologic, hydraulic and water quality studies through his consulting affiliation with Hydrosystems Associates Inc. An example listing is provided below. A more comprehensive listing is available upon request.

Hydrosystems Associates, "Hydraulic Investigation of Cargill South Parcel Restoration Project", for Southwest Florida Water Management District, Florida Department of Environmental Protection, and Hillsborough County Environmental Protection Commission, October 1994.

Hydrosystems Associates, "Design Considerations for Shoreline Stabilization to Promote Emergent Vegetation on Causeways", for Florida Department of Transportation, April 1993.

Hydrosystems Assoc., "A Hydrographic Study of An Unnamed Canal in Indian Rocks Beach, Florida", for Florida Department of Environmental Regulation, August 1992.

Hydrosystems Assoc., "Water Quality Based Effluent Limitation Study", Royster Phosphate, Inc., July 1991.

Hydrosystems Assoc., "Clearwater Pass Bridge Study", Volcker Engineering, October 1990.

Hydrosystems Assoc., "The Truman Annex Hydrographic Report", for Greiner Engineering, October 1989.

Hydrosystems Assoc., "Hydraulic Modeling Analysis of Proposed Marina on the Anclote River", Tarpon Springs, Florida, May 1984.

Hydrosystems Assoc., "A Hydraulic Modeling Study of the Manatee Gateway Revised Basin Configuration", Manatee County, Florida, May 1984.

Hydrosystems Assoc., "A Hydraulic and Water Quality Study for the Manatee Gateway Project: Evaluation of an Alternative Basin Design, Manatee County, Florida", for Conservation Consultants, Inc., October 1983.

Hydrosystems Assoc., "Hydraulic Modeling Analysis of a Proposed Marina at Bayport Colony, Oldsmar, Florida", for Florida Land Design and Engineering, Tampa, Florida, September 1983.

Hydrosystems Assoc., "A Mathematical Modeling Analysis of a Proposed Breakwater at Marker 1 Marina", Dunedin, Florida, August 1983.

Hydrosystems Assoc., "Cortez Harbor, Manatee County, Florida: A Hydrologic Assessment of the Revised Tidal Basin", for Manatee Canvest Corp., Tampa, Florida, March 1983.

Hydrosystems Assoc., "Supplemental Report on Manatee Gateway: A Hydrologic Study", Tampa, Florida, December 1982.

Hydrosystems Assoc., "A Hydrologic Study for the Manatee Gateway Project, Palmetto, Florida", Tampa, Florida, May 1982.

Hydrosystems, Assoc., "Cortez Harbor, Manatee County, Florida: A Hydrologic Study", for GCI Environmental Developers, Inc., c/o Zoller and Najjar Engineering, Inc., Tampa, Florida, April 1982.

Hydrosystems Assoc., "Sanctuary Bay: An Artificial Tidal Pond", Palma Sola Bay, Florida, August 1981.

## INVITED LECTURES/PRESENTATIONS

Ross, Mark A., "Aplicación de los sistemas de información geográfica en la gestión de las aguas de tormenta." Uso del Subsuelo en el control y Gestión de Aguas del Tormenta, Ovieda, Spain, March 1997.

Ross, Mark A., "El control y las gestión de los aguas de tormenta en Florida: casos de las ciudades de Orlando y Tampa." Uso del Subsuelo en el control y Gestión de Aguas del Tormenta, Ovieda, Spain, March 1997.

Ross, Mark A., "Las aguas del tormenta en la minería. Caso de la minería de fosfatos en Florida." Uso del Subsuelo en el control y Gestión de Aguas del Tormenta, Ovieda, Spain, March 1997.

Ross, Mark A., "Surface Water Resources," Engineering Options for a Sustainable Water Supply, Florida Engineering Society Special Workshop, Tampa, Florida, February 1997.

Ross, Mark A., "Modeling for Stormwater Management," Florida Department of Environmental Protection, Workshop on Stormwater Management, St. Petersburg, Florida, February 1997.

Ross, Mark A., "District-Scale Integrated Model," American Society of Civil Engineers, West Coast Branch, Seminar on Environmental Management, Status and Trends, Tampa, Florida, March 1997.

"Integrating GIS and Hydrologic Modeling for Evaluating Anthropogenic Activities on Aquatic Systems", Remote Sensing and GIS in Urban Waters, UDT '94 Conference, Moscow, Russia, September 1994.

"Real-Time Bay Modeling with Tampa Bay Ports System", ASCE West Coast Branch Monthly Meeting, Tampa, FL, April 1994.

"District-Wide (SWFWMD) Integrated Modeling for Water Management, Annual ASCE Water Resources Symposium, Tampa, FL, March 1994.

"GIS Applications in Hydrologic Modeling", Annual ASCE Water Resources Meeting, Tampa, FL March 1993.

"Integrated Hydrologic Modeling", Southwest Florida Water Management District, Brooksville, Florida, November 24, 1992.

"U.S. Fish and Wildlife Service FHM Research", U.S. Fish and Wildlife Service, Albuquerque, New Mexico, November 20, 1992.

"An Overview of the USFWS Integrated Hydrologic Model", Kansas Geological Survey, Kansas City, MO, September 1992.

"Tidal Scour Assessment: Example John's Pass Florida., Southeastern Hydraulics Engineers' Meeting, Orlando, FL, April 22, 1988.

"Historical Tampa Bay Modeling Perspective", Tampa Bay National Estuary Program, St. Petersburg, Florida, February 12, 1992.

"Tampa Bay Modeling - New Directions", American Society of Civil Engineers - Florida Section, Tampa, FL, May 1991.

"Multidisciplinary Water Resources Education in the Southeast - A Case Study: Florida", UCWR, August 1991.

"Lake Water Quality Management and Modeling", Florida Association of Environmental Managers, March 1991.

"Water Management Needs and Available Technology - USFWS", Albuquerque, NM, January 1991.

"Geographic Information Systems and Hydrologic Modeling", CEM Environmental Engineering Seminar Series, November 1989.

"Presentation of the FIPR Hydrologic Model", A special Symposium and Workshop in conjunction with the AIME Fourth Annual Regional Phosphate Conference, Winter Haven, Florida, October 1989.

"Behavior of Fine Sediment in Generating Coastal Turbidity", Beach Preservation Technology 1989, Tampa, Florida, February 1989.

"Vertical Structure of Estuarine Fine Sediment Suspensions", U.S. Army Corps. of Engineers (Waterways Experimental Station, Hydraulics Division), Vicksburg, Mississippi, May 1988.

"Problems in Defining Fluid Mud and Lutocline Dynamics", Workshop on Estuarine and Cohesive Sediment Dynamics - Physics of High Concentration Suspensions and Field Measurements, Palm Coast, Florida, April 1988.

## **TECHNICAL ADVISORY COMMITTEES**

National Estuary Program - Tampa Bay

Linked Watershed/Waterbody Water Quality Model Development, Southwest Florida Water Management District

Resource Advisory Committee-West Coast Regional Water Supply Authority

Spill Response and Preparedness Committee-United States Coast Guard

Committee A2A03, Hydraulics and Hydrology, Transportation Research Board

## **HONORS AND REPRESENTATIONS**

Keynote Address, "GIS Applications in Urban Water Modeling", UDT Conference, Moscow Russia, September, 1994.

"Outstanding Young Investigator Award", College of Engineering, April, 1993.

Sigma Xi, The Scientific Research Society.

Chi Epsilon, The Civil Engineering Honor Society.

Tau Beta Pi, The Engineering Honor Society.

University Representative: The Universities Council on Water Resources, 1991 - Present.

Selected Participant: National Science Foundation, "New Techniques in Water Resources Measurement and Analysis", Denver, Colorado, July 1989.

Recipient: American Water Resources Association, "William V. Storch, Jr. Award," 1981

College Representative: Engineering Delegation to Yugoslavia, July 1980.

## **PROFESSIONAL ORGANIZATIONS**

American Society of Civil Engineers

American Water Resources Association

Order-of-the-Engineer

American Society of Engineering Education

## **COURSES TAUGHT**

### Graduate

Advanced Hydrologic Modeling  
Coastal and Estuary Modeling - FEEDS TV Course  
Hydrologic Modeling  
Special Topics: GIS and Watershed Modeling  
Water Quality Modeling of Receiving Waters  
Waves and Beach Protection  
Coastal Waves and Structures

### Undergraduate

Fluid Mechanics  
Hydraulics  
Hydraulics Lab  
Water Resources Engineering  
Water Resources Capstone Design

### Other

Review Course for the Florida Professional Engineer Exam  
-Fluid Mechanics and Hydraulic Machines  
-Open Channel Hydraulics and Hydrology

## **CONTINUING EDUCATION COURSES:**

"Watershed Modeling Workshop: EPA Storm Water Management Model SWMM4" , Pinellas County Environmental Management Training Center, 2.0 CEU's, St. Petersburg, Florida, April 1996.

"EPA Storm Water Management Model Version 4.3 (SWMM4) Workshop" University of Florida TREEO Center, 2.2 CEU's, Gainesville, Florida, March 1996.

"ASCE Urban Storm Water Quality Management Short Course", ASCE Continuing Education, 1.2 CEU's, March 1990.

"NSF/USGS Undergraduate Faculty Enhancement Workshop", SONY, 4.0 CEU's, FALL 1989.

"Introduction to Computer-Aided Design and Drafting", USF, 1.5 CEU's, Spring 1989.

## **EXPERT TESTIMONY: Expertise Certification**

Hydraulics, Hydrology and Water Quality Modeling

Ex: State of Florida, Division of Administrative Hearings  
DOAH Case No. 94-5261; SJR FOR No. 94-1501  
State of Florida, Department of Transportation vs.  
St. Johns River Water Management District

Dr. Mark A. Ross

Dr. Ross presently carries the rank of Associate Professor in the Department of Civil and Environmental Engineering at the University of South Florida (USF). He is also the Director of the Center for Modeling Hydrologic and Aquatic Systems at USF. His full time teaching and research duties are complemented by a consulting affiliation with Hydrosystems Associates, Inc., a private water resources think tank.

Dr. Ross earned his BSE & MSE in Civil Engineering from University of South Florida in 1982.

After several years in consulting, he pursued and received the Ph.D. in Civil Engineering from the University of Florida awarded in 1988. He is also a licensed Civil Engineer in the State of Florida.

Dr. Ross' specialization is in the field of coastal hydraulics and hydrology. His research and consulting interests include water quality and integrated hydrologic modeling, implementation and applications of GIS in water resources management and modeling, and hydrology and water quality treatment of wetland restoration and supplemental recharge.

Dr. Ross has authored or co-authored more than 50 publications in the above field of interests. He has served as principal investigator (PI) or project director of a like number of sponsored research projects totaling several million dollars. He has received numerous professional awards including such interesting honors as giving an invited keynote address at an international urban water management conference in Moscow, Russia.

Mark A. Ross, P.E., Ph.D.  
Project Team Leader - Tidal Scour Analysis

Relevant Experience:

- \* Director, Center for Modeling Hydrologic and Aquatic Systems; Associate Professor, Department of Civil Engineering and Mechanics, University of South Florida.
- \* Twenty years of professional experience and more than 50 publications in coastal hydraulics, hydrology and sediment transport.
- \* Development of on-line, web-based, storm event bridge scour management system for FDOT
- \* Tidal scour evaluation and inlet stability study at Clearwater Pass, for the FDOT and the Army Corps of Engineers (ACOE).
- \* Inlet interaction and stability tendencies of Johns Pass and Blind Pass, Boca Ceiga Bay for FDOT
- \* Conducted erosion/resuspension research for ACOE, FHWA, FDOT and FDNR.
- \* Scour analysis at bridge piers, John's Pass, Pinellas Coast, for the FDOT.
- \* Developed a 2D tidal inlet scour assessment model for FDOT/FHWA.
- \* Hydrologic and hydrodynamic evaluation for Pier Protection Islands, Sunshine Skyway Bridge, Tampa Bay, Florida.
- \* Scour and inlet stability analyses of tidal inlets along Florida's West Coast using computer models developed at USF/ACOE.
- \* Over one dozen invited presentations on coastal hydrodynamics and sediment transport including to the National Transportation Research Board and American Society of Civil Engineers.

## **Sponsored Research Details:**

### **Funded Projects:**

#### Water Resource Modeling and Systems Management

##### Interaction of Surface & Groundwater and Integration of GIS & Hydrologic Modeling

- South Florida Water Management District, Impact of Rainfall Variability on Storm Water Modeling in South and Central Florida, Co-PI with M. Nachabe, 2000-2001, \$25,000, funded.
- Southwest Florida Water Management District, Development of Interfacial Boundary Conditions for the the Southern District Groundwater Model, co-PI with P.Tara, J. Geurink, and M. Nachabe, 1999-2000, \$163,454, funded.
- Southwest Florida Water Management District, Technical Review and Training: Integrated Hydrologic Model, co-PI with P.Tara, J. Geurink,, 1997-98, \$60,000, funded.
- Florida Department of Environmental Protection, Supplemental Investigation of Phosphate-Mined Upper Saddle Creek Watershed, co-PI with P. Tara, 1997-98, \$200,000, funded.
- Florida Institute of Phosphate Research, Hydrologic Investigation of Phosphate Mined Upper Saddle Creek Watershed, co-PI with M. Stewart and P. Tara, 1996-98, \$560,000, funded.
- Southwest Florida Water Management District, Integrated Flow Model Review for Northern Tampa Bay, 1996, \$30,000, funded.
- Southwest Florida Water Management District, Integrated Modeling for District-Wide Water Resources Management, co-PI with P. Tara and M. Stewart, 10/93-12/96, \$168,000, funded.
- Florida Institute of Phosphate Research, FHM Support, Maintenance and Research", 1992-1995, \$138,000, funded.
- U.S. Fish and Wildlife Service, A GIS Based Refuge Water Management Modeling System, 1991-1994, \$210,000, funded.
- University of South Florida Research Initiation Funding Preliminary Investigation of GIS Based Water Management Model, 1991-1992, \$5,000.
- Florida Institute for Phosphate Research, FIPR Hydrology Project, 1988-1991, \$320,000, funded.

##### Wetland Stormwater Quality Treatment, Surface, Groundwater Water Quality and Wastewater Reuse

- Florida Department of Environmental Protection, Microscopic Particulate Analysis Sampling, co-PI with J. Vomacka, 2000, \$13,500, funded.
- Zenon Environmental Systems, Inc., Ultrafiltration of Hillsborough River Water Pilot Study, co-PI with D. Smith, 1999, \$14,997, funded.
- Florida Department of Environmental Protection, Microscopic Particulate Analysis Sampling, co-PI with J. Vomacka, 1999, \$11,224, funded.
- Florida Department of Environmental Protection, Efficiency of Wetlands for Stormwater Treatment and Management, co-PI with R. Carnahan, W. Echelberger 1991-1993, \$69,000, funded.

##### Hydraulic and Water Quality Modeling of Receiving Water and Estuary Systems

- Pinellas Co, Upgrade of the Lake Tarpon Water Quality Management Model, 5/95- 9/95, \$27,000, funded.
- Pinellas County EPA, Upgrade Lake Tarpon, 5/94-9/94, \$8,082, funded
- Pinellas Co. & SWFWMD, Lake Tarpon Water Quality Management Model Development, 1990-1992, \$125,000, funded.
- DSR/COE Research Development Equipment Grant, 1991, \$21,000, funded.
- DSR/COE Research Development Equipment Grant, 1990, \$25,000, funded.

Sediment Transport, Erosion, Fluidization, Coastal Scour

Cohesive Sediment Re-suspension in Coastal Environments

- USCOE-WES, Wave Fluidization Study, 1987, \$6,000, funded.

Non-Cohesive Sediment Transport in Tidal Flows

- FDOT, District 2, District Wide Scour Study, 1992-1994, \$100,000, 1992-1994, funded.
- FDOT, Fundamental Sediment Scour in Tidal Inlets, co-PI with B. Ross, 1991, \$21,000, funded.

Total Funded Sponsored Research Year 2000: \$201,954.00

Total Funded Sponsored Research To-Date: \$2,296,257.00

Total Externally Sponsored Research to USF: \$2,239,257.00

Average Annual Sponsored Research To-Date: \$ 193,278.00

**Pending Projects:**

“Measurement of Surficial Aquifer Recharge, ET, Rainfall Runoff and Stream-Aquifer Interaction, Characteristic of the Central and Southern District Proposed Reservoir Site, Alafia River Basin. A Scope of Work to Provide Hydrologic Data Collection and Analysis.”, Project to be funded by Tampa Bay Water, Southwest Florida Water Management District, with equipment co-funding by USF, Principal Investigators: Mark Ross, Ph.D., P.E., Mahmood Nachabe, Ph.D., P.E., Mark Stewart, Ph.D., P.G., Patrick Tara, P.E., Jeffrey G. Vomacka, P.E., Center for Modeling Hydrologic and Aquatic Systems, Department of Civil and Environmental Engineering, Department of Geology and Water Resources Institute, University of South Florida, Submitted February 2001, \$580,743, Status: Approved for funding by TBW Board, awaiting SWFWMD authorization.

“Hydrologic and Water Quality Investigation of Peace River Watershed”, Florida Institute of Phosphate Research, Principal Investigators: M. Ross, M. Nachabe, M. Stewart, P. Tara, Center for Modeling Hydrologic and Aquatic Systems, University of South Florida, Submitted March 2001, \$630,000, Status: Presented to FIPR Board in April 2001.

“FDOT Storm Event Scour Screening Program”, Florida Department of Transportation, Principal Investigators, M. Ross and P. Tara, Center for Modeling Hydrologic and Aquatic Systems, University of South Florida, Submitted January 2001, \$86,392, Status: FDOT Review Process.

Total of Projects Pending Year 2000: \$1,297,135.00

**PRIVATE REPORTS** (detailed, last updated January 1995)

Hydrosystems Associates, "Hydraulic Investigation of Cargill South Parcel Restoration Project", for Southwest Florida Water Management District, Florida Department of Environmental Protection, and Hillsborough County Environmental Protection Commission, October 1994.

Hydrosystems Associates, "Design Considerations for Shoreline Stabilization to Promote Emergent Vegetation on Causeways", for Florida Department of Transportation, April 1993.

Hydrosystems Assoc., "A Hydrographic Study of An Unnamed Canal in Indian Rocks Beach, Florida", for Florida Department of Environmental Regulation, August 1992.

Hydrosystems Assoc., "Water Quality Based Effluent Limitation Study", Royster Phosphate, Inc., July 1991.

Hydrosystems Assoc., "Clearwater Pass Bridge Study", Volcker Engineering, October 1990.

Hydrosystems Assoc., "The Truman Annex Hydrographic Report", for Greiner Engineering, October 1989.

Hydrosystems Assoc., "Hydraulic Modeling Analysis of Proposed Marina on the Anclote River", Tarpon Springs, Florida, May 1984.

Hydrosystems Assoc., "A Hydraulic Modeling Study of the Manatee Gateway Revised Basin Configuration", Manatee County, Florida, May 1984.

Hydrosystems Assoc., "A Hydraulic and Water Quality Study for the Manatee Gateway Project: Evaluation of an Alternative Basin Design, Manatee County, Florida", for Conservation Consultants, Inc., October 1983.

Hydrosystems Assoc., "Hydraulic Modeling Analysis of a Proposed Marina at Bayport Colony, Oldsmar, Florida", for Florida Land Design and Engineering, Tampa, Florida, September 1983.

Hydrosystems Assoc., "A Mathematical Modeling Analysis of a Proposed Breakwater at Marker 1 Marina", Dunedin, Florida, August 1983.

Hydrosystems Assoc., "Cortez Harbor, Manatee County, Florida: A Hydrologic Assessment of the Revised Tidal Basin", for Manatee Canvest Corp., Tampa, Florida, March 1983.

Hydrosystems Assoc., "Supplemental Report on Manatee Gateway: A Hydrologic Study", Tampa, Florida, December 1982.

Hydrosystems Assoc., "Addendum to the Report on Cortez Harbor, Manatee County, Florida", for GCI Environmental Developers, Inc., Tampa, Florida, August 1982.

Hydrosystems Assoc., "A Hydrologic Study for the Manatee Gateway Project, Palmetto, Florida", Tampa, Florida, May 1982.

Hydrosystems, Assoc., "Cortez Harbor, Manatee County, Florida: A Hydrologic Study", for GCI Environmental Developers, Inc., c/o Zoller and Najjar Engineering, Inc., Tampa, Florida, April 1982.

Hydrosystems Assoc., "Sanctuary Bay: An Artificial Tidal Pond", Palma Sola Bay, Florida, August 1981.