

American Ground Water Trust
Ground Water Institute for Teachers™
Sarasota, Florida – May, 2007

For teachers and educators in Manatee and Sarasota Counties
See registration page for details on how to sign-up. (Space is limited)



The Board Room at
Girl Scouts of Gulfcoast Florida
4780 Cattlemen Road
Sarasota 34233



Thursday, May 3rd 4:00pm to 8:00pm
Friday, May 4th 8:30am to 4:00pm
Saturday, May 5th 8:30am to 3:00pm



Institute Sponsor: Southwest Florida Water Management District

Contacts:

U.S. Geological Survey: Ann Tihansky (727) 803-8747, ext. 3075 [tihansky@usgs.gov]
American Ground Water Trust: Andrew Stone (603) 228-5444 [astone@agwt.org]
SWFWMD: Raina O'Neil (800) 423-1476, ext 4774 [raina.oneil@watermatters.org]

The aim of the Ground Water Institute for Teachers program is to increase water awareness of teachers, school students, citizens, and communities so they may recognize the connected and integrated nature of the environment and be empowered to play an active role in protecting resources for sustainable use. The Trust believes that teachers who are excited about environmental education and who are provided with training in environmental principles will be more likely to effectively teach environmental concepts to their students. Students made aware of "cause and effect" related to water resources and aquatic habitat are likely to become motivated to protect and conserve resources. Increasing the environmental awareness of citizens and communities is a vital need worldwide, and specifically in Florida because of the state's finite resources and increasing environmental pressures.

Thursday, May 3rd 4:00pm to 8:00pm

4:00 REGISTRATION

4:30 – 5:00 INTRODUCTION TO THE INSTITUTE PROGRAM

Andrew Stone, American Ground Water Trust, Concord, NH

Ann Tihansky, U.S. Geological Survey, St. Petersburg, FL

Raina O'Neil, Southwest Florida Water Management District, Brooksville, FL

- Welcome to the program
- Background to the National Institute Program (Trust / USGS partnership)
- Objectives of this Institute
- Expectations of the teacher / educator participants

5:00 – 5:45 HYDROLOGIC SYSTEM: BASICS OF HYDROLOGY AND ECONOMICS

Andrew Stone, American Ground Water Trust, Concord, NH

- Things you didn't know about rocks and water (Geology – Hydrology)
- “Ground water is the part of the hydrologic system that occurs in a geologic environment”
- Geology fundamentals (rock types, geologic structure, aquifer geometry)
- Concept of water balance (hydrologic accounting at local and regional scales)
- Perceptions of water as a shared resource (who owns it?)
- Global and national economic realities of competing water demands

5:45 – 6:45 TAKING THE LID OFF GROUND WATER CONSULTING

Laura Baumberger, Carollo Engineers, Sarasota, FL

- What are the background/requirements needed to be in the water profession?
- What does consulting engineering entail?
- How do water engineers use math/science in their profession?
- Examples of water resource projects in Sarasota/Manatee
- Status of groundwater in Southwest Florida and its use as a drinking water supply
- Current/future water supplies in Sarasota/Manatee

6:45 DINNER (presentation while you eat!)

7:00 – 8:00 AQUIFER STORAGE RECOVERY (ASR)

Michael Micheau, PBS&J, Tampa, FL

- ABCs of ASR technology – pumping water into aquifers for later use
- Where does the water go? How come there is space for it? How do you get it back?
- Overview of ASR projects and programs in the USA and overseas
- ASR projects in Florida – issues and problems (for example the role of ASR in Everglades Restoration)
- The status of ASR projects in the Sarasota area

Friday, May 4th

8:30am to 4:00pm

8:30 9:30 THE GEOLOGIC FRAMEWORK OF THE AREA

Ann Tihansky, U.S. Geological Survey, St. Petersburg, FL

- USGS programs in Florida
- Overview of geology and hydrologic system of central Florida
- Special features of karst geology and hydrology
- All you ever wanted to know about sinkholes

9:30 - 11:30 ENVIRONMENTAL ISSUES IN THE SARASOTA BAY WATERSHED

Julia Burch, Public Outreach Coordinator, Sarasota Bay Estuary Program

Learn how you and your students can get involved in projects that help restore Sarasota Bay!

- What is storm water pollution?
- How is Sarasota Bay doing?
- Coastal Habitat Curriculum - free resources for teachers K-8
- New High School Curriculum (Watersheds, fire ecology & invasive plants)
- Bay Buddies Program (family friendly volunteer habitat restoration program)
- Watershed friendly landscapes and school garden projects
- Water Atlas – figure out your sub-drainage basin
- Storm Drain marking program (why & how)
- 10 things you can do to help Sarasota Bay
- How to use the Enviroscope Watershed Model

11:30 – 12:15pm LUNCH

12:15 – 1:15 AQUIFER VULNERABILITY – PROTECTING THE STATE’S WATER RESOURCES

Harley Means, Florida Geological Survey, Tallahassee, FL

- What does aquifer vulnerability mean?
- Florida Aquifer Vulnerability Assessment (FAVA)

- Research to identify the key indices that indicate vulnerability
- Application of the WofE method to the three principal aquifer systems in Florida
- Vulnerability maps as resources for planners, developers and policy makers
- Education resources from the Florida Geological Survey available to teachers/ educators

1:15 – 2:15 A DAY IN THE LIFE OF A GROUND WATER MANAGER

Jennifer Ryan, Ground Water Manager, Sarasota County, Sarasota, FL

- Where does your drinking water come from?
- A Balancing Act: Water Supply and the Environment
- Building relationships: The regulatory agencies aren't the bad guys!
- Data, data, everywhere!!
- How does it all get done? An army of 1..... with a lot of contractors.

2:15 – 2:30 BREAK

2:30 – 3:30 LEGACY STEWARDSHIP PROGRAM - linking schools to education projects in their community

Daniel Hayes, Youth Education Coordinator, SJRWMD; Educational Contractor for SWFWMD

- Creating interdisciplinary experiential learning opportunities
- Involving students in hands-on service opportunities
- Teaching students to demonstrate aquifer models and envirosapes to other students and/or adult audiences
- Storm water stenciling and outreach in nearby neighborhoods
- Inventorying and monitoring tracts of public lands near schools.
- Designing and constructing amenities for the visiting public (trails, kiosks, brochures, etc.)
- Making the land a 'living laboratory' for schools to apply classroom learning

3:30 – 4:00 REVIEW OF PROGRAM SO FAR

Ann Tihansky, U.S. Geological Survey, St. Petersburg, FL

4:00 (End of Day two activities)

Saturday, May 5th 8:30am to 3:00pm

8:30 – 9:30 GROUND WATER TOPICS AND THEIR CONNECTION TO SCIENCE TEACHING

Andrew Stone, American Ground Water Trust, Concord, NH

- Arsenic in ground water
- Water dowsing as a classroom discussion topic!
- Aquifer tests (interpreting relationships between well pumping and water level changes)
- The difference between ground water renewability and sustainability
- Assessing and accessing ground water for economic use

9:30- 10:30 ORGANIZATIONS MAKING A DIFFERENCE

Rogene Patterson, Science and Environment Council of Sarasota County (SEC), Sarasota, FL

- What is SEC?
- DVD – “The Watershed and You: A Direct Connection” View & discussion. (copy for all teachers)
- Watershed kiosk: a sampling of water-related research and programs conducted by SEC members
- SEC member programs available for school groups

10:30 - 10:45 BREAK

10:45 – 11:45 To be Announced

11:45 – 12:30 LUNCH

12:30 – 2:30 EDUCATION RESOURCES AND IMPLEMENTATION

Southwest Florida Water Management District (staff)

Raina O'Neil, Youth Education Coordinator

Mary Torrusio, Youth Education Specialist

Mary Alice Wagner, Youth Education Specialist

12:30 – 1:00 DEMONSTRATION OF AQUIFER MODEL CAPABILITIES AS AN ADJUNCT TO LEARNING

- Set-up and operation of the model
- What the model can show
- How the model relates to real hydrologic situations
- What students can learn from the model
- Clean-up and storage

1:00 – 2:00 EDUCATION RESOURCES

- Trends in Environmental Education
- Sunshine State Standards
- Resources for teachers (tools, quizzes and lesson plans)
- SWFWMD education materials and grants
- Real-time USGS data for educators

2:00– 2:30 ESTABLISHING A LESSON-PLAN TEMPLATE FOR INSTITUTE FOLLOW-UP

- Potential lesson topics based on Institute presentations
- Preferred format for lesson planning
- Preferred format for report and evaluation of lesson effectiveness

**2:30 – 2:45 WRAP UP – ANSWERS TO UNANSWERED GROUND WATER QUESTIONS
Andrew Stone, American Ground Water Trust, Concord, NH**

2:45 - Completion of Institute CEU evaluations

3:00 ADJOURN

