

PEACE RIVER WATERSHED, FLORIDA
TRAINING OPPORTUNITY FOR TEACHERS

American Ground Water Trust

Ground Water Institute for Teachers™ Peace River Watershed



DeSoto County
TURNER AGRI-CIVIC CENTER
2250 NE Roan St.
Arcadia, FL 34266



June 5 and 6, 2006

Register at www.agwt.org (Teacher Institutes)



Institute Sponsor: The Peace River Basin Board of the Southwest Florida Water Management District

Institute limited to teachers and educators from schools and organizations in Polk, DeSoto, Hardee, Highlands and Charlotte counties

Complimentary hotel accommodations for the night of June 5 available for the first 24 school teachers who register. Register at www.agwt.org (click on Teacher Institutes)

Contacts:

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In 2000, the American Ground Water Trust developed a two-day teacher training program with a focus on ground water issues. Since 2000, the Trust has completed 39 Institutes in 17 states with over 1,000 teachers and educators participating. Florida Institutes have been held in Zephyrhills and in St. Petersburg. In 2005, the Trust and the U.S. Geological Survey entered into a partnership agreement with the objective of increasing teacher training opportunities via the Institute program.

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. 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.

The Peace River Institute Program

Monday June 5, 8:30 a.m. to 4:30 p.m. and 6:00 p.m. to 9:00 p.m.

8:00 – 8:30 **REGISTRATION**

8:30 – 9:00 **INTRODUCTION**

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
- Ground water, Florida and education
- Background to the Peace River Institute

9:00 – 9:45 **HYDROLOGIC SYSTEM: BASICS OF HYDROLOGY AND ECONOMICS**

Andrew Stone, American Ground Water Trust, Concord, NH

- 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

9:45 – 10:30 **THE GEOLOGIC FRAMEWORK OF THE PEACE RIVER WATERSHED**

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

- Overview of geology and hydrologic system of central Florida
- Special features of karst geology and hydrology
- All you ever wanted to know about sinkholes
- Specific geologic phenomena in the Peace River watershed

10:30 – 10:45 **BREAK**

10:45 – Noon **THE PEACE RIVER AS A WATER SUPPLY SOURCE**

Sam Stone, Peace River/Manasota Regional Water Supply Authority, Sarasota, FL

- Description of the treatment process at the Peace River facility
- Method of diverting river water from the Peace River while protecting the downstream estuary
- Challenges in using the Peace River as a source of supply and how we manage those challenges:
 - reliability (dry periods)
 - algal taste and odor problems
 - algal toxins
 - upstream industrial spills and emerging chemical contaminants

Noon – 12:45 **LUNCH**

12:45 – 1:30 **HOW GEOGRAPHIC INFORMATION SYSTEMS HELP WITH WATERSHED CHARACTERIZATION**

Kristine Martella, U.S. Geological Survey, St. Petersburg, FL

- Basic GIS principles
- Looking at geographic characteristics of the Peace River watershed
- Hands-on GIS activity to take to the classroom

1:30 – 2:15 **ENVIRONMENTAL ISSUES RELATED TO PHOSPHATE MINING IN THE PEACE RIVER BASIN**

Lisa Jap-Tjong, Florida Institute of Phosphate Research

- Origin and distribution of phosphate deposits
- Mining operations and product transport
- Assessment of environmental impacts
- Strategies to reduce impact on water resources and aquatic environments

2:15 – 2:30 **BREAK**

2:30 – 3:15 **WATER QUALITY ISSUES IN THE PEACE RIVER WATERSHED**

Eric DeHaven, Southwest Florida Water Management District, Brooksville, FL

- Geochemical trends in ground water in aquifers throughout the Peace River watershed
- Changes in the quality of springs
- Saltwater intrusion of aquifer systems

3:15 – 4:00 **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
- Wetlands and ground water
- Aquifer tests (interpreting relationships between well pumping and water level changes)
- The difference between ground water renewability and sustainability

4:00 – 4:30 **REVIEW OF DAY ONE**

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

6:00 – 9:00 **DINNER and EVENING PROGRAM
USING BIOLOGY TO ASSESS AQUATIC HABITATS**

Dana Denson, Florida Department of Environmental Protection

A multi-media hands-on activity: bugs and macroinvertebrates through the microscope — what they tell us about the aquatic environment

Tuesday June 6, 8:30 a.m. to 4:15 p.m.

8:30 – 9:30 **THE DYNAMICS OF SURFACE WATER-GROUND WATER INTERACTIONS IN THE UPPER PEACE RIVER BASIN**

Bill Lewelling, U.S. Geological Survey, Tampa, FL

- Overview of the hydrology of the Upper Peace River
- Seasonal variability, swallow holes, and solving the 10 cfs mystery
- Ongoing hydrologic studies

9:30 – 10:30 **HABITAT RESTORATION INITIATIVES**

Speaker to be confirmed

- Mine reclamation concepts, mitigation and management
- Examples of successes and failures
- Headwater restoration project

10:30 – 10:45 **BREAK**

10:45 – 11:45 **PEACE RIVER MINIMUM FLOWS**

Sid Flannery, Southwest Florida Water Management District, Brooksville, FL

- Managing the resources of the Peace River
- Trends in flow and changes in water quality
- Setting minimum flows and levels and their relationship to biological communities

11:45 – 12:45 **LUNCH**

12:45 – 2:00 **ASSESSING AND ACCESSING GROUND WATER FOR ECONOMIC USE**

Andrew Stone, American Ground Water Trust, Concord, NH

- Typical stages of ground water exploration and aquifer assessment
- The basics of water well construction
- Aquifer storage & recovery as a management strategy in Florida

2:00 – 3:15 **EDUCATION RESOURCES and GROUND WATER IN THE CURRICULUM**

Panel Session with Institute Presenters and County Education Representatives

- Sunshine State Standards
- Resources for teachers (tools, quizzes and lesson plans)
- Real-time USGS data for educators
- Discussion on ideas for lesson plans
- Field work opportunities in the Peace River area

3:15 – 4:00 **EDUCATION RESOURCES/ SWFWMD EDUCATION MATERIALS AND GRANTS**

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

4:00 **COMPLETION OF CEU EVALUATIONS**

4:15 **ADJOURN**