



American Ground Water Trust

Ground Water Institute for Teachers™
Oxnard, CA – November, 2009



Institute Sponsor



United Water Conservation District, Santa Paula, CA 93060

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The Institute is a training program for teachers and educators covering water issues, water management and the importance of ground water resources

Pre-registration required – program is FREE for teachers

Register at www.agwt.org (Institutes)

Questions:

American Ground Water Trust: Andrew Stone (603) 228-5444 [astone@agwt.org]
United Water Conservation District, Ken Breitag or Tony Morgan, (805) 525-4431

When:

Thursday, 5 Nov (4:30-8:30pm) and Friday 6 Nov (8:00am – 4:30pm)

Where:

**City of Oxnard, “Multi-Purpose Training Facility”
251 South Hayes Avenue, Oxnard, CA 93030**

Background:

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 California because of the state’s finite resources and increasing environmental pressures.

Grade Levels:

The Trust’s Ground Water Institute for Teachers program is a content-focused training opportunity with applicability to most grades. The exciting and practical “science” of ground water can be applied to existing curriculum in many traditional subject areas. This training program has applicability way beyond the typical “earth science” perspective. Institute presenters are all top experts with a wealth of expertise. The program provides real-life example of the applications of science and technology to water issues. Over 60 Institutes have been completed in 17 states involving 1,500+ educators. Past California Institute programs have been held in Riverside/ Diamond Valley Lake (4), Chino, Claremont, Fresno (2) and San Jose (2).

California Science Standards:

(State’s mandated curriculum content standards for public schools)

The Institute specifically addresses:

- Section 9c of the Earth Science Content Standards for Grades 9 through 12
- Section 9, (Investigation & Experimentation) for 8th Grade Physical Science
- Sections 4a, 6b and 7 (Focus on Earth Science) for 6th Grade
- Sections 1g,h,i,j,k,& l of (Investigation & Experimentation) for Grades 9 through 12

Program Requirements:

(See web-site for information related to substitute funding)

Teachers who are granted substitute funding for Friday’s absence from school must also attend the Thursday evening program.

Program - Thursday, 5 Nov (4:30-8:30pm)

4:00 – 4:30 Sign-in

4:30 – 5:15 BASICS OF HYDROLOGY and GEOLOGY

Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

- Geology fundamentals (Rock types/ geologic structure/ aquifer geometry)
- Ground water (Where is it, how did it get there, where is it going?)
- Concept of water balance (Hydrologic accounting at local & regional scales)
- Perceptions of water as a shared resource (Who owns it? Who can use it? Who is responsible for it?)

5:15 – 6:30 GROUND WATER ISSUES IN VENTURA COUNTY

Mike Solomon, General Manager, United Water Conservation District

- Water Supply for Agricultural Operations and Municipalities
- Aquifer Recharge
- Water Quality Monitoring and Management

Pete Dal Pozzo, United Water Conservation District

- Water Use (Municipal, Agricultural and Industrial)
- Changing Water Demands due to Changing Crop Patterns

Tony Morgan, United Water Conservation District

- Saline Water Intrusion Problems
 - Seawater
 - Oil Field Brines
 - Other Sources

6:30 – 7:00 DINNER IS SERVED!

7:00 – 8:00 GROUND WATER QUALITY: TACKLING QUESTIONS IN CALIFORNIA!

Tim Cliffe, Hydrographer, US Geological Survey, Poway, CA

- CA's Water Resources (can students "mentally-map" water across CA?)
- Site-Specific Research Methods (including LA Basin, the Mojave, the Delta)
 1. Nested Monitoring Wells
 2. Depth-Dependent Sampling
 3. Unsaturated-Zone Sampling

8:00 – 8:30 AND NOW FOR SOMETHING COMPLETELY DIFFERENT

Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

- Graphic descriptions of hydrology from a romantic Poet
 - Using internet images to reinforce understanding of the hydrologic system
 - Simple class exercise for almost any grade level
- [Expectations for Day 2 of the program. *Day two will include professional discussion opportunities for participants to share ideas for teaching strategies (lessons) that will engage student interest and enhance learning about water and water issues.]

8:30pm END OF DAY ONE PROGRAM

Program - Friday, 6 Nov (8:00am – 4:30pm)

8:00 – 8:30 FRUIT, COFFEE & DONUTS

8:30 – 9:45 REUSING WATER

Dan Pfeifer, City of Ventura

- Water Reuse for Ecological Applications (Estuaries)

Ken Ortega, City of Oxnard

- GREAT (Groundwater Recovery Enhancement and Treatment) project overview
- Wastewater Treatment and Reuse

9:45 - 10:15 BREAK / TRAVEL TO FREEMAN DIVERSION DAM

10:15 – 11:45 FIELD VISIT FREEMAN DIVERSION DAM

Steve Howard / Sara Gray, United Water Conservation District – Fish biology

Dan Detmer, United Water Conservation District – Diversion procedures

11:45 - 12:45 TRAVEL TO OXNARD / LUNCH (provided)

12:45 – 1:30 VISIT TO OXNARD DESALTER

1:30 – 2:15 21st CENTURY AGRICULTURE IN VENTURA COUNTY

Gus Gunderson, Limonera

- Modern irrigation practices
- Trends to reduce irrigation water demand
- Water use by crop type
- Increasing salt content in groundwater or surface water from waste water treatment plants

2:15 – 2:45 WHO IS RESPONSIBLE FOR WHAT IN THE VALLEY?

Tony Morgan, Groundwater Department Manager, United Water Conservation District

- Federal Agencies (Alphabet soup)
- State of California (Boards and Departments)
- Special Districts

2:45 – 3:15 HABITAT AND WATER RESOURCES

Linda Purpus, United Water Conservation District

- Habitat Conservation Plans
- Steelhead Recovery Plan

3:15 – 3:45 STORMWATER EXERCISES THAT CAN BE ADAPTED FOR DIFFERENT GRADE LEVELS

Andrew Stone, American Ground Water Trust, Concord, NH

- How the suburban landscape functions hydrologically
- How land-use categories affect infiltration & runoff
- Follow the water drop—where and how storm water flows (direction, speed and destination)
- Where does it end up? And how long does it take to get there?

3:45 - 4:15 WHERE NOW? INTEGRATING INSTITUTE CONTENT INTO THE CLASSROOM

Facilitated group discussion and program wrap-up

- The concept of add-in rather than add-on to existing curriculum
- Potential lesson topics based on Institute presentations
- Completion of Ideas to Lessons form
- Completion of Institute evaluation form
- Lessons learned? Questions not answered?

4:30pm ADJOURN

