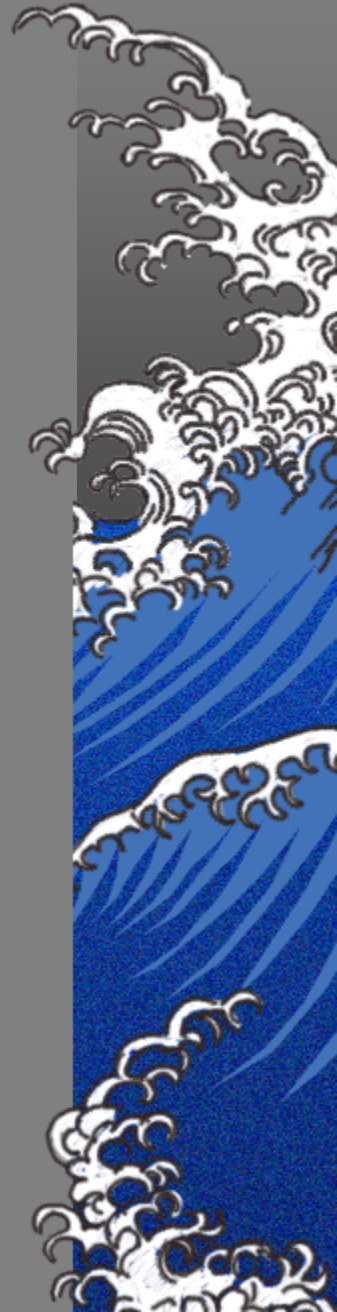


# **Educating the Next Generation of Water Stewards**

**Karla Beatty, Oklahoma Conservation Commission**

**Sara Ivey, Oklahoma Department of Environmental Quality**



OCWP



## 2012 Oklahoma Comprehensive Water Plan EXECUTIVE REPORT

Prioritization is essential to the success of the OCWP and is required to focus limited resources on issues that require immediate attention. Also, certain recommendations received a higher degree of public support throughout the input process, including a final round of public feedback meetings held throughout the state in the spring of 2011. As a result, initial priority initiatives were selected based on each recommendation's urgency in solving Oklahoma's most pressing near- and long-term water issues, the necessity of the recommendation in ensuring a reliable future water supply, recognition of the need to prioritize funding requests, findings of technical analyses, and input from OWRB staff with long-standing experience in water management. During regular meetings in June, July, August, and September, Water Board members deliberated the issues, consulted with staff, heard final comments from the public, and identified eight recommendations and implementation strategies deserving the utmost priority for implementation. These Priority Recommendations (including their implementation plans, where applicable) reflect the incorporation of a number of water policy initiatives from the public, water management agencies, and OCWP workgroups.

Supporting recommendations were also developed by OCWP public input participants, OCWP workgroups, partnering agencies, and OWRB staff. While they have not been included as Priority Recommendations, all are deemed prudent and necessary to the future use, management, and protection of Oklahoma's water resources. Similar to the Priority Recommendations, the OWRB will work diligently with appropriate state and federal agencies, stakeholders, and institutions to implement these water-related initiatives, and the OWRB encourages the State Legislature to recognize the importance of programs, policies, and funding needs addressed in each. Full workgroup reports summarizing their efforts are available on the OWRB website.

### Priority Recommendations

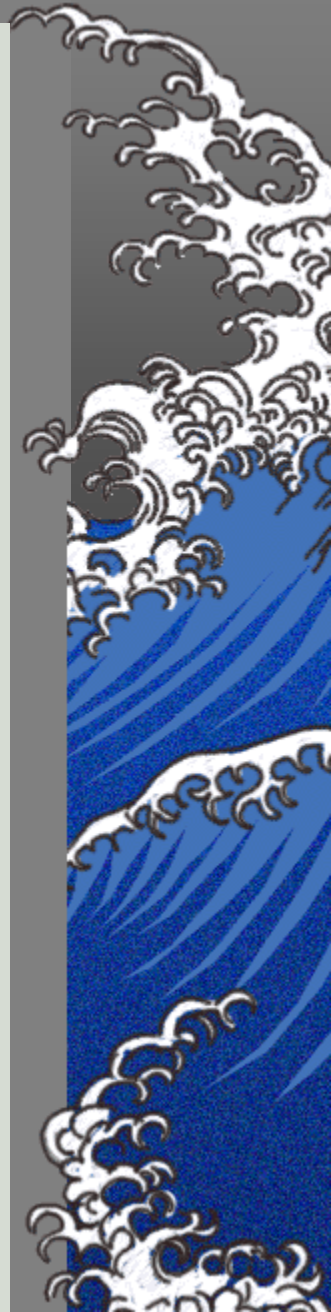
Water Project & Infrastructure Funding  
Regional Planning Groups  
Excess & Surplus Water  
Instream/Environmental Flows

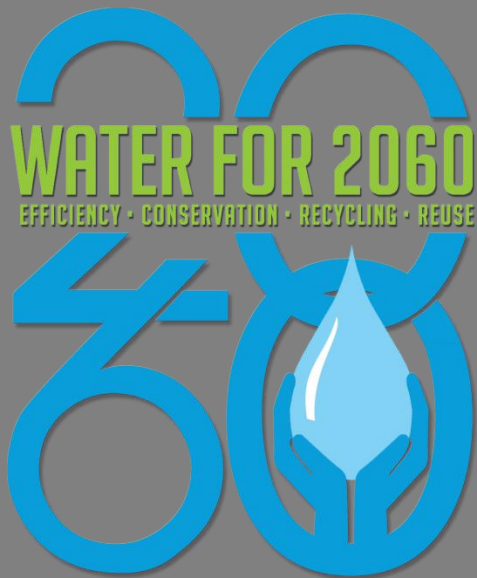
State/Tribal Water Consultation & Resolution  
Water Conservation, Efficiency, Recycling & Reuse  
Water Supply Reliability  
Water Quality & Quantity Monitoring

### Supporting Recommendations & Initiatives

Nonpoint Source Pollution  
Maximizing & Developing Reservoir Storage  
Water Management & Administration  
Dam Safety & Floodplain Management  
Water Quality Management  
Navigation  
Interstate Water Issues

Source Water Protection  
Water Emergency/Drought Planning  
Water Supply Augmentation  
Water Related Research  
Agricultural Water Research  
Climate & Weather Impacts on Water Management





ALL WATER USE SECTORS  
**DEVELOP PUBLIC EDUCATION AND OUTREACH MATERIALS, A STATEWIDE RESOURCES CONSERVATION CAMPAIGN, AND AN OKLAHOMA WATER EFFICIENCY PORTAL.**

**GOAL** Best practices and information sharing

**LEGISLATIVE ACTION** Support Water for 2060 Coordinator position and provide authority and funding for its activities; provide funding for development and maintenance of the portal.

**ESTIMATED COST** \$300,000-1,000,000 per year depending on extent of outreach

PUBLIC WATER SUPPLY RECOMMENDATION 3  
**DEVELOP AN OKLAHOMA WATER SYSTEM LOSS REDUCTION BEST PRACTICES GUIDE.**

**GOAL** Reducing water loss in transmission/distribution systems

**LEGISLATIVE ACTION** Provide funding for development and distribution of the guide.

**ESTIMATED COST** \$200,000

PUBLIC WATER SUPPLY RECOMMENDATION 1  
**DEVELOP AN OKLAHOMA PUBLIC WATER SUPPLY SYSTEM WATER EFFICIENCY BEST PRACTICES GUIDE.**

**GOAL** Developing strategies and benchmarks for Public Water Supply water efficiency

**LEGISLATIVE ACTION** Provide funding for development and distribution of the guide.

**ESTIMATED COST** \$200,000 initial cost plus annual updating

PUBLIC WATER SUPPLY RECOMMENDATION 4  
**PROVIDE STATE FUNDING AND FINANCING FOR WATER SYSTEM LOSS REDUCTION.**

**GOAL** Reducing water loss in transmission/distribution systems

**LEGISLATIVE ACTION** Provide funds for state matching-fund grant program.

**ESTIMATED COST** \$1,000,000

PUBLIC WATER SUPPLY RECOMMENDATION 2  
**DEVELOP A STATE RECOGNITION AND REWARDS PROGRAM FOR HIGHLY EFFICIENT PUBLIC WATER SUPPLY SYSTEMS.**

**GOAL** Recognizing Public Water Supply systems with high levels of efficiency and reuse

**LEGISLATIVE ACTION** Establish the program, annually recognize efficient communities and systems, and provide funds for administration of the program.

**ESTIMATED COST** \$30,000-50,000 per year (plus implications of lower interest rates and statewide Public Water Supply rating)

PUBLIC WATER SUPPLY RECOMMENDATION 5  
**ENCOURAGE REGIONALIZATION AND SUPPLY SHARING.**

**GOAL** Best practices and information sharing

**LEGISLATIVE ACTION** Continue gross production tax funding for OCWP implementation.

**ESTIMATED COST** \$200,000 plus annual allocations for infrastructure mapping



For more information or to read the full report, visit [www.owrb.ok.gov/2060](http://www.owrb.ok.gov/2060).

**WATER FOR 2060  
 ADVISORY COUNCIL REPORT**

**AN OVERVIEW**

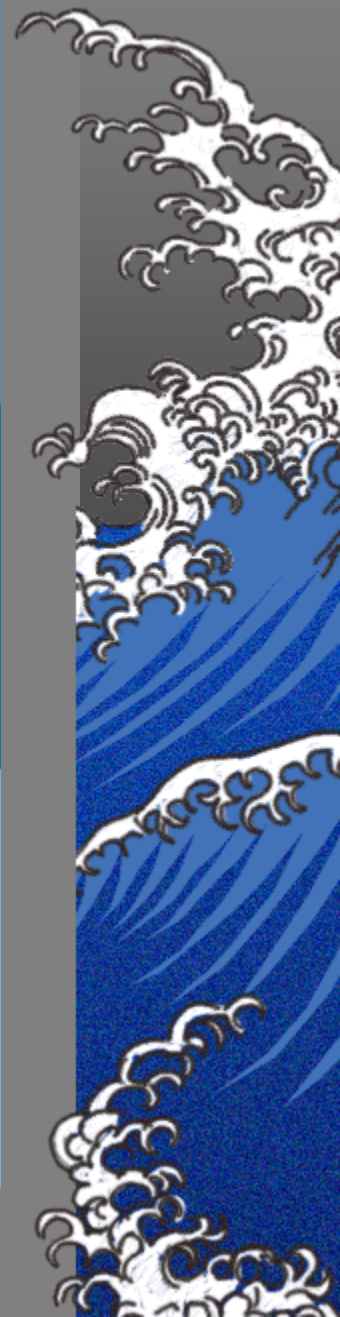
The OWRB defines policy and conducts the state's water business through a nine-member Board appointed by the Governor. Board members and agency staff are guided by the OWRB's mission—protecting and enhancing the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

OKLAHOMA WATER RESOURCES BOARD  
 3800 NORTH CLASSEN BOULEVARD  
 OKLAHOMA CITY, OK 73118  
 PHONE 405.530.8800  
 FAX 405.530.8900  
[WWW.OWRB.OK.GOV](http://WWW.OWRB.OK.GOV)



FULL REPORT AVAILABLE AT [WWW.OWRB.OK.GOV/2060](http://WWW.OWRB.OK.GOV/2060)

**OWRB**  
 the water agency



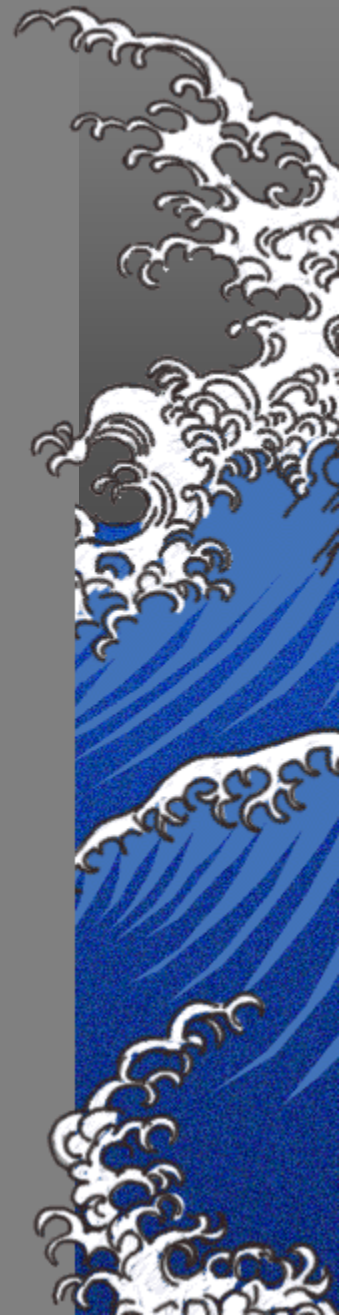


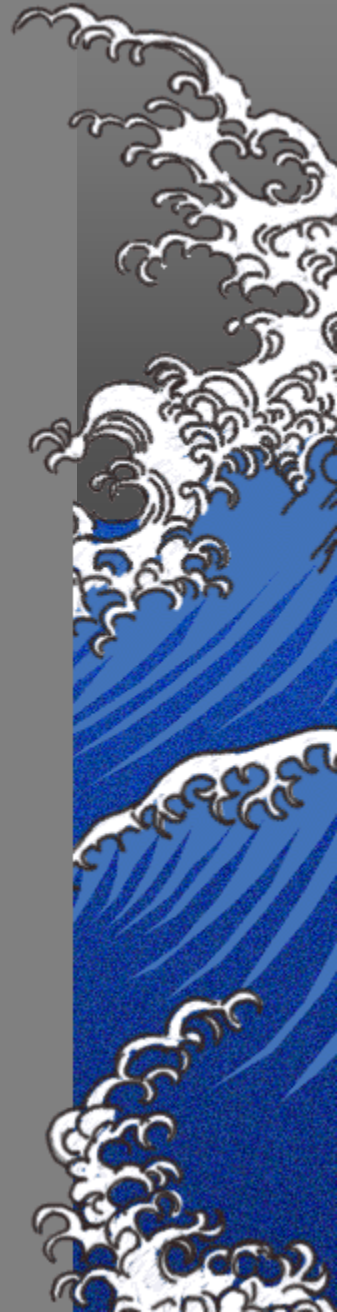
### Statewide population projections by age group

	2010		2075	
	Population	As %	Projected Population	As %
Age 00 to 04	264,126	7.0%	347,853	6.3%
Age 05 to 09	259,336	6.9%	349,177	6.3%
Age 10 to 14	253,664	6.8%	350,455	6.3%
Age 15 to 19	264,484	7.1%	350,949	6.3%
Age 20 to 24	269,242	7.2%	350,816	6.3%
Age 25 to 29	265,737	7.1%	350,657	6.3%
Age 30 to 34	241,018	6.4%	350,293	6.3%
Age 35 to 39	1/5 of OK's population is school-age (preK-12)		349,324	6.3%
Age 40 to 44			347,057	6.2%
Age 45 to 49			342,806	6.2%
Age 50 to 54			335,832	6.0%
Age 55 to 59	235,969	6.3%	325,586	5.9%
Age 60 to 64	204,513	5.5%	310,576	5.6%
By 2060, we will have > 1 million students in preK-12				
Age 80 to 84	69,284	1.8%	166,952	3.0%
Age 85+	61,912	1.7%	166,777	3.0%
Total Population	3,751,351	100.0%	5,560,007	100.0%

From: 2012 DEMOGRAPHIC STATE OF THE STATE  
REPORT, Oklahoma Department of Commerce

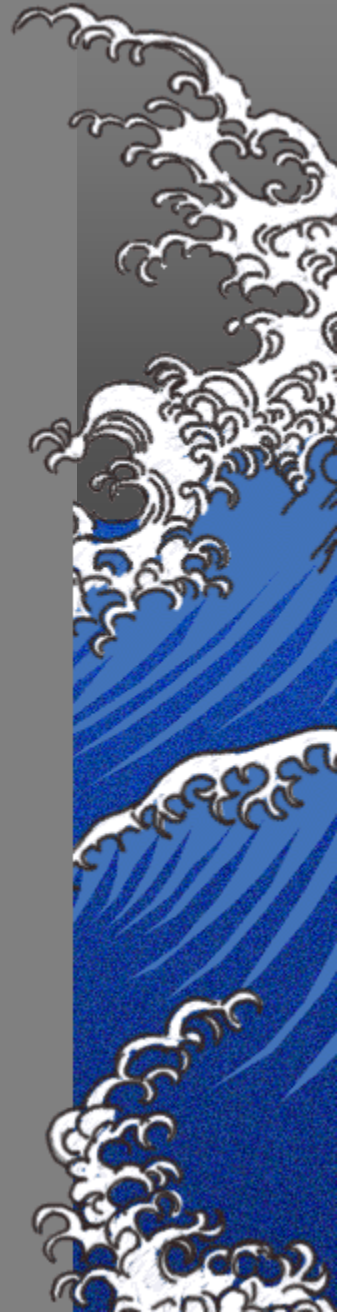
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probably corre  
edu·cator  
professional  
**edu·ca·tion**  
training and instr  
young people in sc  
give knowledge an



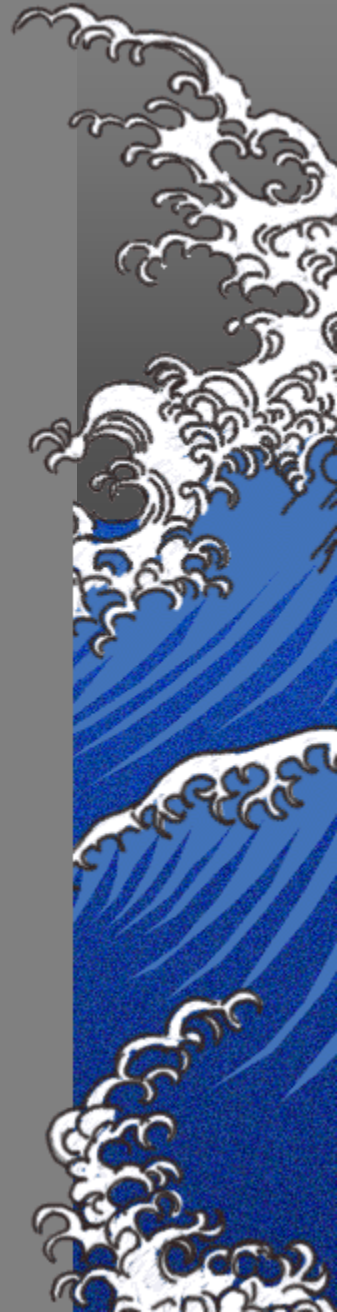




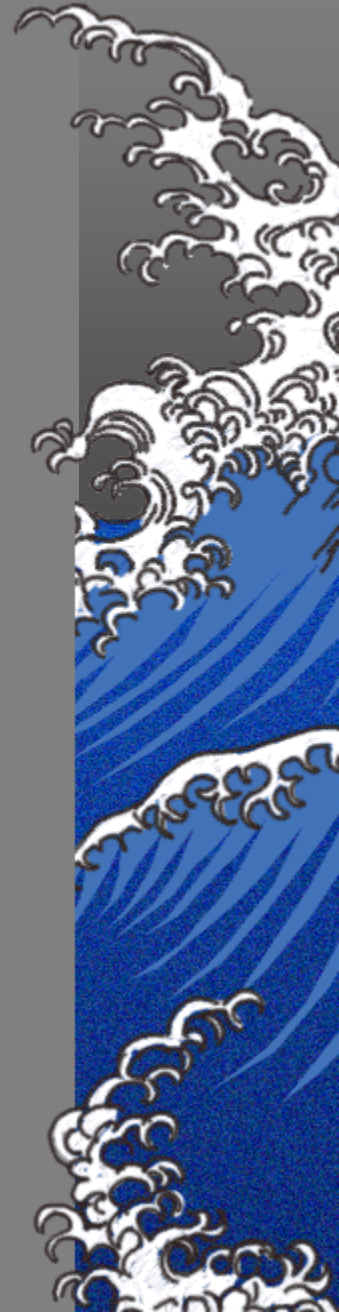
- Water is essential for all life.
- Variety of users
- Demand is increasing; supply remains the same
- Citizens must be able to make responsible, informed decisions regarding water resources



# 8-4-1, One for All



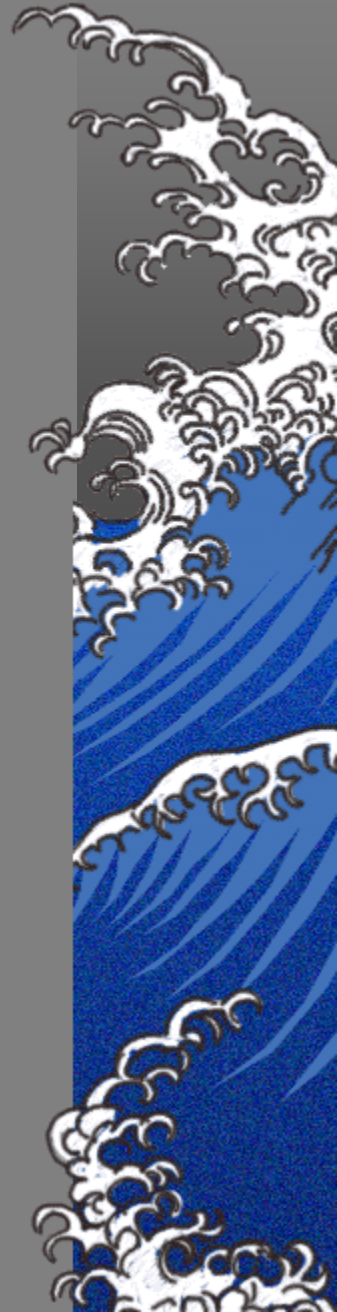




**PROJECT**



**Water Education for Teachers**





# Project WET

## Curriculum and Activity Guide 2.0

# Activities & Lesson Plans



Water Education for Teachers

Educate. Empower. Act.

### 8-4-1, One for All

Eight water users, four common water needs...and one river to serve them all.

**Grade Level**  
Upper Elementary, Middle School, High School

**Subject Areas**  
Social Studies, Environmental Science, Government, Geography, Language Arts

**Duration**  
Preparation time: 45 minutes  
Activity time: 45 minutes

**Setting**  
Classroom or open area

**Skills**  
Gathering information; Organizing; Analyzing; Interpreting

**Charting the Course**  
"Serving Watersheds" defines watersheds, and "Blue River" discusses how river flow is influenced by seasonal variations in precipitation and climate. "Back to the Future" introduces students to the use of hydrologic data to analyze stream flow conditions and extremes. In "Sum of the Parts" students learn that upstream water users make positive and negative choices that impact downstream water users. "Virtual Water" establishes direct and indirect connections between water and water users.

**Vocabulary**  
adaptive, integrated, water use, sustain, earth systems, municipal, indirect water use, direct water use, virtual, watershed, watershed manager, bacteria, virus, toxin, dissolved oxygen, nutrient, contaminant, aquatic, algae, microscopic organism, macroinvertebrate, food chain

#### Summary

Representing eight different water users, students must safely carry one water container "downstream" and must navigate through four simulated water management challenges to reach the next community of water users on the same "river."

#### Objectives

- Students will:
- identify water users and their water use or product.
  - describe major water user categories and how each consumes water.
  - list water users' four common water needs.
  - demonstrate the complexity of sharing water among all water users in a watershed.
  - summarize how water managers use adaptive and integrated strategies to address river basin water challenges.

#### Materials

##### Warm Up

- Eight sticky notes per student
- White board or chalkboard
- Milk jug filled with water and capped
- Ball of string
- Materials for students to create a nametag (either sticky or hung from a lanyard or piece of string)

#### The Activity

- Soap can or small coffee can (three-quarters full of water)
- Eight pieces of string (equal length, about five feet [1.5 meters] each)
- Two or three rubber bands large enough to securely hold the can (You only need one; the extras are in case one breaks.)
- Three pieces of rope or string (each at least six feet [1.8 meters] long)
- At least four chairs
- Several small sticks
- Masking tape or chalk
- Marker

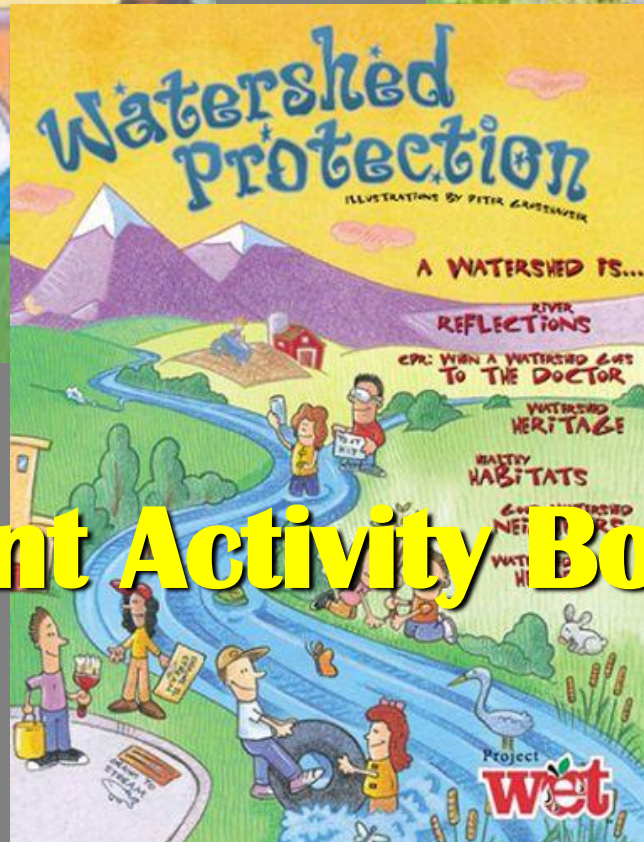
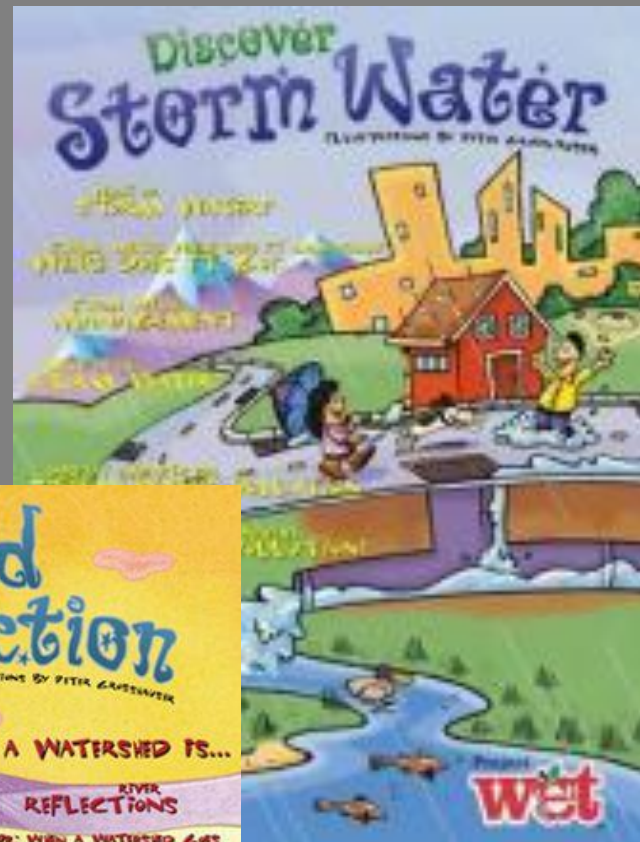
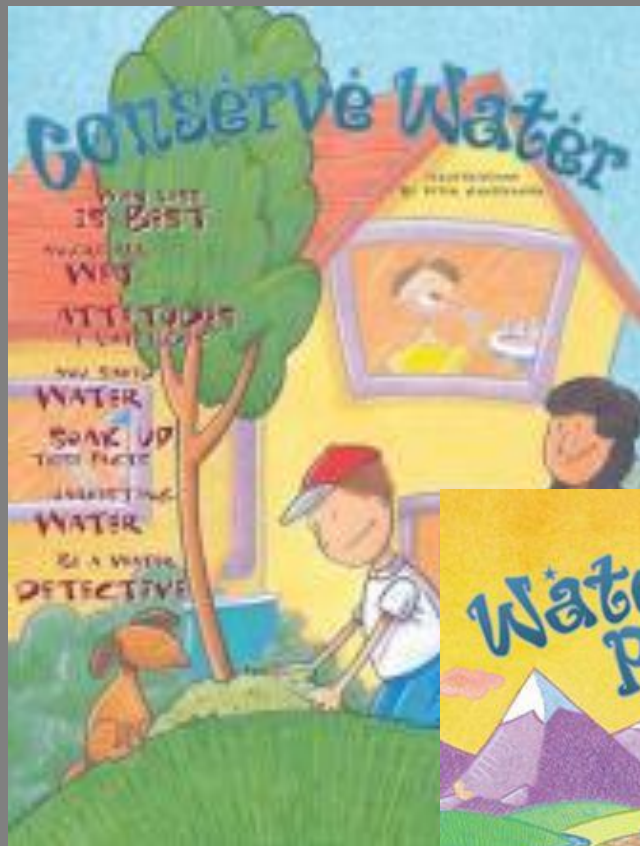
#### Making Connections

Showering, toothbrushing, getting dressed and eating breakfast likely are part of students' daily morning routines. Water is used directly for the shower and is also used to produce the soap, shampoo and towel. From farmers to manufacturers to students, everyone uses water. This activity explores eight categories of water users, four water needs shared by all water users and how water managers, using adaptive and integrated strategies, address the challenges faced when managing a water supply.

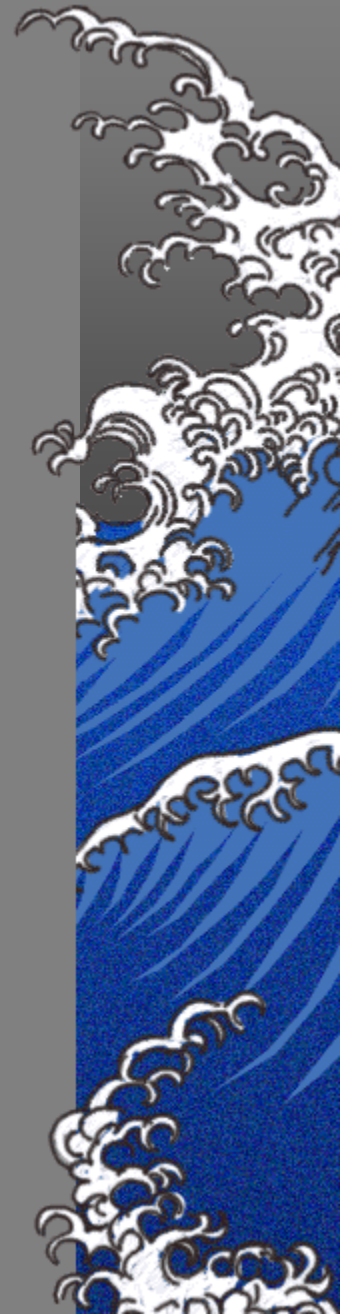
#### Background

We cannot manage a watershed until we know who the water and land users are, what their needs are and how to collectively deal with common water management challenges such as floods, drought, pollution and endangered species.



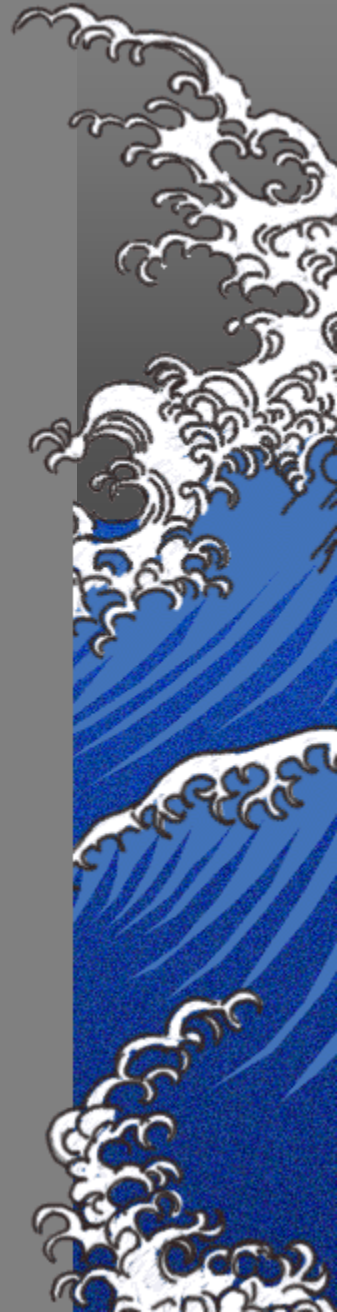


# Student Activity Booklets





- Environmental Professionals offering assistance to Oklahoma Schools that want to be Greener & Healthier places to learn
- Offering hands-on, inquiry based, investigations
- Increases student understanding of where their resources come from and how to use those resources wisely





# OGSP Investigations:

## Energy

- Energy Production, Energy Use, Lighting



## Environmental Quality

- Transportation, Indoor Air Quality, Cleaning Products, Chemicals, Mold

## School Site

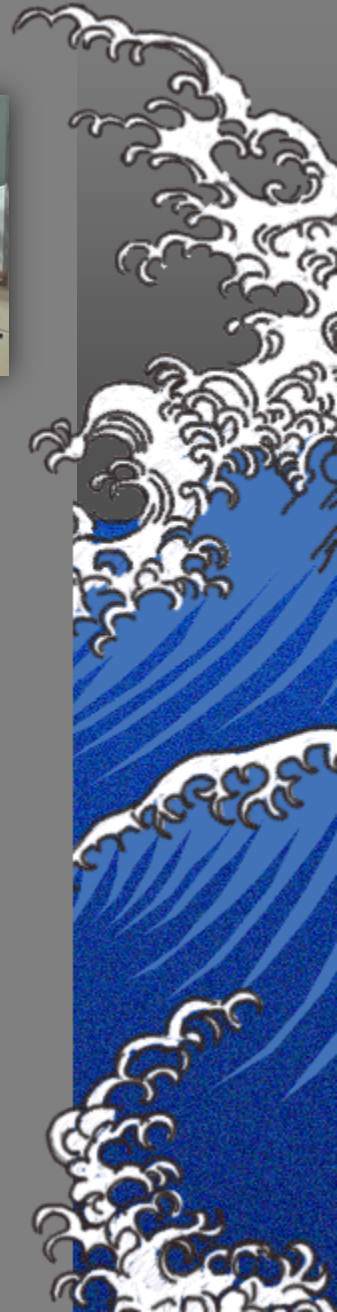
- School Gardens, Trees, Outdoor Classrooms, Runoff, Wildlife

## Waste and Recycling

- Waste Generation, Recycling, Composting, Buying Recycled, Packaging

## Water

- Water Source, Water Quality, Water Consumption, Leaks, Capture

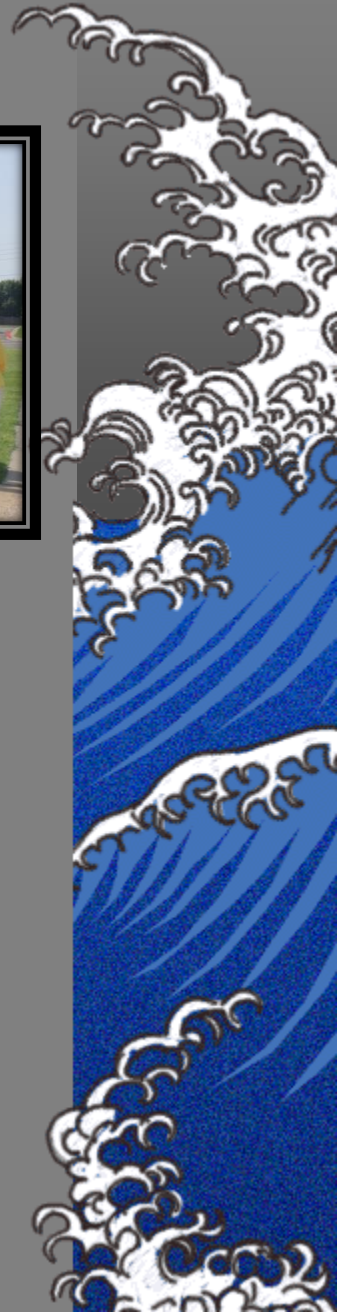




# Visit the OGSP website

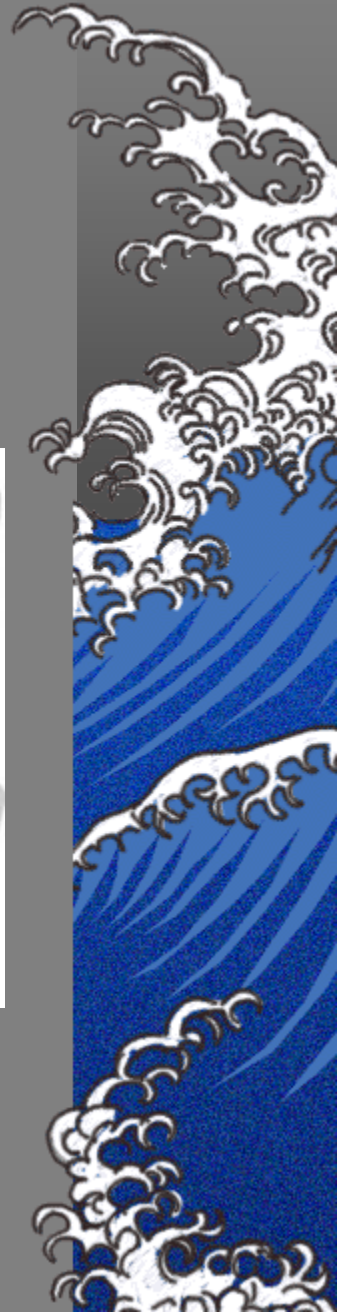


[www.okgreenschools.org](http://www.okgreenschools.org)



# How you can help!

- ◆ ScienceFest (April)
- ◆ H2Oklahoma (October)
- ◆ Natural Resource Days
- ◆ Classroom Visits
- ◆ Guest Speakers



# ScienceFest



**Register  
Now**

"To set the national standard for educating youth  
of the benefits of protecting our environment,  
conserving natural resources,  
and using alternative energies."



**Register**

## Welcome To ScienceFest 2016

**What  
is it?**

Mark your calendars for **April 28, 2016**

**Location - Oklahoma State Fair Park**

**See Who's  
Coming**

ScienceFest is a day of interactive science and environmental activities focusing on the conservation of natural resources and the use of alternative energies. It's designed for 4th and 5th graders and best of all, **IT'S FREE!**

**Attendee  
Information**

We have increased the number of activities with a focus on Science, Technology, Engineering and Math (STEM) as they relate to environmental conservation and alternative energies. This will provide a great learning experience for your students. The day will be filled with exciting hands-on exhibits, presentations and demonstrations, all developed to show the importance of scientific applications in the environment.

**Resources**

**Sponsors**

**OGI-E**



**OKLAHOMA**  
DEPARTMENT OF COMMERCE





# H<sub>2</sub>Oklahoma Water Festival



**Volunteers needed for**  
**H<sub>2</sub>Oklahoma**



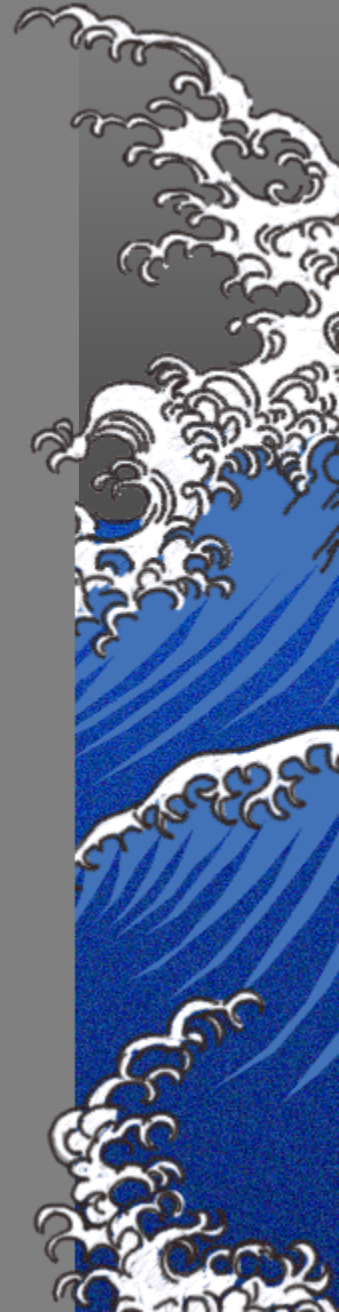
**Thursday, October 6, 2016**  
**at Roman Nose State Park near Watonga**

**Would you like to participate?**  
**Let us know!**

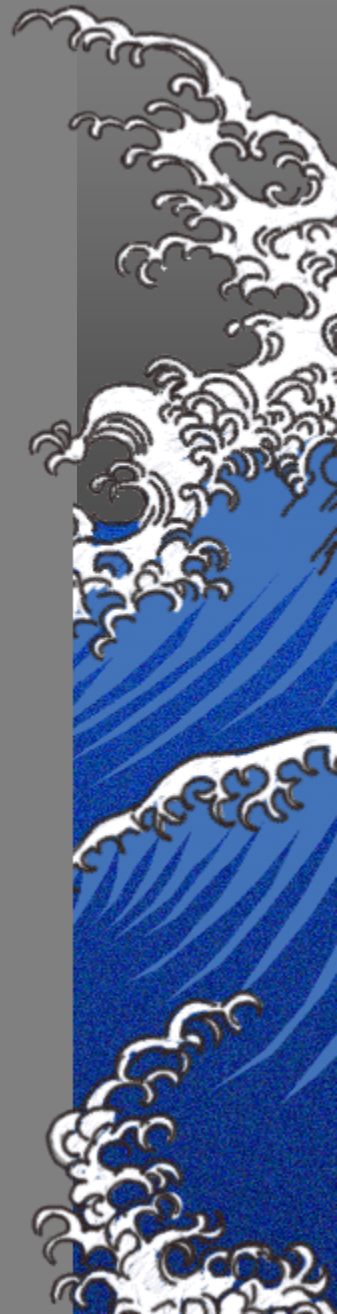
**Sara Ivey – DEQ (405) 702-7122 or**  
**[sara.ivey@deq.ok.gov](mailto:sara.ivey@deq.ok.gov)**

**Paula Mills – OWRB (405) 530-8884 or**  
**[paula.mills@owrb.ok.gov](mailto:paula.mills@owrb.ok.gov)**

**Karla Beatty – OCC (405) 521-6788 or**  
**[karla.beatty@conservation.ok.gov](mailto:karla.beatty@conservation.ok.gov)**



# Natural Resource Days





# RUSTLE THE LEAF™

BY PONCE & WRIGHT

## ENVIRONMENTAL COMICS



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