

# **Middle Rio Grande Children's Water Festival 2005 Project Report**



January 20, 2006

By Susan Gorman  
Project Manager

# **Middle Rio Grande Children's Water Festival 2005 Project Report**

Middle Rio Grande Children's Water Festival 2005 was held on Thursday and Friday, October 13 and 14 at the Albuquerque Convention Center. A total of 45 teachers and 1042 students from 14 schools in Albuquerque and Rio Rancho participated in the Water Festival. Nearly 7,000 students, over 280 teachers and hundreds of parents have participated in the seven successful MRG Water Festivals held since 1999.

## **Goals and Performance Targets**

Educating students and teachers about water and its relationship to human and other natural resources in a fun and interactive atmosphere continues to be the primary goal of the Children's Water Festival. The Water Festival program is designed to help students understand that water is an essential and limited resource; to present water related facts, concepts and values through fun, hands-on learning activities; and to demonstrate actions that each of us can take to protect and conserve our precious water.

In 15 years or so the students who participate in the Water Festival will be the water engineers and managers; the voters and decision makers. They will have to make choices about water and they must have the facts, concepts, values and critical thinking skills to do that. The Water Festival provides students and teachers with some of those water facts and concepts and values.

We have set performance targets for the Water Festival that focus on learning and also on actions -- changing behavior:

### **Performance Targets**

- ◆ Students demonstrate that they can answer the Big Water Questions:
  1. Why is water so important to life?
  2. What is the water cycle and why is it important?
  3. What is a watershed and how does it function?
  4. How do trees, plants, animals, people, soils, and water depend on each other?
  5. How do our actions affect water quality?
  6. How much water does my family use?
- ◆ Students take action to conserve water and protect water quality.
- ◆ Students urge their family and friends to take action to conserve water and protect water quality.
- ◆ Teachers continue water education in the classroom using the resources and concepts learned at the Teacher Workshop and Festival.
- ◆ Teachers utilize new resources, adopt expanded curricula and modify teaching methods.
- ◆ Teachers take action to conserve water and protect water quality.

## **Work Products**

The MRG Children's Water Festival 2005 provided effective community education about water by teaching children and enabling them to educate their friends, parents and other family members. Through the Teacher Workshops, teachers received resources and activity ideas to use themselves and to share with colleagues. The organizations that participated benefit from greater recognition and community awareness of the work that they do.

The Water Festival Project delivered the following specific work products:

- ◆ The Children's Water Festival 2005 event attended by 1042 4<sup>th</sup> grade students and 45 teachers from 14 Albuquerque and Rio Rancho schools.
- ◆ A Teacher Workshop which provided concepts that enabled the teachers to prepare their students before the Water Festival and continue with water education after the Water Festival.
- ◆ A Water Resource Kit for each teacher to provide water education resources for use in each classroom.
- ◆ Communication with local media to build awareness of the Water Festival.
- ◆ Data that provides strong indications that the performance targets were met by many of the participants.

### **Water Festival Event**

The Festival was held on October 13 and 14 at the Albuquerque Convention Center. The students were accompanied by their teachers and over 100 parents. Each group of students attended the Water Festival for one full day and participated in five 25 minute activities. Assistance was provided by 55 volunteers and members of the Steering Committee.

Twenty-three different activities were presented by 62 people each day. Students from Valley High School, several of whom were back for the 3rd year, were Masters of Ceremony for Water Jeopardy as two classes of 4th graders searched for the questions for water answers - like the TV show. Middle School students from Albuquerque Academy helped the 4th graders put water to the test through a series of experiments to demonstrate that water is no ordinary liquid!

Students, led by Master Gardeners, discovered how roots, leaves and stems play the leading roles in helping New Mexico's native plants conserve water in our beautiful but challenging environment, while folks from New Mexico Game and Fish Department provided microscopes and magnifying glasses so students could Meet Water Bugs from the icy waters of the Pecos River. Albuquerque/Bernalillo County Water Utility's Water Conservation officer led The Long Haul to help students really appreciate how much water a gallon of water is as they haul enough to flush the toilet or brush their teeth. A bevy of folks from the Albuquerque BioPark's Aquarium took students on a journey to a coral reef while other students traveled back in time with Professor Dripstop McWaterwise to learn that water has always been important to life!

Many other organizations presented hands on activities that helped students expand their water knowledge. (See Program - Attachments or check the website, [www.pioneerwest.net](http://www.pioneerwest.net))

### **Teacher Workshops**

The Teacher Workshop sessions, held on September 22 and 24 were attended by 39 teachers. During the Workshops, we discussed the importance of water education and the rationale for the Water Festival. Samples of activities were presented and the Resource Kits were distributed. We discussed the outcomes and performance targets that we had set and the verification program that we use to determine if these outcomes are achieved. Teachers were asked to participate in the program, including the visits to classrooms, Before and After Water Use Surveys, and real water use monitoring to determine if students and their families change their water use actions after the Water Festival.

### **Water Resource Kit**

This kit contained the following teaching resources:

- Albuquerque's Water Cycle Poster
- When You're Not Looking, A Lot Can be Happening along a Southwestern Stream Poster
- Scoop the Poop!
- About Wastewater Treatment Book
- Smokey Bear Bookmarks and Magnets (1 per student)
- Smokey Bear Booklet (1 per student)

Invitation to North American Association for Environmental Education Conference  
Buster & Bizmo Book (1 per student)  
Lizzie & Harriet Book (1 per student)  
Conserve Water Activity Book (1 per student)  
Collecting rainwater flyer  
Rio Grande & Me Book  
How to Make an Aquifer Activity Description  
Big Water Questions  
*Protect our Water* Pencils (1 per student)

### **Outreach to other New Mexico Communities**

The successful outreach initiative is continuing to encourage and assist people in other New Mexico communities to initiate planning for their own Water Festival event. More than 600 4th graders from schools in the Santa Fe area participated in the 3rd Santa Fe Children's Water Festival that was held on February 9 and 10, 2005.

Silver City, Socorro, Gallup, Artesia and Carlsbad held Water Festivals as well. The Toolkit on CD is available to anyone who is interested in planning a Water Festival.

### **Media Communication**

Two press releases were sent to the area media and KOAT - Channel 7 and Univision - Channel 41 both sent reporter/videographers and there were nice spots in both stations' evening news! This was a first for the Water Festivals. More than 140 invitations were sent to elected officials, sponsors and other VIPs.

### **Process**

The work of designing, planning and implementing the Festival was accomplished by a Steering Committee, a Festival Manager, two Festival Coordinators and a Volunteer Coordinator. Steering Committee members include water conservation and protection professionals from the cities of Albuquerque and Rio Rancho, Cooperative Extension/4-H agents, the State Engineer Office Water Conservation educator, and others who are interested in water education. (List Attached)

Project management services were provided by Susan Gorman, owner of PioneerWest, a local project management consulting firm. Festival Coordination was also provided by Katie Babuska and Barbara Garrity and Wendy Tanner provided Volunteer Coordination services.

Fiscal sponsor services were provided by New Mexico Water Conservation Alliance, a nonprofit organization of municipal and industrial water conservation professionals dedicated to water conservation education and networking.

The project plan, schedule and work tasks were developed based on the experience derived from previous Water Festivals. Major Tasks included Teacher Outreach and Communication, Teacher Workshop, Program Development, Media Communication, Logistics, and Financial Management. The Steering Committee met monthly. The E-mail list serve was used for meeting notices and progress reports. Information on the Festivals was published on PioneerWest's website, [www.pioneerwest.net](http://www.pioneerwest.net).

### **Support**

In addition to planning and implementing the project, it was necessary to raise the funds needed for implementation. We developed a budget and wrote proposals to potential sponsors. The fund raising initiative resulted in grants, in-kind donations and contracts for service from many organizations. In addition, other organizations contributed through the work of their representatives on the Steering Committee and by volunteering and presenting activities at the Festival. (List Attached)

The major donors, contributors and presenters were recognized through press releases, listing on the Festival T-shirts, large signs and logos displayed at the Festival, and lists in teacher packets.

## **Results**

The Festival activities covered a wide range of core curriculum areas including language arts, math, science, social studies, visual arts, and health & wellness. Presenters endeavored to present water related facts, concepts and values through hands-on learning activities.

The Festival stimulated the development of water education activities by the presenting organizations. In many cases, organizations were motivated to enhance the activities to improve effectiveness for the 4th grade students based on their experience in previous Festivals.

The Festival brought together 45 more dedicated teachers who are committed to giving their students an excellent education. These teachers and those who attended previous Water Festivals have the motivation and resources to continue water education that was started at the Festivals in their classrooms.

The Festival offered an opportunity for a wide range of organizations to participate. A total of 47 organizations provided support through donations of time, resources and money. The list of organizations that were major donors, contributors and presenters includes businesses, state and federal agencies, local governments, community organizations and schools. (List Attached)

How will we verify that the performance targets were reached? Three methods were used:

Evaluations - Teachers, students, volunteers and presenters were asked to complete evaluation surveys. In addition each activity was observed at least once per day by an Activity Evaluator, but most activities were observed more than once on a single day.

Classroom Visits - We made visits to 27 classrooms, to ask what everyone learned at the Water Festival and discuss the Big Water Questions. This intensive visit program reinforced the lessons of the Water Festival and provided data on the outcomes, too. The classroom visits were made possible by a special grant from the New Mexico Environment Dept., Surface Water Quality Bureau, Section 319, Clean Water Act.

Water Conservation Before and After - We developed questions about water use at home and asked teachers to ask their students to complete these questions and return the questionnaires to us. After the Festival, we asked the same teachers to ask their students to complete another set of questions to see if their water use at home has changed.

The highlights of the results of all three verification methods are reported here. The full report will be published and made available in print and on the website.

Most evaluators rated the experience as 6 (Wonderful) or 5 (Really Good) on a scale of 1 to 6.

## **Evaluations**

### **We asked presenters:**

#### **What general comments about the Festival did you hear from teachers, students, parents?**

All respondents (19) said that the comments were consistently positive.

- "They liked it." "Great! "Applause! "Enthusiastic." "Parents had fun." "Fun, creative, informative, interesting." "Engaged, entertained."
- "Some parents were just as interested (or more) in the activities than the children. They liked suggestions of easy ways they can do science at school or home."
- "One child said he "saw the world" in our model."

### **What did you enjoy most about the Festival?**

Almost all presenters (18) noted that they enjoyed interacting with the children. Some presenters (4) enjoyed the teaching aspect. Other answers included lunch (3), T-shirts, networking with other water professionals, and small class sizes.

- “Spending the day with the kids and watching as they really learn something about water.”

### **Do you have any suggestions for improving the Festival as a whole?**

Most (13) said “No,” but there were six ideas noted:

- “Don’t schedule similar activities back-to-back (i.e., my aquifer presentation and Edible Aquifer were consecutive).”
- “Wish the sessions were a little longer.”
- “It was exhausting. Having one time slot with nothing in it.”
- “Opening speaker.”
- “We never have 8 minutes between activities and we really need 3-5 minutes to regroup.”
- “Maybe a chance to see the other stations as the day went on.”

### **We asked students:**

#### **What did you learn at the Festival that you did not know before?**

- There were numerous answers from each class. Most referred in general to water conservation or specific facts presented in an activity.
  - “How many gallons you use in your shower”
  - “To use less water and we use a lot of water in a day”
  - “That we can run out of water easily”
  - “How to conserve water”
  - “The aquifer is sucked up fast and fills up slow”
  - “That everywhere is a watershed”
  - “49 gallons makes one cup of milk”
  - “Poop from animals ends up in the river”
  - “Different insects live in different pollution levels”
  - “That the aquifer has layers”
  - “How plants stop flooding”

#### **Why do you think learning about water is important?**

- The overriding reason students think learning about water is important relates to water conservation, but water quality was also important:
  - “We should not use too much water and if we don’t Albuquerque will be in a drought”
  - “People should know how much water to use”
  - “Our water could be polluted and would be poisoned and we would be drinking poisonous water”
  - “People don’t have enough water and we need to conserve water”
  - “So when we grow up we can have enough water”

### **We asked teachers:**

#### **Which activities were most effective in teaching your students about water? Why?**

- “Water Olympics” – very hands on and fun
- “Weather or Not” – generated questions on our weather
- “Water Jeopardy” really tested their knowledge and my students enjoyed the physical setting of speaking and participating for their class/team.
- “Rolling River” – great way to see the bigger picture. Very Realistic.
- “Swimming in the Rio Grande” – good insight into animal life in relation to water and how we use it. Also conservation.
- “Weather station and aquifer” were effective hands on activities.

**Will you be able to utilize and extend on what your students learned during the Festival in your curriculum? If so, how?**

“Our upcoming trip to the Sandias’ and lessons about habitats and ecosystems will use information we learned at the festival.”

“I have a science/art book that I will draw lessons from.”

“We are exploring the state of New Mexico and our resources. We are constantly referring back to water in our state.”

“We are studying NM, and the info on water (how it’s used) and plant life were great for helping my students make connections.”

“Continued environmental lessons on conservation and anti pollutants. Keeping our world a better place for future generations.”

“We have a “environments & living things” unit in science with APS science kit (at end of year) but this will well with that unit.”

“The water cycle comes up in every science unit. A clear understanding of the process and impact helps me teach on a deeper level.”

“Definitely – watershed is a big component of our curriculum.”

“in science, social studies, math.”

“in science when we do environment and off and on through the year as it is relevant.”

**Classroom Visits**

Classroom visits were conducted to determine the level of learning long-term, with special focus on the Big Water Questions:

- **Why is water so important to life?**

Life’s dependence on water was nearly universally understood by the children in all the classes.

- **What is the water cycle and why is it so important?**

Some students understood the evaporation, condensation, and precipitation components of the water cycle, even if they couldn’t remember the “big” words.

A few understood runoff (and related it to erosion) but did not know the term. All presenters explained transpiration and percolation.

- **What is a watershed and how does it function?**

Very few students had an understanding of the term “watershed.” Most knew the location of the headwaters of the Rio Grande, its course, and where the river emptied into the ocean.

- **How do plants, animals, people, soil, and water depend on each other?**

The relationships between life forms and what supports life was well understood. Most of the students had studied the “life cycle” in their classrooms.

- **How do our actions affect water quality?**

Students mentioned throwing trash in the water most often. We discussed other actions like: leaving pet poop on the ground, letting car oil or dirt wash into the river, farmers using too much fertilizer or pesticide and other actions people might take.

- **How much water does my family use?**

Students did not have a realistic grasp of volume of usage. The range of guesses was from 5-2000 gallons. Most guesses were very low. They were generally surprised to learn how much water an average family uses. The presenters used toilet flushing as a way to show a more realistic number.

We also asked:

**What are you doing differently, concerning water, which you did not do before the Children’s Water Festival?**

The answers to this question were very anecdotal, related to their own families’ experiences. Almost everyone suggested shorter showers and turning off water when brushing teeth.

**“Before” and “After” Water Use Surveys**

The results of the “Before” and “After” Water Use Surveys are being analyzed.

**A complete report on the *Verification of Outcomes* is available on request.**

## Financial Analysis

A careful accounting of the cost components was carried out to ensure that each funder was provided with the necessary documentation and also to provide a more accurate budget that could be used to plan future Festivals.

The major cost components are shown below:

<b>Expenses</b>		
Equipment	\$1,073	
Supplies	2,259	
Contractual	7,047	
Travel (Parking)	108	
Other	670	
Food	2,301	
Personnel	12,416	
<b>Total</b>	<b>\$25,872</b>	
<b>Value of in-kind time and resources</b>		<b>\$18,900</b>

The cost components for the classroom visits are shown below:

<b>Expenses</b>	
Personnel	1796
Travel	160
<b>Total</b>	<b>\$1,956</b>

It is important to note that the Water Festival would not have been possible without the hundreds of hours of volunteer work that were donated by presenters, volunteers and members of the Steering Committee.

## Next Steps

The continuing work that has evolved from the Water Festival includes:

- ◆ Continuing water education for the teachers & students - Teachers will be offered additional opportunities to continue water education. The Water Festival section on the website, [www.pioneerwest.net](http://www.pioneerwest.net), provides contact information for the Festival presenters.
- ◆ Outreach to New Mexico Communities - Technical assistance will continue to be provided on request and the Water Festival Toolkit on CD will be sent to requesters.
- ◆ Planning for Future Water Festivals - A significant portion of the funding needed for the MRG Water Festival in 2006 and Santa Fe Water Festivals in 2006 and 2007 has been secured. Work has already begun to plan and organize both the Santa Fe Water Festival and the MRG Water Festival in 2006.



## **Attachments**

# **Middle Rio Grande Children's Water Festival 2005 Program**

Activities are presented BOTH DAYS unless specified.

## **1. BioPark's BioVan**

**NW Exhibit Hall**

This mobile exhibit is designed to teach children about the journey of the Rio Grande, from its headwaters in Colorado to its mouth in the Gulf of Mexico. The BioVan includes invertebrates, fish, reptiles, amphibians, birds and mammals.

City of Albuquerque/BioPark's Rio Grande Zoo, Albuquerque Aquarium and Rio Grande Botanic Garden  
Ms. Louie Va, Phone 505-764-6288, E-mail lva@cabq.gov

## **2. Dividing the Water**

**New!**

**Nambe**

Students will learn about water sources, water rights and sharing water shortages among various users. Albuquerque/Bernalillo County Water Utility Department

Andrew Lieuwen and Kathy Grassel, Phone 505-768-2570, E-mail alieuwen@cabq.gov

## **3. Don't Use It All Up**

**New!**

**Jemez**

Students find out how people are consumers of resources, and they will explore methods of conserving those resources.

New Mexico Association of Conservation Districts

Amber Hughes, 505-981-2479, E-mail abchughes@delcity.com

## **4. Edible Aquifer**

**San Juan**

Students make an aquifer model from edible ingredients and learn about hydrogeology, pollution and pumping.

City of Santa Fe, Water Division

Danielle Smith, Phone 505-955-4205, E-mail ddsmith@santafenm.gov

## **5. Every Drop Counts**

**New!**

**Zuni**

Students will learn how the aquifer was formed by building one of their own. They will learn about the various uses for water and why it is so important for everyone to conserve.

Souder Miller & Associates

Scott McKittrick, Phone 505-299-0942, E-mail sam@soudermiller.com

## **6. Exploring Coral Reefs**

**Santa Ana**

Students learn about amazing coral animals, why coral reefs are important and how the Rio Grande connects us to the reefs in the Gulf of Mexico.

City of Albuquerque, BioPark's Albuquerque Aquarium

Amy Henderson, Phone 505-848-7162, E-mail ahenderson@cabq.gov.

## **7. Incredible Journey**

**Estancia**

Students become water drops to learn about the movement and distribution of water within the water cycle, and how pollution can move throughout the water cycle as well.

NM Environment Dept., Surface Water Quality Bureau

Jill Turner & Gary King, Phone 505-476-1866, E-mail jill.turner@state.nm.us

## **8. Insectopia**

**Laguna**

Water health can be determined by the particular kinds of aquatic insects living in it. Do you know if that river, lake or pond is polluted or pristine (unspoiled)? By identifying the aquatic insects students will be able to determine water quality.

City of Albuquerque /Open Space Division

Bonnie Schmader, Phone 505-452-5205, E-mail bschmader@cabq.gov

**9. Long Haul****Santo Domingo**

Students learn to really appreciate how much water a gallon of water is as they haul enough to flush the toilet or brush their teeth. They experience the difference between conserving and wasting uses.  
Albuquerque/Bernalillo County Water Utility Department  
Katherine Yuhas, Phone 505-768-3650, E-mail [kyuhas@cabq.gov](mailto:kyuhas@cabq.gov)

**10. Meet Water Bugs Up Close****Revised!****Apache**

Play a game while learning about riverine aquatic habitats, including the food web with aquatic macro-invertebrates and fish. This is an introduction to identifying these animals and learning about their life cycle by observing live critters in their watery homes.  
New Mexico Game & Fish Department  
Josephine Graf, Phone 505-264-0190, E-mail [jograf3@juno.com](mailto:jograf3@juno.com)

**11. Mission Impossible****New!****Navajo**

The students' mission, if they choose to accept it, is to rescue Albuquerque from water shortages that could occur in the next 10 years. Students play an interactive game and make decisions about how to manage available water resources.  
Sandia National Laboratories/Geohydrology Department  
Vincent Tidwell, Phone 505-844-6025, E-mail [vtidwe@sandia.gov](mailto:vtidwe@sandia.gov)  
Howard Passel, E-mail [hdpasse@sandia.gov](mailto:hdpasse@sandia.gov)

**12. Our Cottonwood Forest****Cochiti**

Students learn about the Bosque ecosystem of cottonwoods and willows along the Rio Grande.  
Bosque School & Bosque Ecosystem Monitoring Program. Dept. Biology, UNM  
Jennifer Schuetz & UNM Students, Phone 505-277-0758, E-mail [jschuetz@sevilleta.unm.edu](mailto:jschuetz@sevilleta.unm.edu)

**13. A Perfect Little River****New!****Tesuque**

Students will build a watershed puzzle and learn about the impacts upstream activities have on downstream. We will learn about natural systems and effects of pollution in watersheds, specifically what water quality problems occur in the Albuquerque reach of the Middle Rio Grande.  
MRG Watershed Group  
Ciudad Soil and Water Conservation District  
Tim Karpoff, (505)877-6041, [timkarpoff@msn.com](mailto:timkarpoff@msn.com)  
Environmental Planning, URS Corporation  
Jennifer Nelson, (505) 855-7416, [Jennifer\\_Nelson@URSCorp.com](mailto:Jennifer_Nelson@URSCorp.com)

**14. Rio Grande Bosque Water Cycle****(Thursday only)****Sandia**

Students become water molecules traveling through a water cycle. Students learn that water cycles through the Earth and the atmosphere and that the processes involved in the water cycle include: precipitation, evaporation, runoff, percolation, transpiration, respiration and condensation. In the semi arid climate of New Mexico, our scarce precipitation limits the quantity of water for plants, animals and humans to use. We need to consider all the water users.  
Rio Grande Nature Center  
Rebecca Tydings, Phone 505-344-7240, E-mail [rtydings@state.nm.us](mailto:rtydings@state.nm.us)

**15. Rolling River****NW Exhibit Hall**

How does the river work? Students will see a model river and watch the effects of water as it flows down stream.  
Ciudad Soil and Water Conservation District  
Susan Rich, Phone 505-761-5446, E-mail [susan.rich@nm.nacdnet.net](mailto:susan.rich@nm.nacdnet.net)

**16. Swimmin' in the Rio Grande****Enchantment 1**

Students play a game to learn about the perils and challenges in the life of a Rio Grande Cutthroat Trout, New Mexico's state fish and a native.  
US Forest Service  
Kimberly Kelly, Phone 505-829-3535/505-834-9222, E-mail [kakelly@fs.fed.us](mailto:kakelly@fs.fed.us)

**17. Thrifty Plants in a Thirsty Land****Enchantment 2**

Our New Mexico wild landscapes are full of plants that flourish in our high desert climate. How do these plants survive freezing winters, searing summers, wide temperature swings, high winds, plenty of ultraviolet radiation and very little natural rainfall? Students will discover how roots, leaves and stems play the leading roles in helping plants conserve water in our beautiful but challenging environment.

Albuquerque Area Extension Master Gardeners

Barbara Shapiro, Virginia Burris, Helane Brenner & Margo Murdock, Phone 505-822-9410, E-mail [murdock@swcp.com](mailto:murdock@swcp.com)

**18. Water and Life****Isleta**

Students will examine a wide variety of prehistoric and historic water related items. They will try to guess what the items are and what their uses or benefits were. Help or hints, as necessary, will be provided by the instructors.

Albuquerque/Bernalillo County Water Utility Department

Larry Marken & Margie Monarez, Phone 505-268-5249, E-mail [mjj11@qwest.net](mailto:mjj11@qwest.net)

**19. Water Jeopardy****Taos**

Students compete to give questions for the water answers (like the TV show)

Bernalillo County Office of Environmental Health

Matthew Cross-Guillen, Phone 314-0324, E-mail [matthewc@bernco.gov](mailto:matthewc@bernco.gov)

Valley High School Environmental Club (Friday only)

Karn Gustafson, Phone 505-345-9021 (x82141), E-mail [kgustafson1234@comcast.net](mailto:kgustafson1234@comcast.net)

**20. Water Olympics****(Friday only)****Sandia**

Students put water to the test! Through a series of experiments they demonstrate that water is no ordinary liquid!

Albuquerque Academy Environment Club

Karen Temple Beamish & Students, Phone 505-858-8873, E-mail [beamish@aa.edu](mailto:beamish@aa.edu)

**21. Weather or Not****Revised!****Acoma**

Provides students a unique hands-on weather experience by demonstrating how precipitation is produced in the atmosphere and how heavy precipitation can lead to flash flooding. Experiments illustrating convection and cloud formation are completed by the students, then runoff from a thunderstorm is simulated using a terrain model. The use of meteorological instruments, including a weather balloon and rain gage, is demonstrated. Finally, students learn about the dangers of flash floods and review safety rules.

National Weather Service

Deirdre Kann & Kerry Jones, Phone 505-243-0702, E-mail [deirdre.kann@noaa.gov](mailto:deirdre.kann@noaa.gov)

**22. Why the River Runs Brown****Picuris**

Students will learn about watersheds by examining and manipulating watershed models. They will learn that a watershed is the land area that drains to a water body such as a river or lake. They will see for themselves how watersheds can influence water quality.

NM Environment Dept., Surface Water Quality Bureau

Abe Franklin, Phone 505-827-2793, E-mail [abraham.franklin@state.nm.us](mailto:abraham.franklin@state.nm.us)

**Water Wizard who knows all there is to know about H2O.**

Arid Solutions

Lisa Ayres, Phone 866-629-RAIN, E-mail [lisa@aridsolutionsinc.com](mailto:lisa@aridsolutionsinc.com)

**Middle Rio Grande  
Children's Water Festival 2005  
Thanks to these organizations for their generous support!**

**Lead Donors**

US Bureau of Reclamation  
Albuquerque / Bernalillo County Water Utility Department  
Bernalillo County, Office of Environmental Health  
City of Rio Rancho Utilities Dept. / Water Conservation Office  
Sierra Club Rio Grande Chapter  
SMG Albuquerque Convention Center

**Fiscal Partner**

New Mexico Water Conservation Alliance

**Contributors**

Arid Solutions Inc.  
Bernalillo County Cooperative Extension Service  
Bernalillo County Cooperative Extension Service Master Gardeners  
Business Water Task Force  
CDM  
City of Albuquerque, Pollution Prevention (P2) Program  
Environmental Education Association of New Mexico  
Home Builders Association of Central New Mexico  
Intel Corporation  
La Montanita Coop  
Museum of Natural History and Science  
New Mexico Environment Department, Surface Water Quality Bureau  
New Mexico State Engineer / Water Conservation Office  
Paradigm, Inc.  
PNM  
PNM Right of Way Department  
Rocky Mountain Section of the American Water Works Association  
Rocky Mountain Water Environment Association  
Sandia National Laboratories  
Science Applications International Corporation  
The Rain Well  
US Environmental Protection Agency, Region 6, CWA, Section 319  
US Forest Service Southwest Region  
WaterBank

**Middle Rio Grande  
Children's Water Festival 2005  
Thanks to these organizations for their creative activities!**

**Presenters**

Albuquerque Academy Environment Club  
Albuquerque / Bernalillo County Water Utility Department  
Arid Solutions Inc.  
Bernalillo County Cooperative Extension Service Master Gardeners  
Bernalillo County, Office of Environmental Health  
Bosque Ecosystem Monitoring Program at UNM  
Bosque School  
City of Albuquerque  
- Open Space Division  
- BioPark  
City of Santa Fe, Water Division  
Ciudad Soil & Water Conservation District  
Middle Rio Grande Watershed Group  
National Weather Service  
New Mexico Association of Conservation Districts  
New Mexico Environment Department, Surface Water Quality Bureau  
New Mexico Game & Fish Department  
Rio Grande Nature Center  
Sandia National Laboratories / Geohydrology Department  
Souder Miller & Associates  
US Forest Service, Santa Fe National Forest  
Valley High School Environmental Club

**Middle Rio Grande  
Children's Water Festival 2005  
Steering Committee**

Carol Edwards	Albuquerque/Bernalillo County Water Utility
Roberta Haynes-Sparks	Albuquerque/Bernalillo County Water Utility
Elliott Sachse	CES/4-H - Bernalillo County
Kelly Knight	CES/4-H - Bernalillo County
Ruben Archuleta	City of Rio Rancho
Cheri Vogel	NM Office of State Engineer
Abraham Franklin	NMED, Surface Water Bureau
Larry Marken	Water Educator
Susan Gorman	PioneerWest
Blair Brown	PioneerWest
Barbara Garrity	PioneerWest
Katie Babuska	PioneerWest
Wendy Tanner	PioneerWest