

II. PUBLIC INVOLVEMENT

The Colorado River basin CRP partners participate in many activities that educate the public about water quality. The past five years have seen LCRA, CRMWD and UCRA host environmental conferences, sponsor volunteer monitors and speak at public forums. The following pages describe some of the outreach and education activities that have occurred in the Colorado River basin since 1996.

Clean Rivers Program Steering Committee

Perhaps the most important outreach component of the Clean Rivers Program is the Steering Committee. The Steering Committee is a group of individuals representing such varied interests as rice farming, public utilities, ranchers, state agencies, environmental groups and the general public. They offer input into projects, monitoring and outreach and identify water quality issues and priorities based on their experiences at the local level. The following is a history and summary of Colorado River Basin Steering Committee and its activities from 1996 to 2001.

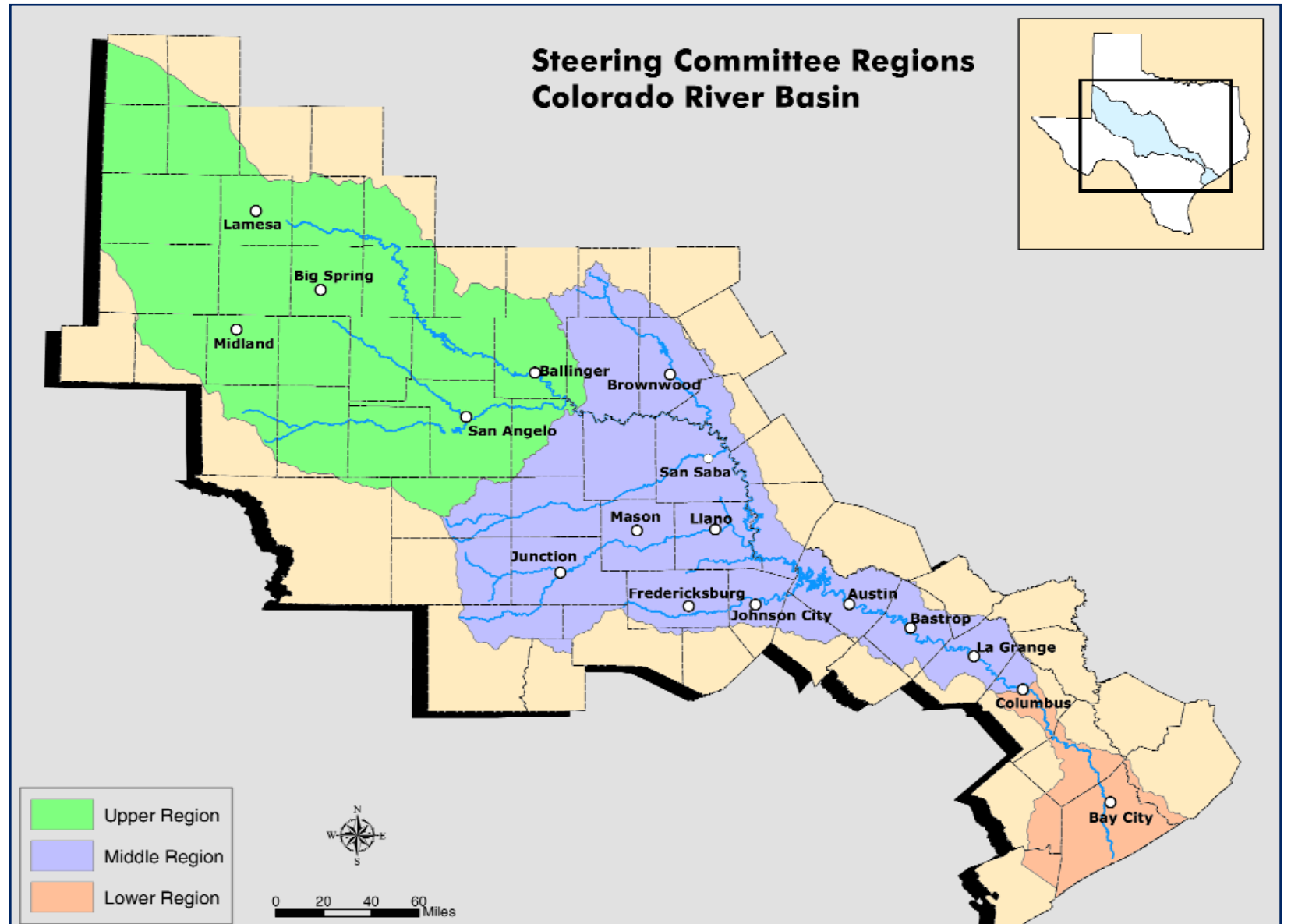
The Colorado River Basin Steering Committee has consisted of between 50 and 100 members who actively attended meetings and provided input into the program over the past six years. The membership fluctuated as the Clean Rivers Program evolved.

In 1997, the Texas Legislature reauthorized the Clean Rivers Program, requiring representation from water rights and wastewater discharge permit holders and the Texas State Soil and Water Conservation Board. This change provided more of an opportunity for CRP fee payers in the Colorado River basin to guide the LCRA, UCRA and CRMWD in their Clean Rivers Program activities. Since then, fee payers have played a significant role in identifying water quality priorities for the major watersheds in the basin.

In May 1997, the Steering Committee met in Austin and decided to form three separate subcommittees by region – upper, middle and lower basin. This division of the Steering Committee allows members to focus on concerns in their watersheds and reduces expenses associated with traveling to meetings. In 1997, travel expenses were no longer reimbursable for Steering Committee members.

The upper region is defined as the headwaters to Ivie Reservoir; the middle region is defined as the river basin below Ivie Reservoir, including the Highland Lakes, Austin and Bastrop. The lower region is defined as the river basin below Columbus to Matagorda Bay (Fig. 9).

Fig. 9 - Steering Committee Regional Subcommittees



In addition to two basinwide meetings held in May 1997 and November 1998, each subcommittee has held its own regional meetings. Alternating every year, the UCRA and the CRMWD hosted the upper basin subcommittee meetings in either San Angelo or Big Spring. LCRA hosted the middle and lower basin meetings, which were held in various locations, including Fredericksburg, Lake Buchanan, Bastrop, Wharton, Bay City and Palacios.

In conjunction with the regional Steering Committee meetings in 2000 and 2001, the Colorado River basin partners hosted four regional water quality issues meetings to provide the public the opportunity to learn and provide input on local water quality issues. Input from public meetings was used as discussion items at the regional Steering Committee.

Upper Basin Subcommittee

Since 1998, the partners hosted four upper basin subcommittee meetings, each with 15 to 20 participants. Subcommittee members discussed water quality and water quantity issues equally. Specifically, the upper basin subcommittee discussed the following issues:

- ◆ High salinity in the Spence and Ivie watersheds
- ◆ Sedimentation in Spence Reservoir and Lake J.B. Thomas
- ◆ Brush control in the North Concho watershed
- ◆ High levels of nitrates in groundwater in the lower Concho River
- ◆ Agricultural nonpoint-source pollution
- ◆ Drought management and the need for a Water Master Program in the Concho River

The upper basin subcommittee identified salinity in all upper basin watersheds, nitrates in the Concho River watershed and brush control education and incentives as the highest priorities. Based upon this input, the UCRA initiated the Brush Control Planning, Assessment and Feasibility Study in the North Concho River watershed in 1998. The study is discussed later in this report.

Middle Basin Subcommittee

Since 1998, the partners have hosted three middle basin subcommittee meetings. Approximately 15 members attended the meetings. The following is a list of issues identified by the middle basin subcommittee:

- ◆ Urban NPS pollution – stormwater runoff from development, especially golf courses
- ◆ Agricultural NPS pollution in the Lake Buchanan and LBJ watersheds
- ◆ Chlordane in Town Lake

- ◆ Low dissolved oxygen downstream of the dams
- ◆ Turbidity in Lake Travis
- ◆ Aquatic vegetation in Lake Austin
- ◆ Drought and flood management, including flood debris and lake levels
- ◆ Wastewater discharge from the city of Austin
- ◆ Aging septic systems in unregulated tributaries
- ◆ Sand and gravel mining

The Middle Basin subcommittee identified urban nonpoint source pollution, sedimentation and high bacteria levels as its highest priorities. In 1998, the LCRA along with the Bull Creek Foundation and other partners conducted an intensive water quality study on Bull Creek, a tributary to Lake Austin. The study did not indicate any significant degradation in water quality conditions.

Lower Basin Subcommittee

Since 1998, LCRA hosted four lower basin subcommittee meetings held in Wharton, Palacios and Bay City. Attendance at these meetings ranged from 15-20 members. In 1999, the lower basin subcommittee added new members when the Colorado River basin partners took over the responsibility of the CRP in the Caney Creek watershed from the Houston-Galveston Area Council.

Over the years, the subcommittee identified freshwater inflow into Matagorda Bay, point-source pollution from upstream communities and agricultural and urban nonpoint-source pollution as its highest priorities. The committee additionally identified the following issues:

- ◆ Wastewater treatment
- ◆ Bacteria levels
- ◆ Riparian issues, loss of wetlands and buffer zones
- ◆ Landfills
- ◆ Sand and gravel mining operations
- ◆ Aquaculture facilities
- ◆ Industrial point sources into the estuary
- ◆ Colorado River diversion impacts, including fish kills in the old river channel
- ◆ Intercoastal waterway traffic

Since 1995, Steering Committee members have identified elevated bacteria levels in the Tres Palacios River as a high priority in the lower

basin. The Tres Palacios River is located in the Colorado-Lavaca coastal basin and is a tributary to Palacios Bay. To address this issue, in 1998 the LCRA organized the Clean Water for Tres Palacios Watershed Action Team. The team was comprised of lower basin subcommittee members and representatives from Matagorda County Environmental Health Department, Texas Nature Conservancy Mad Island Marsh, Texas Agricultural Extension Service, Texas State Technical College, Texas A&M Marine Advisory Service, Trull Services, Texas Marine Education Center and the Matagorda County Commissioners office.

In 1999, with funding through the CRP, the watershed action team initiated an intensive water quality study on the Tres Palacios River watershed. The team collected water quality samples in dry and wet weather to determine when, where and how long elevated levels of bacteria occur in the watershed.

Outreach and Education

The Colorado River Basin's CRP partners are committed to protecting the basin's aquatic resources through environmental education and outreach. Much of this commitment comes in the form of support for volunteer monitoring activities. The partners also appear at media events, participate in Earth Day events, judge science fairs, address civic groups, speak at conferences, and sponsor activities to make the public aware of the importance of protecting our natural resources.

LCRA Outreach and Education Activities

LCRA has furthered its commitment to environmental education by establishing environmental learning centers in the basin. In 1998, the McKinney Roughs Natural Science Laboratory (now the Mark Rose Environmental Learning Center) opened its doors to schools, teachers groups and organizations. In spring 2000, LCRA opened an environmental learning center at the Canyon of the Eagles Lodge and Nature Park on Lake Buchanan. In the fall 2002, LCRA will open a center at the Westcave Preserve in the Hill Country.

Colorado River Watch Network

The Colorado River Watch Network (CRWN) is LCRA's long-standing volunteer water quality monitoring program. Established by citizens in 1988 and managed by LCRA since 1992, the program's mission is two-fold:

- ◆ To collect useful water quality information, and
- ◆ To foster environmental stewardship by directly involving the public in environmental protection efforts.

From 1996-2002, CRWN monitors reported approximately 4,400 monitoring events from about 150 locations. Reporting by CRWN monitors has increased in the past six years, with 635 monitoring events reported from 69 sites in 1996, compared to 837 events reported from 95 sites in 2000. The data are transferred quarterly to Texas Watch, the statewide volunteer monitoring program at Southwest Texas State University.

In addition to collecting water quality data, the program provides citizens, schools, parks and other resource protection groups with training, equipment and opportunities to play an important role in local environmental stewardship.

The heart of CRWN is trained volunteers regularly conducting water quality tests at their sites and reporting results to program staff. Using field kits specifically designed for the program, monitors test their sites for the temperature, pH, dissolved oxygen, total dissolved solids (changed to specific conductance in 1999), and nitrates. Some monitors also test for fecal coliform bacteria (changed to *E. coli* in 1999) or conduct biological sampling as well. Where appropriate, volunteers also record transparency (Secchi depth) at their sites.

Volunteer activity has steadily expanded across the lower Colorado River basin in the past five years. In 1996, 69 sites in 15 counties were monitored. By 2001, the number had grown to 90 sites in 17 counties. Still the

program has continued to pursue quality assurance, partnership development, innovation, and leadership goals.

The level of commitment demonstrated by CRWN monitors is significant. The actual time given to the program by participants (including students) is estimated to be more than 4,000 hours per year. Travel expenses are completely covered by volunteers, occasionally with support from school districts. Volunteer monitors involved in CRWN have reported more than 4,000 monitoring events since 1996.

Since 1989, the CRWN program has hosted an annual student symposium for school participants and an environmental stewardship workshop for citizen monitors. These gatherings allow participants to share their findings with other monitors throughout the basin and to educate CRWN staff concerning ways to improve the program. Since 1993, CRWN has published the Aqua Vitae newsletter to inform readers of water resource management issues, citizen involvement opportunities, and volunteer monitor highlights. The program has produced 20 issues of the publication since 1996.

In 1999 CRWN launched a new tradition by introducing basin-wide “snapshot” monitoring to Texas. On Earth Day, April 22, 1999, 300 volunteer monitors from LCRA, UCRA, and the city of Austin monitored 60 sites, with approximately 135 observers and considerable press coverage. The event continued to grow in 2000 and 2001 incorporating more monitors and sites each year.

Household Hazardous Waste Collection and Education Program

The LCRA Household Hazardous Waste (HHW) Collection and Education Program is a fundamental component of a comprehensive watershed management program. This program not only offers citizens an opportunity to properly dispose of unusable quantities of HHW, but also offers a public awareness and education component that informs the public about proper home chemical and HHW management methods, recycling methods, and alternatives to hazardous products.

Oil-based paints, solvents, lubricants, batteries, pesticides, fertilizers, motor oil and many other chemical products and wastes pose a toxic threat to any water supply. This program supports efforts to prevent HHW from entering surface or groundwater through municipal waste streams, sanitary or storm sewers, or illegal dumping. It creates public awareness through the media and public schools about health and safety issues associated with HHW and its effect on the environment and the responsible alternative actions individuals can take. The public awareness and education component targets all age groups. The program also promotes activities conducive to use reduction, reuse and recycling.

Additional water quality and economic benefits have been the result of the partnerships between LCRA, Texas Commission on environmental Quality (TCEQ), local governments, civic groups and clubs, and private enterprise. The majority of the counties within the basin are rural; therefore, LCRA's intent has been to encourage a regional approach for HHW with collections and the educational component focusing on an entire county.

LCRA has helped develop a model for product exchange centers for small rural communities, where the public screens chemical products for reuse. Product exchange centers offer rural communities and their citizens with more frequent home chemical management opportunities than may be available through one-day collection events.

Since the 1996 CRP Basin Summary Report, there have been 12 collection events that have diverted more than 16,400 scrap tires, 7,270 gallons of used oil, 6,780 used oil filters, 4,290 lead-acid batteries, 475 gallons of antifreeze, 7,240 gallons of latex paint, 49 cubic yards (cy) of paper, 13 cy of glass, 24 cy of plastics, and 22 cy of aluminum for recycling from 3,447 participants. From these 12 collections, more than 210,000 pounds of household hazardous waste was collected for proper disposal. These statistics demonstrate that rural communities will implement proper home chemical and HHW management if they are informed about proper management methods and are given opportunities to practice proper HHW management methods.

CRWN volunteer tests water.



Students monitor river at CRWN Earth Day event.



Information and education materials about proper HHW management have been delivered to approximately 420,000 rural Central Texas residents, including more than 9,255 elementary students in the third through fifth grades.

Burnet-Llano County holds household and hazardous waste event.



Texas Country Cleanups and Agricultural Waste Collection Days

Texas Country Cleanups and agricultural waste pesticide collections are a cooperative effort between the TCEQ (formerly TNRCC), LCRA, Texas Department of Agriculture (TDA) and Texas Agriculture Extension Service (TAEX). The Texas Country Cleanup program provides farmers and ranchers with an opportunity to recycle properly rinsed pesticide containers, used motor oil, used oil filters, lead-acid batteries and antifreeze. Agricultural waste pesticide collections provide agricultural producers with opportunities to properly dispose of unusable pesticides and chemicals. Some of these chemicals may include pesticides that have been banned by the federal government for agricultural uses. Participation in this program has demonstrated a genuine commitment to the protection of the environment, including ground and surface water resources by the agricultural community.

Since the 1996 Clean Rivers report, there have been 42 Texas Country Cleanups and eight agricultural waste pesticide collections in the

Colorado River watershed. From the 42 Texas Country Cleanups more than 40,535 gallons of used oil, 61,225 used oil filters, 25,331 used tires, 4,473 lead-acid batteries, and 36,709 properly rinsed empty pesticide containers were collected from 2,264 participants. From the eight agricultural pesticide collections more than 87 tons of agricultural chemicals were collected. There were five agricultural waste pesticide collections held adjacent to the watershed at which agricultural producers from the Colorado River watershed were able to participate and which collected more than 183 tons of agricultural chemicals for proper disposal.

LCRA is supportive of these programs with LCRA staff participating in every collection held within the Colorado River watershed since the inception of the program in 1993. By providing assistance at these collections, LCRA hopes to show commitment to these programs and the continued need for these programs in the Colorado River watershed.

Agriculture waste collection event held in Wall.



Web Page and Data Dissemination

Before the age of e-mail and Web pages, LCRA responded to data requests by providing hard-copy information or distributing floppy disks through the U.S. Postal Service. With the advent of the World Wide Web, the opportunity to disseminate data and information quickly and efficiently became a reality. In 1998, LCRA developed its first CRP Web page. The page attempted to include every aspect of the program and quickly became too cumbersome to be easily navigable.

The CRP Web page has since been refined to show information relevant to water quality and the goals of the CRP. The page, at

www.lcra.org/lands/wrp/crp/crpmmainpg.htm, displays an overview of the CRP, and links to CRP partner pages, electronic copies of water quality reports, announcements of upcoming meetings and, of course, water quality data.

Also available at the Web page is a link to the Colorado River Basin Water Quality and Quantity Viewer. This map-based computer program displays water quality and quantity data on maps built by the user. The Data Viewer provides maps of the entire river basin at varying scales and the ability to overlay imagery such as USGS topographic maps and Digital Ortho Quarter Quads.

The site is expected to develop into a water quality Web site for the Colorado River basin allowing the user to query data from UCRA, CRMWD and LCRA water quality databases. It will continue to offer maps and images to help the user understand how geography and land use play a part in water quality.

Data Viewer



LCRA Water Quality Index

One of the most difficult things to do in water management is to explain complex information in a way that the general public easily understands. LCRA's Water Quality Index (WQI) was developed to do just that.

It breaks down water quality parameters collected from 14 sites throughout the middle and lower basin and translates them into a simplified explanation answering the question, "How's the water?" The WQI is published monthly in newspapers throughout the basin and is available on the LCRA Web site at www.lcra.org.

The index is based on values of dissolved oxygen, *E. coli* bacteria, nitrogen, phosphorus, temperature and total dissolved solids obtained from volunteer data and data collected by the LCRA routine monitoring programs. Each of the 14 WQI locations is characterized as excellent, good, fair or poor, based on local water quality conditions and professional judgment.

Often environmental conditions occur that cannot be characterized using numeric criteria or the water quality conditions change dramatically between the time samples are collected and when the WQI is published. When these situations arise, best professional judgment is used to determine the final WQI rating. Some examples of this scenario are an outbreak of swimmers itch in Lake Marble Falls, algae blooms throughout the Highland Lakes and a sewage line break downstream of Austin. When these environmental perturbations occur, the ratings are changed from what the numeric scale indicates. Changes always lower the index rating and never improve a rating from that of the numeric determination.

LCRA Ride-Along Program

In 2000, LCRA began a program that has become a popular way to engage and educate civic leaders interested in water quality. The Ride-Along Program facilitates communication of water quality issues with public officials by having them accompany LCRA staff during a field-sampling event.

Interested citizens are invited to spend a few hours with LCRA staff during a routine monitoring event in their community. Those who accept the invitation get to see firsthand the different instruments used to collect water quality data and discuss the condition of their local waterways with seasoned water quality professionals. The Ride-Along Program not only provides the opportunity for participants to get their hands "wet," but a chance for LCRA staff to hear water quality concerns raised by community leaders.

UCRA Outreach and Education Activities

The UCRA Education and Outreach Program uses a multilevel approach to reach all ages and interests. The program has grown from an existing volunteer monitoring program to a comprehensive outreach program that includes elements of CRP, brush control programs and non-point-source 319(h) programs.

UCRA holds water sampling event.



Outreach in Schools

During the reporting period, UCRA worked in both private and public schools incorporating concepts of water conservation and preservation. In summer 2001, UCRA conducted its first teacher workshop, a two-day event that included representatives from the city of San Angelo, Mertzon Independent School District, U.S. Geological Survey and the Texas State Soil and Water Conservation Board. The first event was so well received that a one-day workshop was held in October 2001. Another two-day workshop was held in summer 2002.

Workshop participants include teachers from urban and rural areas. Many of the rural school systems in the upper basin, due to location and size, offer exciting opportunities for volunteer monitoring and educational outreach. UCRA has stepped out into the rural areas by offering teacher workshops and participating in environmental camps.

Nonpoint-Source Outreach

On March 22, 2002, UCRA sponsored a NPS Conference in San Angelo. Water quality professionals, engineers and agency representatives from around the state attended the event. The participants saw firsthand some of the problems and solutions UCRA and its partners have faced in dealing with NPS pollution in San Angelo.

UCRA staff also works with the Brady NPS Project Advisory Committee and recruited volunteers into the West Texas Watch Program from the community.

West Texas Watch

UCRA is a Texas Watch Partner in volunteer monitoring through its highly successful West Texas Watch Program. While UCRA actively recruits volunteers from all arenas, the target group is classroom teachers and their students. UCRA hosts and participates in training events throughout the year, teaching participants to use the Texas Watch water monitoring kit. UCRA provides kits, chemicals and onsite support for its volunteers. UCRA also participated in the 2001 statewide Earth Day event sponsored by Texas Watch in San Marcos. UCRA currently provides support for 15 monitors.

CRMWD Outreach and Education Activities

The CRMWD directs its outreach efforts by making presentations to children and adults in the communities it serves. The goal of these presentations is to familiarize individuals with the general conditions of the upper Colorado River basin and challenges faced by water utilities and water users. Presentations are routinely made to Boy Scout troops, 4-H groups and civic organizations.

Riverside Wildlife Management Camp

River Camp was established at the Riverside Wildlife Management Area downstream of the O.H. Ivie Reservoir. This camp is used annually by county 4-H groups, high school biology classes, Scout troops, and other youth organizations. The camp is primarily for the promotion of environmental studies, wildlife observations, soil and water conservation and other programs dealing with natural science and ecological studies.

Major Rivers Program

Major Rivers is a curriculum for fourth graders, developed by education professionals and major water providers in Texas. It provides students with a concept of the water cycle and how humans impact water quality and quantity. Major Rivers instructs students through videotapes, reading materials, worksheets and tests, and the teacher kits come complete with classroom displays and posters.

The Colorado River Municipal Water District has developed a set of materials using the Major Rivers curriculum to teach students about the Colorado River and CRMWD's role in harnessing the water source for the West Texas water users. The materials emphasize the importance of conservation and include homework materials to be used in the students' homes in an effort to educate parents as well as students.

CRMWD provides the materials to public and some private schools across the district, at an average annual cost of \$7,943 over the past five years. In 2001-02, 18 school districts participated in the program with a total enrollment of about 4,609 fourth-graders.