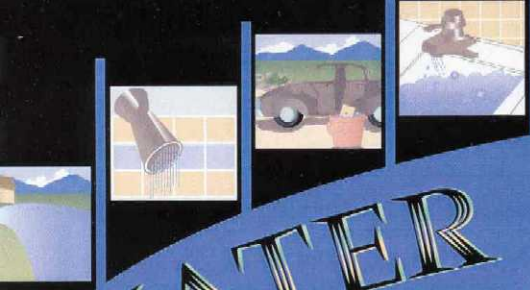


FY 2001 Annual Report

U.S. Bureau of Reclamation
Lower Colorado Regional Area

WATER

CONSERVATION



Field Services Program

**WATER CONSERVATION
FIELD SERVICES PROGRAM**

FY 2001 ANNUAL REPORT

**Lower Colorado Regional Area
Lower Colorado Region
Bureau of Reclamation**

November 2001

**FY 2001 ANNUAL REPORT
LOWER COLORADO REGIONAL AREA
WATER CONSERVATION FIELD SERVICES PROGRAM**

GENERAL PROGRAM DESCRIPTION

The Water Conservation Field Services Program (WCFSP) was implemented by the Bureau of Reclamation (Reclamation) in 1996 to actively encourage water conservation, assist districts with their responsibility to develop conservation plans, and complement and support State and other conservation programs.

Components of WCFSP

The WCFSP provides an opportunity to develop partnerships with districts and encourage the development and implementation of the following: (1) quality water conservation plans; (2) strong information and education programs; (3) demonstration of innovative conservation technologies; and (4) effective efficiency measures.

Authority for Plans

The principal statutory authority for requiring the submission of conservation plans to Reclamation is the Reclamation Reform Act of 1982 (RRA), Section 210 (P.L. 97-293).

- Section 210(a) of the RRA requires the Secretary of the Interior to encourage water users to adopt water conservation measures.
- Section 210(b) of the RRA requires each district who has a water service contract with Reclamation to develop and implement a water conservation plan containing: (1) definite goals; (2) appropriate water conservation measures; and (3) a time schedule for meeting the water conservation goals.
- Section 210(c) of the RRA directs the Secretary of the Interior to coordinate with and involve others in water conservation efforts.

In addition, Part 417 of Title 43, Code of Federal Regulations, directs Reclamation's Lower Colorado Region (Region) to consult with Colorado River water users on an annual basis regarding water conservation and reasonable, beneficial uses of Colorado River water.

LOCAL PROGRAM DESCRIPTION

Reclamation's Lower Colorado Region consists of portions of California, Arizona, Nevada, Utah, and New Mexico. The Region contains four area offices whose responsibilities include working with water users within individual area office boundaries to administer the WCFSP. The Lower Colorado Regional Area Office is located in Boulder City, Nevada. Other area offices are located in Phoenix, southern California (Temecula), and Yuma.

Lower Colorado Regional Area

Location

The LCRA boundaries are comprised of the upper half of the Region, which includes the Colorado River and tributary areas from Lees Ferry to Davis Dam, with the exception of the Little Colorado River drainage. The tributary areas include portions of southern Nevada, southern Utah, and northwestern Arizona (see General Location Map on page 3).

Elevations range from 600 feet near Davis Dam to the mountain peaks of 12,000 feet above mean sea level near Las Vegas, Nevada. The average annual rainfall is very low for the majority of the LCRA, ranging from 200 millimeters (mm) or less in the lower desert areas to in excess of 800 mm in the mountains. Vegetation, sparse throughout most of the LCRA due to low precipitation and warmer climatic conditions, consists mostly of typical desert plants. There are limited forest areas in the LCRA, typically surrounded by desert terrain.

Colorado River Water Users

Water users within the LCRA who hold water service contracts with the Secretary of the Interior include the following:

In Nevada:

Basic Water Company
Big Bend Water District
Boulder Canyon Project
City of Boulder City
City of Henderson
City of Las Vegas
City of North Las Vegas
Colorado River Commission of Nevada
Las Vegas Valley Water District
National Park Service
Nevada Department of Fish and Game
Nellis Air Force Base
Pacific Coast Building Products
Southern California Edison Company
Southern Nevada Water Authority

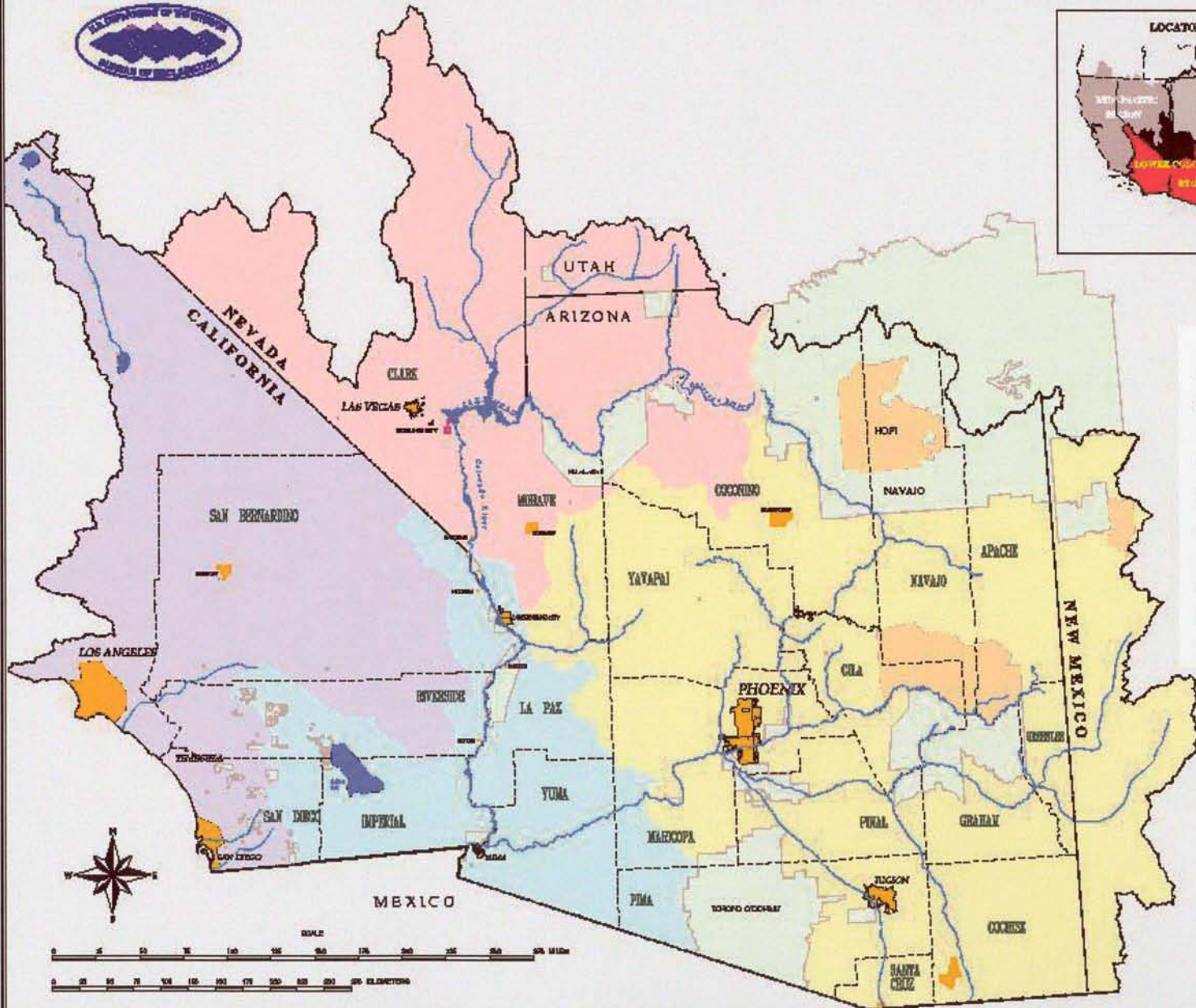
In California:

City of Needles

In Arizona:

Boy Scouts of America
Bureau of Land Management
City of Bullhead City
City of Kingman
City of Lake Havasu City
City of Parker
Golden Standard Mines
Havasu Water Company
Lake Havasu Irrigation and Drainage District
Marble Canyon
McAlister
Mohave County
Mohave County Water Authority
Mohave Valley Irrigation and Drainage District
Mohave Water Conservation District
National Park Service
Western States Minerals

Lower Colorado Region Operational Areas



LEGEND

- REGIONAL HEADQUARTERS
- LOWER COLORADO REGIONAL AREA
- PHOENIX AREA OFFICE
- YUMA AREA OFFICE
- SOUTHERN CALIFORNIA AREA OFFICE
- COUNTY BOUNDARIES
- STATE BOUNDARIES
- PERMANENT STREAMS
- CITIES
- INDIAN RESERVATIONS

This map intended for display only, not for calculation.



Water Supply and Use Within the LCRA

The vast majority of water use in the LCRA is municipal and industrial (M&I), with little agricultural use in the tributary areas of the Colorado River. Most of the M&I water use is concentrated in the Las Vegas metropolitan area, the largest urbanized area within LCRA boundaries. Municipalities which rely on direct diversions from the Colorado River include Bullhead City and Lake Havasu City, Arizona; and Needles, California. Other municipalities within the LCRA which rely on groundwater and tributary flows of the Colorado River include Kingman, Arizona; and St. George, Utah.

Local Problems and Issues

Local problems and issues at the forefront of community awareness include securing a sustainable water supply for southern Nevada as it quickly approaches full utilization of its Colorado River entitlement. Nevada is the driest state in the nation, receiving an average annual rainfall of only 4 inches. In addition, Las Vegas is one of the fastest-growing metropolitan areas in the country. Current estimates indicate that an average of 5,000 people move to southern Nevada each month. With a population of over 1.3 million and a limited water supply of just 300,000 acre-feet per year (AFY) to meet the needs of its residents, sound water management practices are vital to sustaining the area into the next century.



Photo 1 - Las Vegas Strip

PROGRAM ACCOMPLISHMENTS

In FY 2001, the LCRA achieved nearly all of its goals with respect to conservation planning assistance, information and education activities, demonstration of innovative technologies, and implementation of effective efficiency measures. Specific measures were identified and implemented to support achievement of FY 2001 LCRA goals in the following areas:

Conservation Planning Assistance

Consulted with LCRA water users regarding annual Colorado River diversions and status of water conservation efforts.

Provided technical reviews of 5-year water conservation plans for Basic Water Company, the City of Bullhead City, the City of Needles, and Mohave Valley Irrigation and Drainage District (MVIDD). The City of Bullhead City also received financial assistance from the LCRA in the amount of \$10,000 to assist with efforts associated with completion of its 5-year conservation plan. All plans have been finalized and adopted by respective Boards of Directors, with the exception of MVIDD's plan, which is still under revision and development.

Participated in monthly Southern Nevada Water Authority conservation workgroup meetings.

Participated in monthly Partners in the Urban Resource Environment meetings.

Information and Education

Sponsored four Project WET (Water Education for Teachers) workshops to train teachers in the program's curriculum for use in southern Nevada classrooms.

Sponsored training sessions on groundwater model applications for 85 fourth grade classrooms in northern Arizona and southern Utah.

Sponsoring development with The Watercourse and International Project WET of a student activity booklet for fourth and fifth grade students on the Colorado River watershed. Booklet is scheduled for completion in FY02.

Sponsoring development with The Watercourse and International Project WET of a reference guide and activity booklet for teachers on the Colorado River watershed. This publication will take 2 years to fully develop and will then be distributed to elementary and junior high school teachers located within LCRA geographical boundaries for use in the classroom setting.



Photo 2, Educational conservation materials

Partnered with visual presentations staff in Denver to modify the Water Force 2020 software, a conservation game tailored to address topics on southern Nevada's water resource management issues. Obtained 100 copies of revised software on CD-ROM for distribution to local schools.

Participated in Reclamation's annual Kids' Day by providing an exhibit and handouts for approximately 100 children of Reclamation employees (see Photo 3)

Provided a variety of water conservation educational materials for the annual CAST for Kids event held at Lake Mead. This is a fishing event sponsored for physically-challenged children.

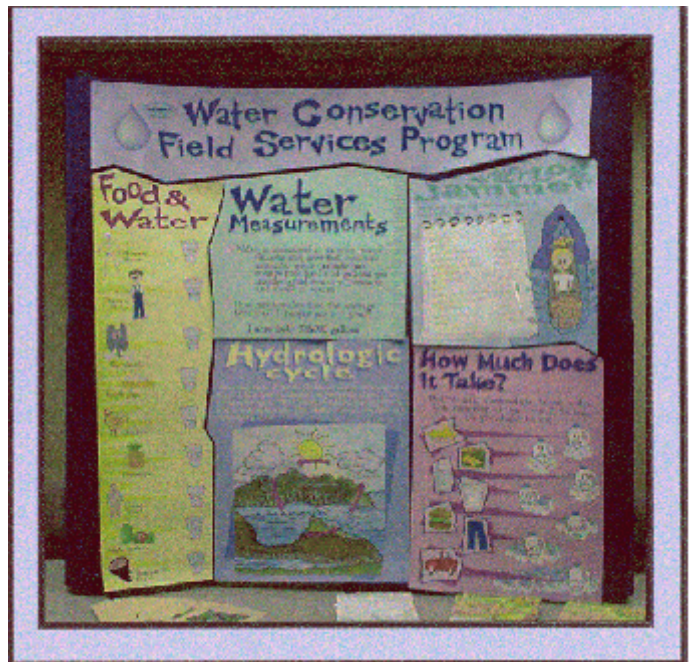


Photo 3. LCRA conservation display for kids

Co-sponsored development and distribution of a southern Nevada urban forestry poster with the Conservation District of Southern Nevada. The poster addresses a wide variety of urban forestry and water management issues.

Implementation of Innovative Technologies and Effective Efficiency Measures

SNWA-USBR Xeriscape Conversion Study. Currently the largest xeriscape demonstration project being conducted in the West, Reclamation entered into a cooperative agreement in 1995 with the Southern Nevada Water Authority to study the potential water savings and water user behavior exhibited through converting turf landscapes to more efficient low-water use landscapes. A total of 499 xeriscape conversion sites and 253 traditionally landscaped homes located throughout the Las Vegas valley are participating in the Study. Landscape conversions began in 1996 and were completed in 1998. Data collection efforts began in June 1998 and will continue through December 2001.



Photo 4. Converted xeriscape site in the Las Vegas Valley

Analysis of data collected suggests total residential water savings of 33 percent is average for typical landscape conversions at single-family residences, with per unit area savings of well over 50 gallons per square foot. Average water savings in summer months is even higher for converted xeriscape sites, at 39 percent. This “real world” study is providing sound proof of the significant water savings obtained from SNWA’s landscape conversion program. This, in turn, helps to demonstrate the programs’ worth to public utilities and encourages future conversions for local residents by providing credible evidence of success. The Study is in its last year of data collection, with publication of a concluding report and offering of a public workshop expected in 2002.



Photo5. Converted xeriscape site in the Las Vegas valley with Mojave plant palette

Cottonwood Cove Campground Water Conservation Project. Efforts continued in FY 2001 to remove non-native vegetation from the Cottonwood Cove Campground, located in the Lake Mead National Recreation Area, under the oversight of the National Park Service. Installation of a new drip irrigation system is underway, and drought-tolerant vegetation will be planted in FY 2002. The completed project will save an estimated 164 AFY subsequent to retrofit of two campground sites.

UNR-USBR Water-Efficient Plant Research Demonstration Project. This demonstration and research project, being conducted with the University of Nevada-Reno, has been ongoing for 2 years in an effort to identify and research the viability of adding 10 new trees, 10 new shrubs, and 10 new groundcovers to the listing of sustainable, drought-tolerant vegetation available to southern Nevada residents for landscapes and conservation planning. There are three sites, two in North Las Vegas and one in Pahrump.



Photo 6. Research site near Ann Road in North Las Vegas



Photo 7. Research site near Ann Road in North Las Vegas

All plants are growing in native soils. No soil amendments or fertilizer have been added. Organic mulch has been added to the surface, and the plots are irrigated only as needed in keeping with the project objective of identifying and analyzing plant materials that will flourish under natural conditions,



Photo 8. Research site on Horse Road in North Las Vegas

with the least amount of supplemental irrigation and fertilization.



Photo 9. Research site on Horse Road in North Las Vegas



Photo 10. Plants at Pahrump research site.

To date, more than 50 species of trees and plants have been tested for sustainability in southern Nevada. Most species are thriving in drought-tolerant conditions, as defined under terms of the Study. The Study is scheduled for completion in 2003, when a final concluding report will be published and made available to Reclamation and the interested public.

CDSN-USBR Backyard Conservation Demonstration Garden Project. The LCRA executed a grant agreement in FY 2000 with the Conservation District of Southern Nevada to provide for development and maintenance of a Backyard Conservation Demonstration Garden on a 2.8-acre parcel of land in Henderson, Nevada. The garden will demonstrate viable ways of reducing outdoor urban landscape water consumption by educating homeowners on how to plan and design efficient irrigation systems and outdoor urban landscapes. The project is on track and scheduled for completion in 2002.

SNWA-USBR Residential Irrigation Retrofit Study. The Study is being conducted with the Southern Nevada Water Authority to analyze water usage of Study participants prior and subsequent to educational outreach and retrofit to assess water savings impact of upgrading automatic sprinkler systems to greater efficiencies. In FY 2001, a detailed analysis of water usage trends within the Xeriscape Conversion Study turf group was conducted. It is believed that trace flow data captured via the Xeriscape Conversion Study will assist in setting parameters for participant selection in this Study. The Study is on track and scheduled for completion in 2002.

Washington County Water Conservancy District (WCWCD) Demonstration Garden

In FY 2001, the LCRA executed a grant agreement with the WCWCD for development of a 2+ acre demonstration garden in St. George, Utah. The Utah Native Plant Society will oversee the planting of a native plant mix. In addition, the garden will feature a raised vegetable garden, a fragrant garden, an edible garden, a wildlife garden, cactus and succulents, groundcovers and slope plantings, turf selection with information on water use, and container gardening. Educational features of the garden will include compost and soil amendments, a weather station, demonstration of Best Management Practices for irrigation and landscape established by the American Water Works Association (AWWA), hardscaping, and a patio garden which will serve as an outdoor classroom. The project is on schedule for completion in 2002.

Lake Havasu City Conservation Plan Implementation. In FY 2001, the LCRA executed a grant agreement with the City of Lake Havasu, Arizona, to begin implementation of its 5-year water conservation plan. The grant provides financial assistance to conduct a leak detection program and provide for educational initiatives (billing inserts and pamphlets) for the City's 22,000 water customers. Activities are on track and scheduled for completion in 2002.

Table 1. LCRA Summary of Active Financial Assistance Agreements

Project	Execution Date	Expiration Date	LCRA Funding
SNWA-USBR Xeriscape Conversion Study	8/29/95	12/31/01	\$605,000.00
State of Nevada - Project WET workshops	9/9/98	5/31/03	\$38,500.00
UNR Water-Efficient Plant Research Demonstration Project	8/18/99	6/30/03	\$41,850.00
University of Arizona - Groundwater Model Applications	6/12/00	12/31/02	\$14,400.00
CDSN-USBR Backyard Conservation Demonstration Garden	6/21/00	12/31/02	\$20,000.00
The Watercourse and Project WET - Colorado River student activity booklet	6/29/00	12/31/02	\$20,000.00
SNWA-USBR Residential Irrigation Retrofit Study	6/29/00	9/30/02	\$49,000.00
NPS-USBR Cottonwood Cove Campground Water Conservation Project	3/9/01	4/30/02	\$70,000.00
Washington County Water Conservancy District Demonstration Garden	5/18/01	6/30/02	\$25,000.00
Lake Havasu City Conservation Plan Implementation	6/8/01	12/31/02	\$20,000.00
Bullhead City Conservation Planning Assistance	6/15/01	3/31/02	\$10,000.00
The Watercourse and International Project WET - Colorado River reference and activity guide for teachers	8/22/01	6/30/04	\$40,000.00
CDSN-USBR Southern Nevada Urban Forestry Poster	9/6/01	3/31/02	\$1,100.00
Total			\$954,850.00

Summarized LCRA Performance Indicators for FY 2001

Table 2 represents a compilation of the WCFSP planning indicators.

Table 2. Conservation Planning Indicators			
	FY 2001	Parties	Cumulative 1996-2001
Number of districts required to prepare/submit plans	15 (5 users not drawing Colorado River allocation)	BWC, Big Bend, Boulder City, Henderson, North Las Vegas, LVVWD, SNWA, Bullhead City, Kingman, Lake Havasu, Mohave County, MCWA, MWCD, MVIDD, Needles	15 (5 users not drawing Colorado River allocation)
Number of acres represented by districts required to submit plans; population served by M&I districts required to submit plans	<100,000 ac 15 users >1.3 million population		
Number of districts with current plans (already submitted)	2 draft 11 final	Draft: PABCO, MVIDD Final: BWC, Big Bend, Boulder City, Bullhead City, Henderson, North Las Vegas, LVVWD, SNWA, Lake Havasu, Bullhead City, Needles	13 plans
Number of districts overdue for plan development or update	None		None
Number of districts submitting plans	4	MVIDD (revised draft) BWC, Bullhead City, Needles (draft/final)	13 plans
Number of acres served/population served by M&I districts submitting plans	<100,000 ac >1.3 million population		
Number of conservation plans reviewed by Reclamation	4	MVIDD (revised draft) BWC, Bullhead City, Needles (draft/final)	13 plans
Number of districts committed to developing/updating plans	13	BWC, Big Bend, Boulder City, Henderson, North Las Vegas, LVVWD, NPS, PABCO, SNWA, Bullhead City, Lake Havasu, Needles, MVIDD	13

Table 3 represents a compilation of WCFSP program assistance indicators.

Table 3. Program Assistance Indicators			
	FY 2001	Parties	Cumulative 1996-2001
Number of water districts/entities assisted with conservation planning	13	BWC, Big Bend, Boulder City, Henderson, North Las Vegas, LVVWD, NPS, PABCO, SNWA, Lake Havasu, Bullhead City, Needles, MVIDD	15
Number of water districts/entities assisted with conservation education	24	BWC, Big Bend, Boulder City, Henderson, North Las Vegas, LVVWD, NPS, PABCO, SNWA, Lake Havasu, Bullhead City, Needles, MVIDD, WCWCD, State of Nevada, U of A Cooperative Extension, UNR Cooperative Extension, CDSN, Watercourse and International Project WET, School Districts of Clark, Mohave, La Paz, and Washington Counties, CAST for Kids	25
Number of water districts/entities assisted with conservation demonstrations	6 projects	SNWA and member agencies (two projects), NPS, UNR Cooperative Extension, CDSN, WCWCD	5 entities
Number of water districts/entities assisted with conservation implementation	6 projects	SNWA (and member agencies) (two projects), NPS, UNR Cooperative Extension, CDSN, Lake Havasu	12 entities
Number of districts assisted in developing and implementing WC measures	13	BWC, Big Bend, Boulder City, Henderson, North Las Vegas, LVVWD, NPS, PABCO, SNWA, Lake Havasu, Bullhead City, Needles, MVIDD	34
Number of districts with one-on-one meetings to review plans/explain WCFSP	17	BWC, Big Bend, Boulder City, Henderson, Las Vegas, North Las Vegas, CRC, LVVWD, Nellis AFB, NPS, PABCO, SNWA, Lake Havasu, Bullhead City, WCWCD, MVIDD, City of St. George	34
Number of conservation measures/programs implemented by water districts/entities	Average 12*	* SNWA and member agencies implement 14 BMP's	Average 12
Number of water districts/entities assisted with "fundamental measures"	17	BWC, Big Bend, Boulder City, Henderson, Las Vegas, North Las Vegas, CRC, LVVWD, NPS, PABCO, SNWA, Lake Havasu, Nellis AFB, Bullhead City, Needles, WCWCD, MVIDD	18
Number of water districts/entities implementing "fundamental measures"	17	BWC, Big Bend, Boulder City, Henderson, Las Vegas, North Las Vegas, CRC, LVVWD, NPS, Nellis AFB, PABCO, SNWA, Lake Havasu, Bullhead City, Needles, WCWCD, MVIDD	18

PROGRAM RESOURCES

Assessment of Staffing and Budget

In FY 2001, the LCRA administered its WCFSP by dedicating one full-time Water Conservation Coordinator to establish goals for FY 2001, implement conservation activities to meet the annual program goals, work directly with LCRA water users to develop and implement plans, and manage day-to-day activities of the program. Support staff were utilized, as needed, to accomplish the overall goals and needs of the LCRA program.

Planned and Actual Resources

Table 4 presents an accounting of program resources utilized in FY 2001. Table 5 shows the budget resources for the LCRA in FY 2001.

Table 4. Staff Resources for FY 2001		
Total number of Reclamation staff days planned for FY 2001		290
WCFSP Coordinator staff days used		240
Support Staff staff days used	Area Office	5
	Regional Office	10
	Denver Office	25
Total number of Reclamation staff days used in FY 2001		280
Estimated number of staff days used by entities through formal agreements		1580
-SNWA Xeriscape Conversion Study	1300	
-Project WET Southern Nevada Workshops	20	
-UNR Water-Efficient Plant Research	25	
-U of A Groundwater Model Applications	20	
-CDSN Backyard Conservation Demo Garden	20	
-Watercourse/WET Colorado River student booklet	25	
-SNWA Residential Irrigation Retrofit	10	
-NPS Cottonwood Cove Water Conservation Project	40	
-WCWCD Demonstration Garden	30	
-Lake Havasu Leak Detection/Education Initiatives	30	
-Bullhead City Conservation Planning	30	
-Watercourse/WET Colorado River reference guide	20	
-CDSN Southern Nevada Urban Forestry Poster	10	
Total number of staff days utilized in FY 2001		1860

Table 5. Funding Resources for FY 2001

		WMC	EIP	Totals	% of Total Available
Resources Available					
Annual Appropriation		\$271,000	\$144,328	\$415,328	118.06%
Carryover from prior years		-0-	-0-	-0-	-0-
Transfers in or out					18.06%
-YAO		<10,000>		<10,000>	
-BCOO - City of Chloride		<25,000>		<25,000>	
-PXAO - Ganado		<10,000>		<10,000>	
-SCAO			<30,000>	<30,000>	
Total funds available FY01		\$226,000	\$114,328	\$340,328	100%
Program Administration and Technical Assistance					
Staff salaries and overhead	Expended	\$104,107.31	-0-	\$104,107.31	30.59%
Travel	Expended	2,582.04	-0-	2,582.04	0.76%
Materials, supplies, equipment	Expended	2,087.75	1,995.00	4,042.75	1.19%
Total expended on PA/TA		\$108,777.10	\$1,955.00	\$110,732.10	32.54%
Financial Assistance Agreements					
Planning	Obligated	\$15,841.00	-0-	\$ 15,841.00	4.65%
Demonstration	Obligated	52,700.00	-0-	\$ 52,700.00	15.49%
Implementation	Obligated	20,000.00	70,000.00	90,000.00	26.45%
Information/Education	Obligated	8,903.12	40,000.00	48,903.12	14.37%
Total Financial Assistance	Obligated	\$97,444.12	\$110,000.00	\$207,444.12	60.95%
Summary					
Total WCFSP Program	Obligated/ Expended	\$206,221.22	\$111,955.00	\$318,176.22	93.50%
End-of-year surplus		\$ 19,778.78	\$ 2,373.00	\$ 22,151.78	6.50%
Total unliquidated obligations at beginning of FY01		\$ 30,000.00	\$149,794.16	\$179,794.16	52.83%
Total unliquidated obligations at end of FY01		\$ 71,937.79	\$117,500.00	\$189,437.79	55.66%
FY01 Accomplishment		91.25%	97.92%	-	93.50%

PROGRAM EVALUATION

The WCFSP in the LCRA has been in existence since October 1, 1996. Funding for the LCRA program was initiated at \$145,000, and the dedication of 1 full FTE was devoted to LCRA program accomplishment in May 1997. The LCRA held workshops with all 32 water users in the area and started building up the program with demonstration, efficiency measure, and information and education activities to complement development and implementation of conservation plans in the area.

Progress in the LCRA, since the WCFSP was implemented in FY 1997, has been steady. The dedication of 1 full FTE to the LCRA program has been adequate to date. Funding resources for the LCRA program have been growing in small increments since the WCFSP was implemented. However, in order to continue to meet the needs of the water users in the LCRA in future years, stability of funding will be crucial to maintain WCFSP assistance to LCRA water users.

In FY 2001, combined WMC and EIP monies for LCRA administration totaled \$340,328. The LCRA continued to meet regularly with water users in the area to assist with development and adoption of strong conservation plans. All 15 water users who hold water service contracts with Reclamation and are required to submit conservation plans are on track with completion of their water management goals. In FY 2001, the LCRA was able to complete two conservation planning assistance projects, continue progress or implement seven demonstration and effective efficiency measure implementation projects, and sponsor eight information and education activities.

The goals that the LCRA has set to meet the needs of local water users have been appropriate and in alignment with program resources. Plans developed and implemented, to date, have been instrumental in better management of considerable quantities of water in the LCRA; results are quantifiable and measurable, as reflected in this year's and previous years' accomplishment reports.

PROGRAM OUTLOOK

As Reclamation moves forward into its sixth year of program implementation in FY 2002, the LCRA will continue to focus on the four priority areas of the WCFSP; however, less emphasis will be placed on conservation planning assistance in FY 2002 as all water users are now on track with development or completion of their conservation plans. More focus will be placed on providing technical and financial assistance for accomplishment of conservation plan goals through implementation of a suite of demonstration and effective efficiency measure projects and information and education activities which meet AWWA's Best Management Practices for urban water resource managers.

Feedback

The LCRA welcomes your comments and suggestions on how to enhance the successful administration of the WCFSP. Feedback may be provided to: Ms. Amy Porter, LC-2706, Water Conservation Coordinator, Lower Colorado Regional Area, Bureau of Reclamation, P.O. Box 61470, Boulder City, NV 89006-1470. Phone 702-293-8573; e-mail aporter@lc.usbr.gov