Bureau of Reclamation
Yuma Area Office
WATER CONSERVATION FIELD SERVICES PROGRAM

FY1999 Annual Report
&
FY2000 Program Plan

BUREAU OF RECLAMATION
YUMA AREA
WATER CONSERVATION
FIELD SERVICES PROGRAM

ANNUAL REPORT FOR FISCAL YEAR 1999
(OCTOBER 1998 TO OCTOBER 1999)

What is Reclamation's Water Conservation Field Services Program ?

In 1997 Reclamation created the Water Conservation Field Services Program. This program is a firm commitment by Reclamation to:

* Encourage water conservation through voluntary and cooperative means;
* Assist water agencies to develop and implement effective water management and conservation plans;
* Coordinate with other state and local conservation program efforts;
* Foster improved water management; and
* Assist water districts as they seek efficiency in their water management, as an alternative to other regulatory measures.

What is the "Yuma Area"?

The "Yuma Area" is an administrative area of Reclamation which includes all users of Colorado River water downstream of Davis Dam, except those served by the Central Arizona Project and the Colorado River Aqueduct. It is a predominately agricultural area, and the major consumer of Colorado River water. Thirteen irrigation districts and four Indian Reservations irrigate nearly one million acres of cropland in the Yuma Area.

The Yuma Area is composed of a vast and intricate network of water supply and drainage systems. We are approaching the limit of what can be justifiably done with pipes, concrete, and earthmoving. It is becoming harder and harder to make any advances in water conservation through structural measures. Most future advances in water conservation can be made through improved water management.

What is meant by "Water Management"?

Webster's Dictionary defines "management" as the skilled handling of something; or the act of planning, directing, and controlling something in a skilled manner. Improving water management will involve educational efforts, improving skills and abilities, changing attitudes and perceptions, and application of new technology.

Water management is not a structural measure. However, it will need to include some structural components, for example, measuring devices and automation equipment.

How much potential is there for water conservation in the Yuma Area?

The Yuma Area water districts divert about 6.5 million acre-feet of water per year.

About 4 million acre-feet of water per year of this total is diverted and consumed off the river with no return flows. Conservation of this portion would result in more water being available for other uses.

The remainder, about 2.5 million acre-feet per year, is diverted with the unconsumed portion returning to the river. Excessive

return flows contribute to salt loading, which increases irrigation requirements downstream and makes efficient scheduling of water deliveries more difficult.

A very modest increase in water use efficiency of 5% would result in about 200,000 acre-feet per year of additional water available for other uses, plus a net reduction in salt loading to the river.

Why should a district or water user try to improve their water management?

For the user, it pays. In the increasingly competitive agricultural marketplace, more efficient water use will provide the edge that agricultural producers will need to prosper. Inefficiently managed water costs the user not only in water fees, but labor cost, yields, crop uniformity and fertilizer.

For the water district, more efficiently managed water reduces drainage costs and overall operating expense, while providing better service to its customers.

Let's not forget that our water supply is not unlimited. Demands for Colorado River water exceed its long term ability to supply. In the future, all water districts and agencies are going to have to show the public that their water use is prudent and reasonable -- that all conservation measures which can be economically justified are being practiced. A district or agency with foresight will realize that the best way to show prudent water use is with a genuine, credible water conservation plan.

What is Reclamation Trying to Do With the Field Services Program in the Yuma Area?

Goal No. 1 - Conservation Plans

All districts and municipalities over certain minimum sizes, except Indian Reservations, are required by law to prepare a water conservation plan. Unfortunately, a legal requirement does not guarantee that a conservation plan will be a bona fide, honest planning effort.

There are 13 districts in the Yuma Area that are required to complete plans. (Needles, Bullhead City, and Lake Havasu City work with the Boulder Canyon Area Office). In addition, there are four Indian Tribes and several smaller municipalities in the Yuma area that are not required to prepare plans.

A genuine planning effort is accomplished with public meetings and input. It involves gathering basic resource inventory information; identifying problems, goals, and opportunities; and evaluating and selecting alternative courses of action.

Our goal is to work with all Districts and Indian Tribes to develop genuine water conservation plans.

Goal No. 2 - Cooperative Conservation Projects

Our goal is to be actively working in partnership with local agencies on a well balanced water management and conservation program, with emphasis on:

* Water Measurement
* Irrigation Water Management
* Canal Automation
* Soil Salinity Management
* Conservation Education; and
* Water Management & Conservation Planning.

Goal No. 3 - Public Direction of

Conservation Program

We want water management and conservation effort to be responsive to local concerns. We strive to obtain input from local water users and conservation organizations by attending board meetings and through regular informal meetings.

Our goal is to maintain responsiveness to local concerns through regular and open communication.

What did we do with the Field Services Program accomplish in 1999 and what kind of results did we see?

We are building the foundation for an effective water conservation effort through improved *management*. To this end we have supported efforts in conservation planning, conservation education, demonstration of new technologies, and implementation of conservation measures..

Conservation Planning

We provided assistance directly to Districts in preparation of their conservation plans. In general, the largest Districts do not require any assistance beyond general policy guidance. Mid-size Districts are being assisted by providing data and information as requested. With smaller Districts, we are assisting them to collect and present data for their use in selecting alternatives. All 13 Districts in the area were assisted in some form.

Conservation Education

We were partial sponsors of three "mobile labs" which provide assistance directly to farmers with evaluation of their irrigation management.

We sponsored three conservation education projects as shown on the attached list of projects, including new projects such as an outdoor classroom, a program to assist landscape irrigation, and mobile, public water conservation displays.

We demonstrated water measurement techniques to local schools and Districts with our portable water demonstration model, and displayed it at county fairs.

Demonstration of New Technology and Innovative Techniques

We were involved with three irrigation water management demonstrations with emphasis on improved management of surface irrigation systems.

We continued to work with the University of Arizona to develop and Internet-based irrigation scheduling program.

We signed two cooperative agreements to demonstrate new technology for assessment and diagnosis of soil salinity, and worked with sponsors to develop another one.

We sponsored a cooperative agreement with the University of California to conduct a study and demonstration of alternative forage crops that will evaluate economic alternative forage crops while conserving water.

Implementation of Conservation Measures

We provided technical and financial assistance to five Districts with ongoing water measurement improvement projects. About fifty new long-throated flumes have been installed in the Yuma Area with Field Services Program assistance, in main canals, laterals, and farm turnouts.

We also provided direct assistance to districts with three canal automation projects.

Summary of Projects

A detailed listing of all active water conservation agreements is attached to this report.

What are we planning to do in 1999?

Our goals in 2000 are:

1. Assist Districts to complete seven conservation plans.

2. Provide timely, quality assistance on existing conservation projects & partnerships.

3. Accelerate technical assistance to Districts. .

4. Solicit public input and direction by through regular communication with water user and conservation districts and other interested groups.

5. Develop six new project cooperative agreements, including:

a. A salinity assessment & diagnosis demonstration for the Palo Verde Valley.

b. A water measurement improvement demonstration for the Fort Mohave Indian Tribe.

c. An agreement to provide accelerated technical assistance to Yuma Area Districts through a cooperating agency or university.

d. Partner with local sponsors for additional AZMET and CIMIS weather stations for irrigation scheduling.

6. Expand the public outreach through fairs, field days, and news articles.

What are our long range goals?

The Yuma Area is nearly "built- out" with structural measures to conserve water which are feasible. Our focus must be on management measures. There is a tremendous potential for water conservation in the Yuma Area through improved management. New technology, and new techniques with existing technology, are helping us to meet this challenge, but patience, education, and communication are vital.

With the focus on management instead of structural measures, a long range strategy is being developed. As we gain experience and input from our partners, our strategy will continue to develop. Our long-range strategy is to:

1.Build a good foundation for future implementation through carefully selected studies and demonstration projects.

2. Build trust and confidence through partnerships with local Districts and conservation groups.

3.Emphasize quality and genuineness in conservation planning

4.Solicit public advice and direction.

As these four strategies are followed, our emphasis should change from demonstration to implementation of conservation measures in future years.

Summary Reporting Tables

Summarized Water Conservation Field Services Program staff and budget resources for FY 1999

Staff Resources		
Total number of Reclamation staff days planned for FY99		2.4
WCFSP Coordinator staff days used		1.0
Support Staff staff days used	Area Office	1.2
	Regional Office	0.1
	Denver Office	0.1
Total number of Reclamation staff days used in FY99		2.4
Estimated number of staff days from others (i.e. other agencies or organizations) (identify)	Irrigation Districts	3
	Universities	3
	Conservation Districts	3

Budget Resources						
		WMC	RRA	Project O&M **&** **LCROP**	EIP	Totals
Technical Assistance (staff and other)	budgeted	$149,000	$10,000	$40,000	$124,000	$323,000
	expended	$149,000	$1,000	$40,000	$124,000	$314,000
Financial Assistance (grants and other)	budgeted		$5,000		$324,000	$329,000
	expended		$5,000		$324,000	$329,000
Total WCFSP Program	budgeted	$149,000	$15,000	$40,000	$448,000	$652,000
	expended	$149,000	$6,000	$40,000	$448,000	$643,000

WMC = Water Management and Conservation
RRA = Reclamation Reform Act
Project O&M = Yuma Area Project Operation & Maintenance
EIP = Efficiency Incentives Program
LCROP = Lower Colorado River Operations

Conservation Planning Indicators	
Number of districts required to prepare/submit plans	13
Number of acres represented by RRA districts required to submit plans	978,211
Number of districts with current plans	6
Number of districts overdue for plan development or update	3
Number of districts submitting plans	13
Number of acres served by districts submitting plans	978,211
Number of conservation plans reviewed by Reclamation	6
Number of districts committed to developing/updating plan	13

Program Assistance Indicators	
Number of water districts/entities assisted with conservation planning	13
Number of water districts/entities assisted with conservation education	10
Number of water districts/entities assisted with conservation demonstrations	17
Number of water districts/entities assisted with conservation implementation	12
Number of districts assisted in developing and implementing WC measures	11
Number of districts with one-on-one meetings to review plans/explain WCFSP	16
Number of conservation measures/programs implemented by water districts/entities	36
Number of water districts/entities assisted with “fundamental measures”	6
Number of water districts/entities implementing “fundamental measures”	14

LIST OF ACTIVE WATER CONSERVATION PROJECTS
YUMA AREA

Type*	Entity	Subject
CA	University of California, Holtville Station	Runoff Reduction and Irrigation Demonstration - Imperial Valley.
CA	Coachella Valley Water District	3 CIMIS (California Irrigation Management Information Service) Stations
CA	Unit "B" Irrigation and Drainage District	Low-cost canal automation demonstration
CA	University of Arizona, Yuma Agricultural Center	Irrigation water management study & demonstration, with alfalfa
CA	Colorado River Indian Tribes	Water measurement improvement & demonstration; and installation of SCADA & automation.
CA	Bard Water District	Water measurement demonstration
CA	Yuma-Mesa Irrigation & Drainage District	Irrigation Management Service & No-rust slide gate demonstration
MOA	University Of Arizona, Maricopa Center	AZSCHED (Arizona Irrigation Scheduling) computer program for Internet
MOA	Coachella Valley Water District	Partnership agreement, Part A - Determining reasonable, beneficial use, water use survey
IA	Bureau of Indian Affairs, Colorado River Agency	Construction of water measurement structures.
CA (DEV)	Fort Mohave Indian Tribe	Water measurement demonstration and improvement .
CA	Bard Water District	Canal automation demonstration - Ypsilanti canal headworks
CA	University of California Cooperative Extension, Palo Verde	Alfalfa drydown study
G (DEV)	Sponsor in Palo Verde Valley to be determined	Salinity mapping and assessment demonstration project
CA	University of Arizona, Yuma Agricultural Center	Yuma & Wellton-Mohawk Valleys Irrigation Water Management Study & Demonstration.
G	Palo Verde Conservation District	Irrigation water management program
CA	Coachella Resource Conservation District	Mobile Lab for irrigation evaluations
CA	University of California Cooperative Extension	Alternative forage crop demonstration at Holtville & Palo Verde (some testing in Arizona)
CA	Yuma Irrigation District	Canal automation demonstration - South Gila Canal headworks

Type*	Entity	Subject
CA (DEV)	California Polytechnic State University	District evaluations & specifications for automation and SCADA systems for Yuma area districts.
CA	Unit "B" Irrigation & Drainage District	Water measurement improvement and demonstration.
G	University of Arizona, Cooperative Extension	JUICE (Joint Urban Irrigation Conservation Education) with Master Gardeners
CA	California Department of Water Resources	CIMIS Station, Ripley, Palo Verde Valley.
G	Parker Valley Conservation District.	Mobile Lab for irrigation evaluations and education
CA	University of Arizona, Yuma Agricultural Center	Irrigation water management study & demonstration for citrus on the Yuma-Mesa landform.
CA	Coachella Valley Resource Conservation District	Salinity assessment and diagnosis, demonstration of new technology
CA	University of Arizona , Yuma Agricultural Center	Salinity assessment and diagnosis, demonstration of new technology
CA	Wellton-Mohawk Conservation District	AZMET (Arizona Meteorological Service) Station
CA	Mohave Valley Irrigation and Drainage District	Water measurement improvement and demonstrtation
G	University of Arizona Yuma Ag. Center	Water Conservation Kiosks and Displays
CA	Imperial Irrigation District	Salinity mapping and assessment demonstration project
G	Arizona Western College	Outdoor Classroom for Water Resource Education - Drip system & weather station
G	Parker Valley Natural Resources Conservation District	Salinity mapping and assessment demonstration project
CA	City of Yuma	Water Conservation Plan
CA	Yuma County Water Users' Association	Water measurement improvement & demonstration
MOA	Palo Verde Irrigation District (PVID)	CIMIS Station - North Palo Verde Valley

* CA= Cooperative Agreement
* MOA = Memorandum of Agreement
* G = Grant
* IA = Interagency Agreement
* DEV = Still under development, not signed yet.

YUMA AREA
WATER CONSERVATION
FIELD SERVICES PROGRAM
PLAN OF WORK FOR THE YEAR 2000

Water Conservation Plans

District	Planned Task	Date	Employee Months
Bard Water District	Assist District to complete plan	January -March	0.5
	Review & comment on plan	April	0.2
Yuma Irrigation District	Assist District to complete plan	January-April	0.5
	Review & comment on plan	May	0.2
North Gila Valley Irrigation District	Review & comment on plan	June	0.2
Mohave Valley Irrigation and Drainage District	Assist District to complete plan	March-August	3.0
	Review & comment on plan	September	0.5
City of Yuma	Assist as needed	June-October	0.5
Gila Monster Ranch	Assist with preparation of plan	May- December	1.0
Unit B Irrigation and Drainage District	Assist District to complete plan	January-June	1.0
	Review & comment on plan	July	0.2
TOTAL EMPLOYEE TIME FOR CONSERVATION PLANNING - MONTHS :			7.8

USBR Technical Assistance

Cooperating District or Entity	Planned Task	Date	Employee Months
Colorado River Indian Tribes and Bureau of Indian Affairs, Colorado River Agency	Complete installation of SCADA System	January -September	3.0
	Water measurement structure designs	January - December	2.0
Yuma Irrigation District	Design for structure at S. Gila Canal Heading	July	1.0
	Install SCADA at South Gila Heading	December	1.0

USBR Technical Assistance

Cooperating District or Entity	Planned Task	Date	Employee Months
Bard Water District	Designs for water measurement structures	January - December	0.5
Gila Gravity Main Canal	Evaluate alternatives - improved measurement at Imperial Dam	April-October	1.5
	Field Evaluation- 2 newly installed doppler devices at Yuma Mesa delivery	March-December	1.5
University of Arizona, Cooperative Extension	Complete test or "Beta" version of Internet AZSCHED, irrigation scheduling program	January-May	2.5
	Field testing/debugging of AZSCHED program	May-December	0.5
Unit B Irrigation and Drainage District	Water measurement structure designs	January - December	0.2
Yuma County Water Users' Association	Review water measuring structure designs	July-December	0.1
Mohave Valley Irrigation and Drainage District	Calibrate new water measurement meters	June-October	0.5
Fort Mohave Indian Tribe	Design of water measurement structures	June-November	0.2
Coachella Valley Water District	Field audit of water use survey	April-November	0.5
Yuma Mesa Irrigation and Drainage District	Neutron moisture meter assistance- safety/supply	January-December	2.0
University of Arizona, Yuma Agricultural Center	Field Collection of soil moisture data	March-December	1.0
	Prototype field irrigation data logger	March	0.2
TOTAL EMPLOYEE TIME FOR TECHNICAL ASSISTANCE - MONTHS :			18.6

New Water Conservation Agreements

Cooperating District or Entity	Project	Expected Duration of Project (Years)	Employee Months to Develop Agreement	Planned Dollars to Obligate	USBR Cost Share (%)
California Polytechnic State University, Irrigation Training & Research Center	Technical Assistance to Yuma Area Districts	4	0.2	$100,000	100%
Fort Mohave Indian Tribe	Water Measurement Improvement Program	3	0.2	$15,000	50%
Coachella Valley Resource Conservation District	"Mobile Lab" for Irrigation Evaluations and Education	4	0.1	$50,000	25%
(To be Selected Through Competitive Process)	Palo Verde Valley, Soil Salinity Assessment Demonstration	2	0.5	$70,000	25% to 50%
U.S. Fish and Wildlife Service	Water Measurement Improvement Program	3	0.5	$35,000	50%
University of California Holtville Station	Surge Irrigation Study, Imperial Valley	2	0.2	$50,000	50%
TOTAL EMPLOYEE TIME FOR DEVELOPING NEW AGREEMENTS - MONTHS :			1.7		
TOTAL FUNDS TO BE OBLIGATED DEVELOPING NEW AGREEMENTS - MONTHS :				$320,000	

Information & Education Program

Audience	Planned Task	Date	Employee Months
Water Users, Board Members, Others on Mailing list	Quarterly Newsletter	January, April, July, October	0.5
Agricultural Public in Yuma Area	News Articles-Local Agricultural Papers	May, August	0.2
General Public, Imperial County	County Fair Booth & Display	March	0.2
General Public, La Paz County	County Fair Booth & Display	March	0.2

Information & Education Program

Audience	Planned Task	Date	Employee Months
General Public, Yuma County	County Fair Booth & Display	March - April	0.2
General Public, Palo Verde Valley	County Fair Booth & Display	April	0.2
Agriculture & Natural Resource College Students, Yuma County	Water Measurement Laboratory	February, November	0.1
Military Personnel	USMC Air Station Energy Fair Display	October	0.1
	USA Yuma Proving Ground Earth Day Booth & Display	April	0.1
Elementary and Junior High, Yuma County	Science Fair	November	0.1
TOTAL EMPLOYEE TIME FOR INFORMATION & EDUCATION PROGRAM:			1.9

TOTALS FOR YUMA AREA WATER CONSERVATION FIELD SERVICES PROGRAM

Employee Time (Months)	30
Employee Time (Years)	2.5
Dollars Obligated to New Projects	$320,000