

Refuge Water Supply Program



U.S. Bureau of Reclamation

U.S. Fish and Wildlife Service

**In cooperation with California Department of Fish and
Game and Grassland Resource Conservation District**

CVPIA 3406(d)

Authorized Program Components

1. **Conveyance/Wheeling**
2. **Construction**
 - San Joaquin Basin Action Plan Lands (SJBAPL)
 - Other Refuges
3. **Water Acquisition**
 - Level 4 – Acquisitions, \$4.3 Million Fiscal Year 2003 budget

FY2003 \$13 million total Refuge
Water Supply budget

Providing firm, reliable, long-term
water supplies



Participating Refuges



Conveyance (Wheeling) Program

Cooperative Agreements

with local and State entities

- 7 long-term

- 2 interim

currently negotiating DWR and Biggs-West Gridley for long-term

- 2 new

pending negotiation with Sutter Extension and Delano-Earlimart)

- * Contracts run across Federal fiscal years (Mar-Feb)
- * Pay per AF water wheeled
- * Account for conveyance losses



FY 2003 Conveyance Budget

Task	Total Cost	RF	W&RR
Program Management	\$1,001,228	\$1,001,228	\$0
Conveyance Cooperative Agreements and Water Service Contract Execution	\$6,530,062	\$6,530,062	\$0
TOTAL	\$7,531,290	\$7,531,290	\$0

Planned Conveyance Quantities

- Level 2 Wheel 496,000 AF including losses
(100% Level 2 allocation is 422,000 AF)
- Level 4 110,000 AF including losses
(100% Level 4 is 133,000 AF)

* \$11 AF approx. average wheeling rate

Current Efforts

Interagency Refuge Water Management Team (IRWMT) - representatives from BOR, FWS, DFG, and Grassland Water District

Refuge water allocations

Delivery schedules

Water management planning

FY 2002 Accomplishments

- Conveyed 421,469 AF level 2 water
- Conveyed 74,396 AF level 4 water
- IRWMT developed water delivery schedule scenarios and prioritized level 4 supplies
- Negotiated new 5-year agreement with DWR for water to Kern NWR
- Managed 5 refuge water service contracts between BOR and DFG, FWS, and GWD/GRCD
- Managed 9 conveyance cooperative wheeling agreements
- Initiated BOR refuge water tracking database



Conveyance Facilities Construction

Construction Agreements

– with local and State entities to deliver (wheel) water

1. San Joaquin Basin Action Plan (SJBAP)

Kesterson Mitigation (pre-CVPIA)

Neal Niven

2. Facilities Construction Program

Refuges brought on-line through CVPIA excluded from SJBAPL

Mona Jeffries-Soniea



Facilities Construction Accomplishments – FY 2002

- **Environmental Commitments for Facilities
Construction Achieved**

Restoration Completed of Giant Garter Snake
Mitigation Site Acquired in 2001



Facilities Construction Funding

Task	Total Cost	RF	W&RR
Program Management	\$100,000	\$100,000	\$0
Planning			
Mendota	\$65,000	\$65,000	\$0
Kern	\$45,000	\$45,000	\$0
Gray Lodge	\$10,000	\$10,000	\$0
Construction	\$15,000	\$15,000	\$0
Mendota	\$2,020,000	\$2,020,000	\$0
Kern	\$935,000	\$935,000	\$0
Gray Lodge	\$1,110,000	\$1,110,000	\$0
TOTAL	\$4,300,000	\$4,300,000	\$0

Facilities Construction Program Activities (Sac and S. San Joaquin Valleys)

Preferred Alternatives and Costs

•East Sacramento Valley

- Biggs West Gridley facilities improvements - \$5M

- Sutter Extension WD facilities improvements - \$8M

- CCID Mendota Dam replacement \$5M

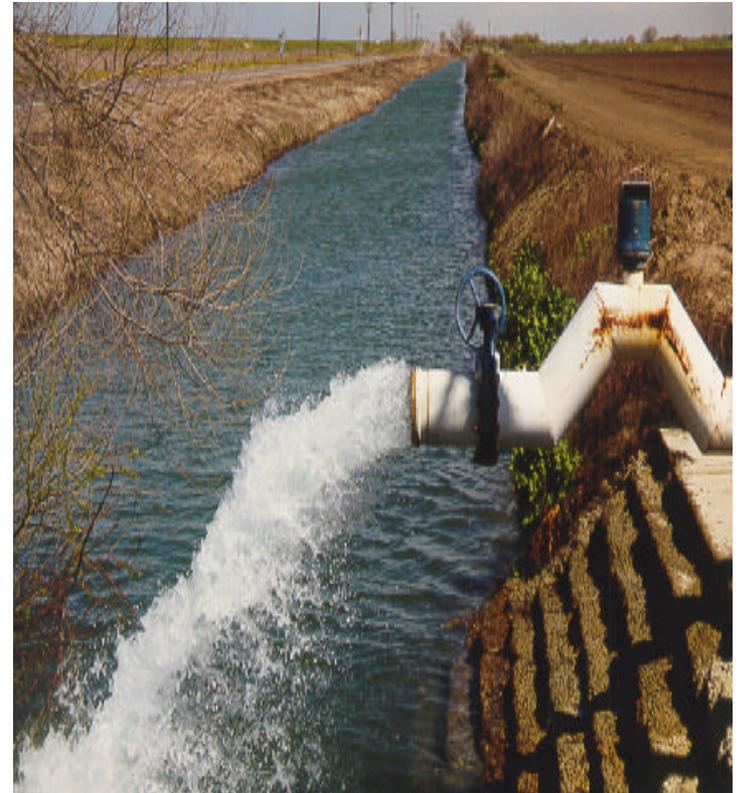
•South San Joaquin

- Buena Vista WSD facilities with improvements - \$800,000

- Delano-Earlimart ID facilities with improvements - \$6M

SJBAP Accomplishments - FY 2002

- **Started Environmental Documentation and Preliminary Data Collection for Project Design of East Bear Creek Project**
- **Completion of Aztec Construction Contract for Newman Canal Project**
- **Completion of Phase One of CCID Facility Improvements**
 - **Continuation of Design and Right of Way Acquisition for the Cottonwood Lateral**



SJ Basin Action Plan Funding

Task	Total Cost	Rest. F	W&RR
Program Management	\$149,000	\$0	\$149,000
San Luis Spillway Ditch Headworks Replacement	\$301,540	\$301,540	\$0
East Bear Creek Unit	\$256,960	\$248,460	\$8,500
Newman Canal Reconstruction	\$0	\$0	\$0
Cottonwood Lateral (CCID)	\$0	\$0	\$0
O'Banion Bypass (CCID)	\$315,000	\$315,000	\$0
Helm Turnout (CCID)	\$0	\$0	\$0
Ora Loma Weir (CCID)	\$196,000	\$105,000	\$91,500
USFWS Budget	\$30,000	\$30,000	\$0
Total	\$1,249,000	\$1,000,000	\$249,000

San Joaquin Basin Action Plan Construction Program Activities

- * **San Luis NWR –
Environmental documentation and design of
Pipeline to East Bear Creek Unit
(work mostly completed)**



San Joaquin Basin Action Plan Construction Program Activities

GWD –

**San Luis spillway ditch gate replacement at
Volta Refuge,
(work just underway)**



San Joaquin Basin Action Plan Construction Program Activities

CCID – Spillway Ditch on Newman Canal Reconstruction
Reach 1, for China Island Unit Conveyance (work in progress)



San Joaquin Basin Action Plan Construction Program Activities

- ☀ **CCID –Spillway Ditch -Newman Canal Reconstruction
Reach 1, China Island Unit
(work in progress)**



**Construction proceeding on delivery turnout on CCID's
Main Canal to Newman Canal**

San Joaquin Basin Action Plan Construction Program Activities

CCID Spillway Ditch flow control structure with ag turnouts– part of the Newman Canal Reconstruction

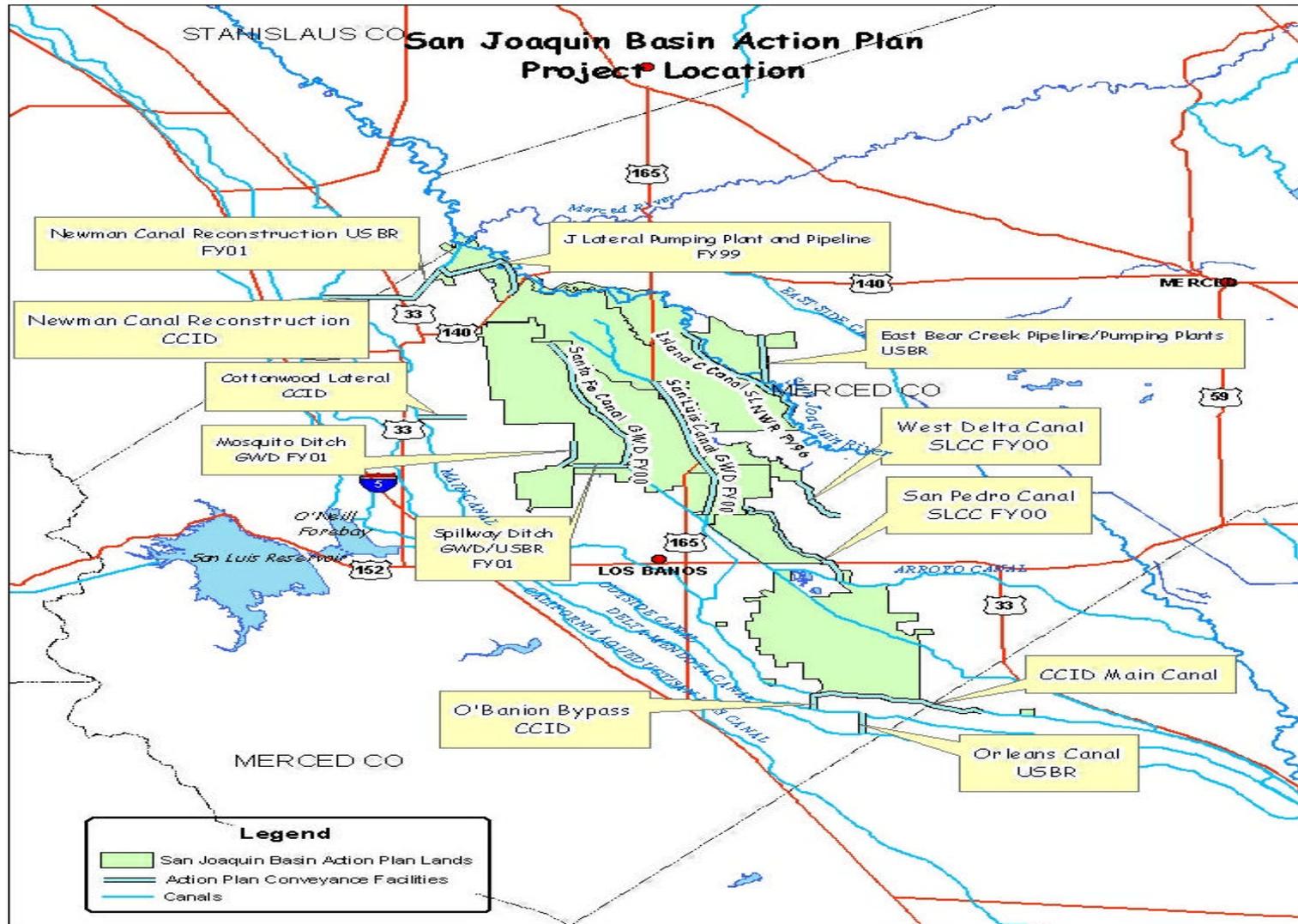


San Joaquin Basin Action Plan Construction Program Activities

➤ Other CCID projects:

- * O'Banion Bypass, Grassland Resource Conservation District**
- * Cottonwood Road Lateral, Grassland Resource Conservation District**

SJBAP Project Locations



CVPIA Refuge Biological Benefits

- **Year-around water supplies**
 - Maintenance flows
 - Brood Habitat
 - Late Summer/Early Fall Habitat
 - Riparian Habitat
 - Food Crop Irrigations

- **Reliable water supplies year to year**
 - Accurate Habitat Management Evaluations
 - Long-Term Management Planning

- **Water for on-refuge restoration projects**
 - Increased hunting opportunities
 - Increase in diversity of wildlife species use

Biological Benefits-Kern NWR Complex



Biological benefits-Kern NWR Complex

- **Water now available in August-October period for habitat management**
 - **Early arriving wintering pintail remain in San Joaquin Valley.**
- **Pixley NWR water now supplied**
 - **340 new acres of quality habitat restored**
 - **Sandhill Crane use increase in the past ten years from 200 in 1992 up to 5,000 in 2001.**
 - **Increased public use**

Biological Benefits-Kern NWR Complex

- Great blue heron rookery established in 1998
- 53 nests counted in 2001
- Utilized also by egrets, cormorants and night-herons



Biological Benefits-Kern NWR Complex

- **Prior to CVPIA Pixley NWR almost completely reliant on intermittent flood water**
- **Until a new conveyance system is completed which will allow access to a local water district, the Bureau pays the power costs associated with a single well servicing about half the refuge.**



Biological Benefits-Kern NWR Complex

- **Since CVPIA, a dramatic increase in sandhill crane use at Pixley NWR:**
 - **200 in 1992**
 - **2,000 in 1993**
 - **5,100 in 2001**



Biological Benefits -Grassland RCD

- **Increased moist soil food plant irrigations both in frequency and acreage**
- **With preferred irrigation planning, it becomes easier to battle undesired marsh plants such as cocklebur**



Biological Benefits – Grassland RCD

Swamp Timothy Irrigations - An increase in yearly irrigated acreage.

1991-1992 : 4,000 acres

1993-today: 26,000 acres



6 : 8 '98

Biological Benefits – Grassland RCD

A doubling of plant biomass



Swamp Timothy

Biological Benefits – Grassland RCD

- **An increase of 3,000 acres of early fall habitat :**
 - **Shorebird increases of 49% from 1992 to 1993**
 - **Increase in mid-September waterfowl numbers by over 300%**



Biological Benefits – Sacramento NWR Complex

**A reduction in avian disease –
Cholera outbreaks in 1991 and 1992
Only one since (1998)**



Biological Benefits – Sacramento NWR Complex

- ★ **Reliable water sources provides managers improved water circulation through and off refuge resulting in better water quality and healthier wildlife populations**
- ★ **Refuge manager now is able to maintain 8,000 acres of habitat all winter that normally went dry in November**
- ★ **Ponds can be maintained at desired depths anytime during year for optimal wildlife foraging**

Biological Benefits – Sacramento NWR Complex

**Spring and summer water provided by CVPIA
improves waterfowl brood health**



Biological Benefits – Sacramento NWR Complex



Tri-colored blackbird habitat improved greatly by the management of spring and summer water

Biological Benefits – San Luis NWR Complex

- ★ Several miles of riparian habitat restored naturally
- ★ Other dormant riparian sloughs and channels revitalized by tree and shrub planting
- ★ Increase in hunting opportunities by 1,500 hunter use days
- ★ Water tables in the area have risen in the area to benefit deep-rooted native perennial grasslands and forbs

Biological Benefits – San Luis NWR Complex

- ✿ **Establishment of active great blue heron and egret rookeries along the San Joaquin River**



Biological Benefits – San Luis NWR Complex

- Increase in habitat available for species such as the western pond turtle and the giant garter snake



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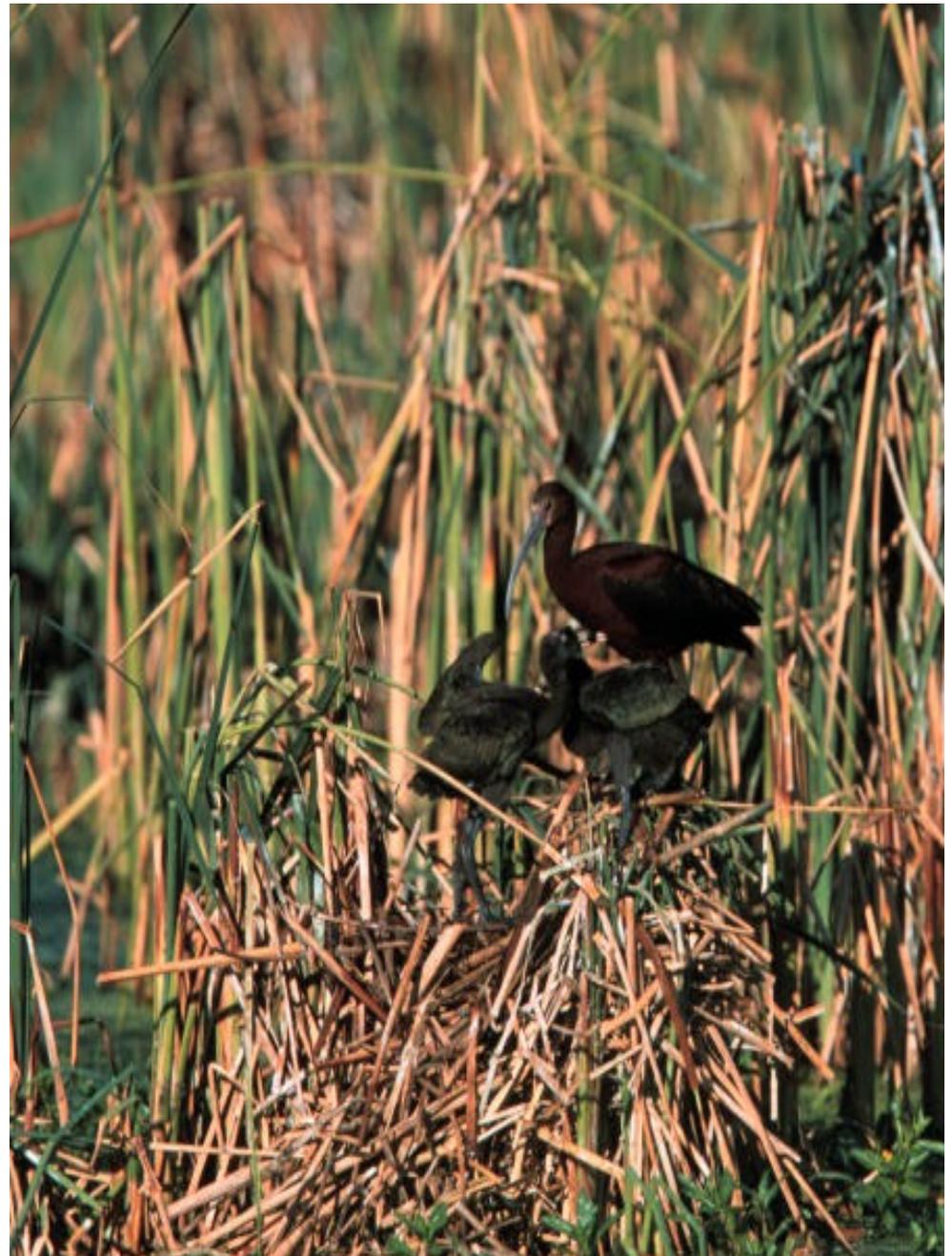
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**Requires access
to insects, frogs,
fish, snails and
also late spring
and summer
water
for nesting**

**Prefers to build
nests in beds of
bulrushes above
water line**

**Will lay 3 to 4
eggs anytime
from May-July**



Populations began a steady decline in the late 1970's.

By 1990 had become “species of special concern”.

CVPIA water supplies provide for critical spring and summer breeding habitat.



- **Kern NWR**

- **An increase from 50 birds in 1993 to 5,600 in 2001**

- **Sutter NWR**

- **An increase from 100 birds documented in 1991 to 1,000 in 2000, 7,000 in 2001, and 15,000 in 2002**



