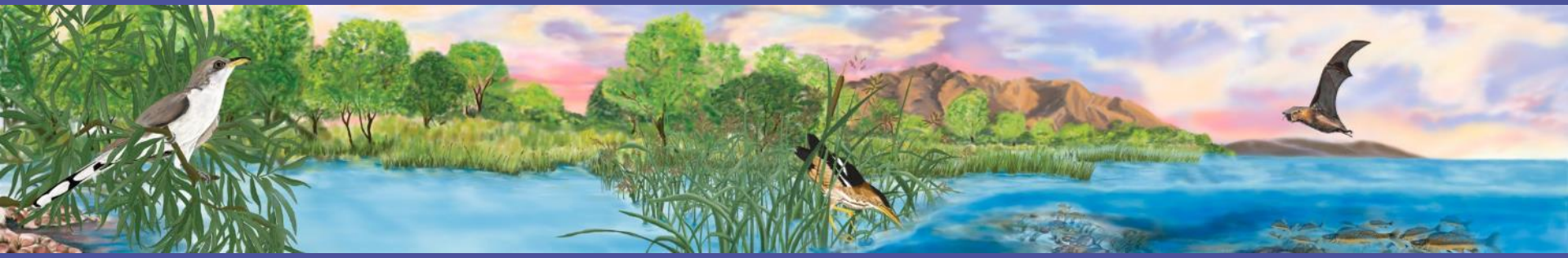
Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation



Final Implementation Report, FY23 Work Plan and Budget, FY21 Accomplishment Report

BUREAU OF RECLAMATION

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

LCR MSCP FY21 Overview
Funding Summary

FY21 Total Required Funding	FY21 Approved Estimate	FY21 Actual Obligations	Cumulative Program Accomplishment
$30,332,676.00	$26,485,652.00	$22,933,590.72	$381,938,190.48

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

FY21 Program Element Accomplishment

Program Administration	$ 1,322,129.24	(6%)
Fish Augmentation	$ 2,316,293.39	(10%)
Species Research	$ 666,590.02	(3%)
System Monitoring	$ 3,030,657.71	(13%)
Conservation Area D&M	$ 10,359,949.51	(45%)
Post Development Monitoring	$ 2,621,381.76	(11%)
AMP	$ 1,289,376.55	(6%)
Remedial Measure Fund	$ 1,208,328.00	(5%)
Public Outreach	$ 118,884.54	(1%)
TOTAL	**$ 22,933,590.72**	

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FY21 Financial Accomplishments

- Obligations under approved Work Tasks by $3,552,061.28
  - Construction delays due to COVID-19 related issues such as difficulty obtaining materials and equipment
    - Cibola Unit#1 Conservation Area
    - Yuma Meadows Conservation Area

- Status of Special Funds
  - HMF: Cumulative Total through FY21 = $35,998,419.76*
  - RMF: $1,208,328.00 FY21 payment
    - Cumulative Total through FY21 = $11,522,832.16*
  - LWF: $0 contributed in FY21
    - Cumulative Total through FY21 = $5,670,000

*Includes Interest

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Fisheries Accomplishments

Lower Colorado River Multi-Species Conservation Program

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Larvae Collection and Fish Augmentation

RASU larvae collected from Lake Mohave: **38,218**

Augmentation

Reach 2 (RASU5):	**10,732** RASU > 300 mm
Reach 3 (RASU3):	**13,285** RASU > 300 mm
Reaches 4/5 (RASU3):	**18,682** RASU > 305 mm
Total RASU (credited):	**31,967**
Reach 2 (BONY3):	**400** BONY > 300 mm
Reach 3 (BONY3):	**3,026** BONY > 300 mm
Reaches 4/5 (BONY3):	**8,059** BONY > 305 mm
Total BONY (credited):	**11,485**

Razorback sucker larvae attracted to submerged light

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Fish Augmentation Summary

SPECIES	LAKE MOHAVE	DAVIS DAM – PARKER DAM	DOWNSTREAM OF PARKER DAM	GRAND TOTAL	AUGMENTATION TOTAL
RAZORBACK SUCKERS	150,323*	117,353	141,759	409,435*	**259,112**
BONYTAIL	2,730	64,107	59,134	125,971	**125,971**
TOTAL	153,053*	181,460	200,893	535,406*	**385,083**

* Razorback suckers stocked into Lake Mohave do not count towards the program's augmentation goal of stocking up to 660,000 razorback suckers into the LCR. These fish are stocked to maintain the adult razorback sucker population in Lake Mohave as a genetic refuge for the species (conservation measure RASU5).

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Augmentation Accomplishment

REACH	BONYTAIL			% COMPLETE	RAZORBACK SUCKERS			% COMPLETE
	HCP Goal	Current	Remaining		HCP Goal	Current	Remaining	
All	620,000	125,971	494,029	20	660,000	259,112	400,888	39

- 17 years of program implementation (34% complete)
- Razorback sucker augmentation is 35.5% complete in Reach 3 and 43% complete in Reach 4/5
- Bonytail augmentation in Reach 2 has not been initiated
- Bonytail augmentation in Reach 3 (32% complete) and Reach 4/5 (27% complete) are within the expected range based on annual variation in production

Fisheries Monitoring

Reach 1

- 91 razorback suckers were captured by trammel net during the spawning season
- 128 razorback suckers were contacted by remote PIT scanning
- The current Lake Mead razorback sucker population estimate is 450 individuals

Reach 2

- Remote PIT scanning contacted 4,604 unique razorback suckers
- The current Lake Mohave RASU population estimate is 5,100 individuals

Reach 3

- 9,106 razorback suckers, 29 bonytail, and 19 flannelmouth suckers were contacted
- The current Reach 3 razorback sucker population estimate is 5,422 individuals

Reach 4 and 5

- 5,090 razorback suckers and 299 bonytail were contacted using multiple methods
- The current razorback sucker population estimate is 935 individuals

*No population estimates could be generated for bonytail

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Balancing Resource Use and Conservation

Highlights

Post-Stocking Movement, Distribution, and Habitat Use of Razorback Suckers and Bonytail Reach 4:

- The Reach 4 razorback sucker population estimate of 935 individuals is the highest to date*
  * > 55,000 razorback suckers were stocked into Reach 4 2017–21

Post-Development Monitoring of Fishes at Conservation Areas

- Continued Success at the Mohave Valley Conservation Area – 4,521 razorback suckers contacted

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Augmentation Update

Lake Mead Fish Hatchery – FY22

- Lake Mead water elevation is projected drop below the intake supplying the hatchery
- Native fish production has been suspended until long-term water delivery is secured
- All fish < 305 mm in total length (~20K) were transferred to other rearing facilities

Fish Production FY23–26+

Hatchery Production Agreements

Willow Beach NFH & Achii Hanyo Native Fish Rearing Facility

- Current target: 9K RASU and 4K BONY per year
- Increasing production at Willow Beach
- ↑ RASU production at Achii Hanyo (Avg 5K/year FY21 & 22)

Southwestern Aquatic Resources and Recovery Center

- Current target: 7K BONY per year

Annual Augmentation Targets		
Reach	RASU	BONY
2	4,000*	5,000
3	6,000	4,000
4/5	6,000	4,000
Total	**16,000**	**13,000**

FY21 Wildlife Accomplishments

Species Research

Just one research project ongoing:

- C2 – Contributed $10,000 a year to a conservation program for threecorner milkvetch and sticky buckwheat at Lake Mead.

System-wide and Post Development Monitoring

- marsh birds
- southwestern willow flycatcher
- yellow-billed cuckoo
- riparian birds
- bats
- rodents

Yuma clapper rail

- Detected at Hart Mine Marsh, Field 18 at Imperial Ponds, YEW and in Topock Gorge.

Southwestern willow flycatcher

- No resident breeding southwestern willow flycatchers were detected at LCR MSCP conservation areas.
- 60 flycatchers from 39 territories were recorded at Topock Marsh, the Bill Williams River, and Alamo Lake, Arizona.
- 3 nests were monitored (2 at Topock Marsh and 1 at Bill Williams River NWR). Young fledged at two nests.

Yellow-billed cuckoo

- Cuckoos were detected at the BLCA, Cibola NWR Unit #1, CVCA, LDCA, PVER, and YEW.
- There were 9 confirmed, 23 probable, and 29 possible breeding territories estimated, and 9 nests found.
- No breeding territories were confirmed at the BLCA, CVCA, Hunters Hole, and LDCA.

Other Species Highlights:

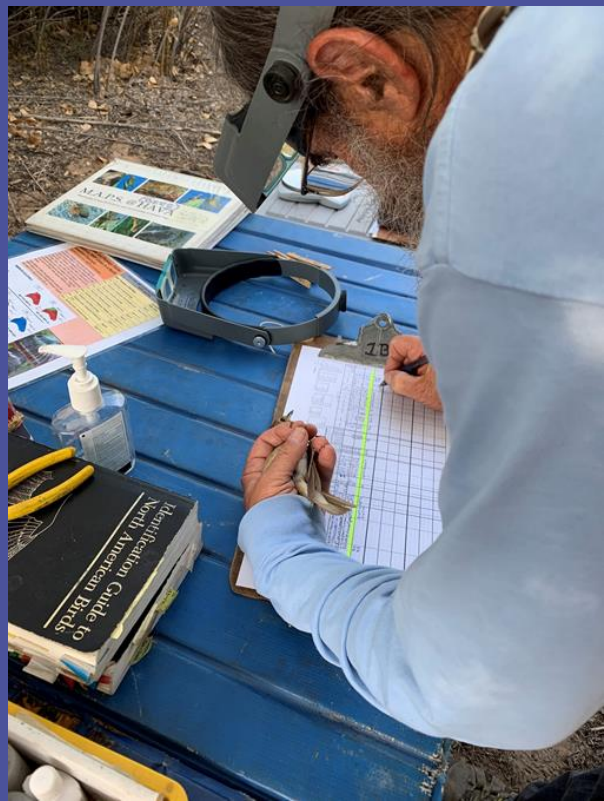
Arizona Bell's vireo, Gila woodpecker, Sonoran yellow warbler and summer tanager were detected at LCR MSCP conservation areas during the breeding season.

	Beal Lake Conservation Area	Cibola NWR Unit #1	Cibola Valley Conservation Area	Hunters Hole	Laguna Division Conservation Area	Middle Bill Williams River NWR	Palo Verde Ecological Reserve	Parker Dam Camp	Pretty Water Conservation Area	Yuma East Wetlands
Arizona Bell's vireo	Breeding		Breeding		Breeding			Breeding		
Gila woodpecker		Breeding			Breeding			Breeding		Breeding
Sonoran yellow warbler	Breeding		Breeding				Breeding			
summer tanager	Breeding	Breeding	Breeding				Breeding			
vermilion flycatcher										

Other Species Highlights:

Monitoring Avian Productivity and Survivorship

- Completed final year of the study (2000-2021).
- BLCA – 228 captures. 1 Bell's vireo, 2 yellow warblers, and 3 summer tanagers were captured and color banded. One color-banded summer tanager was recaptured at the BLCA; its initial capture was in 2011.
- Cibola NWR Unit #1 – 81 captures. 2 summer tanagers and 2 yellow warblers were captured and color banded. One color-banded summer tanager was recaptured; it was initially banded in 2019.



Other Species Highlights:

Monitoring Avian Productivity and Survivorship

- The methods and information gathered through the MAPS protocol from 2000-2021 were evaluated against future monitoring needs.
  - Documented species migrating and breeding along the LCR, showed that birds return to breed at the BLCA, Cibola NWR Unit #1, and the CVCA, and that birds nesting in the created land cover had good body condition scores, indicating they were getting adequate food.
  - However, few birds were recaptured or resighted, so the MAPS protocol could not efficiently address the LCR MSCP monitoring questions about changes in covered species presence as created land cover matures.
  - Conclusion: Bird territory data collected under Work Task F2 provide better value, as the data can be analyzed more effectively with habitat data (F1) and the protocol used in Work Task F2 samples more locations.

Other Species Highlights:

- Yuma hispid cotton rat surveys were conducted at Yuma East Wetlands and the species continues to be detected there.

- Colorado River cotton rat surveys were conducted at BLCA, PVER, and Cibola NWR Unit #1. The species was detected at BLCA and Cibola NWR Unit #1.

- Western red bats and western yellow bats continued to be monitored at conservation areas acoustically.

- MacNeill's sootywing skipper surveys were conducted in potential habitat within the CVCA, PVER, and PWCA. Sootywings were detected at the CVCA and PVER.

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

FY 21 Conservation Area Status

- 18 Conservation Areas Established in the Program
- 11 Conservation Areas fully developed
  (Big Bend, Mohave Valley, Planet Ranch, PVER, CVCA, Hart Mine Marsh, Pretty Water, Parker Dam Camp, Laguna, Yuma East Wetlands, and Hunters Hole)
- 7 Conservation Areas partially developed (Planting/Construction)
  (Beal Lake, Section 26, Cibola Unit #1, Three Fingers Lake, Dennis Underwood, Imperial Ponds, Yuma Meadows)

Lower Colorado River Multi-Species Conservation Program

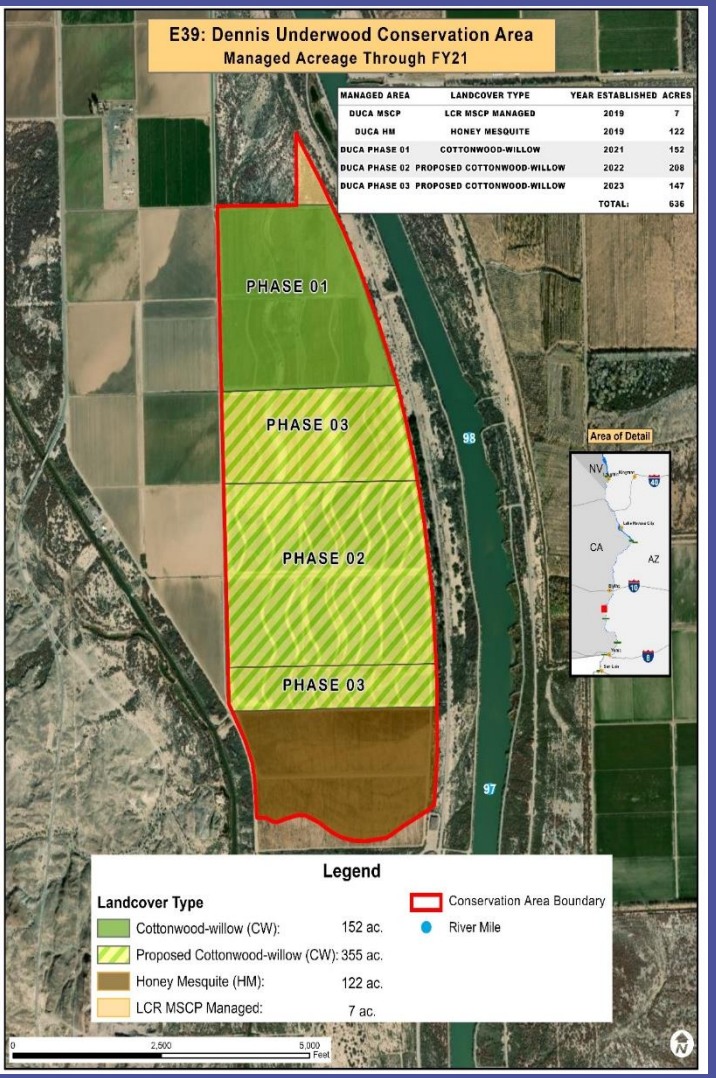
Balancing Resource Use and Conservation

FY 21 Conservation Area Development Accomplishments

- 152 acres of CW at Dennis Underwood planted
- 145 acres of HM planted at PVER-South (now PVER), (fully developed)
- Dredging of Beal Lake was completed. 392,000 CY removed.
- Construction of Ponds completed at Planet Ranch (58 acres)
- Yuma Meadows working on the infrastructure (water, power, sorting facility)
- Clearing & Grubbing of Section 26 for the new backwater

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation



MANAGED AREA	LANDCOVER TYPE	YEAR ESTABLISHED	ACRES
DUCA MSCP	LCR MSCP MANAGED	2019	7
DUCA HM	HONEY MESQUITE	2019	122
DUCA PHASE 01	COTTONWOOD-WILLOW	2021	152
DUCA PHASE 02	PROPOSED COTTONWOOD-WILLOW	2022	208
DUCA PHASE 03	PROPOSED COTTONWOOD-WILLOW	2023	147
		TOTAL:	636

Dennis Underwood Conservation Area

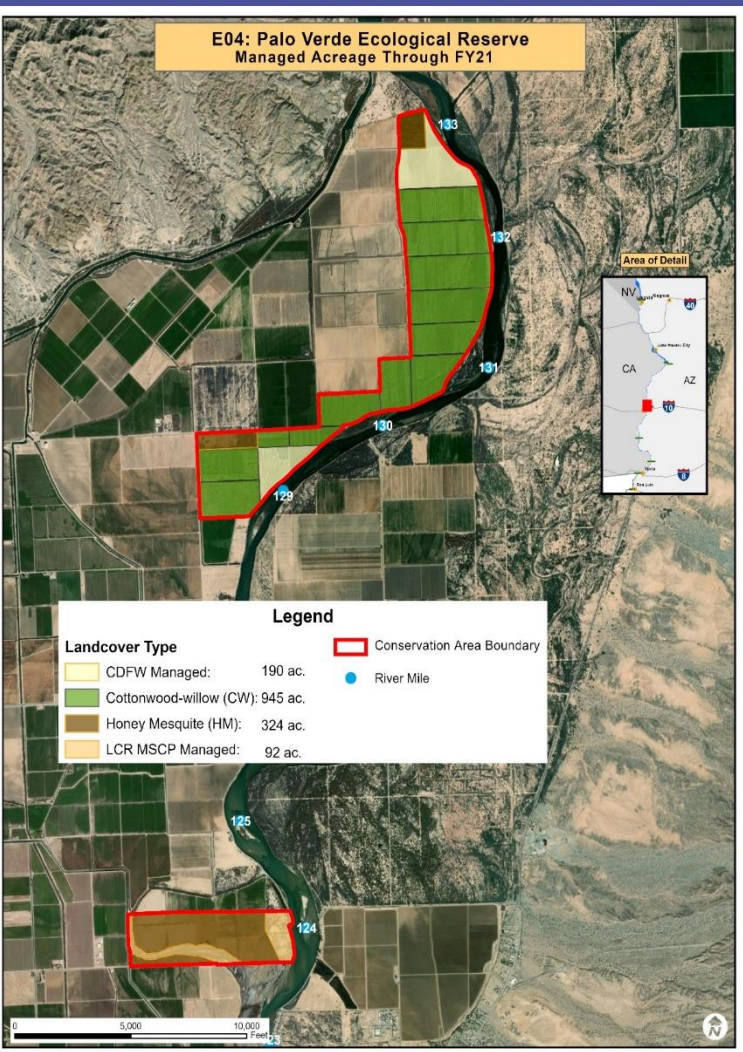
- Honey Mesquite planted FY19
- 249 acres of CW Cancelled in FY20

- 152 acres of CW Planted in FY21

- 208 acres of CW in FY22
- 147 acres of CW in FY23

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation



Palo Verde Ecological Reserve

- Original PVER fully developed
- 145 acres of HM Planted in FY21
- Development is complete.
  - 945 acres of CW
  - 324 acres of HM
  - 1,269 acres in total

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Balancing Resource Use and Conservation

Beal Lake Dredging Completed (392,000 cubic yards)

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Balancing Resource Use and Conservation

Planet Ranch Ponds Completed

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Balancing Resource Use and Conservation

Sorting Facility at YMCA will look like this only 80’x100’

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Balancing Resource Use and Conservation

Clearing & Grubbing of Section 26

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Balancing Resource Use and Conservation

Conservation Area Acreage Summary (Table 1-14)

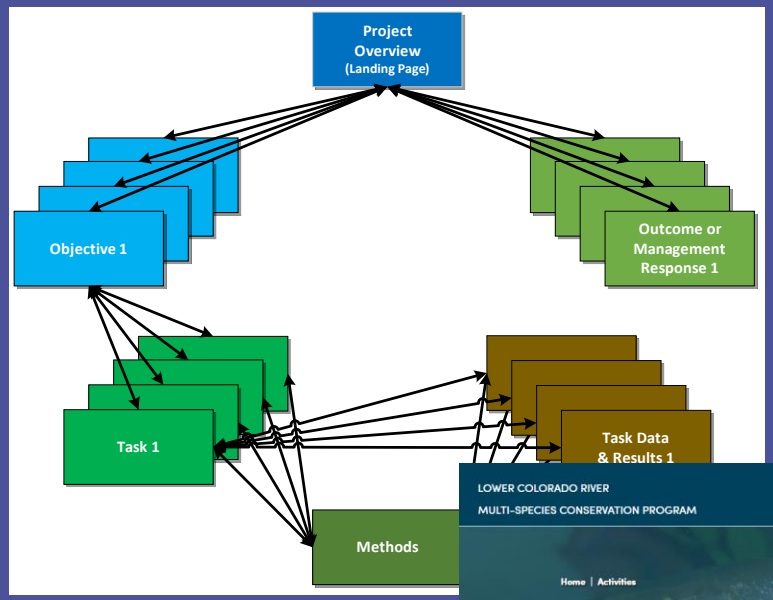
- 6,840 acres of Established Land Cover through FY21
- 9,179 acres of Planned Land Cover Type
- 12,091 acres of LCR MSCP Managed Acreage
- 14,403 acres of Total Conservation Area

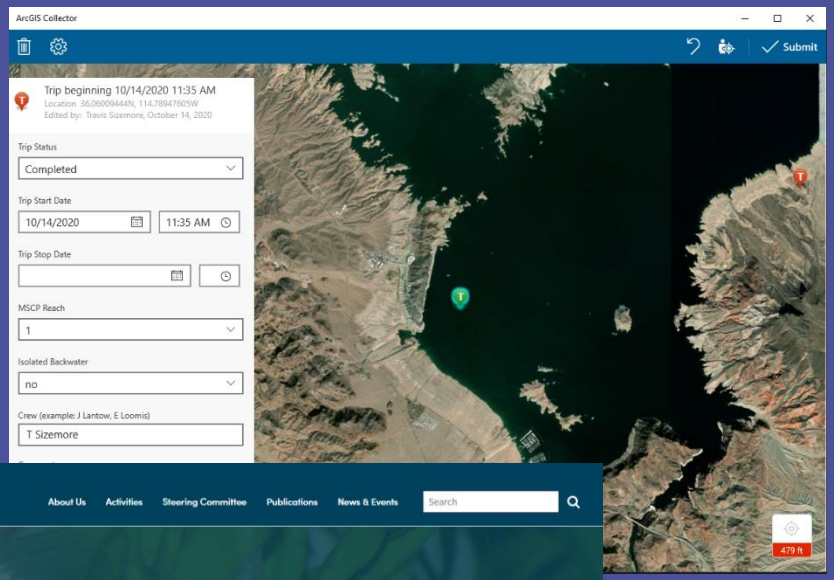
Note: Minimum is 8,132 acres

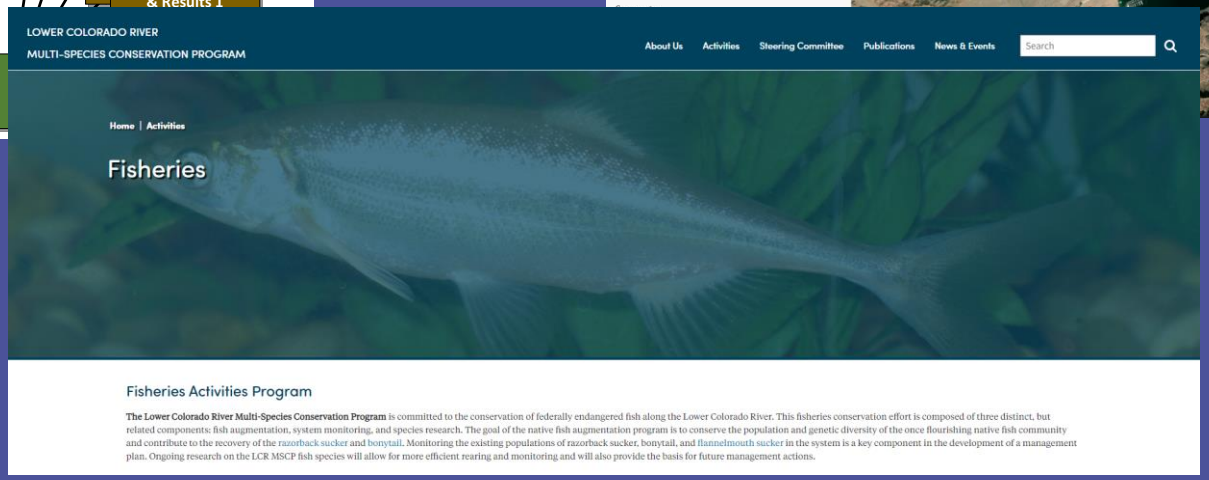
Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

FY21 Adaptive Management Program Accomplishments







Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Adaptive Management

General accomplishments

- Peer review (18 research and monitoring reports)
- Study plan designs and statistical analyses
- Adaptive Management Plans and associated **Information Management System**
- Conceptual Ecological Models (initial and updates were completed in FY21)

Fish-related accomplishments

- Transitioned one fish project to digital field data collection
- Continued support of the LCR Native Fish Database and the Remote Scanning database

Wildlife-related accomplishments

- Field data collection improvements
- Reporting automation

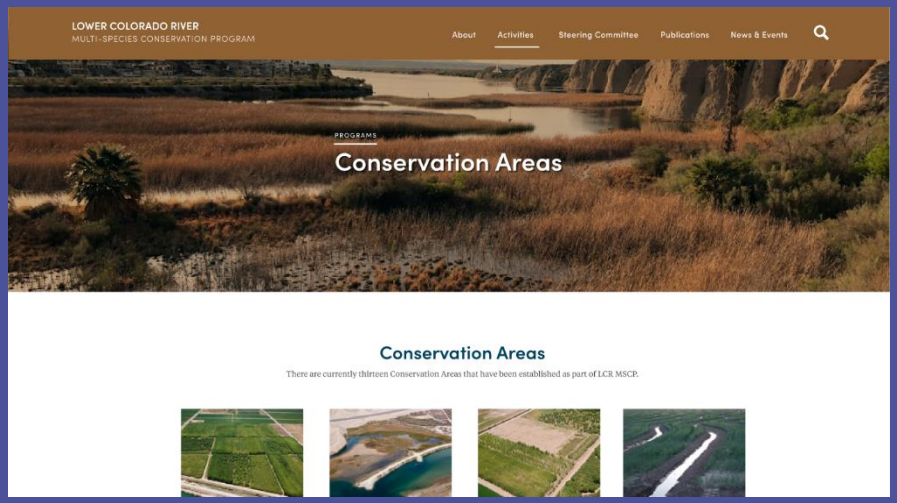
Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Data Management

Data management accomplishments

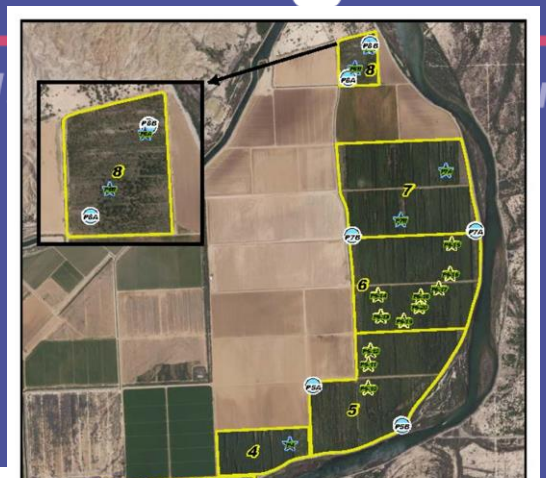
- Improvements in field data collection techniques and data processing workflows
- Development of QA/QC tools for MSCP staff and contractors
- Automation of reports
- LCR MSCP website redesign



Lower Colorado River Multi-Species Conservation Program

Balancing Resource U n

Habitat Monitoring – Soil Moisture and Salinity



Established network at seven conservation areas:

- Beal Lake Conservation Area
- Palo Verde Ecological Reserve
- Cibola National Wildlife Refuge Unit #1
- Cibola Valley Conservation Area
- Yuma East Wetlands
- Hunters Hole
- Three Fingers Lake

No new sites added in FY21 due to pandemic

Analysis and modification of irrigation schedules

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Habitat Monitoring/Manipulation – Hart Mine Marsh Prescribed Burn

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

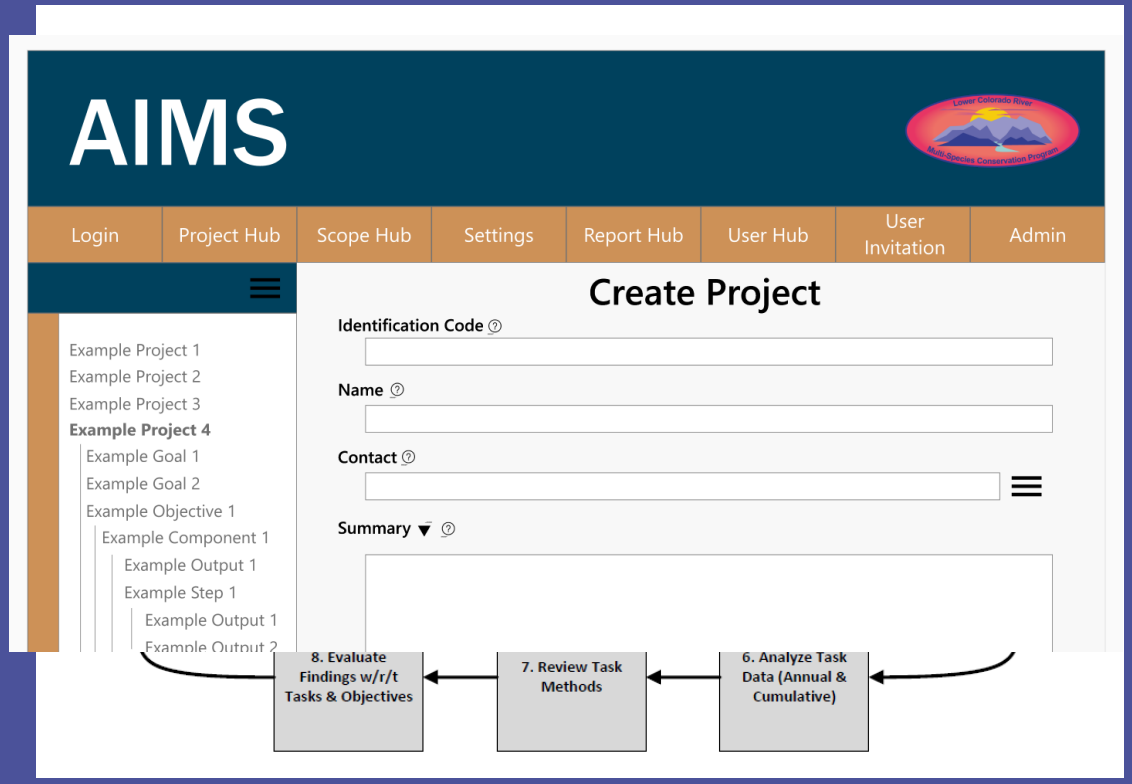
Habitat Monitoring/Manipulation – Hart Mine Marsh Prescribed Burn

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Adaptive Management Plans

- Formalize all existing research and monitoring plans into a standardized format
- Ensure they contain all components referenced in HCP
- Ensure that our monitoring and research provides necessary information for the Adaptive Management Program and other LCR MSCP needs



Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

Proposed FY23 Program Work Plan and Budget

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

FY23 Funding Requirements

(Preliminary Inflation Rate = 1.743%)

Funding Entity	FY23 Contributions	FY23 Adjusted Contributions
Federal	**$17,414,313.00**	**$17,414,313.00**
Non-Federal	**$17,414,313.00**	**$17,414,313.00**
California	*$ 8,707,156.50*	*$ 8,248,331.36*
Arizona	*$ 4,353,578.25*	*$ 5,271,228.53*
Nevada	*$ 4,353,578.25*	*$ 3,894,753.11*
TOTAL	**$34,828,626.00**	**$34,828,626.00**

Lower Colorado River Multi-Species Conservation Program

Balancing Resource Use and Conservation

FY23 Proposed Work Plans

Program Administration	$ 1,774,374
Fish Augmentation	$ 1,580,000
Species Research	$ 189,000
System Monitoring	$ 2,405,000
Conservation Area D&M	$ 12,821,000
Post Development Monitoring	$ 2,655,000
AMP	$ 1,090,000
Remedial Measures Fund	$ 1,387,428
Public Outreach	$ 50,000
Land and Water Fund	$ 0
TOTAL FY23 BUDGET	**$ 23,951,802***

*The proposed annual program budget is less than the minimum required funding due to current construction capability. The balance will be held in reserve by Reclamation and used in future years to complete conservation measure requirements, especially habitat creation and management activities.