Integrated Environmental Management in the Colorado River Basin—A Dream, or Moving to Reality?

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Colorado River Board of California
- 1922 Compact
- 1928 BCPA
- 1944 Treaty w/Mexico
- 60 MAF of storage
- Major diversions –
  - 40 million people
  - 5.5 million acres of agriculture
- Bankline & Levee construction
Environmental Consequences—

- Alteration of pre-development hydrograph
- Removal of native riparian vegetation
- Decoupling river from the floodplain (i.e., channelization and incisement)
- Habitat fragmentation
- Introduction of non-native aquatic and terrestrial species
FLOW BELOW HOOVER DAM
1906-2003

- Storage begins Lake Mead
- July '41 Lake Mead Fills
- Mar '63 Storage begins Lake Powell Fills
- June '80 Lake Powell Fills

FLOW (1000 CFS)

CALENDAR YEARS

Historical & Future Projected Use and Demand–
Environmental Programs in the Basin–
Upper Colorado River Endangered Fish Recovery Program—

San Juan River Basin Recovery Implementation Program—

Virgin River Recovery Program—
Glen Canyon Dam Adaptive Management Program—

- HBC conservation
- Rainbow trout mgt.
- Sediment conservation and redistribution
- Cultural resources preservation
- Adaptive management and experimentation
Lower Colorado River Multi-Species Conservation Program–
The Road to the MSCP–

- 1994 “Big River” fishes critical habitat designation
- 1995 listing of southwestern willow flycatcher as endangered
- USBR initiated ESA Section 7 consultation for “routine LCR operations and maintenance activities”
Stakeholder Groups—

- **Federal Group**—DOI agencies + WAPA
- **Non-Federal Group**—State agencies and Ag., M&I, and Power entities
- **Native American Tribes**
- **Other Public Interest Groups**
- **Conservation Groups**
LCR MSCP Program Planning Area—

Full pool elevation of Lake Mead to SIB, including the historic floodplain
Program Overview—

- 50-year Program
- Program budget – $626 million
- 31 species covered
- Creation/maintenance of 8,132 acres of –
  + 5,940 ac. cottonwood-willow
  + 1,320 ac. honey mesquite
  + 512 ac. marsh
  + 360 ac. Backwaters

- Stocking of razorback suckers and bonytail
Covered Species—

- 26 “Covered Species”
  - 12 avian species
  - 4 fish species
  - 1 amphibian
  - 2 reptiles
  - 4 mammals
  - 2 plants
  - 1 insect

- 5 “Evaluation Species”
  - 3 mammals
  - 2 amphibians
Key Covered Species—

Razorback sucker

Bonytail

SW Willow Flycatcher

Yuma clapper rail
LCR MSCP
Conservation Areas through 2013
Palo Verde Ecological Reserve—PVER

- Land is owned by California Department of Fish & Wildlife
- 1,300 acres restored with cottonwood-willow and mesquite habitat.
- Water available from the Palo Verde Irrigation District.
Mass Planting Native Trees—
Cibola NWR–Hart Mine Marsh–
Laguna Habitat Conservation Area—

MSCP Laguna Division Conservation Area Design Concept

- INSTALL WATER DELIVERY PIPELINE
- GRADE HYDROLOGIC CHANNEL
- GRADE FLOODWAY ELEVATION
- DRAIN NEW ROAD REGRADE EXISTING ROAD
- INSTALL WATERSHED STRUCTURE (CMS)
- PROPOSED WITTY LANK FAULT CANAL FLOOD STRUCTURE
Laguna Habitat Conservation Area

Legend
- Shallow Marsh
- Salt Grass
- Three Square
- Deep Marsh
- Open Water
- Upland Seed Mix

Reach 1
- Mean Water Level = 158
- Max Water Level = 160
- Open water = 59.1 AC
- Deep Marsh = 85.9 AC
- Shallow Marsh = 19.9 AC
- Distichlis spicata = 28.1 AC
- Sandbar Willow = 22 AC
- Gooding Willow = 27.2 AC
- Cottonwood = 128.8 AC
- Mesquite Deep Pot = 108.1 AC
- Upland Seed Mix = 55.5 AC
- Total Acreage Reach: 1,140.8 Acres

Reach 2
- Mean Water Level = 156
- Max Water Level = 158
- Open water = 20.4 AC
- Deep Marsh = 95.2 AC
- Shallow Marsh = 60.8 AC
- Distichlis spicata = 63.8 AC
- Sandbar Willow = 50.3 AC
- Gooding Willow = 39.3 AC
- Cottonwood = 60.5 AC
- Mesquite Deep Pot = 51.4 AC
- Upland Seed Mix = 21.3 AC
- Total Acreage Reach: 2,481 Acres

Historic Channel
- Average Water Level = 151
- Shallow Marsh = 12.8 AC
- Distichlis spicata = 4 AC
- Sandbar Willow = 5.5 AC
- Gooding Willow = 9.6 AC
- Cottonwood = 32.8 AC
- Mesquite Deep Pot = 17.3 AC
- Upland Seed Mix = 7.2 AC
- Total Acreage Historic Channel: 88.4 Acres

*All Acreages are approximate
Laguna Habitat Conservation Area
Hunter’s Hole Cons. Area

Before

After
Monitoring/Research & Adaptive Mgt.—
Current Status–

- Program is spending $25-35 million/year
- FY-2013 Work Plan/Budget is $34 million
  + California’s share is $8.6 million
- Total Land Cover Types created through FY-2012 –
  + 2,447 acres of the total 8,132 acres required;
  + 985 acres restored in California
- Native Fish stockings through FY-2012—
  + 200,000 RASU
  + 60,000 BONY
“Hits & Misses”—

What’s Working—
+ Long-term environmental compliance is in place;
+ Benefits to CA & LB States—QSA implementation, Water Banking, 2007 Interim Guidelines, etc.;
+ Adaptive management process is successful;
+ Knowledge gained about species, data collection and management, habitat restoration techniques;
+ Public outreach & education;
+ Sharing information with other efforts

What’s Not Working—
+ Native/non-native fish interactions;
+ Controlling non-native aquatic and terrestrial species;
+ Finding suitable lands in CA for restoration
Current Issues of Concern—

- Quagga mussel infestations
- Salt cedar and Salt cedar beetle defoliation along LCR;
- Finding 2,000+ acres of land in CA
- Native/Non-native fish interactions
Administration & Oversight—

- LCR MSCP Steering Committee & Technical Work Group—
  + Steering Committee provides policy-level oversight, approves Work Plan & Budget
  + Technical Work Group provides technical assistance
Yellow warbler