Providing Water for Environmental Uses on the West Slope – a Recovery Program Case Study

OR, HOW WE LEARNED TO LOVE THE FOUR UGLY FISH
Recovery Program Case Study

- Growing recognition and practice on WS of importance of addressing environmental water needs, most recently through CRCA and BIP’s

- But cooperative non-consumptive measures go back further to early days of Recovery Program in late-1980’s

- Elkhead Reservoir & 15-Mile Reach PBO Collaboration
The Takeaways

• The Hook: Interests on all sides stand to gain more through cooperation, i.e.-
  – It’s got to work for all interests

• You can’t always get what you want, **BUT** *(if you try sometimes, you just might find)* you get what you need…

• Get public buy-in first/permit last

• It’s not easy: Patience is a virtue and requirement
The Takeaways

• It’s not always pretty

• Success is not guaranteed but chance of success is much greater

• Collaboration lays the groundwork for ongoing working relationships
Colorado River District

- 1937 state statute
- 15 northwestern counties
- 28% of Colorado
- Board director from each county
- Mill levy & water project enterprise
COLORADO
HISTORICAL AVERAGE ANNUAL STREAM FLOWS

Prepared by the Hydrographic Branch (2011 Revision)
[all values in acre feet (AF)]

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES
The Four “Ugly” Fish

Endangered Fish

Humpback Chub (Gila cypha)
The humpback chub is a large-river minnow found only in canyon sections of the Colorado River Basin. It was first listed as endangered in 1967 and was given full protection under the Endangered Species Act in 1973. There are six known populations. Individuals may reach 20 inches in length and live 30 years. Adults are capable of reproducing at 2 to 3 years of age, and spawning occurs in spring and early summer. Humpback chub feed on insects, plankton, and plant matter.

Bonytail (Gila elegans)
The bonytail is a large-river minnow found only in the Colorado River Basin. It was listed as endangered and given full protection under the Endangered Species Act in 1980. Historically common throughout the Colorado River Basin, wild populations no longer exist. Individuals may reach 22 inches in length and live 50 years. Adults are capable of reproducing at 2 to 3 years of age, and spawning probably occurred in spring and early summer. Bonytail feed on insects, plankton, and plant matter. The species is being reintroduced into the Colorado, Green, and Yampa Rivers, and into Lake Havasu and Lake Mohave.

Colorado Pikeminnow ( Ptychocheilus lucius)
The Colorado pikeminnow is a large-river minnow found only in the Colorado River Basin. It was first listed as endangered in 1967 and was given full protection under the Endangered Species Act in 1973. Valued as food by early settlers and miners throughout the basin, wild populations now only occur in rivers upstream of Glen Canyon Dam, Arizona. Individuals may reach 6 feet in length, weigh 80 pounds, and live 40 years. Known for long-distance spawning migration of up to 200 miles in late spring and early summer, adults are capable of reproducing at 5 to 7 years of age, Young Colorado pikeminnow feed on insects and plankton, whereas adults feed mostly on fish.

Razorback Sucker (Xyrauchen texanus)
The razorback sucker is a large-river fish found only in the Colorado River Basin. It was listed as endangered and given full protection under the Endangered Species Act in 1991. Valued as food by early settlers and miners, wild populations of razorback sucker are now extremely rare, declining, and consist primarily of adults. Poor survival of young has been attributed to loss of habitat and predation by nonnative fishes. Individuals may reach 36 inches in length, weigh 14 pounds, and live 40 years. Adults are capable of reproducing at 3 to 4 years of age, and spawning occurs during high spring flows. Razorback sucker feed on insects, plankton, and plant matter. The species is being reintroduced into the Colorado, Gunnison, Green, and San Juan rivers, and lakes Havasu and Mohave.
Endangered Species Act

- Very powerful law
- Actions with a federal nexus which pose jeopardy to listed species must mitigate their impacts
- There are criminal aspects to ESA pertaining to “incidental take”
Recovery Program

- Initiated in 1988

- Cooperative Agreement incl. local, state & federal agencies, power & environmental interest

- Cooperation necessary because for water, regulation under ESA does not work. This was USFWS hook.

- Hook for water users was that ESA was not going away

- RP provides ESA compliance, including incidental take

- Funding: Power Revenues, Bureau, States
Goal: Recover the endangered fish as water development proceeds in compliance with the Endangered Species Act and state water law.
Program Elements

Stocking endangered fish
Research and monitoring
Managing nonnative fish
Providing instream flows
Restoring habitat
## PBO Coverage – Three Basins

<table>
<thead>
<tr>
<th>PBO</th>
<th>EXISTING AF/YR</th>
<th>NEW AF/YR</th>
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<tbody>
<tr>
<td>Colorado</td>
<td>1,000,000</td>
<td>120,000</td>
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<tr>
<td>Yampa</td>
<td>168,000</td>
<td>53,500</td>
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<tr>
<td>Gunnison/Dolores</td>
<td>602,700</td>
<td>37,900</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,770,700</strong></td>
<td><strong>211,400</strong></td>
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Ruedi Reservoir

- Compensatory storage for Fryingpan-Arkansas Project
- Provide storage for West Slope beneficiaries
Wolford Mountain Reservoir

- Compensatory storage for Windy Gap
- Part of Denver’s substitution supply
- West Slope water supply
Green Mountain Reservoir

- Used to replace out-of-priority depletions by the C-BT Project
- Provide storage for West Slope beneficiaries
- Historic User Pool
15-Mile Reach PBO

- December, 1999
- Provides ESA compliance for over 1 MAF of existing depletions and >100 kaf of new depletions while laying out a basin specific plan for recovery
- Water users provide 10825 af using Ruedi and Granby Reservoir
15-MR RP Supplies

- Ruedi
  - Water Users: 5,412
  - Bureau: 10,000

- Granby Reservoir - Water Users: 5,412

- Grand Valley
  - HUP Surplus: 30,000
  - Efficiencies: 15,000

- Wolford Reservoir – River District: 6,000

TOTAL: 81,825 af
Green Mountain Reservoir

HUP Operating Criteria - Dry Years

HUP Upper Band Drawdown Rates
- Jun 24 - Jul 31: 0 cfs
- Aug 1 - Aug 15: 100 cfs
- Aug 16 - Aug 31: 220 cfs
- Sep 1 - Sep 15: 605 cfs
- Sep 16 - Sep 30: 370 cfs
- Oct 1 - Oct 15: 504 cfs
- Oct 16 - Oct 31: 362 cfs

Constant Drawdown Rate:
- Oct 1 - Oct 31: 508 cfs

HUP Balance (Sep 30):
- 31,738 acre-feet

At Current Release Rate (439 cfs) - October 31 HUP Balance: 4,745 acre-feet
Grand Valley Water Management Project
Elkhead Reservoir, 2007
The Timeline

• 1974 Elkhead Reservoir Built
  – Colorado Parks & Wildlife/Colorado Ute
    (now Tri-State G&T and Yampa Participants)
  – 13,700 AF

• 1967-1991 “Four Ugly Fish” listed under Endangered Species Act (ESA)
The Timeline (con’t)

- 1994 Yampa Alternatives Study
  - 31kaf enlargement – Too Large, Too Expensive!

- Dec. 1999 Colorado River Programmatic Biological Opinion (PBO)

- The Yampa wants what the Colorado got!
  - 2000 - 2004 Yampa River PBO
Aug. 2000 Management Plan - *big kumbaya*

- Consensus: Elkhead enlargement to provide 7000af of water for fish
- River District to manage enlargement and develop 5000af for human use
- Recovery Program pays their share of the project (!) -- $13MM
- 12kaf enlargement – No objectionable impacts
2001-2005

- Engineering Design
- Agreements - nearly 20
  - Two Federal Agencies
  - Three State Agencies
  - One local government
  - Power Companies
- Property Acquisition
Management Plan for Endangered Fishes in the Yampa River Basin Environmental Assessment

Gerald W. Roehm
U.S. Fish and Wildlife Service
Denver, Colorado
September 2004
The Timeline (con’t)

Permitting

• USACOE 404 Permit
  – April 2004 Application
  – COE EA
  – February 2005 Permit

Construction

• March 2005 thru 2006
Elkhead by the Numbers

- Prior capacity - 13,700af
- Enlargement capacity - 11,596af
- Enlargement cost - $30MM
- Cost per acre-foot - $2600/af