



Cooperative Management and Recovery of a Rare Fish Species in the San Juan River

Christopher Cheek
Navajo Nation
Department of Fish and Wildlife

San Juan River

- San Juan River
 - Flows 383 miles through Colorado, New Mexico, and Utah
- Major Tributary to the Colorado River
- Endangered Species
 - Razorback Sucker
 - Colorado Pikeminnow



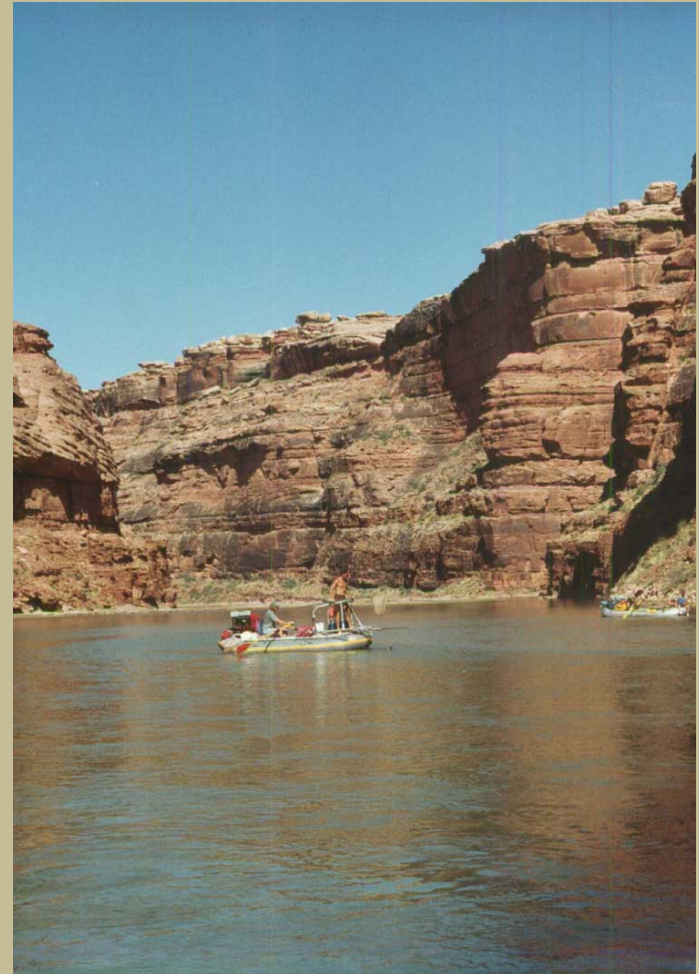
San Juan River Fishes

- Native Fishes
 - Colorado pikeminnow
 - Razorback suckers
 - Flannelmouth sucker
 - Bluehead sucker
 - Speckled dace
 - Roundtail chub
- 10 Non-native species
 - Channel catfish
 - Common carp



Razorback Sucker Recovery

- San Juan River Recovery Implementation Program (SJRIP)
 - Funded by Bureau of Reclamation
- Management Actions
 - Augmentation
 - Fish Passage
 - Non-native Removal
 - Monitoring



Razorback Augmentation (Stocking)

- SJRIP goal to stock 11,400 RZBs annually
 - Fish > 300 mm (12 in)
 - Has exceeded the goal with ~ 15,000 annually since 2010
- NAPI Razorback Growout Ponds
 - Operated by NNDFW
 - Accounts for approximately 40% of Razorback stocking annually



NAPI Growout Ponds

- Operated from April to October
- Stocked with 9 -10,500 RZBs from SNARRC
- 3 Ponds
 - East Avocet
 - West Avocet
 - Hidden Pond



Operation

Daily Operation

- Monitor Water Quality
 - Temperature
 - Body weight
- Feeding
- Mortalities

Monthly Operation

- Sample Counts
 - >30 individuals
 - TL, SL, Wt
 - Calculate feeding rates
- Vegetation Control



Passive vs. Active Harvest

- Passive Harvest
 - Begins when 70% >300mm
 - Fyke nets
- Active Harvest
 - Drain Ponds
 - Harvest remaining fish



Augmentation Success

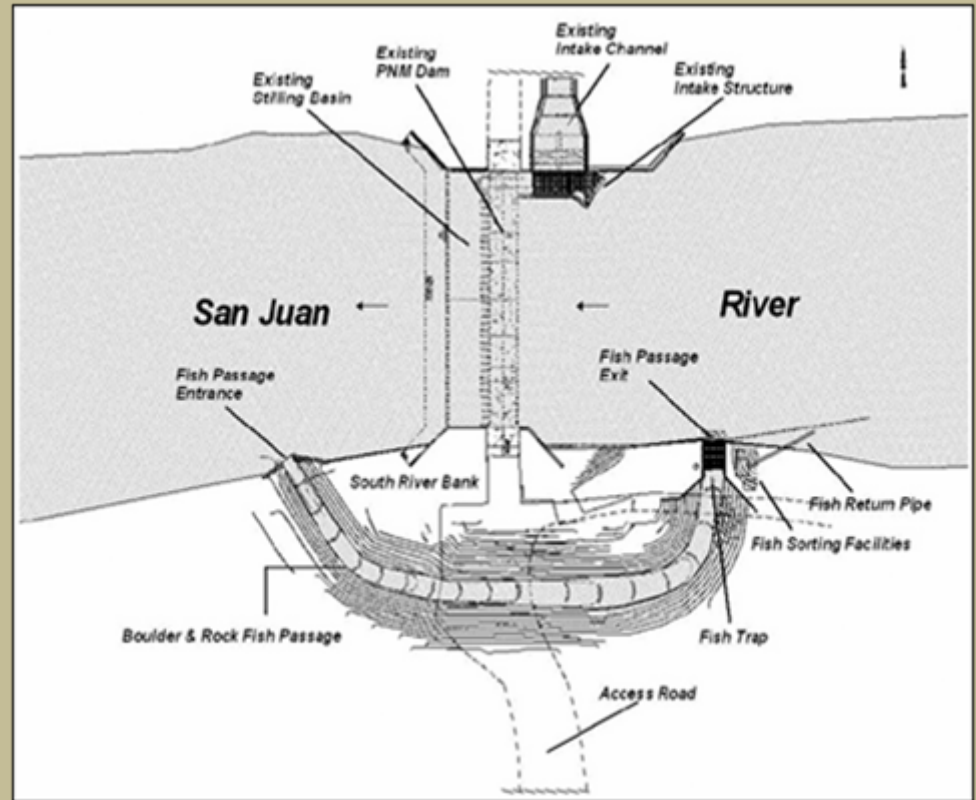
- NAPI Ponds have the best growth and return rates of razorback suckers
- Razorback Sucker in-river survival is best from NAPI ponds
- 6000 – 8000 fish per year are stocked from the NAPI ponds into the Animas and San Juan Rivers

Public Service Company of New Mexico Fish (PNM) Passage Facility



Methods

- Selective fish passage
- Allows native fish to access habitats upstream of PNM weir
- April-October
- 7 days a week
- Native species enumerated and released
- Endangered species weighed and measured
- Non-natives are enumerated and removed



Fish Passage

- Operated April to October
- 15,000 to 250,000 fish pass through the facility annually
- 200 to 800 endangered fish annually
- 200 to 1000 non-native fish are removed annually



Remote Detection

- Remote P.I.T tag antenna installed in April 2014
- Over 200 unique PIT tag detections in 3 months!
- Allows for evaluation of fish passage efficiency, fish movement, and monitoring



Fish Passage Success

- Allows large numbers of native fish to access upstream habitats important for reproduction
- Allows Large numbers of endangered fish to move upstream
- Removes non-native species and acts as a barrier to upstream movement
- Remote PIT tag detections are providing valuable knowledge about endangered fish and helping us to improve fish passage

Overall Recovery Success

- Large numbers of both Colorado pikeminnow and razorback suckers in the system
- Larval fish of both species are captured annually
- Spawning aggregations of both species have been observed
- First sub-juvenile razorback sucker captured in 2014!



Acknowledgements

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