RAZORBACK SUCKER IN LAKE MEAD, LAKE POWELL, AND LOWER GRAND CANYON—WHAT’S NEW AND WHAT’S NEXT

Mark McKinstry, Ph.D.
U.S. Bureau of Reclamation

and

Richard Valdez, Ph.D.
SWCA
Outline

1) Background on razorback sucker
2) 3 BiOps for Grand Canyon and Lake Mead
3) Overview of work in Lake Mead and Lake Powell—Brandon Albrecht, Ron Kegerries, (Bio-West) Travis Francis (USFWS)
4) Science Panel Recommendations
5) Present potential future activities in Lower GC
6) Questions and discussion—5-10 minutes
Overview Razorback Sucker

- Listed ESA 1991
- Critical Habitat designated 1994
- Recovery plan 1998
- Recovery goals 2002
Review of Biological Opinions for RBS

• 1995 BiOp (Reclamation, Operation of Glen Canyon Dam)— “sponsor a workshop, develop a management plan for RBS in Grand Canyon.”
• 2006 BiOp (NPS-Colorado River Management Plan)— “...conduct surveys in the Lower Gorge-Lake Mead interface for spawning razorback suckers...”
• 2008 BiOp (Reclamation, Shortages and Coordinated Reservoir Operations)— “...examine the potential habitat in the lower Grand Canyon for RBS and institute an augmentation program in collaboration with FWS, if appropriate.”
What is Lower Grand Canyon?

- Lava Falls (RM 179.5)
- South Cove
- Current inflow area (~RM 293)
- Pearce Ferry (RM 280)
- Whitmore Wash (RM 188)
- Quartermaster (RM 260)
- Full Pool Lake Mead (~RM 240)
- Diamond Creek (RM 226)
- Spencer Crk. (RM 246)
Records of Razorback Suckers in Grand Canyon

Douglas and Douglas (2000): hybrid larvae at mouth of Havasu and LCR.

33 larvae by Albrecht (April 29, 2000, 2001)

1 adult by AGFD (1963)

3 adults by Carothers & Minckley (June 1978)

1 adult by Minckley (May 1989)

3 adults by Persons (April 1990)

1 adult by Maddux (April 1984)

1 adult by angler (1944)

Douglas and Douglas (2000): hybrid larvae at mouth of Havasu and LCR.
Overview of RBS in Lake Mead

• 16 years of study (1996-2012)
• 92 sonic-tagged individuals in Lake Mead
• 1,123 total individuals captured or stocked
  – 710 unique individuals,
  – 413 recaptures
• 4 areas of known, established reproduction in Lake Mead (Las Vegas Bay, Echo Bay, Overton Arm, Colorado River Inflow)
• 412 individuals aged, 2-36 years old
• 2012 Lake-wide population estimate 596 (CI 468-786) adult fish (it depends on the estimate and model; the CIs range from 234-992)
• Documented population of recruiting fish in Colorado River Basin

Data courtesy Brandon Albrecht and Ron Kegerries, Bio-West
RBS Records From Colorado River Inflow Area of Lake Mead

- 2000 and 2001—larvae found
- 2008—adult in Gregg Basin (near CRI)
- 2010—3 untagged (wild) adults captured, 7 larvae
- 2011—7 untagged (wild) adults, 8 recaps, 65 larvae
- 2012—13 untagged (wild) adults, 13 recaps, 12 larvae, 2 fish moved upstream to Quartermaster or beyond, 3 fish moved up past Pearce Ferry, 1 wild fish (male, ripe) captured at Spencer Creek

Data courtesy Brandon Albrecht and Ron Kegerries, Bio-West
Lake Mead and CRI Habitat
Lake Mead Study Area

Nevada

Arizona

65 miles

Data courtesy Brandon Albrecht and Ron Kegerries, Bio-West
Key Findings Lake Powell

- Large stocking program for RBS upstream in SJR, BUT 53/148 (36%) captured without PIT tag (Recruitment??)
- One RBS Larvae (Reproduction)
- Age of fish 4 to 19 years old
- RBS captured in Lake portion of inflow
Summary of Razorback Sucker Sampling in Lake Powell

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of PIT-tagged Fish Captured</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td>Number of Untagged Fish Captured</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Total Number of Fish Captured</td>
<td>75 (36% untagged)</td>
<td>73 (36% untagged)</td>
</tr>
<tr>
<td>Number of Larvae Captured</td>
<td>1</td>
<td>Samples in lab—more than last year</td>
</tr>
</tbody>
</table>

* 24 Colorado pikeminnow also captured
San Juan River Waterfall 2008 vs 2011

3 fish, 45, 64, and 165 miles
Science Panel 2010

- Kevin Bestgen
- Chuck McAda
- Gordon Mueller
- Dale Ryden
- Melissa Trammel
- Rich Valdez
Recommendations For the Future  
(Science Panel Review of RBS in Lower Grand Canyon)

• Continue work on RBS at CRI and Lake Mead
• Is augmentation necessary?
• Use translocated wild fish (wild larvae from lake pop’n) if augmentation is done
• Integrate all information on fish and foodbase in LGC and CRI
• Expand fish surveys in LGC, esp. for RBS
  – Larval and small-bodied fish study
• Potentially sonic-tag large adult RBS and release in Lower Grand Canyon
  – Look at habitat use, movements, other fish
Proposed Future Work—2013

- Downstream of Lava Falls/Whitmore Wash to CRI area
- Larval and small-bodied fish sampling
  - Larval fish community (known, unknown?)
    • Composition, Timing, abundance, location, periodicity of spawn
  - Small-bodied fish community
    • Composition, relative numbers, habitats
- Sonic telemetry (captive adult fish—’Judas’ fish)
- Trammel netting
- Continue monitoring at CRI area
Acknowledgements