



# Razorback Sucker Rearing Strategies

## WBNFH

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# Past Razorback Sucker Production at WBNFH

Production Year	Number of RBS Stocked
2010	7317
2011	7151
2012	11686
2013	17857
2014	12769
2015	16226

# How have we increased production?

- Improved water quality
- Improved feeding techniques
- Decreased handling
- Grading
- Improved early rearing techniques and facilities = increased survival percentage
- LHO's in all RBS rearing systems
- Increased water availability

# Meeting the needs of an evolving MSCP

- Want to address the needs of MSCP
- Where are MSCP's needs and how can we achieve them?
- Need to balance quality and quantity
- Reduce the number of Razorbacks produced
- Increase size (TL) of fish produced
- Bonytail Chub back to WB?



# How do we plan to improve?

Much experimentation

- Bonytail rearing @ WB?
- Keep improving water quality
- Obtaining better feed conversions
- Increase rearing capacity
- Grow Bigger Fish!

# Flow Conditioning

- Using concepts from Lake Mead Hatchery flow conditioning work, WBNFH is going to apply these principles experimentally to our culture techniques during different rearing stages.
- Decreased rearing volume=Increased velocity=less rearing capacity



# Density/Age Experimentation

- Most densely populated raceway grew the most

Rearing Unit	Date	Number of fish	Yearclass	Size(mm)	Density
C1	4-1-14	3600	13	208	.39
D1	4-1-14	999	11	344	.5
C1	12-1-14	3591	13	281	.98
D1	12-1-14	999	11	363	.59

# Ponds

- Pond Fish grow considerably faster than hatchery reared fish
- Experimentation with young, large fish at Achii Hanyo

# Long Time Holding

- Does work!
- 09' Razorback on station as a pet, that fish is at least 500mm
- Big commitment
- Increased rearing costs
- Selectivity

# Limitations

- Heterogeneity
- Genetics
- Rearing space
- Decreased Bonytail production
- Running pumps to create “high flow” environment
- No protocol of how to deal with surplus fish
- Rearing system limitations

# Learning From Past Failed Experiments

Growth studies

Extended hatchery rearing time. Maybe extend rearing time for young large fish?

Reduced densities

Water heating- No significant increase in growth for increased production cost

# Further Improvements

- Suggestions/ input for improvements to WB's production contribution to MSCP?
- Suggestions on techniques that could be employed at WB to increase size faster?

# Conclusion

- We can grow bigger fish for MSCP
- Will take time to develop and hone
- May have to get rid of fish that are undersized early.
- Effect on genetic diversity?
- Keep up with efficient communication between LCRMSCP and WBNFH to meet changing needs
- Final note: WBNFH has ~250 excess RBS @ 360mm