



Razorback Sucker Rearing Strategies

WBNFH

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09.19.2014

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

An underwater photograph of a large fish farm. The water is dark, and many fish are visible, swimming in various directions. The lighting is somewhat dim, with some bright spots where light reflects off the water's surface or the fish's scales. The fish appear to be of various sizes and species, possibly including tilapia or similar farmed fish.

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