

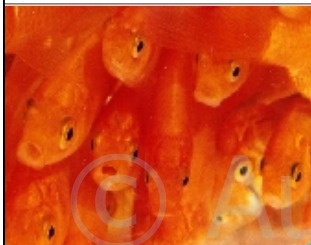


Author/ISAAH Disappearing Shiner Phenomenon – Is Hydrogen Sulfide the Culprit?

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Sathyanand Kumaran

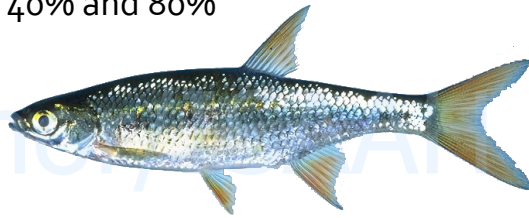
Aquaculture/ Fisheries Center
University of Arkansas at Pine
Bluff

Importance of Baitfish Culture



Background

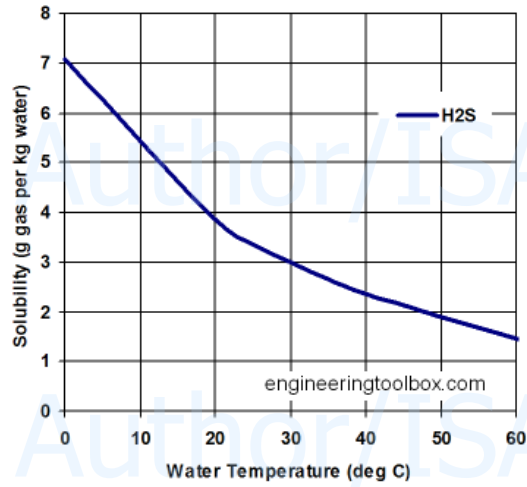
- Occurs between water temperatures of 21-24
- Primarily happens in spring
- Occurs in ponds that have not been drained in 2 years or more
 - The older ponds have a good bloom on them.
- Fish apparently there one day and gone next
- Losses are between 40% and 80%



Is it a water quality problem?

- Hydrogen sulfide
- pH
- Toxins

Solubility of H₂S in Water



H₂S and pH

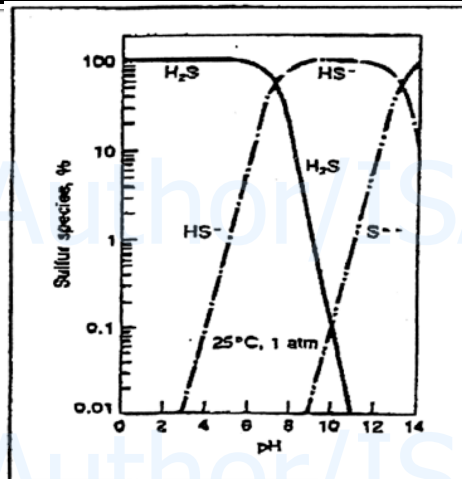


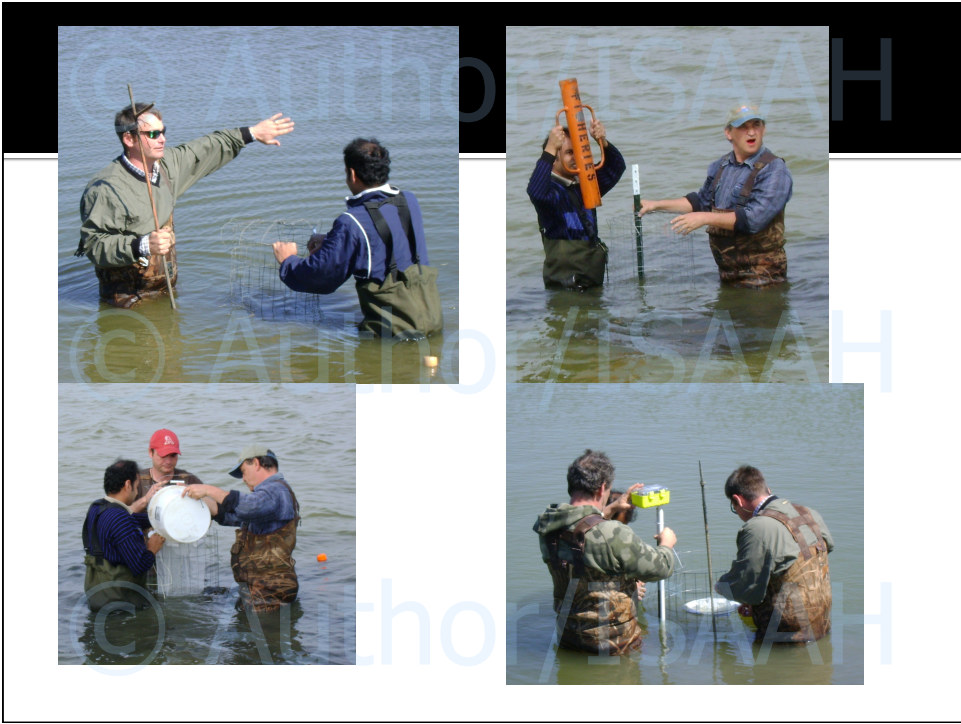
Fig. 3—Relative concentrations of sulfide species vs. pH for aqueous systems.

Objective

- To determine if ponds with high hydrogen sulfide concentrations had increased mortalities compared to ponds with little or no measurable hydrogen sulfide

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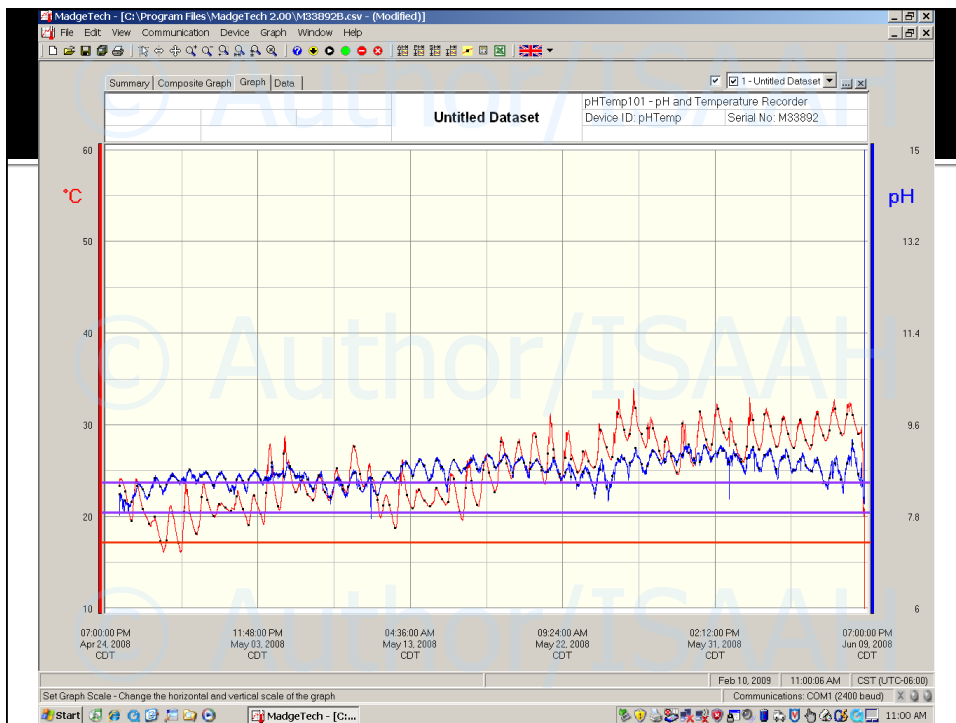
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- Tops placed on cages
- Tied so bag was in middle of cage
- 12 ponds put temp pH monitors

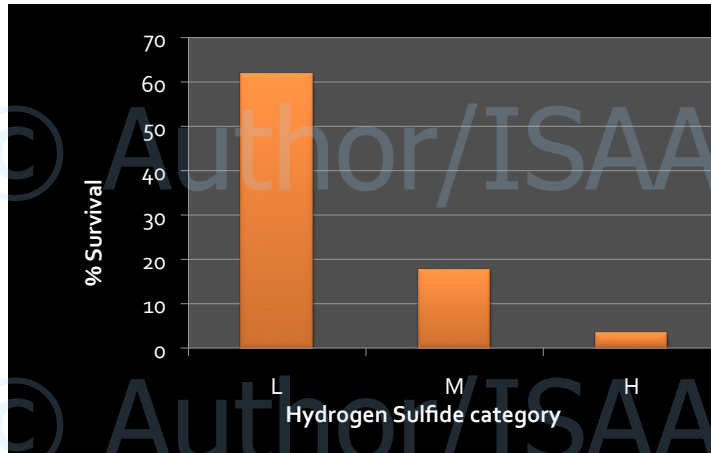


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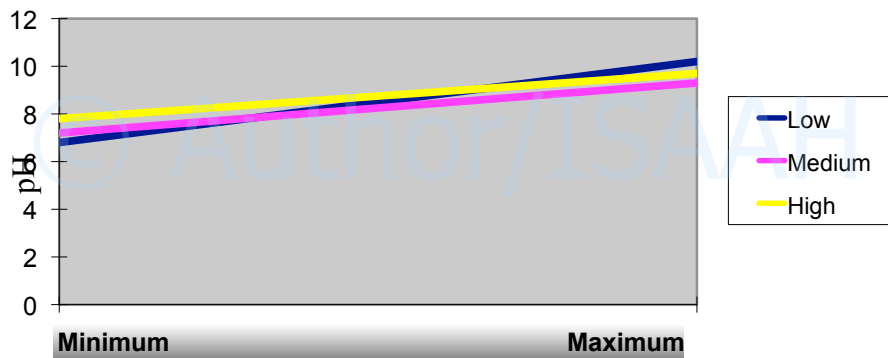
- Approximately twice a week cages were checked
- Snakes
- Crawfish



Survival of fish in various H₂S Concentrations



Effect of pH on survival of fish

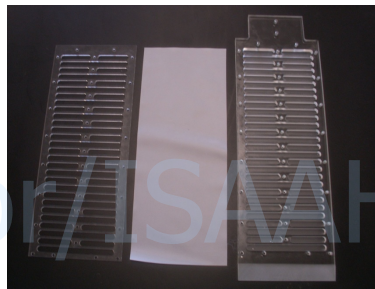


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Sulfates

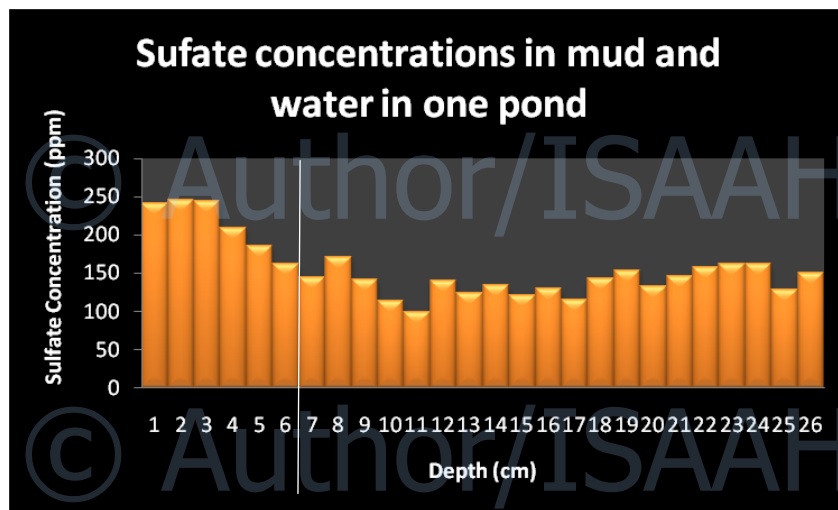


- Monitor Hydrogen sulfide and sulfates in mud and water
- Monthly
- Seine crew

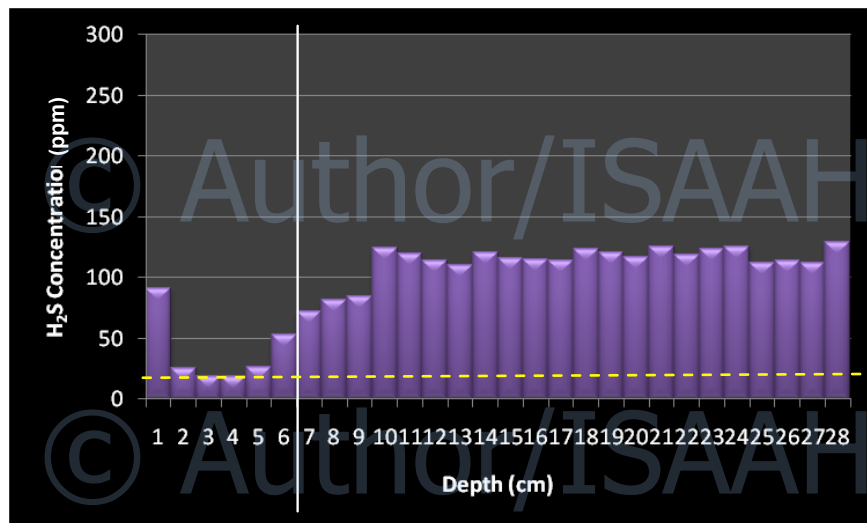


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Sulfates



Hydrogen sulfide



Conclusions

- Hydrogen sulfide concentrations above 0.01 ppm significantly reduced shiner survival in cages
- Temperature appears to be linked; pH does not.
- Continue gather data-
 - Effects of feed types?

Acknowledgements

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