NEW MEXICO WATER RESOURCES RESEARCH INSTITUTE

Effects of turbidity on group cohesion in Sand Shiners and Red Shiners from the Pecos River in New Mexico

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Purpose of Study

The study's objectives are to design an experiment and test for behavioral changes with different levels of turbidity. The student aims to learn how long it takes fish to find each other and how close they can remain together in turbid waters. She also wants to find out how fishes of different species behave in groups when predator pheromones are introduced. Overall, the researcher would like to add to the little information available on group cohesion and fish behavior in turbid waters.

Study Underway

Although turbidity is known to influence feeding and growth in fishes, little is known about behavioral changes and group cohesion in fishes when placed in turbid waters. The student hypothesizes that turbidity will increase both intraspecific and interspecific group cohesion in fishes from the Pecos River, NM. The rationale for her hypothesis is that the importance of the dilution of risk through living in a group will be intensified when one of the senses (vision) is impaired by turbidity. Animals are known to use each other in a "selfish herd" when avoiding being selected by predators. She predicts that increasing turbidity will decrease the inter-fish distances in single-species groups, but also in mixed-species groups. Further, she predicts that when predator pheromones are added to the water, fishes will group together more intensely.

Sabrina Michael is working on an MS in biology at Eastern New Mexico University, where she received a BS in biology. She is from Carlsbad, New Mexico. Here she is standing in front of the freshwater aquaria array in the behavioral ecology lab at ENMU.

Benefits

This study will allow us to understand the influence turbidity has on group dynamics in two species of fishes commonly found in the Pecos River. Considerable resources have been spent on learning about endangered species such as the silvery minnow, yet we know little about how turbidity alters the lives of fishes. Basic knowledge of fish behavior will be gained through this study.

Sabrina Michaels places fishes collected from the Pecos River into aquaria for research.