Relating Fish Abundance and Condition to Environmental Factors in Desert Sinkholes

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PURPOSE OF STUDY

Many studies have been conducted to find correlations between fish abundance and abiotic (physical and chemical) variables. These studies have been conducted in north-temperate locations, and information about warm water fish communities is scarce. The researchers will study fish abundance in relation to abiotic factors in desert water systems, including springs and sinkholes, to determine how food availability and competition, among other factors, influences native fish populations.

STUDY UNDERWAY

→ The researchers have estimated fish abundance using mark-recapture methods in gypsum sinkholes, containing mostly Pecos pupfish, at the Bitter Lake National Wildlife Refuge during the summer of 2006.

→ The study will be repeated in the summer of 2007. The abiotic factors that will be measured are total depth, Secchi depth, area, temperature, salinity, conductivity, pH, dissolved oxygen, turbidity, total phosphorous, and calcium carbonate.

→ Several individual fish will be measured to establish condition indices to determine which sinkholes contain healthy fish populations.

Kristin Swaim holds a Pecos pupfish, the primary species with which she is working. She is working on a master's in fishery and wildlife sciences and hopes to graduate the fall of 2007. Kristin was born and raised in Kennewick, Washington and received a bachelor's from Western Washington University.

BENEFITS

→ This study will uncover correlations between abiotic factors and fish abundance in desert systems that were previously unknown.

Sinkholes with minnow traps.