# Effects of Gender and Predation Risk on Depth Choice in the Mosquitofish, *Gambusia affinis*

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## PURPOSE OF STUDY

Fish use many different habitats and their habitat choice may have significant fitness consequences. Depth choice is an important habitat parameter for many fish and water-level control (e.g., dams) can have major impacts on life history patterns of fish. Some life history traits of fish that have been neglected include how predation risk and gender may affect depth choice. Using an experimental apparatus with a depth gradient ranging from 0-40 cm and a distance from shore ranging from 0-125 cm, the student researcher investigated the role of predation risk, gender, and gender interactions on depth choice in the mosquitofish, *Gambusia affinis*.

## RESULTS

- Analysis revealed that both sex and predation risk affect the depth distribution of mosquito fish. For example, regression analysis revealed that increasing male size resulted in decreased female distance from the surface.
- Female reaction to companion size was significantly different in the presence of another female than in the presence of a male. Therefore, it appears as though female *G. affinis* in this study incur increased predation risk to avoid sexual harassment by males. Although no evidence of risk behavior trait was found in male *G. affinis*, that is, moving deeper in the presence of females versus in presence of other males, females appear to be more receptive to larger males by moving up in the water column, reducing the predation risk that they take upon themselves.



*Eastern New Mexico University graduate students Jennifer Buntz(left) and Tony Spitzack (rightt) collect mosquito fish on the Pecos River during the summer of 2004.*

## BENEFITS

- The mosquitofish has been widely introduced for biological control of mosquitoes and this experiment may help in the management of these introductions.
- This experiment may also assist in the management of the Pecos Gambusia, *G. nobilis*, an endangered species that may be affected by water-level control efforts.