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**Major:** Biology(Molecular Cellular)/American Ethnic Studies

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**Project Title:** Auditory Physiology and Behavior of the "Sneaker" Male Plainfin Midshipman Fish (*Porichthys Notatus*)

**Abstract:**

The Plainfin Midshipman is a seasonally breeding fish that produces acoustic signals during social behaviors. Acoustic communication is important to the social behavior of these fish and their reproductive success. Parental (type I) males build nests, acoustically court females with and care for fertilized eggs until the juveniles depart. Sneaker (type II) males don't build nests or acoustically court females, they "sneak" spawn to steal fertilizations type I males. I tested the hypothesis that the auditory system of sneaker male is adapted to respond and encode the three known vocal signals (hum, grunt and growl). Playbacks of the vocal signals were performed at night on naïve animals in an outdoor arena. Results revealed no significant response to any calls. I also examined the evoked response properties of saccular hair cells of the type II male. Evoked saccular potentials were recorded while sound was presented using standard physiological techniques. Results indicate that the saccule can detect low frequency information in the three calls. This study contributes to ongoing investigations of how hearing is influenced by gonadal steroids which may eventually lead to human application.