**The effect of self-generated movement and playbacks of biological and anthropogenic sound on the hearing sensitivity of the Oyster Toadfish, *Opsanus tau***

Within the fish inner ear, three otolithic end organs (utricle, lagena and saccule) serve both auditory and vestibular roles. The Oyster toadfish (*Opsanus tau*) is a vocalizing fish species that has been extensively studied to understand both the vestibular and auditory functions of the fish inner ear; however, previous studies have primarily been conducted in restrained or stationary fish. Therefore, the question remains how self-generated movement impacts the otolithic end organs. Microwire electrodes were inserted into the toadfish utricle using an implantable micromanipulator, which allowed for long duration monitoring of neural activity post-implant. Experiments measured the neural response of the utricle to playbacks of conspecific vocalizations at variable speeds during assisted and free swimming. During movement, fish remained sensitive to conspecific playbacks, indicating that the inner ear can detect auditory stimuli during movement. Additionally, the effects of self-generated and anthropogenic sound on fish hearing remains unknown. Therefore, acoustic evoked potential (AEP) recordings determined the auditory thresholds of toadfish pre- and post-exposure to conspecific vocalizations and anthropogenic sound. Toadfish exhibited auditory sensitivity between 100 and 500 Hz, which overlaps the frequency range of conspecific vocalizations (110 – 240 Hz) and anthropogenic sound (10 – 12000 Hz), such as those generated by ship traffic. Exposure to conspecific vocalizations had little effect on the auditory sensitivity of toadfish; however, exposure to anthropogenic sound caused significant shifts in auditory sensitivity that were sustained up to 6 days. For vocal fishes, the ability to detect and localize conspecific vocalizations is critical for their reproductive success. In the present studies, it was shown that toadfish are capable of sound detection while swimming, and after exposure to conspecific vocalizations, but are negatively impacted by anthropogenic sound.