What Effect Does Gender, Tone, and Sound Location Have on the Response Behavior of Neogobius melanostomus (Round Gobies) and the Possibility of Future Trapping of this Invasive Species?

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Neogobius melanostomus (Round Goby) are a benthic dwelling invasive species of fish in the Great Lakes. The question is: What effect does gender, tones, and sound location have on the response behavior of Round Goby, and the possibility of future trapping of this invasive species using a certain frequency tone? A tank was set up with a simulated trap in front of a speaker at each end. Each fish was then placed into the holding box that was in the center of the tank, one at a time. A video camera was turned on, to record fish movement once the door was opened. Next, the artificial sound was turned on for one minute [175, 300, 500 Hertz (Hz), and no sound]; 175 Hz mimics the conspecific mating call. This process was done for each of the three frequencies, and for when no sound was played, for each fish. The individual test fish was then allowed to roam for five minutes. The video camera recorded fish location and behavior. From the video, for each fish, a continuous measure was collected according to when the fish crossed the center line and if they entered a simulated minnow trap. The hypothesis was supported; the females spent more time on the speaker side of the tank emitting the conspecific male mating call (175 Hz), while the males avoided the speaker side of the tank, ANOVA $p<.012$. When 175 Hz was played, 100 percent of the females went into the minnow trap on the speaker side, while 100 percent of the males went into the trap on the opposite side.

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