



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Aven J. Ault	Project Number 29021
Project Title The Effects of Sound Level and Type of Fish Behavior	
Abstract Objectives/Goals The objective for my project was to determine if sound has an effect on fish behavior and, if so, what type of sound (underwater or above water) affects the fish more. Methods/Materials My project materials consisted of an aquarium with 12 goldfish, a metal rod, a screwdriver, a recording of a lawn mower and hammer (to simulate construction noise), and a sound level meter recorder. I placed the metal rod into the aquarium and tapped on the end with the screwdriver for five minutes. I observed the fish and recorded any differences in behavior. I then played the recording of construction noise, observed the fish, and recorded any differences in behavior. Results My outcomes showed the fish had a primarily negative reaction to the sound tests. I observed that the fish swam primarily in a bunched group and away from the pole that I was banging on (to simulate driving piles in a river bed) and away from the speakers that were playing the recording (to simulate construction noise along a river). Conclusions/Discussion I found that overall my hypothesis that the fish would be disturbed by both sources of sound was correct. My hypothesis that the fish would be more affected by the recording than the tapping was incorrect; the results show that the fish swam bunched together more often when I tapped the pole than when I played the recording. My conclusion for this experiment is that sound from both underwater vibration and above water noise sources disturbs fish behavior. Although I was not able to determine the exact physical effects of the sound on the fish, it was clear that the sound disturbed their normal behavior. This study leads me to believe that noise sources in or near waterways can negatively affect fish behavior and ultimately their entire ecosystem. Knowing this helps us understand the dangers of noise from sources like bridge construction or even motor boats in relation to water life.	
Summary Statement This project investigated how sound level and types of sound affect fish behavior.	
Help Received Parents helped type the presentation materials; Mr. Russell (teacher) helped construct the flow chart; neighbor donated aquarium and fish.	