



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Kelsey C. Paulus	Project Number J1712
Project Title Contemporary Christian Worship: A Blessing to God's Ears, but Damaging to Yours?	
Objectives/Goals Nine samples were taken from three church services over an eleven week period to see if the worship service decibel levels were damaging to the human ear.	
Abstract Methods/Materials Materials: Decimeter, Sanctuary, Video Camera, Video Tape Methods: 1. Obtain materials. 2. Enter the sanctuary and sit as close to the center as possible. 3. Place the decimeter on the floor between feet. Turn decimeter on with the sound weighting at 80 or 90 dB. 4. Video record the decimeter during the worship service. 5. Go home, watch the recording and record each decibel on the talley count sheet. 6. Repeat steps 1-5 for each church visited. 7. Analyze data. Calculations for the amount of time that each dB is heard, based on the tick marks recorded for each dB, are counted only for dB's 100 and above. The reason for this is because the maximum exposure time for these dB's before damaging the ear is shorter and fits within the worship times. 8. Conclude. Using the Maximume Exposure Chart, each worship service will be labeled as Safe, Watch Out or Danger. This is based on whether or not the dB levels are safe or damaging to the inner ear	
Results Many Christian churches enjoy loud contemporary worship services. Some are unaware of how damaging their volume levels can be to their worshippers# ears. One solution is to educate the church soundboard technicians. They need to know that a safe dB level is at 85 or below. Decibels higher than that at prolonged periods of time will damage the worshippers ears. Results show that the volume levels during the worship services visited, were not all within acceptable levels for the human ear. Results varied from church to church and week to week within the same church.	
Conclusions/Discussion The volume levels during contemporary Christian worship services were not all within acceptable levels for the human ear.	
Summary Statement To determine if the decibel levels during contemporary Christian worship services are damaging to the human ear.	
Help Received Mr. Rich Bartel - Guidance and Use of Decimeter, Bobbie Lee Garret, MA FAA - Background Info, Serena Paulus (mom) - Help with dB counting, typing and backboard	