



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Grace C.S. Wainscoat  | <b>Project Number</b><br><b>J2218</b> |
| <b>Project Title</b><br><b>Deep Sea Jaws</b>  |                                       |
| <b>Objectives/Goals</b><br>This experiment focuses on the mouth morphology of four different deep-sea fish, two of which engage in vertical migration, and two of which who do not. In this experiment, I will be measuring the jaw length of several different deep sea fishes. My hypothesis is that deep sea fishes who do not engage in vertical migration have jaw lengths that are greater in proportion to their bodies compared to deep sea fish who do engage in vertical migration.   |                                       |
| <b>Abstract</b><br><b>Methods/Materials</b><br>Step 1: set out dissecting tray and materials<br>Step 2: put on gloves<br>Step 3: open first jar of fish<br>Step 4: take one fish out carefully with tweezers<br>Step 5: use the millimeter side of caliper to measure standard length of fish<br>Step 6: record the measurements in notebook<br>Step 7: use millimeter side of caliper to measure jaw length of the fish<br>Step 8: Repeat steps 4-7 for remaining samples of that species.<br>Step 9: repeat steps 3-8 for each type of fish in the order: 1. Stenobranchius leucopsaurus, 2. Cyclothone acclinidens, 3. Serrivormeridae sector, 4. Anoplaster cornota.  |                                       |
| <b>Results</b><br>My results supported by hypothesis that deep sea fish who do not engage in vertical migration have larger jaw lengths in percentage to their body lengths, than fish who do. The two fish who did not engage in vertical migration did have larger jaws while the two fish who did had smaller jaws. However, one fish who engaged in vertical migration and one fish who did not, have similar jaw sizes. That is why I would measure and study more fish for my results to be even more valid.  |                                       |
| <b>Conclusions/Discussion</b><br>Evaluating the evidence and measurements in my experiment supports the hypothesis that deep sea fish who do not engage in vertical migration tend to have jaw lengths that are greater in proportion to their bodies compared to deep sea fish who do engage in vertical migration. There is enough data to support my hypothesis, however more research and experiments might better support it.<br>This experiment would be stronger if additional fish species from higher waters were also measured. It would allow comparisons of the jaw length of fish that live in an environment where food is abundant to the jaw length of the deep sea fish that were used in this experiment. In addition, the results would be |                                       |
| <b>Summary Statement</b><br>This experiment focuses on the mouth morphology of four different deep-sea fish and what causes these adaptations.  |                                       |
| <b>Help Received</b><br>My teacher acquired the fish used in the procedure and my father measure fish and glue my board.  |                                       |