



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Michelle M. Chiu	Project Number S1406
Project Title Mendaka Eggs	
Abstract Objectives/Goals To find out how well the membrane of a fish egg protects the embryo within when confronted with various pollutants and bacteria. Methods/Materials Materials: 24 Medaka eggs, 2 petri dishes(separated into 4 compartments), 1 dissection microscope, 5 pipettes, 5 beakers, 1 plastic tweezers, florescent heat lamp, thermometer, methelene-blue, copper sulfate, potassium phosphate, motor oil, bacteria (Bacterial drain and trap cleaner) Methods: I separated the eggs into groups of 4 and placed them in to the pollutants. The remaining eggs i used to put in higher concentrations of pollution just to test the durability of the membrane. I viewed the eggs daily, along with recording and drawing the data. Results The 4 eggs in the clean water all survived and are alive, The 2 eggs in the 5% potassium phosphate solution died within 5 minutes. Of the 4 eggs in the 2% potassium phosphate solution, the membrane was greatly damaged 1 died in about 2 days, the 2 hatched half way, then died, one hatched completely but died within a minute. The 2 eggs in the 5% copper sulfate solution died instantly. Of the 4 eggs in the 2% copper sulfate solution, 2 died after one day, and the other two died the next. Of the 4 eggs in 2% the motor oil, 1 died after 2 days, the rest survived and hatched, but the fry died within the 1st minute of birth. The bacteria had no effect on the eggs. Conclusions/Discussion The egg membranes do protect the embryos, but only to a certain extent. When in high concentrations of pollution, the membrane could not protect the eggs, and the embryos died. In lower concentrations of pollution, the membrane was damaged, and was very weak and could be easily broken, but even so, it still protected the egg(under the circumstances no disturbance was made). The newly hatched fry in the polluted solutions died instantly because they could not handle the pollution in the water, and lacked the membranes fresh water and protection, thus causing them to die.	
Summary Statement My project is about how well the membrane of a fish egg protects the embryo within, when it is confronted with various pollutants and bacteria.	
Help Received none	