



CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

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Project Title How Do the Characteristics of Ingested Plastic Correlate with the Native Diet of the Phoebastria immutabilis?	
<div>Objectives/Goals The objective of the project was to find a correlation between the plastic ingested by the Phoebastria immutabilis species and their native diet of squid, fish eggs, and crustaceans.</div> <div>Methods/Materials Seven bolus samples were dried and dissected using forceps. The contents of the samples were categorized and analyzed by weight, color, size, and shape.</div> <div>Results After analysis, the results showed that white plastic fragments were the most common color and clear plastic fragments was the second most common found in the boluses. Plastic fragments averaging 5 millimeters and 6 millimeters in length were the most present. Clear, glassy nurdles (plastic pellets used in industrial plastic making) averaging 4.75 centimeters in size were also found in three of the bolus samples.</div> <div>Conclusions/Discussion Based on the results, the fragments were of similar colors and sizes to the Laysans' natural diet. The blue and green fragments were 13 millimeters in size on average and had a similar range of colors as the crustaceans. The blue and green fragments were consumed because they resembled the crustaceans found on the beaches of Midway. The clear plastic fragments were similar to the color and glassy looking exterior of the cranchiidae. Also, the buoyancy of the plastic fragments allowed the plastic to float to the surface of the water. Since the Laysan are surface eaters, the birds skimmed the surface of the water and collected the plastic debris along with anything else at the surface. The nurdles were consumed because they resembled flying fish eggs. The nurdles were an average of 4.75 millimeters in size, falling into the range of 4 to 10 millimeters in size of the flying fish eggs. The nurdles were of a clear color and round in shape similar to the fish eggs. Since the flying fish lay their eggs on objects on the surface of the water, then the floating nurdles were mistaken for fish eggs and consumed. There was no solid correlation found between the foam and line and the natural diet of the birds.</div>	
Summary Statement The central focus of the project was to find a correlation between plastic ingested by the Phoebastria immutabilis and their native diet of squid, flying fish eggs, and crustaceans based on color, size and shape.	
Help Received	