



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Madison R. Utrecht	Project Number S1731
Project Title Melanin-Based Dietary Supplements Promote Pigmentation in Chrysaora colorata	
Abstract Objectives/Goals Chrysaora colorata is a local southern California jellyfish with dark purple stripes on its bell. However, cultured specimens develop coloration that is only faintly reminiscent of that seen in their wild counterparts. The purpose of this project was to test whether certain dietary enrichments promote the development of proper bell pigmentation in cultured Chrysaora colorata. This experiment is important because the absence of the characteristic purple stripes may be an indicator of poor nutrition; cultured C. colorata may not be receiving optimal nutrients. Methods/Materials In this project, nine juvenile Chrysaora colorata medusae were divided into three tanks. One group was fed Artemia nauplii enriched with Haematococcus microalgae, a source of carotenoid pigment. The second group was fed nauplii enriched with squid ink, a source of melanin pigment. The control group was fed unenriched nauplii. Feeding occurred twice daily for 14 weeks. Photos were taken of all specimens once a week and were analyzed to measure each animal's bell pigmentation. Results After 14 weeks of experimentation, one specimen from the squid ink treatment developed distinct pigmentation, which was not seen in any other specimens; a ring of pigments formed above its stomachs along with stripes radiating outwards from the ring. Six weeks after the conclusion of the experiment, this individual's stripes continued to develop and darken. Conclusions/Discussion These promising results suggest that melanin-based dietary supplements may promote increased pigmentation on C. colorata. The results have the potential to revolutionize the way aquariums care for this species.	
Summary Statement Adding melanin-rich squid ink to the diet of cultured purple-striped jellyfish may increase bell pigmentation, resulting in a more natural appearance and potentially revolutionizing the way aquariums care for this species.	
Help Received My teacher, Mr. Peter Starodub, guided me through this entire process. Dr. Kiersten Darrow and the Cabrillo Marine Aquarium staff provided the materials, animals, and workspace, and reviewed my work. My parents drove me to the aquarium.	