



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

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Project Title Hollenbeck Park Pond Water: Health or Hazard for Its Dependent Ecosystem?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective was to determine whether or not the water in Hollenbeck Park Pond is consistently healthy enough to sustain the aquatic life forms (and therefore the avian life forms as well) that depend on it. For water in a pond or lake to be healthy enough to sustain animal life, dissolved oxygen should be no less than 79% saturation, dissolved carbon dioxide should be 10 mg/L or less, and turbidity readings should average less than 5 NTU. We believed that the water would prove to be unhealthy because it always has a dark color, a bad smell, and trash floating in it.</p> <p>Methods/Materials We sampled the water in the pond five times, in two-week intervals over an 8-week period, taking multiple samples at 10 different locations. We used titration to test our water samples for dissolved oxygen and dissolved carbon dioxide, and we used a turbidity meter to measure the cloudiness of the samples.</p> <p>Results We found dissolved oxygen levels that ranged from 40% saturation to over 100% saturation, and dissolved carbon dioxide levels ranging from 0 mg/L to 50 mg/L. Therefore, our lowest dissolved oxygen values and our highest dissolved carbon dioxide values indicate potentially life-threatening conditions in Hollenbeck Park Pond. This was confirmed by our discovery of dead crayfish and dead catfish in the pond. There are high carbon dioxide levels because there are many things that are dying in the pond, which also results in low oxygen levels due to decomposition. We also found the water to be cloudy (as high as 17.5 NTU), which can lead to gill damage, reduced oxygen intake, and reduced growth rates for fish. The water was also foul smelling and caustic, leaving a burning sensation on our hands after which some of our skin peeled off.</p> <p>Conclusions/Discussion Overall our conclusion was that the water in Hollenbeck Park Pond is not healthy for animals to live in. The water does not consistently have sufficient dissolved oxygen, nor low enough dissolved carbon dioxide levels, to sustain aquatic life. Also, the turbidity of the water is usually higher than 5 NTU. Our hypothesis was confirmed, and we are communicating our findings to City Councilman Antonio Villaraigosa so that he might devote resources for cleaning up the pond.</p>	
Summary Statement Our purpose was to use dissolved oxygen, dissolved carbon dioxide and turbidity as indicators to determine the health of Hollenbeck park pond water.	
Help Received Our teacher, Mr. Simonsen, helped us by providing equipment for our research and teaching us how to edit our project. Our parents helped us by allowing us to transform their kitchens into science labs.	