



CALIFORNIA STATE SCIENCE FAIR 2008 PROJECT SUMMARY

Name(s) Adrianna Lynch; Bryan Pearn	Project Number S0705
Project Title Why Is There No Water in Alder Creek?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The main goal of our project was to identify factors that have adversely impacted the Alder Creek Watershed, the salmonid habitat, the demise of the local steelhead population, and the dewatering of Alder Creek.</p> <p>Methods/Materials First, we reviewed literature and talked to local resource agency professionals to determine the limiting factors for salmonids. We then conducted biological, aquatic resource, and plant inventories dependent on Alder Creek. Utilizing a GPS unit and software, we then created a map of existing known water diversions within the Watershed. These sites were determined by surveying the watershed on foot. Utilizing methods described in the California Department of Fish and Game Salmonid Habitat Restoration Manual, we performed a stream survey of Alder Creek to determine the amount of salmonid habitat available. Our project then addressed the most crucial limiting factor: water availability. Hydrological assessments were performed on 8/15/07 and on 3/8/08. Employing both a bucket method that produces gallons per minute(gpm)and cross section method(flow meter) which results in cubic feet per second, 19 flow stations were set up above, below, and at the mouth of the watershed's major tributaries. Five replications were taken at each site, averaged, and then standardized to gallons per minutes(gpm).</p> <p>Results The Alder Creek Watershed survey revealed 21 water diversion sites consisting of water flow collection boxes, onstream dams, and water storage tanks. Data collected during the summer months indicated that all the Alder Creek tributaries were heavily diverted. Our 8/15/07 variable measurements revealed a complete absence of flow at all 19 flow stations. Our 3/8/08 control measurements revealed flow starting in the headwaters of Alder Creek at 10.7gpm increasing to a measurement of 399.4gpm at the mouth of mainstem Alder Creek.</p> <p>Conclusions/Discussion The results of the site visits revealed a large number of water diversions in a relatively small watershed. We have concluded the cumulative nature of the numerous water diversions has artificially dewatered the Alder Creek Watershed during the summer months. The seasonal dewatering has probably had an adverse impact on the Federally designated "Salmonid Critical Habitat" resulting in the loss of sensitive aquatic resources, and the continued demise of the steelhead population.</p>	
Summary Statement The objective of our project was to identify and quantify the limiting factors found for salmonids and establish any adverse impacts on the Alder Creek Watershed which could result in the dewatering of Alder Creek.	
Help Received Equipment use and supervision under Mr. Harris Fisheries Biologist California Department of Fish and Game	