



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<p><b>Your Name</b> (List all student names if multiple authors.) <b>Reed I. Collins</b></p>	<p><b>Science Fair Use Only</b></p>
<p><b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>The Influence of Turbidity on Benthic Algae in Streams</b></p>	<p><b>J0704</b></p>
<p><b>Preferred Category</b> (See page 5 for descriptions.) <b>7 - Environmental Biology</b></p>	<p><b>Division</b> <b>J Junior (6-8) J Senior (9-12)</b></p>
<p><b>Abstract</b> (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.</p> <p><b>Objective:</b> The purpose of this project was to see if the amount of benthic algae attached on stones in a stream was related to the amount of turbidity in the stream.</p> <p><b>Methods:</b> Three North coast streams of similar size were selected for study. Turbidity and algae samples were collected from three separate riffles in each stream. Environmental and stream channel information which may affect algal abundance were also collected. Three small stones (about 64 mm diameter) were collected. Algae was scraped off each stone with a tooth brush and placed in separate vials with water. Algal abundance was determined as the height of algae in the vial after settling for 24 hours. Additional information collected consisted of: stone surface area, canopy density, water temperature, stone embeddedness, bankfull width and stream gradient.</p> <p><b>Results:</b> The turbidity levels were different in each of the three streams sampled. Mean turbidity readings in the North Fork Mad River, Howe Creek and Freshwater Creek were 13.70, 19.65 and 32.38 NTU, respectively. Streams with higher turbidity levels had higher benthic algae abundances. The mean heights of algae measured in the sample vials were 2.78, 3.78 and 6.33 mm, respectively. Algal abundance also increased with decreasing bankfull width. Mean bankfull widths were 27.6, 17.2 and 15.1 m, respectively.</p> <p><b>Conclusion:</b> Many water bodies in California have been listed as sediment impaired under Section 303(d) of the Federal Clean Water Act. Measuring turbidity is one method of monitoring the amount of sediment in a stream. Since sediment delivery is generally caused by a rain storm, turbidity needs to be measured during storm events. An alternative method of assessing sedimentation would be to measure another variable effected by it. I thought that streams with higher turbidity levels would have less algae growing on stones, because the sediment would scrape it off. I found the reverse to be true. One possible explanation is that sediment entering the stream introduces nutrients to the water which promotes algal growth.</p>	
<p><b>Summary Statement</b> (In one sentence, state what your project is about.) The purpose of this project was to determine if the amount of benthic algae attached on stones in a stream is related to the amount of turbidity in the stream.</p>	
<p><b>Help Received in Doing Project</b> (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Father trained me to use the survey equipment.</p>	