

CALIFORNIA STATE SCIENCE FAIR

2001 PROJECT SUMMARY



Your Name (List all student names if multiple authors.)

Ruthie R. Kelly

Science Fair Use Only

J0712

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

Evidence of Coliform Vacteria in Santee's Lakes and Rivers

Division

J Junior (6-8) J Senior (9-12)

Preferred Category (See page 5 for descriptions.)

12 - Microbiology

Abstract (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.

OBJECTIVE: Areas tested were easily accessible to humans and wildlife. If coliform is present, we should contact proper authorities, since coliform could be dangerous to those who contact the water.

PROCEDURE: Wearing protective clothing, collect 74 water samples from the San Diego River by placing 20 drops of water per ml. broth, in each test tube of lactose broth. Repeat at the Santee Lakes. Label, place upright in a test tube rack; store in covered box. Transport samples to Lab immediately for overnight storage, at room temperature, 24 hours. Repeat process using 50 samples instead of 74 AFTER the first samples have been observed and disposed of. Each sample of second collection diagnosed by spectrometer prior to disposal. All test tubes sterilized by bleach and hot water solution.

RESULTS: More samples changed color from the San Diego River than from Santee Lakes. In the first sample collection, 18 of the River tests changed color, but none of the Santee Lakes tests changed color. During the second sample collection, all the tests changed color, from both the river and the lakes. 68 out of 124 (or 27%) of the total River tests changed color, and 50 out of 124 (or 20%) of the total Santee Lakes samples changed color. Over all, 118 of the 248 tests changed color.

CONCLUSION: My hypothesis was correct. More samples from the San Diego River changed color than samples from Santee Lakes. I was surprised by the drastic change in results during the second sample collection. This may be because of the weather conditions. Recent rain may have caused animal feces runoff into the waters. In the future I would like to do testing specifically for E. coli O157:H7.

Summary Statement (In one sentence, state what your project is about.)

In my project I tested for coliform bacteria in Santee Lakes and the San Diego River (both in Santee, CA) because I was wondering if coliform in the water would harm animals and humans who came in contact with the easily accessible water.

Help Received in Doing Project (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.

Dad helped me put together the board; mom was the driver and supervised me taking my samples; Stored samples at Geantronics Biomedical Lab under the supervision of Georg Widera and Dan Holt (helped me access the lab)