FAUNTLEROY CREEK FECAL COLIFORM BACTERIA STUDY
GATEWOOD ELEMENTARY SCHOOL, 2009

INTRODUCTION

The purpose of this study was to see how many fecal coliform bacteria was in Fauntleroy Creek at various locations. Specifically, the students were attempting to answer two questions:

- What are the levels of bacteria along the creek?
- Do the levels of bacteria change over time?

Small groups of 4th- and 5th-grade students, accompanied by representatives from the State Department of Ecology and the Fauntleroy Watershed Council, took water samples once a month for five months at four locations along the creek. Those locations were

- mouth of the creek (Fauntleroy Cove beach)
- Pickens residence (mid lower creek)
- Fauntleroy Church (mid upper creek)
- forest tributary (Fauntleroy Park)

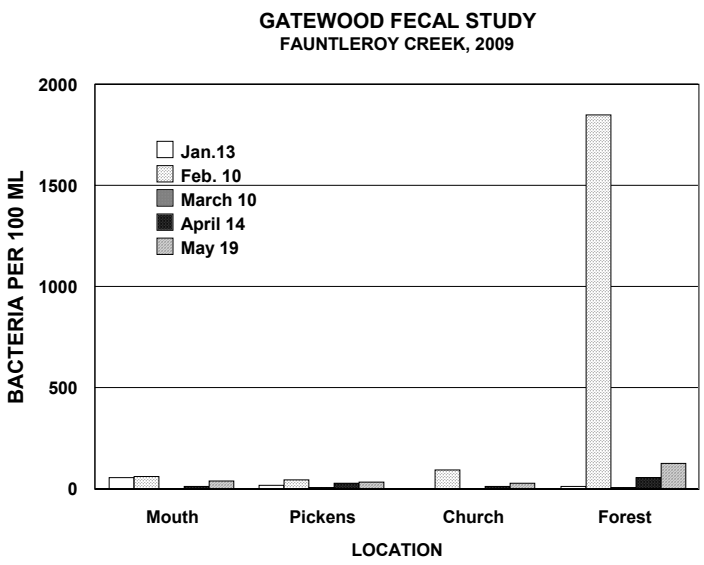
At the start of the study, Ecology and watershed council representatives gave a classroom lesson on the study purpose and sampling techniques. In the field, students applied those techniquest as they collected water samples and recorded field observations (weather, flow, and habitat conditions). Ecology's Manchester Environmental Laboratory measured bacteria concentrations in the samples using the membrane filter method. Representatives returned to the classroom in May to help students analyze and chart the results.

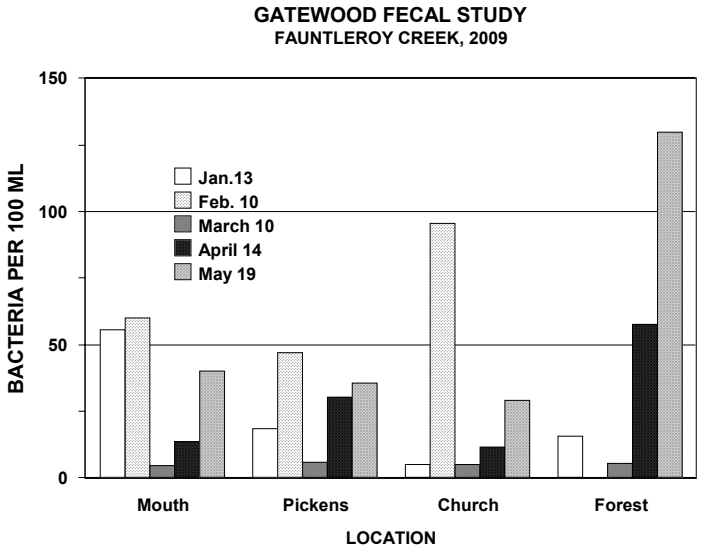
FINDINGS

Two to three samples were tested from each site. The following fecal readings are the average per 100 ml of water collected.

Location	Jan. 13	Feb. 10	March 10	April 14	May 19
Mouth	55.5	60	4.66	13.66	40
Pickens	18.5	47	6	30.5	35.5
Church	5	95.5	5	11.5	29
Forest	15.5	1,850	5.5	57.66	130
Weather	Dry	Wet	Dry	Dry	Dry

The extremely high reading in February at the forest location was caused by sampling error (murky water containing sediment) - a lesson in the importance of sampling consistency that the students readily recognized.





The graph on the left depicts fecal readings for all sites on all dates. The graph on the right depicts fecal readings without the sampling error so that relationships of valid samples are apparent.

Dismissing the extremely high reading caused by sampling error, the lowest readings were during dry conditions in March. Readings from the forest location were highest two out of the four times that samples were taken in dry conditions.

CONCLUSIONS

The students concluded that levels of fecal bacteria do change over time but not consistently. Runoff from precipitation appeared to be a significant factor in the amount of fecal bacteria in creek water.

In discussion with the watershed council, the students learned of a den of coyotes resident near the forest tributary in Fauntleroy Park, which may have contributed to fecal readings from that location being higher, overall, than at other locations.