

This year samples were collected from each of the creeks and springs accessible from the Under-the-Rim trail and tested for coliforms. Coliforms are an indicator organism, so their presence does not necessarily mean the water is unsafe to drink. If there is a high amount of coliforms there may well be a high amount of pathogenic organisms in the water. There are two types (at least) of coliforms: soil and fecal. Soil coliforms are not harmful when consumed and fecal coliforms are harmful, possibly resulting in diarrhea... Both result from surface contamination and are usually abundant where there are a lot of people or wildlife.

Purpose: Determine if the water in the backcountry is safe to drink or need be purified.

Materials: sterilized twisty baggies - 1 for each site + extras (ask Bob Ott or Asenith McJr)
pens & labels
watch
map
willingness to hike

Procedure: Stop at creeks & springs and collect a water sample just as the water is flowing over a rock so it is freshly aerated.

Write site location and time sample was collected on baggie as the sample must be tested no more than 30 hours after it has been collected.

Refrigerate samples while waiting to do test.

We have the equipment to test for coliform in the basement of the VC.
(The Lodge H2O is tested daily) 1

Have whoever does the testing (Asenith) either do the test or show you how.
The samples incubate for 24 hours.

Count the number of metallic dots per disc either with the naked eye or with the aid of a dissecting microscope.

Four per disc is the maximum allowable number for the water to be considered safe.

Report results.

Spring
status
mdb

RESULTS:

All of the samples collected had some type of bacteria in them except for water taken directly from the pipe at Yovimpa Pump house. The number of coliforms greatly exceeded four in most of the samples. This is to be expected as the test does not differentiate between fecal and soil coliforms and there will be bacteria in water that runs over open ground. The high coliform count does not necessarily mean the water is unsafe, but may mean harmful organisms are present.

RECOMMENDATIONS:

Stress water purification to hikers while issuing backcountry permits (boil, iodine)

Buy book - Standard Methods of Water Quality Testing as our BRCA library has no source for water quality information.

Send samples to Salt Lake City to determine if fecal coliform

Determine where contamination is occurring and if campsite location has an effect on water source.

Actually, I think that learning more about water quality and stressing purification are enough as there is not really any way to "clean up" the water. There will always be surface contamination. We should continue to give hikers the paper about "Waste Disposal at BCNP" as a part of issuing permits as to give the decomposers a chance to deal with the waste.

Results - Coliform Count

Monday, August 4, 1980

Bryce Pt - Swamp Canyon Conn. Trail

- ① Right Fork Yellow Creek 14
- ② Yellow Creek Group Site 2
- ③ Yellow Creek 13
- ④ Sheep Creek 40
- ⑤ Right Fork Swamp 34
- ⑥ Right Fork Swamp - up connecting trail 7

Tuesday, August 5

Whiteman - Rainbow

- ① Swamp Canyon 6
- ② South of Whiteman Conn. Trail 0
- ③ Ponderosa (by campsite) 19
- ④ South of Ponderosa 1
- ⑤ Iron Spring 12
- ⑥ Birch Spring (from pipe) 0

These counts may be inaccurate as I didn't know whether to count all dots or just metallic dots. If all dots are counted the #'s would be in the hundreds.

Either way the water is contaminated.

August 12, 1980

Riggs Spring Trail

- ① Bulberry Spring 0
- ② Right Fork Corral Hollow 0
- ③ Corral Hollow Campground 47
- ④ Left Fork Corral Hollow 27
- ⑤ Mutton Hollow 0
- ⑥ Riggs Spring 0
- ⑦ Downstream from Yovimpa Pumphouse 21
- ⑧ Yovimpa Pumphouse - no bacteria of any kind 0

The tests were not performed 30 hrs. after the samples were collected but about 40 hrs. All were tested 8-6 from 11:30-4 r (Birch Spring 8-7 3:50)