



# Black Earth Creek & Limnology Minifacts & Analysis Sheet 1

## Fecal Coliform Count



### Information on Coliform Count & Water Quality

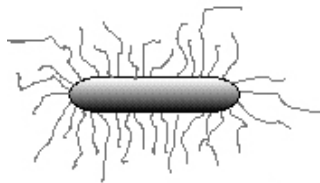
#### Introduction

Total coliform bacteria are a collection of relatively harmless microorganisms that live in large numbers in the intestines of man and warm and cold-blooded animals. They aid in the digestion of food. A specific subgroup of this collection is the fecal coliform bacteria, the most common member being **Escherichia coli**. These organisms may be separated from the total coliform group by their ability to grow at elevated temperatures and are associated only with the fecal material of warm-blooded animals.



#### Environmental Impact

The presence of fecal coliform bacteria in aquatic environments indicates that the water has been contaminated with the fecal material of man or other animals. At the time this occurred, the source water might have been contaminated by pathogens or disease producing bacteria or viruses which can also exist in fecal material. Some waterborne pathogenic diseases include typhoid fever, viral and bacterial gastroenteritis and hepatitis A. The presence of fecal contamination is an indicator that a potential health risk exists for individuals exposed to this water. Fecal coliform bacteria may occur in ambient water as a result of the overflow of domestic sewage or nonpoint sources of human and animal waste.



Escherichia coli

#### Method of Measurement:

1. Using a funnel, filter paper, and a flask **pour 10 mL** of your sample water into the filtering funnel.
2. Place the filter in a **sterile petri dish** containing the growth medium (EMB agar). Press down gently. Remove the filter.
3. After taping the petri dish shut, place the dish in the incubator to grow.



4. During the incubation, growth of the coliform organisms is encouraged, while that of other organisms is suppressed.

**Each cell develops into an individual colony which can be counted directly and the results calculated as Coliform Microbial Density.**

#### **What Does Your Data Tell You:**

The levels below are the maximum for coliform present or the activity is stopped.

#### **The Criteria:**

##### **Wisconsin State Standards**

- Drinking water must have 0 colonies / 100 mL
- For swimming it is fewer than 200 colonies / 100 mL
- For fishing and boating, fewer than 1000 colonies / 100 mL
- For domestic animal water supply fewer than 2000 colonies / 100 mL

##### **Environmental Protection Agency standards**

- Drinking Water must have 0 colonies / 100 mL
- Recreational bathing or swimming can't be over 2000 colonies / 100 mL
- Boating or secondary contact can't be over 5000 colonies / 100 mL
- Wyoming has on average 400 colonies / 100mL .... Why?

Swimming in water that is contaminated by sewage, animal waste, chemicals, or other types of contamination can result in minor illnesses such as; skin rashes, eye and ear infections, and upset stomachs, or more severe and potentially life-threatening diseases such as cholera, hepatitis, and meningitis.