



**Surfrider
Foundation**

Blue Water Task Force

WELCOME! You are now part of an international network of Surfrider Foundation activists. By joining the Blue Water Task Force, you will be finding out if your local beach is polluted, as well as be participating in obtaining data for the national information database of the Surfrider Foundation. BWTF uses this data to educate our members and the public about coastal water quality conditions. Knowledge is the first step towards a cleaner ocean environment. Enclosed please find instructions for water testing. If you have any further questions please do not hesitate to write us or call

(949) 492-8170.

Good luck!

PART ONE: IDENTIFY THE HOT SPOTS

Most coastal water pollution (84%) comes from urban runoff which enters the water via rivers, streams, and pipes. The obvious place to start a testing program is at rivermouths, lagoon openings and flowing storm drain pipes. Be sure you track the path of any pipe that you see entering the ocean.

Determine its source!

Typically, a storm drain carries polluted street run-off from multiple sources. Occasionally though, it may be connected to a toilet or septic tank from a beach house, or perhaps an industrial waste discharge outfall. It is critical to determine the upstream source of any pipe that empties at your beach. This will help you figure out how to reduce or stop the pollution flow.

Part II: Test Areas Where You Suspect People Have Gotten Ill!

Ask around. If you hear enough stories about ear, sinus and stomach infections, it is time to test the area. Enclosed in this test kit is an illness survey. Leave these forms at beach businesses and pick them up once a week. This will give you an idea of suspect beaches, where you should be water testing. Don't forget to send the Illness Survey to the Surfrider Foundation.

PART III: BUILD AN INCUBATOR

Your water sample will have to be in an incubator for 24 to 48 hours. Many schools and doctor's offices have incubators. Solicit their help! Once you explain that you are working with an environmental group concerned about water pollution, they are usually glad to participate. Or you can make your own incubator.

Follow these simple directions to build your own incubator:

1. Cut four to six one inch holes in the top of a box or (recyclable) styrofoam cooler. (see diagram below)
2. Cut a hole in the side just large enough for a 10 watt light bulb and its connectors to fit through and put the light bulb through the box (larger than 10 watt will create too much heat).
3. Cut a small hole for the thermometer to fit through. It should be held in place by friction.
4. Turn on the light, your incubator is ready.
5. Let it run for thirty minutes. If the temperature is too high, cut more holes. If the temperature is too low, cover the holes.
6. Place your coli-counter (with casing) near the thermometer, far from the light bulb (to avoid overheating). Day readings may be higher, you may have to cover one or more holes at night.

PART 4: Start Testing –Coli-Counter Test Kit

These test kits measure total coliform. Although they are not EPA certified, many states use them for their official water quality measurements. They provide a good indication for a “hot” or polluted area. They are to be used as a screening method to identify problem areas. Look at them as education tools and screening tests.

Once you have determined where you want to test, you must set up a testing schedule. Your kit includes four test kits. We recommend one test per week in the exact same spot. Always test at low tide. The pollutants are least dilute at this time. Wade in ankle to knee deep water and take your first sample. Don't forget to send your results to the Surfrider Foundation! And thanks for being part of the solution.

Instructions on your kit:

Millipore Samplers provide a means for simple, fast microbiological analyses of environmental waters. Each sampler is constructed to combine a millipore membrane filter to a nutrient-pad. This allows for the drawing of 1ml of sample to affix microorganisms to the filter surface for culturing within its transparent case.

Coli-Counter Test Procedures

1. Fill the clear plastic case with the water to be tested.
 2. Insert paddle in case with water for 30 seconds (no longer).
 3. Remove paddle, shake off excess liquid with a snap of the wrist.
 4. Empty the case and reinsert paddle (seal snugly to prevent drying).
 5. Place sampler(s) in cooler during transport to incubator.
 6. Place the sampler **face down** in an incubator at a constant 35 degree centigrade or 95 degree Fahrenheit for 24 to 48 hours.
 7. Make your own incubator or find a friendly doctors office, lab or school willing to incubate your samples.
 8. After proper incubation, count the navy blue dots. (ignore the other turquoise, white, or green colonies)
 9. Multiply the dots times 100. This is your total coliform count (not fecal coliform, but total coliforms per 100 ml.
- This is a measure of bacteria water pollution. It is not necessarily a measure of human sewage. Usually, the source is from urban run-off (non-point source pollution).
10. Fill out your data sheet and mail to Surfrider Foundation.

TOTAL COLIFORM COUNTS

Safe to swim: below 1000

Close the beach: Above 10,000

Additional Instructions:

You may want to purchase several ranges of bulbs depending on size of cooler (5 - 20 watt for small to medium coolers, etc.)

Always try to test at low tide. Call your local surf shop to check tides in your area.

Perform tests at ankle to knee depth water. Try to obtain sample just after wave has rushed in and water is still (rather than as wave is advancing in or receding).

Once sample is taken, insert paddle into casing. Place unit with membrane facing down onto a flat surface for 30 seconds (no longer) for uniform distribution of water. While in this position, the unit should not be agitated.

Samples must be placed in a cooler while transporting samples from beach to incubator. Failure to cool the samples may result in invalid test results. Incubate samples within 4 hours of collection. To prevent paddle from drying out during incubation, it should be firmly sealed in the case to form an air-tight seal

If you would like to see your report on Surfrider's website, simply email your report to kmoran@surfrider.org and we will upload it to our website under Student Projects! This is a great way to show your teacher and friends your hard work!