Stormwater Testing Protocol

Materials

- Required bottles with labels (consult the laboratory you are using as these will differ depending on what you want to test)
- Sharpie pen and pencil for marking labels
- Rite in rain notebook or datasheet for notes on date, location, rainfall total, and any in field water quality parameters you may like to take (we recommend taking temperature and pH and flow if you are lucky enough to have a flow meter—they are expensive).
- Cooler with ice packs—label with organization name and contact info
- Peristaltic pump and surgical tubing and battery or hook up to car outlet—this allows you to collect water over a longer timeframe than dipping bottles directly in the flow and thus increases the accuracy of the sample. In some cases you may be able to skip this if you are on a budget or sampling remotely.
- Surgical gloves
- Bleach wipes
- Bubble wrap to put between any glass bottles to avoid breakage
- Camera (optional but so fun!)
- Raingear and boots!

Steps for testing

1. Call a lab to determine what parameters you want to test, to obtain the correct sample bottles and to be clear on the time you need to return samples to the lab after taking them in the field. Some samples need to be delivered within 12 hours so track down volunteers that will be able to be couriers at short notice.
2. Find the closest weather monitoring station to your sample point. If there are people who have rain gauges nearby they can be enormously helpful to involve. If there is anyone with a weather station that collects precipitation totals they can also be helpful. Weather Underground is a good site to look for weather stations near your site: wunderground.com
3. Define a storm event. The standard definition in the Pacific Northwest is anything with .5 inches of rainfall in 24 hours. This must be preceded by 7 days of no precipitation. We have found that in rural areas like Vashon we have had to increase the definition of a storm event to .75 inches of rainfall in 24 hours because we have less pavement then many areas where stormwater testing is done. Basically you want a level of rainfall that correlates to an actual rise in creek levels and more turbidity in the water so that you are sure you are sampling more than base flows. This may take some initial observation of each creek to determine.
4. Collect cell phone numbers of any volunteers and make sure that they will be available to go at a moments notice. We keep double the amount of volunteers needed on call so that there is a chance that someone can go out. For this sampling we recommend 2-3 people do the sampling together for safety and ability to carry all the equipment.
5. Determine your sample stations on the creek and collect GPS coordinates and make sure all volunteers know the place to go during a storm event to sample.

6. Once you have determined that the storm event threshold is imminent collect all materials and go to the site.
7. Always stay downstream of where you take your samples to avoid particulates from your boots and rain gear getting into the sample.
8. Put on gloves, especially if the water is dirty (i.e. a storm drain situation).
9. Put the tubing in the peristaltic pump and start pumping at a slow rate (first third of the dial). Water should be flowing in a thin stream, not coming out in drops, and not coming out in a mad flush.
10. Let the water go through the tubing for 1 minute to flush.
11. In the meantime someone can be labeling all sample jars.
12. Fill all sample jars and stick in cooler.
13. Use bubble wrap to secure.
14. Go over the lab checklist of bottle to make sure you've filled every one.
15. Take any field water quality samples and record date, time, location, and total rainfall in the rite in rain notebook for this sampling event (or on a datasheet if you make one).
16. Check the specifications for the lab to make sure you deliver the samples in time. Some parameters like fecal coliform and ph require delivery to the lab within 12 hours.
17. Take photos of everyone in the rain and photos of the creek during the storm stage!
18. Go home and get warm and dry and get yourself and your samples to the lab in time!

Any questions? info@vashonnaturecenter.org