**Lab: Surf Your Watershed**:

Investigating Flow and Water Quality of a Local Waterway

Record answers 1-13 on a separate sheet of paper in complete sentences (include the question in your answer).

**Begin** at: <http://cfpub.epa.gov/surf/locate/index.cfm> EPA’s Surf Your Watershed website

Find your [watershed](http://www.epa.gov/owow/watershed/whatis.html) using the instructions below. Once you have found your watershed, you will be able to find citizen based groups that are active in your watershed.

**Find your watershed**

**Step 1) Pick your geographic unit:** (*choose how you want to identify the area you want to investigate*)



**Step 2) Enter your geographic information:** 

**Once you find your watershed –** Look at the little maps on the right – they show you the land areas and rivers that drain into the largest river in your watershed.

Question #1: What is your watershed’s name? What parts of the state(s) does it cover?

**Now, scroll down to where it says:**

**Places Involving this Watershed (Choose your county and note all the watersheds that cross it. Look carefully at the outline of the red line (your county) and how it crosses into a lot, or a little of these different watersheds.**

**Question 2: What is your county? How many watersheds cross it? Name up to 4 of them.**

 **Hit the back key. Then, scroll back to;**

**Information provided by the United States Geological Survey (USGS)** and choose

* [**Stream Flow**](http://water.usgs.gov/cgi-bin/realsta.pl?huc=01080201) **(Source: USGS): You’ll open a page that lists counties and gage station numbers along rivers in your watershed. Choose a number that is near where you live or that you’re interested in.**

| **StationNumber**  | **Date/Time**  | **Gageheight,feet**  | **Dis-charge,ft3/s**  | **Reservoireleva-tionabove datum,feet**  | **Elev-ation,feetaboveNGVD**  |
| --- | --- | --- | --- | --- | --- |
| **GroupFranklin County, Massachusetts**  |
| [01170500](http://waterdata.usgs.gov/nwis/uv/?site_no=01170500&PARAmeter_cd=00065,00060,00062,72020) |  03/24 20:30  | 14.68  | 23,300 |  |  |

**The page will open with a gage #, river name, and city/town of the gage location. Read the gage location information to determine if your river is near a dam.**

Question 3: What is the gage #, river name, and city/town that you’re going to investigate? Is your river gage upstream or downstream from a dam?

**Scroll down until you get to the first graph;** **Discharge, cubic feet per second**

**This** **graph shows how much water flowed in the river for the past week. The measurement is in cubic feet per second – picture a cubic foot of water flowing by each second.**

Question 4: Create a small copy of this graph on your answer sheet. Does your graph show any precipitation events in the last week? When did they occur? What was the past week’s highest discharge?

Question 5: What are the lowest, mean (average), and highest discharge rates? (see table below graph)

**Scroll down to the gage height graph.**

Question 6: What was the lowest and highest gage height? Do these values make sense if you consider the lowest and highest discharge rates of the past week?

**Scroll back up to** [**Summary of all available data for this site**](http://waterdata.usgs.gov/nwis/nwisman/?site_no=01171500&agency_cd=USGS) **and click**

 **Under AVAILABLE DATA: choose** [**Peak streamflow**](http://waterdata.usgs.gov/nwis/peak/?site_no=01171500)**.**

**Question 7:** What is the range of years that peak streamflow data is available for your river?

Question 8: What years had the highest/lowest streamflow and what were rates for those years?

Question 8a. If your river is in New England, and you have data from the 1930s, do you see evidence of the NE Flood of 1936 or the 1938 hurricane? If your river is dammed, do you see evidence that river flow has been regulated since the dam was built?

**Now, back all the way out of this until you get back to the original page with your watershed name. Scroll to Assessments of Watershed Health and choose**

* [**Impaired Water for this watershed**](http://iaspub.epa.gov/tmdl/huc_rept.control?p_huc=01080201&p_huc_desc=MIDDLE%20CONNECTICUT)**. Scroll down to see how many waters are impaired and the impairments.**
* **You’ll see a few tables which tell you how many of the water bodies in your watershed have tested positive for an impairment (a pollutant or abnormality in water quality). You’ll also see a table of the causes of the impairment. Study the tables and answer the questions below.**
* Question 9: How many waters in your watershed are impaired (# of waters listed)?
* Question 10: List at least 5 of the impairments. Which is most common? Click on the number following the impairment – it takes you to a list of where it is found – have you been to any of these water bodies?
* Question 11: Choose one of the impairments you listed (maybe the most common) and research what it is. Explain the impairment (what/why it exists and how it negatively impacts surface water). (Note: Low DO means low dissolved oxygen).
* Question 12: Hypothesize why, more specifically, the impairment you researched in #11 exists in your chosen waterway. Think about your watershed and the development/businesses/agricultural practices, etc. that are potential sources of pollution that might have caused the impairment.

Conduct some research to test your hypothesis and to try to identify the *actual* source of the impairment. Explain your findings.

Question 13: Think back on all of the information you’ve looked at about your waterway. Ask a question about your river or watershed based on this lab.