

Water Quality Wrap-Up

Water Clarity

Nitrogen

Water Temperature

What is Water Quality?

Fecal Coliform

Phosphorous

DISSOLVED OXYGEN

pH

- We collected water quality data for 3 water bodies in NYC
- Today, we will MAP our data and answer some questions
- We will use the NYC Subway Map as our “Base Map”



Using Your Data:

2012 Urban Ecology Water Quality Data Summary Table

Water Quality Tests	Newtown Creek				Jamaica Bay				Atlantic Ocean			
	Minimum	Maximum	Average	Description	Minimum	Maximum	Average	Description	Minimum	Maximum	Average	Description
Air Temperature	48	62	56.58	warm	0	0	1.92	warm	50	62	60	warm
Water Temperature	40	65	52.96	warm	50	55	51.92	warm	50	55	54	warm
Secchi Depth/ Turbidity	24	60	44.06	fair	0	0	51.92		15.748	29.684	29.95	cloudy
Salinity	19	29	25.09	brackish	29	30	29.29	brackish	30	40	32.71	marine
Coliform Bacteria	positive	positive	positive	Safe for boating	positive	positive	positive	Safe for boating	negative	negative	negative	Safe for boating and swimming
pH	6	8	6.60	acidic	7	7	7.00	neutral	5	7	6.80	neutral
Dissolved Oxygen	2	8	5.03	oxic	4	8	5.85	oxic	4	6	4.65	oxic
Nitrogen	5	5	5.00	excess	0	0	0.00	depleted	0	1	0.04	adequate
Phosphorous	1	5	1.12	adequate	0	2	1.36	adequate	0	2	0.36	adequate

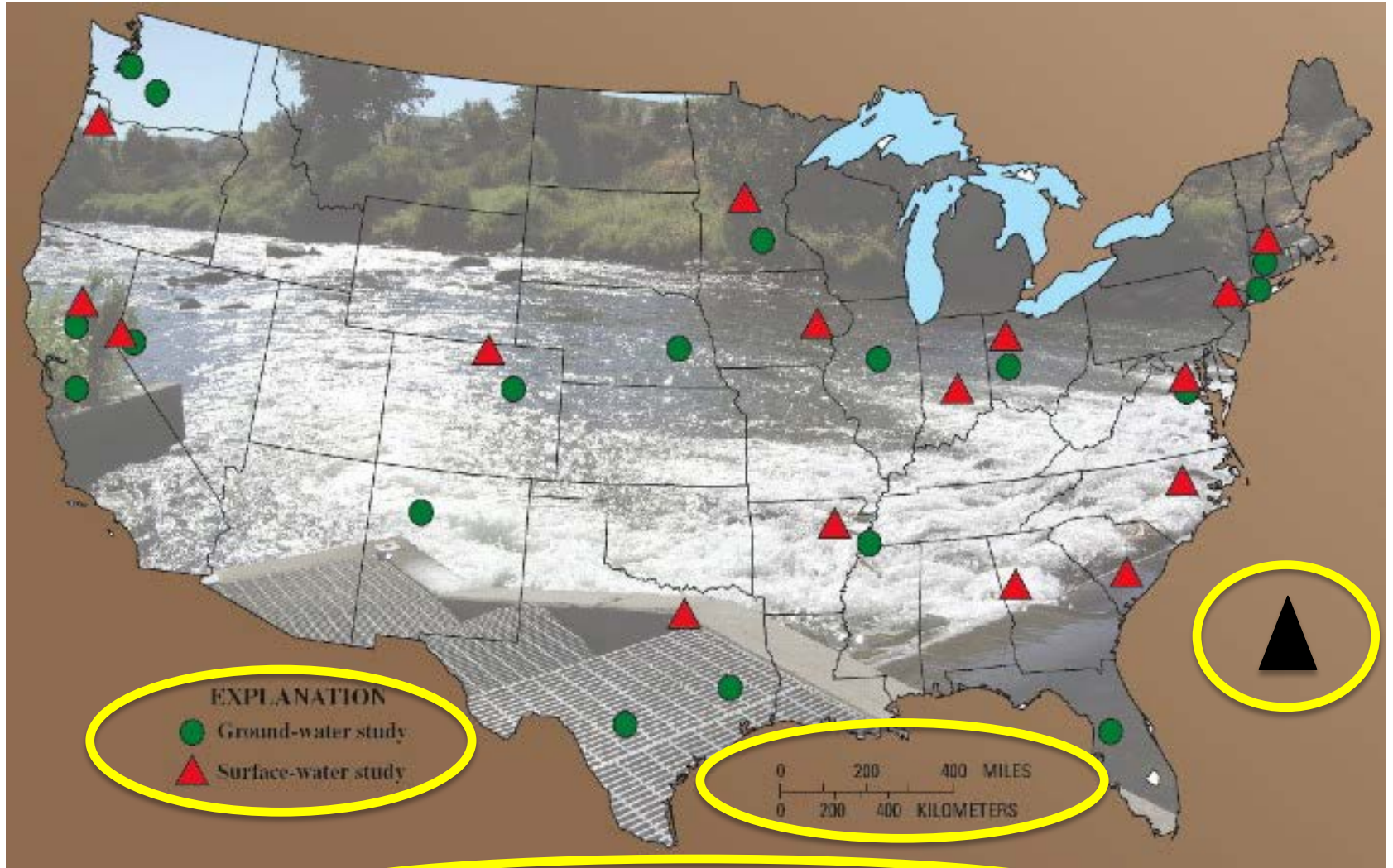
Mapping Your Data:

Title

Key

Scale

North Arrow



Locations of Water Quality Testing Sites

Playing with Scale

Using SYMBOLS

Example: Fecal Coliform



Positive



Negative

Using COLOR

Example: Nitrogen



Depleted



Adequate



Excess

Using SIZE

Example: Salinity



Fresh Water



Brackish Water



Marine Water

Mapping Tasks:

DATA ANALYSIS:

- READ Your Group's Question
- DECIDE What data you need
- FIND and HIGHLIGHT the Data on the summary sheet

MAPPING:

- LABEL Important Locations on your Map
- Add a TITLE to your map
- Make a KEY for your map
- DRAW symbols on map

CONCLUSIONS:

- ANSWER your group's question based on your map
- PRESENT your results to the class

Urban Ecology: Water Quality Mapping Questions

(1) How did salinity and pH change as we move from site to site?

- Sub Question 1: Do you notice a general trend?
- Sub Question 2: Is this the relationship you would expect given what you have learned in Urban Ecology Class? Why/ Why not?
- Sub Question 3: What other water quality tests could be related to Salinity and pH?

(2) How did Air Temperature, Water Temperature, and Dissolved Oxygen change from site to site?

- Sub Question 1: How do you think these three tests are related?
- Sub Question 2: Is this the relationship you expected to find? Why/ Why not?
- Sub question 3: What other water quality tests could be related to air temperature, water temperature, or dissolved oxygen?

(3) How did fecal coliform detection change from site to site?

- Sub Question 1: How is fecal coliform related to nutrients (nitrogen and phosphorous)?
- Sub Question 2: Where would you EXPECT the levels to be highest; is this what you observed?
- Sub Question 3: Is there a common source of nutrients and fecal coliform to NYC waters?

(4) How did water clarity change from site to site?

- Sub-Question 1: What water tests would you use to determine clarity at each location?
- Sub Question 2: Do your observations match up well to the data (think about water depth, waves, and tides).
- Sub-Question 3: What other water tests might be related to water clarity?

(5) How do the Phosphorous and Nitrogen levels change from site to site?

- Sub Question 1: Where were the HIGHEST and LOWEST levels of each one?
- Sub Question 2: Can you think of a source for these nutrients at each site where they were detected?
- Sub Question 3: What other water quality tests are related to Nutrients?

(6) What water quality test varied the MOST between sites? Which one varied the LEAST?

- a. Sub Question 1: How did you select data to answer this question- did you use averages minimum, or maximum values?
- b. Sub Question 2: Why do you think the test that varied the MOST changes so much from site to site?
- c. Sub Question 3: Why do you think the test that varied the LEAST did not change much between sites?

NYC Water Quality Mapping

Name(s): _____ Date: _____

Follow the directions below to create your water quality map:

Analyze Your Data

- Read your group's question and decide what data you will need (check-off the data you will use)
 - Nitrogen
 - Phosphorus
 - Fecal Coliform
 - Salinity
 - pH
 - Dissolved Oxygen
 - Secchi Depth (turbidity)
 - Water temperature
 - Air temperature

- Find and highlight the *type* of data you need on the data sheet (choose **one** of the options below and stick to it for all data)
 - Averages
 - Minimum
 - Maximum
 - Minimum and Maximum
 - Descriptions (example: depleted, fair, adequate)

Make Your Map

- Mark important locations: find and label AUP, Jamaica Bay, Atlantic Ocean, Newtown Creek
- Add a TITLE to your map
- Design a KEY for your map
 - Include appropriate SYMBOLS and COLORS
 - Include appropriate UNITS
- Draw appropriate symbols on the map for each locations
 - Newtown Creek
 - Jamaica Bay
 - Atlantic Ocean

