



USEPA Region 2 Citizen Science Program

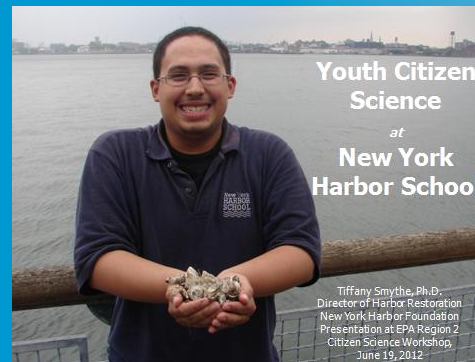
Tools and Considerations When Developing Your Monitoring Program

25th ANNUAL LONG ISLAND SOUND CITIZEN SUMMIT
June 3, 2016
Stoney Brook University

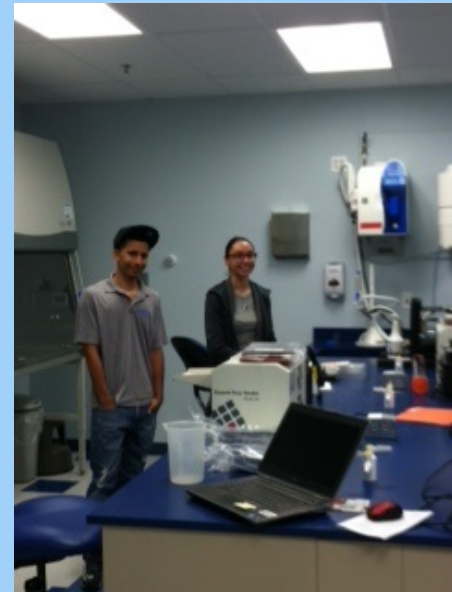
Citizen Science in Region 2



Building our connection to Bronx River



2015 Equipment Loan Program



EQUIPMENT AVAILABLE - Field



YSI WATER QUALITY
PARATMER SONDE (pH,
Dissolved Oxygen, Temperature,
Conductivity/Salinity)



Hand Held GPS – Garmin
Montana 650

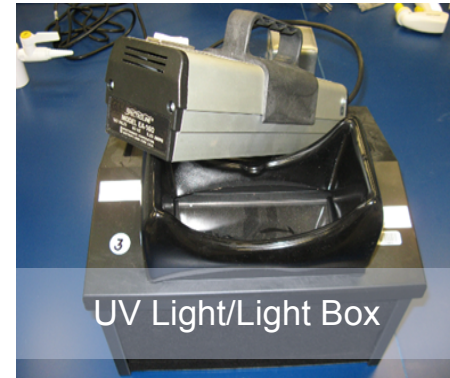
EQUIPMENT AVAILABLE - Laboratory



Idexx Quantitray Sealer



Microbiological Table Top Incubator



UV Light/Light Box



Automated Pipet

EQUIPMENT ADDED FOR 2016



POSSIBLE EXPANSION OF PROGRAM TO INCLUDE:

-More IDEXX SEALERS and Incubators

-Macroinvertebrate sampling equipment

-Portable Air Monitors



-Hand Held X-Ray Fluorescence (XRF) Instruments for Heavy Metals

EQUIPMENT LOAN PROGRAM 2015

- ▶ EPA REGION 2 CITIZEN SCIENCE WEBSITE
 - <http://epa.gov/citizenscience/>
- ▶ EQUIPMENT LOAN INSTRUCTIONS
 - http://www.epa.gov/region2/citizenscience/pdf/cs_equiploanprogram.pdf
- ▶ EQUIPMENT LOAN APPLICATION
 - http://www.epa.gov/region2/citizenscience/pdf/citizenscience_equipment_loan_program_application.pdf
- ▶ QAPP Template:
 - http://epa.gov/citizenscience/pdf/citsci_air_attach_b_form.pdf

OTHER RESOURCES AVAILABLE:

-CITIZEN SCIENCE GUIDANCE DOCUMENTS ON PERFORMING IDEXX TESTS FOR TOTAL COLIFORMS, E. COLI, AND ENTEROCOCCUS

-FIELD DATA SHEET EXAMPLES



-EXAMPLE CHAIN OF CUSTODY FORMS

-EQUIPMENT OPERATING MANUALS

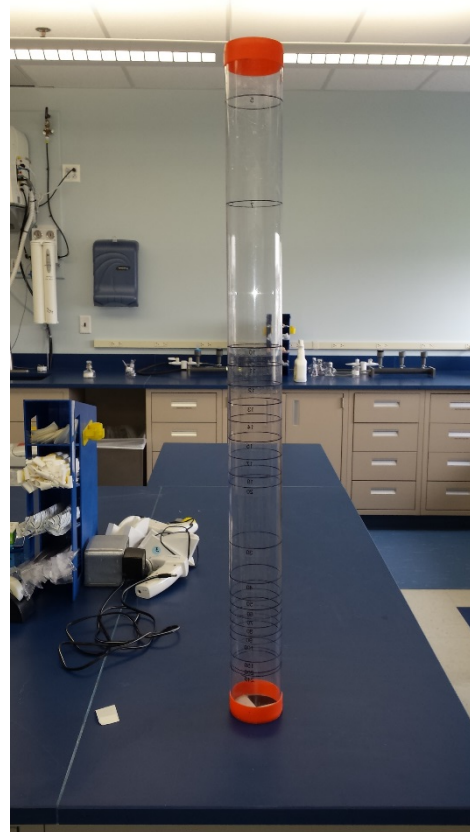


Bridge Sampler - \$4.00



*Courtesy of Chattahoochee
River Keeper, Atlanta, GA*

Turbidity Tube - \$12.00



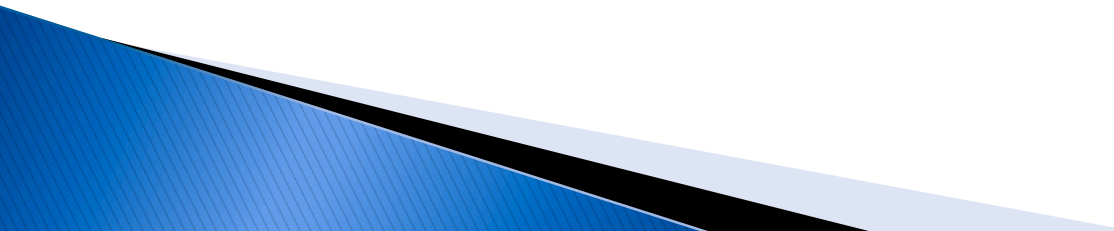
*Courtesy of Elizabeth Myre &
Ryan Shaw. Michigan
Technological Institute*

Regulations

Surface and Ground Water Quality Standards

- ▶ Determine DESIGNATED USE of water body or stream segment
- ▶ Assign Classifications of the Designated Uses


WATER QUALITY STANDARDS


- ▶ THERE ARE TWO TYPES OF STANDARDS – NARRATIVE AND NUMERIC
 - ▶ EPA HAS ESTABLISHED CRITERIA FOR HUNDREDS OF POLLUTANTS
 - ▶ STANDARDS AND CLASSIFICATIONS VARY FROM STATE TO STATE
 - ▶ EVERY WATERBODY WILL HAVE A CLASSIFICATION AND ASSOCIATED SET OF STANDARDS TO MAINTAIN ITS CLASSIFICATION
 - ▶ THIS IS A GOOD PLACE TO START BEFORE STARTING A MONITORING PROGRAM
- 


New York State DEC Saltwater Classifications and Bacteria Criteria, Total Coliforms (*CFU or MPN per 100 mL sample)					
CLASSIFICATION	Type/Protection	Type of Water	Bacteria Standard	GeoMean/Monthly Median Value	Single Sample Max*
SA	Health (Fish Consumption)	Saltwater	<i>Total Coliform</i>	70	NA
SB	Fish Propagation – Acute and Chronic	Saltwater	<i>Total Coliform</i>	2400	5000
SC	Fish Propagation- Acute and Chronic	Saltwater	<i>Total Coliform</i>	2400	5000
SD	Fish Survival/ Aesthetics	Saltwater	<i>Total Coliform</i>	None	None
I	Aesthetic, Wildlife Protection, Fish Survival and Propagation	Saltwater	<i>Total Coliform</i>	10000	NA


12.3 INTERPRETATION OF DATA AND IMPACTS

The impact and how you will interpret your results should be addressed in your QAPP. Uses will depend on the objectives of your project, if you are in fresh or marine water and established designated uses of your project water body. Listed below is an example of a chart to interpret data based on a projects individual results using *Enterococcus* in marine waters. A rationale based on your project objectives should be used to develop your own categories. In the example below, national water quality standards for primary contact recreation were tied in to the different levels. Your citizen science pathogen project may use different numerical designations to indicate relevance, but you should have a rationale for selecting the levels. The colored dots can be used to indicate relative concentrations when plotting on a map.

-  <61 CFU/100 mL LOW 61 is Lowest Criteria for both Freshwater and Marine Enterococcus WQS Single Sample Maximum Conc. (SSMC) for Primary Contact Designated Beach Site (using 1986 WQS Enterococcus)

-  61-104 CFU/100 mL MODERATE 104 is the SSMC for Marine and 61 is the SSMC for Freshwater Primary Contact Designated Beach Site

-  105-500 CFU/100 mL HIGH 500 is the SSMC for Marine SSMC for Infrequently used Full Body Contact Recreation (575 for freshwater)

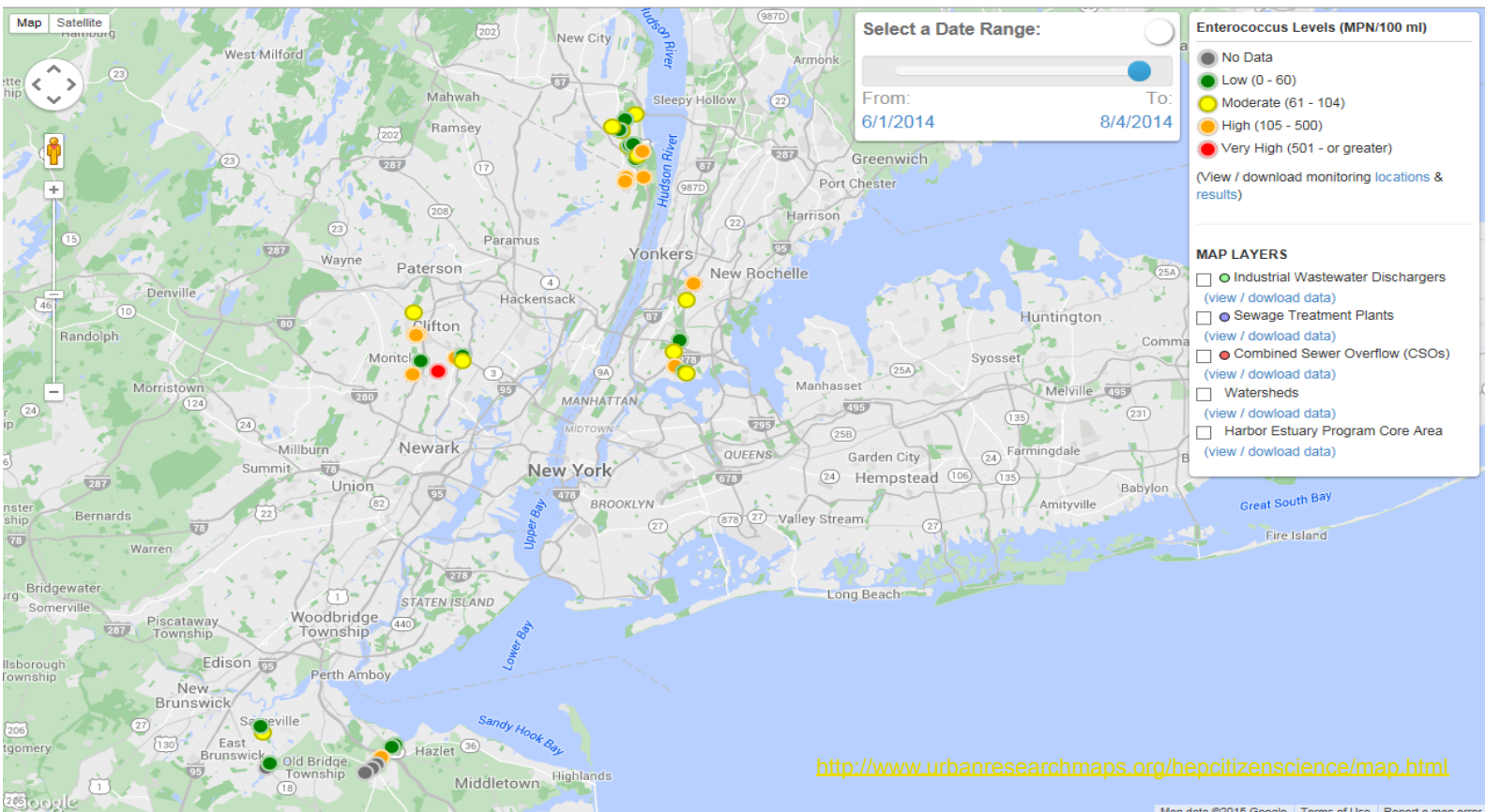
-  501 & > CFU/100 mL VERY HIGH 501 would not meet any SSMC for any full body contact in marine water (575 for freshwater)

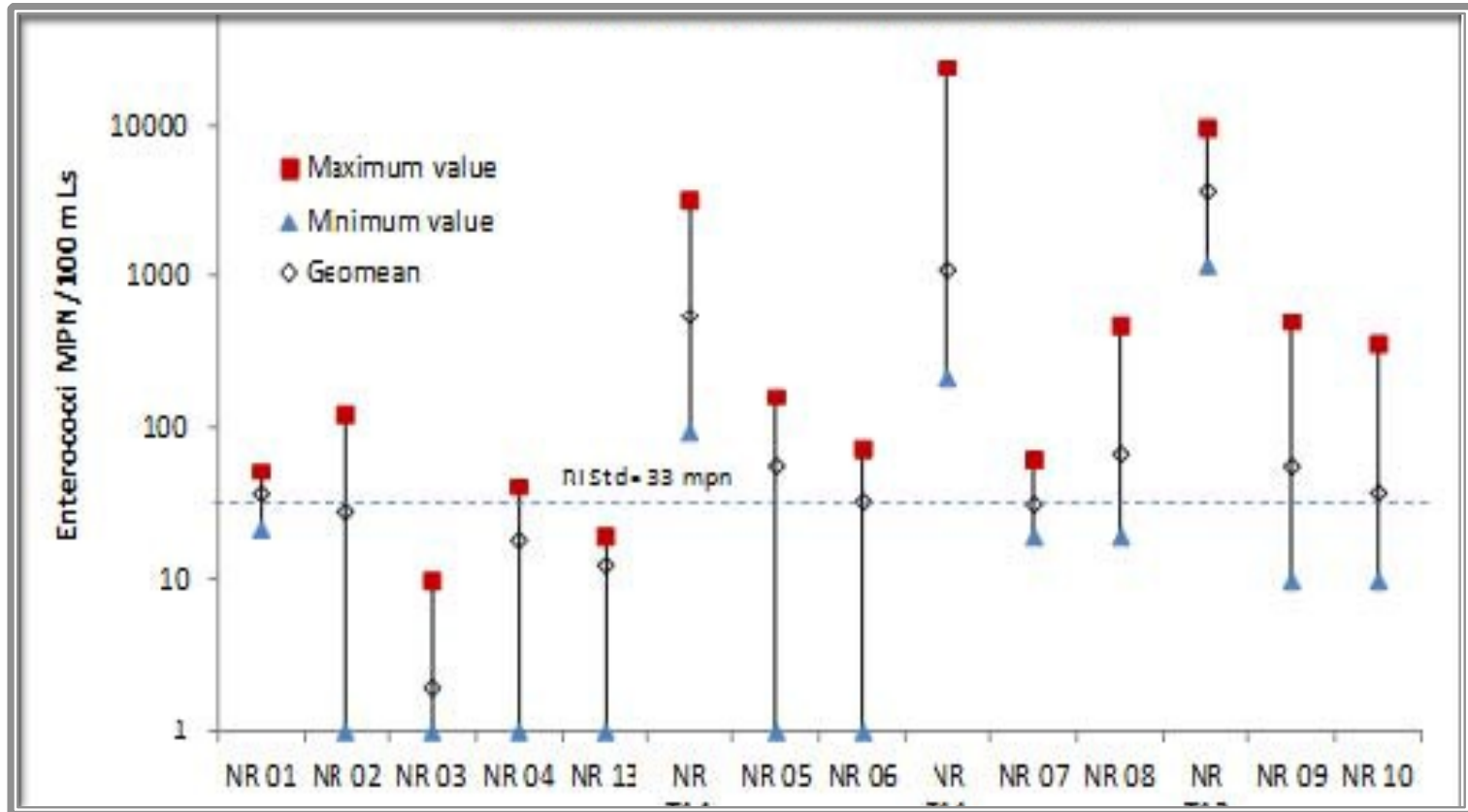
Presenting Bacterial Data

New York - New Jersey Harbor & Estuary Program Water Quality Monitoring by Citizen Scientists in NY-NJ Harbor & Estuary

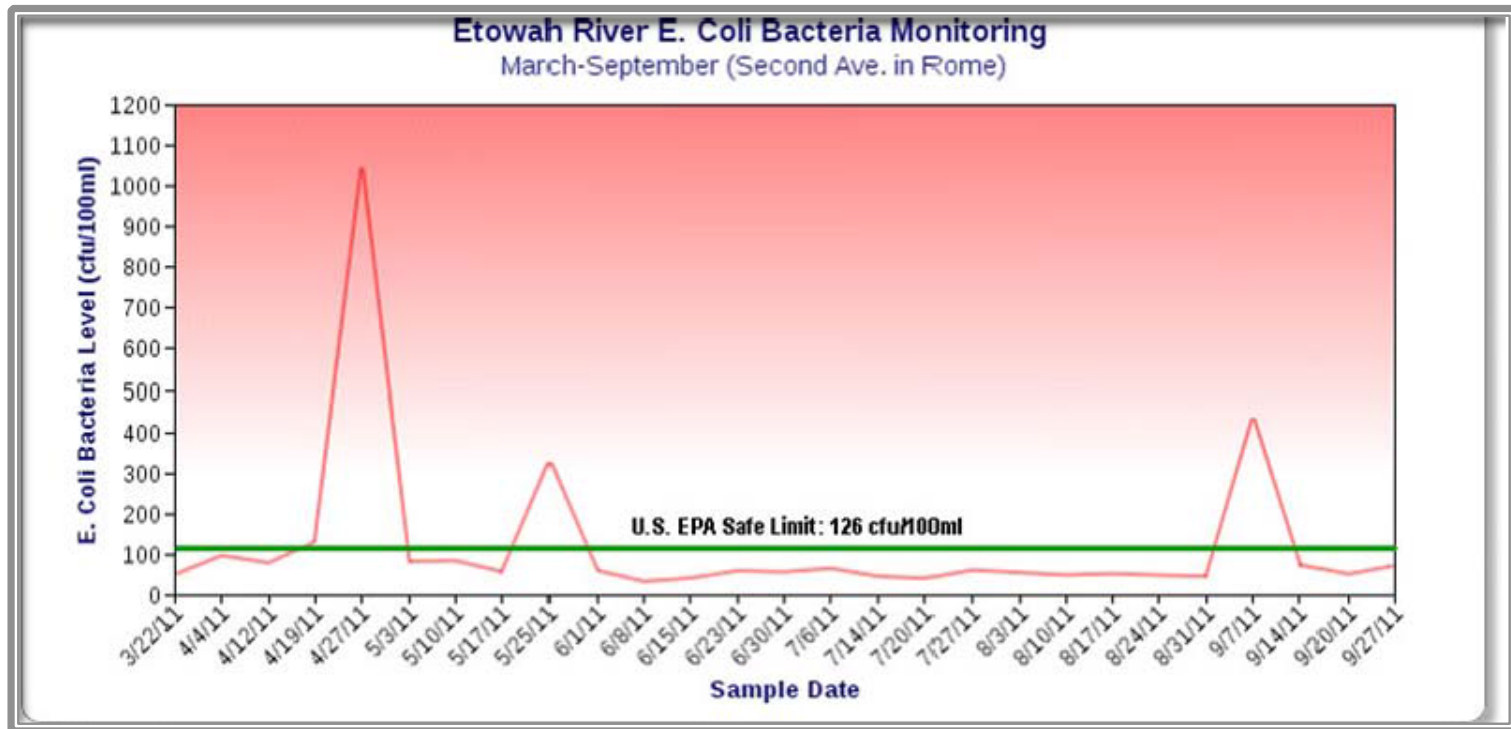
www.harborestuary.org

ABOUT / DATA

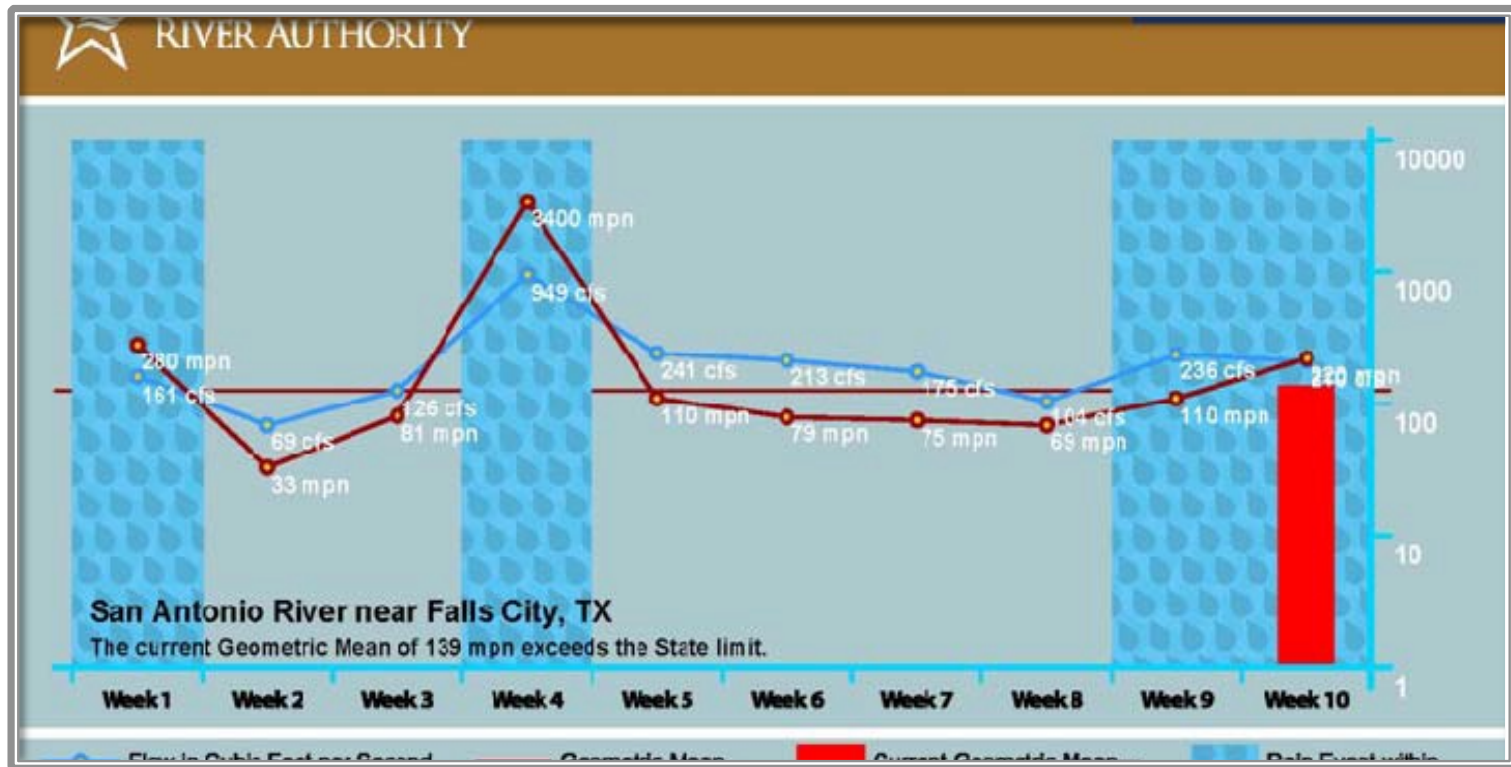




From USDA and Volunteer Water Quality Monitoring, March 2012



From USDA and Volunteer Water Quality Monitoring, March 2012



From USDA and Volunteer Water Quality Monitoring, March 2012



Integration & Application Network

Communicate better. Empower change.



<http://ian.umces.edu/>

EPA Region 2 Citizen Science Program

Thank You!!!! Questions?

Rachael Graham

Region 2 Citizen Science Coordinator

732-321-4438

Graham.Rachael@epa.gov

Jim Ferretti

USEPA Region 2 Laboratory

732-321-6728

ferretti.jim@epa.gov

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END OF PRESENTATION