



U.S. EPA Region 2 Citizen Science Program

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U.S. EPA Region 2 Citizen Science

What is Citizen Science?



U.S. EPA Region 2 Citizen Science

- ▶ Engage and Empower Communities to collect their own data and educate fellow citizens
- ▶ Participate in scientific process
 - ▶ Identifying research questions
 - ▶ Collecting & Analyzing Data
 - ▶ Interpreting Results
 - ▶ Expand scientific knowledge and literacy
- ▶ Region 2 Citizen Science Workgroup
 - ▶ Focused subcommittees
 - ▶ Air
 - ▶ Water
 - ▶ Puerto Rico & Virgin Islands



U.S. EPA Region 2 Citizen Science Trainings & Workshops

► 2012

Inaugural CS Workshop in NYC and NJ

► 2013

Credible Data Training (NYC, NJ, Buffalo) & MyEnvironment Webinars

► 2014

2-Day Caribbean Science/Citizen Science Workshop

ORD RARE Project with ORD, Region 2, Ironbound Community in Newark, NJ

► 2015

Launch of Equipment Loan Program & Training (NYC, NJ, PR, VI)

► 2016

Equipment Loan Program Year 2 (NY/NJ – Spring, PR/VI – Summer/Fall)

U.S. EPA Region 2 Citizen Science 2012 Hometown Grants

- ▶ **Bronx River Alliance** – water quality monitoring to strengthen River Stewards Volunteer Monitoring Program
- ▶ **Cypress Hills Local Development Corporation (Cypress Hills & East New York)** – train local students w/air quality sensors (indoor air)
- ▶ **El Puente/Williamsburg Brooklyn** – train young people to collect water quality data
- ▶ **NY Harbor Foundation** – air/water monitoring to educate high school youth as CS volunteers
- ▶ **Sustainable South Bronx** – AirCasting Smartphone technology
- ▶ **St. Croix Environmental Association Vehicle Air Pollution Project** – train 30 St. Croix high school and university students collect & analyze vehicular traffic and air pollution data and develop recommendations based on their research

Tonawanda Case Study



U.S. EPA Region 2 Citizen Science Equipment Loan Program

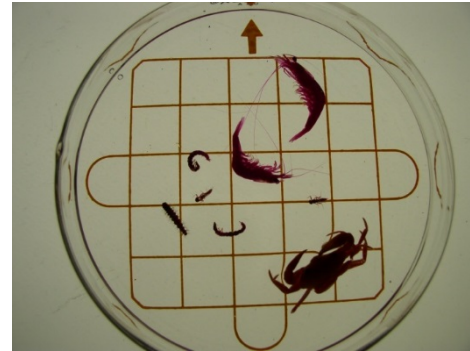
- ▶ Open to all citizen scientists/community groups in U.S. EPA Region 2 (New York, New Jersey, Puerto Rico, and the US Virgin Islands) and Tribal Nations throughout Region 2
- ▶ Successfully launched in 2015 for water quality meters
 - ▶ Spectrophotometer (Colorimeter) – Nutrient & Chemical analysis
 - ▶ YSI meters – Temperature, pH, Conductivity, Salinity
 - ▶ GPS units
 - ▶ Turbidity Tubes
- ▶ For 2016 program Bacteriological (Pathogens) added for analysis of Enterococcus, Total Coliforms, E.Coli
 - ▶ NY/NJ application period complete
 - ▶ PR/VI to launch in summer!
- ▶ **Potential expansion into Air monitoring and Trash-Free Waters equipment**



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Puerto Rico National Monitoring Day

- ▶ Coordinated by the San Juan Bay Estuary Program
- ▶ The World Water Monitoring Challenge provided kits for 4 water quality parameters to be used at over 150 sites in Puerto Rico:
 - ▶ pH (Acidity)
 - ▶ Dissolved Oxygen (DO)
 - ▶ Turbidity (Clarity)
 - ▶ Temperature
- ▶ EPA Region 2 will provide training on 2 additional water quality tests:
 - ▶ Benthic macroinvertebrate (stream insect) analysis
 - ▶ Measuring bacteria in surface water samples



U.S. EPA Region 2 Citizen Science Puerto Rico National Monitoring Day

- ▶ Bacteria one of the main pollutants not meeting water quality standards in ambient water samples in Puerto Rico
- ▶ Pilot Bacterial Screening Test with 20 volunteers in San Juan Bay Estuary for e.coli using 2 test types:
 - ▶ Compartment Bag Test – inexpensive, simple equipment
 - ▶ Colilert by Idexx with Quantitray
- ▶ Split analysis using both test types
 - ▶ If compartment bag yields comparable results, may be included in next year's Monitoring Day test kits



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Puerto Rico National Monitoring Day

- ▶ Aquatic macroinvertebrates used in established monitoring programs in US and Europe to make water quality determinations
 - ▶ Macroinvertebrates of streams and rivers include:
 - ▶ insects (caddisflies, beetles, dragonflies)
 - ▶ crustaceans (shrimp, crayfish, crabs)
 - ▶ mollusks (snails, mussels, clams), and worms
 - ▶ Typically collected with fine mesh nets
- ▶ EPA training volunteers throughout Puerto Rico on sample collection, evaluation and interpretation
- ▶ Potential expansion of programs into Caribbean



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Future Efforts in Trash-Free Waters

- ▶ Assess potential TFW needs within Region 2
 - ▶ Additional equipment loan program
 - ▶ Monitoring events
 - ▶ Workshops
 - ▶ Training
 - ▶ Standard practices
 - ▶ Quality Assurance
- ▶ Want to hear from public on gaps and desires



U.S. EPA Region 2 Citizen Science Quality Assurance

- ▶ To ensure that environmental information collected and/or used by Citizen Scientists is useable and credible.
- ▶ A Quality Assurance Project Plan (QAPP) documents the project planning process.
- ▶ It provides in one document, a clear, concise and complete plan for describing the environmental information collection and/or use activities associated with a project.



U.S. EPA Region 2 Citizen Science Current and Future Efforts

- ▶ **Interdivisional Citizen Science Workgroup Established**
 - ▶ Three Workgroup Subcommittees: Air, Water and Puerto Rico/U.S. Virgin Islands
 - ▶ Region 2 Program Office Staff
 - ▶ State Representatives – New York & New Jersey
 - ▶ Regulatory Agency in Puerto Rico – Environmental Quality Board
- ▶ **Created Charter to Drive the Workgroup**
 - ▶ Addressing the Regional Administrator's Critical metrics

U.S. EPA Region 2 Citizen Science Citizen Science Efforts



U.S. EPA Region 2 Citizen Science Final Thoughts



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Questions?

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