MONITORING CAPACITY AND VOLUNTEER MONITORING CONTRIBUTIONS: WHAT IS NEEDED FOR NEXT STEPS

Peter Tango
STAR Coordinator,

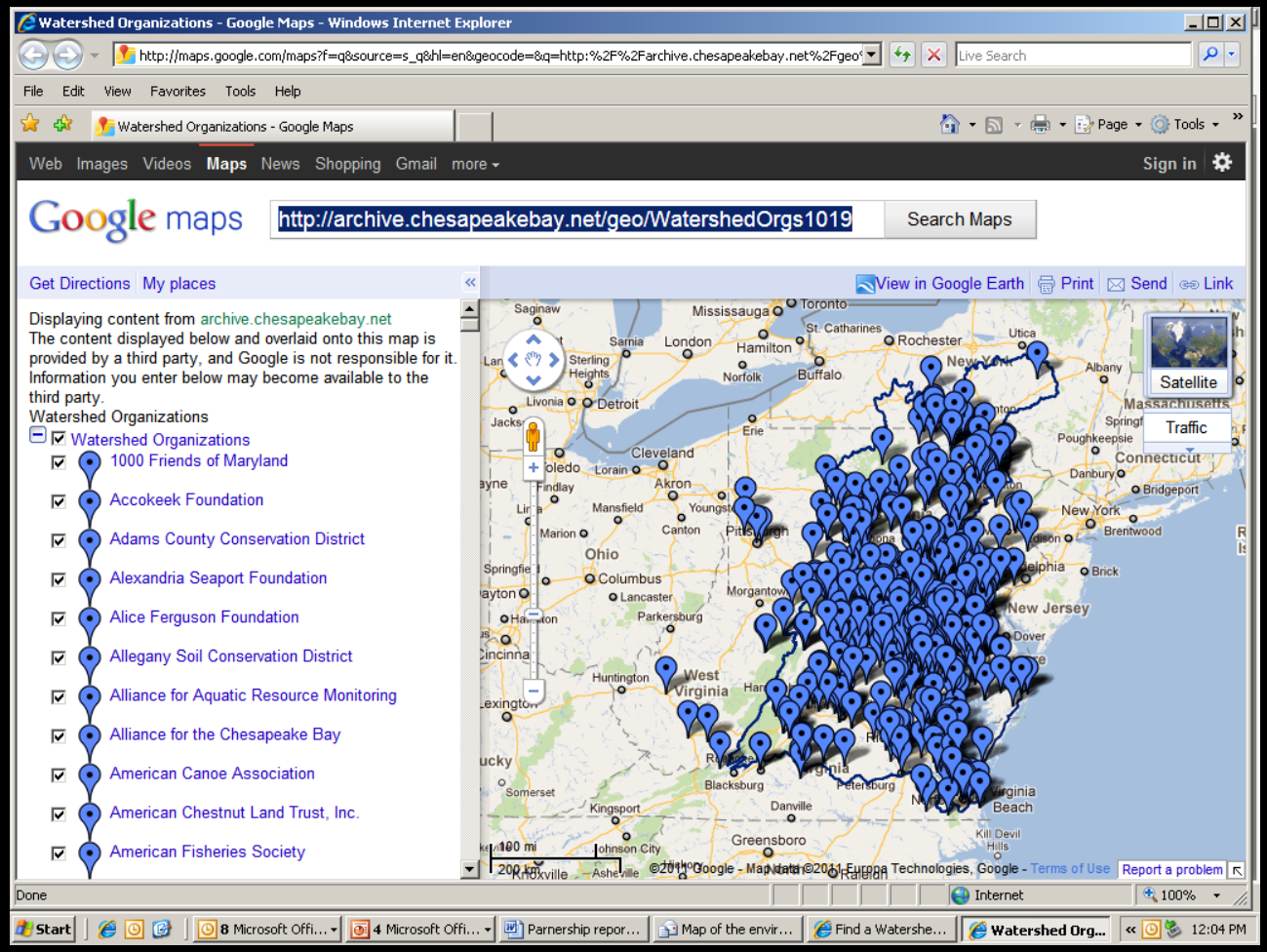
STAR Meeting

June 22, 2017

OVERVIEW

- Highlighting work underway within the CBP partnershap for Capacity Building.
- Recognize volunteer support opportunities to fill monitoring needs of GITs for their outcome indicators and ‘factors influencing’ assessments.

What we have today:



A large volunteer monitoring community!

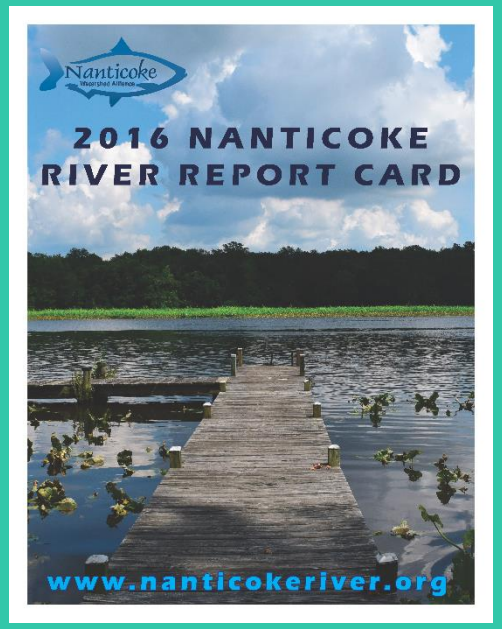
Putting the Band Together: Citizen Scientists are the Rock Stars of the Monitoring World

Beth Wasden, Volunteer and Outreach Coordinator, Nanticoke Watershed Alliance

NANTICOKE CREEKWATCHERS PROGRAM

Field:
DO, Secchi depth and total water depth, salinity, and water temp

Lab:
TP, TN, chlorophyll a, and bacteria



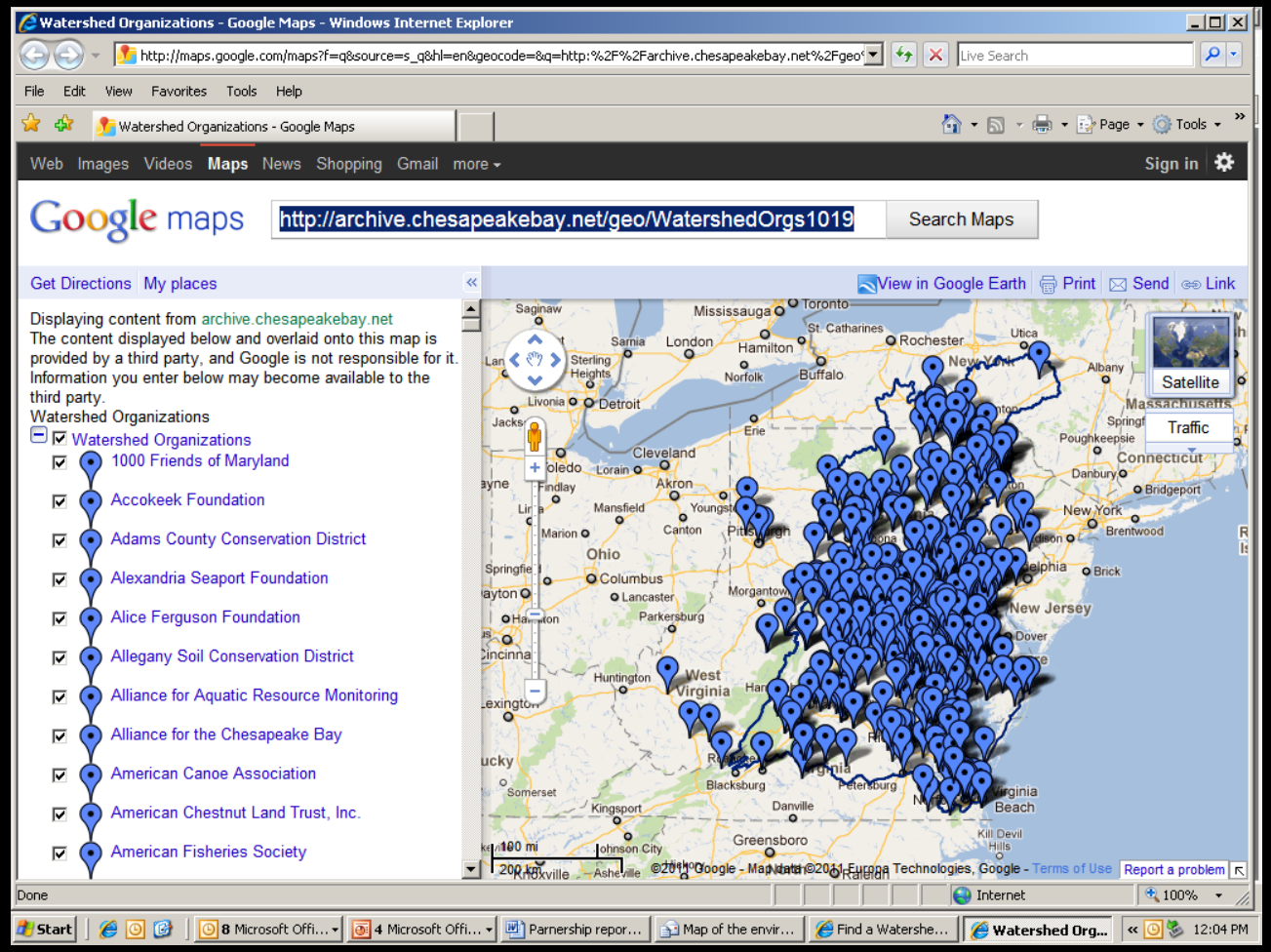
- 2017=tenth year
- Volunteer-driven program that obtains scientifically-credible, long-term data
- EPA-approved QAPP | Tier 3 (Tidal)
- 36 sites
- 40 Creekwatchers/ over 1,000 hours annually

I want to volunteer all night, and Creekwatch every day!

THE ROCKSTAR METHOD

- **R**ealize the program vision
- **O**rganize effectively
- **C**ommunicate
- **K**ick it off right!
- **S**upport
- **T**rain, train, and train again
- **A**ssess and adapt
- **R**etain your volunteers!

What we have today:

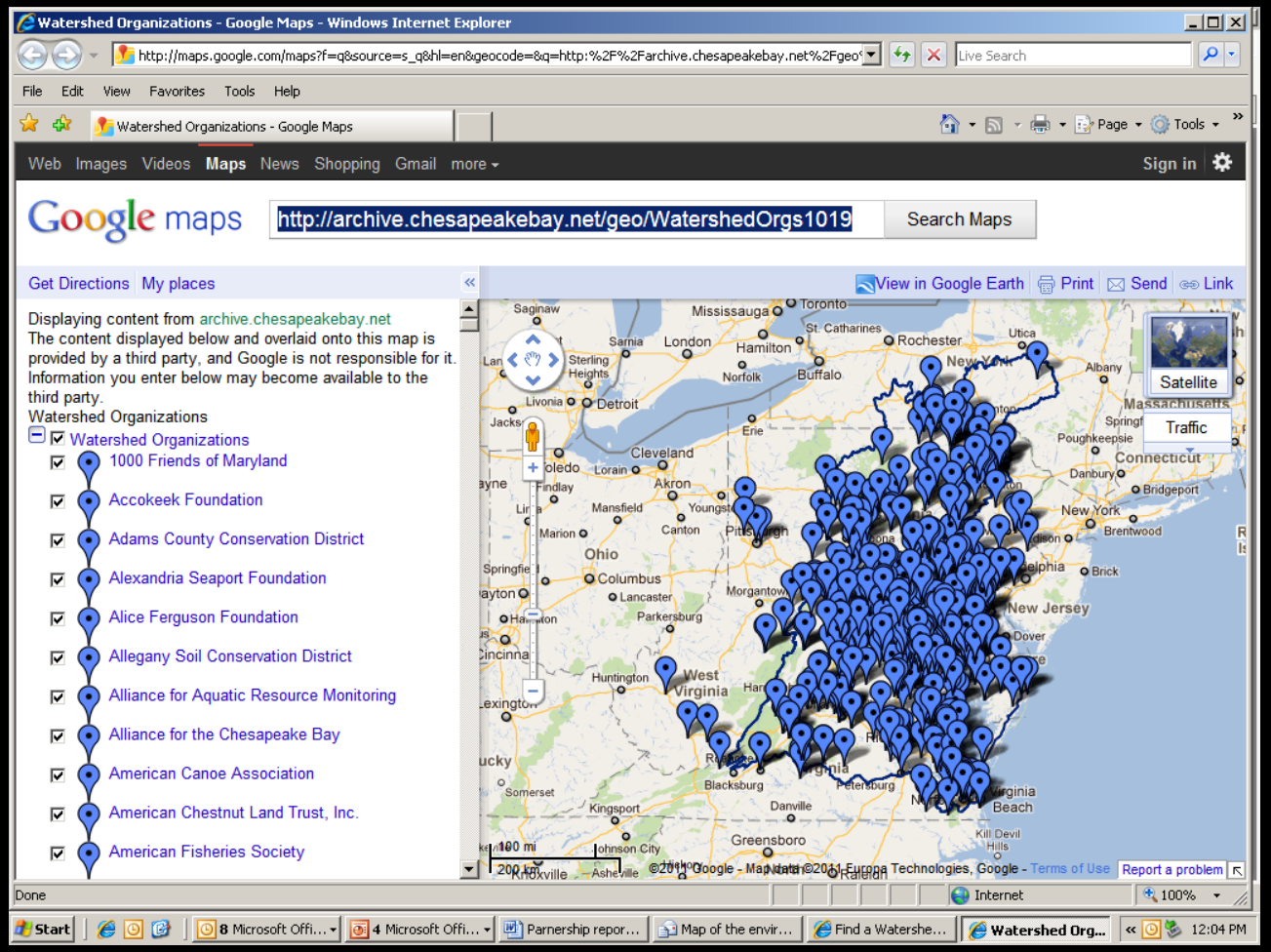


Volunteer monitors

The Chesapeake Monitoring Cooperative

CMC

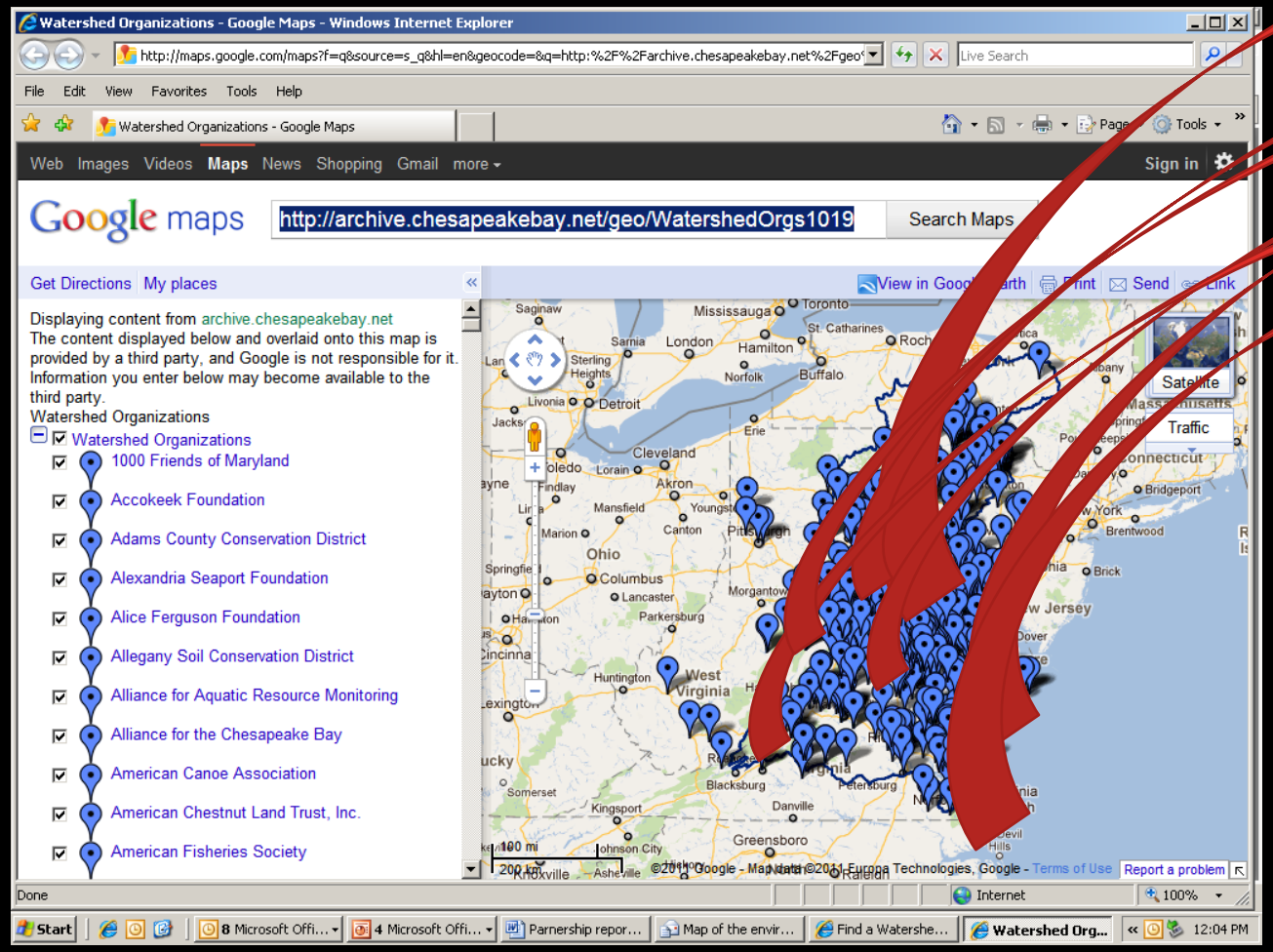
The Chesapeake Monitoring Cooperative



CMC

CMC Services:
QA/QC guidance
Monitoring Methods
FAQs
Training

The Chesapeake Monitoring Cooperative



Dissolved oxygen

bacteria

bugs

Conductivity

pH

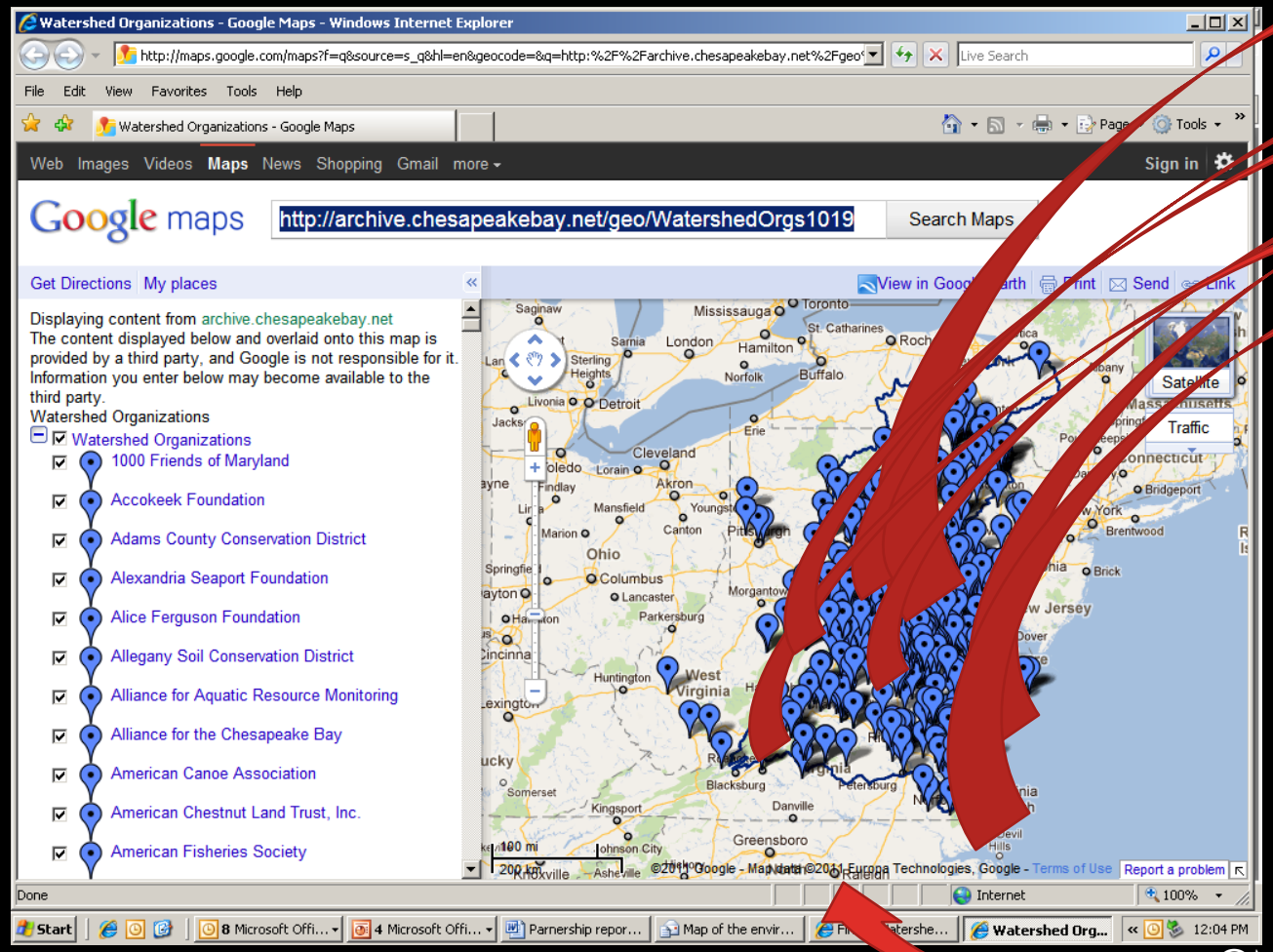
Temperature

CMC Database Of Volunteer Monitoring Data

The CMC Data Universe

CMC Services:
QA/QC guidance
Monitoring Methods
FAQs
Training

The Chesapeake Monitoring Cooperative



Dissolved oxygen

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CMC Services:
QA/QC guidance
Monitoring Methods
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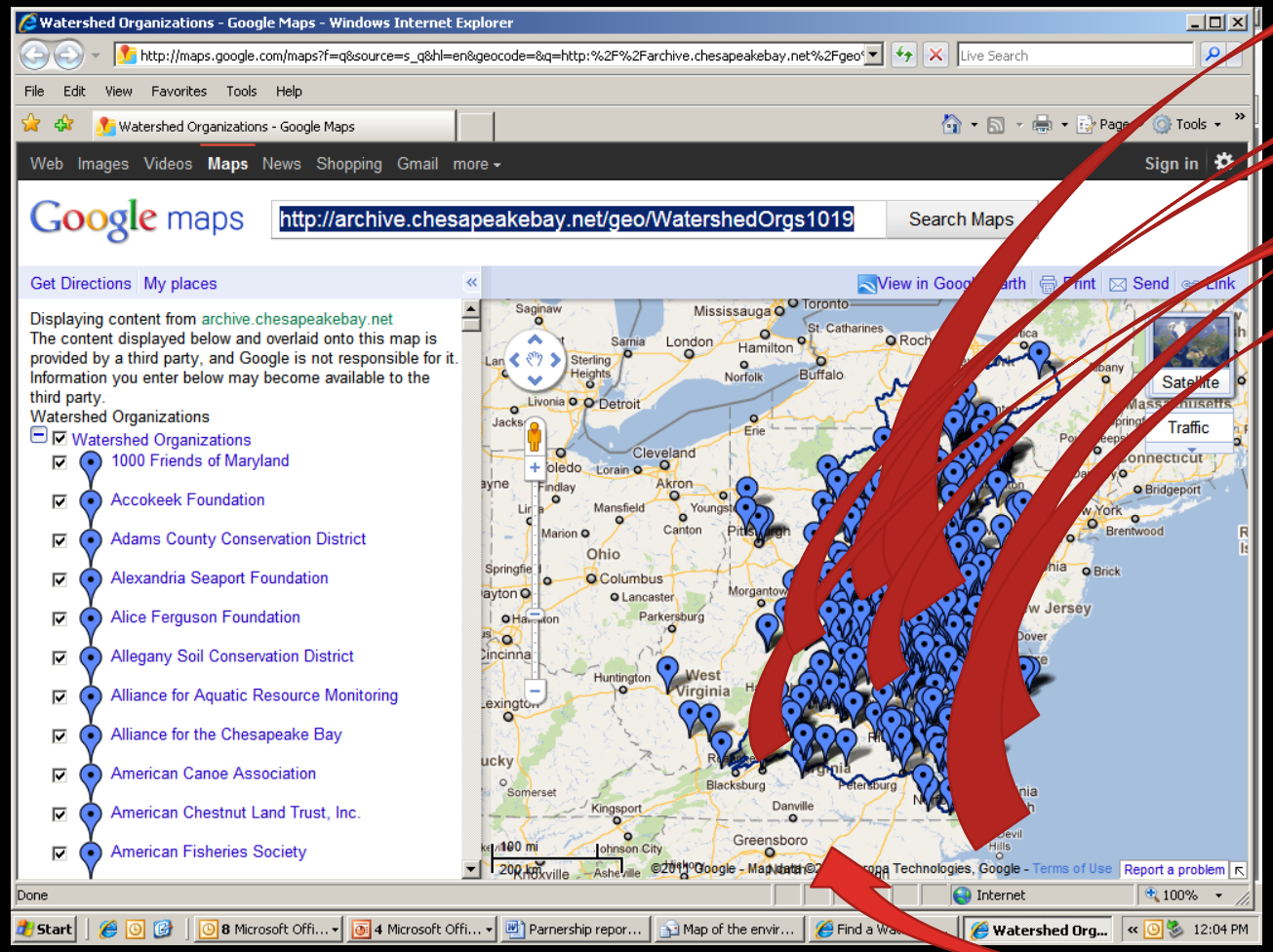
Training

CMC Feeds back to monitoring individuals & groups

Issue?

Our platform provides the tools to do the work, but not specific directions on specific work needed to supports management decisions.



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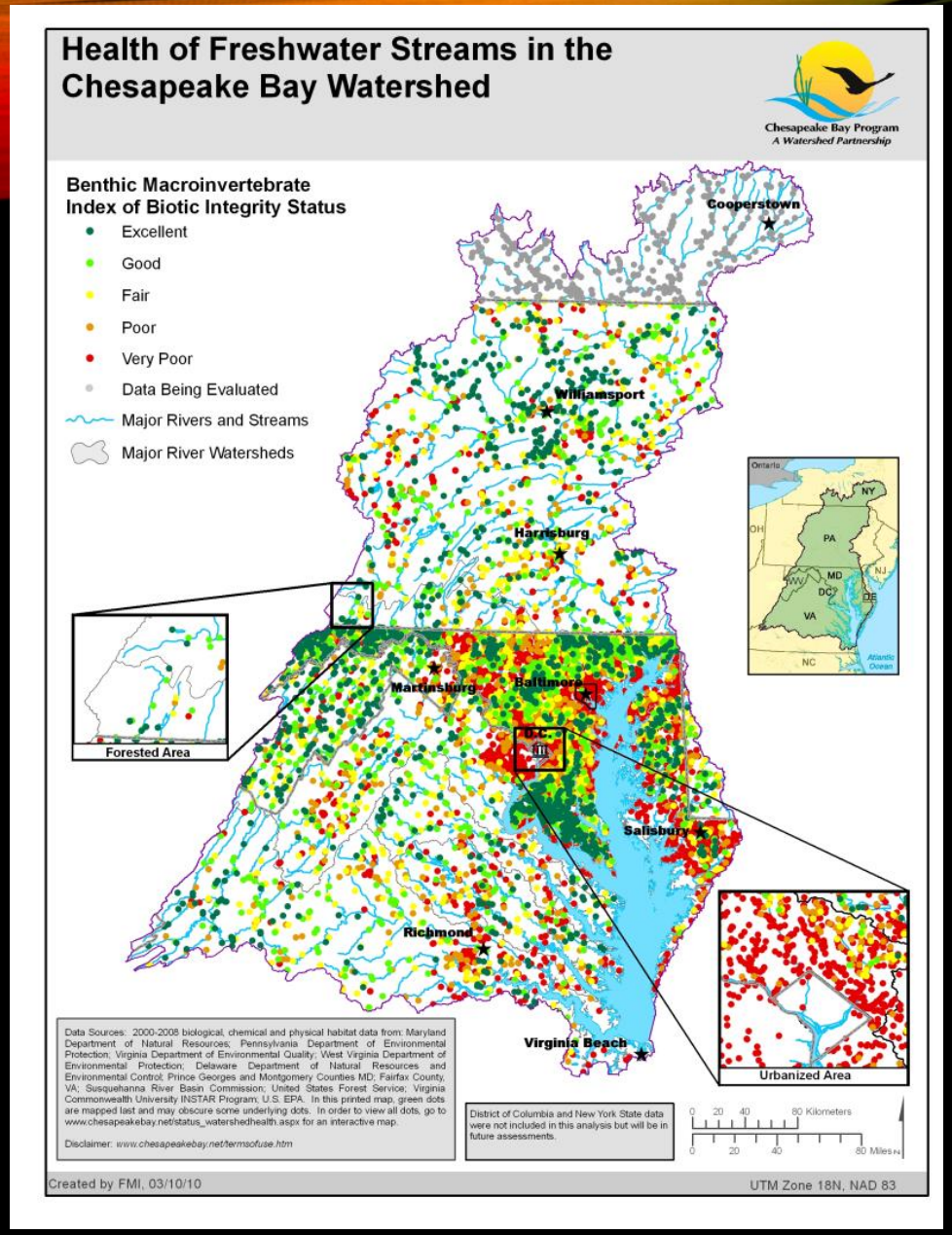
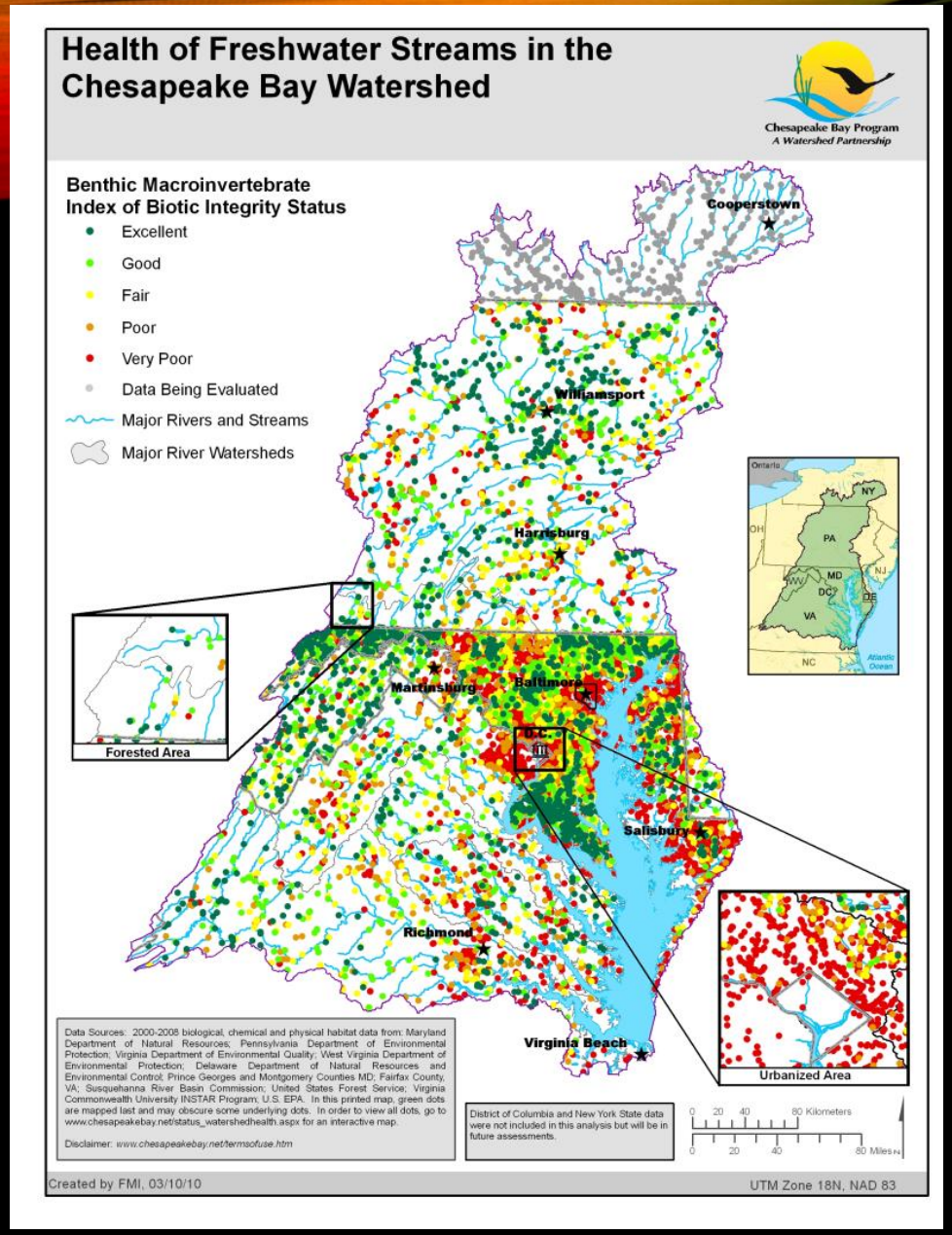


Example of the issue:

- There are over 25,000 macrobenthic invertebrate samples in our database.
- There is a 2014 Bay Agreement goal of improving the health of 10% of the stream miles in the watershed by 2025.
- How many of these samples are providing information for evaluating progress towards that goal?



- How many of these samples are providing information for evaluating progress towards that goal?

Survey says…**MAYBE NONE**.

Why? ***Because this is an amalgamation of data, not data collected under a pre-determined study design to address a specific management question.***

HOW DO WE OVERCOME SUCH MISMATCHES BETWEEN DATA COLLECTED AND DATA USED?

GAP ANALYSIS!

GAP ANALYSIS!

Oh, wait, we have that.

CBP Gap Analysis output (Source: Laura Free, Status and Trends WG)

Topic Area/Outcome	Status	Needs
Water Quality	• Established CBPO monitoring program • Other monitoring programs occurring (not incorporated)	• Increases in spatial and temporal scale for use in CBPO Water Quality Standards • Collaboration/data quality assurance between various water quality collectors
SAV	Aerial surveys & ground surveys	Continuation of sampling and possible collaboration
Fisheries (Fish Habitat/Forage Fish/Oysters)	• Oyster restoration projects and monitoring • Forage Fish and Fish Habitat metrics are TBD • Some data collection occurring	• Oysters: Continuation of surveying in future • Increased sampling to populate metrics of Forage Fish & Fish Habitat (what, where, when?)
Toxic Contaminants	• Various samples taken/analyzed	• Increased spatial and temporal sampling of fish toxic sampling • Database
Stream Health	• Benthic sampling	• Additional parameters to be considered for stream health

GAP ANALYSIS II

- CMC: Prioritization Report on State/DC jurisdictional data needs.

WHAT ARE THE PIECES OF OUR PROGRAM?

Volunteers

(Data Collectors)

GITs

(Monitoring Information Needs – Gap Analysis Guide)

Chesapeake Monitoring Cooperative

(Data Harvesters Trainers)

WE NEED PROJECT DIRECTIONS (I.E., RECIPES) TO MAKE THE PIECES FIT TOGETHER

Volunteers

(Data Collectors)

Project Instructions

- What data to collect
- How to collect it
- Where to collect it
- When to collect it
- How often to collect
- Duration of data collections

GITs

(Monitoring Information Needs – Gap Analysis Guide)

Chesapeake Monitoring Cooperative

(Data Harvesters
Trainers
QA)

Present Model

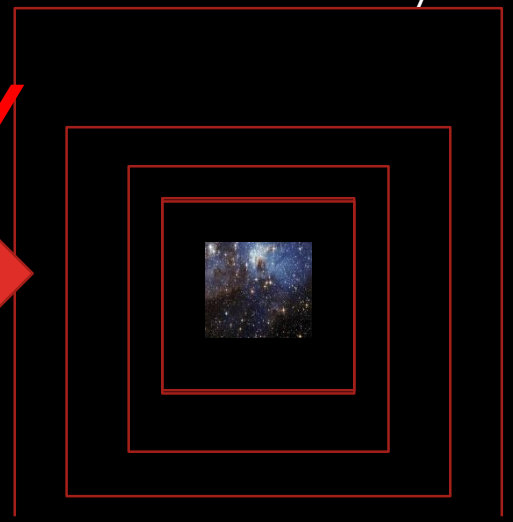
Volunteer And Nontraditional Partner Data Stream

Local Projects

The Data Vortex

The Data Filter

Filtered Data Set
Size depends on how well the data meet analyst needs



Present Model

Volunteer And Nontraditional Partner Data Stream

Local Projects

The Data Vortex

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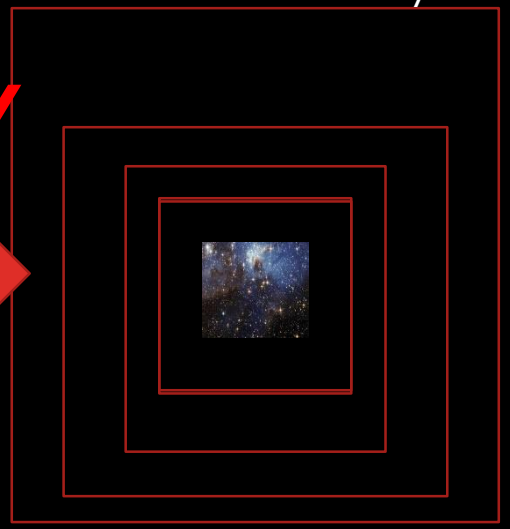
EXPLORATORY MODEL

The CMC Data Universe

Filtered Data Set
Size depends on how well the data meet analyst needs



Built Out Model
Watershed-wide Projects

Volunteer And Nontraditional Partner Data Stream

Project 1

Project 2

Project 3

DIRECTED MODEL

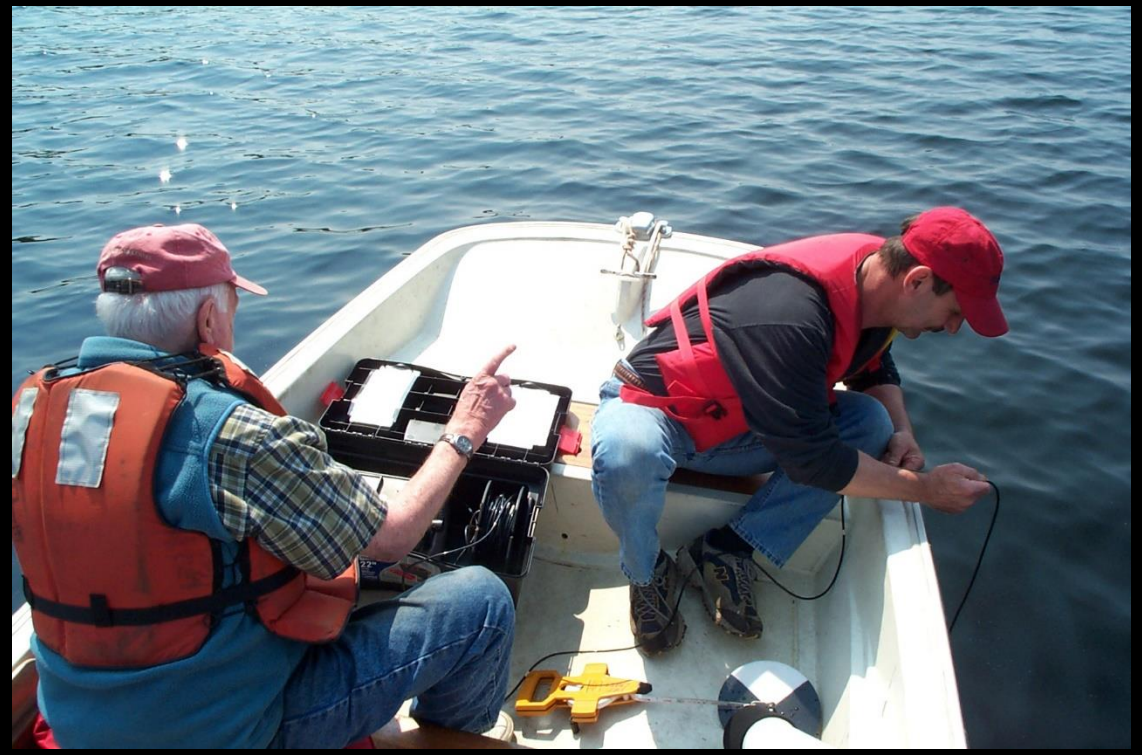
The CMC Data Universe With CBP Project Focused Data Inputs

Filtered Data Set
Project specific protocols
Data meets analyst needs

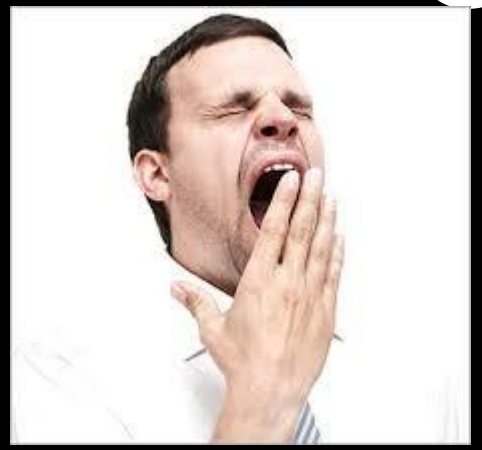
Project 1

WEBSITE: WE NEED A PROJECT PAGE.

- First Project: Dissolved Oxygen Profiles are needed!



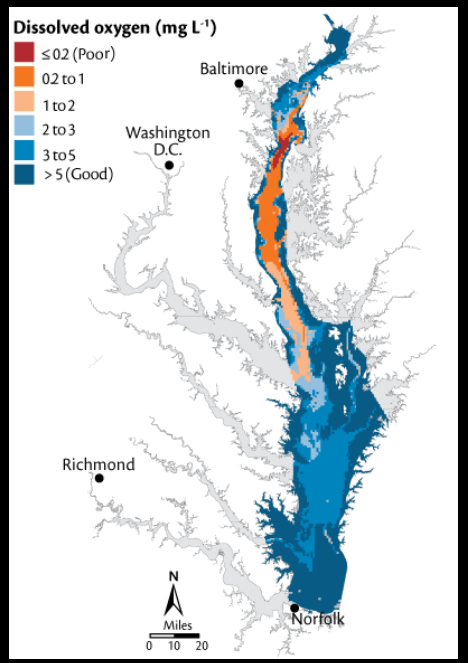
Exciting?



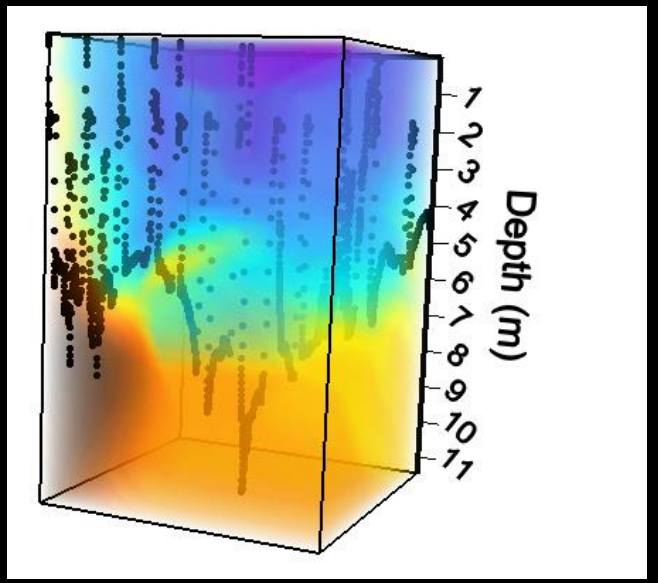
Maybe not so much… but…

WE NEED SOME CREATIVE PROJECT DEVELOPMENT AND MARKETING!

- First Project: ~~Dissolved Oxygen Profiles are needed!~~
- ***The Dead Zone Hunters Club! Discover dead zones in your tributary!***



Chesapeake Dead Zone



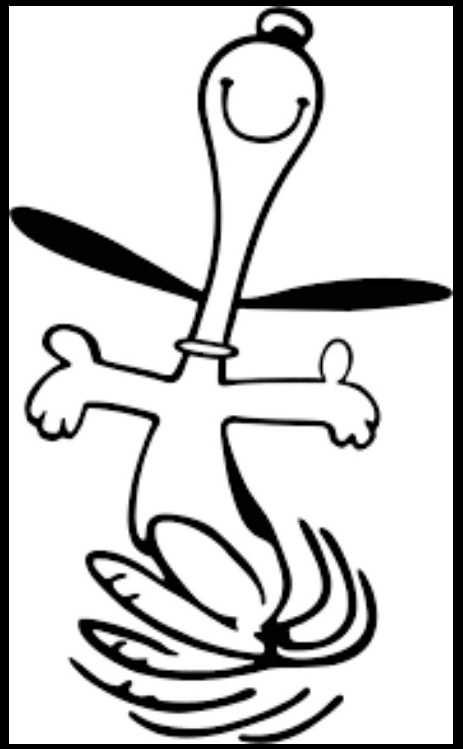
Severn River Dead Zone!

WEBSITE: WE NEED A PROJECT PAGE.

- Second Project: Fixed Site Macroinvertebrate Trend sites are needed.

WEBSITE: WE NEED A PROJECT PAGE.

- Second Project: Chesapeake's Annual Bug Bioblitz!



YAYYYYYYY!


scistarter™
Science we can do together.
Search
log in
sign up
My Account
Project Finder
Event Finder
Calendar
FIND A PROJECT
Find a location
enter a location
842 PROJECTS and GROWING
CITIZEN SCIENTISTS ARE
USING SCIENCE TO ADDRESS
LOCAL AND GLOBAL PROBLEMS

Blue Catfish Watch
Chesapeake Bay

SquirrelMapper

Lionfish Watch

Chesapeake Bay Parasite Project – mud crabs

Bat tracker (Norfolk, VA)

Bay 100 BMP Monitoring Project
Choptank River, Delaware

Weather Change in Bellefonte, PA

Plant Census at Smithsonian's Global Change Research Wetland

Blue Ridge Biodiversity Mapping

DC/Baltimore Cricket Crawl

Maine Guidance for Reducing Homeless Cats – monitor cat management on unowned cat populations

Sparrow Swap – active bird management

Florida Microplastic Awareness Project

North Carolina KING TIDES PROJECT

Backyard Bark Beetles

Presented By	University of Florida/IFAS
Goal	Monitor bark & ambrosia beetles
Task	Trap & send beetles for ID. See what you caught on a live map!
Where	Global, anywhere on the planet

Crabwatch – monitoring crabs and track climate change

TreeKIT – measure/map urban forests

Landscape Watch – track landscape change

Goal	Collect hydrological data for modelling
Task	Collect water levels, stream flow data and soil moisture
Where	Global, anywhere on the planet

West Oakland Environmental Indicators Project

Goal	Achieve healthy homes, jobs, and neighborhoods in West Oakland.
Task	Walk and collect air quality data wi a wearable sensor

Globally recognized template – Don't recreate the wheel.

North Carolina King Tides Project

Main Project Information

Goal	Documenting high water events in North Carolina
Task	Photograph high water and flooding events
Where	North Carolina, United States of America
Description	The North Carolina King Tides Project is an initiative to photo-document nuisance flooding events. We are looking for photos of high water levels driven by forces such as heavy rains, storms, wind, and king tides. These photos are valuable in helping communities understand vulnerabilities to coastal flooding, and can help us visualize what a future of sea-level rise may look like. This data will inform community planning and spread awareness of local flooding impacts. Remember to be careful - your safety is more important to us than any photo! Read More
How to Join	Interested participants can visit our website and simply submit a photo: http://nckingtides.web.unc.edu/how-to-participate/taking-photos/
Website	http://nckingtides.web.unc.edu/
Social Media	•Facebook •Blog
Ideal Age Group	Elementary school (6 - 10 years), Middle school (11 - 13 years), High school (14 - 17 years), College, Graduate students, Adults, Families, Seniors
Ideal Frequency	Per month
Spend the Time	outdoors
Type of Activity	In oceans, streams, rivers, lakes, While fishing, On a hike, At the beach, On a walk, run, On a lunch break
Training Materials	http://nckingtides.web.unc.edu/plan-your-photo-shoot/
Class Materials	http://nckingtides.web.unc.edu/motions-of-the-ocean-lesson-plan/
Media Mentions and Publications	•Public Invited to Help Document King Tides
Tags	aquatic, coast, flooding, hurricanes, king tides, ocean, photos, sea level rise, storm surge, tides, water level
Project Updated	06/06/2017

NEXT STEPS

- STAR Workgroups (IMN WG and DIWG) will be developing a project template
- STAR Workgroups developing 1-3 examples of projects.
- STAR and its workgroups will continue coordination with the CMC on implementing projects for directed, watershed-wide data collections.
- STAR working with STAC on cross-GIT integrated management questions to guide prioritization of project development.
- GITs and their Workgroups are continuing efforts on workshops to define indicators, metrics and parameters that monitoring capacity will be needed.
- GITs should consider in their RFP funding requests to have funding for support in developing study designs that address existing capacity and highlight spatial/temporal gaps. This design information can then be used to derive projects that volunteers/citizen scientists/nontraditional partners can make contributions to.

NEXT STEPS

- STAR Workgroups (IMN WG and DIWG) are developing a template for projects
- STAR Workgroups developing 1-3 examples of projects and project pages
- STAR and its workgroups will continue coordination with the Chesapeake Monitoring Cooperative on implementing projects for directed data collections.
- STAR working with STAC on integrated management questions that cut across GIT interests that will then guide prioritization of project development
- GITs and Workgroups continue efforts on workshops to define indicators, metrics and parameters that monitoring capacity will be needed
- GITs consider in their RFP funding requests to have funding for support in developing study designs that will meet their decision-making support information needs – include assessments of existing capacity and spatial/temporal gaps. This information can then be used to derive projects that volunteers/citizen scientists/nontraditional partners can make contributions to.