

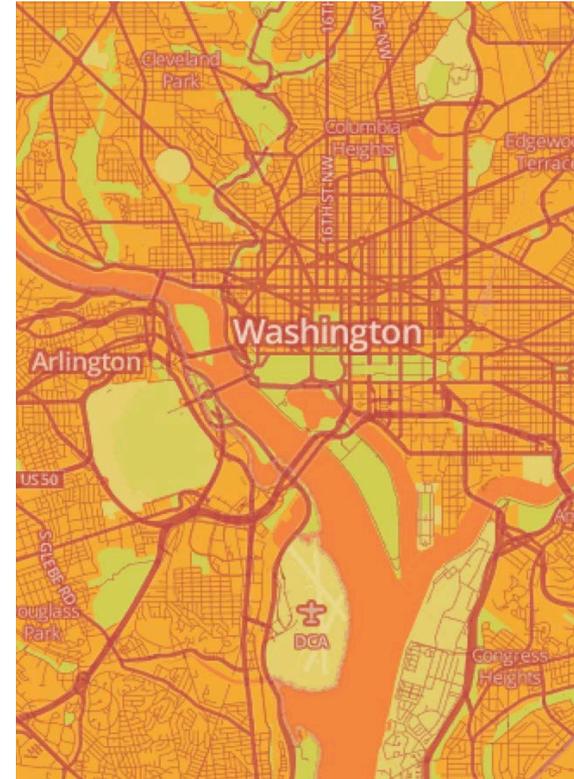
Data Visualization: Best Practices and Cost Effective Strategies

Break Out Agenda

- Short overview of what we do at Chesapeake Commons
- Share why data storytelling is important
- Data storytelling process and prep
- Identifying key elements of a data story
- Data collection strategies
- Wrap up, discussion, and questions

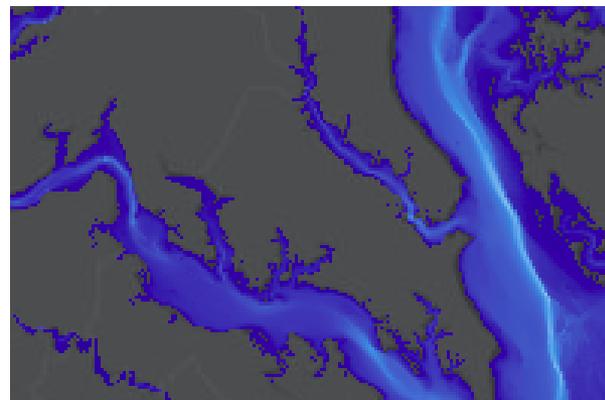
About Chesapeake Commons

- Small web cartography shop based in Washington DC that combines thoughtful design with new technologies
- Empower Bay restoration stake holders to **cost-effectively** design and build data-driven visualizations
- Construct custom native apps for iOS that help stakeholders crowd source data.
- We use a combination of ArcGIS Online and open source frameworks to tell data stories



What is a data story?

- A combination of narratives and visuals that explain underlying patterns
- Visuals can be maps, charts, or a combination of both
- Story Maps can be simple cartographic representations or complex comparisons
- Not to be confused with data portals or data access applications.



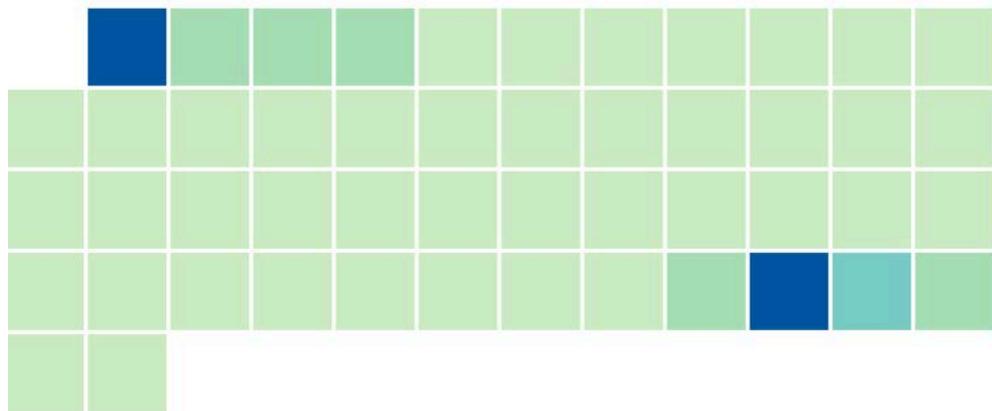
Why a data story approach?

- Small watershed organizations can afford robust data visualization
- Affordable data visualization **frees up dollars for restoration action**
- Makes information accessible to your audience
- Encourages data interpretation
- The time is right
 - Open source technologies make it possible to create stylish and functional maps and informational graphics at low cost
 - Powerful code libraries reduce the burden on programmers which saves time and money ([D3](#), [Leaflet](#), and [Open Layers](#))
 - It's only going to grow and get easier

Data Building Blocks

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Building Our Visualization



Data Building Blocks

- Identify the attributes you have or need

Latitude	Longitude	Title	Short_Desc	Address	Hours	Desc1	Desc2	Desc3	Desc4	Desc5	Website	Type
39.54	-77.47	Bladensburg Waterfront Park	The unique waterfront offers a public boating ramp and floating docks accessible to paddlers and skiffs			This park is a part of both the Star-Spangled Banner and Captain John Smith Chesapeake National Historic Trails and is preserved at the site of the pivotal Battle of Bladensburg during the War of 1812.	The unique waterfront offers a public boating ramp and floating docks accessible to paddlers and skiffs. Canoes and kayaks are both available to rent and free interpretive pontoon tours offers visitors a chance to explore the scenic river. A bridge makes this park accessible to hikers and bikers along the Anacostia Tributary Trails.	Open daily from 7 am to sunset. Actual daily closing time varies seasonally and is posted next to the park entrance road. Closed on Thanksgiving, Christmas, and New Year's Day.			http://www.pgplandscapes.com/Things_To_Do/Nature/Bladensburg_Waterfront_Park	Heritage
38.92	-76.95	Federal Boundary Stone NE 7	These early markers survive as the oldest federally placed monuments in the United States			In 1790, as a compromise between Northern and Southern interests, Congress	In 1792, George Washington had Andrew Ellicott and his assistants, including				http://www.boulders.com	Heritage

A Curated Watershed Template

Wildlife of the Chesapeake Landscape National Parks Conservation Association

The Chesapeake watershed is home to thousands of species of plants and animals protected by over 50 national parks. Explore the wildlife of the Chesapeake Bay and learn how protected lands are preserving these fragile habitats.



Wildlife of the Chesapeake Landscape

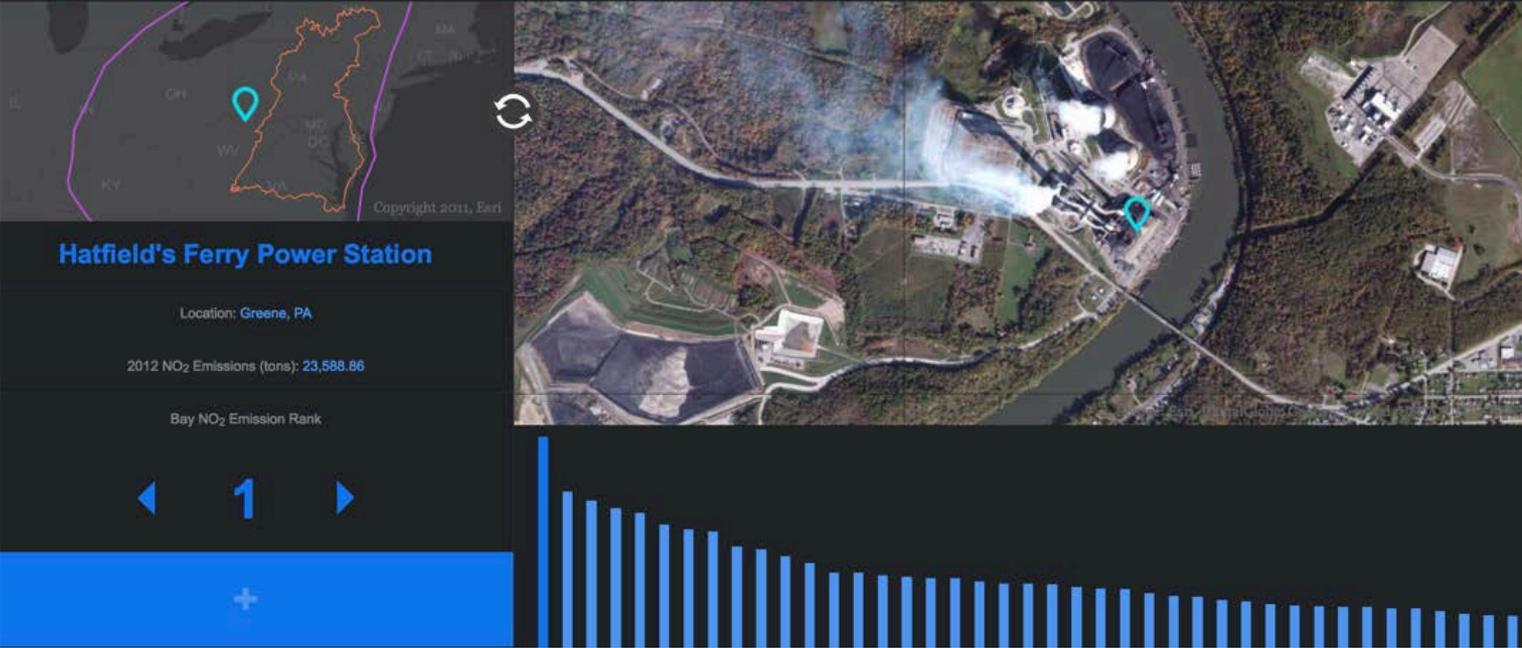
The 64,000 square miles of the Chesapeake landscape are connected by fragmented protected lands, including over 50 national parks and national historic water trails. Parks and trails connect habitat and allow iconic Chesapeake species to migrate and thrive.

- 1 Wildlife of the Chesapeake Landscape
- 2 Eastern Brook Trout
- 3 Connecting submerged habitats
- 4 C&O Canal
- 5 Fort Mchenry Wetlands
- 6 Partnering to Restore Urban Habitat
- 7 Critical Connected Landscape
- 8 Rappahannock River Valley
- 9 Patapsco Aquatic Connectivity
- 10 American Eel

Code Your Own

Top Fifty Mono-Nitrogen Oxide Emitters in the Chesapeake Bay Airshed

In 2012, stationary electrical generation units in the Chesapeake Bay airshed generated over 444,000 tons of NOx emissions. Here is a look at the top fifty plants.

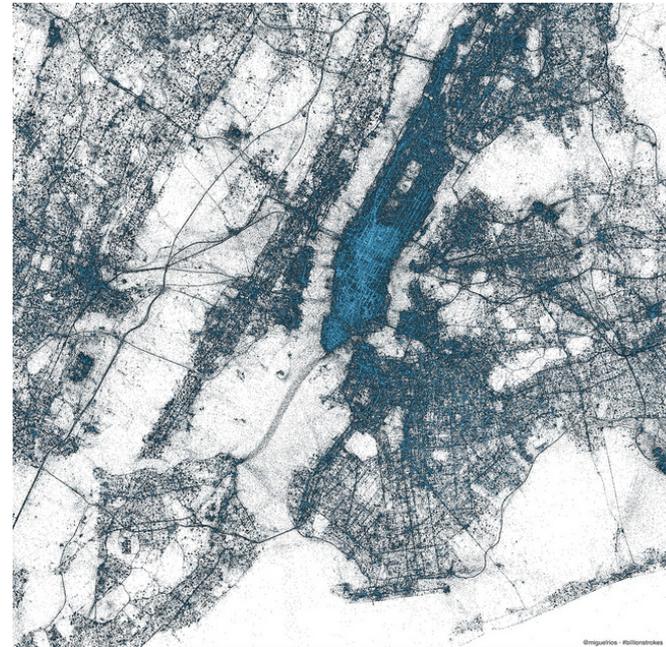


Key Components of a Story Map

1. Story: The concept or message that a map is intended to communicate
2. Supplemental Text: Brief and to the point
3. Spatial Data: Only the locations and attributes that support your story
4. Cartography: Attractive and understandable representation of your spatial data
5. Supporting Content: Popups, graphs/charts, and images...not too much!
6. User Experience: Design and presentation of interactive functionality
 - Fancy bells and whistles do not equate to a good story
 - And..If you have to explain how to use it, it's too complex

Story Mapping Process

1. Planning: Identify the story you want to tell, storyboard it, and identify each data set you have and will need
2. Gathering: Pull together all resources you need before building a map
3. Browse: Look at how others tell their stories and identify what can be done in house and where you may need help
4. Build: put the pieces together, test, and publish
5. You're never done!



Crowd Sourced Data: Water Reporter

- Developing low cost data collection Apps for iOS
- Water Reporter expedites getting data from citizens to advocates/agencies
- Emphasis on building apps that increase engagement and have positive environmental outcomes
- Build on existing infrastructure for cost effective development



Questions and Discussion

<http://chesapeakecommons.org>