Locally Designated Impaired Waters of the Chesapeake Bay
- Web Map -

Current Business Case and Limitations

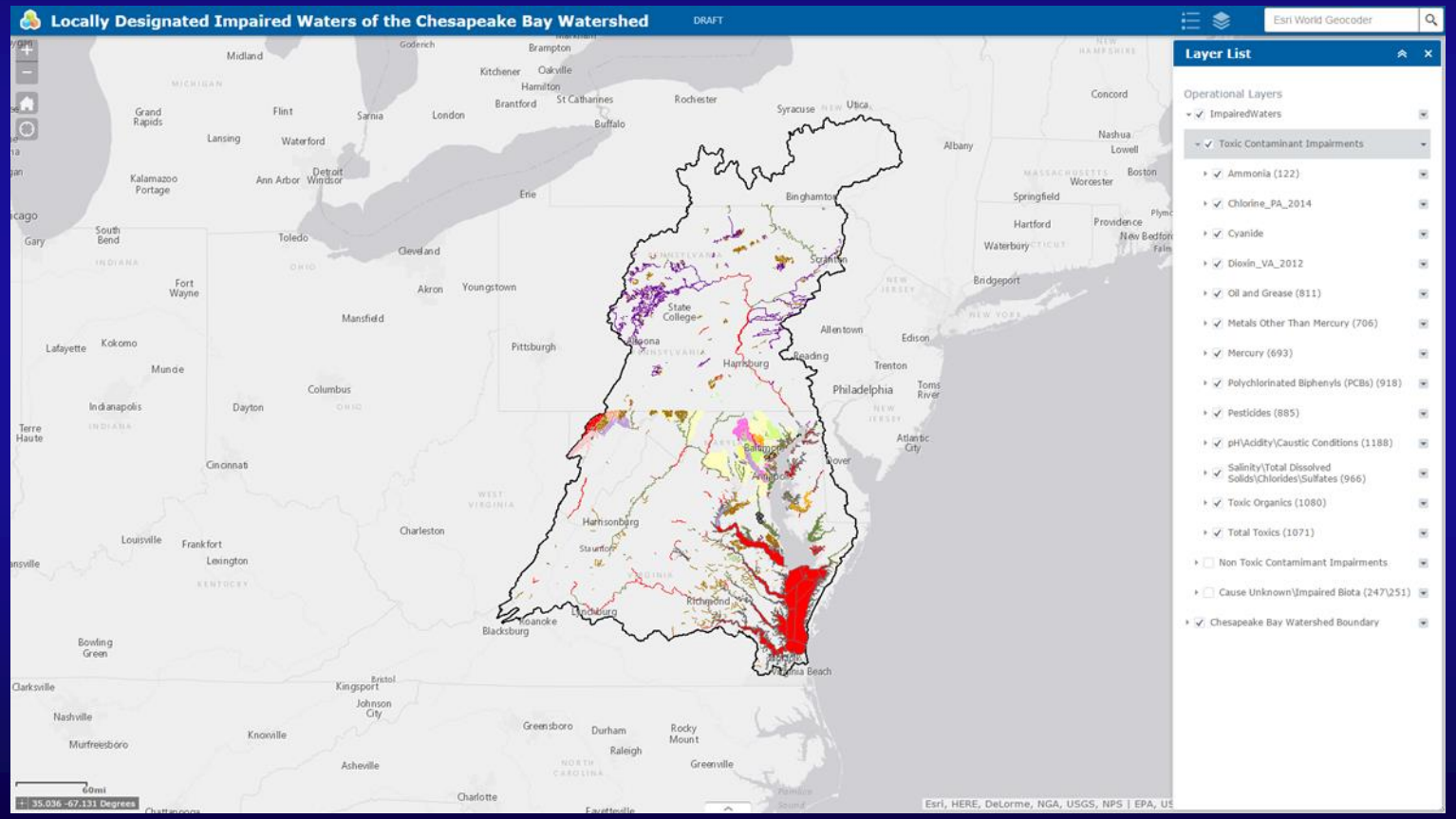
U.S. Department of the Interior
U.S. Geological Survey

Current Business Case

- Audience – Toxic Contaminant Workgroup
- Problem Statement – What is the extent of Toxic Contaminant pollution in the Chesapeake Bay Watershed?
- Product – A communication tool that illustrates all known areas affected by Toxic Contaminants
- How – Parsing the state derived Integrated Water Quality Reports by type of contaminant and displaying the GIS data on an interactive map.

Current Product

- http://gis.chesapeakebay.net/draftimpairedwaters/app.html



USGS

Limitations of Current Product

- Data structure limitations
  - All states structure data differently
    - This makes querying and displaying the data in new ways very time consuming
    - Inconsistent reporting in sources, listing categories, and designated uses.
  - Incomplete data entry
    - No water body name listed by state = blank space in pop up
  - Current data structure leads to limitations in ESRI templates
    - In order to have full table of contents expanded at time of opening, the layers will have to be individual services. Drawing from 20+ services decreases performance significantly.
- ESRI Web App Template limitations
  - Not intuitive for all users
    - Hard to find and export attribute table

Next Steps and Future Business Cases

- Toxic Contaminant Indicator
  - Impairment vs TMDL implementation trends
- Landscape analysis for impaired watersheds
- Source identification
- Other Ideas?

- Limitations of future products – Different reporting scales limit type of analysis we can do.

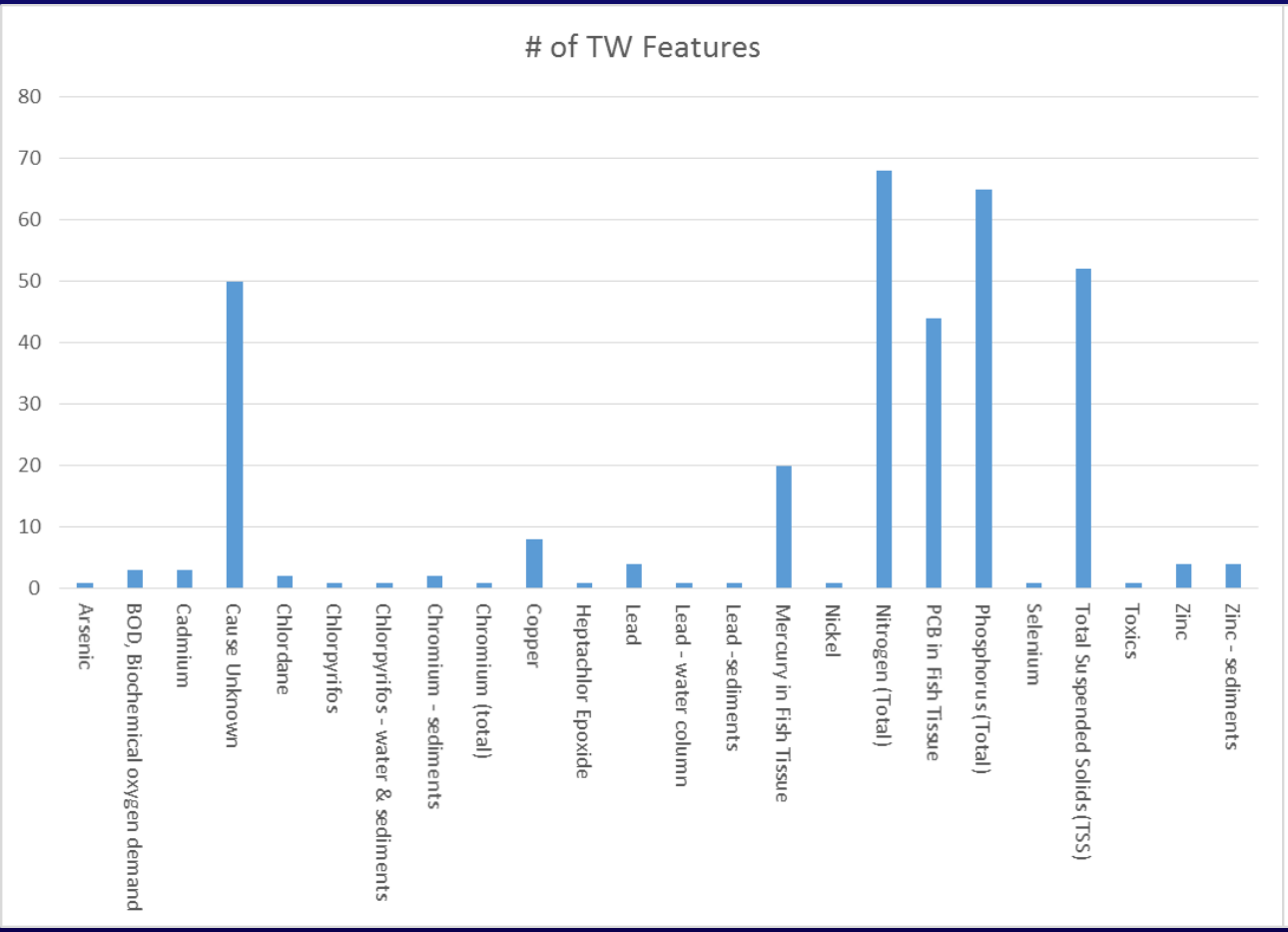
MD Tidal Water Assessments 2014				
OBJECTID	Pollutant	# of TW Featu	Size of Assessed TW Features	First_Size_Units
1	Arsenic	1	0.96	Square Miles
2	BOD, Biochemical oxygen demand	3	0.171	Square Miles
3	Cadmium	3	46.89	Square Miles
4	Cause Unknown	50	2490.45	Square Miles
5	Chlordane	2	6.335	Square Miles
6	Chlorpyrifos	1	47.03	Square Miles
7	Chlorpyrifos - water & sediments	1	1.7	Square Miles
8	Chromium - sediments	2	2.9	Square Miles
9	Chromium (total)	1	41.63	Square Miles
10	Copper	8	100.64	Square Miles
11	Heptachlor Epoxide	1	0.085	Square Miles
12	Lead	4	48.8	Square Miles
13	Lead - water column	1	4.32	Square Miles
14	Lead -sediments	1	1.3	Square Miles
15	Mercury in Fish Tissue	20	408.03	Square Miles
16	Nickel	1	4.32	Square Miles
17	Nitrogen (Total)	68	2451.215	Square Miles
18	PCB in Fish Tissue	44	1092.425	Square Miles
19	Phosphorus (Total)	65	2443.945	Square Miles
20	Selenium	1	0.03	Square Miles
21	Total Suspended Solids (TSS)	52	682.954	Square Miles
22	Toxics	1	2	Square Miles
23	Zinc	4	13.42	Square Miles
24	Zinc - sediments	4	7.4	Square Miles

Example from Maryland Data

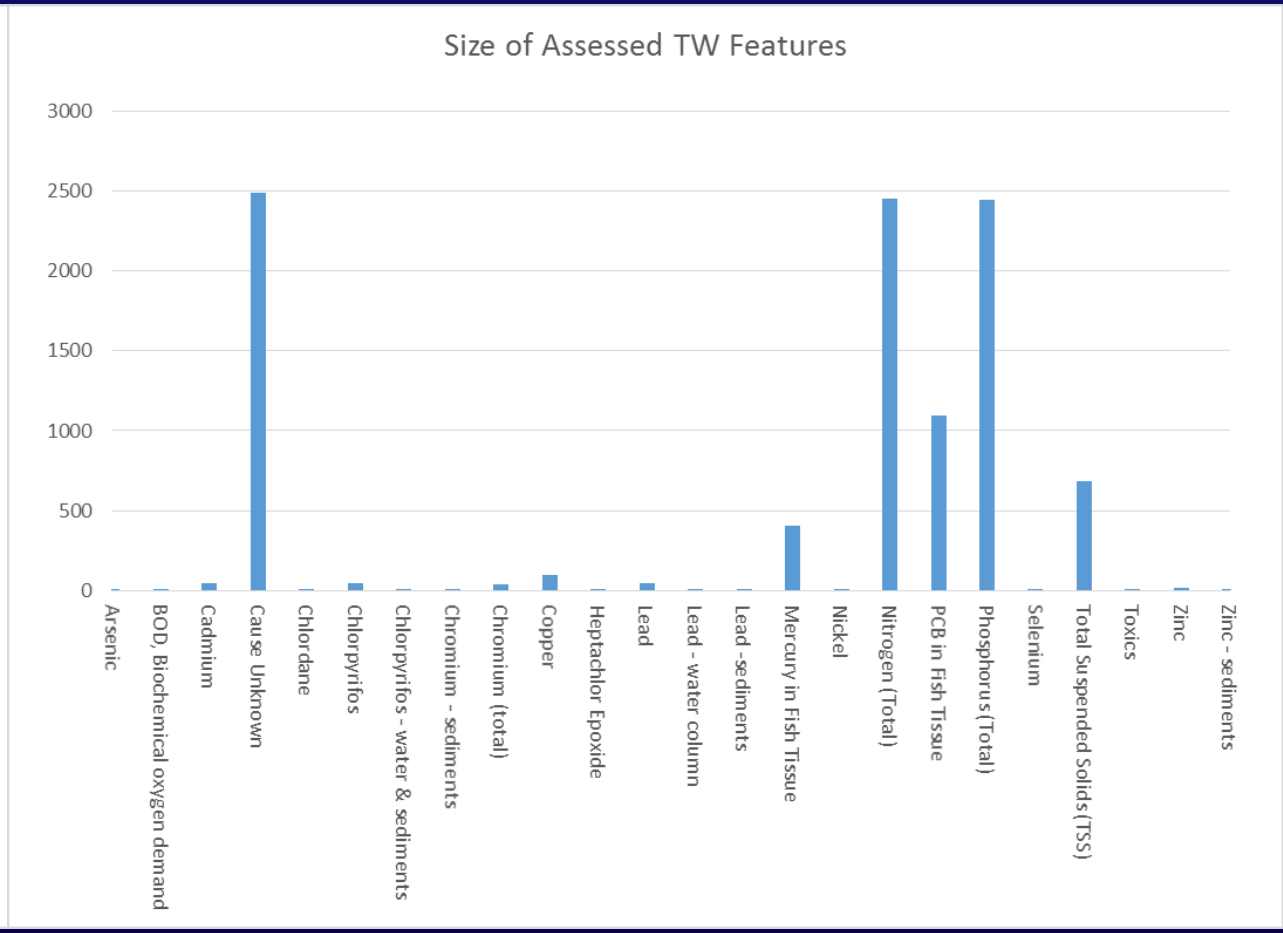
Consistent Data can be compared every 2 years when the IWQR are published and approved.

Data from Maryland Tidal Waters Assessment

This is the number of features in the tidal waters assessment by type of pollutant



This is a comparison in the area affected by each pollutant in the tidal water assessment



Presenting this type of info for the entire Bay watershed would require uniform data entry and structure.