



Maryland
Department of
the Environment

2016 Integrated Report of Surface Water Quality

(combined 303(d) List, 305(b) Report and 314 List)

Monday, January 9th, 2016

6:00 pm

Montgomery Park, Lobby Conference Rooms



Purpose of This Meeting

- Provide General Information/Updates on 2016 IR and MD's TMDL Prioritization
- Encourage public dialogue, request comments
- Answer questions and address concerns related to the 2016 IR
- Increase water quality awareness and increase the utilization of the IR for water quality planning

Note: 30-day public comment period ends on January 23, 2016!



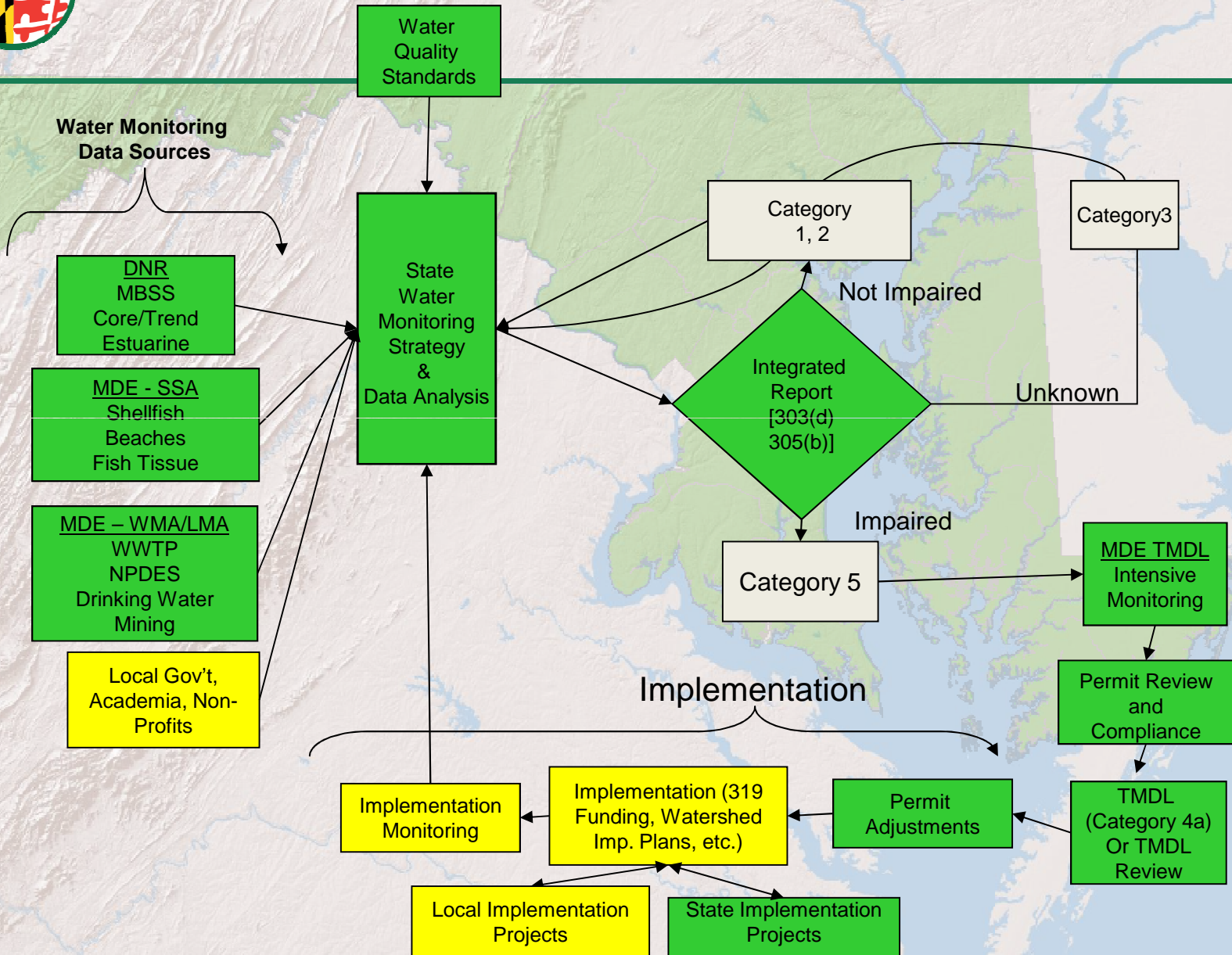
Background – What is the Integrated Report (IR)?

- Documentation of the water quality status of surface waters in Maryland
 - Provides list of water bodies that are impaired and identifies the pollutant (i.e., the 303d list, Section 314)
 - Also provides lists of those water bodies that are not impaired (i.e. 305b Report)
- Documentation of the decision-making process by which water bodies are assessed and listed.



CWA Background –

An Adaptive Management Process





Background – Why compile the Integrated Report?

- Required by Clean Water Act (Sections 303(d), 314, and 305(b))
- Report the results of statewide water quality monitoring
- Identify and Prioritize waters needing:
 - TMDLs,
 - restoration, and
 - protection



What's in the Report

- A. Text describing how data is evaluated for quality and water quality standards support
- B. Water pollution programs in the state
- C. Summary water quality information for MD
- D. Listings/records describing waterbody-pollutant combinations
 - Examples: Loch Raven Reservoir – Hg in Fish Tissue
 - Aaron's Run – pH
- E. **New Vision for Prioritizing Impairments for TMDL Development (2016-2022)**



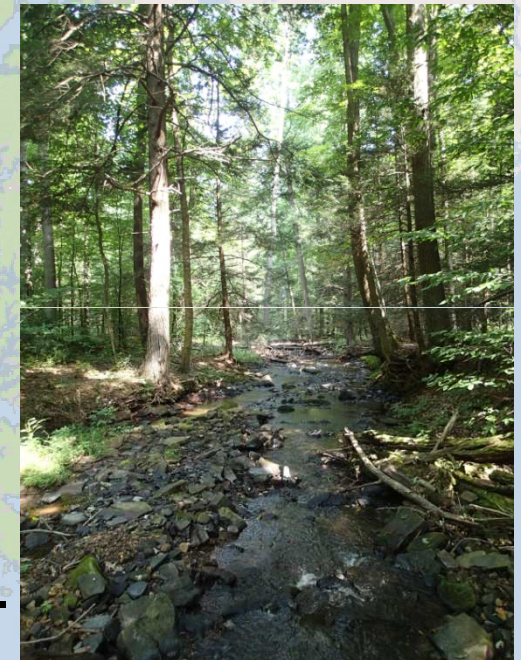
Categories of the Integrated Report

- **Categories 1 and 2** - waters attaining all standards or some standards
- **Category 3** - waters with insufficient information to assess water quality standards. *These areas deserve follow-up assessment.*
- **Category 4** - impaired waters that do **NOT** need a TMDL.
 - 4a – TMDL completed
 - 4b – Technological solution should bring water body back into attainment
 - 4c – Impairment not caused by a pollutant (eg. Dam, habitat modification, etc)
- **Category 5** - impaired waters that require a TMDL (*Historically known as the 303(d) List*).



What happens when a Water Body is Listed as Impaired (Category 5)?

- Collect additional data
- Develop TMDL or delist (no impairment)
- Once TMDL is established...
 - Implement regulatory requirements (NPDES permits)
 - Implement non-regulatory actions (e.g. BMPs)
 - Project Partnerships – leverage funding





Goals of this Effort

- To bring impaired waters back into compliance with water quality standards (Categories 1 and 2)
- Doesn't always require a TMDL (Categories 4B and 4C)
- Protect those water bodies already in compliance



What's New with the 2016 IR?



- Revised assessment methodologies for:
 - Bacteria
 - Toxics
- 16 new additions to Category 5 waters
- 11 water body-pollutant combinations were removed from Category 5



What's New continued...

- Successful pH remediation project for Big Laurel Run in the Casselman River watershed (Garrett County)
- Completion of 6 TMDLs including one for trash in the Baltimore Harbor area
- Documentation of Maryland's prioritization of impairments for TMDL development
- Expanded trend analysis section:
 - Describe incremental changes to pollutant concentrations in waters throughout the state highlighting notable changes
- Continued incorporation of more non-state data (e.g. Blue Water Baltimore, Baltimore and Frederick Counties, etc)



New Delistings - no longer impaired

Type of Impairment Listing	Number of Listings Removed from Category 5
Generic Biological Listings – specific pollutant now specified (BSID process)	4
Fecal Coliform – meeting water quality criteria for the shellfish harvesting use – <i>San Domingo Creek & Little Choptank River</i>	2
Fecal Coliform – removed from the IR completely, inappropriate listings for administratively closed shellfish areas – <i>Wells Cove & Daugherty Creek</i>	2
Hg - fish tissue concentrations now meeting fishing designated use – <i>Rocky Gorge Reservoir</i>	1
pH – water quality criteria now met – <i>Rocky Gap Run</i>	1
PCBs in fish tissue – moved to Category 3 – correction to historical data and recent levels are low – <i>Big Pipe Creek</i>	1
2016 Total Number of Delistings	11



New Impairment Listings (Category 5)

Type of Impairment Listing	Number of additions to Category 5
Biological Stressor Identification Listings - 2 chlorides, 4 TSS, 3 sulfates	9
Fish Tissue Assessments for PCBs	4
Shellfish Harvesting Areas – Fecal coliform	3
Total New Category 5 Impairments	16



2016 IR Summary Stats

Waters impaired by each pollutant (by size)

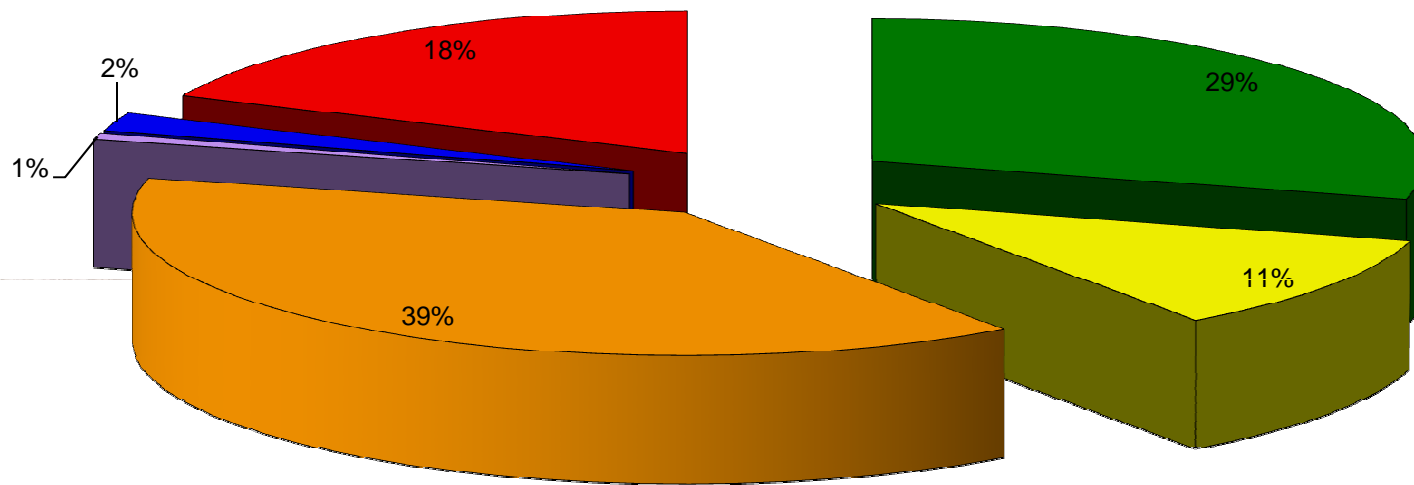
Cause	Category on the Integrated List						
	Cat. 1	Cat. 2	Cat. 3	Cat. 4a	Cat. 4b	Cat. 4c	Cat. 5
Aluminum		160.1		26.2			
Fecal coliform		563.2	569.1	368.2			
Heptachlor Epoxide							21.5
Iron		126.1		58.5			
Mercury in Fish Tissue		247.0	56.2				151.7
Nickel		663.7					
Nitrogen (Total)		1545.7	243.3	277.5			
PCB in Fish Tissue		113.0	165.9				223.6
pH, Low		1199.6		236.4	1.1		142.2
Phosphorus (Total)		4034.9	243.3	3071.0			551.9
Total Suspended Solids (TSS)		851.7		6102.3			1758.8

- Geographical area impaired by various pollutants
- Geographical area not supporting certain designated uses



2016 Listings by Categories

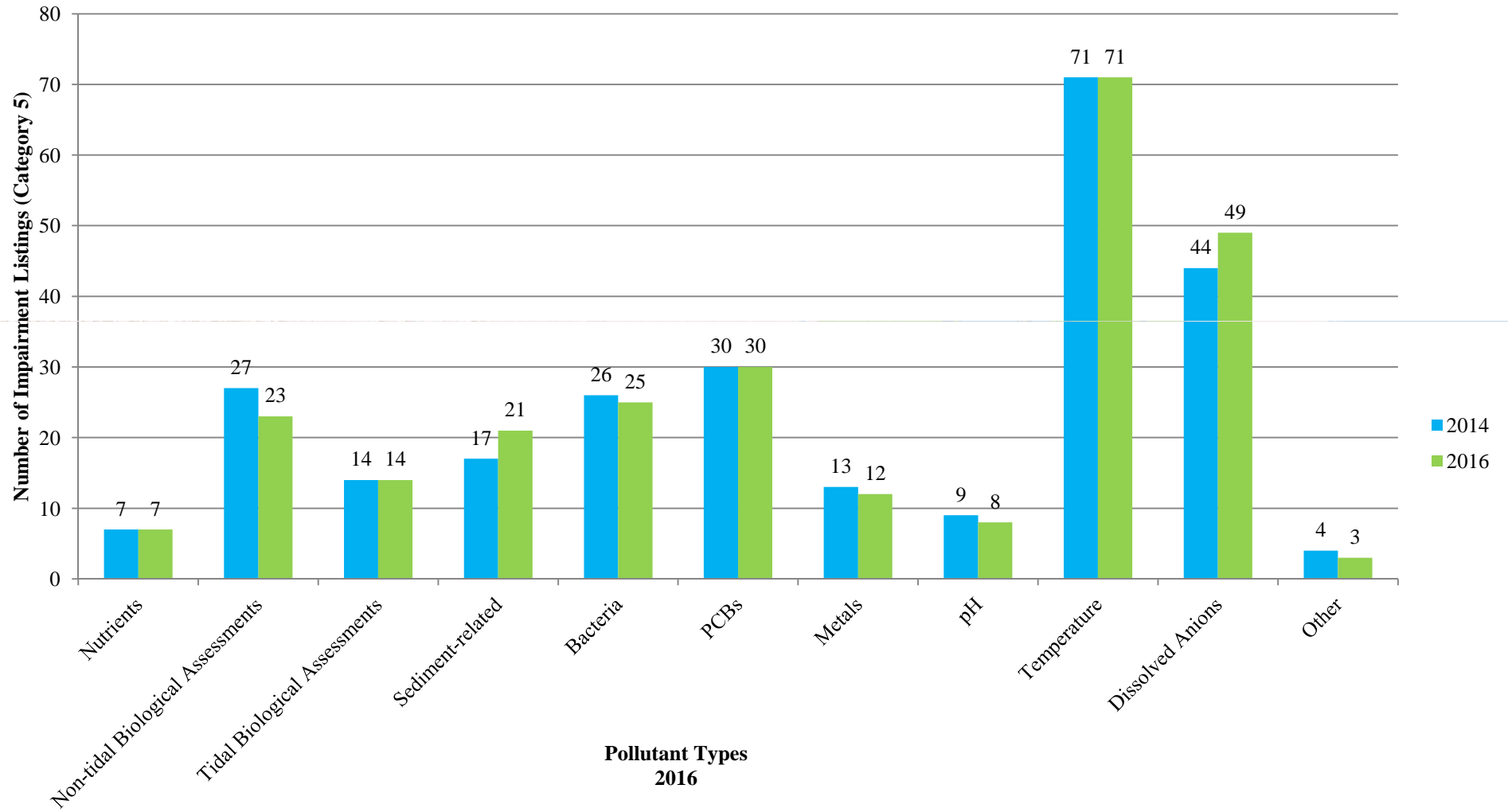
2016 Integrated Report: Percentage of Listings from each Category



- Category 2 - Meets some WQ standards
- Category 3 - Insufficient information
- Category 4a - Impaired, TMDL completed
- Category 4b - Impaired, Tech. fix expected to bring about attainment
- Category 4c - Impaired, Pollution not caused by pollutant (e.g. channelization)
- Category 5 - Impaired, May need TMDL

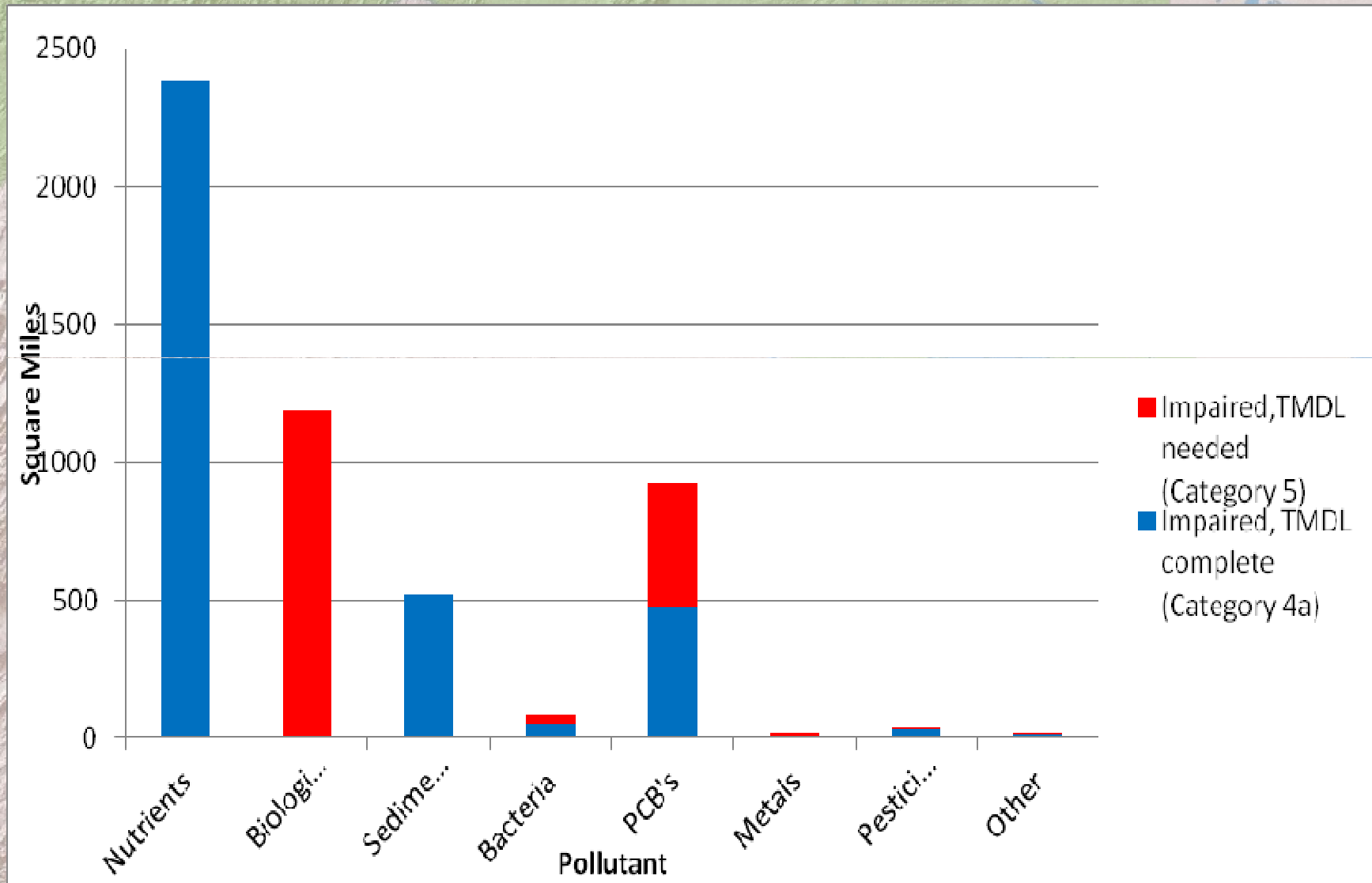


2016 IR Summary Info





Size of Waters Impaired by Pollutants





Water Quality Trends – Nutrients and Sediments

- Long term trends from USGS (1985-2014) and MDDNR (1999-2014) datasets show significant improvements in nitrogen and phosphorus concentrations in both tidal and non tidal waters.
- Short term analyses (10 yr, 2005-2014) show fewer significant trends but still indicate decreasing nutrient levels.
- There are fewer significant trends with sediment but still see generally improving long-term trends.



Water Quality Trends – Nutrients and Sediments

- Maryland met its 2015 milestones for phosphorus and sediments and is on pace to meet its 2017 milestone for nitrogen reduction.
- More work needs to be done to complete upgrades at WWTPs and meet reduction milestones for nitrogen from agriculture, urban areas, and septic systems.



Water Quality Trends – Water Temperature

- Increasing focus due to concerns about climate change and impacts from urban storm water.
- Temperatures in the Chesapeake Bay have risen, on average, 1.4°C (2.52 °F) between 1960 and 2010 (Rice & Jastram 2015).
- The 1986-2010 time-frame is statistically significantly warmer than the 1961-1985 time-frame (Rice & Jastram 2015).
- MDDNR data also shows rising water temperatures in both tidal and non tidal waters from 1999-2014.



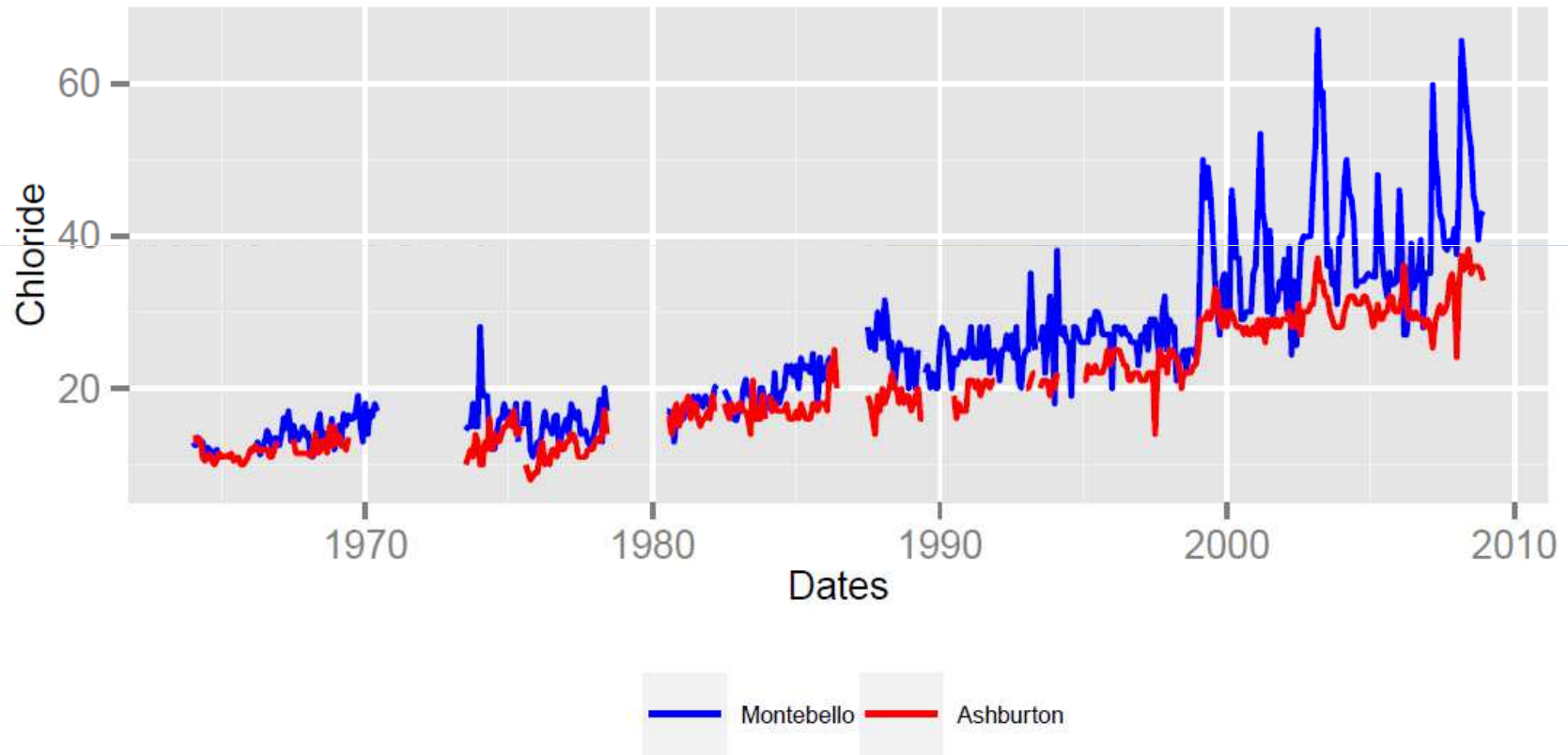
Water Quality Trends Conductivity & Chlorides

- MDDNR data demonstrates statistically significant increases in conductivity in nontidal streams.
- Maryland now has 27 non-tidal watersheds listed as impaired for chlorides
- Salinization of state fresh waters due to road salt application.
 - Linked to aquatic community degradation
 - Corrosion of metal infrastructure (e.g. bridges)
 - Salinization of drinking water sources and even contamination of some wells



Water Quality Trends Conductivity & Chlorides

Chloride Trends in Finished Water from
Montebello (fed by Loch Raven) and
Ashburton (fed by Liberty) Water Treatment Plants





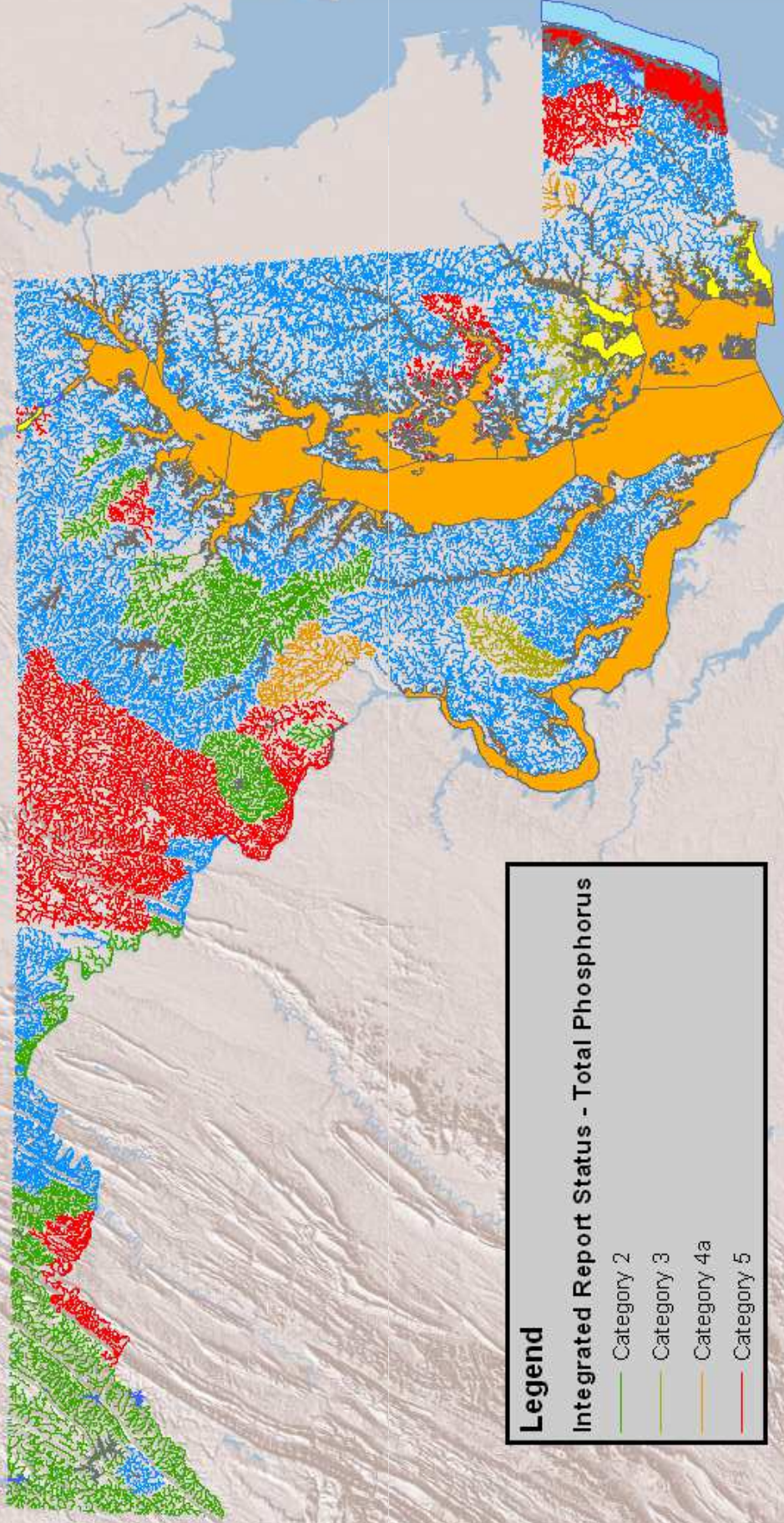
Integrated Report Resources Available Online

- [Full Length 2016 Integrated Report](#)
- [Assessment Methodologies](#)
- [Water Quality Mapping Center](#)
 - Features maps for water quality, use class info, shellfish harvesting areas, and high quality waters (Tier II)\
 - *ArcGIS files available for download*
- [Searchable Integrated Report Database and Clickable Map](#)



For electronic copies of the IR database (MS Access) please email me at matthew.stover@maryland.gov

Maryland Waters - Total Phosphorus Assessments



Legend

Integrated Report Status - Total Phosphorus

- Category 2
- Category 3
- Category 4a
- Category 5





How to Get Involved!

- For the 2016 IR
 - ***Submit comments by January 23, 2017***
- Contact us about submitting data for the 2018 IR
 - Spring of 2017!
- Work with the [Chesapeake Monitoring Cooperative](#) (CMC)



Contact Info for the IR

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