



Maryland
Department of
the Environment

2018 Integrated Report of Surface Water Quality

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

Tuesday, February 27, 2018

6:00 pm

Montgomery Park, Lobby Conference Rooms



Purpose of This Meeting

- Provide General Information/Updates on 2018 IR
- Encourage public dialogue, request comments
- Answer questions and address concerns related to the 2018 IR
- Increase water quality awareness and increase the utilization of the IR for water quality planning

Note: 30-day public comment period ends on March 19, 2018!

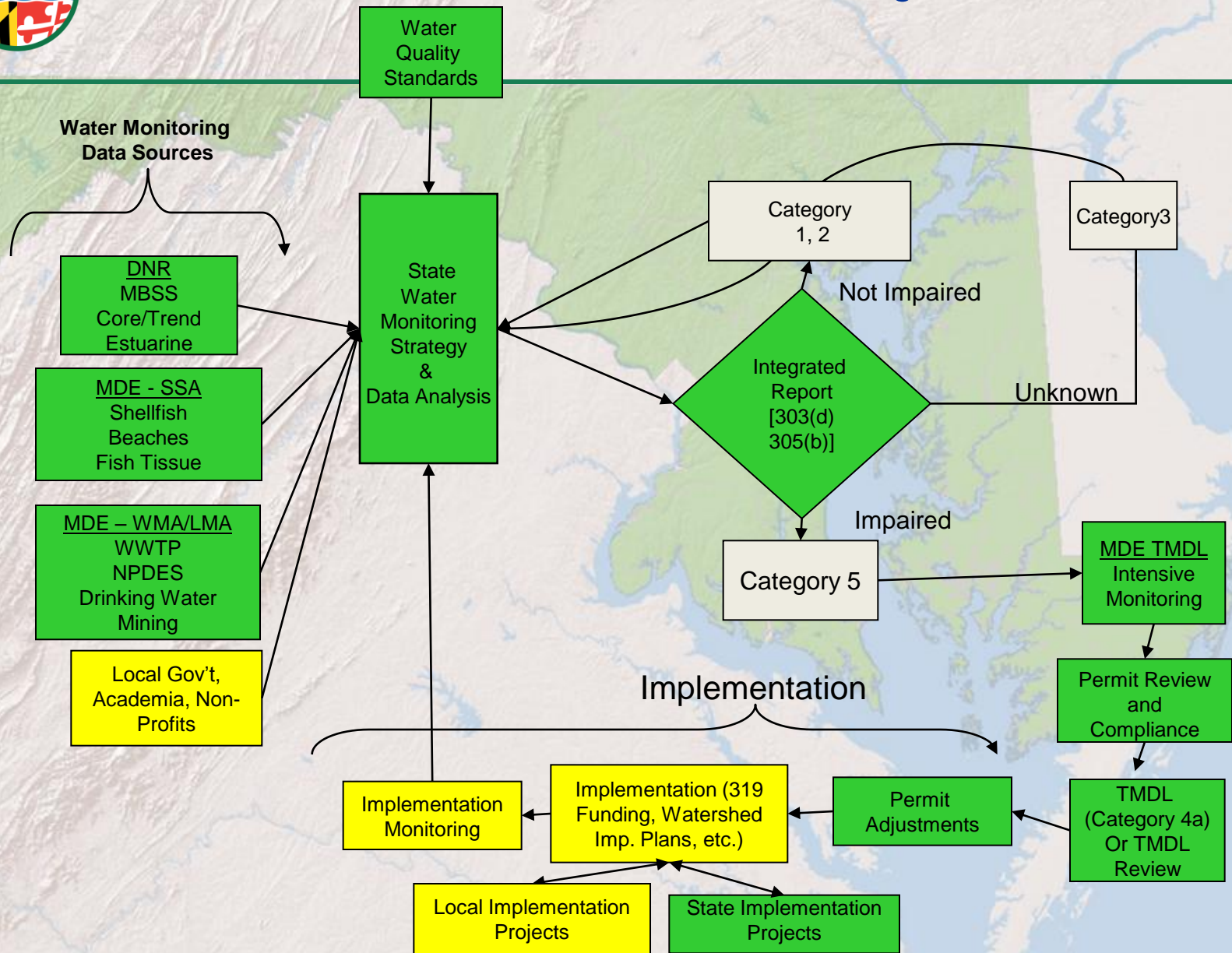


Background – What is the Integrated Report (IR)?

- 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. Special Assessments
 - Conococheague Creek- High pH
 - Susquehanna River downstream of Conowingo Dam- Flow Alteration (changes in depth and velocity)

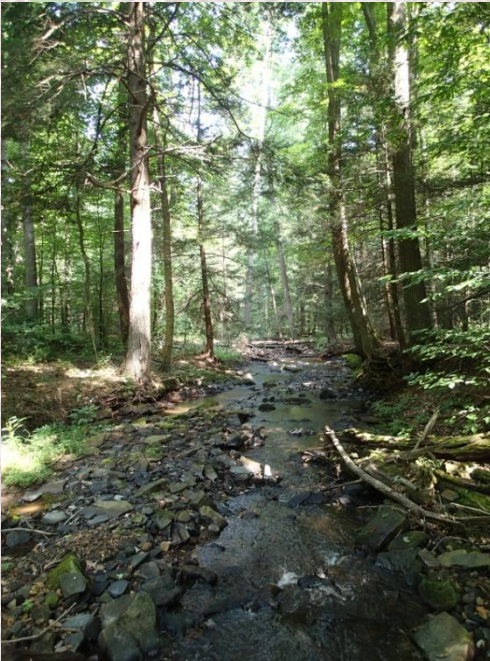


Categories of the Integrated Report

- **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 may 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 attainment of water quality standards (Categories 1 and 2)
- Doesn't always require a TMDL (Categories 4B and 4C)
- Protect those water bodies already meeting water quality standards



What's New with the 2018 IR?



Type of Impairment Listing	Number of Listings Removed from Category 5
Generic Biological Listings – specific pollutant now specified (BSID process)	4
pH – water quality criteria now met	4
Fecal Coliform – meeting water quality criteria for the shellfish harvesting use	2
Hg - fish tissue concentrations now meeting fishing designated use	1
PCBs - fish tissue concentrations now meeting fishing designated use	1
2018 Total Number of Delistings	12



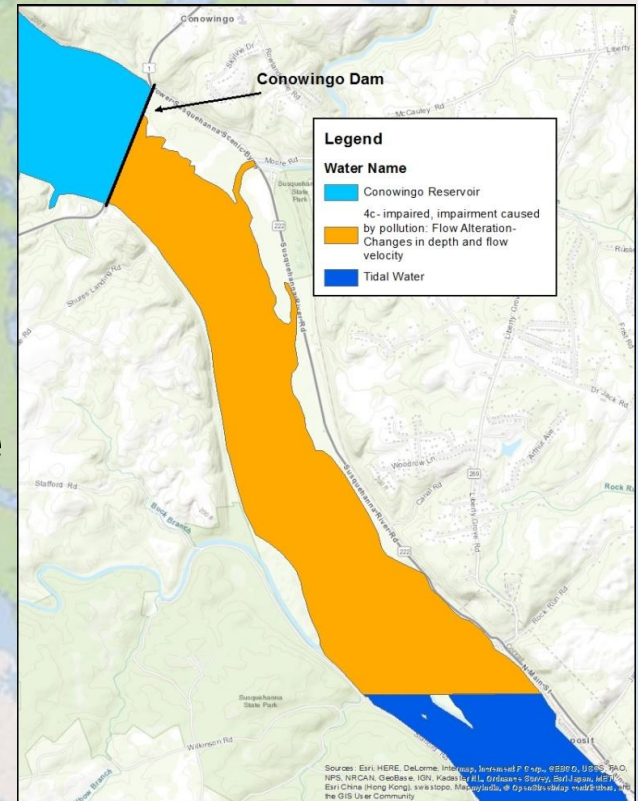
What's New continued...

- Conococheague River – High pH Assessments
 - Previously assessed as impaired for exceedances of the upper pH criterion ($>8.5\text{pH}$ units)
 - Follow-up monitoring revealed fewer exceedances but did show pH regime more basic than many of the state's streams
 - Analysis of alkalinity sources demonstrated that high pH values a result of local karst geology
 - Removed from the impaired part of the list



What's New continued...

- The most comprehensive dataset ever assembled for the Lower Susquehanna River in Maryland
 - New Category 5 impairment for total phosphorus in the Conowingo Reservoir
 - Assessment record noting follow-up required to assess the debris in the Conowingo Reservoir
 - Impairment listing (4c) for flow alteration for the portion of the Susquehanna River immediately downstream of the Conowingo Dam



Map showing the geographic extent of the impairment listing for flow alteration – changes in depth and flow velocity in the Lower Susquehanna River mainstem.



Water Quality Successes

- Third IR cycle in a row where specific restoration projects have been directly linked to attainment of water quality criteria.
 - Three streams in the Casselman River Watershed. All were listed as impaired and had TMDLs for low pH but are now meeting pH water quality criteria (Category 2).
- In 2016 submerged aquatic vegetation reached the highest level recorded in the Chesapeake Bay and tidal tributaries since aerial surveys began in 1984.



2018 IR Summary Stats

Waters impaired by each pollutant (by size)

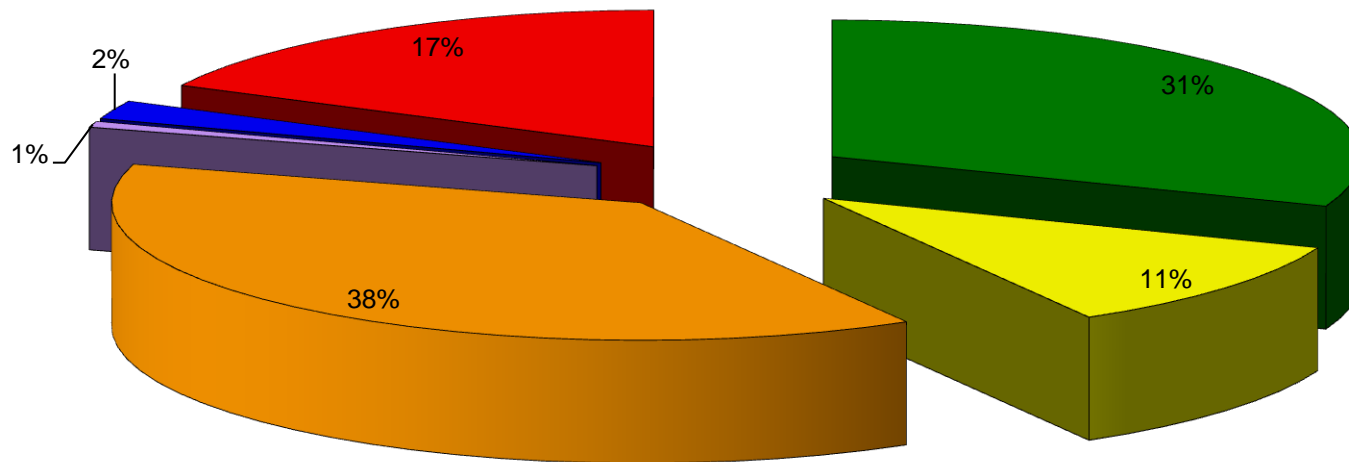
Cause	Category on the Integrated List						
	Cat. 1	Cat. 2	Cat. 3	Cat. 4a	Cat. 4b	Cat. 4c	Cat. 5
Aluminum		160.1		26.2			
Fecal coliform		563.2	569.1	368.2			
Heptachlor Epoxide							21.5
Iron		126.1		58.5			
Mercury in Fish Tissue		247.0	56.2				151.7
Nickel		663.7					
Nitrogen (Total)		1545.7	243.3	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



2018 Listings by Categories

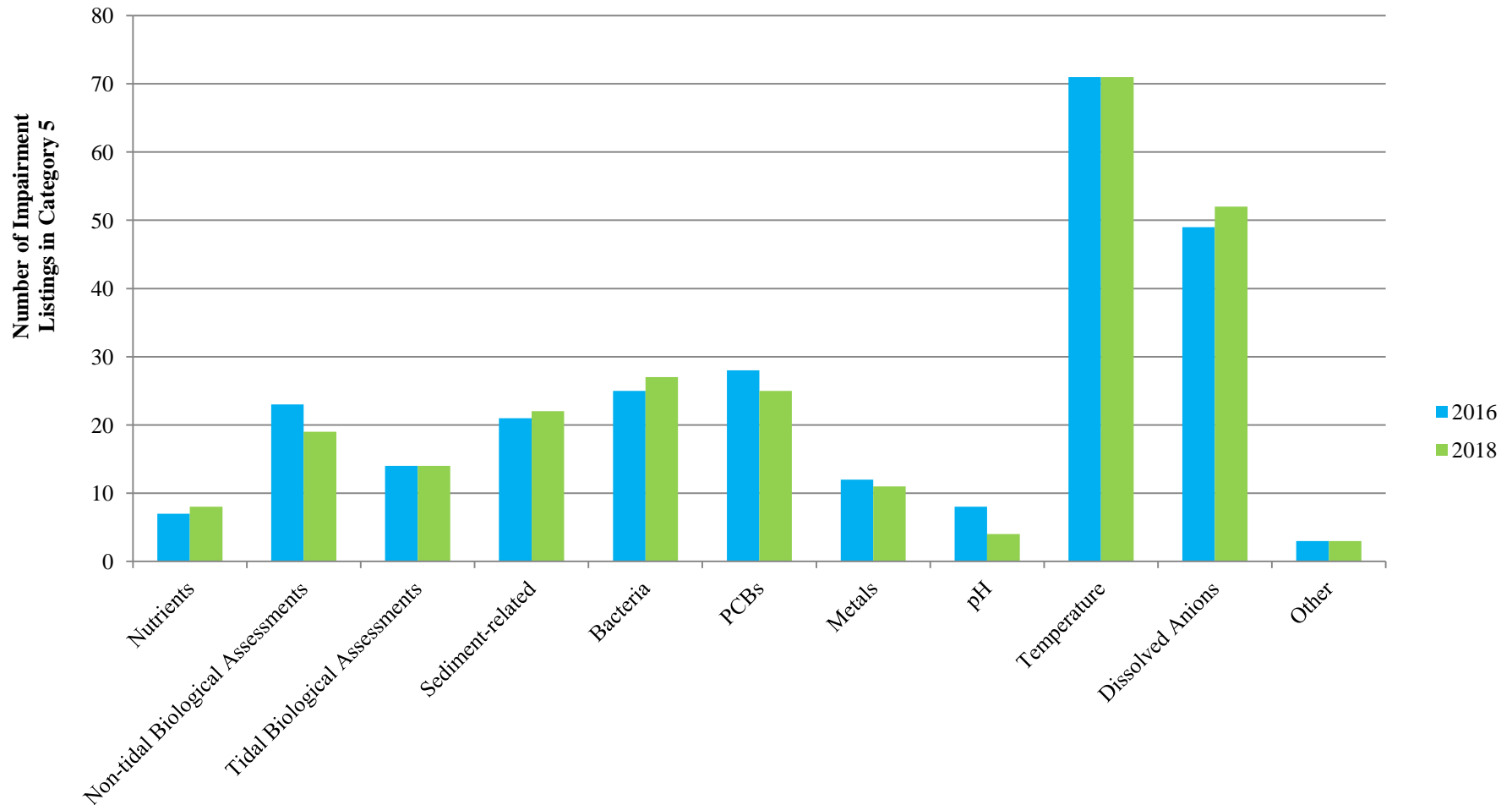
2018 Integrated Report: Percentage of Listings from each Category



- 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



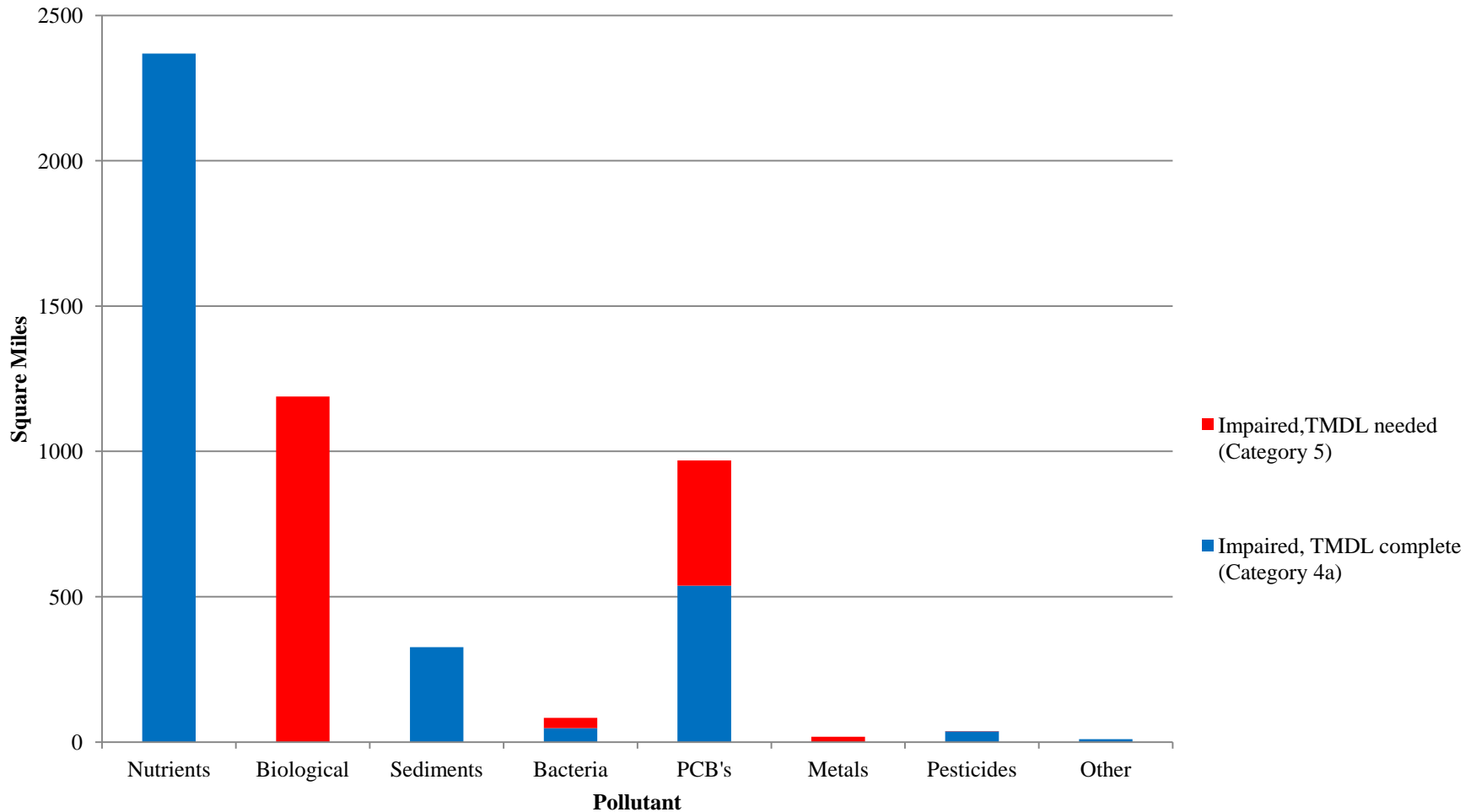
2018 IR Summary Information



Pollutant Types in the 2016 and 2018 IR



Size of Waters Impaired by Pollutants





Water Quality Trends

Conductivity & Chlorides

- State data demonstrates statistically significant increases in conductivity in nontidal streams.
- Maryland now has 28 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) and drinking water distribution network
 - Salinization of drinking water sources and even contamination of some wells



Water Quality Trends Conductivity & Chlorides

- Steps the State is taking to address these concerns:
 - SHA has developed and is implementing a plan to limit salt use while maintaining road safety
 - MDE has developed draft chloride criteria and piloted chloride modeling efforts
 - MDE is working with Counties to incorporate road salt management strategies into MS4 permits



Water Quality Trends – Water Temperature

- Increasing focus due to concerns about climate change and impacts from urban storm water.
- MDDNR data also shows rising water temperatures in both tidal and non tidal waters from 1999-2014.
- Maryland has 71 streams listed as impaired due to thermal impacts (Class III and III-P)
- To Address these impacts:
 - MDE has been developing temperature modeling methods to help inform restoration efforts
 - Convening stakeholder workgroup to re-evaluate the State's designated use classification system



Integrated Report Resources Available Online

- [Full Length 2018 Integrated Report](#)
- [Assessment Methodologies](#)
- [Water Quality Mapping Center](#)
 - Features maps for water quality, use class information, shellfish harvesting areas, and high quality waters (Tier II)
 - *ArcGIS files available for download*
- [Searchable Integrated Report Database and Clickable Map](#)

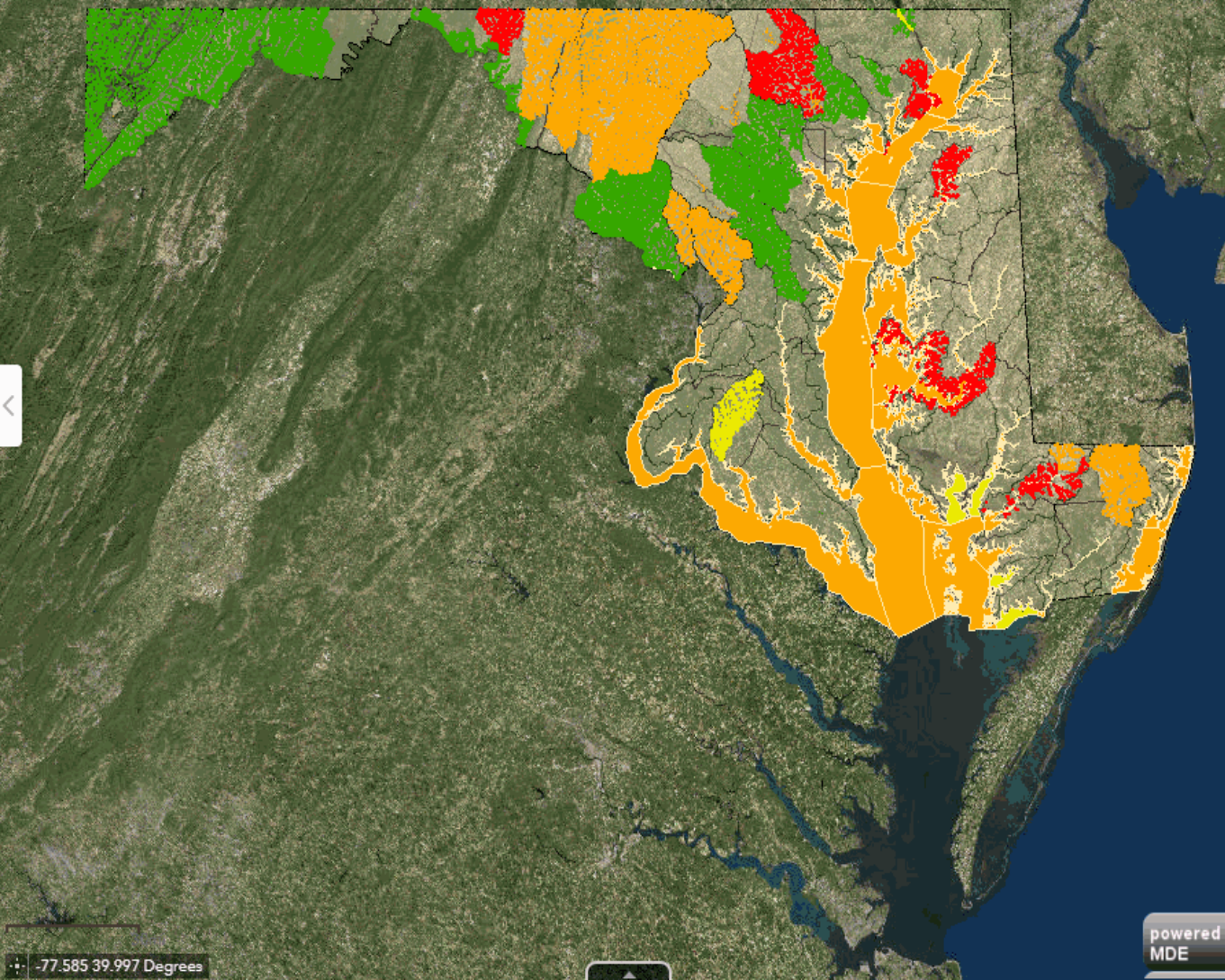


For electronic copies of the IR database (MS Access) please email
becky.monahan@maryland.gov

Use Check Box to turn on/off Layers; Use Arrows in Layers to expand/compact Layers

- ▶ ☐ Bacteria ...
- ▶ ☐ Biological ...
- ▶ ☐ Debris Floatables & Trash ...
- ▶ ☐ Ions ...
- ▶ ☐ Metals ...
- ▼ ☒ Nutrients ...
 - ▶ ☐ BOD ...
 - ▶ ☐ Nitrogen ...
 - ▶ ☒ Phosphorus ...
- ▶ ☐ PCBs ...
- ▶ ☐ Pesticides ...
- ▶ ☐ pH ...
- ▶ ☐ Sediments ...
- ▶ ☐ Stream Modification ...
- ▶ ☐ Temperature ...
- ▶ ☐ Toxics ...
- ▶ ☒ County Boundaries ...





⌕ -77.585 39.997 Degrees



How to Get Involved!

- For the 2018 IR
 - **Submit comments by March 19, 2018**
- Contact us about submitting data for the 2020 IR
 - Spring of 2019!
- Work with the [Chesapeake Monitoring Cooperative](#) (CMC)



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Contact Info for the IR

Matthew Stover & Becky Monahan
Water and Science Administration

410-537-3611

matthew.stover@maryland.gov

1800 Washington Boulevard | Baltimore, MD 21230-1718
410-537-3000 | TTY Users: 1-800-735-2258
www.mde.maryland.gov

