



**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!**



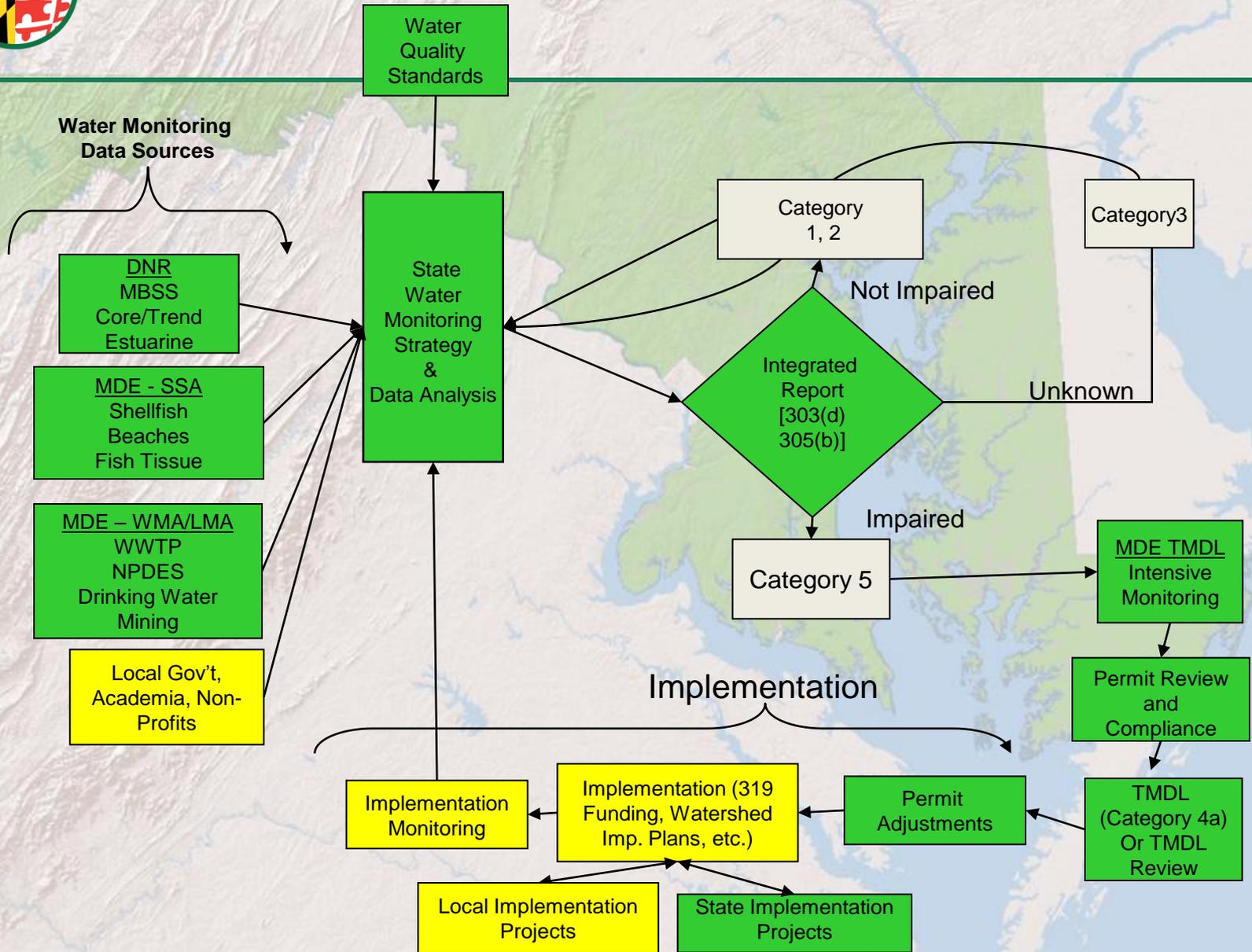
# Background – What is the Integrated Report (IR)?

---

- 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

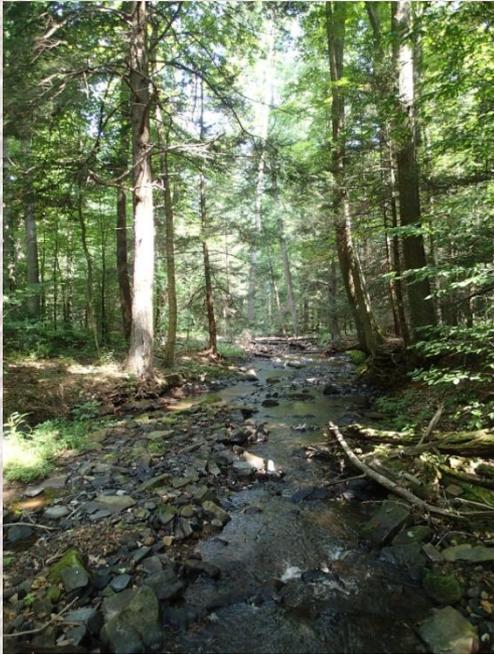
---

- **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  |
| <b>2018 Total Number of Delistings</b>   | <b>12</b>                                  |



# What's New continued...

---

- Conococheague River – High pH Assessments
  - Previously assessed as impaired for exceedances of the upper pH criterion (>8.5pH 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





# 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)

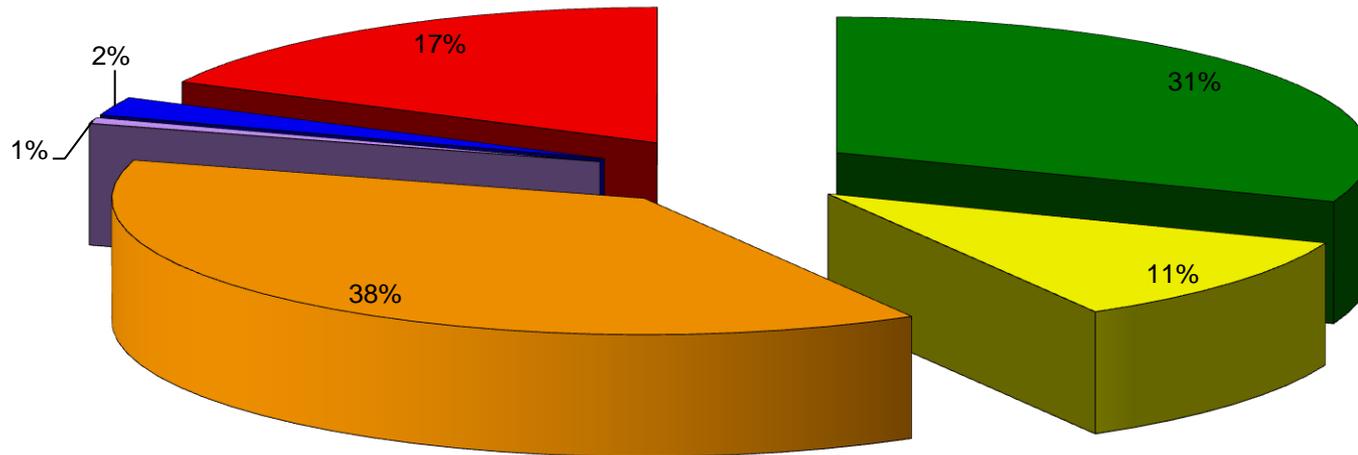
| Cause                        | Category on the Integrated List |        |        |         |         |         |        |
|------------------------------|---------------------------------|--------|--------|---------|---------|---------|--------|
|                              | Cat. 1                          | 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

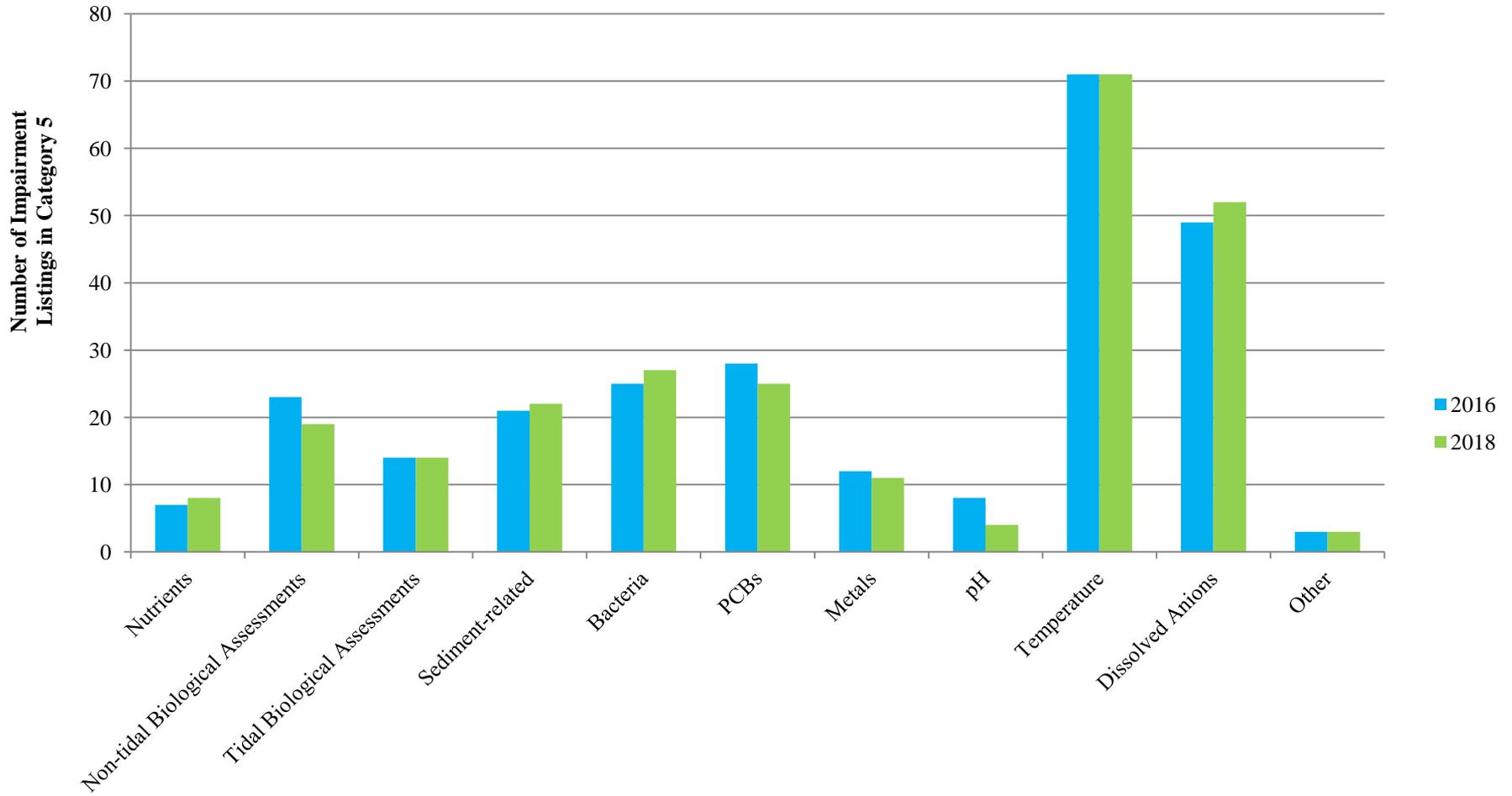
2018 Integrated Report: Percentage of Listings from each Category



- 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



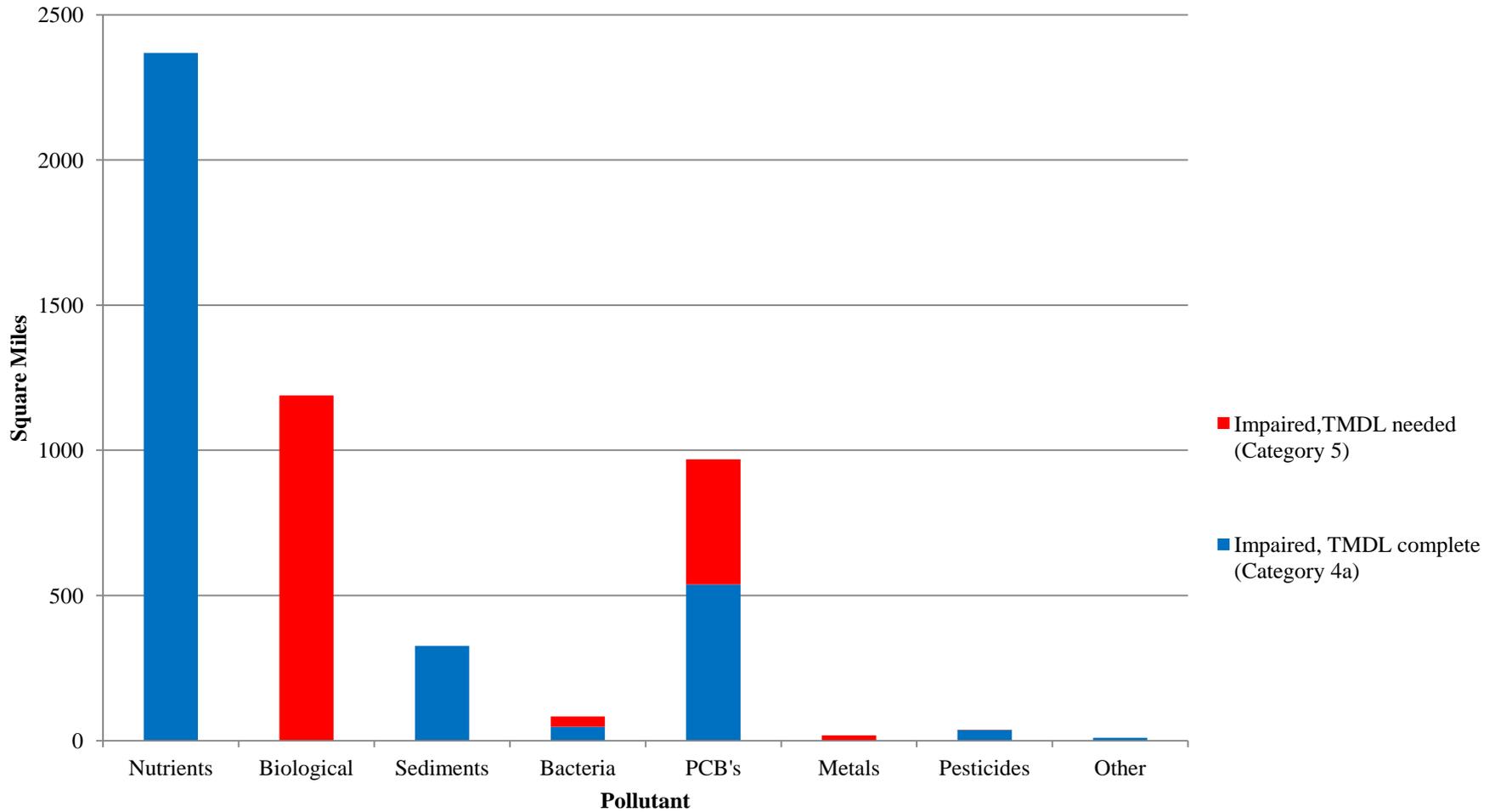
# 2018 IR Summary Information



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](#)

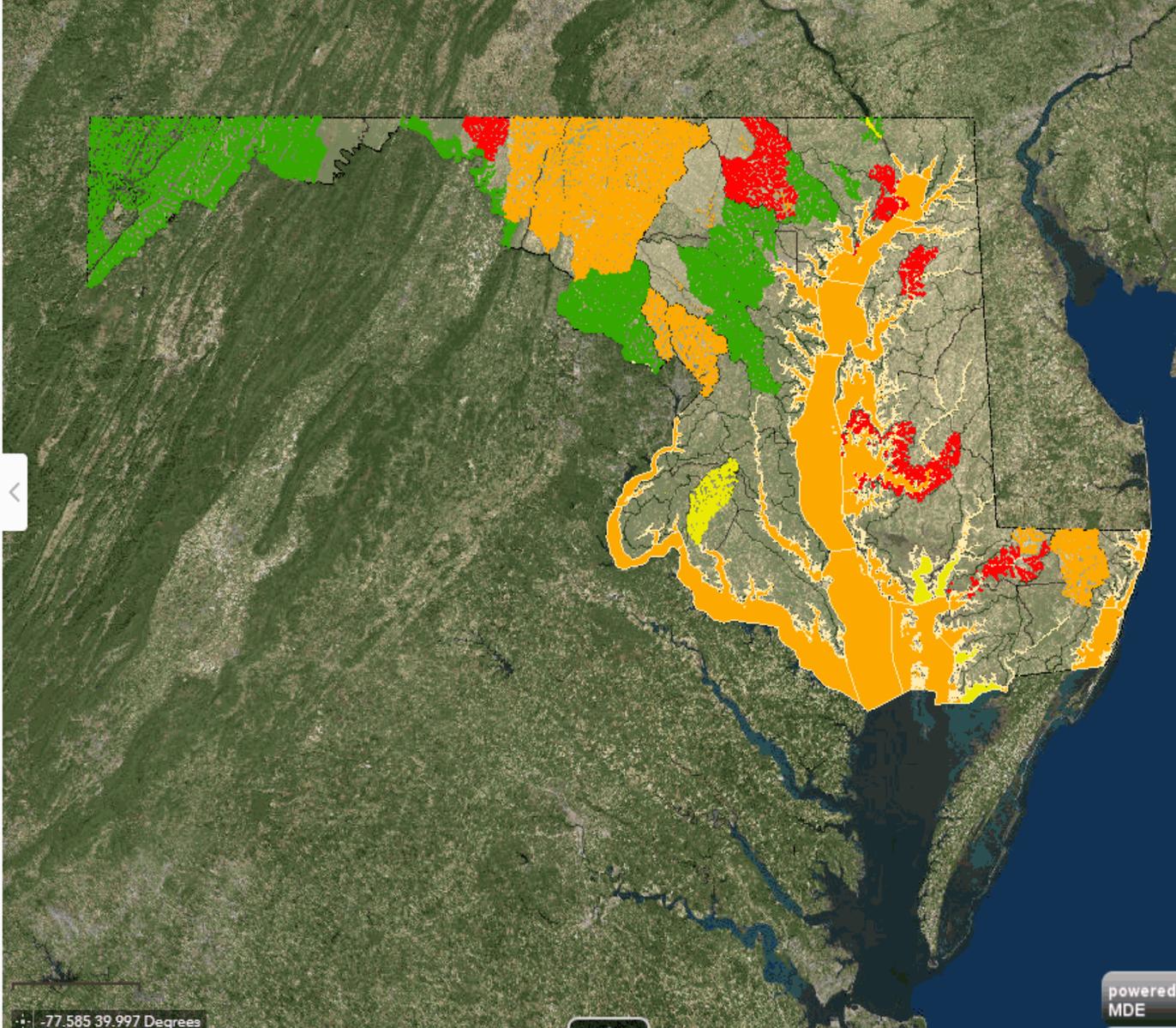


For electronic copies of the IR database (MS Access) please email [becky.monahan@maryland.gov](mailto:becky.monahan@maryland.gov)

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 ...

Map navigation controls including zoom in (+), zoom out (-), home, and a search bar labeled "Find Address or Place" with a magnifying glass icon.



-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)



**Maryland**  
Department of  
the Environment

# Contact Info for the IR

**Matthew Stover & Becky Monahan**  
**Water and Science Administration**

**410-537-3611**

**[matthew.stover@maryland.gov](mailto:matthew.stover@maryland.gov)**

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

