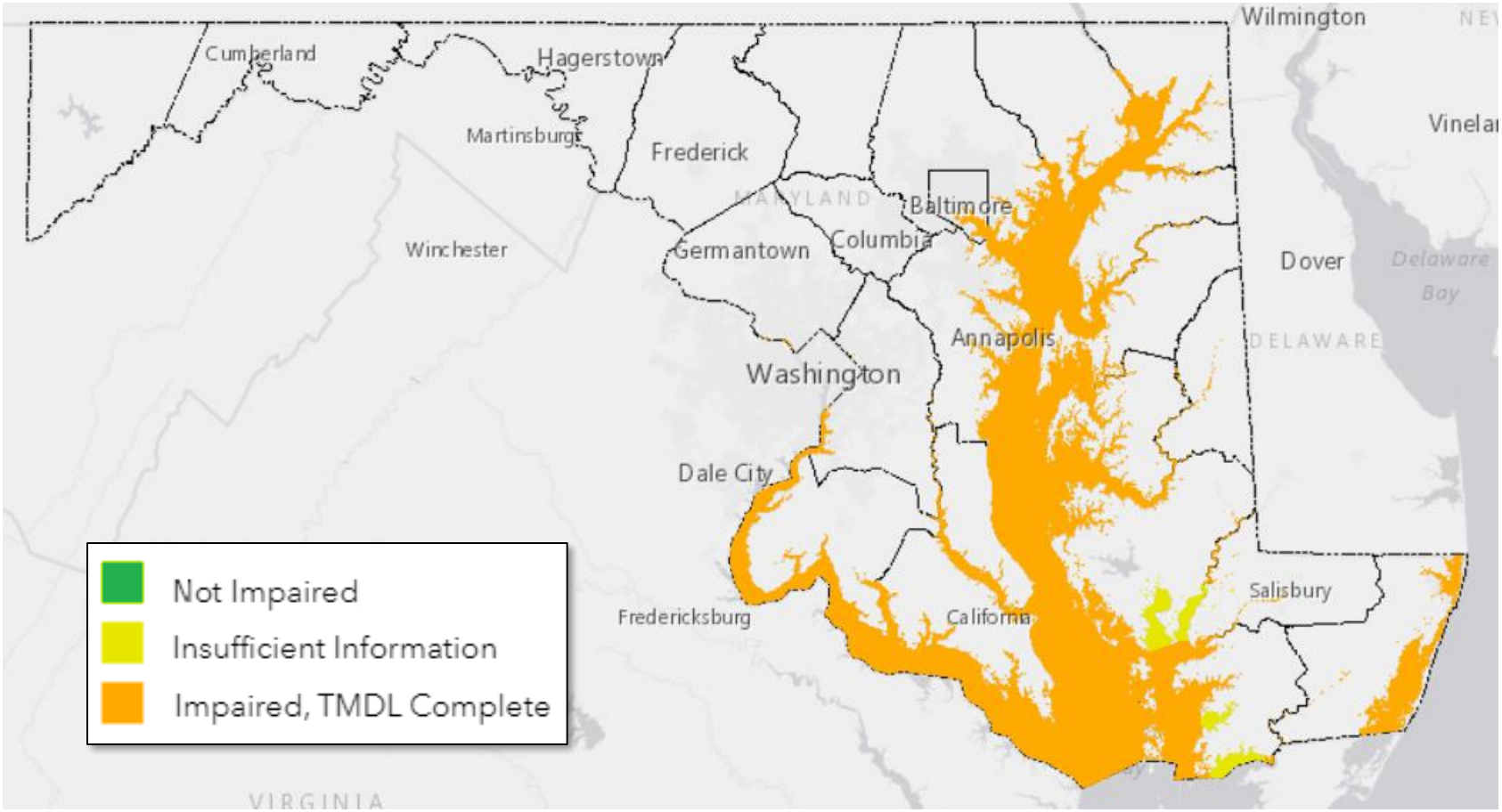
Maryland's Effort to Fully Assess a Bay Segment

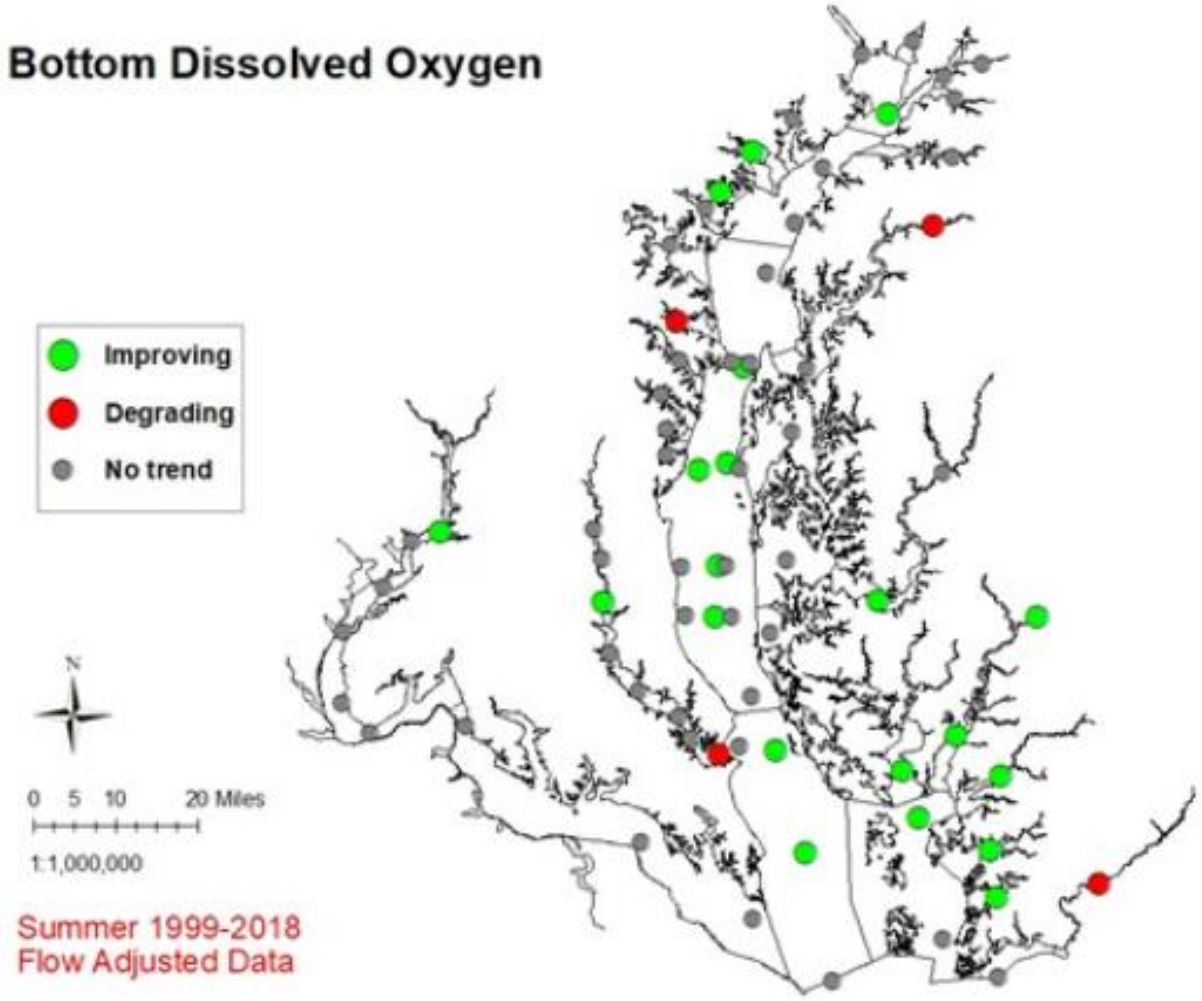
- Why do we feel this is important?
  - Maryland has invested billions in bay restoration
  - The 2025 Bay TMDL deadline is close
  - N, P & DO are improving
- It has never been more important to show results and yet ….

All of our tidal waters are either listed as impaired or shown as having insufficient information to assess for DO

Is everything truly impaired?



We suspect that not every segment is impaired…



https://storymaps.arcgis.com/stories/234759335b7249d88442a7bff53a8784

Our Goals with this Effort

- Pick 1-2 segments to use enhanced monitoring (ConMon) and possibly conditional attainment assessment techniques to assess the full suite of designated uses and applicable DO criteria in the entire Bay segment
- Choose segments that give us the best chance to show criteria attainment
- Demonstrate restoration success story or at least a segment in good health
- Develop a pilot process for assessing the full DO criteria for all segments while managing workload and funding constraints

General Steps in the Process

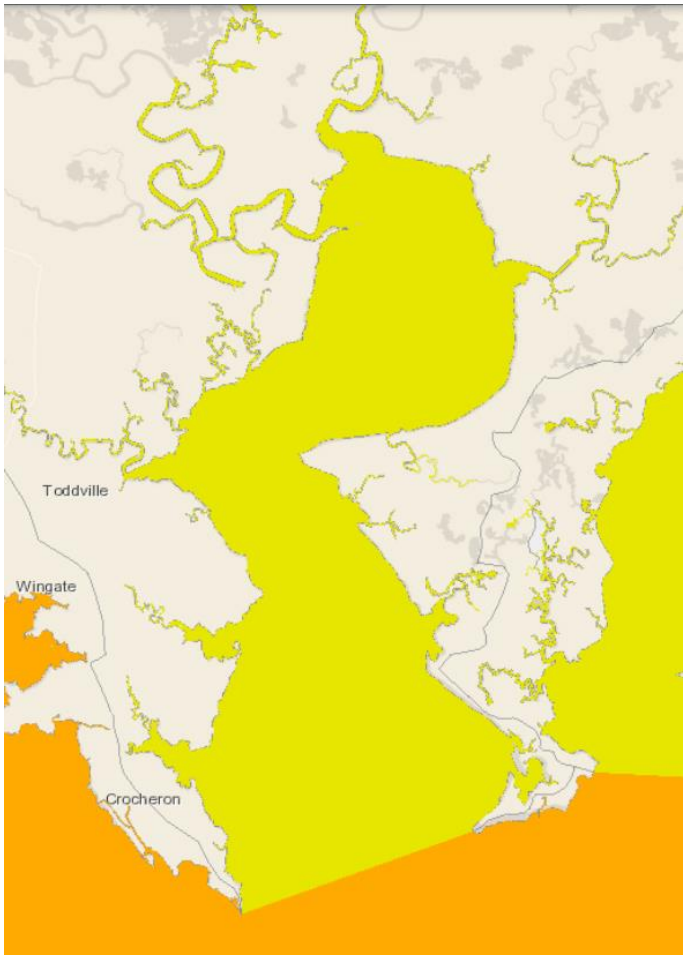
- Pick candidate segments
- Develop a 3 year monitoring plan
- Execute the monitoring plan
- Assess the data using all available tools

What segments are we considering and why?

- Factors used in selection
  - Passes the 30-day mean DO criterion in summer and non-summer seasons
  - Exhibits an improving trend with respect to TP, TN, TSS, and DO water quality readings
  - Currently meeting or is close to meeting the SAV restoration goal and/or water clarity goal
  - Lack of logistical barriers (e.g., ease of access, likelihood of vandalism or damage to sensors, etc)
  - Segment is generally smaller in size and shallower in depth so as to avoid segments with an upper and lower pycnocline boundary – can possibly do segment with only an upper pycnocline

- Top of the List: Fishing Bay Mesohaline (FSBMH) and Northeast River Tidal Fresh (NORTF)

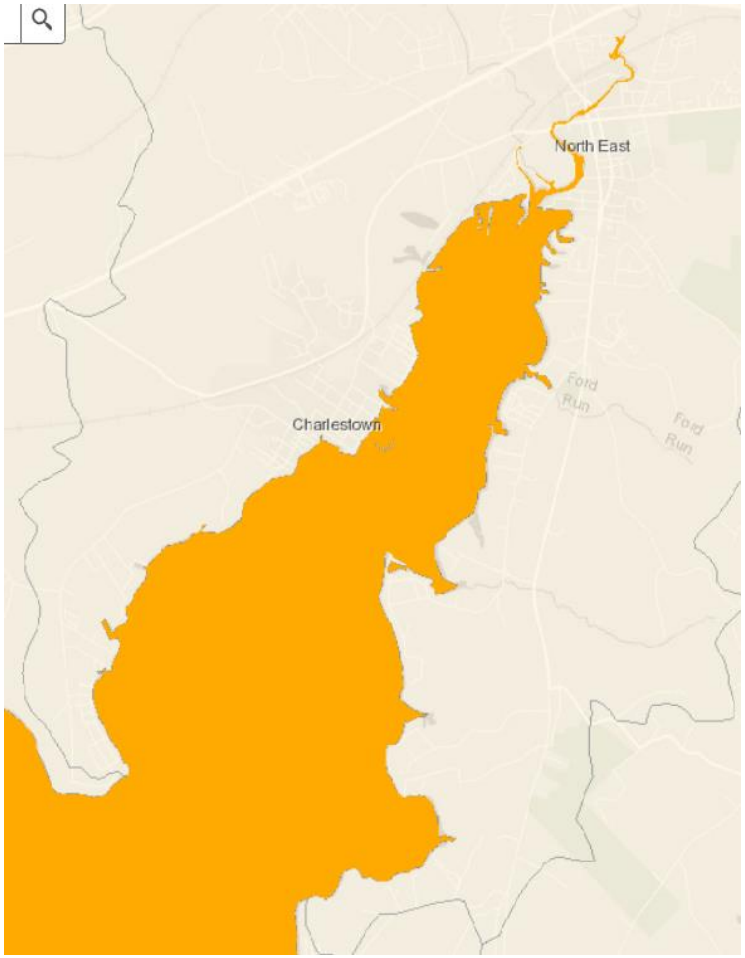
Fishing Bay Mesohaline (FSBMH)



- Met OW DO Criteria for Summer and non-Summer
- Nutrient Indicator trends look good
- Met it's SAV restoration goal
- No major logistical barriers
- Only designated uses present: OW and MSN = Simple pilot
- Currently not Assessed as impaired

Northeast River Tidal Fresh (NORTF)

- Same characteristics as FSBMH
- Listed as impaired



How we could use your help

- Learn from VA's experiences in the York River
- Tap into the CAP workgroup and other experts in this field for guidance and recommendations
- Have CBP staff support in running the Interpolator and using ConMon data in the assessment

This image/idea was shamelessly stolen from Tish Robertson's January presentation!

- We are making progress, but our impaired water list doesn't show it - Need to highlight success stories So as to fight Bay Implementation Fatigue!

Open Questions

- What spatial coverage is needed? Should we assess the 3 zones as described in the 2017 Addendum? How many stations per zone is representative?
- Do we need high frequency (ConMon) monitoring in Zone 1 (open water, well-mixed) or can certain assumptions be made from shallow water (Zone 2 and 3) high frequency monitoring?
- Many more…

Assessment Matrix

- What types of sampling can be used to assess each criterion within each zone and where is there overlap
- Assumption: ConMons are typically placed in the shallow water or T of T zone so we can assume these two zones (2 and 3) will have at least 1 ConMon in each.

Temporal Components		Geospatial Component		
		Subsegment of Bay Segment		
Designated Use	**DO - Duration Criterion**	**Zone 1: Open water**	**Zone 2: Shallow water**	**Zone 3: Isolated waters aka: Tributary of a Tributary**
Open Water	30 day Mean	Fixed Station	ConMon	Discrete sampling OR ConMon
	7 day Mean	Fixed Station/Conditional Attainment OR Profiler ConMon	ConMon	Discrete sampling OR ConMon
	Instantaneous Minimum	Covered by assessments of Zone 2 and 3	ConMon	Discrete sampling OR ConMon
Migratory Fish Spawning and Nursery	7 day Mean	N/A	ConMon	Discrete sampling OR ConMon
	Instantaneous Minimum	N/A	ConMon	Discrete sampling OR ConMon
Deep Water	30 day Mean	Fixed Station	N/A	N/A
	1 day Mean	Addressed by Fixed Station Conditional Attainment	N/A	N/A
	Instantaneous Minimum	Addressed by Fixed Station Conditional Attainment	N/A	N/A
Deep Channel	Instantaneous Minimum	Fixed Station	N/A	N/A