



Practical Applications of Monitoring for Designated Use Assessments

Monitoring Needs and Constraints from the States' Perspective

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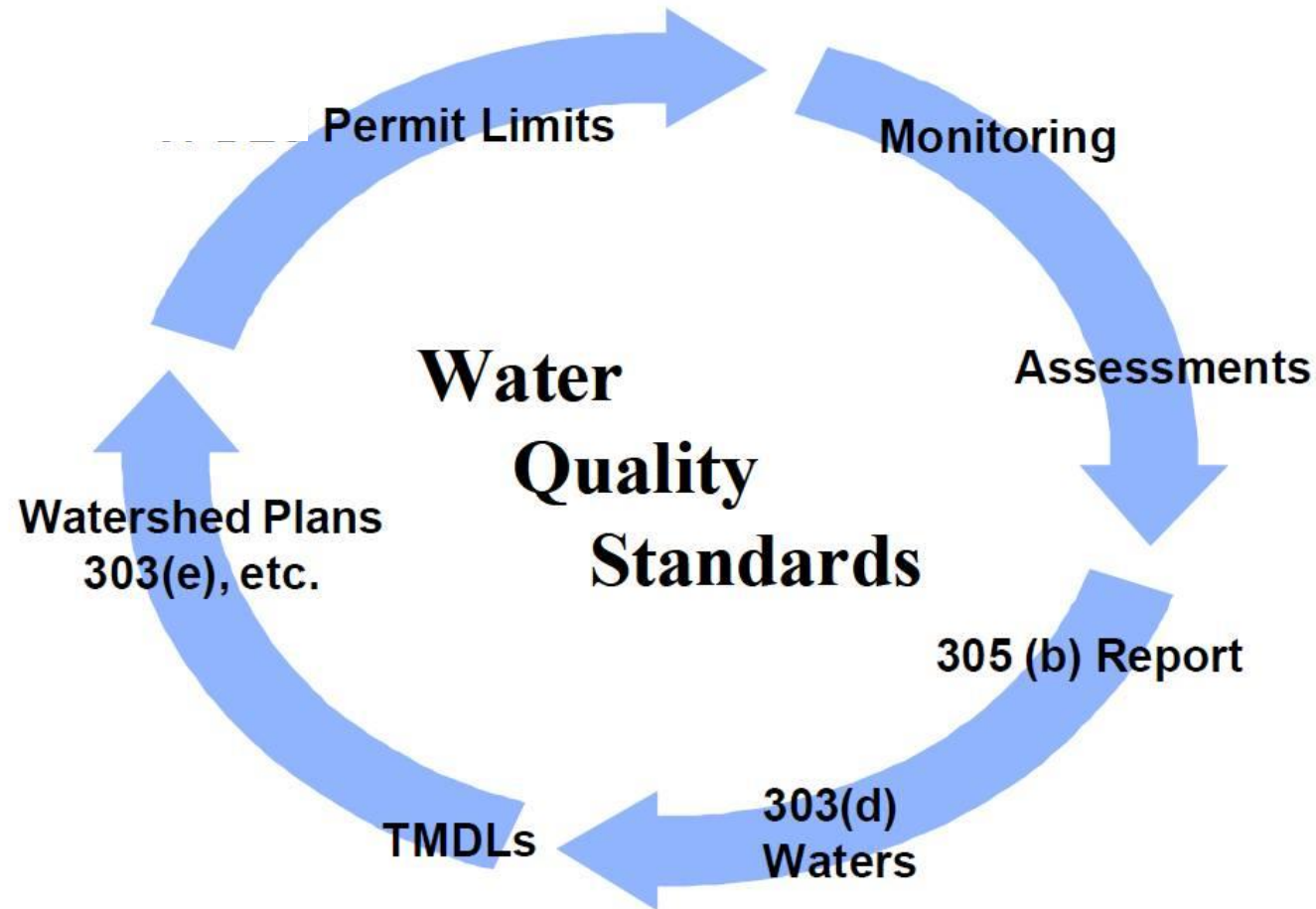
Water Quality Standards Scientist

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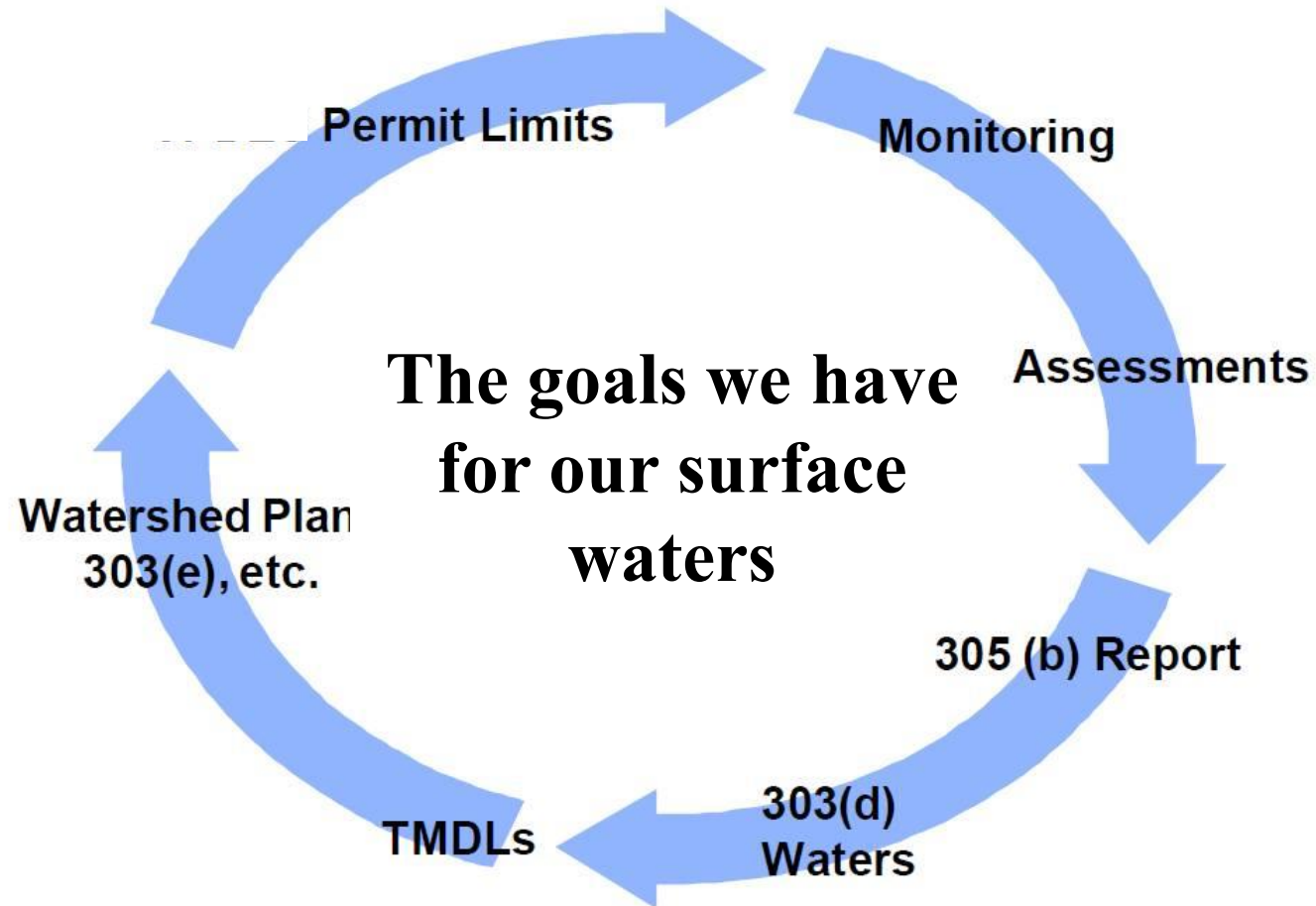
Criteria Assessment Protocol Workgroup

8/11/2025

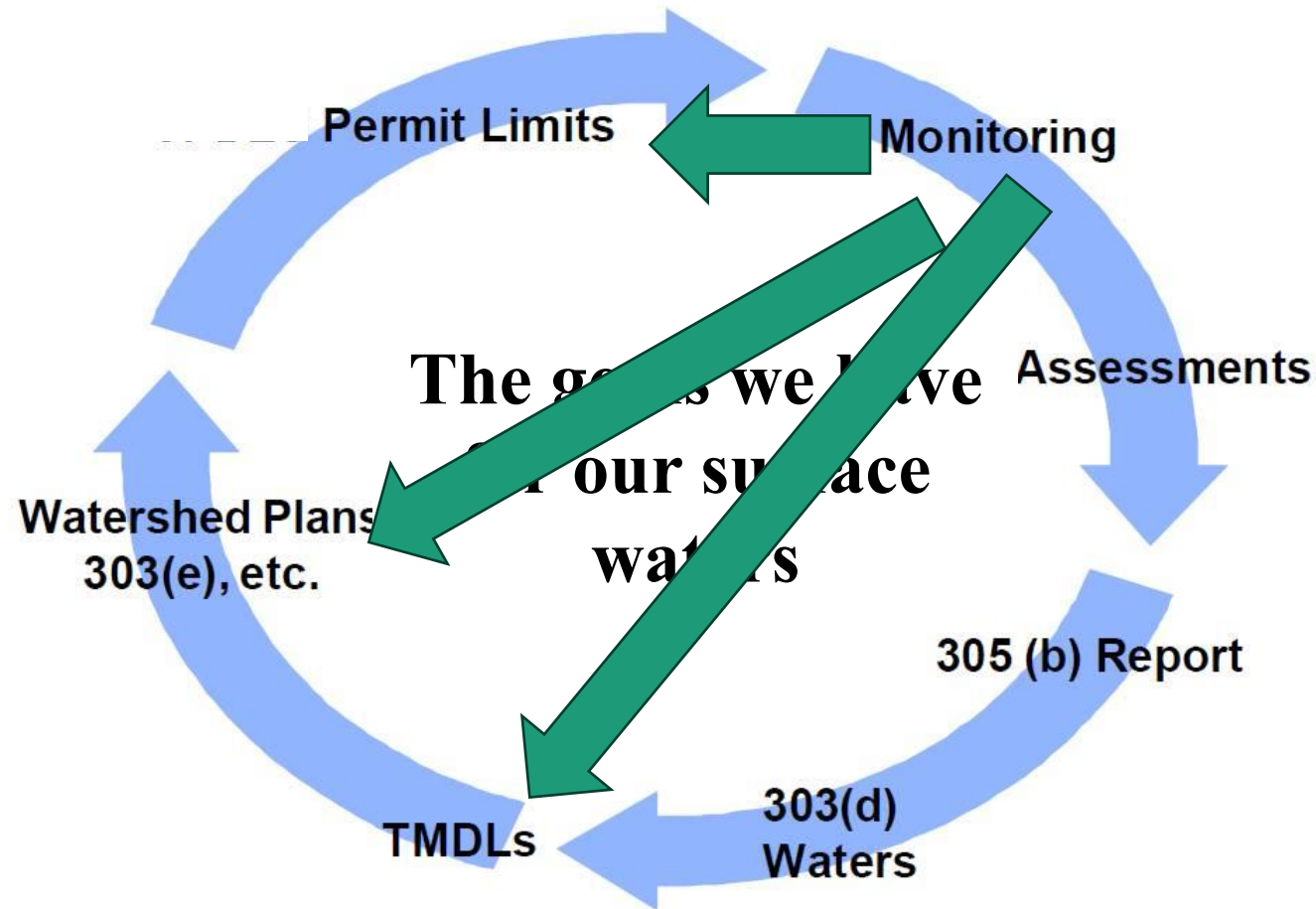
Monitoring is Critical to Water Quality Protection



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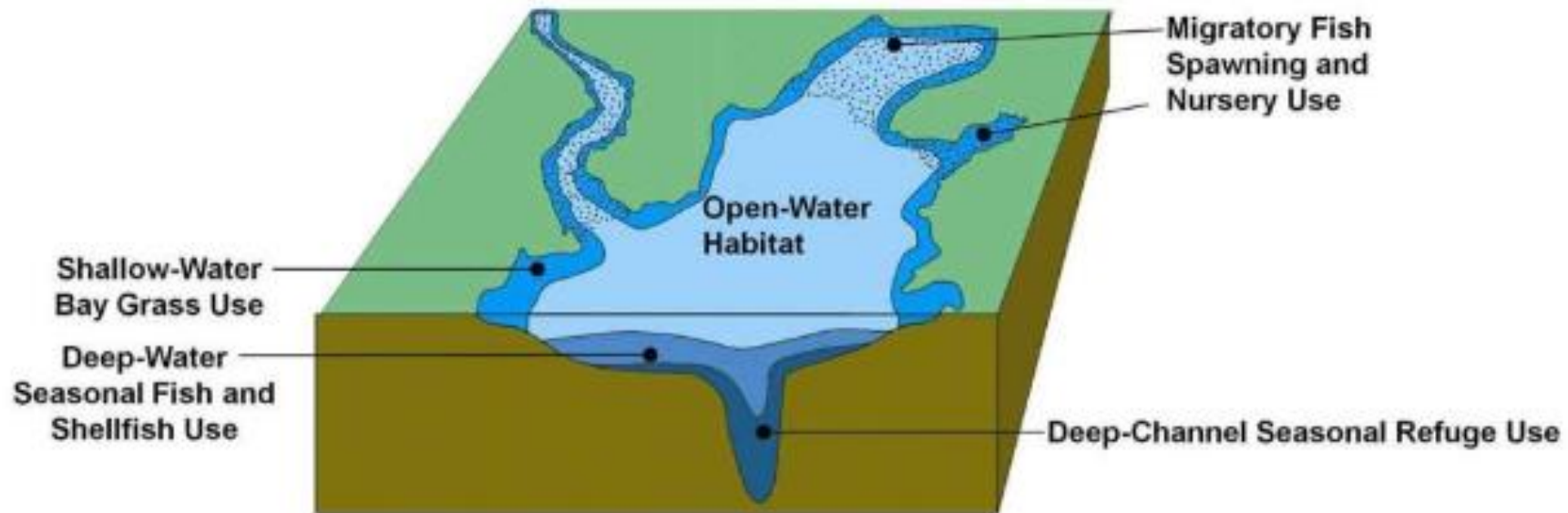


Designated Uses

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Designated Uses for Bay Tidal Waters

Designated Uses

The attainment status of designated uses is evaluated using water quality criteria.

9VAC25-260-185. Criteria to protect designated uses from the impacts of nutrients and suspended sediment in the Chesapeake Bay and its tidal tributaries.

A. Dissolved oxygen. The dissolved oxygen criteria in the following table apply to all Chesapeake Bay waters according to their specified designated use and supersede the dissolved oxygen criteria in [9VAC25-260-50](#).

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean ≥ 6 mg/l (tidal habitats with 0-0.5 ppt salinity) Instantaneous minimum ≥ 5 mg/l	February 1 - May 31
Open water ¹	30-day mean ≥ 5.5 mg/l (tidal habitats with 0-0.5 ppt salinity) 30-day mean ≥ 5 mg/l (tidal habitats with > 0.5 ppt salinity) 7-day mean ≥ 4 mg/l Instantaneous minimum ≥ 3.2 mg/l at temperatures $< 29^{\circ}\text{C}$ Instantaneous minimum ≥ 4.3 mg/l at temperatures $\geq 29^{\circ}\text{C}$	year-round ²
Deep water	30-day mean ≥ 3 mg/l 1-day mean ≥ 2.3 mg/l Instantaneous minimum ≥ 1.7 mg/l	June 1 - September 30
Deep channel	Instantaneous minimum ≥ 1 mg/l	June 1 - September 30

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Currently Assessed

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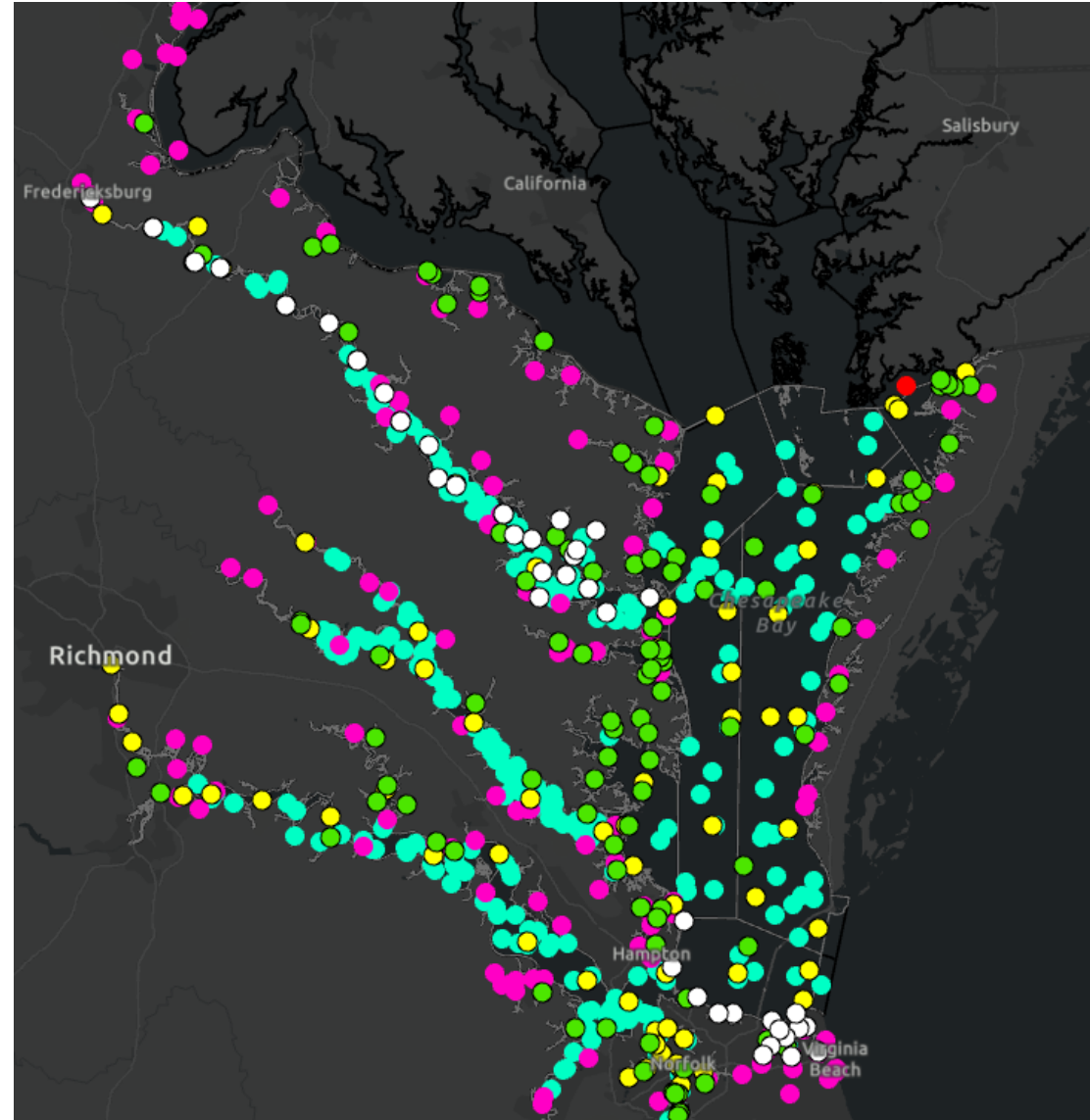
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VA's Bay Discrete DO Monitoring Effort for 2024IR

- CBP Stations (n=21,163)
- DEQ Stations (n=1,698)
- ODU-BEN Stations (n=352)
- DEQ Estuarine ProbMon Stations (n=456)
- VIMS Stations (n=4,350)
- CMC Stations (n=46)

Total number of VA Bay DO observations assessed for 2024IR = 28,065



Current Monitoring Network

- Long-term CBP stations are only monitored once or twice a month.
- Most of the non-CBP monitoring programs focus on shallow waters or surface monitoring.
- Probabilistic monitoring programs capture bottom conditions but stations are generally visited only once.
- Current continuous monitoring has principally focused on shallow water.
- That said, the 4D Interpolator may minimize the weaknesses of our monitoring network so that we can do an adequate job assessing all the DO criteria in most segments.

Opportunities

But there are some areas in the Bay where we would benefit from more enhanced data. Examples of enhanced monitoring:

- Deep water arrays or vertical profilers (high frequency in the deeper waters)
- Shallow-water continuous monitors (high frequency in the shallow waters)
- Weekly cruises at long-term stations (higher frequency in the deeper waters)
- Additional stations (higher spatial resolution)

What are we looking for in an assessment dataset?

What we are hoping for:

- A dataset that enables the assessment all designated uses, using all applicable criteria and all available data.
- A monitoring design that ensures the above objective is met in all segments of the Bay.
- A monitoring design that is feasible in terms of staff and funding resources.
- A monitoring design that is strategic and focuses supplemental resources on segments that would benefit from them the most.

What are we looking for in an assessment dataset?

What we *aren't* hoping for:

1. A monitoring design that produces assessments results of the highest certainty
 - States are expected to make assessment decisions even when available data are limited. This is OK because the states have institutional safeguards that mitigate the consequences of erroneous assessments.
2. Refined characterizations of DO dynamics
 - It is not our goal to generate a dataset that can answer all questions pertaining to Bay DO. We just want to be able to assess, with some confidence, whether criteria were attained in a segment in the most recent three-year period.