

**Shallow Water Monitoring Primer
For CBP Modeling Quarterly Review
Meeting**

12/9/2013

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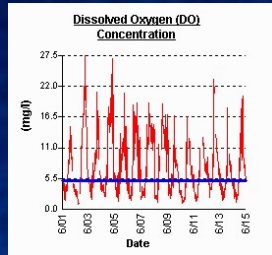
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Maryland DNR Water Quality Monitoring Programs



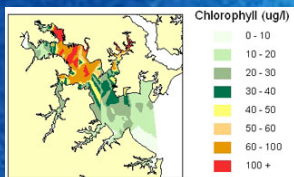
Continuous *In Situ* Monitoring

- 30 - 50 Monitors Annually
- Some at 1m below surface, others 0.3 m off bottom
- Additionally servicing 5 NOAA buoys and 1 joint DNR/NOAA buoy, & a DNR vertical profiler
- Data collected every 15 minutes
- Sonde Parameters: D.O., Turbidity, Chlorophyll W.Temp, Salinity, pH, Depth (at bottom sites)
- In Situ Calibration Data Every 2 weeks
 - Before 2010 all stations had full suites of nutrients, sediment, chl, Kd, profiles
 - Now most stations eliminated nutrient sampling



Water Quality Mapping

- 7 Monthly cruises Apr.-Oct over large areas/Bay segments.
- Data collected every 4 seconds in transit
- Parameters: D.O., Turbidity, Chlorophyll W.Temp, Salinity, pH, Water Depth
- Calibration Data at ~5 Sites each Cruise with similar samples/procedures as continuous monitoring



Points of Interest

- Most sites have three consecutive years of data for water quality criteria assessment purposes
- Numerous 'sentinel' sites have more years, with the most being 14yrs.
- Some sites deployed for special studies or purposes
 - upstream and downstream of oyster restoration project (Harness Crk)
 - bottom meters at up/down river sites bracketing vertical profiler (Harris Crk)
 - inside and outside of an SAV bed
 - sites on east/west sides of the Bay in segment 3
 - some sites in proximity of buoys in open water
 - sites in lower Susquehanna, Flats and nearby tribs concurrently
 - sites traversing the length of major rivers (Potomac, Patuxent)
 - in 2001 and 2002, water quality mapping collected twice monthly in Severn and Magothy
 - sites run the range of urban to rural/ag dominated watersheds, tidal fresh to mesohaline (polyhaline in VA)
- 500+ cumulative 'seasons' of data for MD

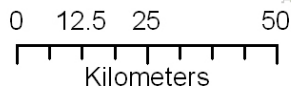
Assessment Summary

CBPSEG

- ANATF
- BACOH
- BIGMH
- BOHOH
- BSHOH
- C&DOH
- CB1TF
- CB2OH
- CB3MH
- CB4MH
- CB5MH
- CHOMH1
- CHOMH2
- CHOOH
- CHOTF
- CHSMH
- CHSOH
- CHSTF
- EASMH
- ELKOH
- FSBMH
- GUNOH
- HNGMH
- LCHMH
- MAGMH
- MANMH
- MATTF
- MIDOH
- NANMH
- NANOH
- NANTF
- NORF
- PATMH
- PAXMH
- PAXOH
- PAXTF
- PISTF
- POCMH
- POCOH
- POCTF
- POTMH
- POTOH
- POTTf
- RHDH
- SASOH
- SEVMH
- SOUMH
- TANMH
- WBRTF
- WCMH
- WSTMH

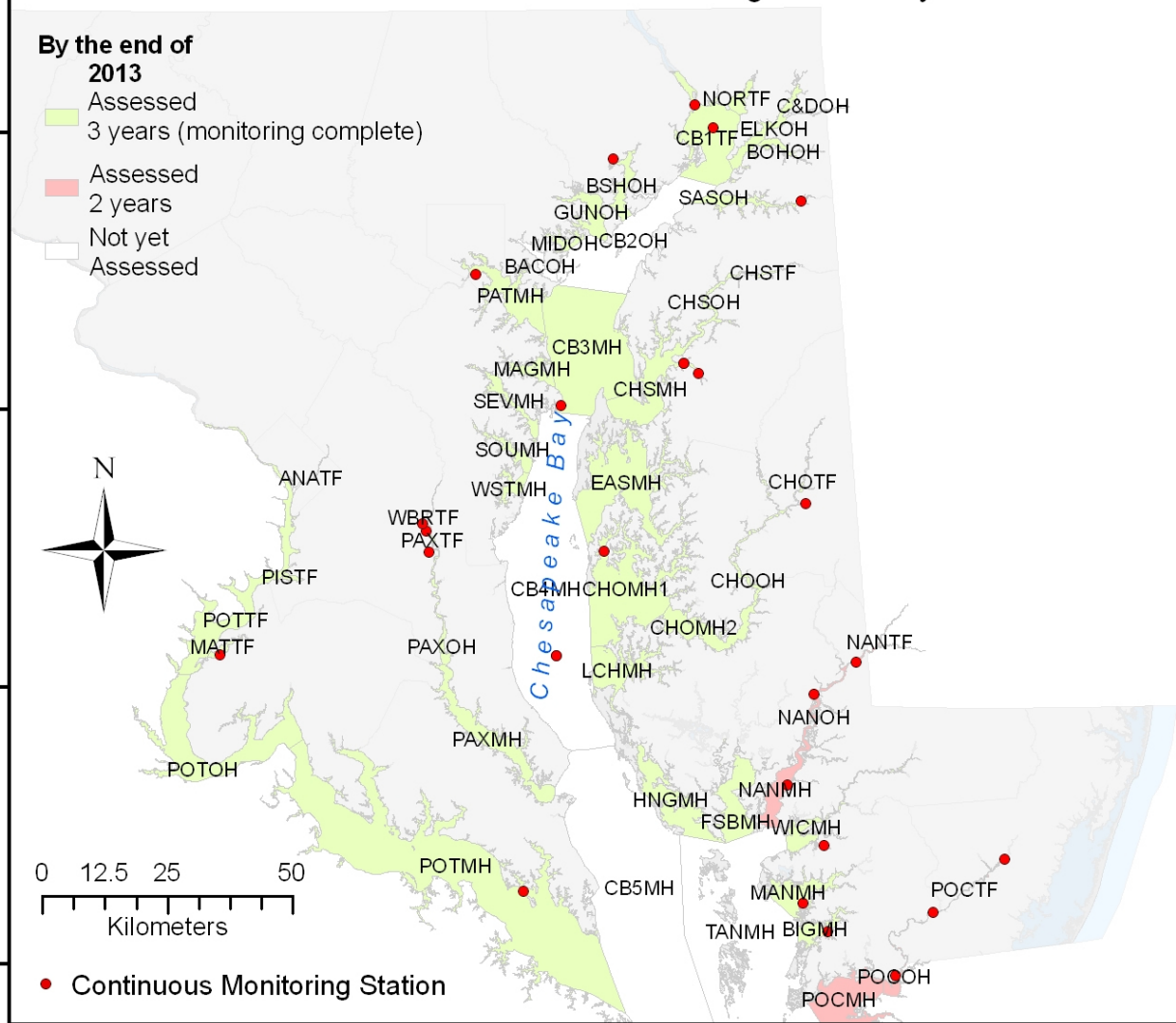
By the end of 2013

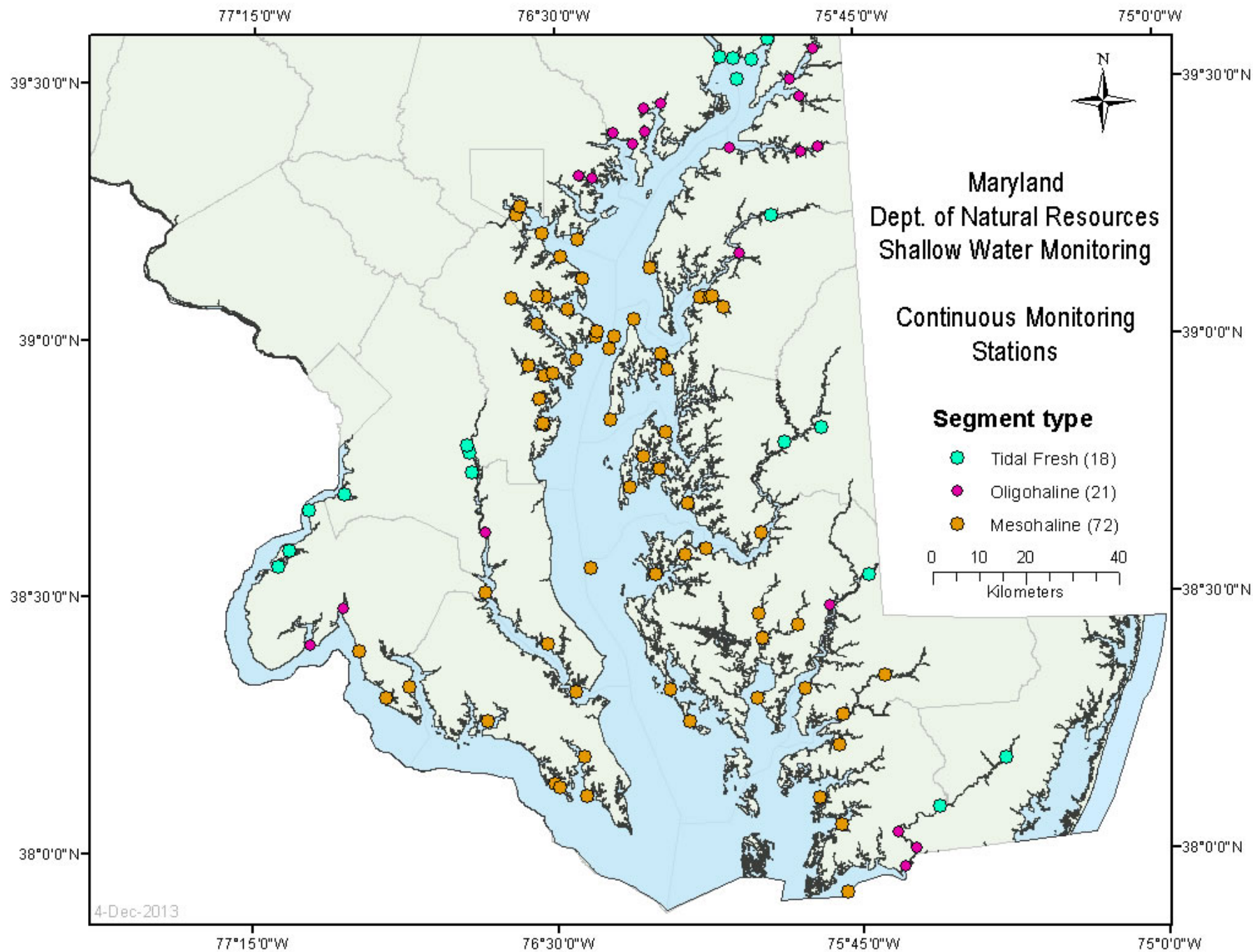
- Assessed
3 years (monitoring complete)
- Assessed
2 years
- Not yet
Assessed



Continuous Monitoring Station

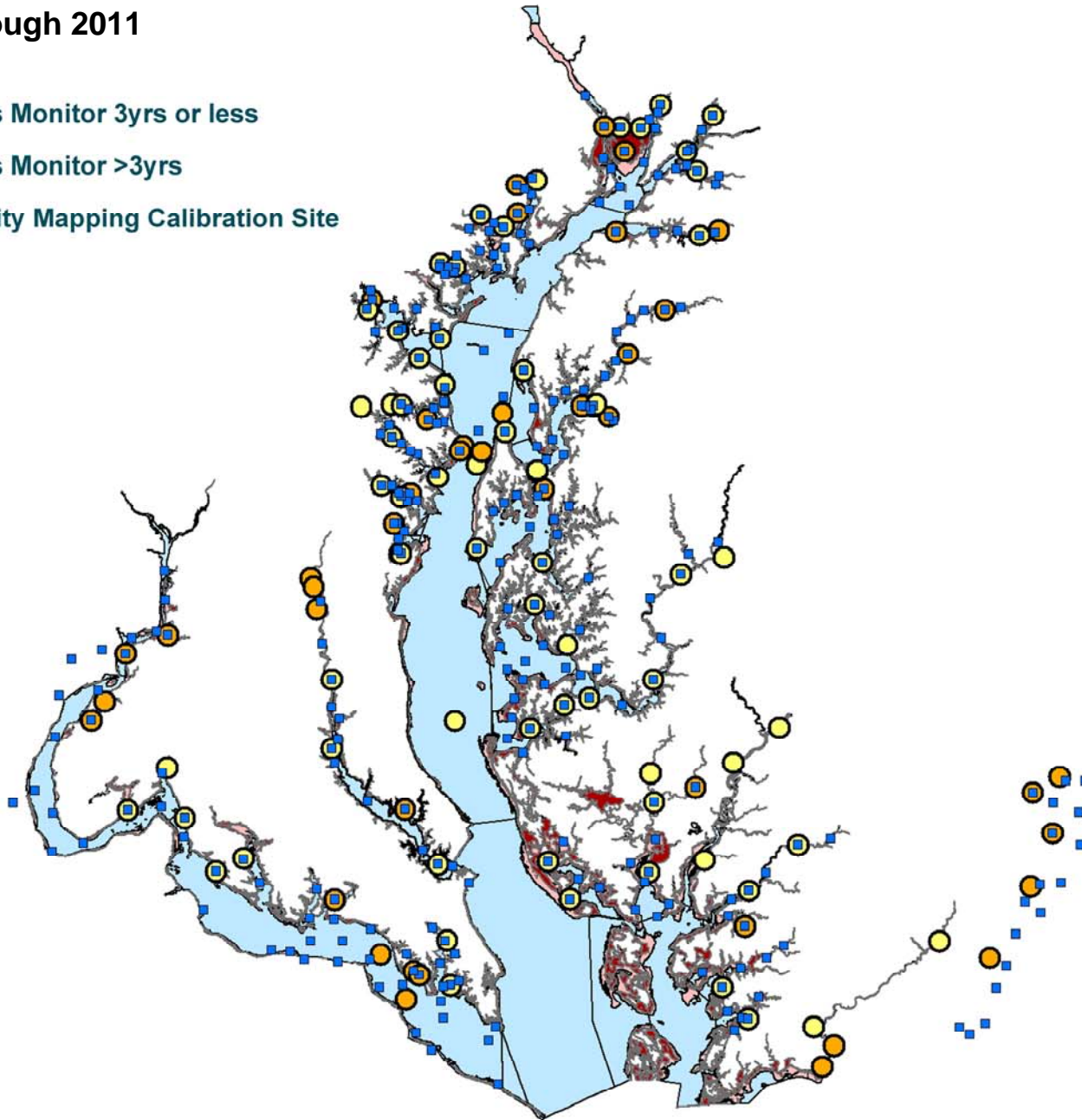
2013 Shallow Water Monitoring Summary



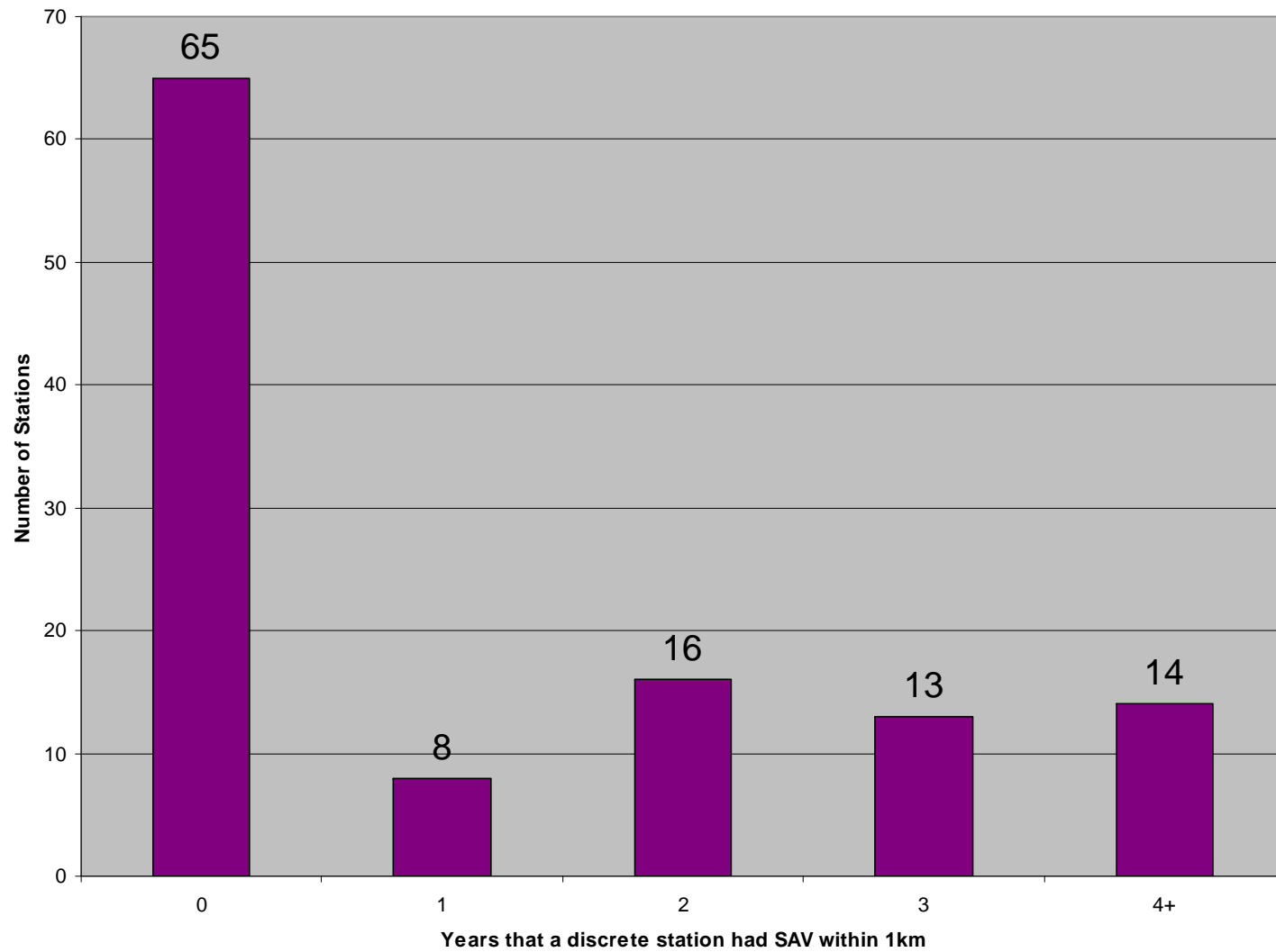


Through 2011

- Continuous Monitor 3yrs or less
- Continuous Monitor >3yrs
- Water Quality Mapping Calibration Site

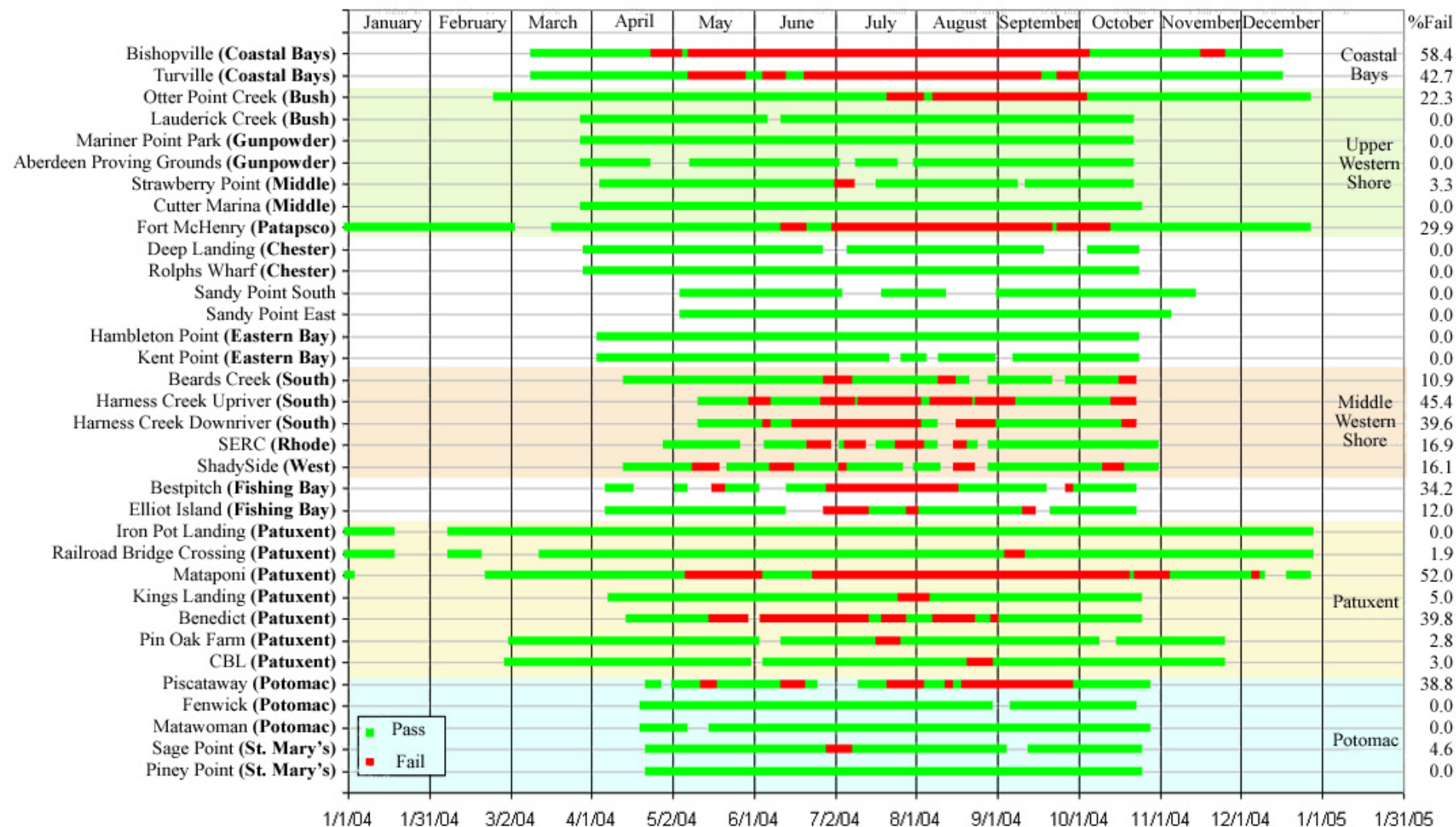


SAV at or in close proximity to a Continuous Monitoring Station



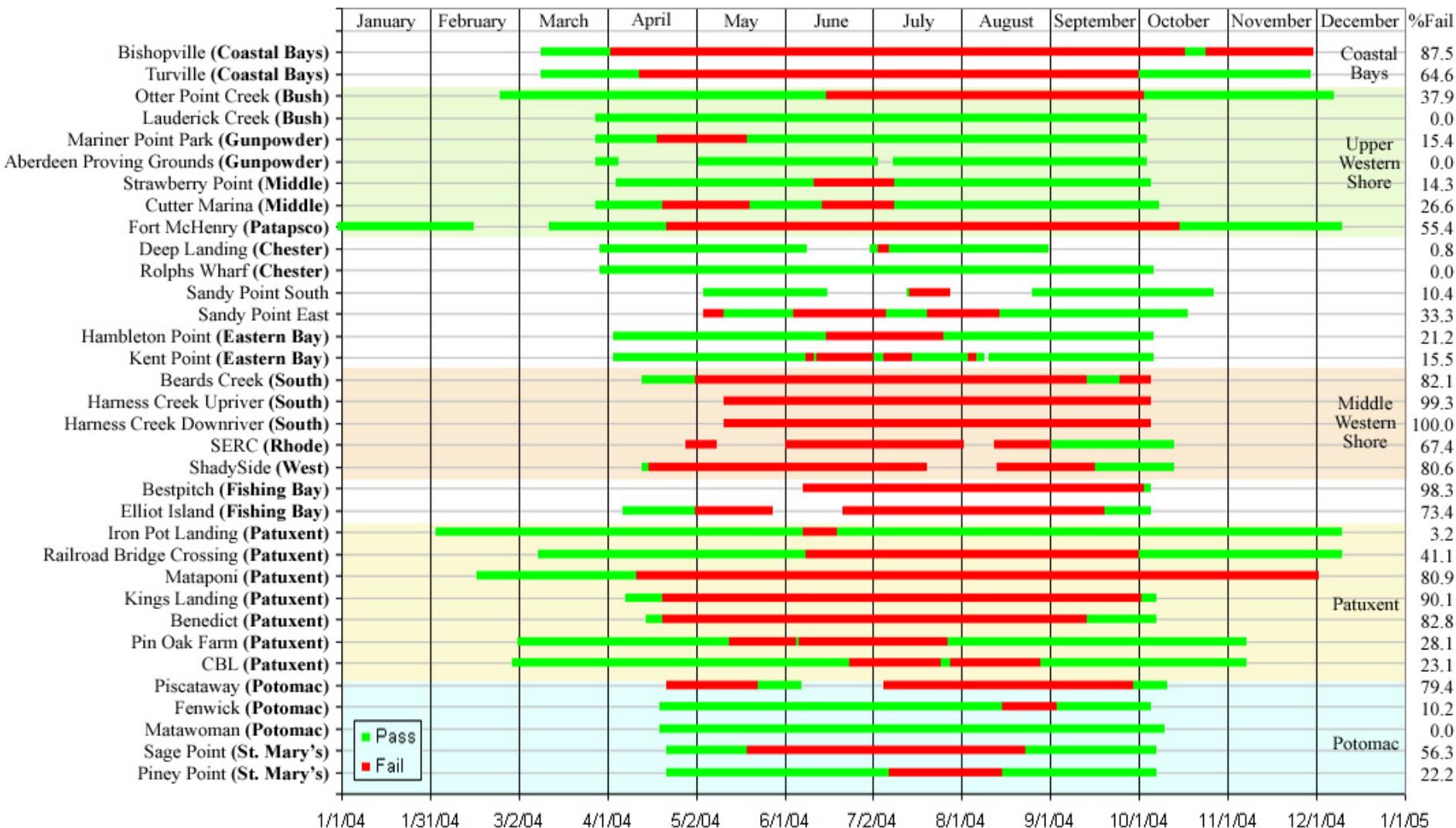
2004 7-day Dissolved Oxygen Criteria

Failing determined by at least 10% of data within a 7-day window exceeding the 4 mg/l threshold



2004 30-Day Dissolved Oxygen Criteria

Failing determined by at least 10% of data within a 30-day window exceeding the 5.5 mg/l threshold



EOTB HOME

CURRENT CONDITIONS

STATUS & TRENDS

HARMFUL ALGAE

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- 2012 acid: Hurricane Irene and TS Lee may have killed off some of the stink bugs. At least there was something positive. [View this story](#) 21 hrs ago

Click a station for more info and data

Monitoring Types & Stations

- ☒ [Water Quality Mapping](#)
- ☒ [Continuous Monitoring](#)
- ☒ [Long-Term Monitoring](#)
- ☒ [Partners/Other Data Providers](#)

-Click Arrow to Expand Legend
-Checkbox Removes/Adds Layer
-Link Returns Program Info

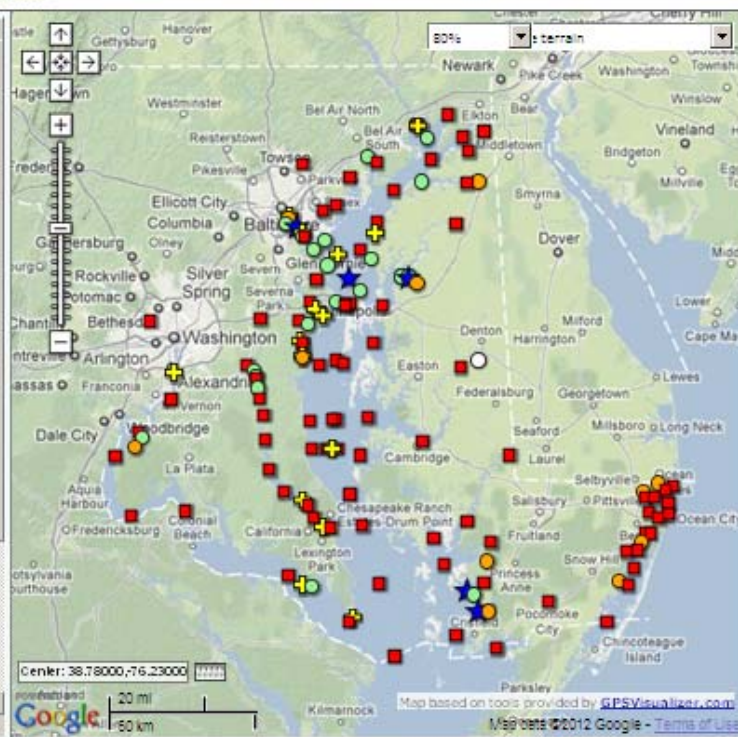
Select Another Year for Map Display:

2011

Submit

Station Legend

- Long-Term Fixed Station
- ★ Dataflow / Water Quality Mapping Segment
- Continuous Monitoring Station with Real-time Telemetry
- Continuous Monitoring Station without Telemetry



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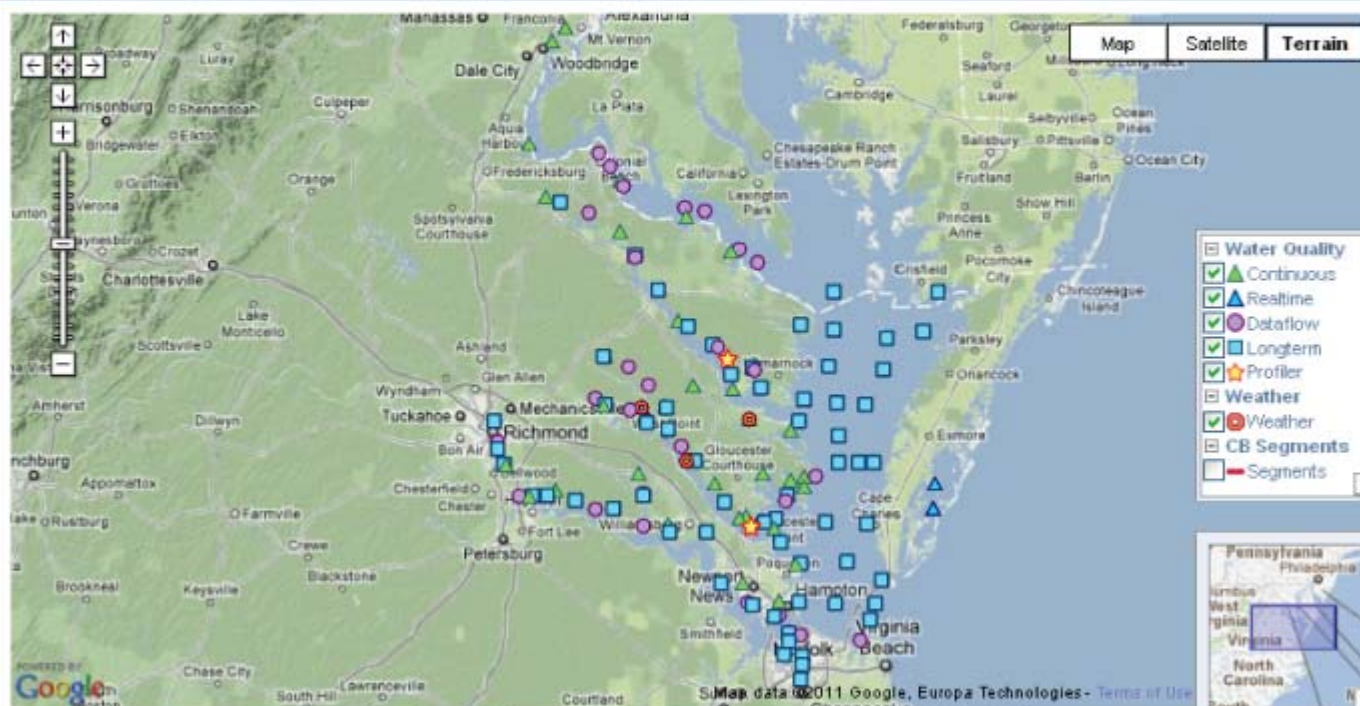
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--- To view data, click on the map above or select from the listings below ---

- Select a continuous station - OR - Select a dataflow cruise - OR - Select a longterm station -

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