Explaining Water Quality Trends
It's Not So Easy

TMAW/NTW Joint Meeting
March 27, 2013

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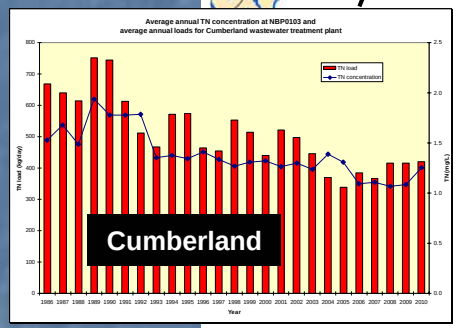
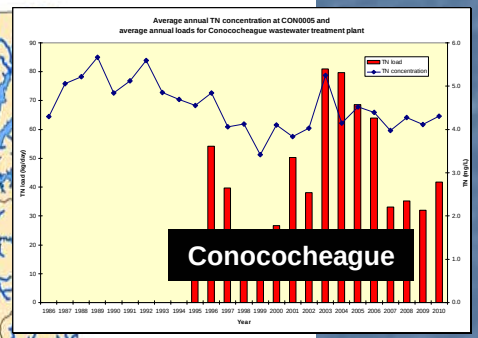
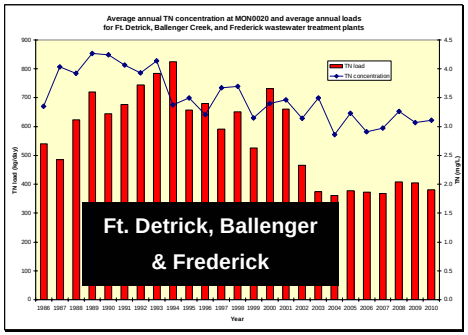
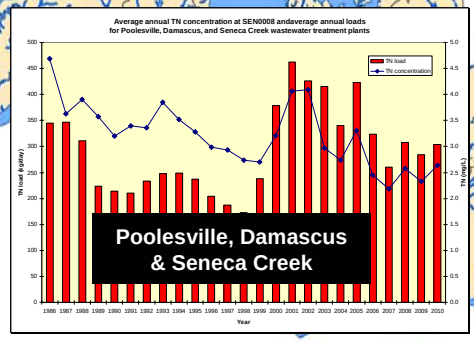
Total Nitrogen Trends (1986-2010) at Non Tidal Monitoring Stations – 46 of 54 Show Improvement

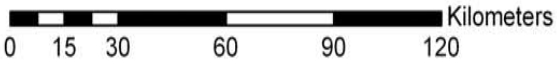


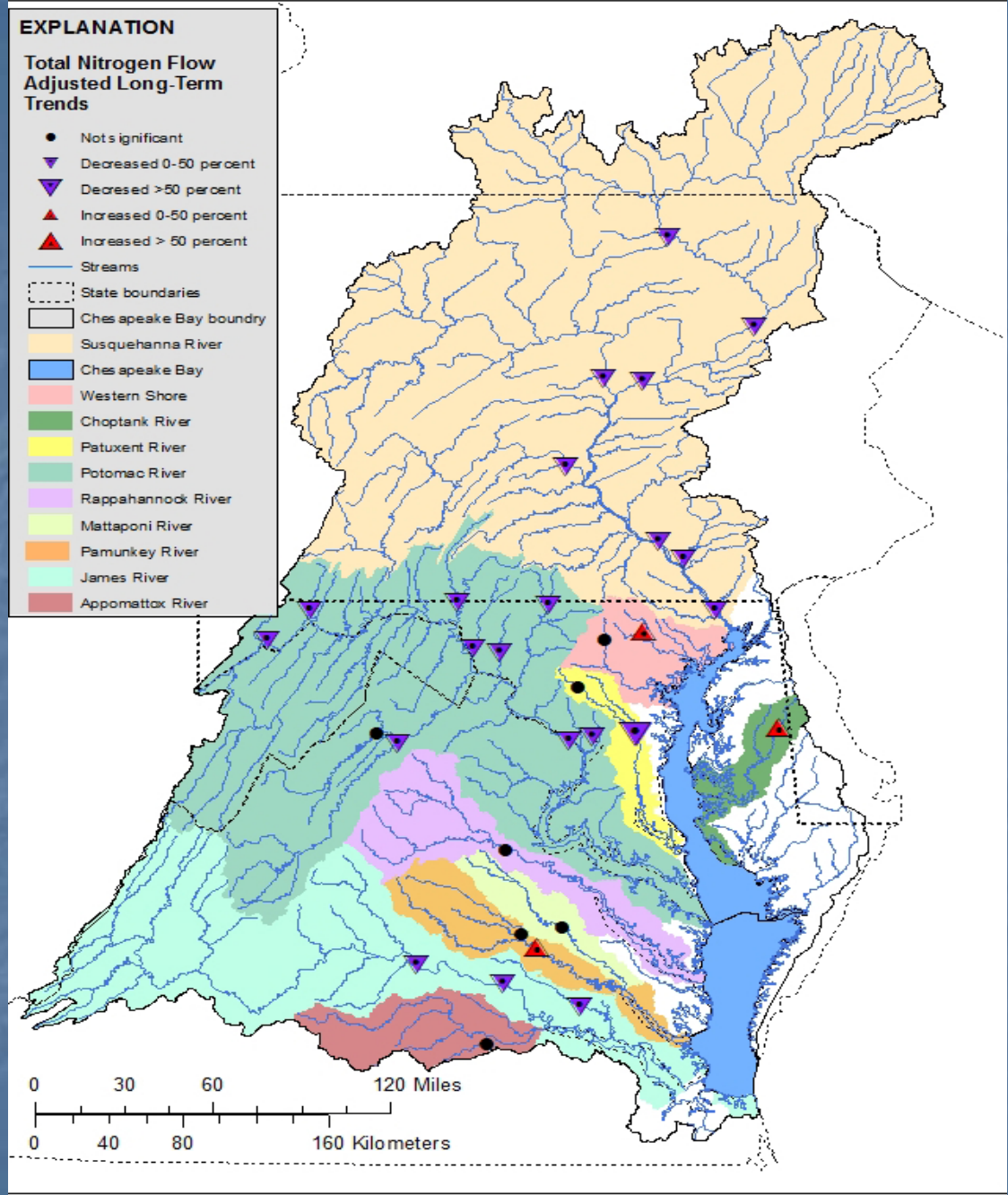




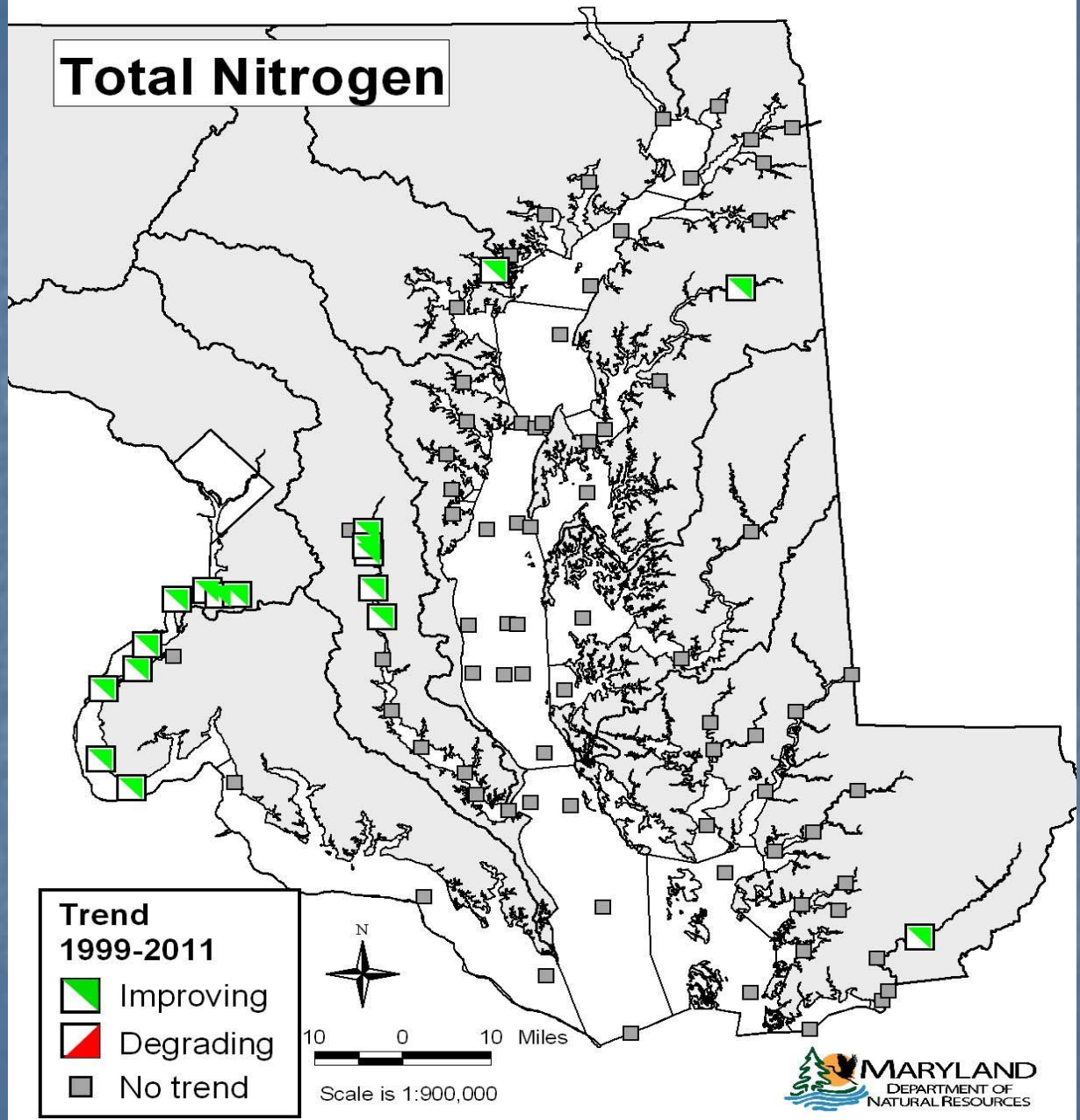


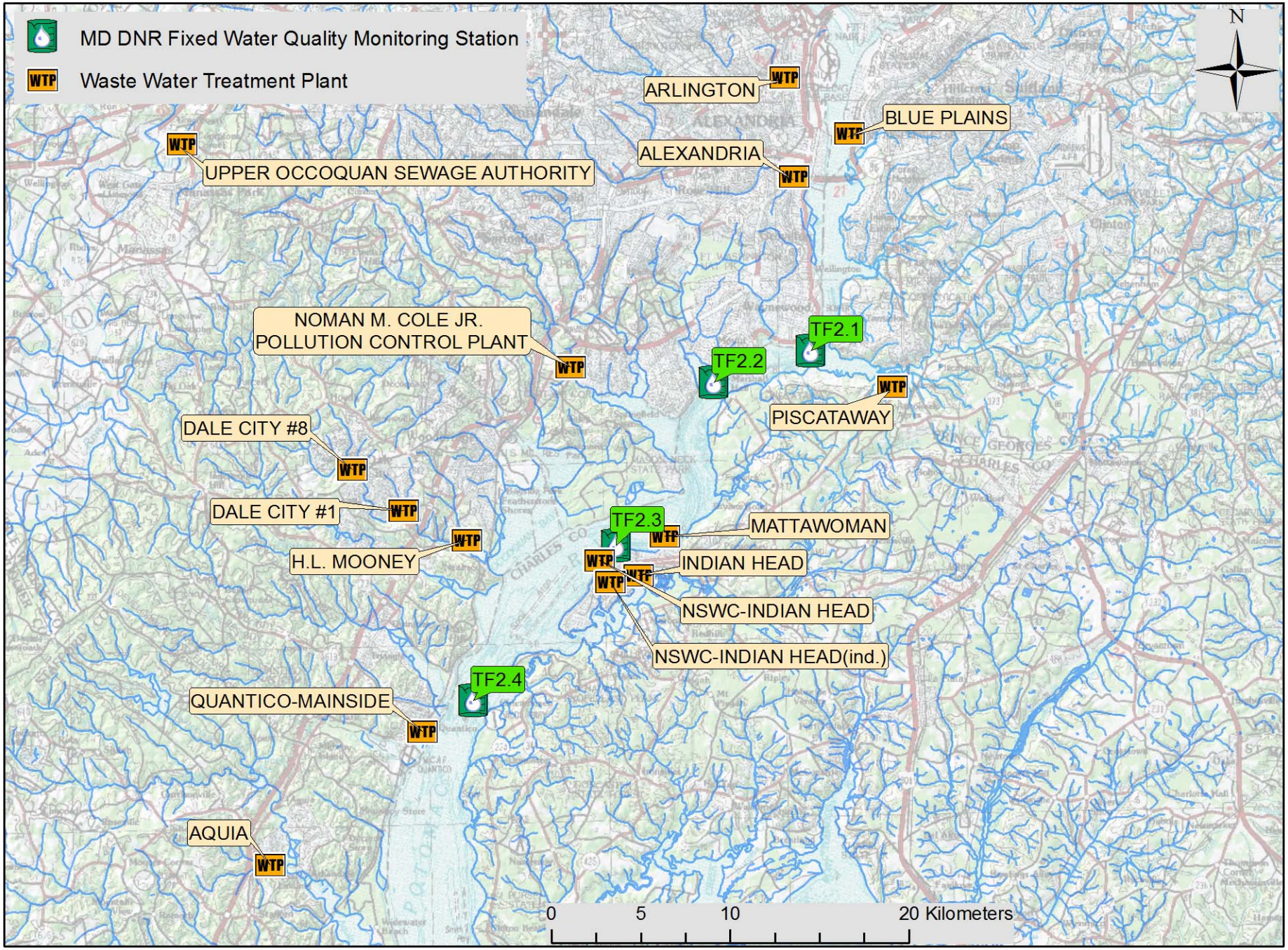
Note: All trends are observed data (not flow adjusted) – trends are significant at $p \leq 0.01$



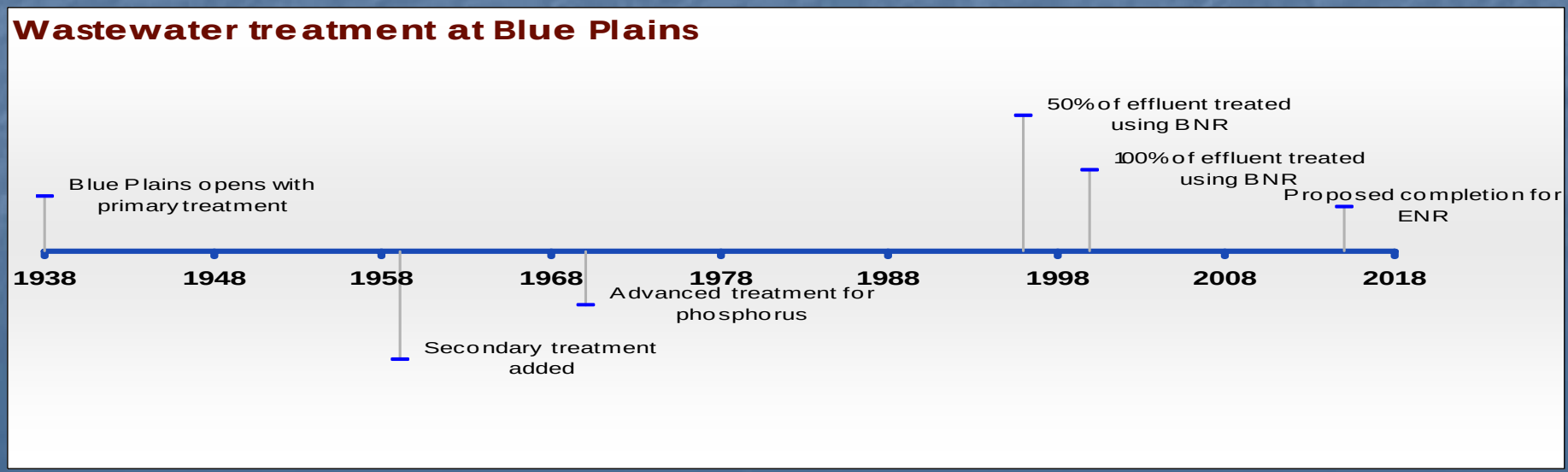


Flow-adjusted trends for total nitrogen for 31 sites in the Chesapeake Bay Watershed, 1985-2011.

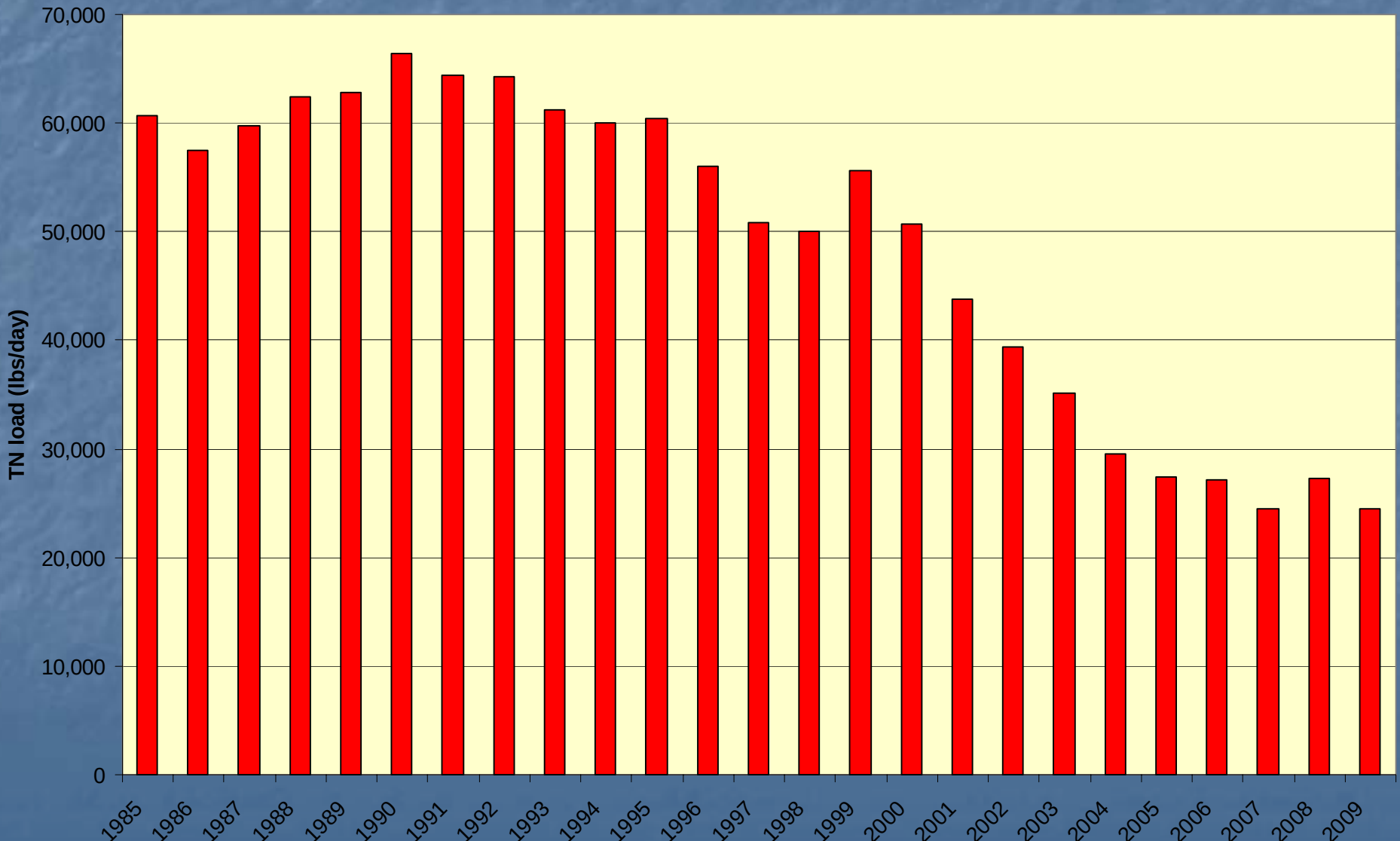

Total Nitrogen
Trend
1999-2011
Improving
Degrading
No trend
N
10 0 10 Miles
Scale is 1:900,000
MARYLAND
DEPARTMENT OF
NATURAL RESOURCES
All trends are observed data (not flow adjusted).
Trends are significant at p <= 0.01.


MD DNR Fixed Water Quality Monitoring Station
WTP
Waste Water Treatment Plant
N
ARLINGTON
BLUE PLAINS
ALEXANDRIA
UPPER OCCOQUAN SEWAGE AUTHORITY
NOMAN M. COLE JR.
POLLUTION CONTROL PLANT
TF2.1
TF2.2
PISCATAWAY
DALE CITY #8
DALE CITY #1
TF2.3
MATTAWOMAN
H.L. MOONEY
INDIAN HEAD
NSWC-INDIAN HEAD
NSWC-INDIAN HEAD(ind.)
TF2.4
QUANTICO-MAINSIDE
AQUIA
0
5
10
20 Kilometers

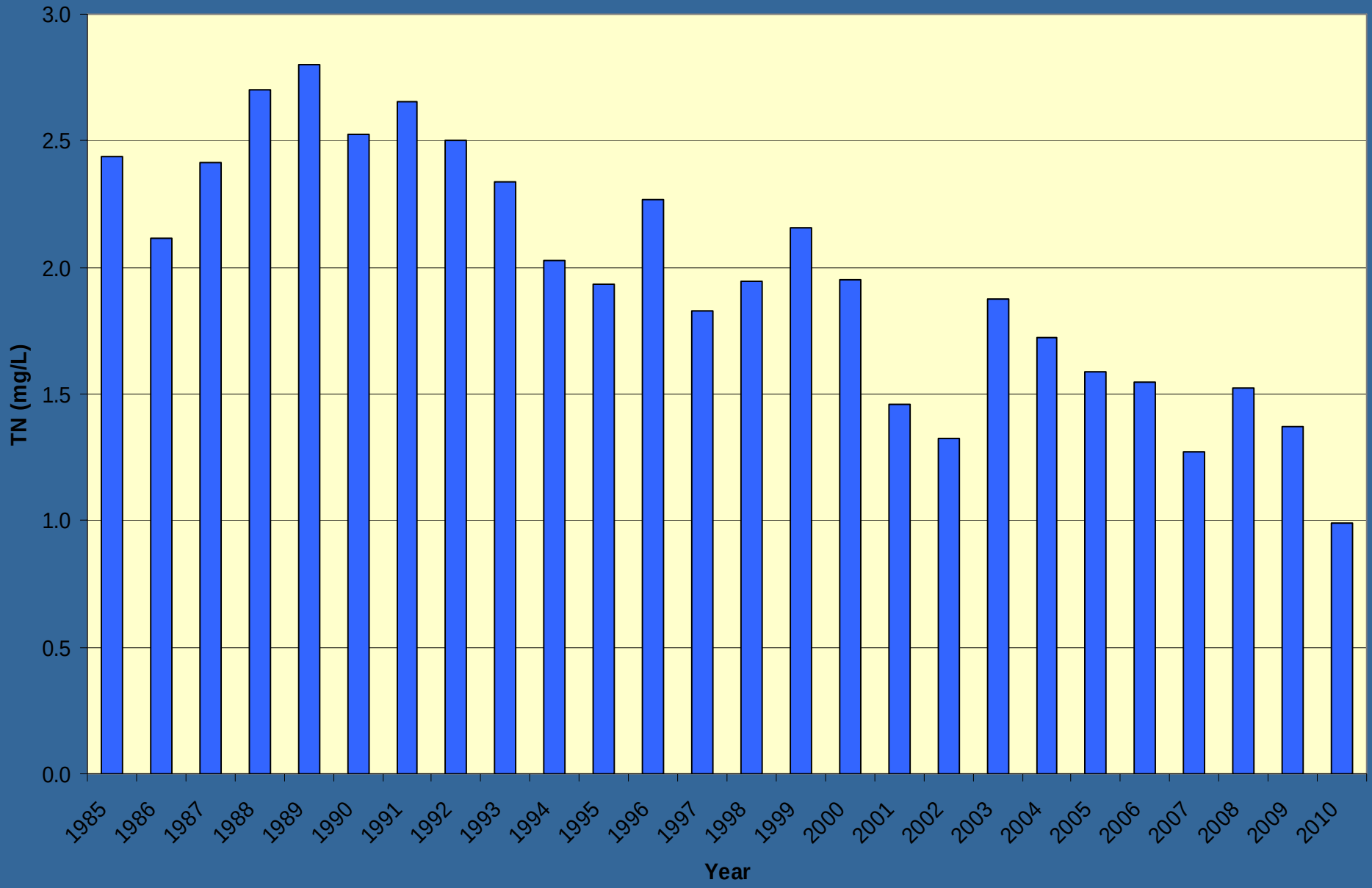
Blue Plains Wastewater Treatment Plant – 370 MGD

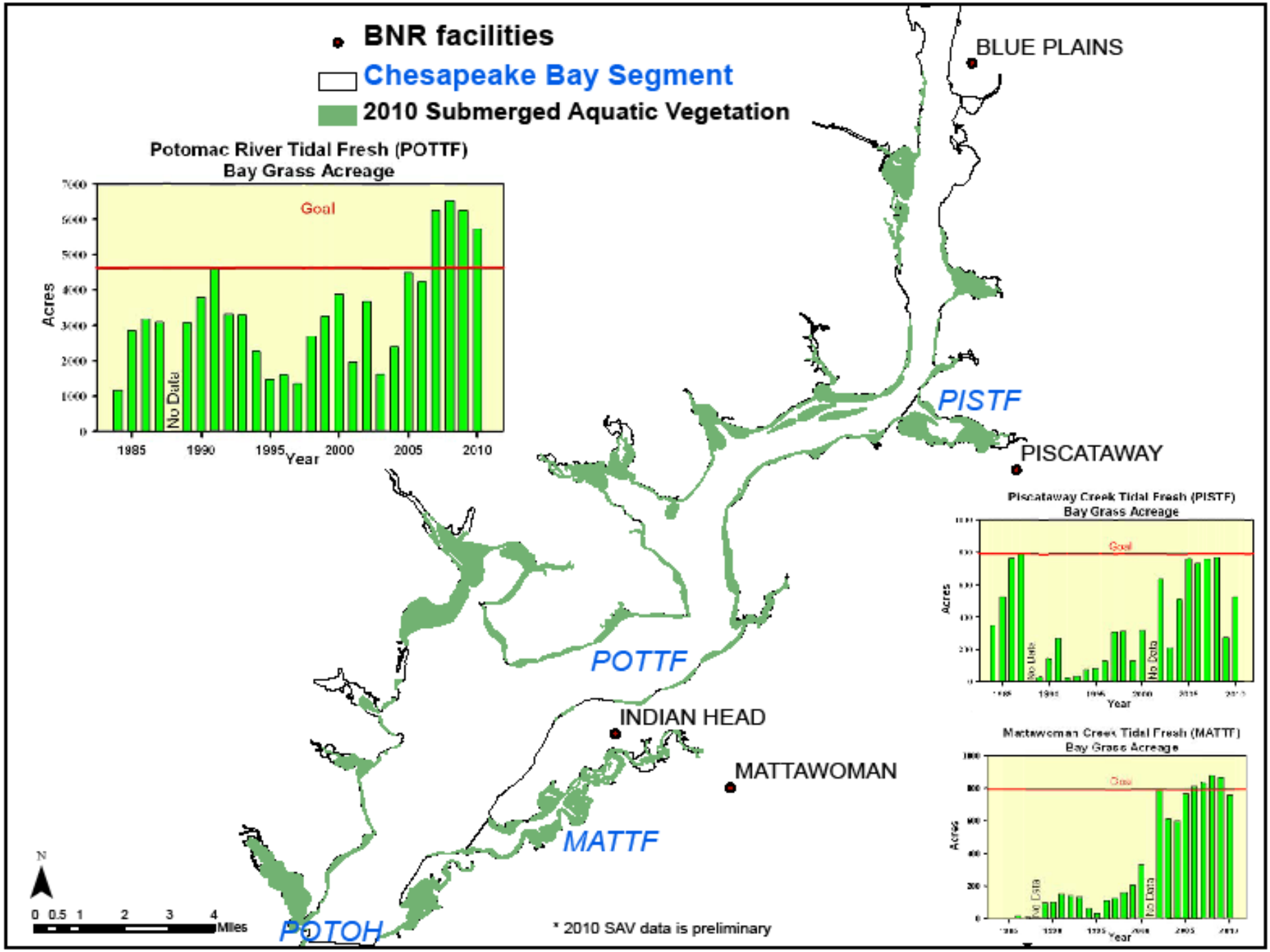


Annual Average TN Loads for 15 Major WWTP in Washington DC Area



Summer Average (June – September) Surface TN Concentrations at Tidal Fresh Potomac Stations




BNR facilities
Chesapeake Bay Segment
2010 Submerged Aquatic Vegetation
BLUE PLAINS
PISCATAWAY
PISTF
POTTF
INDIAN HEAD
MATTAWOMAN
MATTF
POTOH
Potomac River Tidal Fresh (POTTF)
Bay Grass Acreage
Goal
Acres
No Data
Year
Piscataway Creek Tidal Fresh (PISTF)
Bay Grass Acreage
Mattawoman Creek Tidal Fresh (MATTF)
Bay Grass Acreage
N
0 0.5 1 2 3 4
Miles
* 2010 SAV data is preliminary

How to Use This Site

Water Quality Alerts & Social Media

Monitoring Stories and Publications

NEW Water Quality & Habitat Assessments

What Does It Mean?

Lesson Plans

Links

Partners

Ask an Expert

BayStat

Maryland StreamHealth

DNR Home Page

Eyes on the Bay - Home

Eyes on the Bay Mobile for Real-Time Data

Email us comments, follow our Twitter feed, or visit us on Facebook.

Eyes on the Bay

Like You like this.

@EyesontheBay Twitter Feed:

eyesonthebay Follow @Marylandgovjobs for latest State of MD job listings, including DNR positions. 1 minute ago

eyesonthebay Looks like Maryland's 'bottle bill' will have to be recycled in another year. bsun.md/YAf6fp 21 hours ago

eyesonthebay Did you know all of our water quality data 1985-2012 can be downloaded from @chesbayprogram ? bit.ly/XBZuF4 21 hours ago

Click a station for more info and data

Monitoring Types & Stations

- Water Quality Mapping
- Continuous Monitoring
- Long-Term Monitoring
- Partners/Other Data Providers
- State Highway Admin. Weather/Road Conditions

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

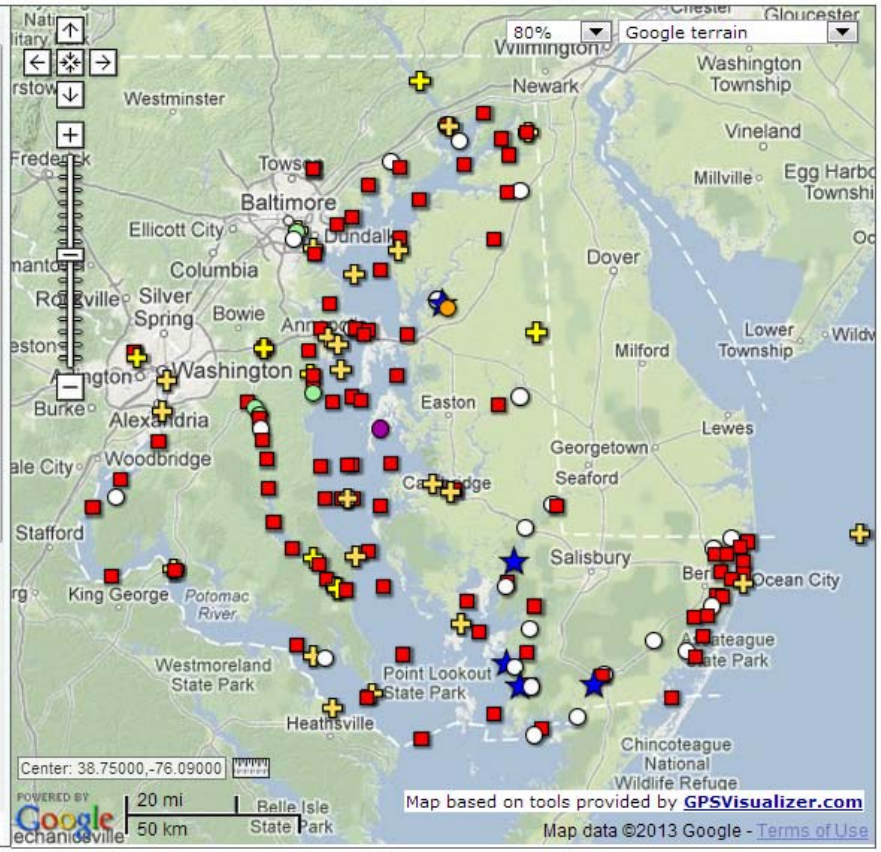
Select Another Year for Map Display:

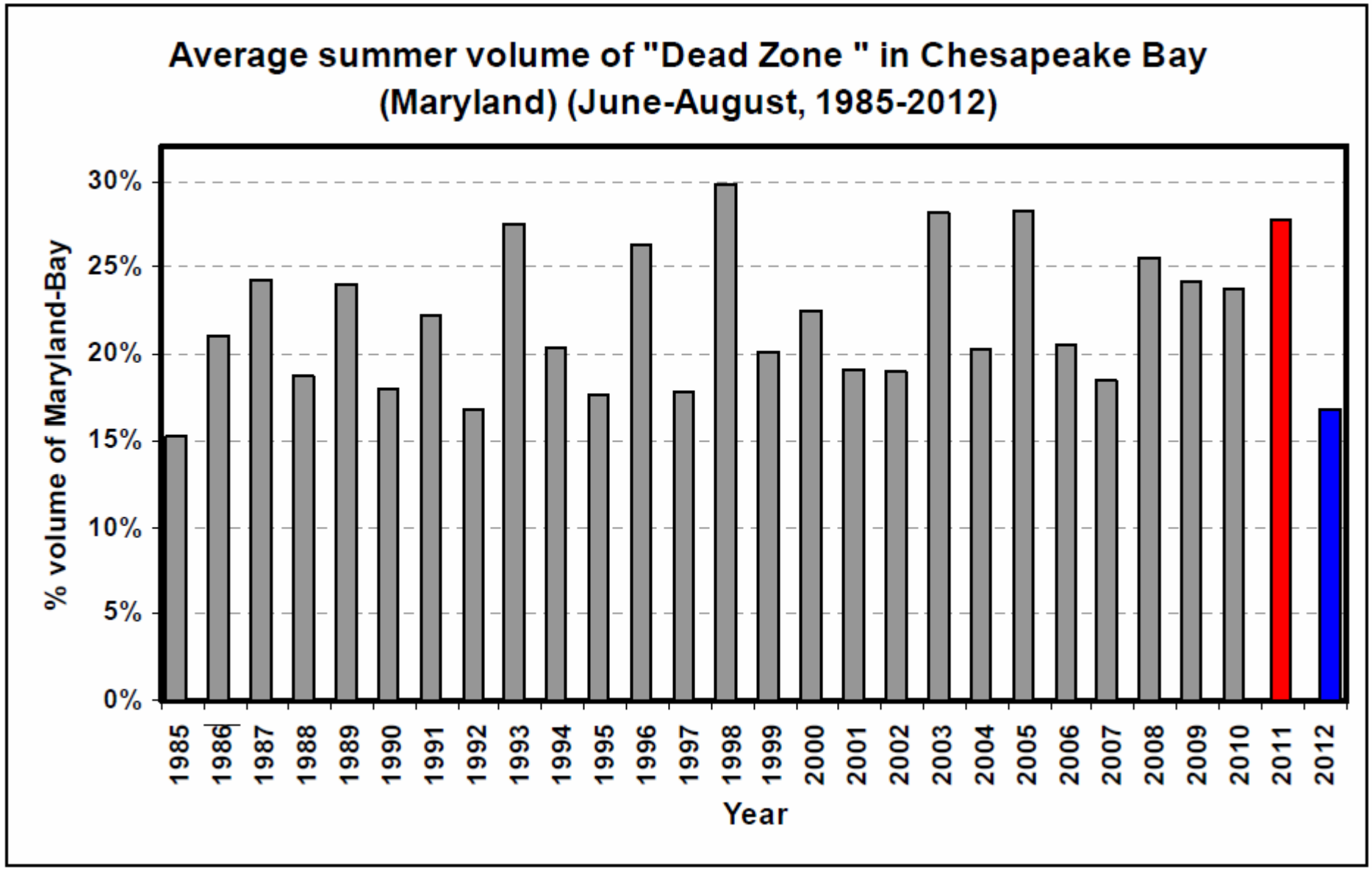
2013

Submit

Station Legend

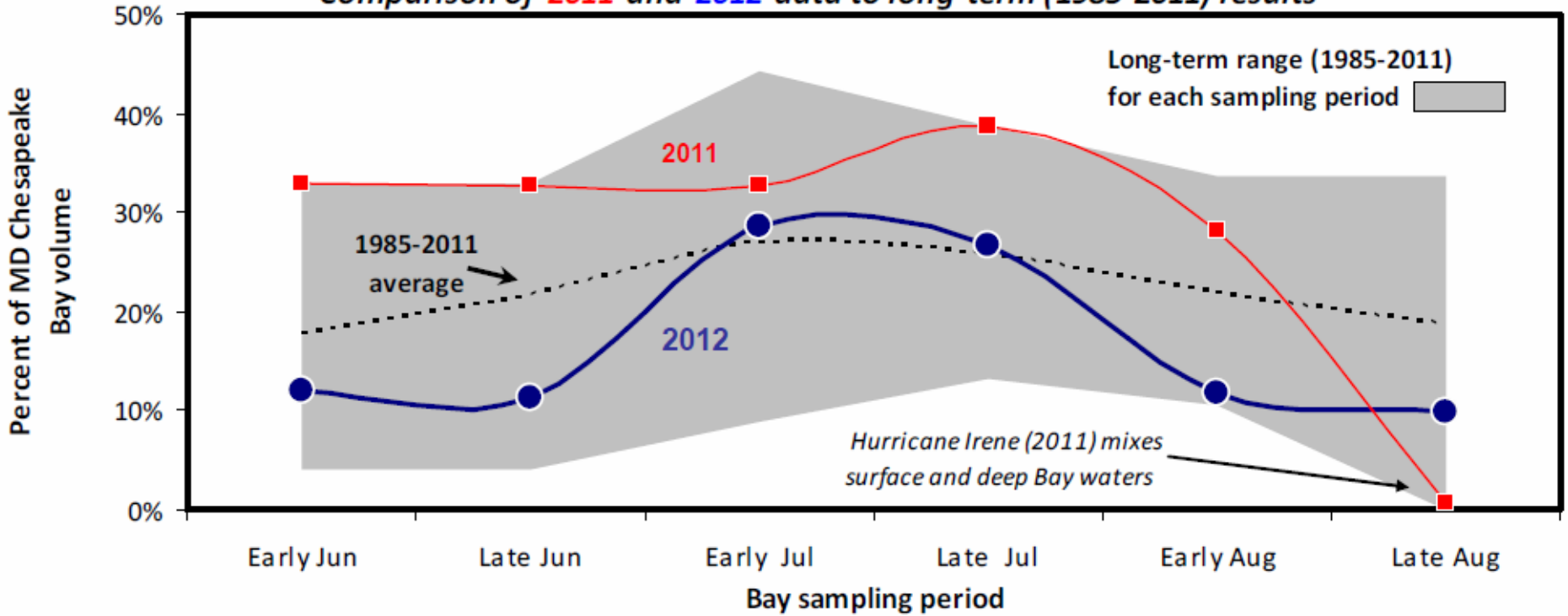
- Long-Term Fixed Station
- Dataflow / Water Quality Mapping Segment
- Continuous Monitoring Station with Real-time Telemetry
- Continuous Monitoring Station without




Average summer volume of "Dead Zone " in Chesapeake Bay (Maryland) (June-August, 1985-2012)
% volume of Maryland-Bay
30%
25%
20%
15%
10%
5%
0%
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Year

Seasonal volume of low dissolved oxygen waters (< 2 mg/L) in Maryland portion of mainstem Chesapeake Bay.

Comparison of 2011 and 2012 data to long-term (1985-2011) results



Message

Improved 2012 oxygen condition in the deep portions of the Bay is directly attributed to low winter and spring flows which carried lower loads of nutrients to the Bay. Reductions in nutrient loads due to continuing implementation of nutrient reduction strategies such as upgrades to wastewater treatment plants, stormwater management controls, the implementation of agriculture BMPs such as cover crops, and reductions in atmospheric deposition through point source air emissions reductions helps to further reduce available nutrients.

Current Health

Causes of the Problems

Solutions

Trust Fund

Tributary Teams

GET INVOLVED

Welcome
How to Navigate Site
A Message from the Governor
Executive Order (pdf)
Fact Sheet (pdf)
BayStat and Land Conservation
Oysters
News
FREE Email Newsletter

BAY STAT
CHESAPEAKE
Governor Martin O'Malley

video transcript

Chesapeake Bay Blue Crab Population Is At Its Highest Level Since 1997

Annual Bay-Wide Winter Dredge Survey Results Indicate 60% Increase; 658 Million Crabs Show Bi-State Management Actions Continue to Improve Abundance

The results of the most recent winter dredge survey show a 60% increase in Maryland's crab population. The survey indicates that 2008 management measures put into place through a historic collaboration with Virginia and the Potomac River Fisheries Commission are continuing to pay dividends with the crab population at its highest level since 1997. This year, the survey estimated 658 million crabs overwintered in Chesapeake Bay. Go to the April 14 press release for more details and graphics.

From the desk of Governor Martin O'Malley

One of the things we share as Marylanders is a love for the Chesapeake Bay. The Chesapeake Bay has been an important part of our heritage from the explorations of Captain John Smith, through early settlements and struggles for independence and freedom. In both the past and the present the Bay stands out as a source of food