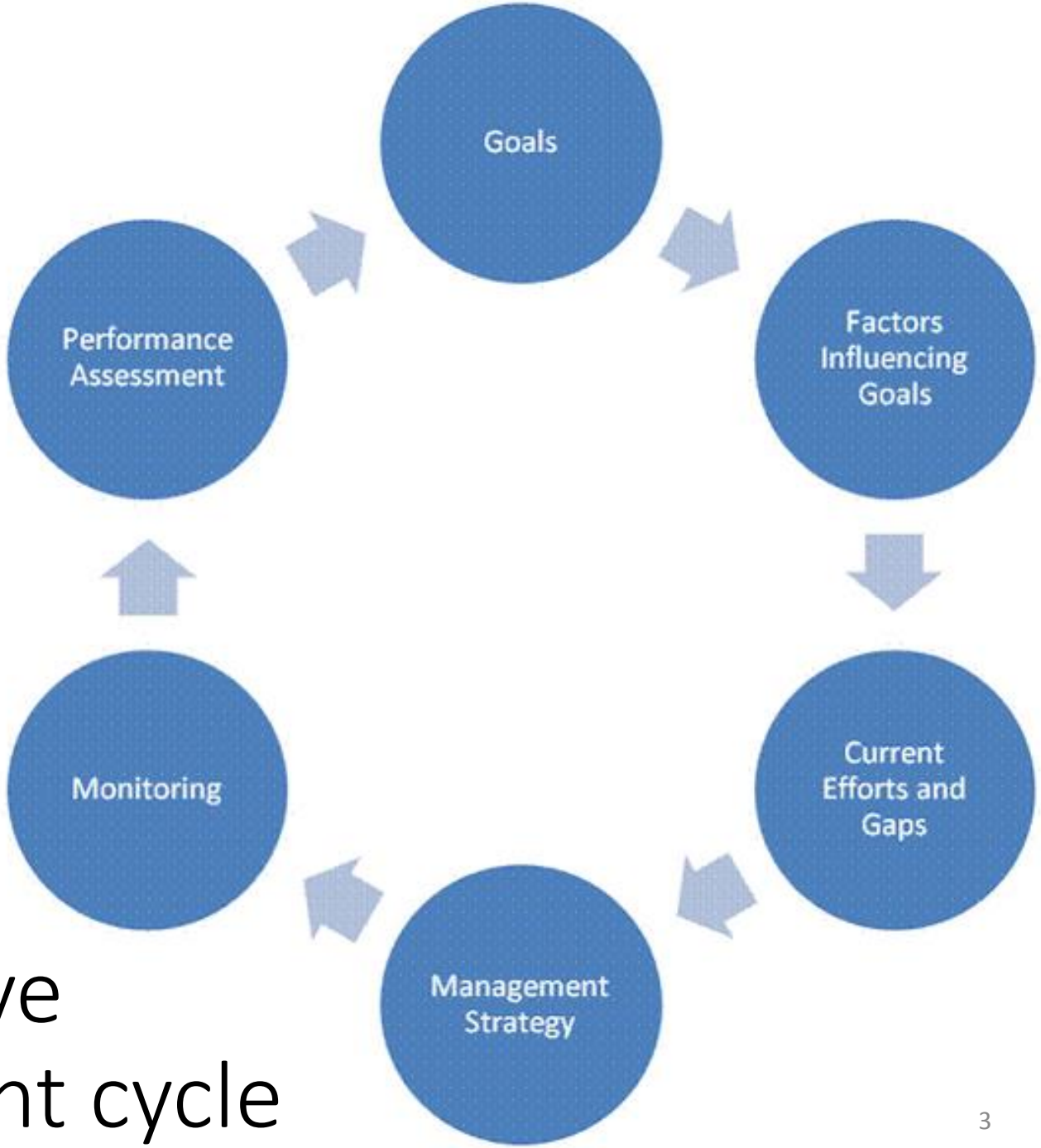
Methodology for the Phase III WIP Planning Targets

Gary Shenk – CBPO

WQGIT 6/27/16

New Targets ?!?!

Year	Model Phase	Goal
1987	0	40% reduction
1992	2	40% of controllable loads
1997	4.1	Confirm 1992 loads
2003	4.3	Reallocation
2010	5.3.0	TMDL
2011	5.3.2	Phase 2 WIP targets
2017	6.0	Phase 3 WIP targets



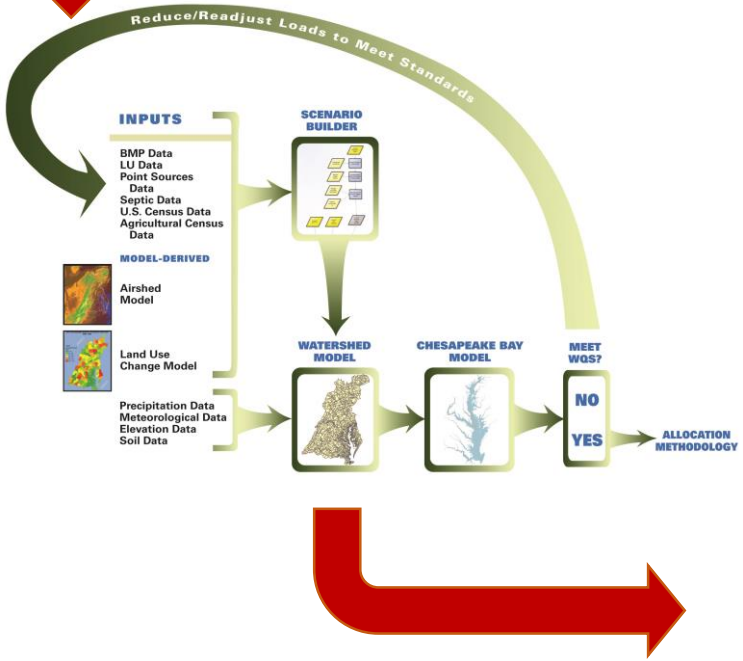
CBP Adaptive Management cycle

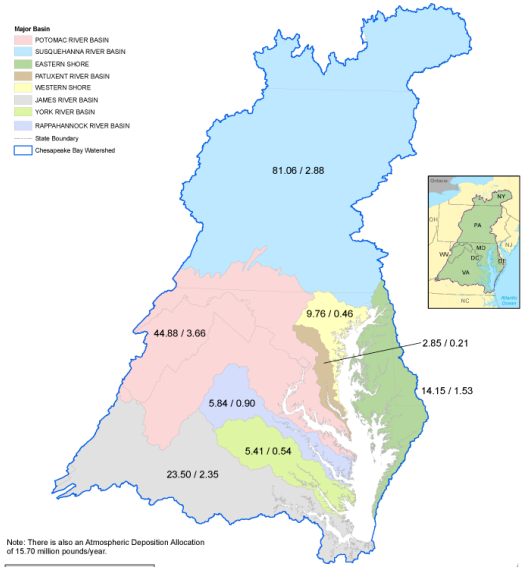
Target Method: Principles

- Attain WQ Standards
- Areas that contribute the most to the Bay water quality problems must do the most to resolve those problems (on a pound-per-pound basis).
- All tracked and reported reductions in nitrogen and phosphorus loads are credited toward achieving final assigned loads.

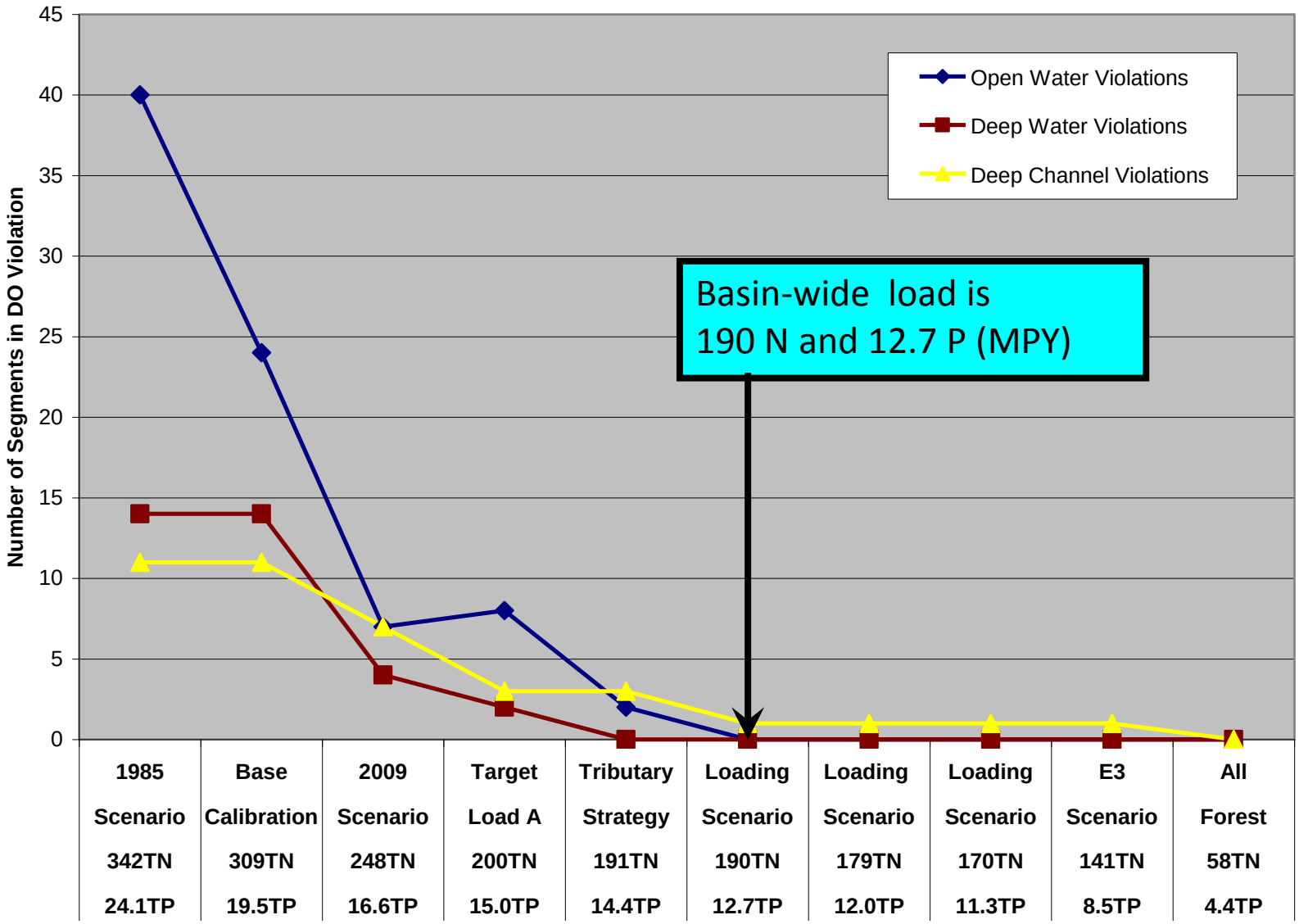
Planning Targets – the short version

Target Method

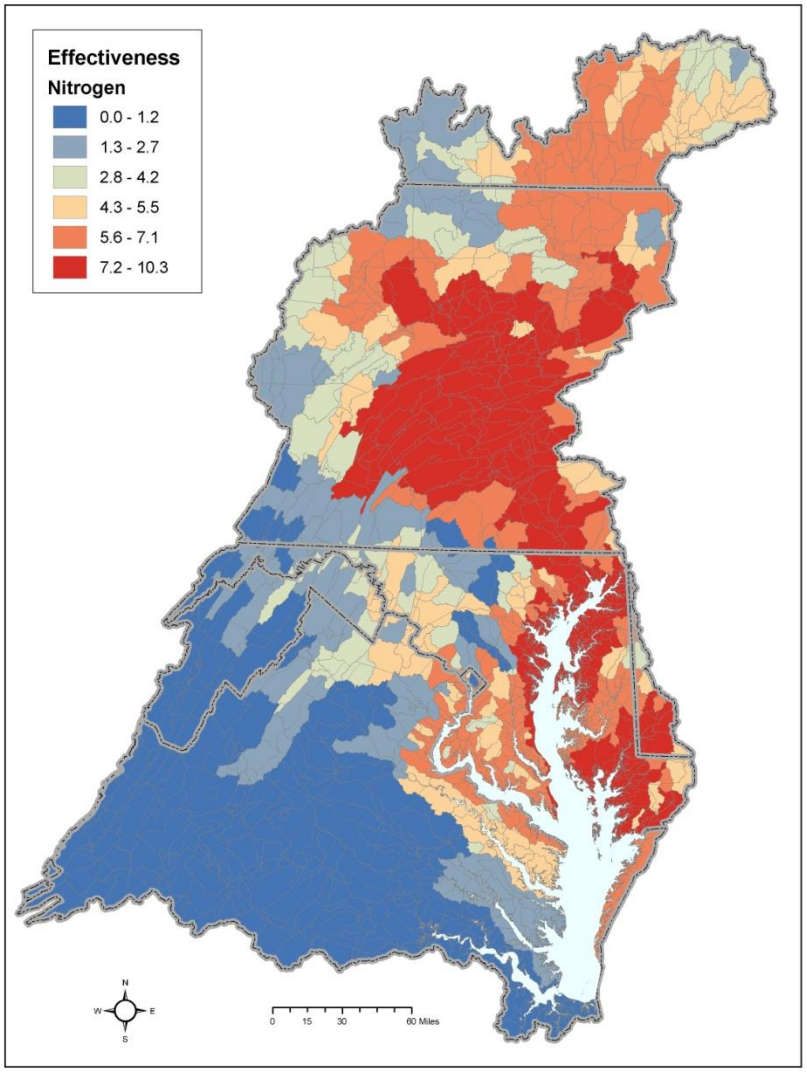


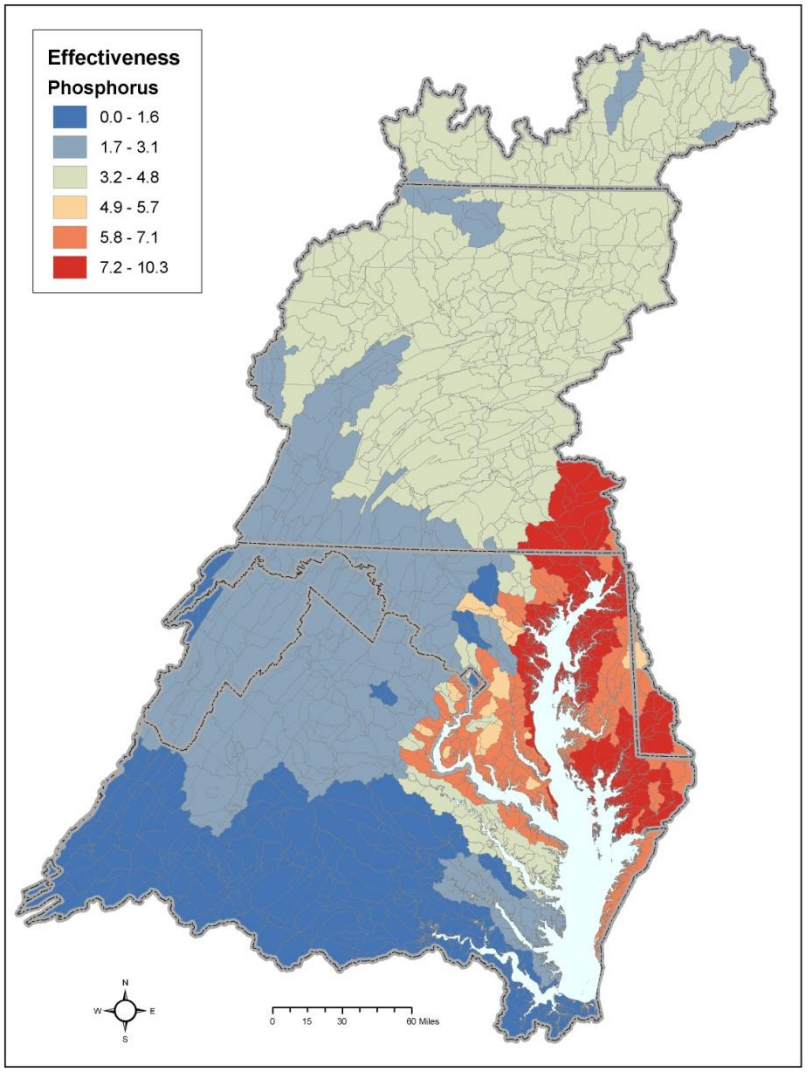


Dissolved Oxygen Criteria Attainment

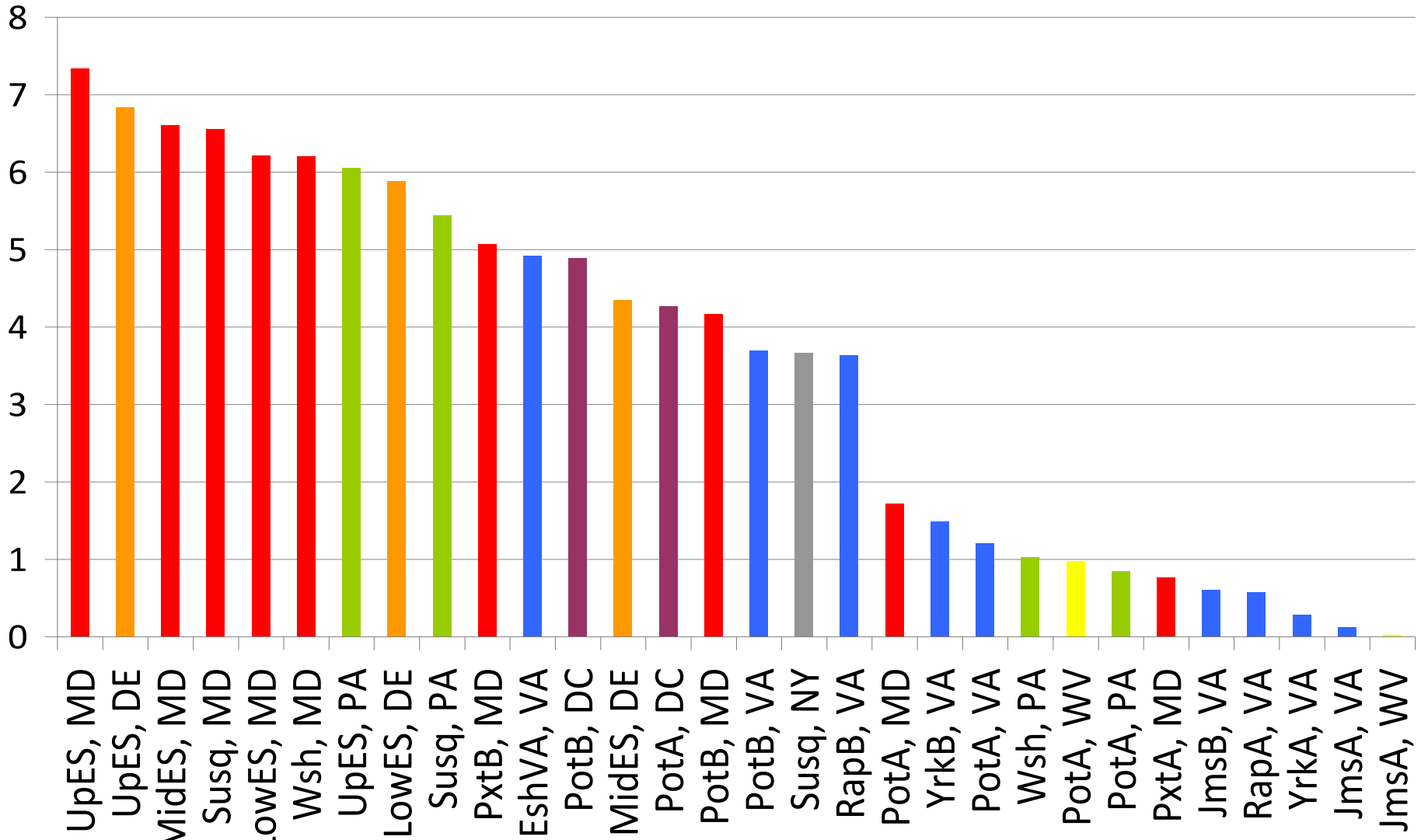


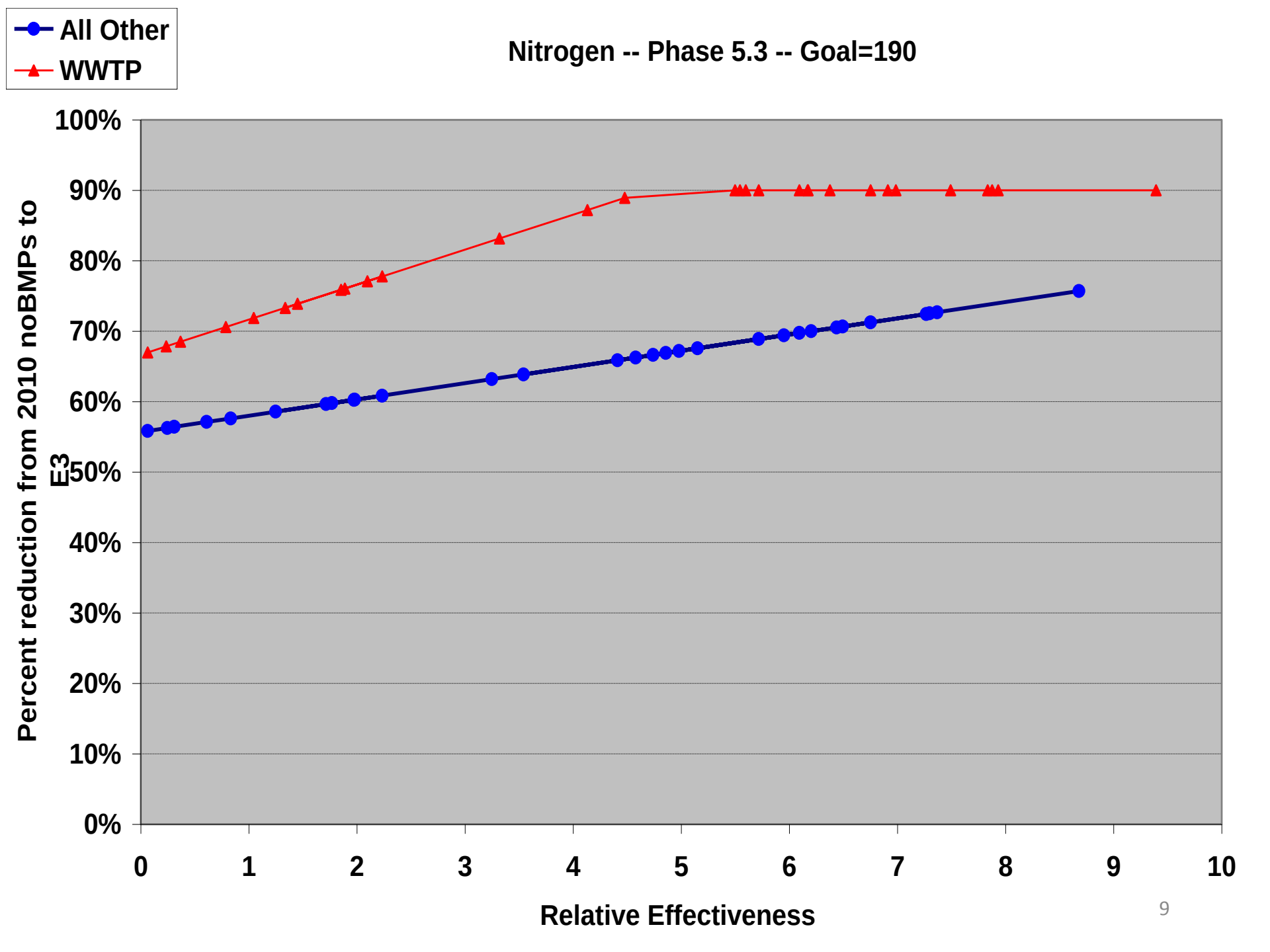
Relative Effect of a Pound of Pollution on Bay Water Quality

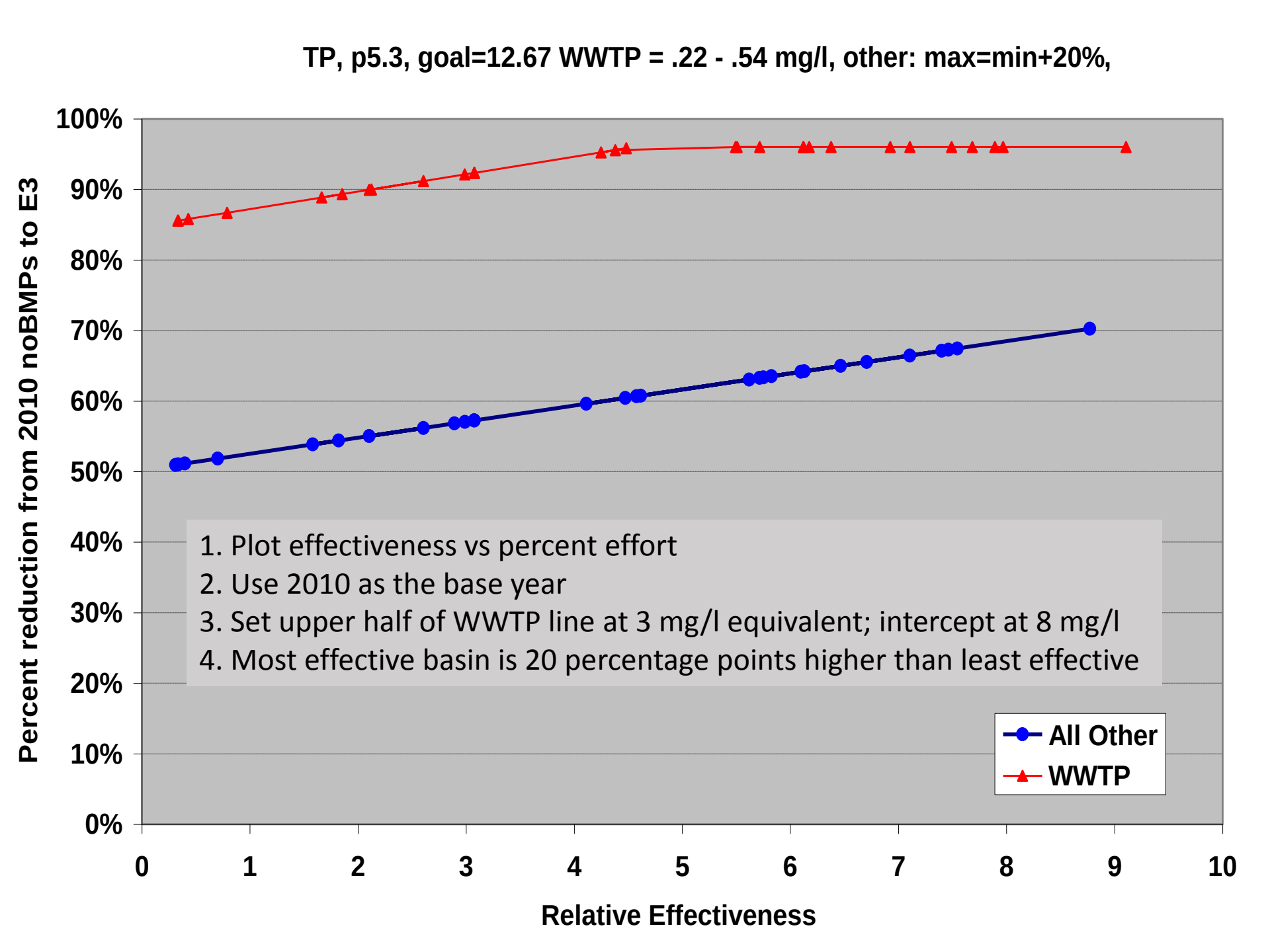


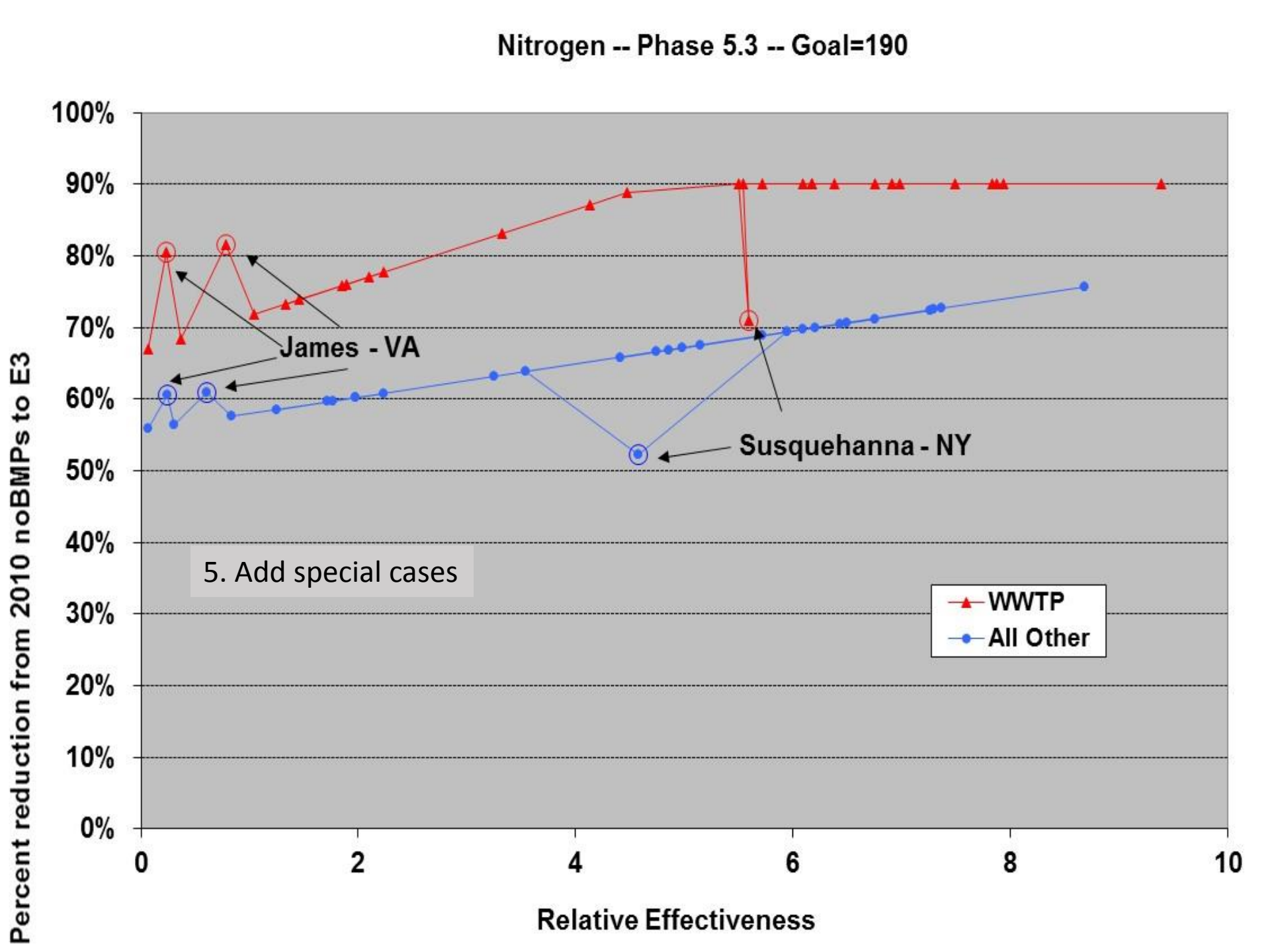


Major River Basin by Jurisdiction Relative Impact on Bay Water Quality

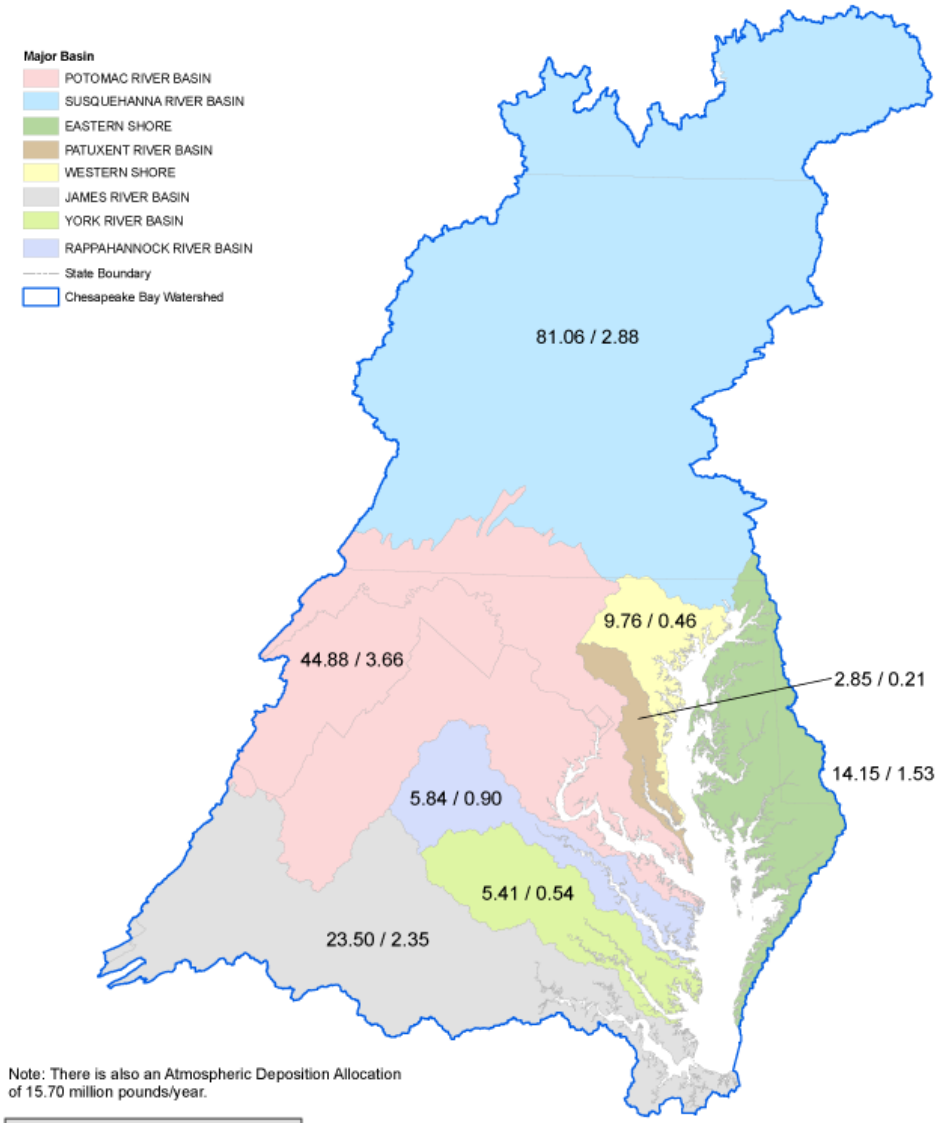



All Other
WWTP
Nitrogen -- Phase 5.3 -- Goal=190
Percent reduction from 2010 noBMPs to E3
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
1
2
3
4
5
6
7
8
9
10
Relative Effectiveness

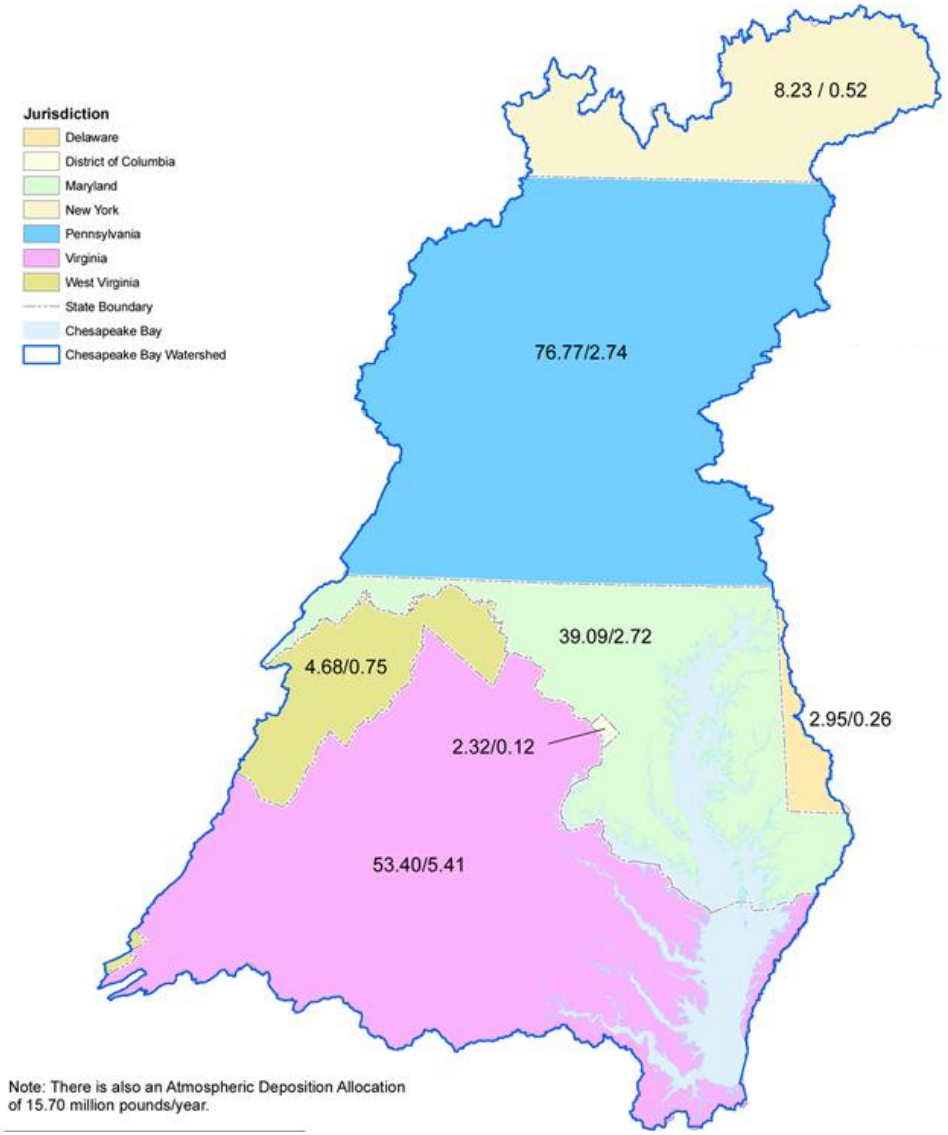

TP, p5.3, goal=12.67 WWTP = .22 - .54 mg/l, other: max=min+20%,
Percent reduction from 2010 noBMPs to E3
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
1
2
3
4
5
6
7
8
9
10
Relative Effectiveness
1. Plot effectiveness vs percent effort
2. Use 2010 as the base year
3. Set upper half of WWTP line at 3 mg/l equivalent; intercept at 8 mg/l
4. Most effective basin is 20 percentage points higher than least effective
All Other
WWTP


Nitrogen -- Phase 5.3 -- Goal=190
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent reduction from 2010 noBMPs to E3
0
2
4
6
8
10
Relative Effectiveness
James - VA
Susquehanna - NY
5. Add special cases
WWTP
All Other

Pollution Diet by River

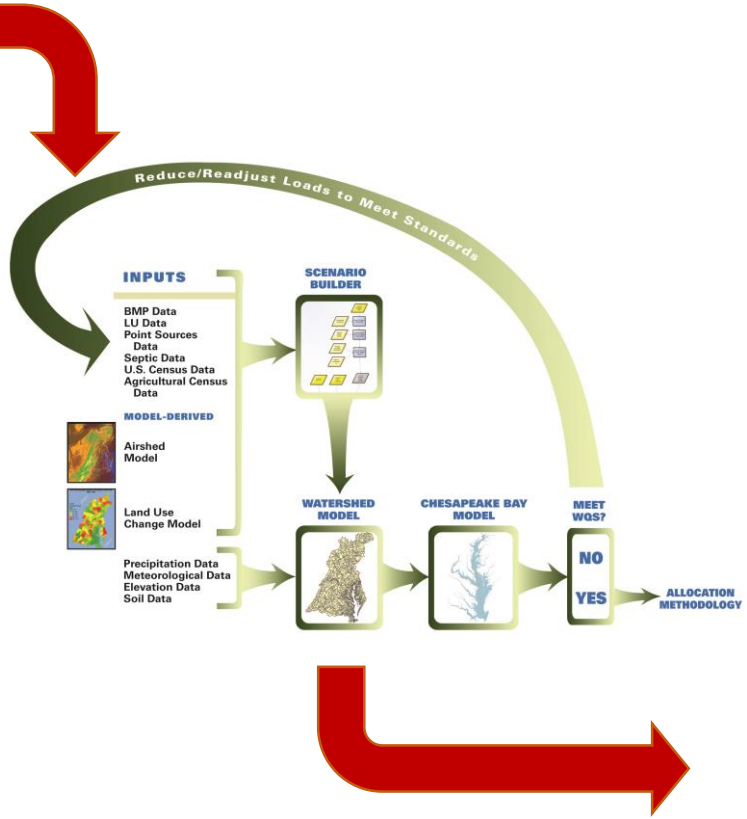


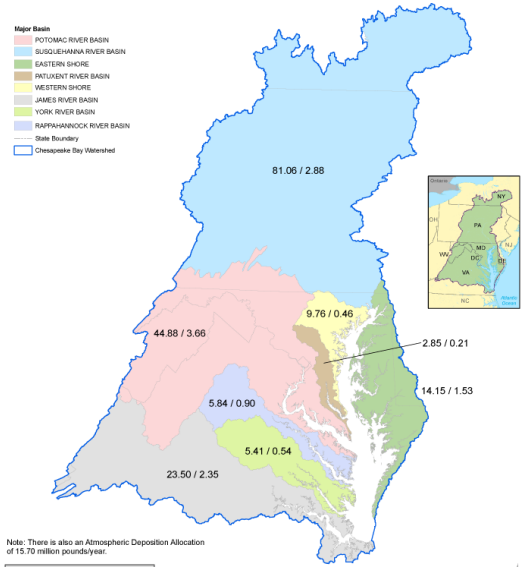
Pollution Diet by State



Planning Targets – Upcoming Changes

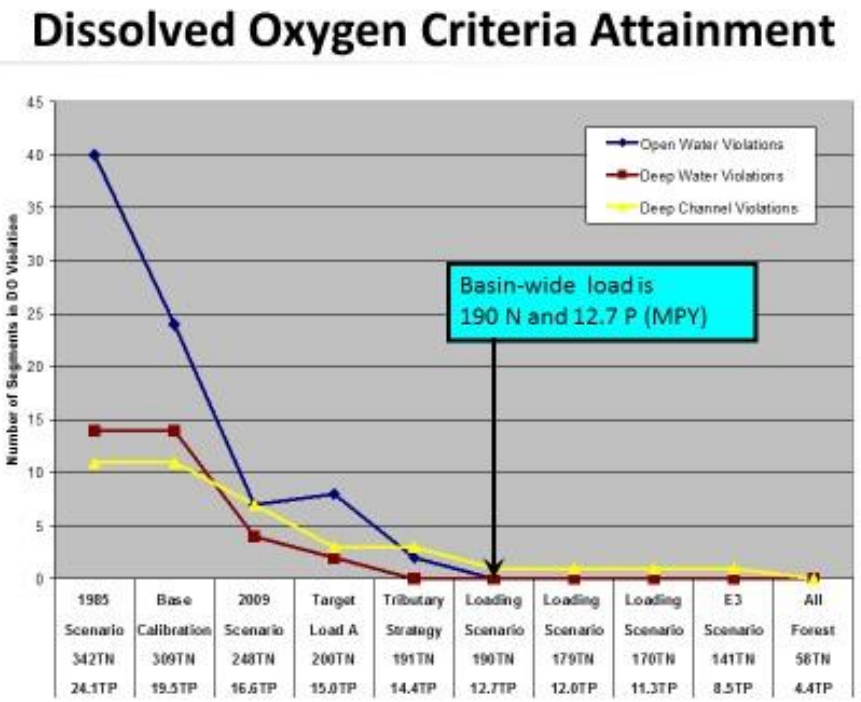
Target Method





Changes

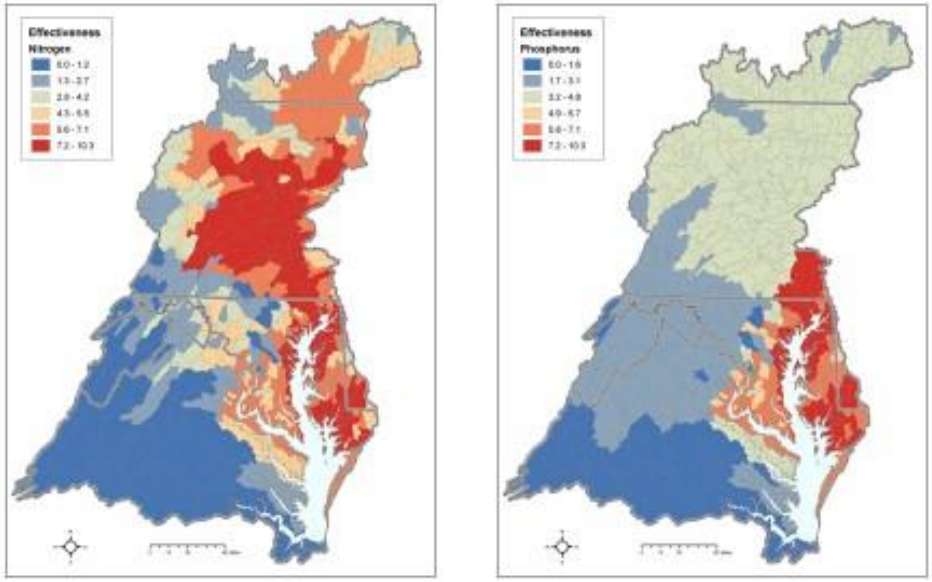
- New Watershed Model Loads
  - Higher coastal plain loads
  - Change in seasonality
- New Estuarine Model
  - Biogeochemical changes
  - Wetland and shoreline
- Climate Change



Changes

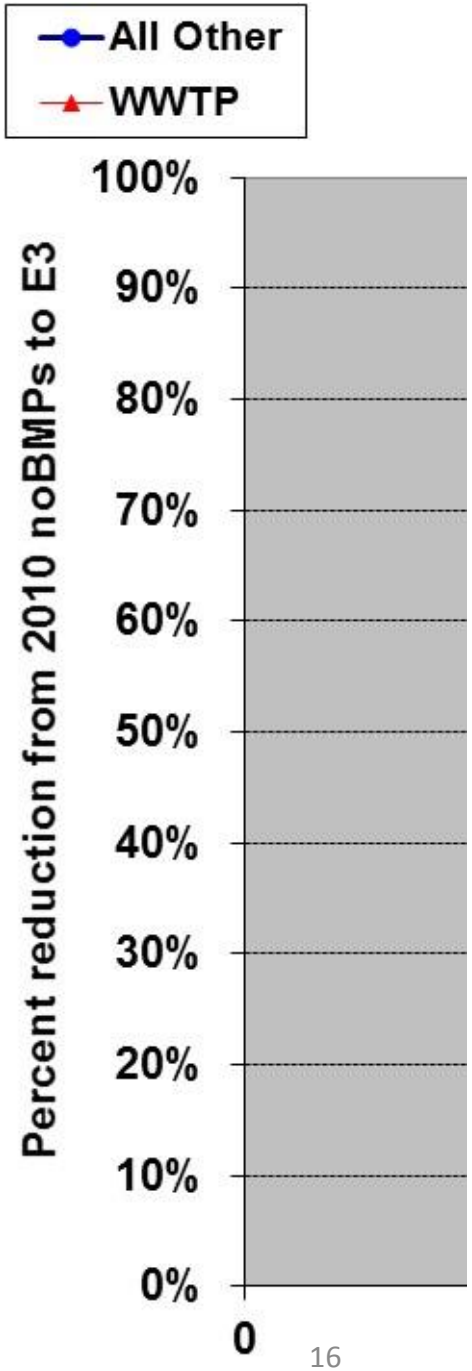
- New Watershed Model
  - Change in delivery factors
- New Estuarine Model
  - Biogeochemical changes

Relative Effect of a Pound of Pollution on Bay Water Quality



Changes

- New Watershed Model
  - Definition of E3
  - Effectiveness of BMPs
  - Loading rate of land uses



Default Target Method

- Plot effectiveness vs percent effort
- Use 2010 as the base year
- Set upper half of WWTP line at 3 mg/l equivalent; intercept at 8 mg/l
- Most effective basin is 20 percentage points higher than least effective for ‘all other’ line
- Special cases
- Hydro Period
- Critical Period
- Conowingo
- Climate Change

What we decided in December

- **DECISION:** WQGIT agreed to proceed with the current principles for setting planning targets as a framework and to, over the course of 2016, work towards an incremental understanding of how the forthcoming new models and inputs will affect the existing allocation methodology.
- **ACTION:** The WQGIT identified changes to the No Action and E3 scenarios to reflect new information, past assumptions and new BMPs, and the effects of Conowingo Dam, climate change, and James River chlorophyll a criteria re-evaluation as areas where more information will be needed in order to determine whether or not changes to the three principles and the underlying methodology are needed.
- **ACTION:** The WQGIT will target June 2016 to make a recommendation to the Management Board and Principals' Staff Committee, with that date subject to change.

What Decisions can we make today?

- Plot effectiveness vs percent effort
- Use 2010 as the base year
- Set upper half of WWTP line at 3 mg/l equivalent; intercept at 8 mg/l
- Most effective basin is 20 percentage points higher than least effective for ‘all other’ line
- Special cases
- Hydro Period
- Critical Period
- Conowingo
- Climate Change

Changing Base Year

Allocation = 140
Both basins are the same percent of the difference between NA and E3