

Establishing Scenario Years for Planning Targets and Phase III WIPs

Presentation for Water Quality GIT

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Summary of WQGIT Decisions October 24-25, 2016

DECISION: The WQGIT agreed to recommend to the Management Board that the Partnership apply the **same methodological approach to establishing the Phase III WIP planning targets as was used by the partners in the development of the jurisdictions' major river basin allocations under the 2010 Chesapeake Bay TMDL**, recognizing the need to update the No Action and Everything by Everyone Everywhere (E3) scenarios as well as estimates of relative effectiveness to reflect the Partnership's suite of Phase 6 models and greatly expanded list of Partnership-approved BMPs.

DECISION: The WQGIT agreed to recommend to the Management Board that the Partnership continue to **make allowances for special cases and consideration of special circumstances**, for example those provided to New York, West Virginia and Virginia's James under the original set of 2010 Chesapeake Bay TMDL decision rules, during the Partnership's development of Phase III WIP planning targets. These adjustments are intended to allow for adjustments to the allocation methodology necessary to meet local WQ standards or to ensure the partnership's principals of equity and fairness are met.

Components of the Previous Method

- Plot effectiveness vs percent effort
- Set upper half of WWTP lines at 4.5 N, 0.22 P mg/l equivalents; intercept at 8 N, 0.54 P mg/l equivalents
- Most effective basin is 20 percentage points higher than least effective for 'all other' line
- Special cases

All Components Approved!

Remaining Decision Points

- What scenario year should be used to establish Phase III WIP **planning targets**?
 - 2010? 2012? 2017? 2025?
- What scenario year should be used to develop **Phase III WIPs**?
 - 2010? 2012? 2017? 2025?

What scenario year should be used to establish Phase III WIP planning targets?

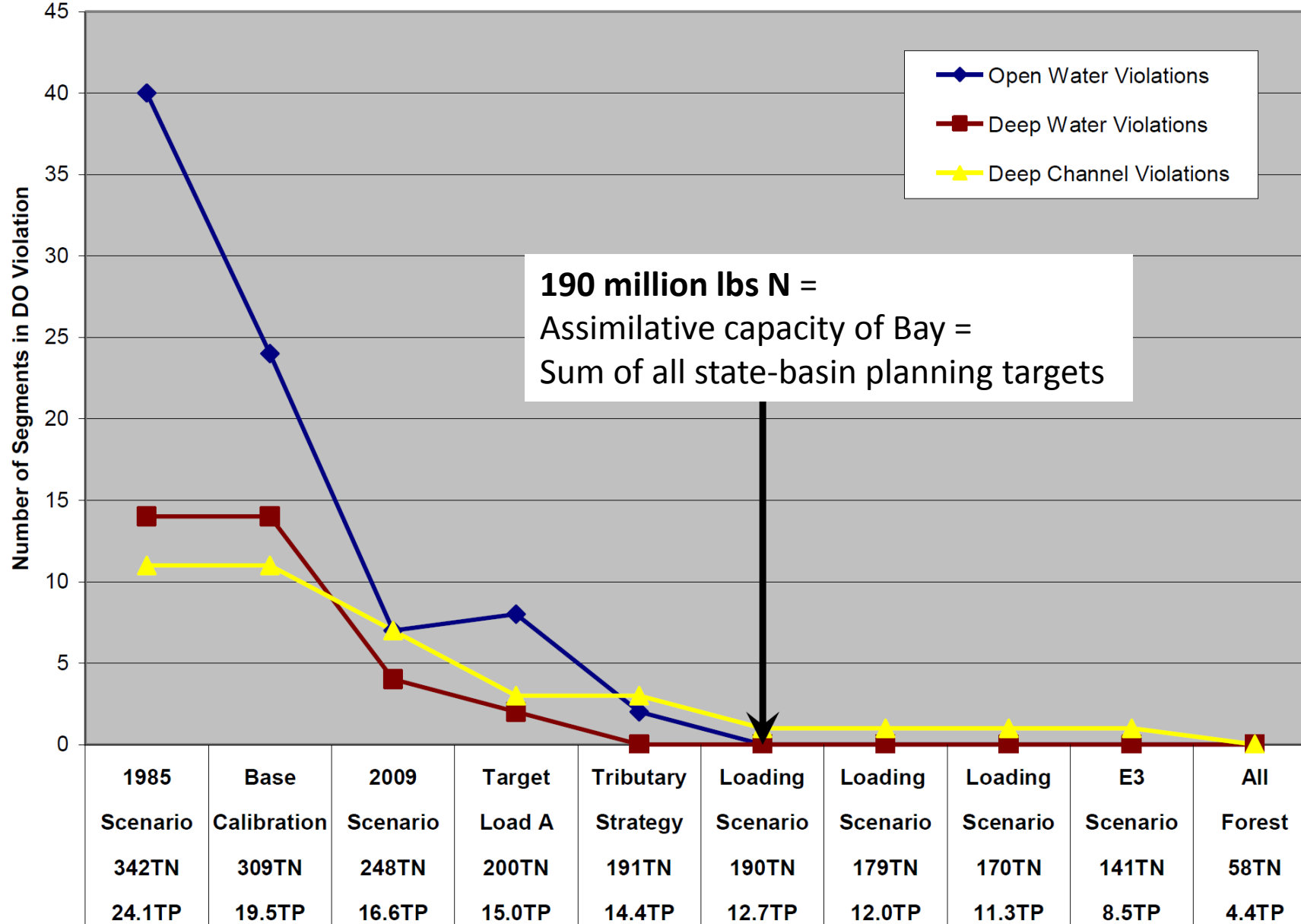
Planning Target – Allowable nutrient or sediment delivery based upon:

- 1) assimilative capacity of the Bay
- 2) reduction potential from delta of no action and E-3 scenarios
- 3) % of reduction potential needed based upon relative impact of basin's loads on DO in main-stem

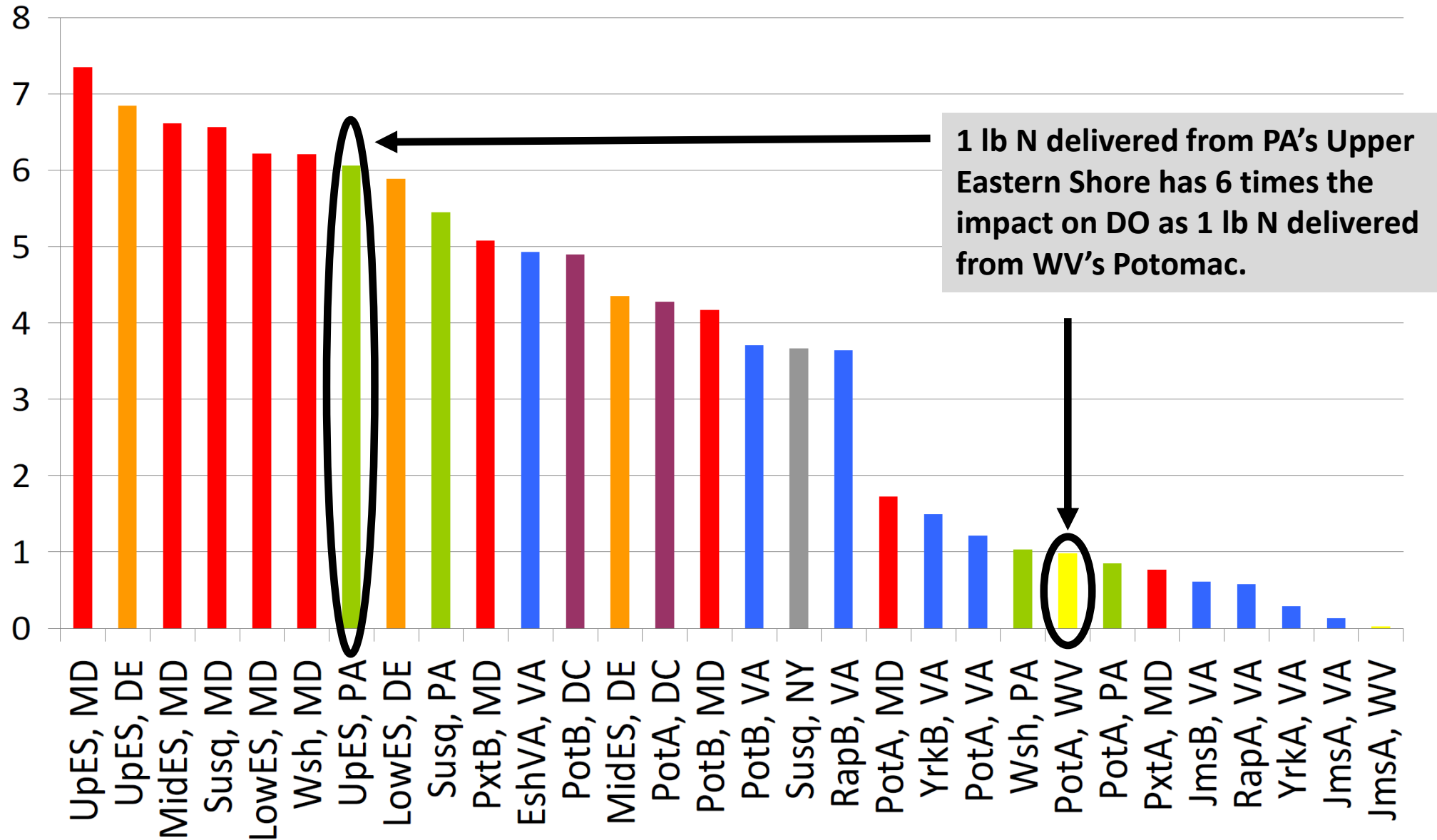
Scenario Year – The year for which a scenario of management actions is applied against. Each year has unique estimated land uses, crops, animals, septics, etc.

- 2010 was chosen as the “scenario year” for the 2010 Chesapeake Bay TMDL planning targets.

Dissolved Oxygen Criteria Attainment



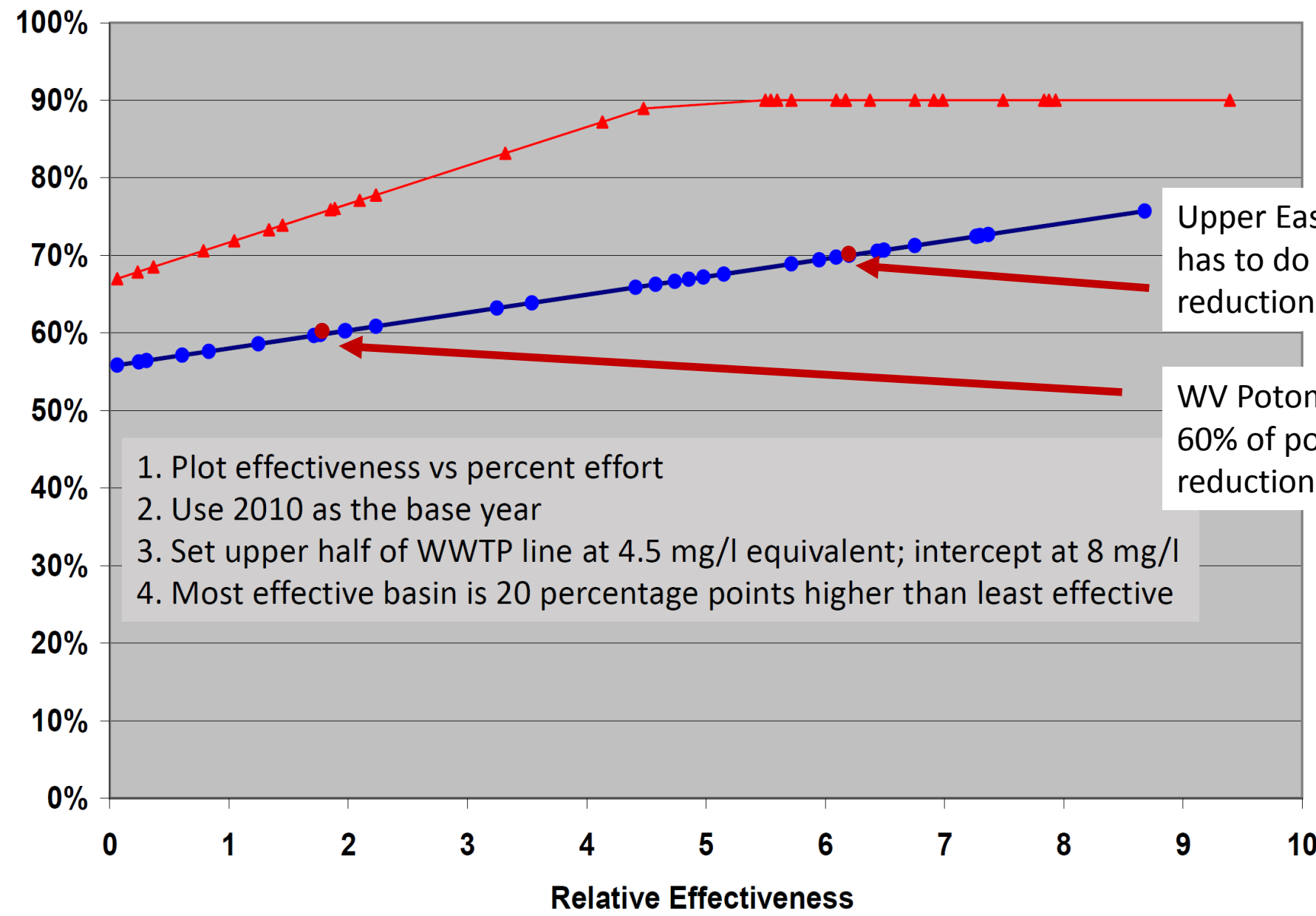
Major River Basin by Jurisdiction Relative Impact on Bay Water Quality



% Reduction 2010 NA - 2010 E3

Nitrogen -- Phase 5.3 -- Goal=190

- All Other
- WWTP

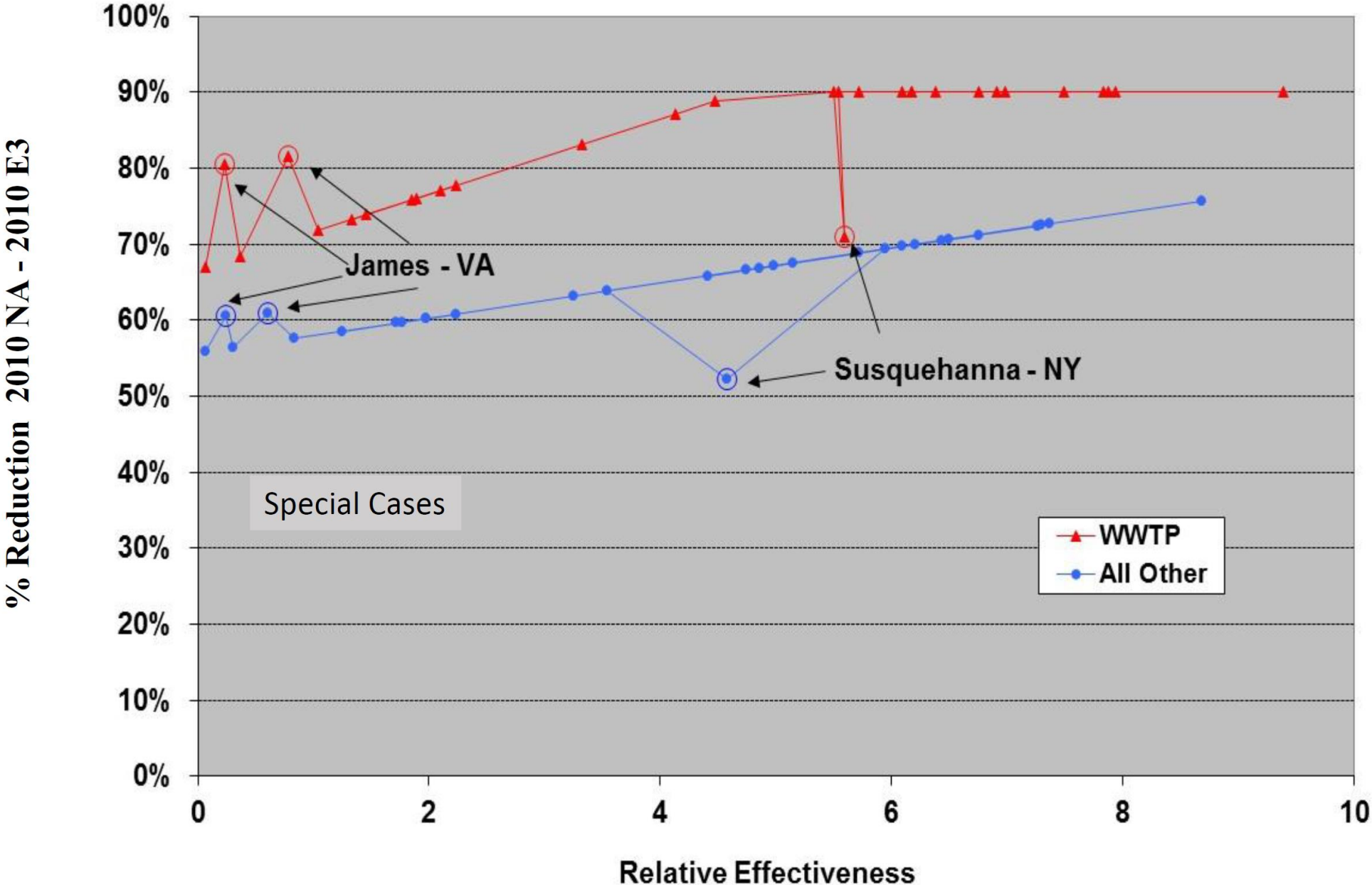


- 1. Plot effectiveness vs percent effort
- 2. Use 2010 as the base year
- 3. Set upper half of WWTP line at 4.5 mg/l equivalent; intercept at 8 mg/l
- 4. Most effective basin is 20 percentage points higher than least effective

Upper Eastern Shore of PA has to do 70% of possible reductions from NA to E3

WV Potomac has to do 60% of possible reductions from NA to E3

Nitrogen -- Phase 5.3 -- Goal=190



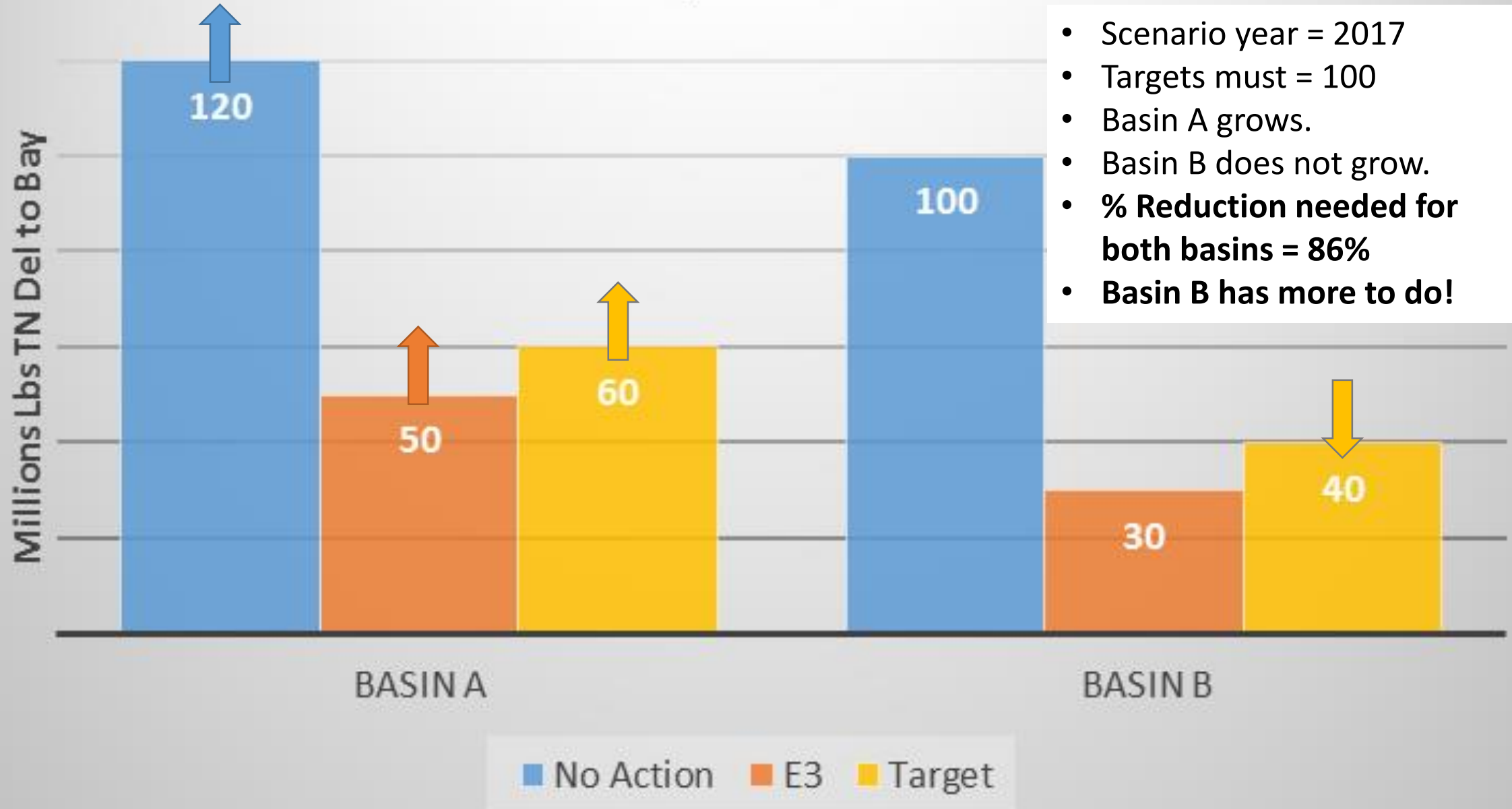
Basins with Equal Effort and Targets

- Scenario year = 2010
- Targets must sum to 100
- Basins have same impact on DO.
- Basins have same no action, E3 and targets.
- **% Reduction needed = 71% for both basins.**



Basin A Grows, Basin B Does Not



- Scenario year = 2017
- Targets must = 100
- Basin A grows.
- Basin B does not grow.
- **% Reduction needed for both basins = 86%**
- **Basin B has more to do!**



Planning Target Year: Some Criteria to Consider

- What is the level of confidence in the data (LU, animals, septics, etc.)?
- Is it consistent with 2010 decisions?
- Does it negatively impact state-basins with less growth?

Criteria Spectrum for Planning Target Year

Criterion	2010	2012	2017	2025
Level of Confidence in Data (LU, Animals, Septics, etc.)				
Consistency with 2010 decisions	Same Year	Not Consistent	Year of Decision	Not Consistent
Responsibility for additional load from a state-basin that grows (in load due to LU, Animals, Septics, etc.)				

Remaining Decision Points

- What scenario year should be used to establish Phase III WIP **planning targets**?
 - 2010? 2012? 2017? 2025?
- What scenario year should be used to develop Phase III WIPs?
 - 2010? 2012? 2017? 2025?



What scenario year should be used to develop Phase III WIPs?

Scenario Year – The year for which a scenario of management actions is applied against. Each year has unique estimated land uses, crops, animals, septics, etc.

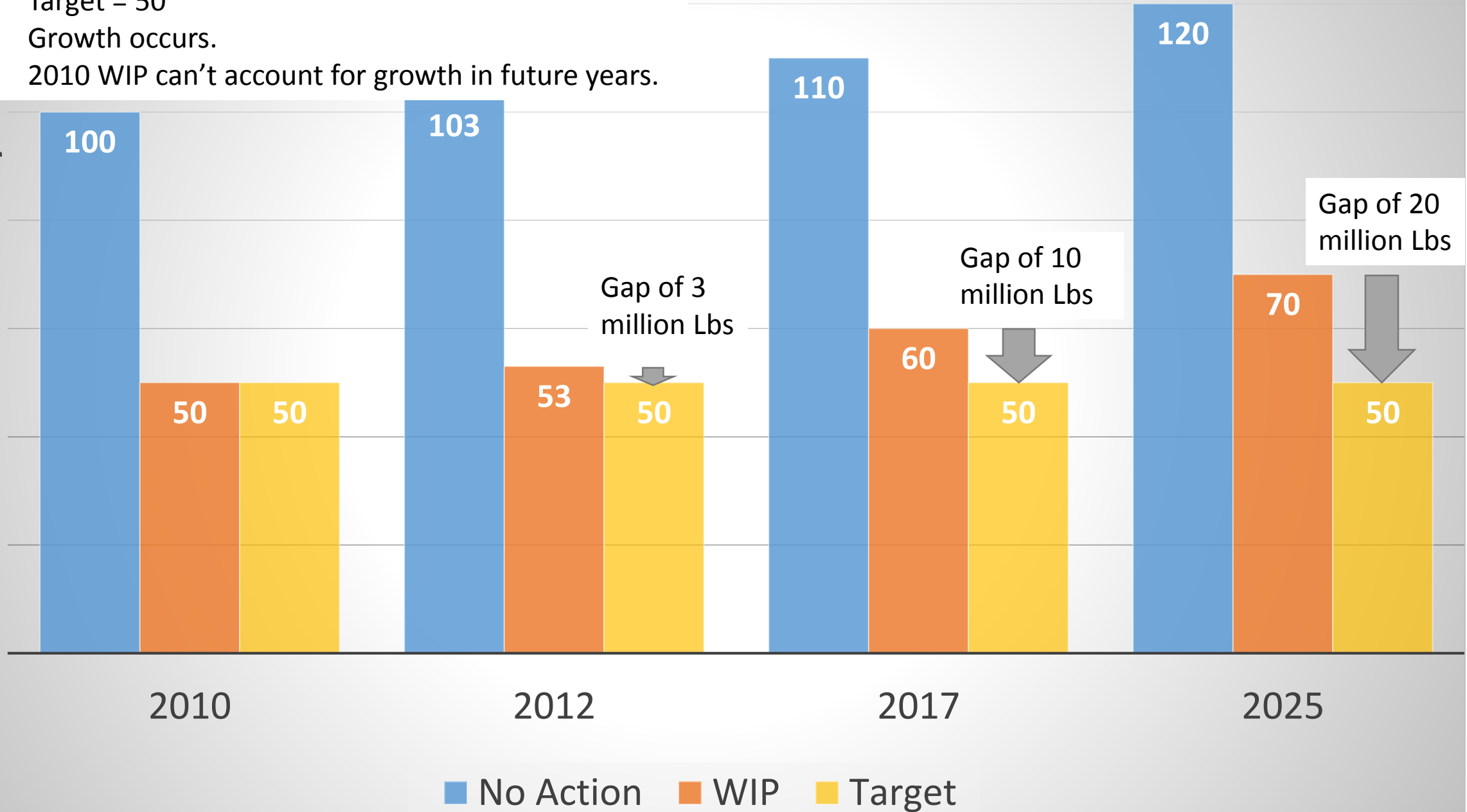
- 2010 was chosen as the “scenario year” for developing the Phase II WIPs.

Accounting for Growth - The 2010 Chesapeake Bay TMDL stated: “WIPS are expected to describe procedures for estimating additional loads due to growth and to provide EPA with information to inform additional pollutant load reductions that are at least sufficient to offset the growth and development that is anticipated in the watershed between 2011 and 2025.”

Example of 2010 WIP not Accounting for Growth

- Target = 50
- Growth occurs.
- 2010 WIP can't account for growth in future years.

Millions Lbs TN Del to Bay






What about Progress and Milestones?

- Regardless of scenario year decision, progress and milestones are assessed on projected scenarios.
 - Example: 2016 Progress implementation applied to 2016 projected scenario year, not 2010 scenario year.
- Previous WQGIT decision already dictates CBPO revise scenario year projections once per milestone period to account for best available data.

WIP Development Year: Some Criteria to Consider

- What is the level of confidence in the data (LU, animals, septics, etc.)?
- Is it consistent with 2010 decisions?
- Does it account for growth as required by the TMDL?
- Does it allow jurisdictions to numerically plan for and credit conservation?

Criteria Spectrum for WIP Development Year

Criterion	2010	2012	2017	2025
Level of Confidence in Data (LU, Animals, Septics, etc.)				
Consistency with 2010 decisions	Same Year	Not Consistent	Year of Decision	Not Consistent
Accounting for Growth	None			
Allows planning for and crediting conservation	Does not			

Remaining Decision Points

- What scenario year should be used to establish Phase III WIP planning targets?
 - 2010? 2012? 2017? 2025?
- What scenario year should be used to develop **Phase III WIPs**?
 - 2010? 2012? 2017? 2025?

Extra slides with pros and cons described
(if needed)

What scenario year should be used to establish Phase III WIP planning targets?

2010

- Pros:
 - Consistent with original 2010 Chesapeake Bay TMDL planning target decision.
 - Would not “grandfather” growth in any jurisdiction past the original 2010 Chesapeake Bay TMDL date.
- Cons:
 - Would represent an estimated set of land uses, crops and animals that was backcasted from the 2012 Census of Agriculture and 2013 high-resolution land use. Generally speaking, the 2012 land use now represents the best available agricultural and land use data.

What scenario year should be used to establish Phase III WIP planning targets?

2012

- Pros:
 - Would generally represent the best available agricultural and land use data.
- Cons:
 - Would be inconsistent with the original 2010 Chesapeake Bay TMDL planning target decision.
 - Would “grandfather” in growth, albeit limited, past the original 2010 Chesapeake Bay TMDL date, which could negatively impact those jurisdictions that experienced little to no growth.

What scenario year should be used to establish Phase III WIP planning targets?

2017

- Pros:
 - Would be consistent with other mid-point assessment changes occurring during the calendar year of 2017.
- Cons:
 - Would represent a forecasted condition beyond the generally considered year of best agricultural and land use data – 2012.
 - Would be inconsistent with the original 2010 Chesapeake Bay TMDL planning target decision.
 - Would “grandfather” in growth past the original 2010 Chesapeake Bay TMDL date, which could negatively impact those jurisdictions that experienced little to no growth.

What scenario year should be used to establish Phase III WIP planning targets?

2025

- Pros:
 - Would be consistent with expectations to achieve reductions by the year 2025
- Cons:
 - Would represent a forecasted condition significantly beyond the generally considered year of best agricultural and land use data – 2012.
 - Would be inconsistent with the original 2010 Chesapeake Bay TMDL planning target decision.
 - Would “grandfather” in growth past the original 2010 Chesapeake Bay TMDL date, which could negatively impact those jurisdictions that experienced little to no growth.

What scenario year should be used to develop Phase III WIPs?

2010

- Pros:
 - Consistent with original 2010 Chesapeake Bay TMDL WIP development decision.
- Cons:
 - Could result in initial WIP scenarios achieving planning target reductions, but significantly missing the mark in the final assessment year of 2025 because of 15 years of unaccounted growth.
 - Would represent an estimated set of land uses, crops and animals that was backcasted from the 2012 Census of Agriculture and 2013 high-resolution land use. Generally speaking, the 2012 land use now represents the best available agricultural and land use data.

What scenario year should be used to develop Phase III WIPs?

2012

- Pros:
 - Would generally represent the best available agricultural and land use data.
 - Would account for some growth post-2010, albeit a small amount.
- Cons:
 - Could result in initial WIP scenarios achieving planning target reductions, but significantly missing the mark in the final assessment year of 2025 because of 13 years of unaccounted growth.
 - Would be inconsistent with the original 2010 Chesapeake Bay TMDL WIP development decision.

What scenario year should be used to develop Phase III WIPs?

2017

- Pros:
 - Would be consistent with other mid-point assessment changes occurring during the calendar year of 2017.
 - Would account for some growth post-2010.
- Cons:
 - Could result in initial WIP scenarios achieving planning target reductions, but missing the mark in the final assessment year of 2025 because of 8 years of unaccounted growth.
 - Would be inconsistent with the original 2010 Chesapeake Bay TMDL WIP development decision.
 - Would represent a forecasted condition beyond the generally considered year of best agricultural and land use data – 2012. However, the 2025 growth projections will be updated on a two-year basis, to coincide with the development and submission of the jurisdictions' two-year milestones.

What scenario year should be used to develop Phase III WIPs?

2025

- Pros:
 - Would be consistent with expectations to achieve reductions and account for growth by the year 2025.
 - Would likely cause the least amount of changes to Phase III WIP scenarios because significant growth would already be taken into account.
 - Would allow states to plan for land conservation actions to offset projected losses of land in any sector.
- Cons:
 - Would be inconsistent with the original 2010 Chesapeake Bay TMDL planning target decision.
 - Would represent a forecasted condition significantly beyond the generally considered year of best agricultural and land use data – 2012. However, the 2025 growth projections will be updated on a two-year basis, to coincide with the development and submission of the jurisdictions' two-year milestones.