E3 and NoAction Model Scenarios
+ Other Phase 6 Runs

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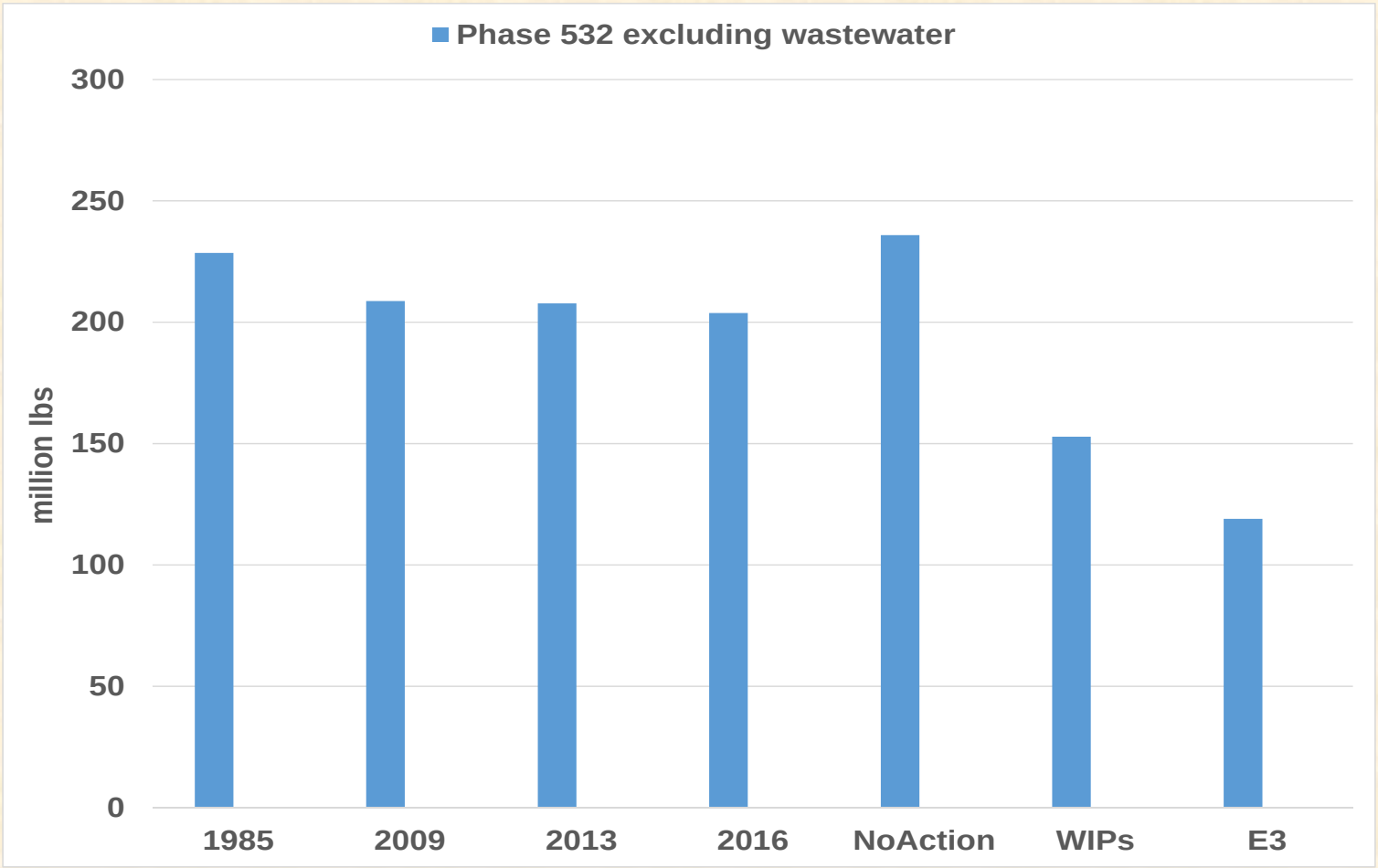
Urban Stormwater Workgroup Meeting
June 27, 2017

Initial Set of Phase 6 Model Scenarios

- 1985 – 2013 Progress, inclusive
  - BMP and wastewater data from jurisdictions for Phase 6 2014 Progress – 2016 Progress are due 9/1/17
- Phase II WIPs
- No-Action
- E3
  - No-Action and E3 are one component of the Planning Target calculations
  - Equity rule = Major river basins that contribute the most to the Bay water quality problems must do the most to resolve those problems (on a pound-per-pound basis)

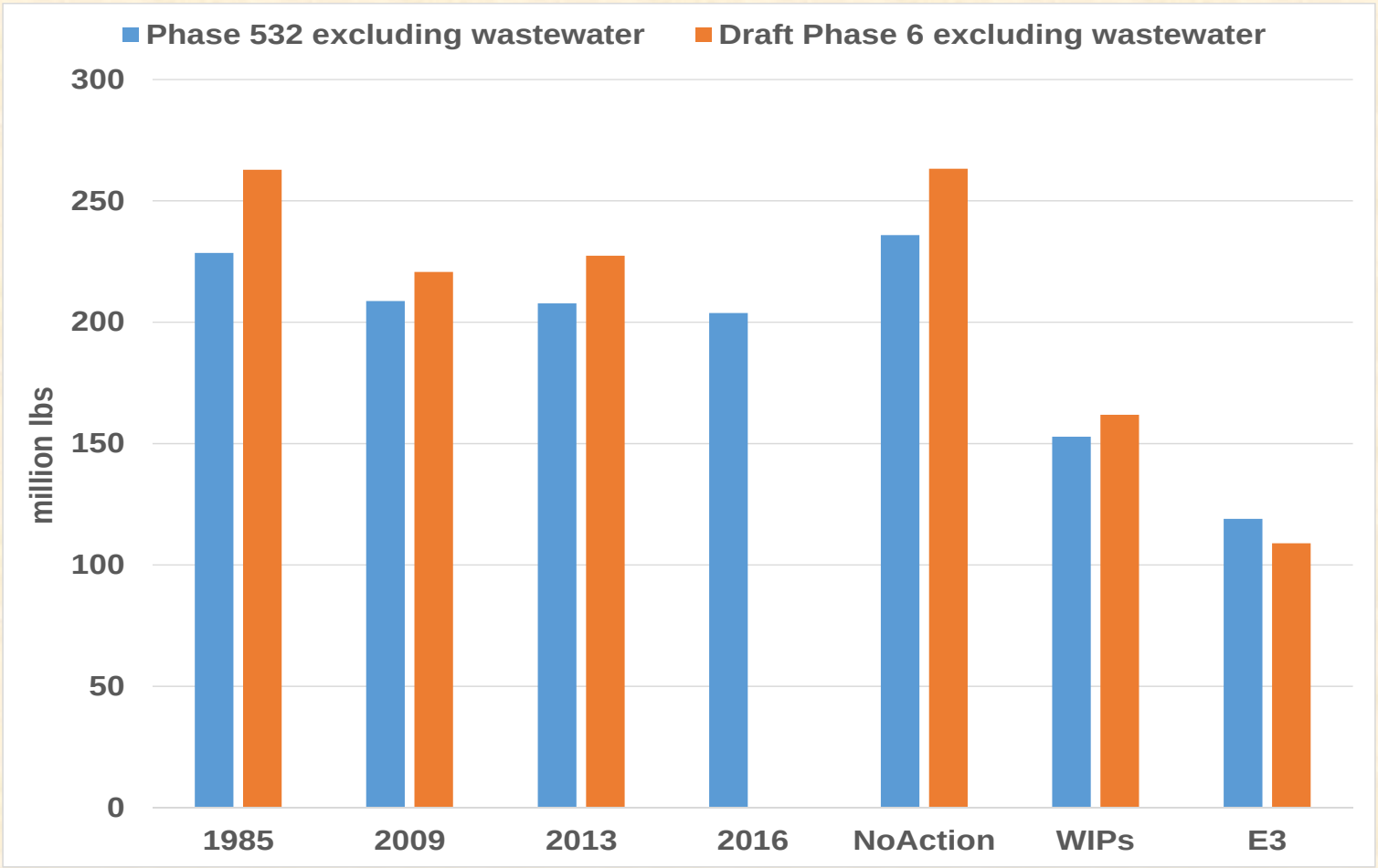
Phase 5

Nitrogen Loads, CB Watershed-wide (excludes wastewater)



Phase 5 and Phase 6

Nitrogen Loads, CB Watershed-wide (excludes wastewater)

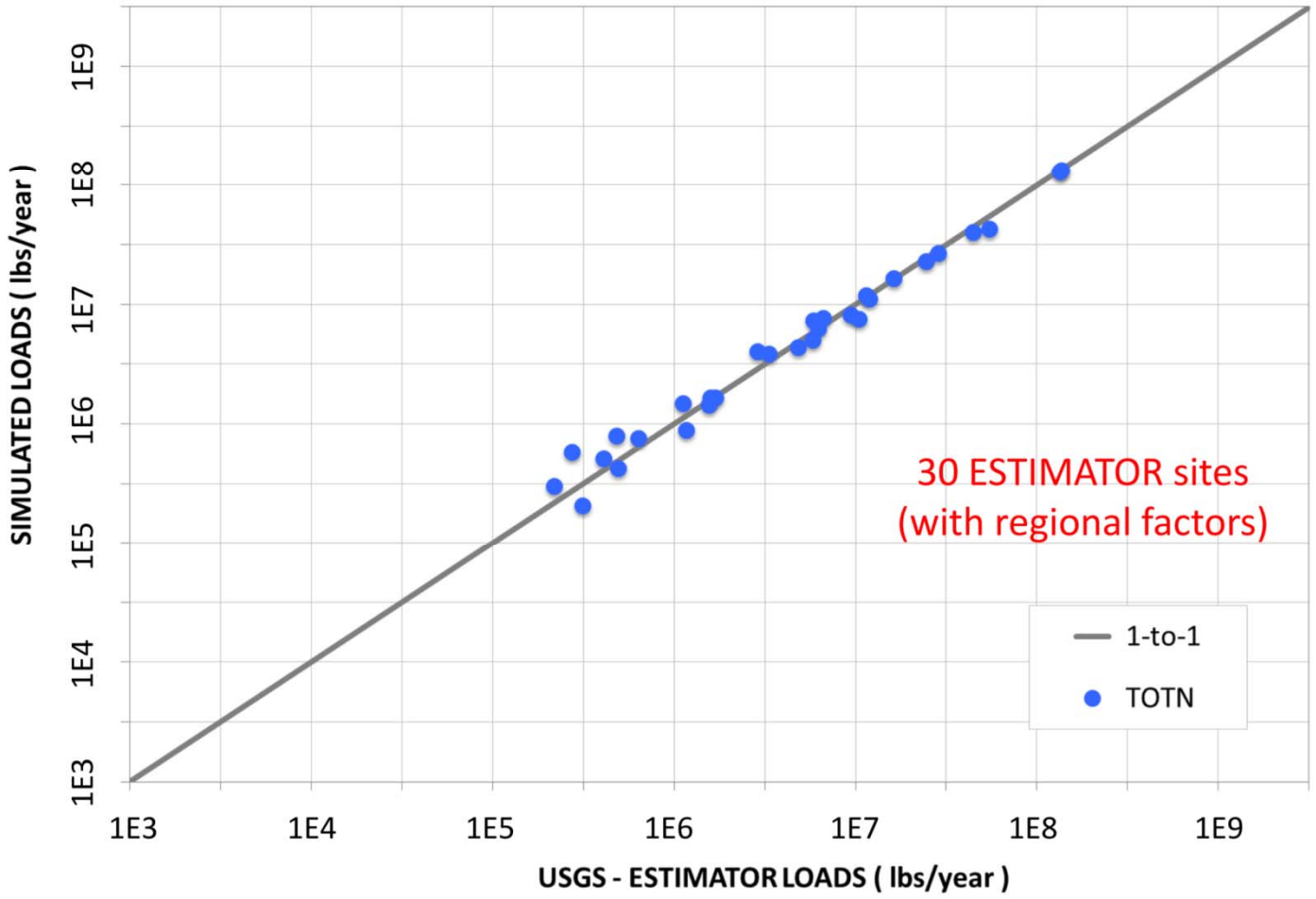


Initial Set of Phase 6 Model Scenarios

Big Changes from Phase 5 to Phase 6

- Inputs, inputs, inputs matter!
- High resolution land use
- Nitrogen simulation simplified using multiple model approach
- Phosphorus simulation tied to soil P
- Sediment simulation enhanced using NRCS RUSLE2 model
- Regional factors removed
- Calibration improved!

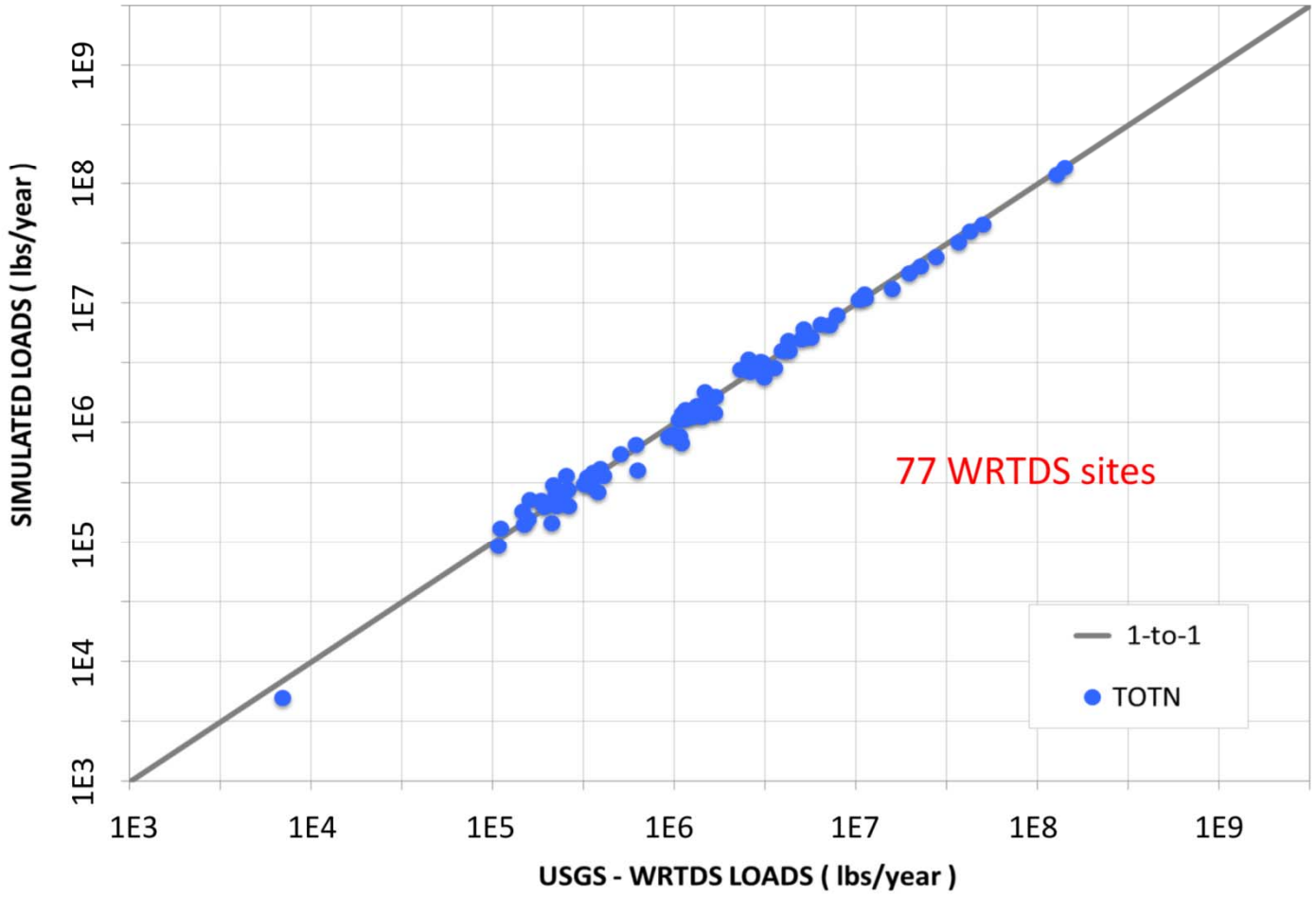
PHASE 5 | ***Phase 5.3.2*** | **NITROGEN**



DRAFT G

Revised inputs, model refinements, and calibration methods

NITROGEN



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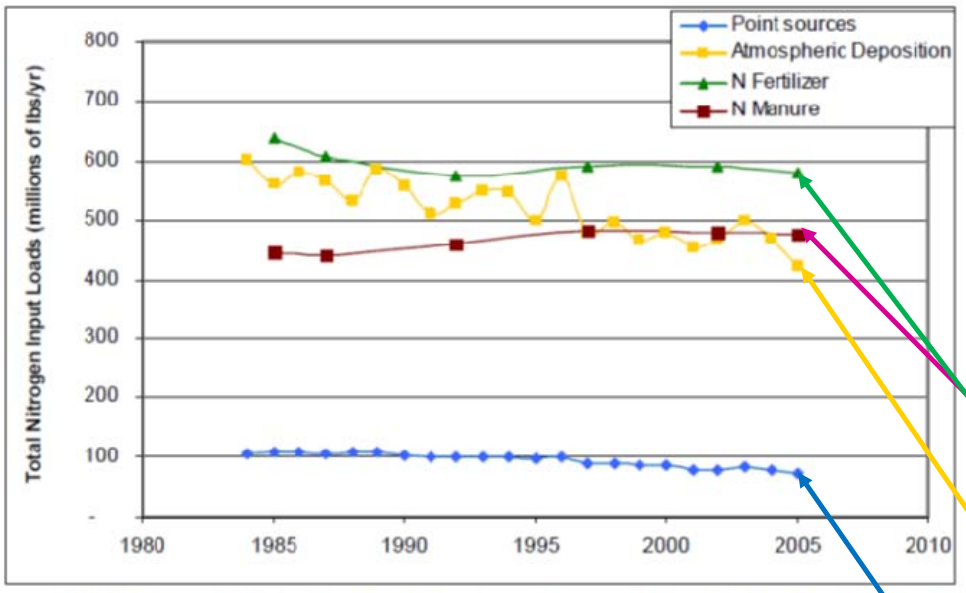
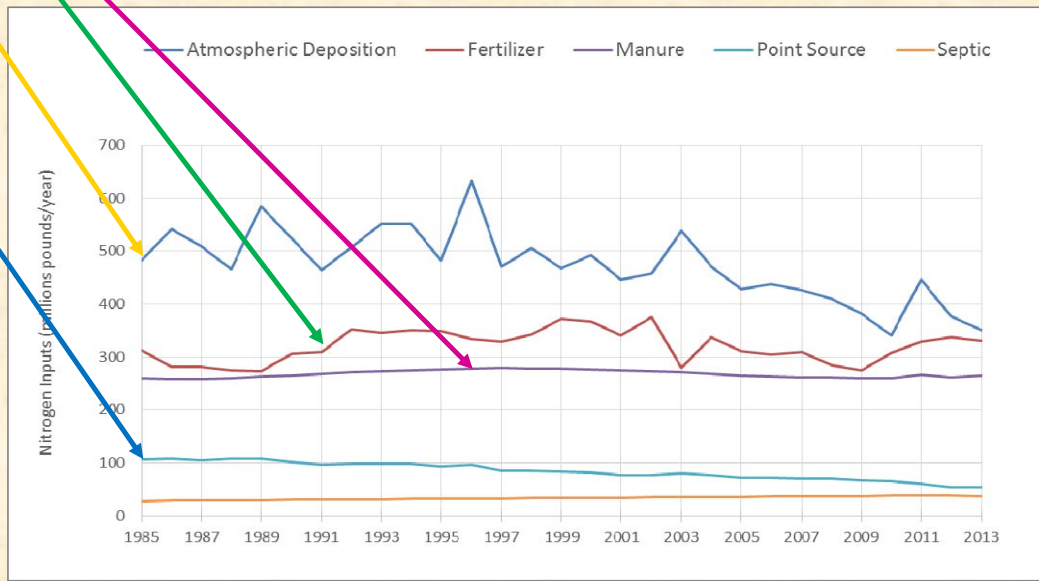


Figure 5-1. Time series of atmospheric, fertilizer, manure, and point source total nitrogen input loads to the Chesapeake Bay Watershed Model (Phase 5.3 calibration).

Phase 5

Phase 6



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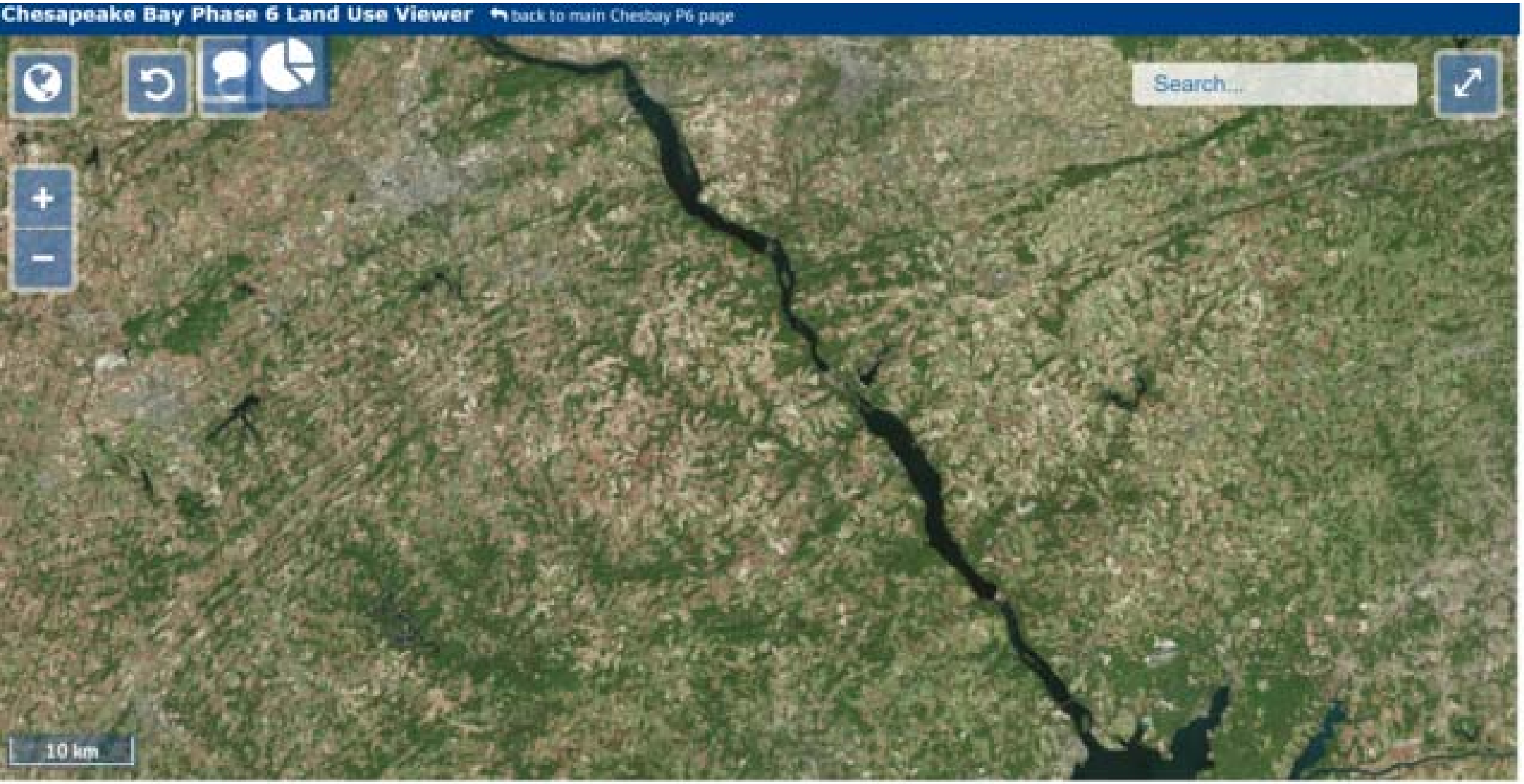
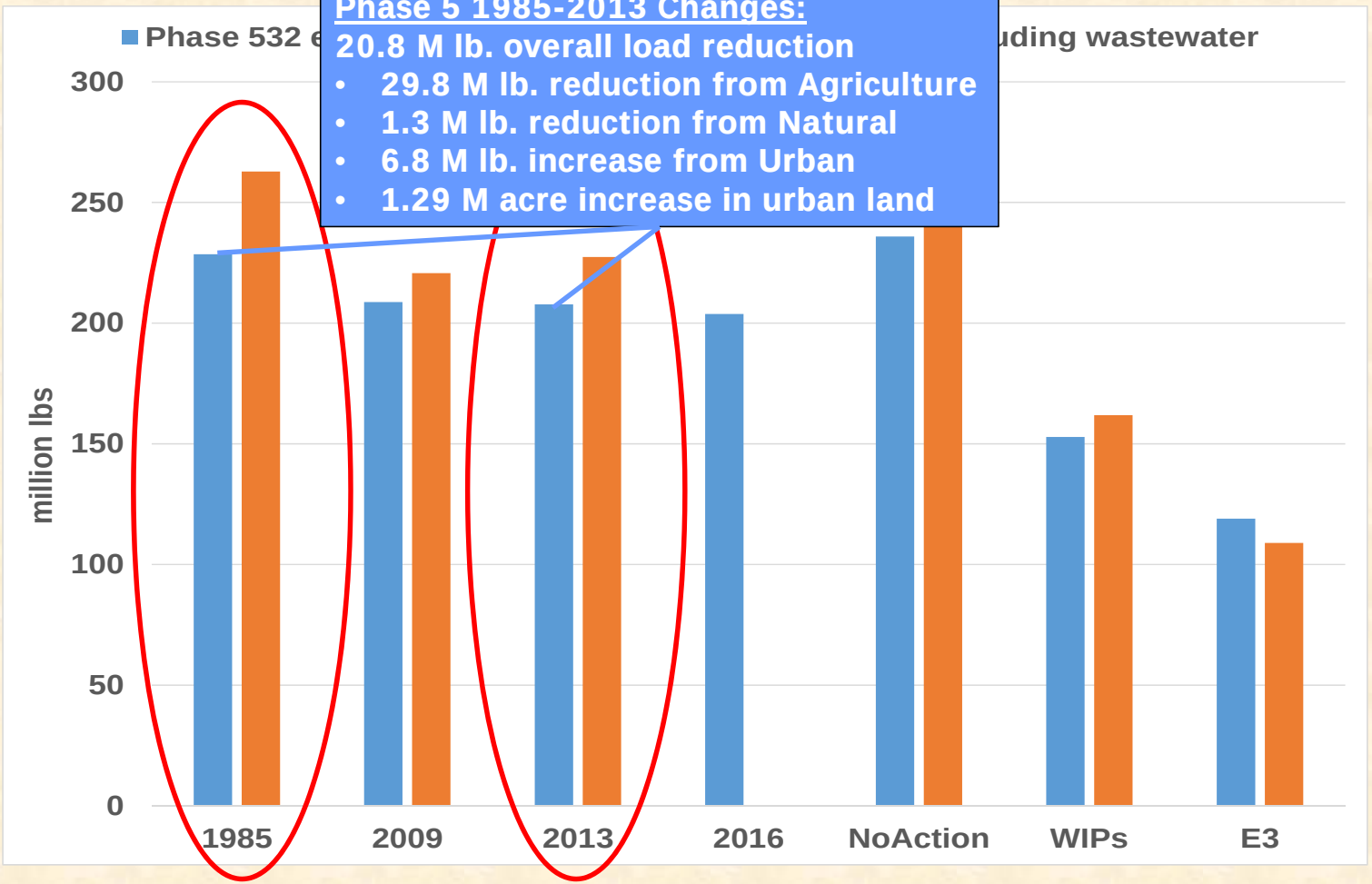

Chesapeake Bay Phase 6 Land Use Viewer
back to main Chesbay P6 page
Search...
10 km
Overlay Opacity: 0%


Chesapeake Bay Phase 6 Land Use Viewer
back to main Chesbay P6 page
Search...
10 km
Overlay Opacity: 100%

Phase 5 and Phase 6

Nitrogen Loads, CB Watershed-wide (excludes wastewater)



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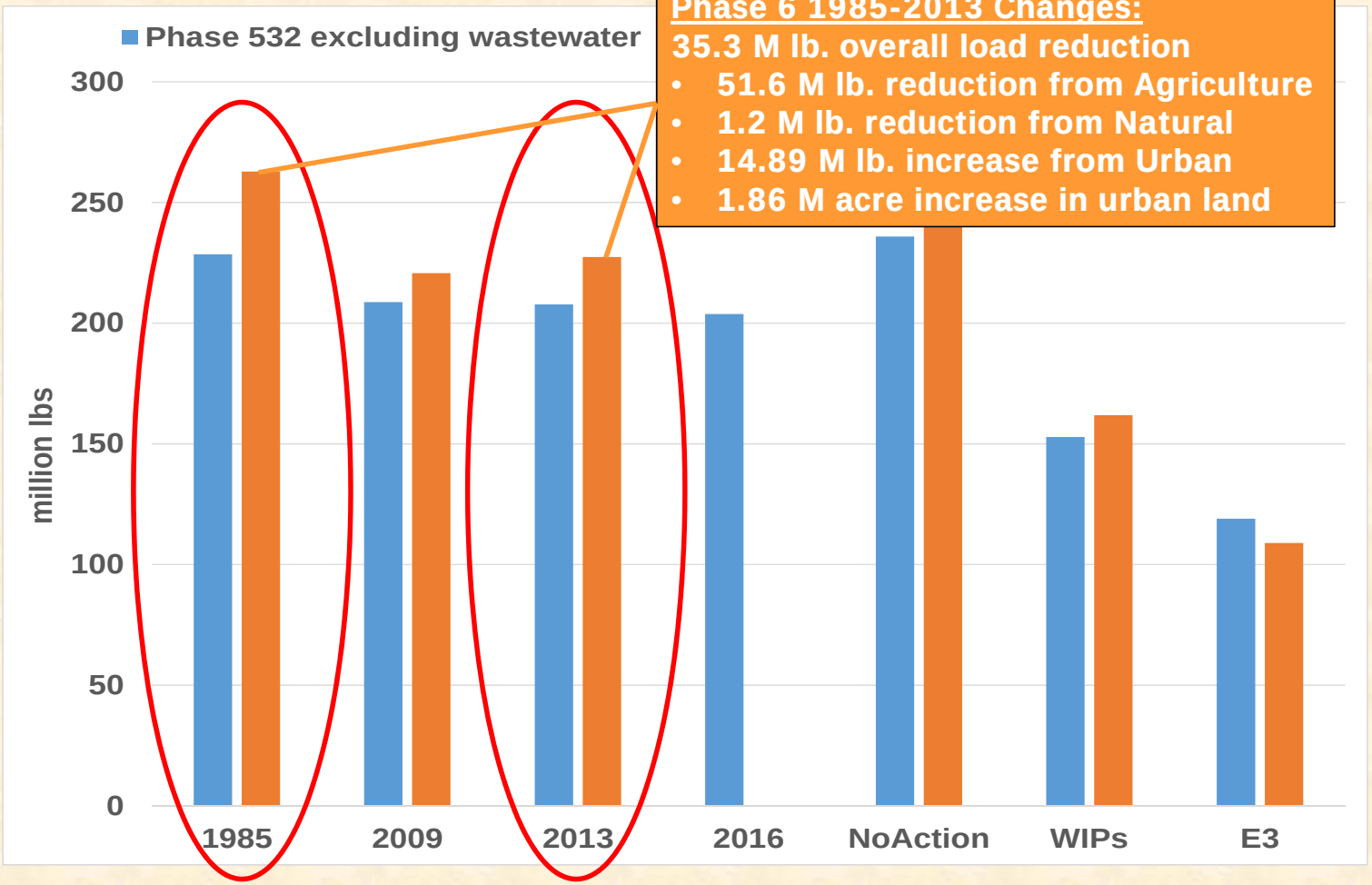


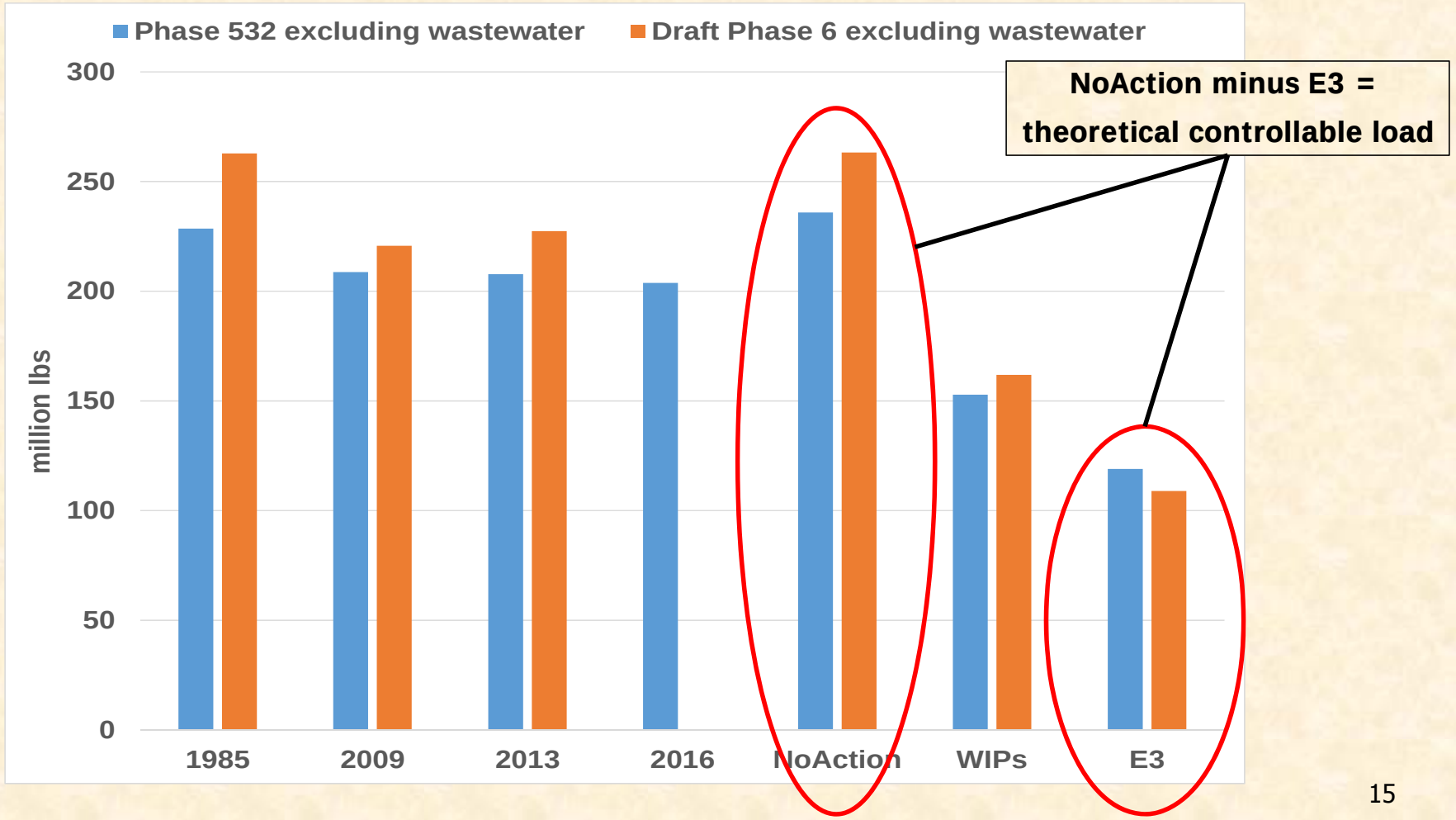
Phase 6 1985-2013 Changes:

35.3 M lb. overall load reduction

- **51.6 M lb. reduction from Agriculture**
- **1.2 M lb. reduction from Natural**
- **14.89 M lb. increase from Urban**
- **1.86 M acre increase in urban land**

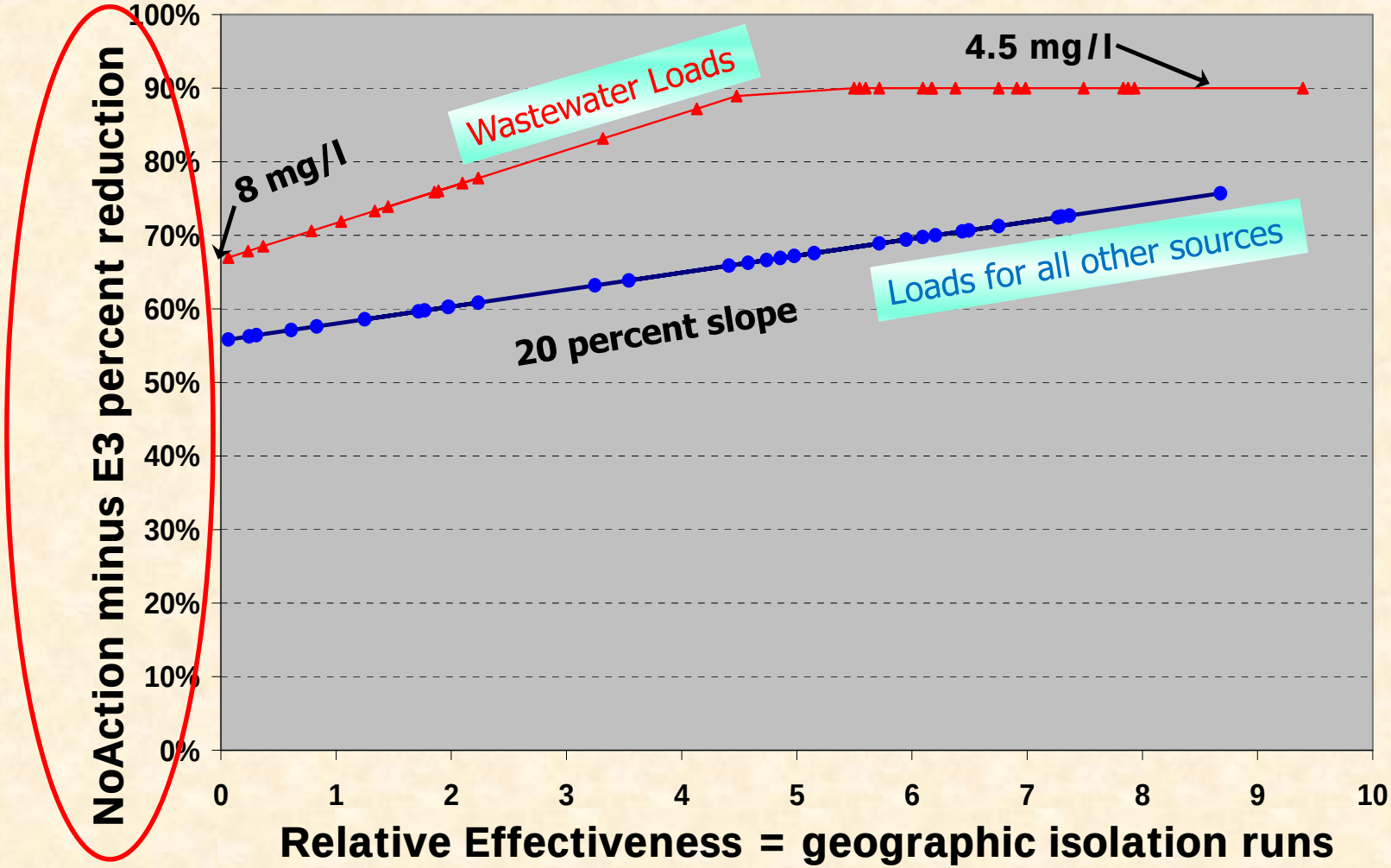
Phase 5 and Phase 6

Nitrogen Loads, CB Watershed-wide (excludes wastewater)



Phase 5 Planning Target Methodology

"Hockey Stick"



Initial Set of Phase 6 Model Scenarios

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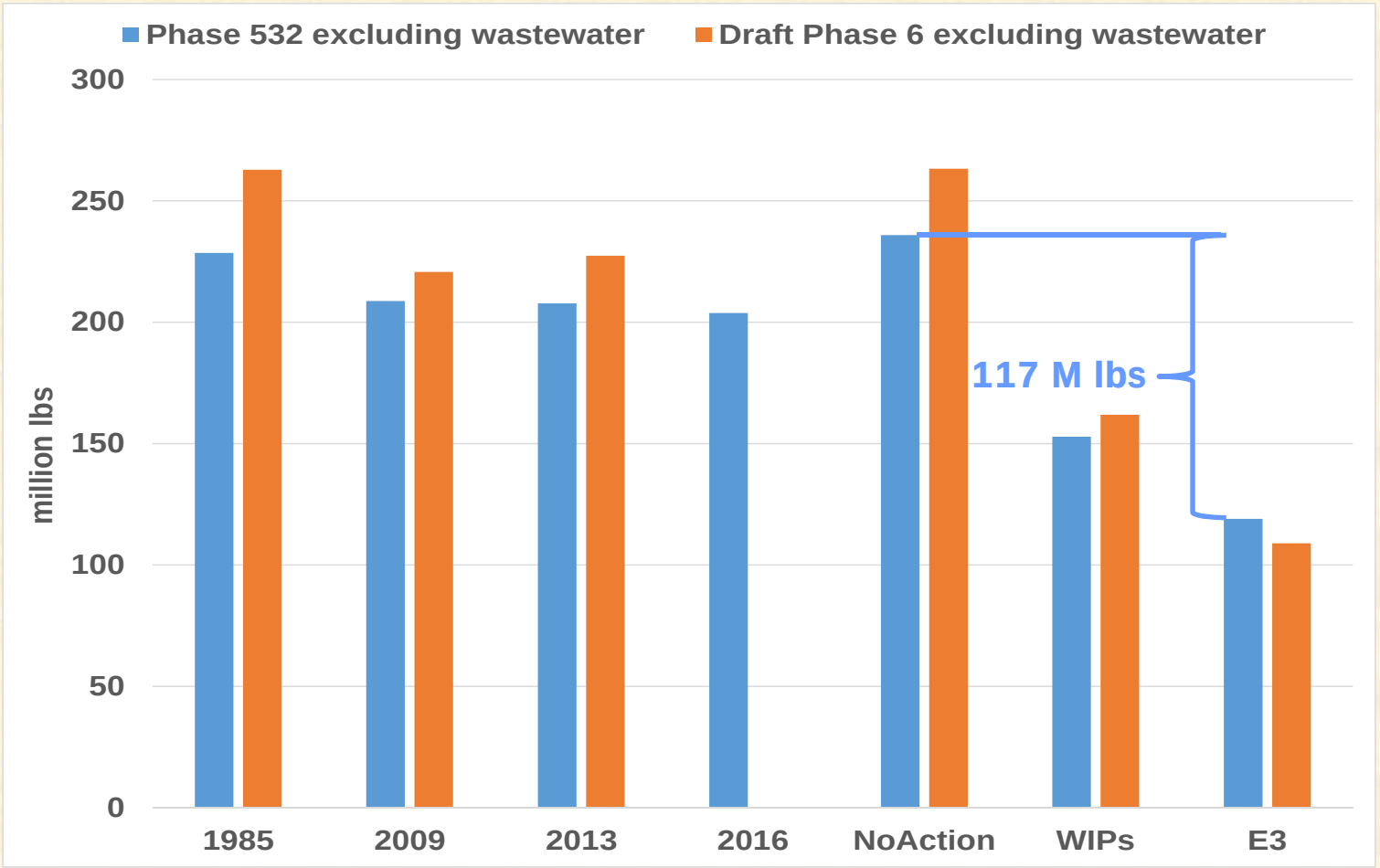

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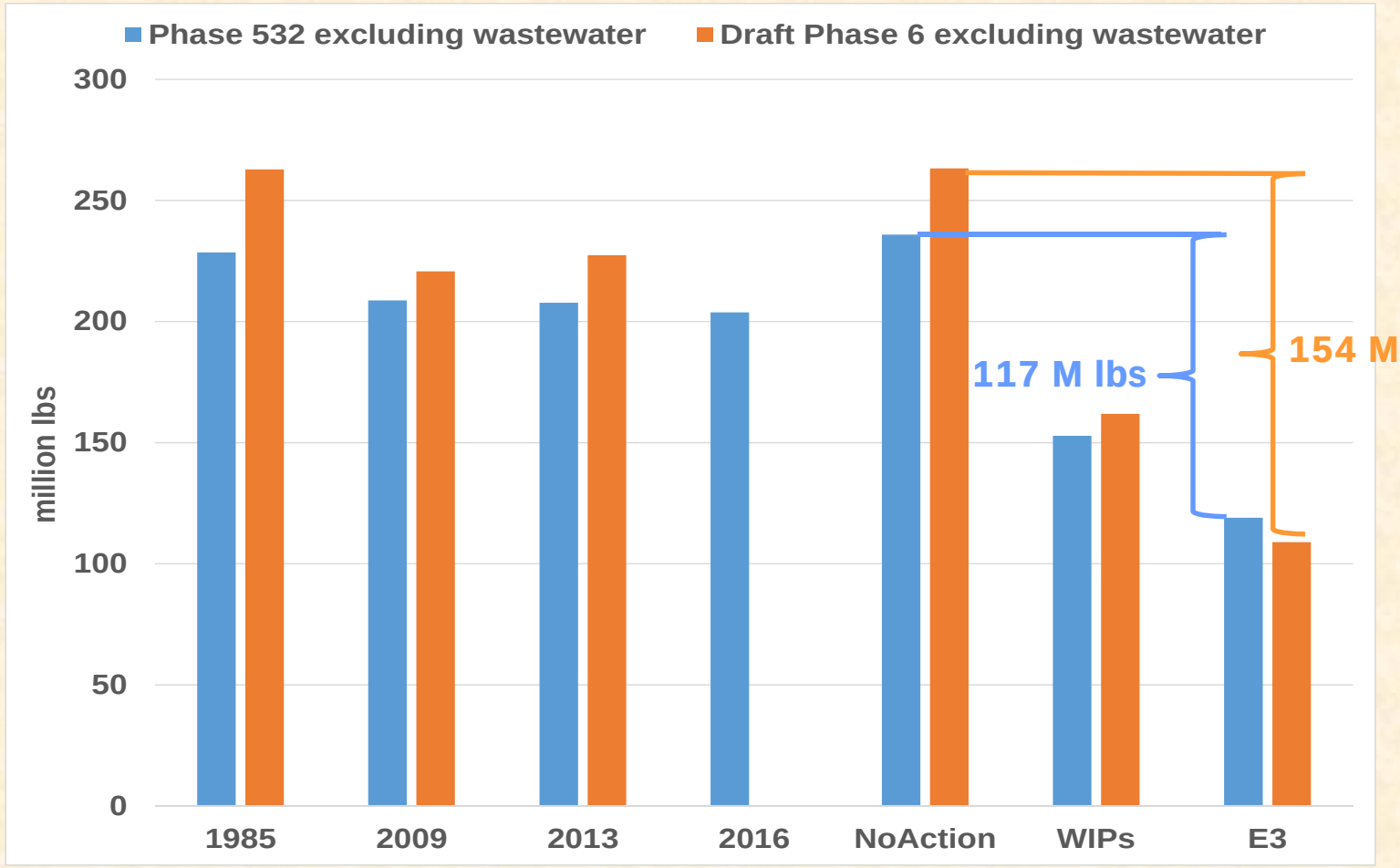

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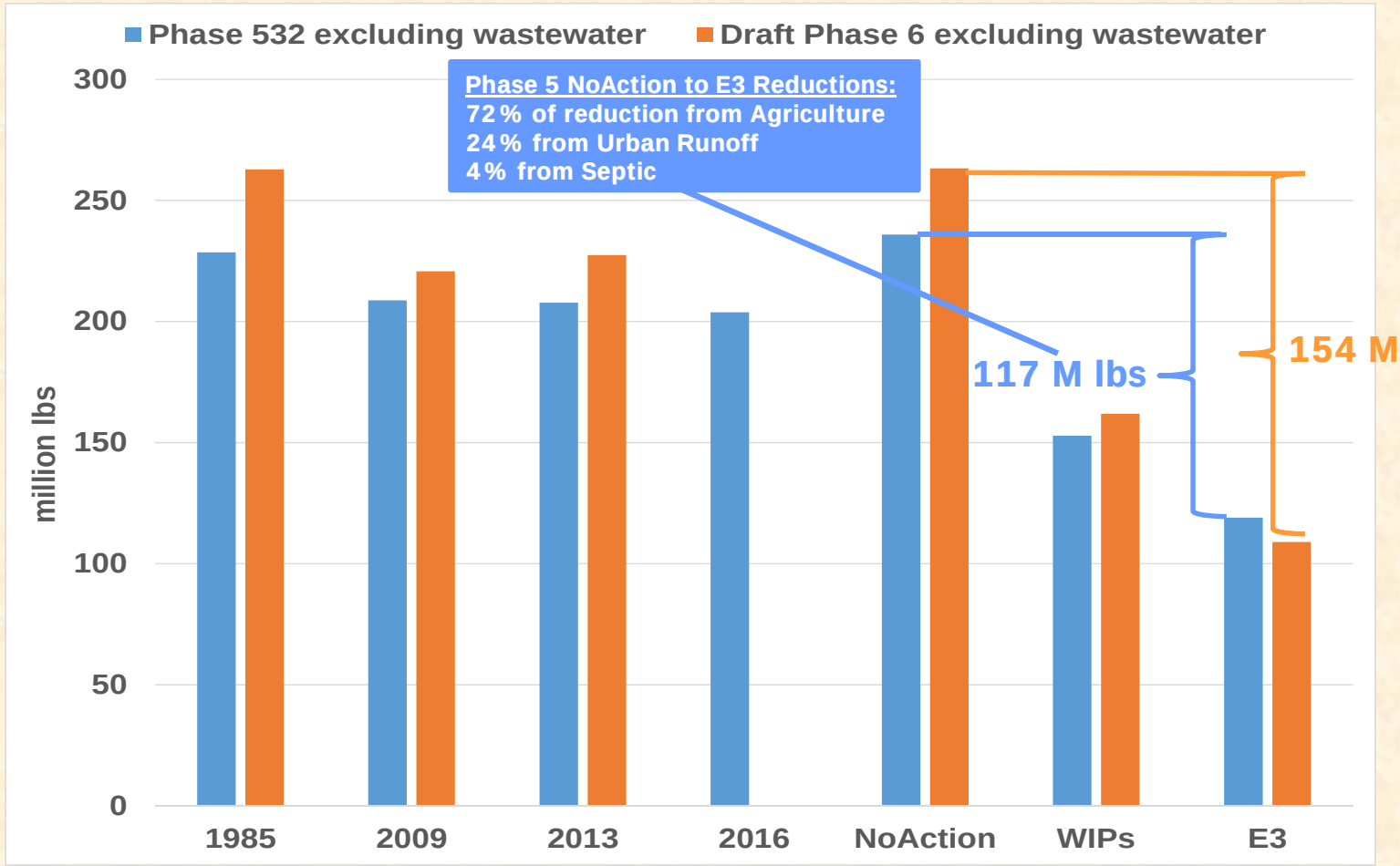

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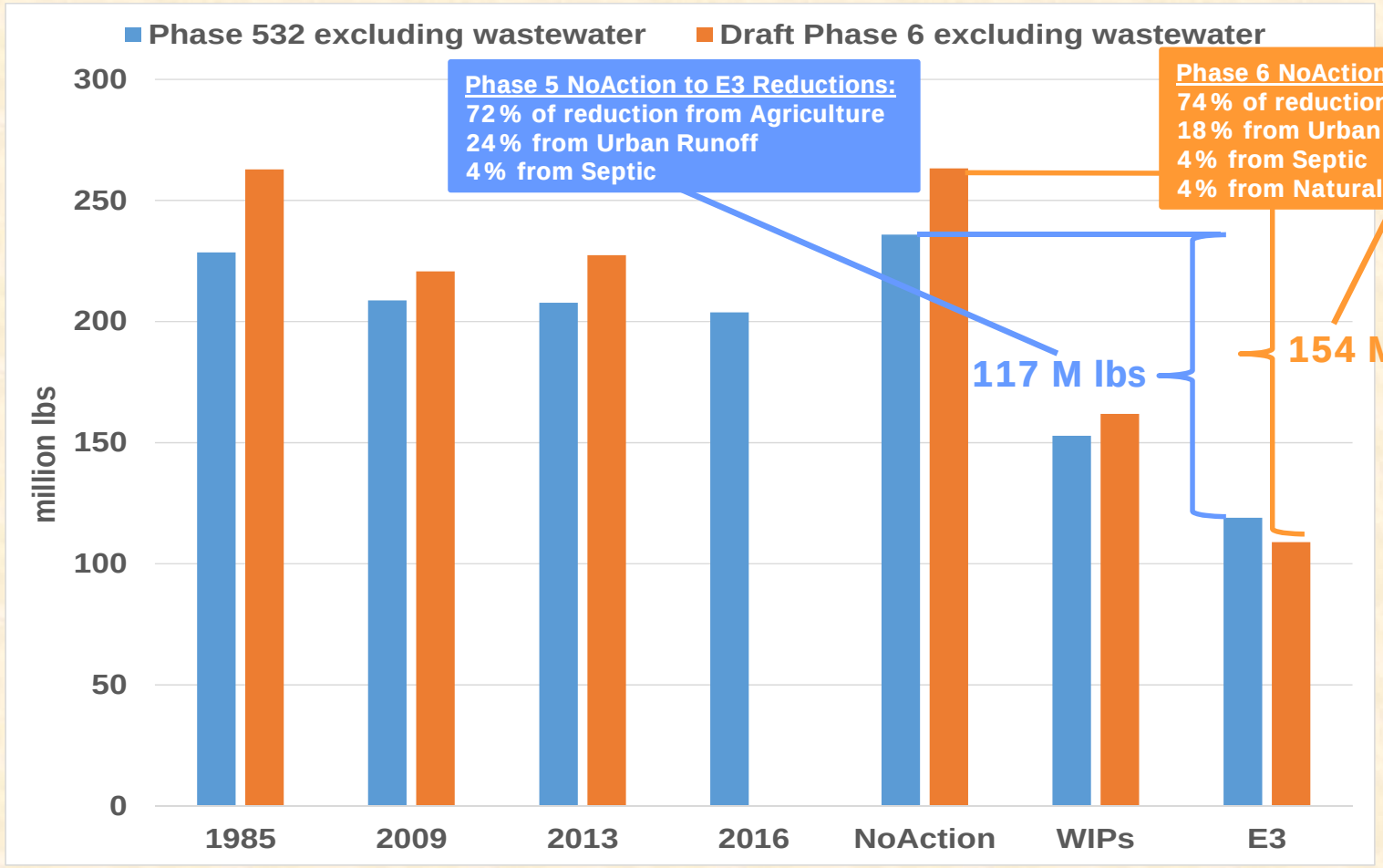

Phase 6 E3 Scenario
Urban and Resource BMPs

Phase 6 BMP	Implementation Level
Stormwater Management - New Development	All new development has Runoff Reduction BMPs sized for 1.5 inch IA
Stormwater Management - Retrofits	Runoff Reduction Retrofits sized to treat 1.0 inch IA for 75% of each each urban land use type
Street Cleaning	100% of Transport Impervious Cover swept using SCP-1
Urban Nutrient Management	All eligible Pervious Cover has UNM Plan implementation which is split 20% High Risk and 80% Low Risk
Advanced Grey Infrastructure Nutrient Discovery Program & Storm Drain Clean Outs	5% of Urban N and P load removed due to both credits
Urban Stream Restoration	***15% of urban stream miles in the RBS are restored @ twice the default SR value***
Erosion & Sediment Control	100% of construction sites are treated to ESC Level 3 and have high risk UNM plans
Riparian Forest Buffers	***Turfgrass (no canopy) within 30m of all streams and rivers that's unbuffered - from high-resolution land cover***
Shoreline Erosion Control	Potential addition
Dirt & Gravel Road Erosion & Sediment Control	Driving Surface Aggregate + Raising the Roadbed; with Outlets will be included if domain determined and approved
Septic Connections	10%
Septic Denitrification Enhanced	100%
Forest Harvesting BMP	100%
DiploidOysters3	***MD = 112 M oysters; VA = 280 M oysters***

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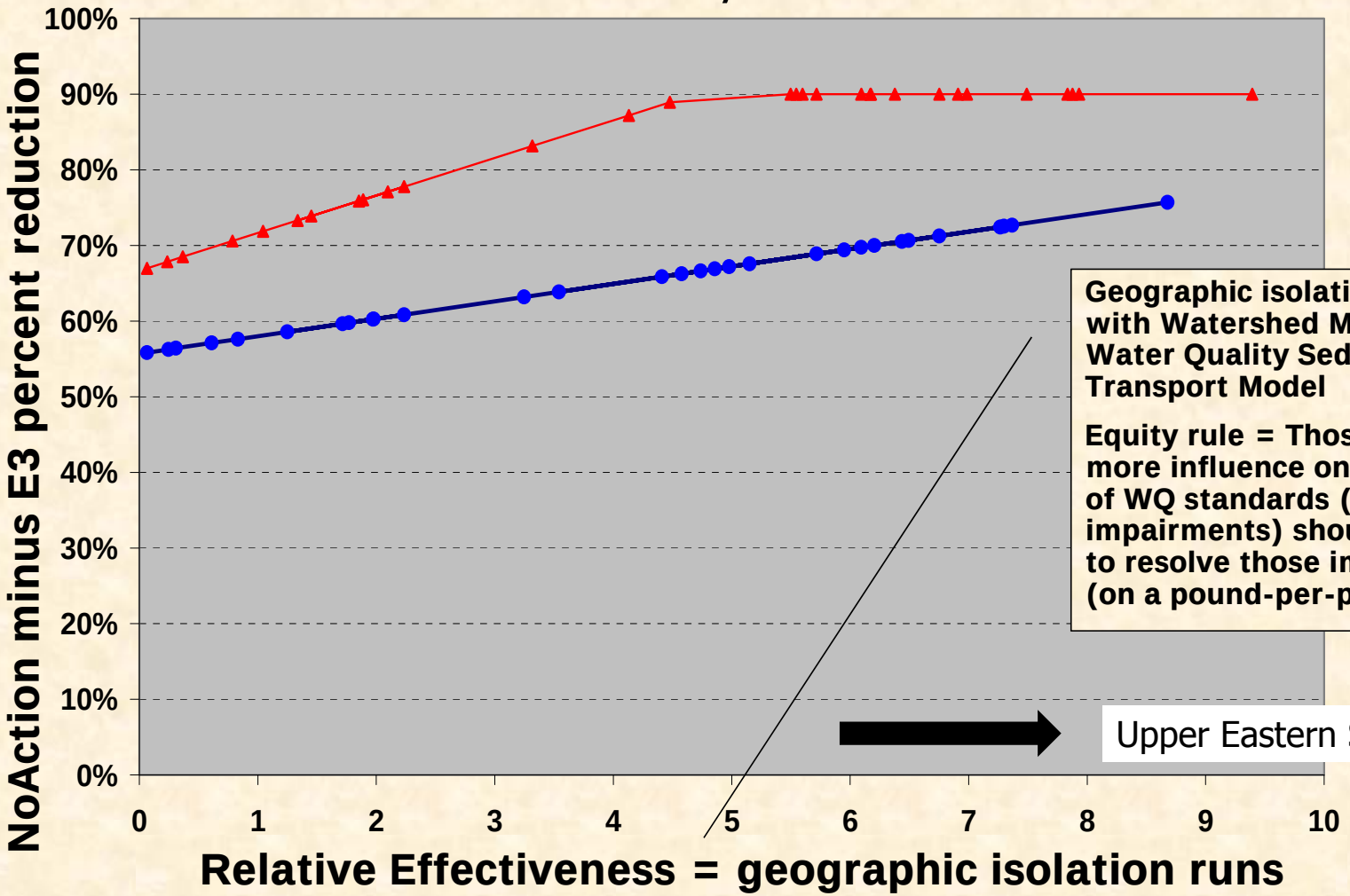
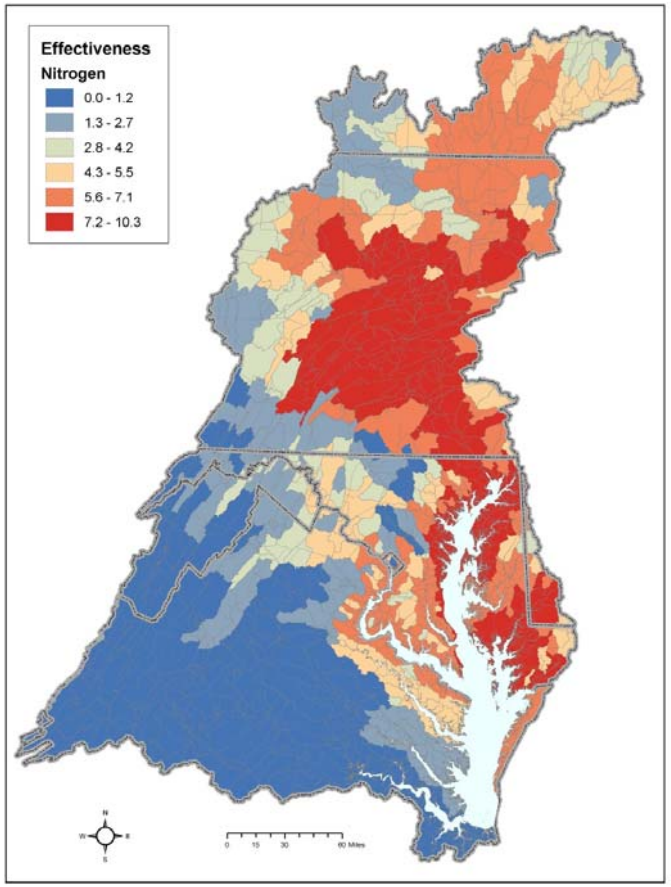
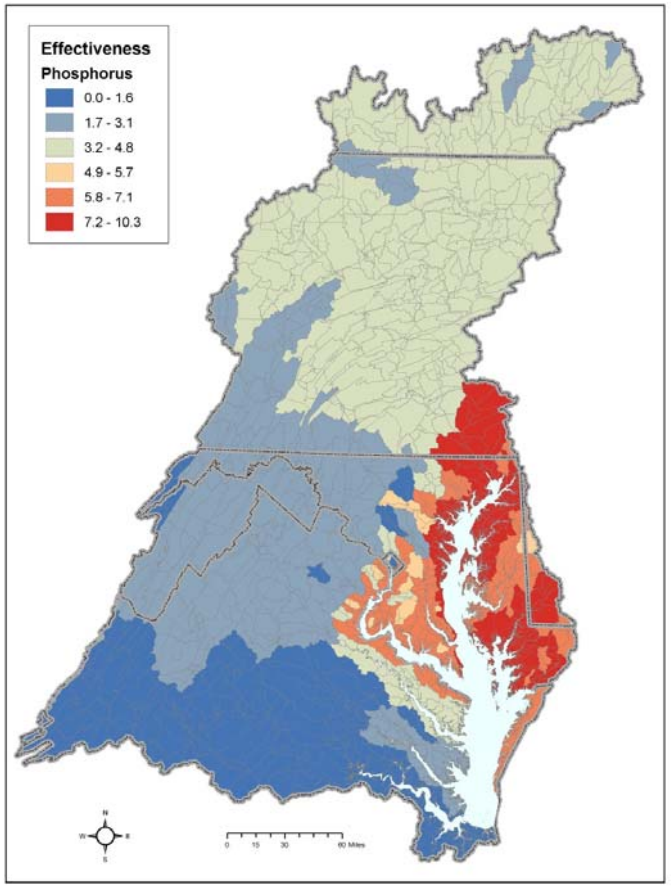
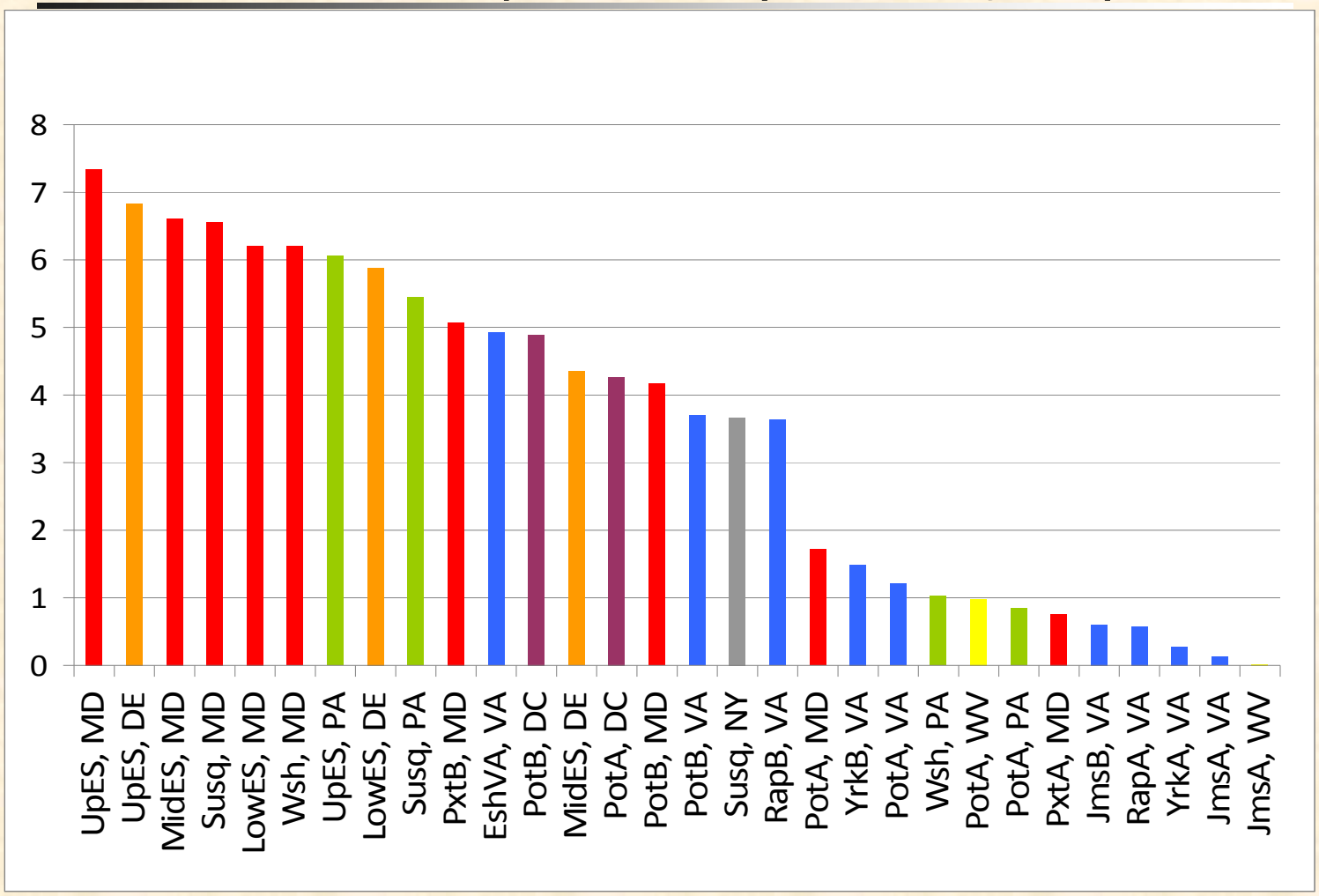


Relative Effect of a Pound of Pollution on Bay Water Quality





Major River Basin by Jurisdiction
Relative Impact on Bay Water Quality



Phase 6 Model Scenarios

For final versions of Phase 6 scenarios and development of Planning Targets, we need:

- Decision on what year to use for No-Action and E3 scenarios – after assessing options
  - Initial scenarios are 2010 background conditions
- Workgroups can review model results of No-Action, E3, Phase II WIPs with Phase 6 model, etc.
- Geographic isolation runs
- Approved model – after fatal flaw review by partnership; September, 2017

Phase 6 Model Scenarios and Planning Target Development

Schedule

- Partnership's fatal flaw review of the Beta 6 modeling tools; through July 31, 2017

Phase 6 Model Scenarios and Planning Target Development

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- Partnership's fatal flaw review of the Beta 6 modeling tools; through July 31, 2017
- Fatal flaw issue resolution occurs in August, 2017
- WQGIT revisits midpoint assessment schedule based on Beta 6 fatal flaw review period; August 14, 2017 WQGIT call
- Partnership approval of Phase 6 modeling tools; September, 2017

Phase 6 Model Scenarios and Planning Target Development

Schedule

- Draft Phase III WIP planning target development; August 1 – September 30, 2017
  - No-Action, E3 + geo-isolation runs, etc.
- Release of draft Phase III WIP planning targets; October 31, 2017 - February 28, 2018 partnership review
- PSC approval of final Phase III WIP planning targets with special cases and release; March, 2018