

Factoring in Climate Change into the Jurisdictions' Phase III WIPs

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Climate Change & the TMDL
Mid-Point Assessment
3 Components

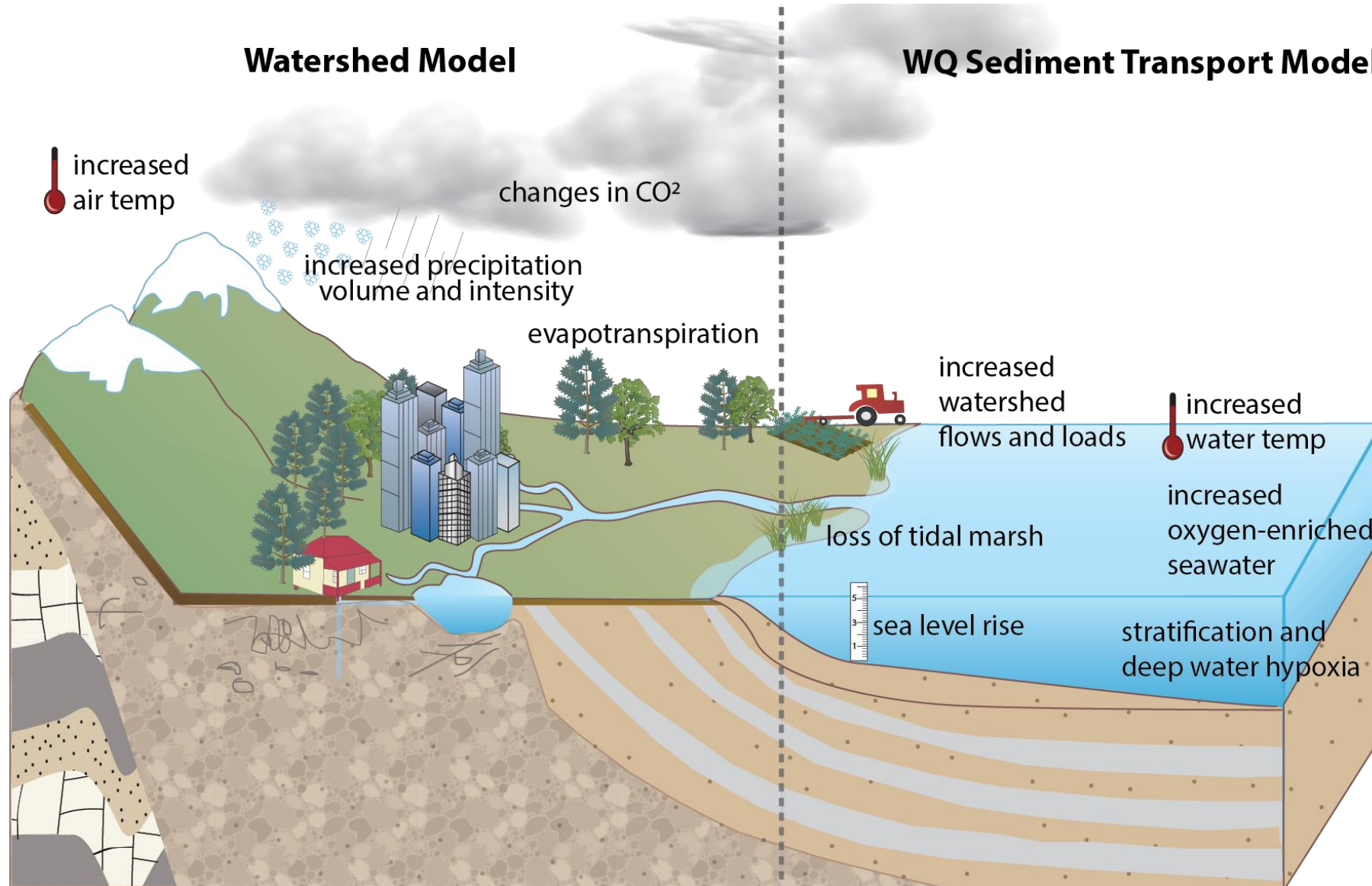
#1
**Climate Change
Impact Assessment**

#2
**Guiding Principles
for Phase III WIPs**

#3
**Policy
Provisions**

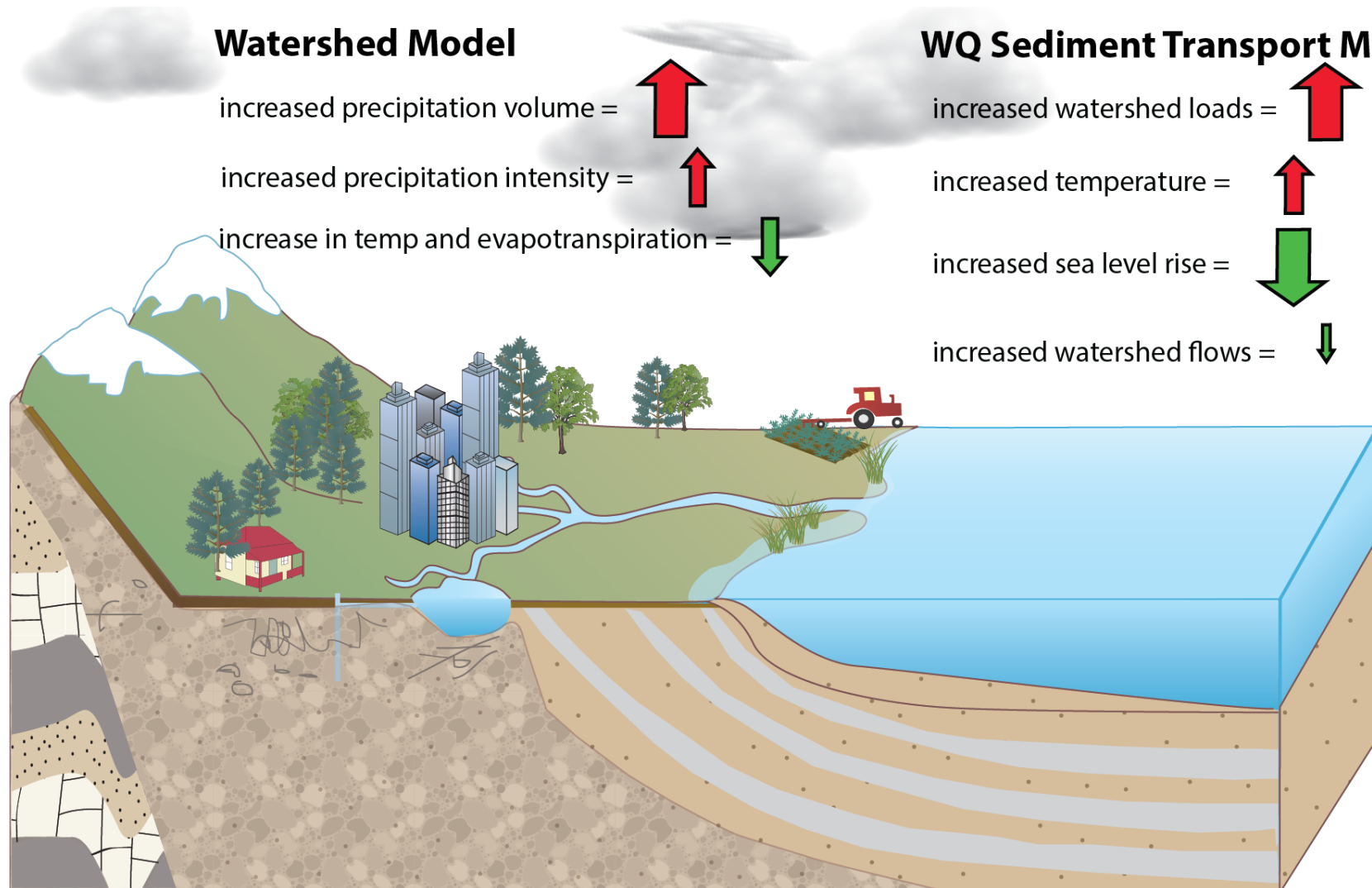
Component #1: Climate Change Assessment

Accounting for Changing Conditions



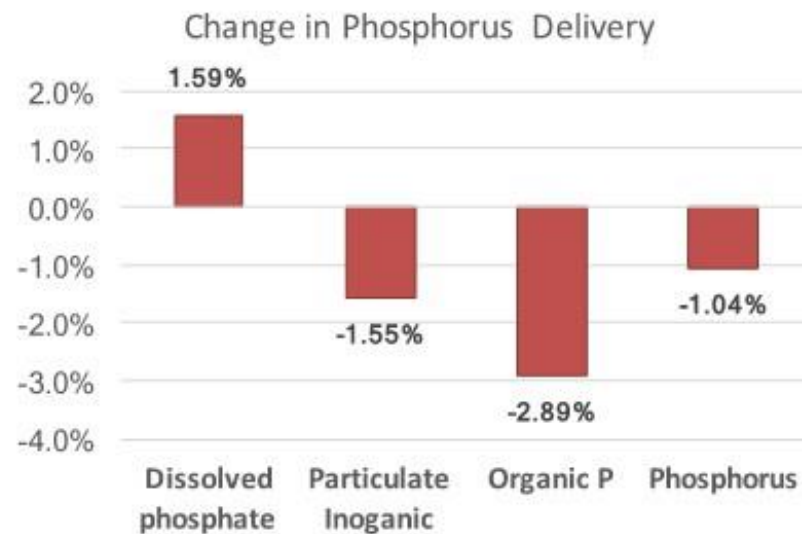
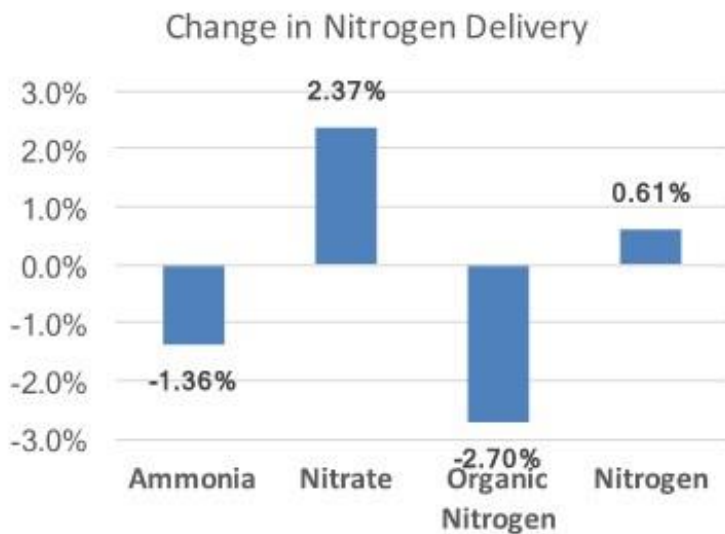
Accounting for Changing Conditions

Cumulative Assessment of Bay Low Dissolved Oxygen Impacts



Estimated Changes in Watershed and Bay Loads by 2025 Due to Climate Change

- Inorganic nutrients are increased with climate change
- Organic nutrients are decreased
- Inorganic nutrients have a higher effect on dissolved oxygen



Climate Change Loads: Nitrogen

Jurisdiction	1985 Baseline	2013 Progress	Climate Change	Phase III Planning Target
NY	18.71	15.44	0.400 (3.8%)	10.62
PA	122.41	99.28	4.135 (5.7%)	72.99
MD	83.56	55.89	2.194 (4.8%)	45.39
WV	8.73	8.06	0.236 (3.7%)	6.36
DC	6.48	1.75	0.006 (0.3%)	2.25
DE	6.97	6.59	0.397 (8.5%)	4.66
VA	84.29	61.53	1.722 (3.1%)	56.37
Basinwide	331.15	248.54	9.09 (4.6%)	198.64

*Units: millions of pounds

Climate Change Loads: Phosphorus

Jurisdiction	1985 Baseline	2013 Progress	Climate Change	Phase III Planning Target
NY	1.198	0.710	0.014 (2.9%)	0.491
PA	6.282	3.749	0.141 (4.7%)	3.012
MD	7.495	3.942	0.114 (3.2%)	3.553
WV	0.902	0.617	0.019 (3.9%)	0.493
DC	0.090	0.062	0.001 (0.8%)	0.120
DE	0.225	0.116	0.006 (5.1%)	0.116
VA	14.244	6.751	0.193 (3.0%)	6.411
Basinwide	30.44	15.95	0.489 (3.4%)	14.20

*Units: millions of pounds

**Component #2:
Guiding Principles for
Phase III WIPs**

PSC-Approved Guiding Principles

Phase III WIP Development

- **Capitalize on “Co-benefits”** – maximize BMP selection to increase climate resiliency
- **Account for and integrate planning and consideration of existing stressors** – consider existing stressors in establishing reduction targets or BMP selection
- **Align with existing climate resilient plans and strategies** – document jurisdictions’ action plans and strategies to address climate change
- **Manage for risk and plan for uncertainty** – employ risk management and flexible implementation strategies to achieve and maintain water quality standards
- **Engage Local Agencies and Leaders** – work cooperatively with local partners to provide best available data on local impacts

PSC-Approved Guiding Principles Phase III WIP Implementation

- **Reduce vulnerability** – use “Climate Smart” principles to site and design BMPs
- **Build in flexibility and adaptability** – allow for adjustments in BMP implementation to consider potential uncertainties and response options
- **Adaptive manage** – allow for changes in BMP selection or WIP implementation over-time

Component #3: Policy Provisions

Decision

- The Principals' Staff Committee agreed to the following framework for addressing climate change impacts in the Phase III Watershed Implementation Plans (WIPs), recognizing that further information is needed from the Partnership's Modeling Workgroup and Climate Resiliency Workgroup on how the additional nutrient and sediment loads based on 2025 climate change conditions were derived, and the data and assumptions behind those calculations.

1. Incorporate Climate Change in the Phase III WIPs*

- Include a narrative strategy in the Phase III WIPs that describes the jurisdictions current action plans and strategies to address climate change, as well as the jurisdiction-specific nutrient and sediment pollution loadings due to 2025 climate change conditions, while incorporating local priorities and actions to address climate change impacts.

*Provisional language approved by the PSC (12.20.17)

2. Understand the Science*

Address the uncertainty by documenting the current understanding of the science and identifying research gaps and needs:

- Develop an estimate of pollutant load changes (N, P and Sediment) due to climate change conditions
- Develop a better understanding of the BMP responses, including new or other emerging BMPs, to climate change conditions
- In 2021, the Partnership will consider results of updated methods, techniques, and studies and revisit existing estimated loads due to climate change to determine if any updates to those load estimates are needed
- Jurisdictions will be expected to account for additional nutrient and sediment pollutant loads due to 2025 climate change conditions in a Phase III WIP addendum and/or 2-year milestones beginning in 2022

*Provisional language approved by the PSC (12.20.17)

3. Incorporate into Milestones*

- Starting with the 2022-2023 milestones, determine how climate change will impact the BMPs included in the WIPs and address these vulnerabilities in the two-year milestones.

*Provisional language approved by the PSC (12.20.17)

Next Steps

Action

- The Partnership's Modeling Workgroup, working with the Climate Resiliency Workgroup, will develop and distribute a briefing package in advance of the Principals' Staff Committee's February 2018 meeting that will provide greater detail on how the additional nutrient and sediment loads due to 2025 climate change conditions were developed, and the data and assumptions behind those calculations.
- The CRWG and WQGIT will be develop and approve formal implementation guidance for Phase III WIP Narrative Strategies, upon adoption of the final policy provisions for Jurisdictions' Phase III WIPs.

Communication & Decision-Support Materials

Communication & Decision-Support Materials

- Draft Guidance Example and Sample Narrative for Phase III Watershed Implementation Plans
- STAC Workshop Report (in press): *Monitoring and Assessing Impacts of Changes in Weather Patterns and Extreme Events on BMP Siting and Design* (Sept. 7-8 2017).
- Fact Sheet: *Resilient BMP Planning Tools and Resources*
- Fact Sheet: *Climate Resiliency Principles for Phase III WIPs*

Questions?