

Presented to an advisory committee of the DRBC on October 14, 2026. Contents should not be published or re-posted in whole or in part without the permission of DRBC.

Wasteload Allocation Study: Phase 2 Overview

Water Quality Advisory Committee

October 14, 2026

Zoom

Matthew Amato, PhD

Joseph Fogarty, PhD

Li Zheng, PhD

Thomas Amidon, BCES

Namsoo Suk, PhD

Sarah Beganskas, PhD



Delaware River Basin Commission

DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

“Living” WLA Study outline

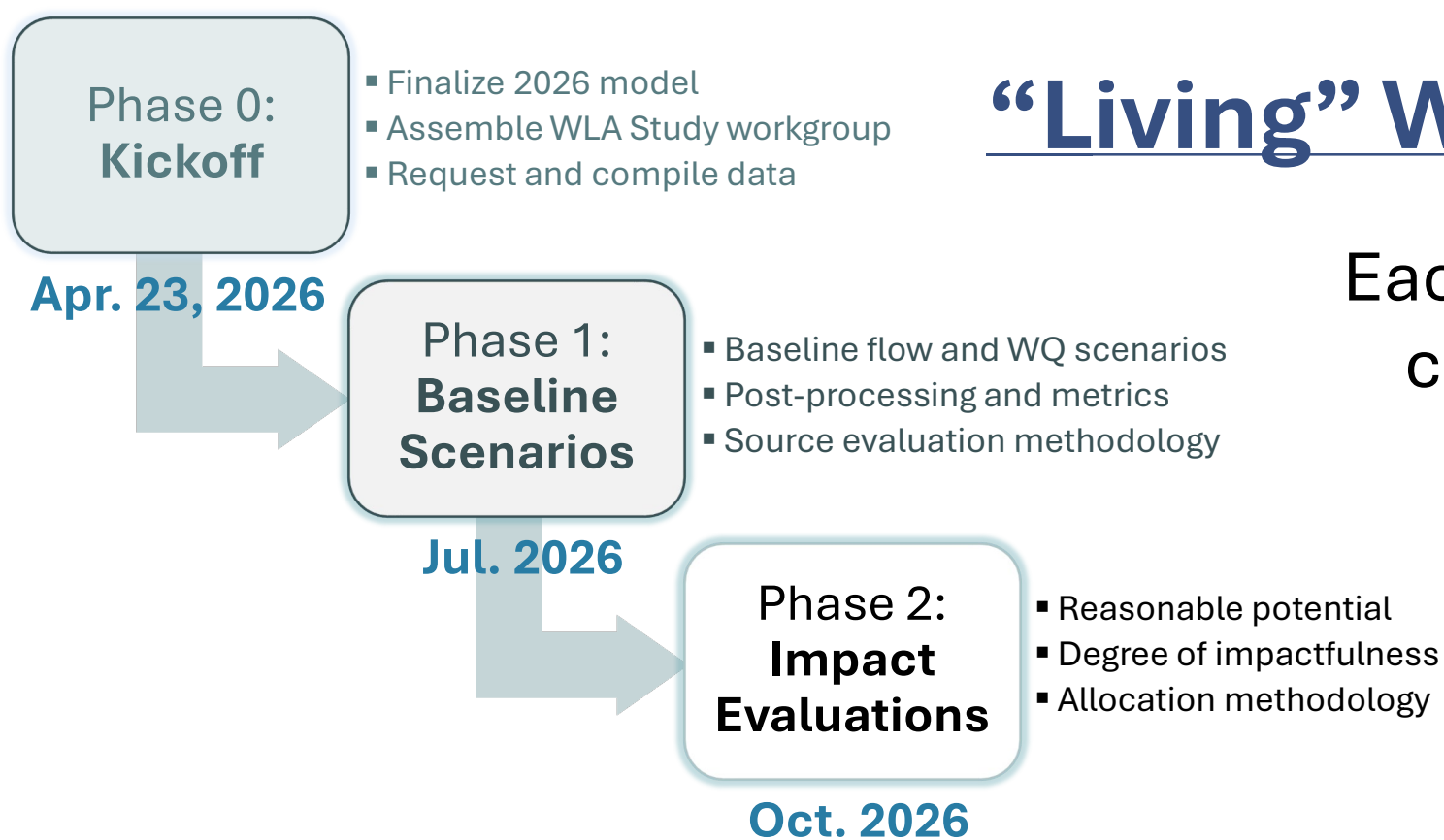


Each phase includes regular coordination with the WLA Study Workgroup and **culminates with a WQAC meeting**

- Finalized facilities and flows
- Prepared baseline scenarios
- Developed impact evaluation methodology
- Convened the **co-regulator WLA Study workgroup (7/13) and WQAC (7/23)**

“Living” WLA Study outline

Each phase includes regular coordination with the WLA Study Workgroup and **culminates with a WQAC meeting**

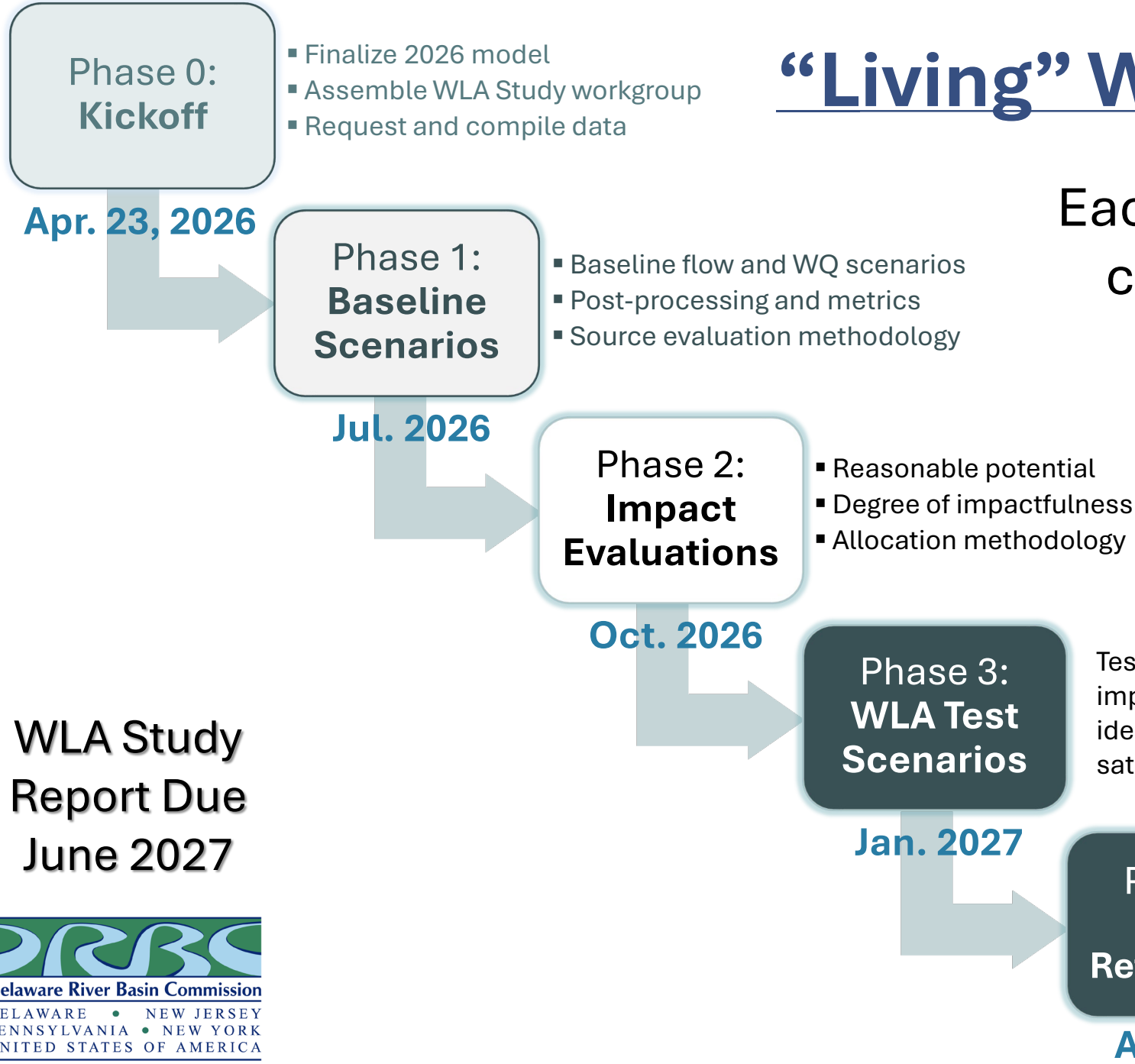


**WLA Study
Report Due
June 2027**

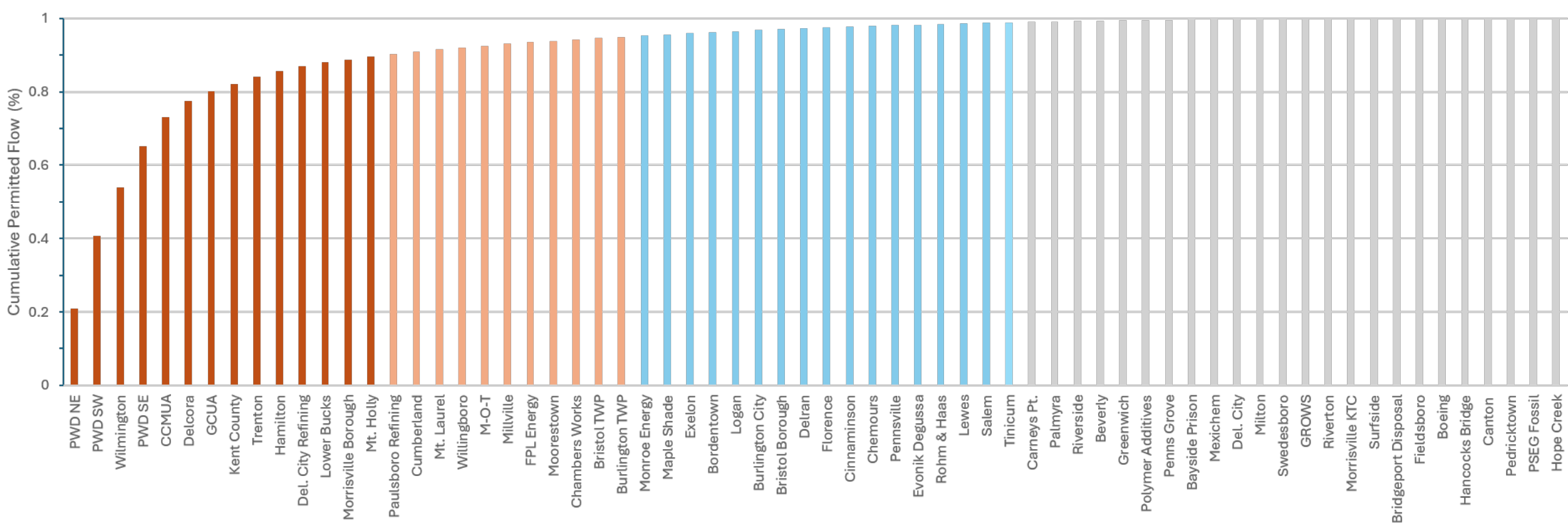
- Perform impact evaluations; summarize findings and recommendations
- Develop allocation methodology
- Met with the **co-regulator WLA Study workgroup (10/5) and Delaware Estuary Water Quality Improvement Partnership (10/07)**
- Convened the **WQAC (10/14)**

“Living” WLA Study outline

Each phase includes regular coordination with the WLA Study Workgroup and **culminates with a WQAC meeting**



WLA Study
Report Due
June 2027



PS Dischargers in top 90% (n = 14):

PWD NE
PWD SW
Wilmington
PWD SE
CCMUA
Delcora
GCUA
Kent County
Trenton
Hamilton
Del. City Refining
Lower Bucks
Morrisville Borough
Mt. Holly

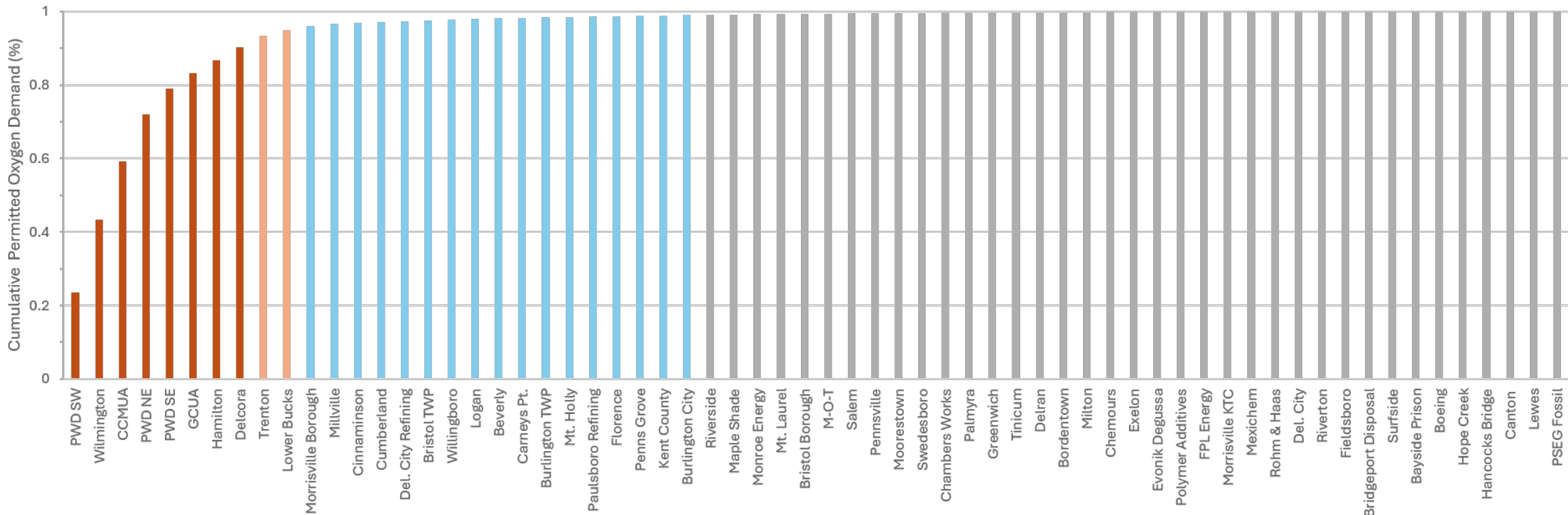
PS Dischargers in top 95% (n = 25):

Incl. PS Dischargers in top 90%
Paulsboro Refining
Cumberland
Mt. Laurel
Willingboro
M-O-T
Millville
FPL Energy
Moorestown
Chambers Works
Bristol TWP
Burlington TWP

PS Dischargers in top 99% (n = 42):

Incl. PS Dischargers in top 95%
Monroe Energy
Maple Shade
Exelon
Bordentown
Logan
Burlington City
Bristol Borough
Delran
Florence

Cinnaminson
Chemours
Pennsville
Evonik Degussa
Rohm & Haas
Lewes
Salem
Tinicum



PS Dischargers in top 90% (n = 8):

PWD SW
Wilmington
CCMUA
PWD NE
PWD SE
GCUA
Hamilton
Delcora

PS Dischargers in top 95% (n = 10):

Incl. PS Dischargers in top 90%
Trenton
Lower Bucks

PS Dischargers in top 99% (n = 27):

Incl. PS Dischargers in top 95%

Morrisville Borough
Millville
Cinnaminson
Cumberland
Del. City Refining
Bristol TWP
Willingboro
Logan
Beverly

Carneys Pt.
Burlington TWP
Mt. Holly
Paulsboro Refining
Florence
Penns Grove
Kent County
Burlington City

DRAFT

Oxygen Demand = CBOD + NBOD

Let's follow-up on a couple issues raised during the July WQAC meeting



- Current effluent quality compared to the 2018-2019 period show that some discharges have significantly different ammonia levels
 - Data are confirmed, change is real
 - Operational tradeoffs explain the changes
- “We’re focusing on water quality, but the endpoint is sturgeon”
 - The WLA Study is about restoring the water quality to satisfy new DO criteria, irrespective of sturgeon
 - The new criteria are intended to support fish propagation, and we absolutely need to position ourselves to track fish health and reproduction.

Impact Evaluations



- Potential Impact Evaluation
 - What discharges have the potential to individually impact dissolved oxygen in the tidal mainstem Delaware River (Zones 2-5)?
- Cumulative Impact Evaluation
 - What ammonia level has to not be exceeded among the “Insignificant Potential Impact” discharges in order for their cumulative impact to remain insignificant?
- Current Impact Evaluation
 - To what degree do the potentially impactful discharges actually impact DO at their current treatment levels?

Matt Amato to provide a Zoom-In on Phase 2 Impact Potential Evaluation

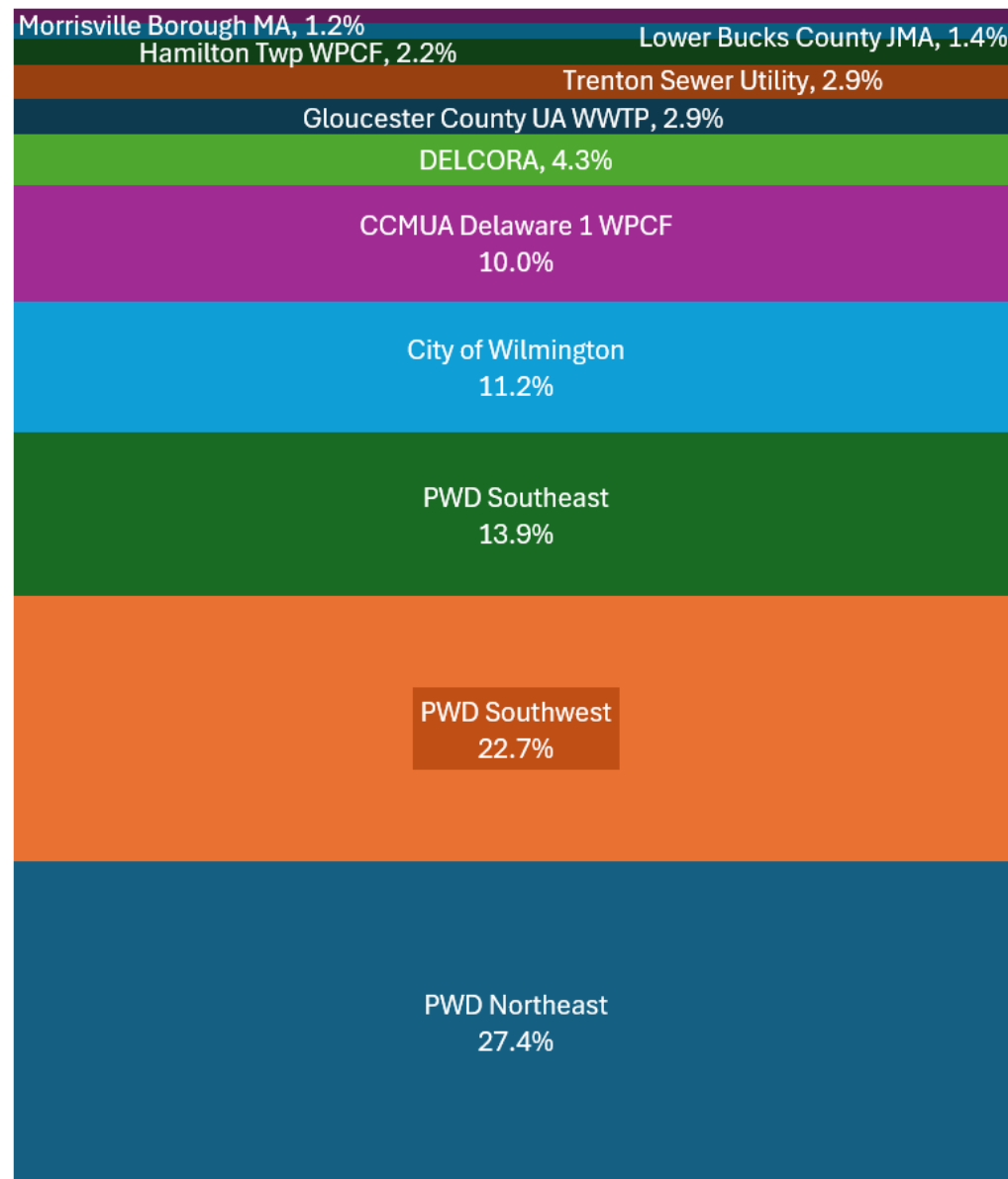


Preliminary Findings and Recommendations from Impact Potential Evaluations



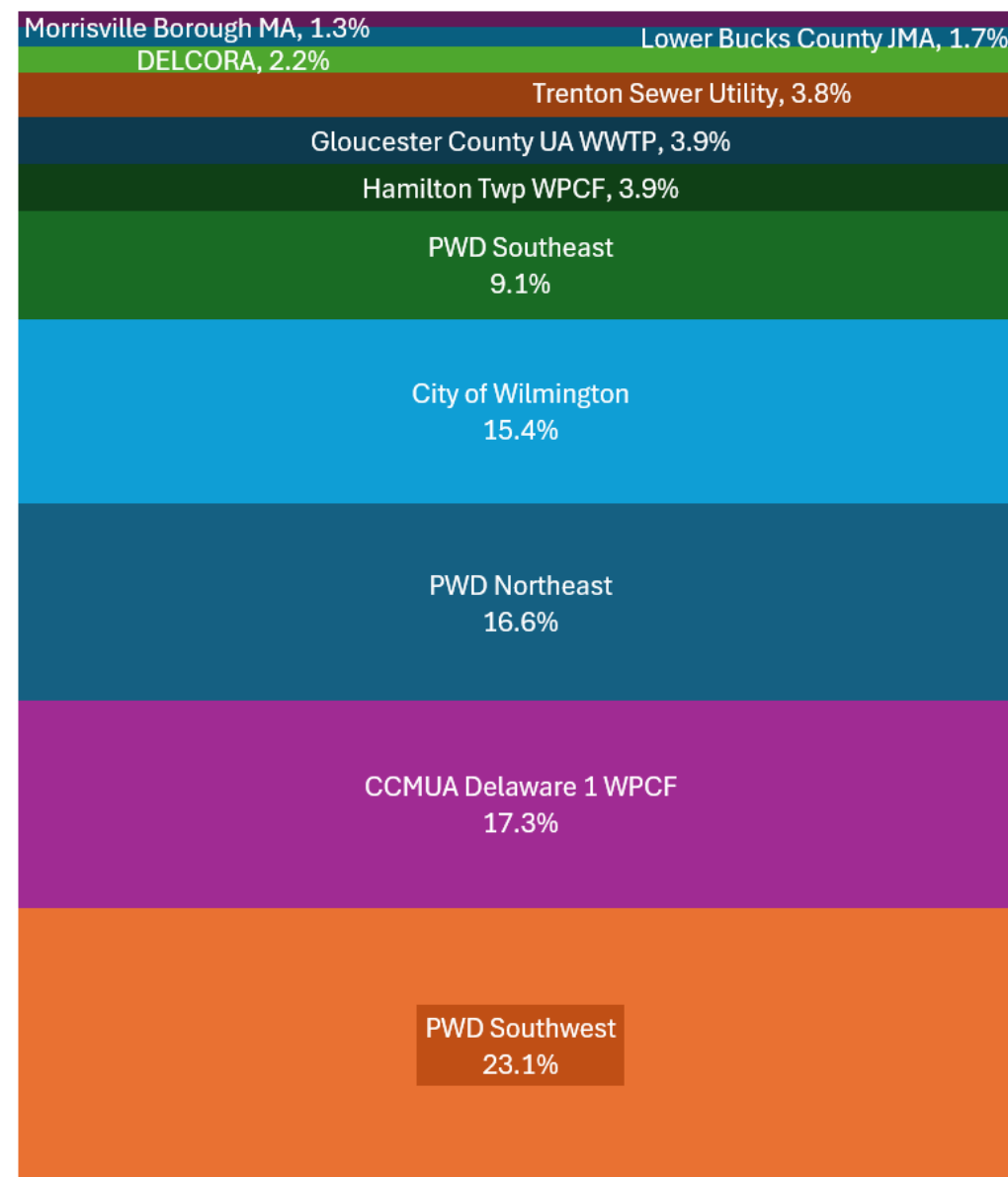
- Discharges in Zone 6 do not impact DO in the tidal river
 - These 9 would not receive WLAs
- 39 discharges do not have the potential to individually cause DO to change by more than 0.1 mg/L on any day anywhere in the mainstem Delaware River
 - Impact from these 39 discharges will remain insignificant as long as ammonia concentrations are below 10 mg/L
 - WLAs would be set to $[1.5 < 2 \times \text{AML} < 10]$ mg/L
- 8 discharges do not impact DO in mainstem DR at current treatment levels
 - WLAs would be set to $[1.5 < \text{AML}]$ mg/L
- 11 discharges impact the mainstem Delaware at current treatment levels
 - Custom WLAs to be derived iteratively in Phase 3

POTENTIAL IMPACT BASED ON SIZE AND LOCATION



% TOTAL.DDO

POTENTIAL IMPACT ACCOUNTING FOR CURRENT AMMONIA LEVELS



% TOTAL.DDO

What can we expect for remainder of WLA Study

- WQAC meetings
 - January 2027 (Phase 3)
 - March/April 2027 (Phase 4)
 - May/June 2027 (Final)
- Ongoing coordination with WLA Study WG and DEWQIP
- Reports
 - Model Enhancement Report (ASAP)
 - Model Suitability Evaluation (ASAP)
 - WLA Study Report (June 2027)





Discussion



Thomas.Amidon@drbc.gov
Namsoo.Suk@drbc.gov

