Delaware River Basin Commission

Updating TMDLs for PCBs for the Delaware Estuary

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Delaware Estuary Science & Environmental Summit

January 24, 2017

Delaware River Basin Commission

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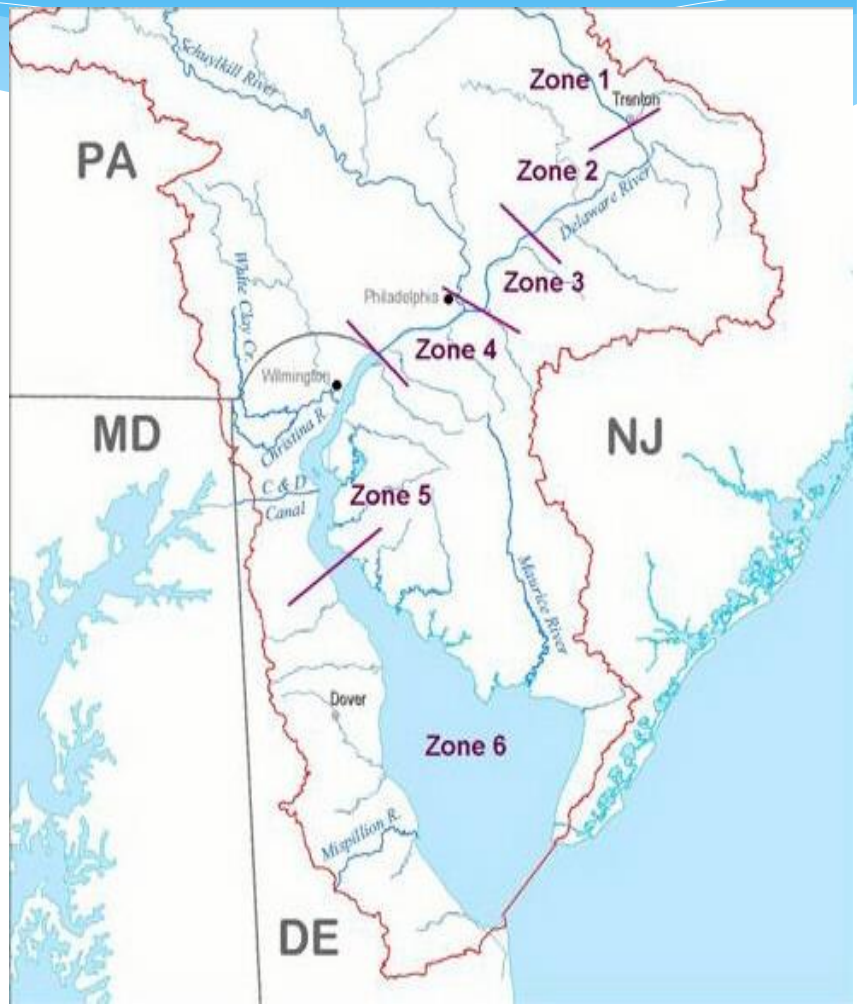
UNITED STATES OF AMERICA

Outline

- Background
  - History of PCB TMDLs in the Delaware Estuary
  - Need for Update of Stage 1 TMDLs
- Comparison of Loadings: Stage 1 vs Stage 2
- Stage 2 Principles
- Proposed Schedule

TMDL History

- The estuary consists of 5 water quality management units called Zones.
- EPA Regions II & III establish Stage 1 PCB TMDLs for Zones 2 – 5 in December 2003.
  - Each Zone is assigned a TMDL.
- EPA Regions II & III establish Stage 1 PCB TMDL for Zone 6 (Delaware Bay) in December 2006.



Stage 2 TMDLs

- Stage 2 TMDLs are needed to:
  - ✓ Update the TMDLs to the revised WQ criterion,
  - ✓ Refine loadings using consistent, high quality data,
  - ✓ Utilize a new, more equitable wasteload allocation procedure agreed upon by stakeholders,
  - ✓ Implement a new procedure for developing the TMDLs for each Zone, and
  - ✓ Include a revised implementation strategy for point and non-point sources as an Appendix to the Stage 2 TMDL report.
  - ✓ Provide certainty to this long-term process.

Stage 2 TMDLs

- The conceptual approach for developing the Stage 2 TMDLs involved:
  1) The use of a uniform Total PCB criterion of 16 pg/L.
  2) The use of a representative hydrological year (February 2002 – January 31, 2003) for long-term model simulations.
  3) The use of an allocation procedure called Equal Effluent Concentration (EEC).
  4) Use of an explicit Margin of Safety of 5% (same as in Stage 1 TMDLs).
  5) Comparisons of Stage 1 PCB loadings from each source category to the current loadings from each category.

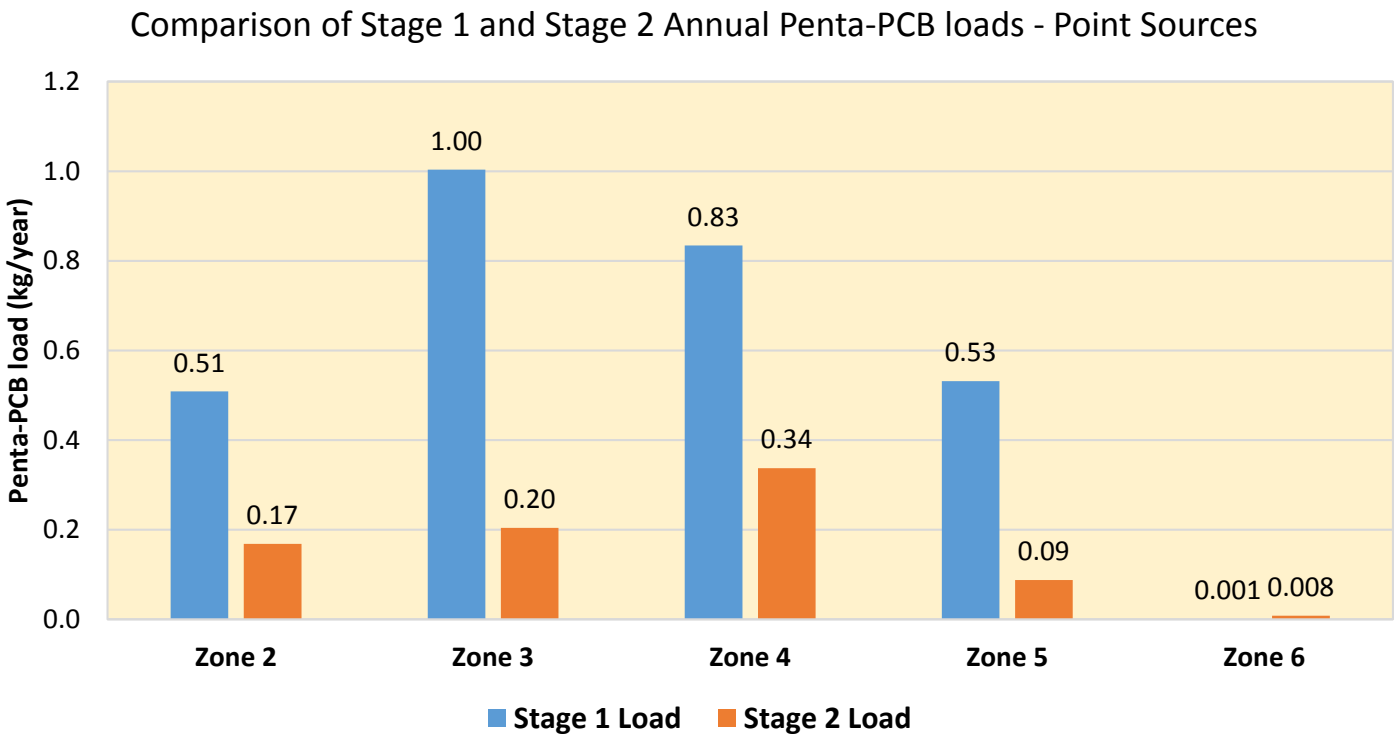
Stage 2 TMDLs By Zone

- Stage 2 TMDLs for each of the Zones 2 – 6 consist of wasteload allocations (WLAs) for point sources including CSOs and MS4s, and load allocations (LA) for non-point sources including:
  - Contaminated sites,
  - Tributaries,
  - Two upstream boundaries (Delaware River at Trenton and the Schuylkill River), and
  - the remaining non-point sources (direct runoffs and atmospheric deposition).
- Allocations were calculated by multiplying the daily average flows during the cycling year by a water quality target of 15.2 pg/L.

Point Sources

96 NPDES Permittees

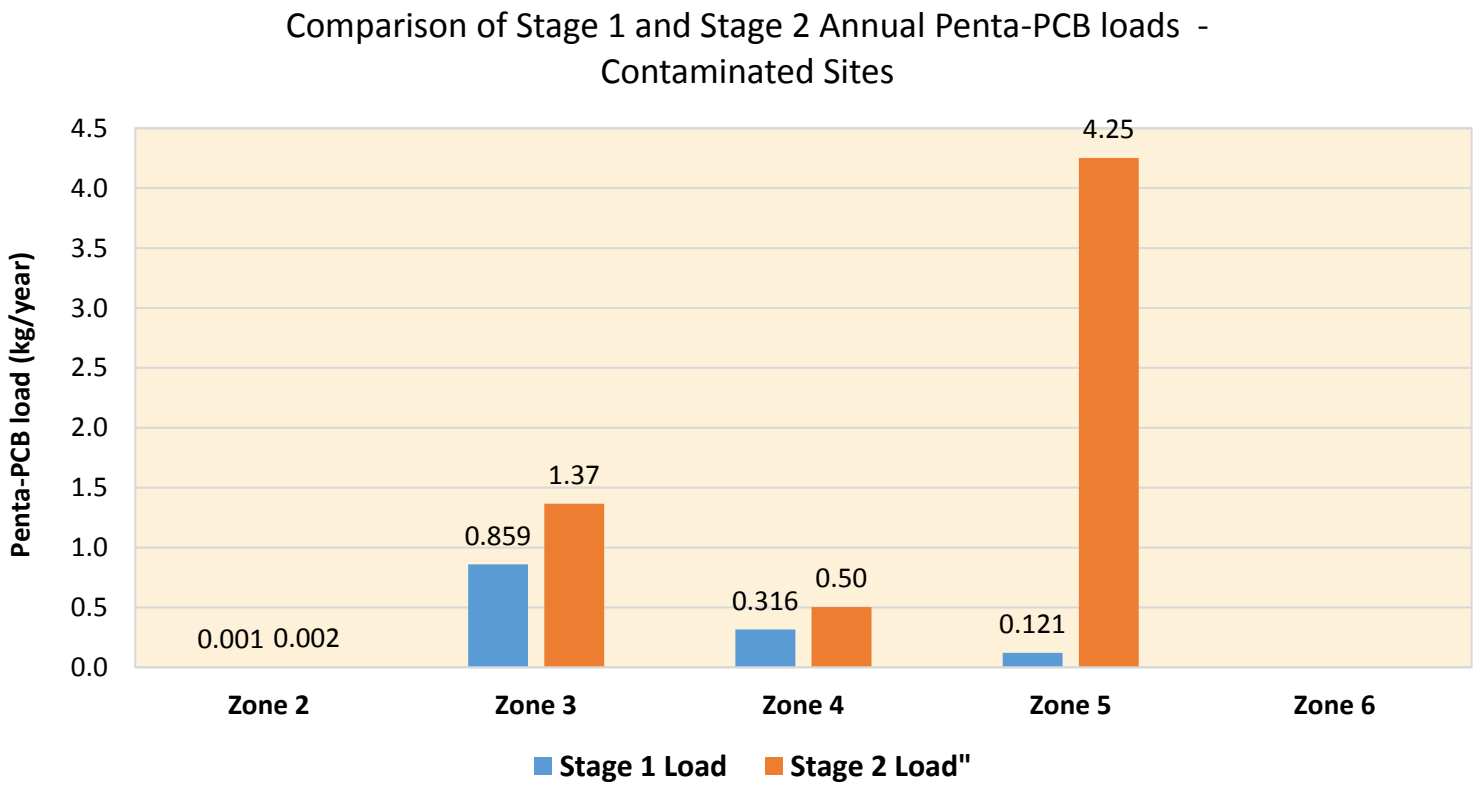
137 Outfalls



Contaminated Sites

97 Sites:

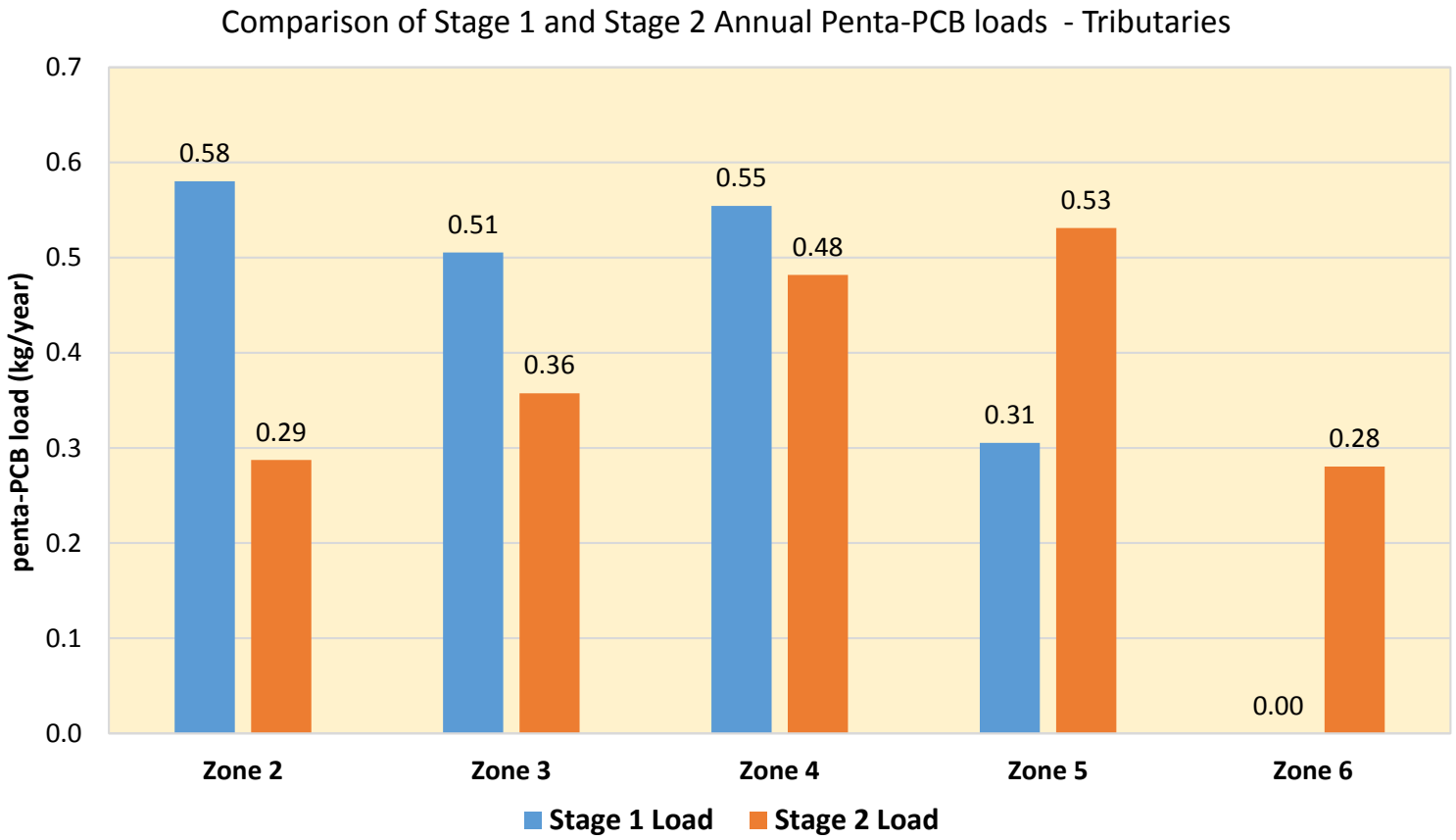
NJ – 8
PA – 20
DE – 69



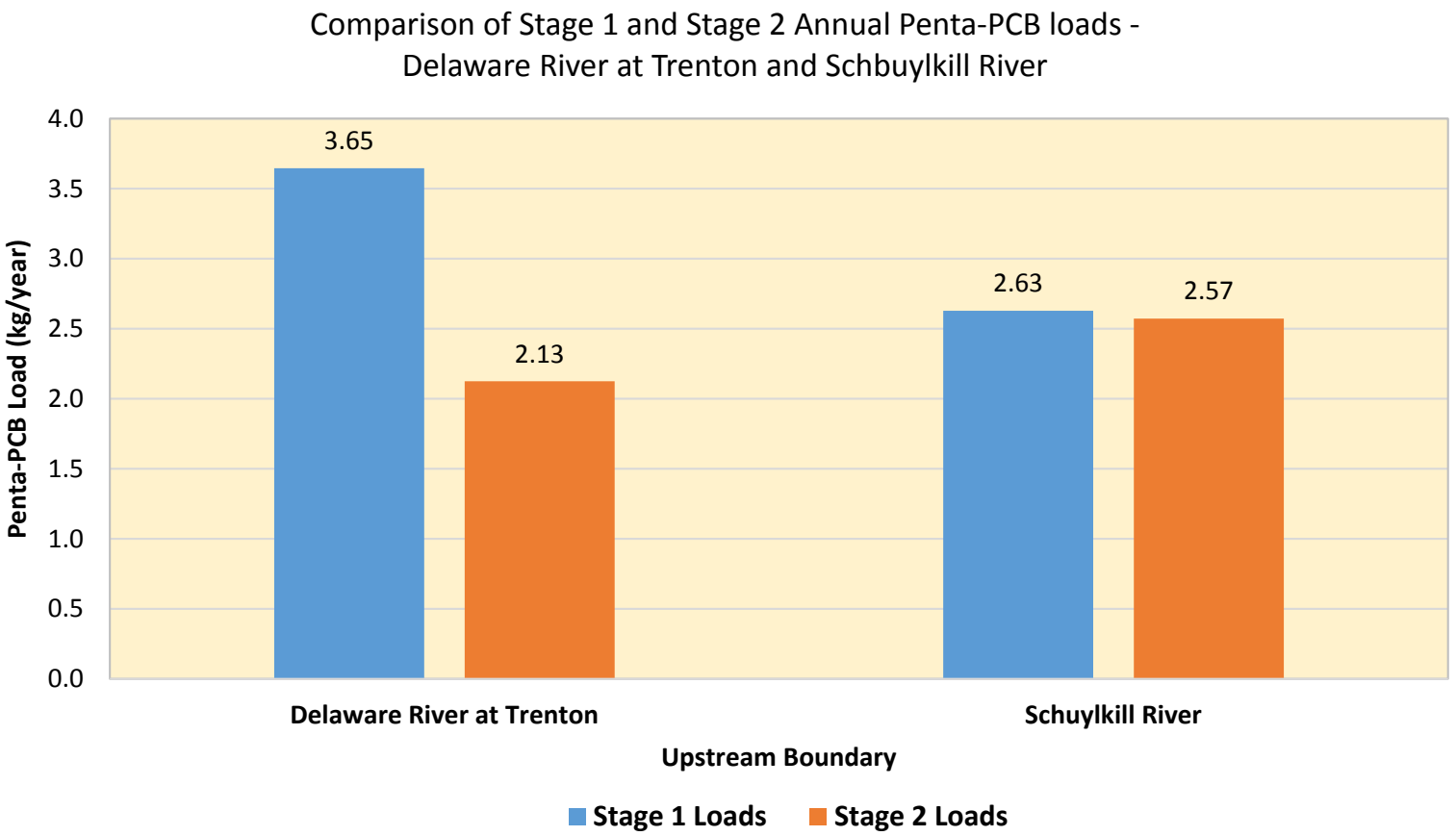
Tributaries

37 Tributaries

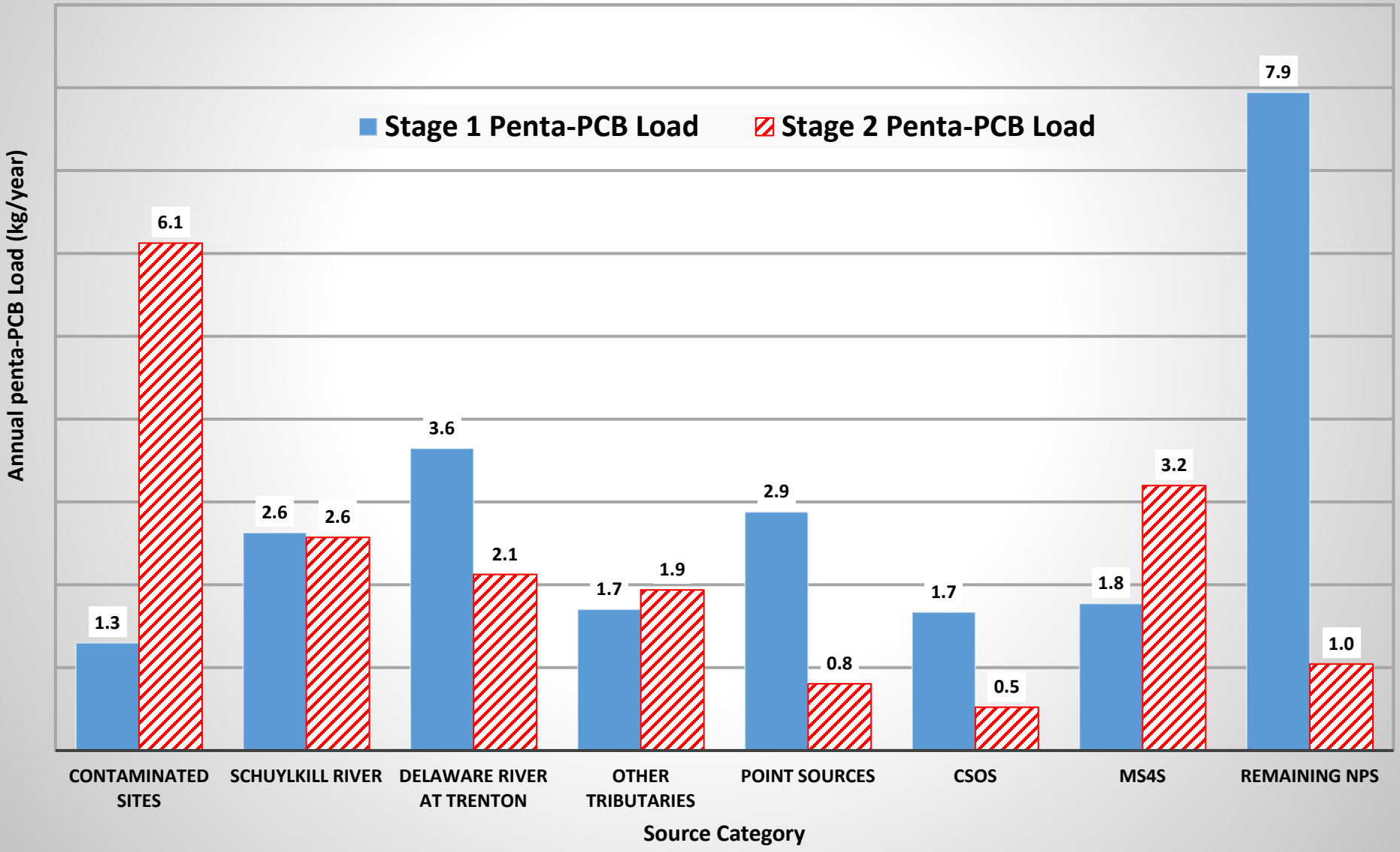
NJ – 13
PA – 6
DE - 18



Major Upstream Boundaries



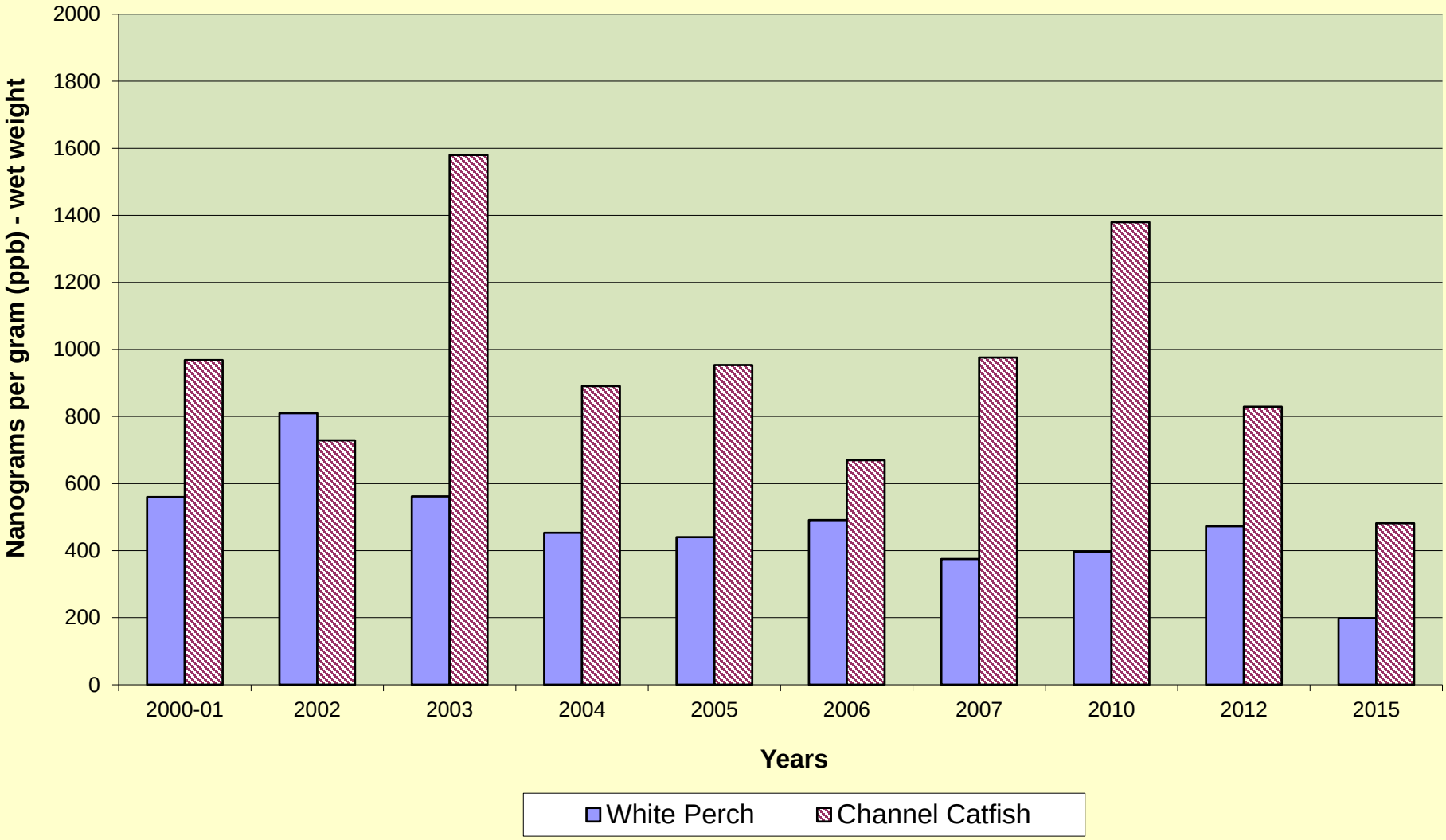
Comparison of Annual Penta-PCB Loads from each Source Category



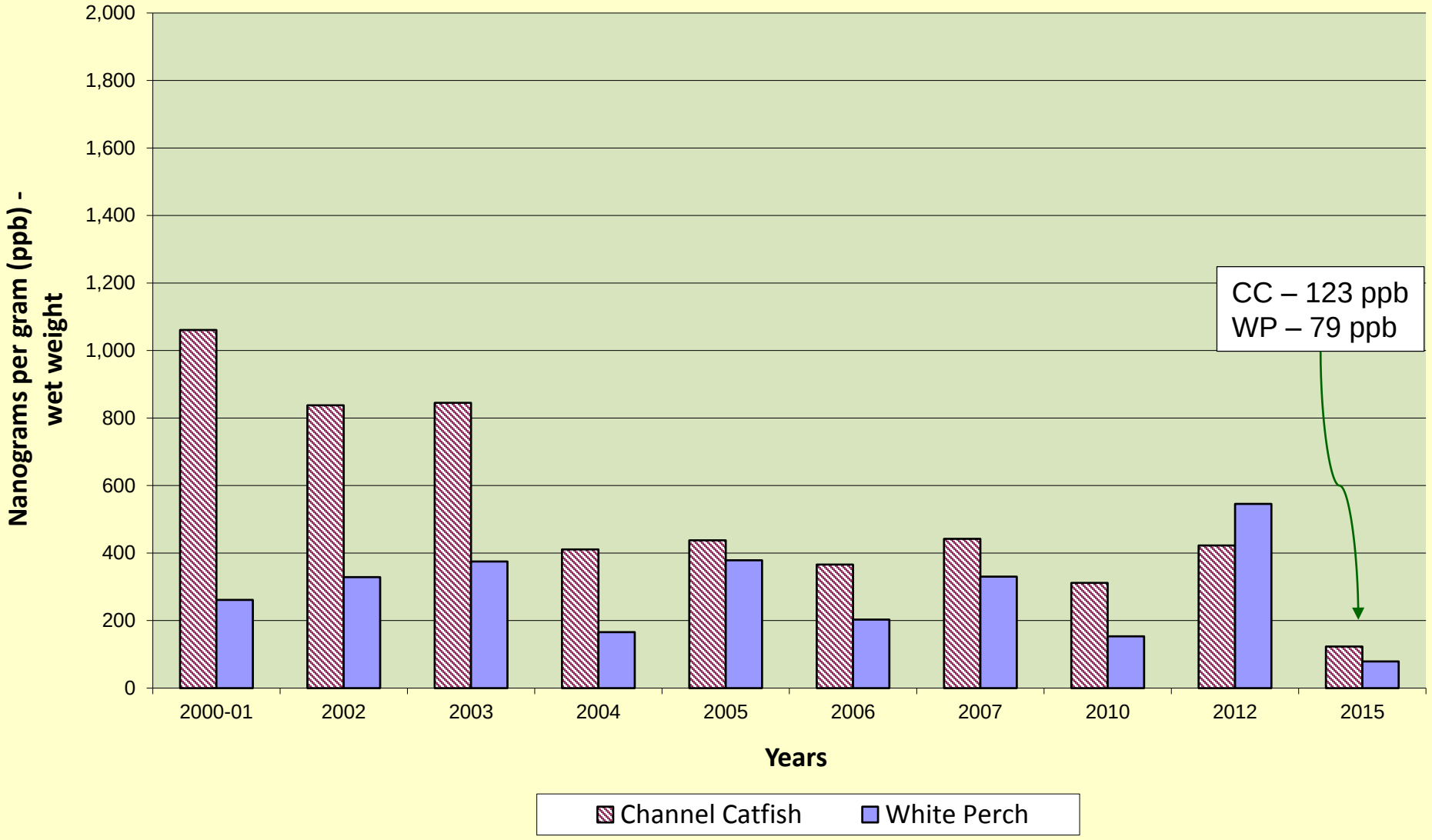
Current Status

- Significant reductions (over 70%) in loading from point sources occurred following establishment of Stage 1 TMDLs through the implementation of Pollutant Minimization Plans through NPDES permits, and monitoring to track progress.
- The additional Stage 2 implementation requirement of Action Levels will serve to maintain loading reductions achieved.
- Focused effort is needed in Stage 2, however, to:
  1. Further identify and reduce loadings from contaminated sites.
  2. Develop and implement TMDLs in tributaries with a priority on those with the largest PCB loading.
- Are the loadings reductions reflected in the media???

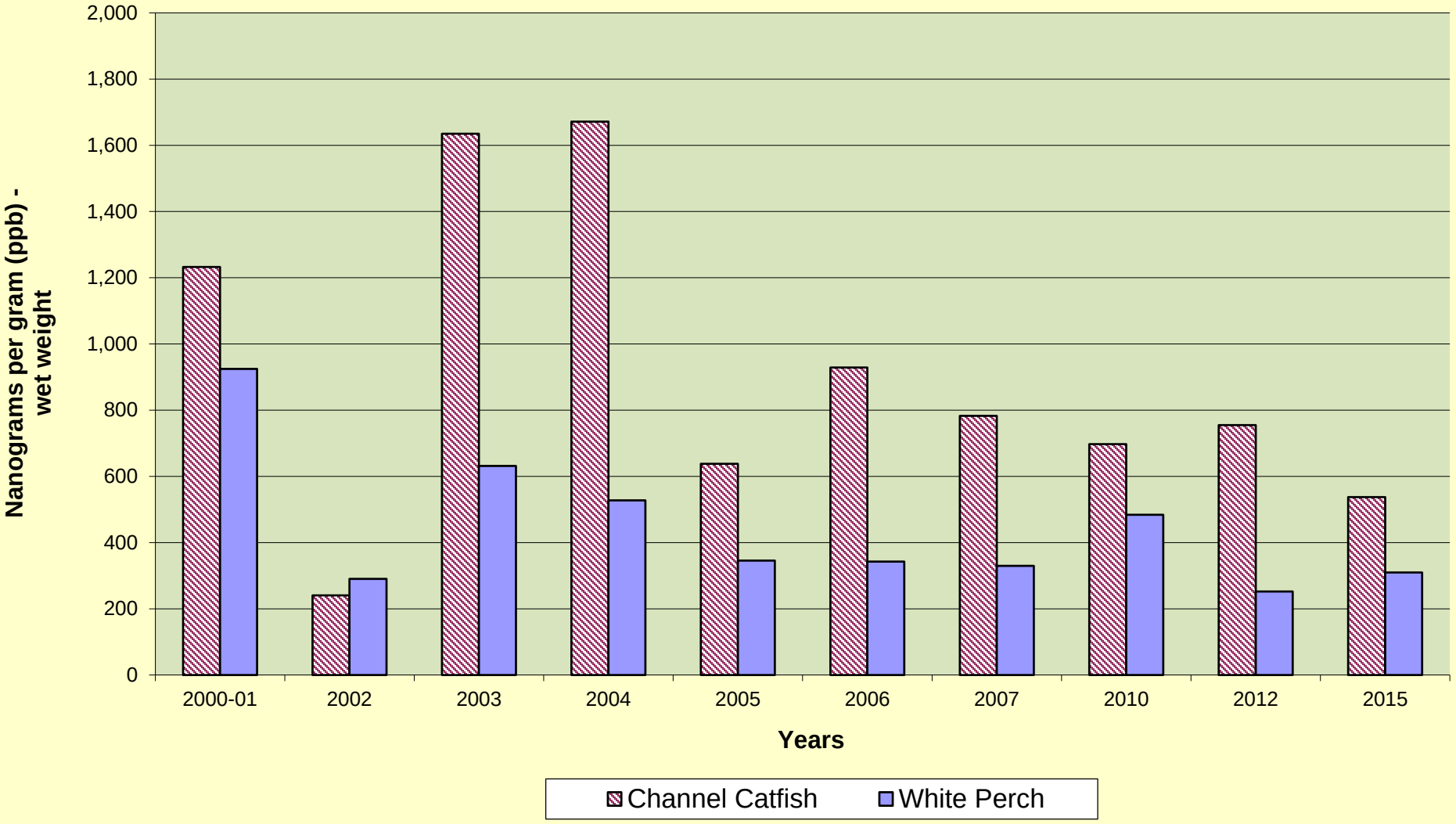
PCBs in Fish Tissue
Delaware River Estuary
2000 to 2015



Historical Trend in PCBs in Fish Tissue
Crosswicks Creek - Delaware Estuary



Historical Trend in Total PCBs in Fish Tissue
Tacony-Palmyra Bridge - Delaware Estuary



Summary

- The adaptive management approach utilized for the PCB TMDLs for the Delaware River Estuary is working, but this approach requires periodic assessment of progress and adjustment.
- The Stage 2 TMDLs reflect this approach through the measurement of progress, the updating of the TMDLs, and the implementation strategy that will continue progress to achieving the TMDLs.
- While some progress is evident, the focus of load reductions in Stage 2 needs to shift to contaminated sites and tributaries while load reductions at point sources continue under the PMPs.

Acknowledgements

The authors wish to acknowledge the following members of the Science & Water Quality Management Branch who contributed to the development of the Stage 2 PCB TMDLs:

John Yagecic, P.E.

Gregory Cavallo, P.G.

Elaine Panuccio

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