

Pollutant Minimization Plan (PMP) Status and Future Considerations

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PCB Pollutant Minimization Plan

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Outline

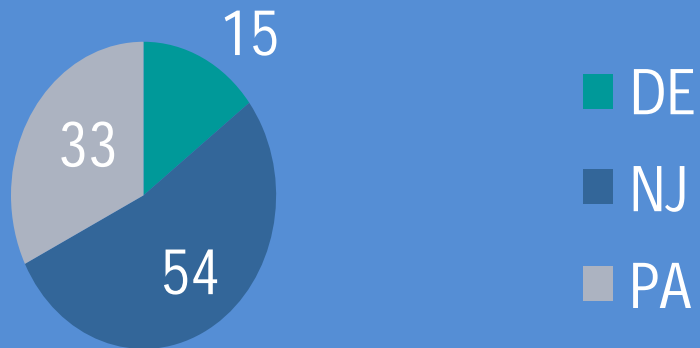
- Background
- PMP Key Elements/Approaches
- Example Industrial and Municipal Initiatives
- Point Source Loadings
- Loadings from Non-Point Sources
- Lessons Learned (Future Considerations)
- Summary

Conclusion from 2007 PMP Workshop

- *“Future data collection efforts will benefit from the standardized sampling analytical and reporting protocols enacted for the Stage 2 PCB TMDL and **provide information to evaluate future PCB reductions**”*
- Therefore, data collection is an essential part of the PMP process

Dischargers in PCB TMDL

Number of Dischargers



Total number of dischargers = 102

PMP Oversight



Commission Activities

- Electronic submission of monitoring data
- All PCB monitoring data maintained in an Access database developed specifically for the PCB TMDL
 - Commission has defined and provided electronic data deliverables (EDDs) available at: <http://www.state.nj.us/drbc/library/documents/PCB-EDD011309.pdf>
 - Developed a data checker to ensure compliance with reporting formats
 - Queries developed for data assessment
- Web page was developed to provide guidance for PMP development and implementation resources.
<http://www.state.nj.us/drbc/programs/quality/pmp.html>

Commission Activities

- Workshops were provided for dischargers in 2005 and 2007 to assist in:
 - Preparation and approval of PMPs
 - Preparation and submittal of Annual Reports
- Training sessions were provided by DRBC for PADEP and NJDEP staff to foster a consistent approach for PMP evaluation.
- Commission staff have provided technical assistance to dischargers and their consultants through the review of analytical results and evaluation of remedial measures

PMP Key Elements

Goal: Continuing Reduction of PCB Loadings to the Estuary

- Key PMP Elements
 - Source identification and reduction
 - Monitoring and progress report
 - Remediation activities
- PMP Approaches:
 - Remove PCB transformers and capacitors
 - Trackdown studies to identify and remove sources
 - Contaminated sediment control or removal

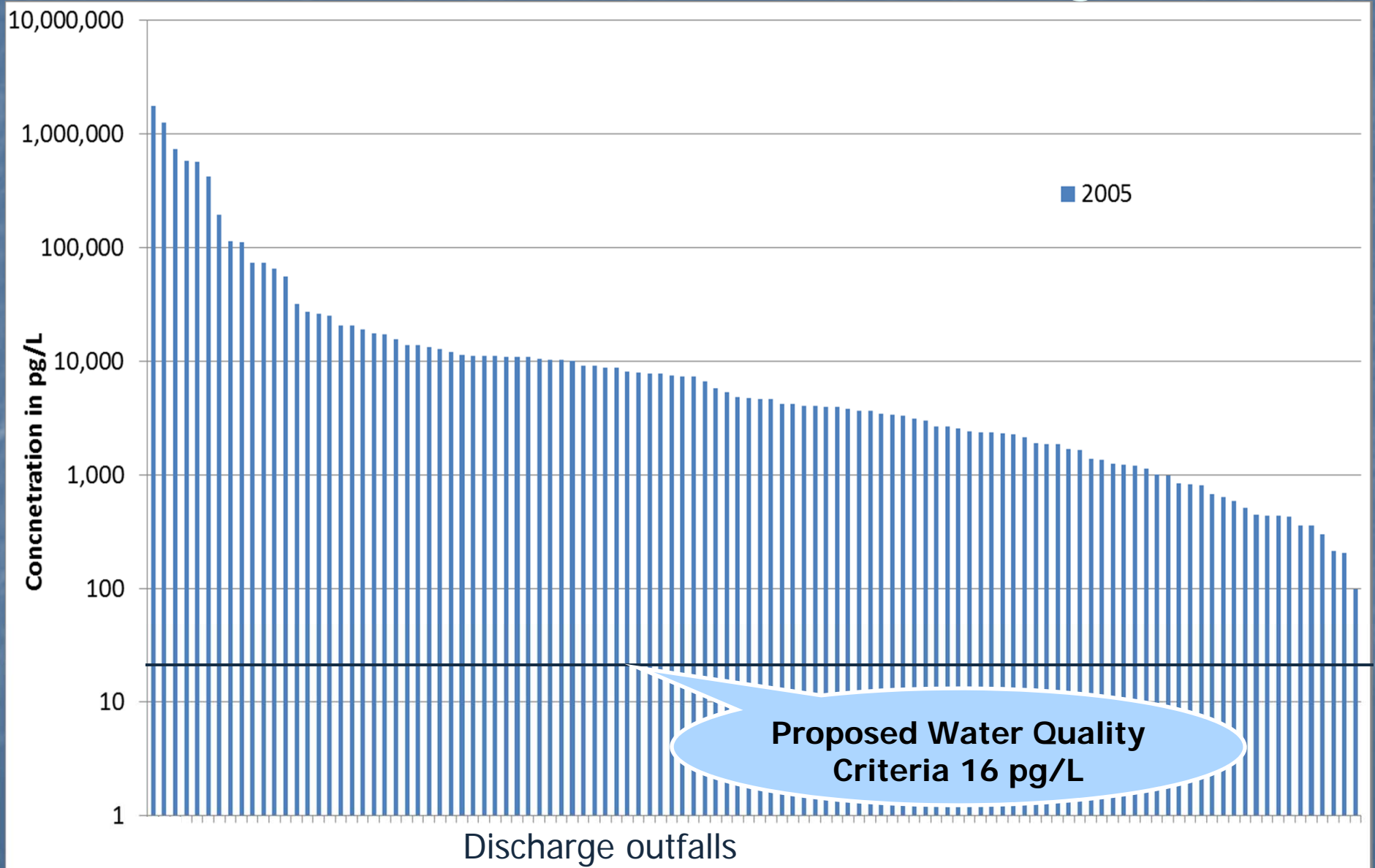
Industrial PMP Initiatives

- USX Steel Fairless Hills, PA
 - Removed 700,000 lbs. of PCB transformer oil
 - Removed 440,000 lbs. of PCB debris and capacitors
 - Removed contaminated sediment initiated stormwater control
- Amtrak Wilmington, DE
 - Sediment removal from sewer lines (60 tons)
 - Redesigned stormwater system to reduce direct discharge
 - Considering additional sediment removal

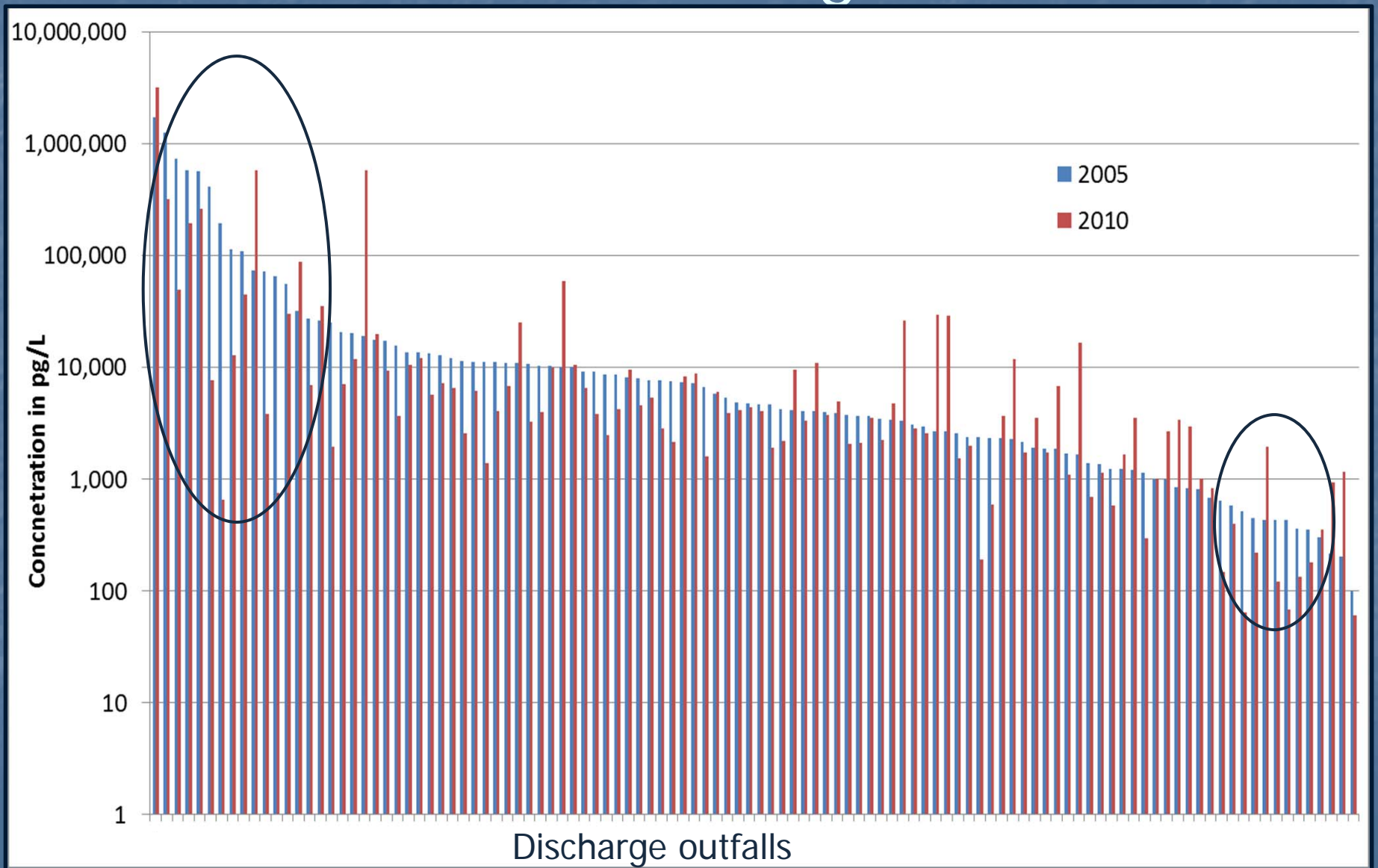
Municipal PMP Initiatives

- City of Wilmington
 - Conducted inventory of existing PCB transformers in their system
 - Completed three trackdown studies in cooperation with DNREC/DRBC
 - Confirmed major sources of PCBs and identified areas of interest
 - Coordinating efforts with New Castle County Dept. of Special Services
- Tincum Township
 - Trackdown studies and identification of sources; Airport Business Complex (ABC)
 - Replaced sewer line to eliminate infiltration
 - Establishment of long term monitoring of influent from ABC
- Camden County Municipal Authority (CCMUA)
 - Conducted multiple trackdown studies which:
 - Identified sewer interceptors with elevated PCB sediment concentrations
 - Identified additional existing and abandoned industries contributing PCBs.
 - Engaging USEPA, NJDEP and the City of Camden in remedial efforts

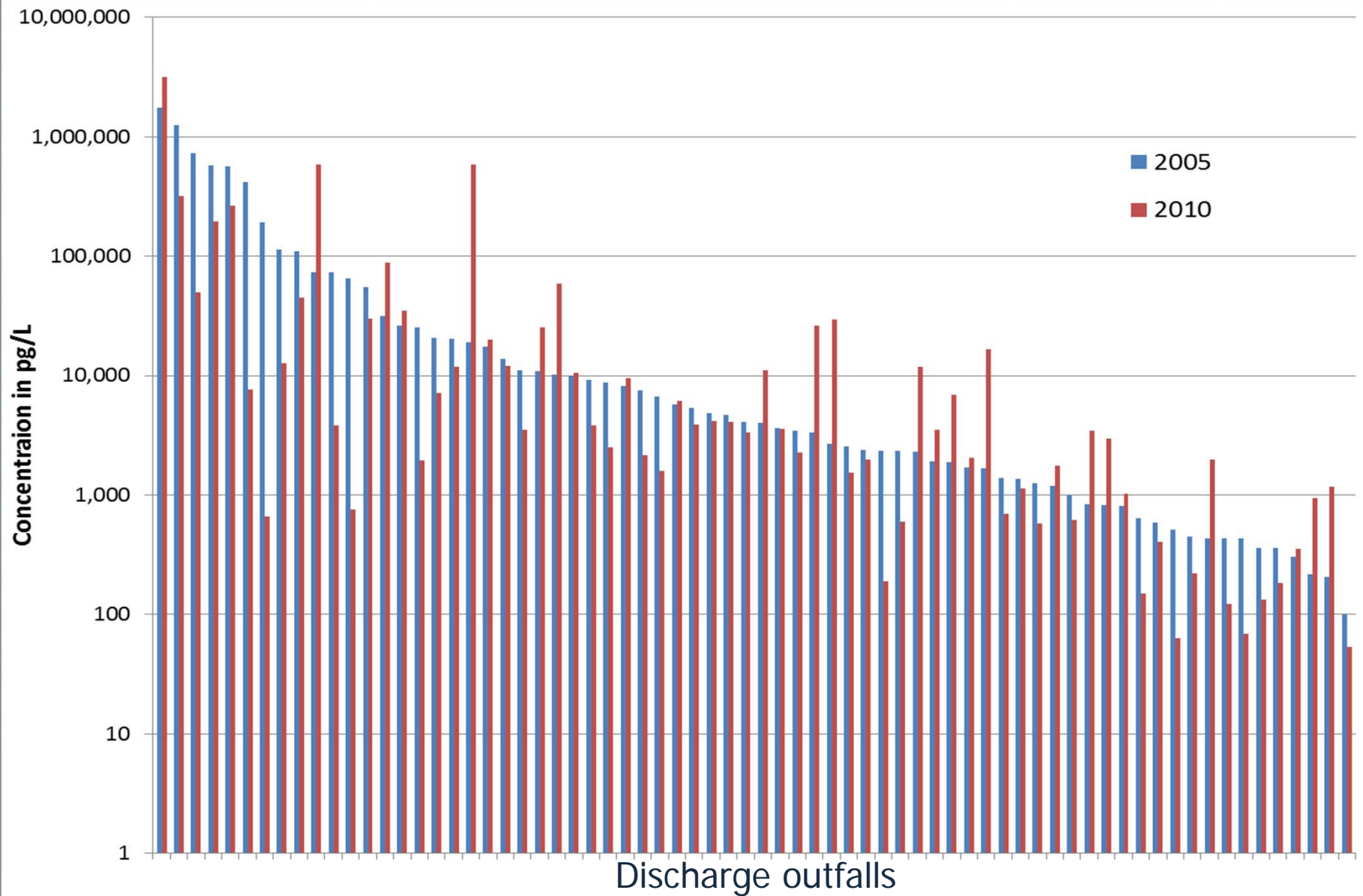
2005 Ranked Point Source PCB Concentrations in All Discharges



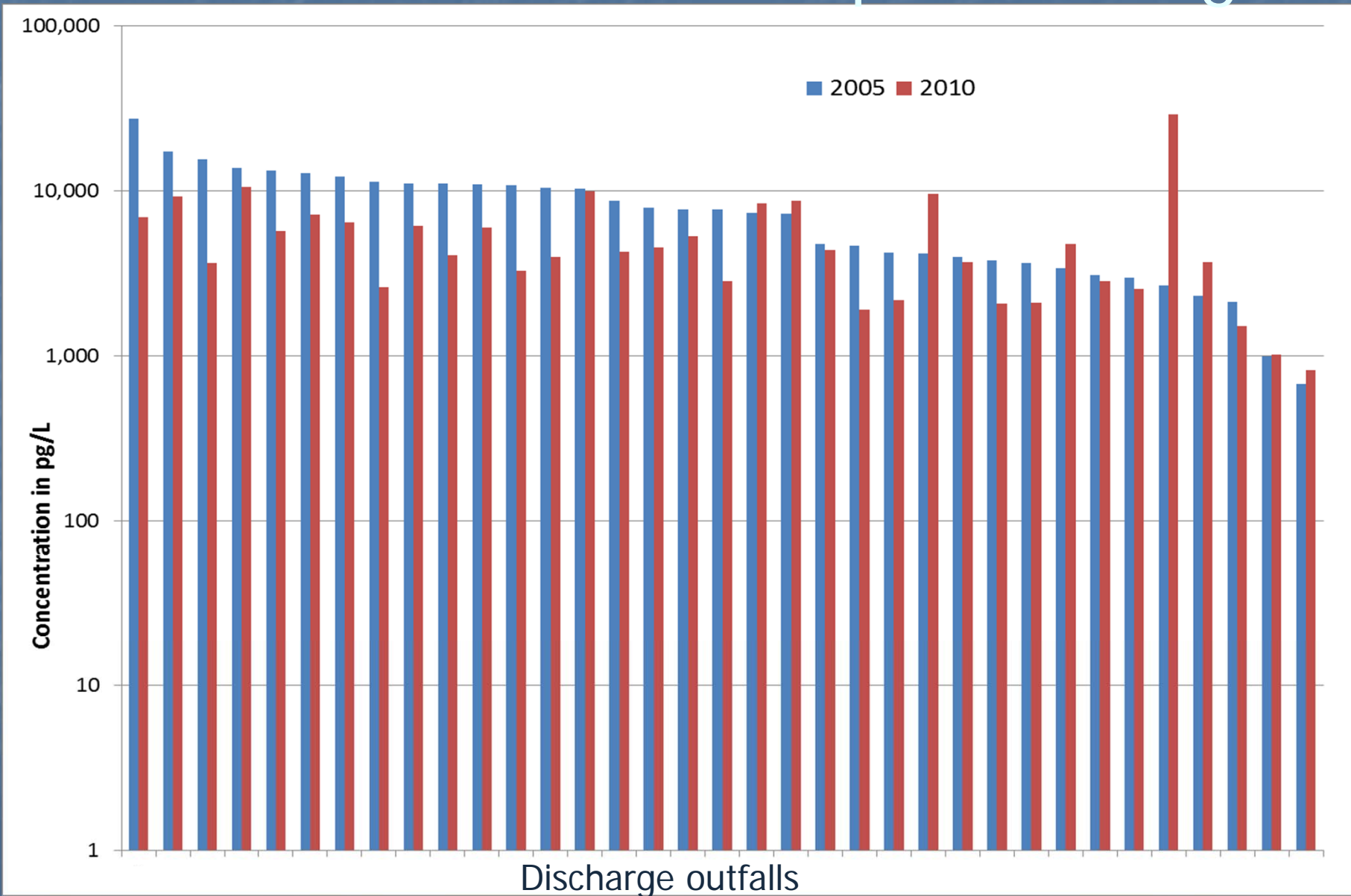
Ranked Point Source PCB Concentrations in All Discharges



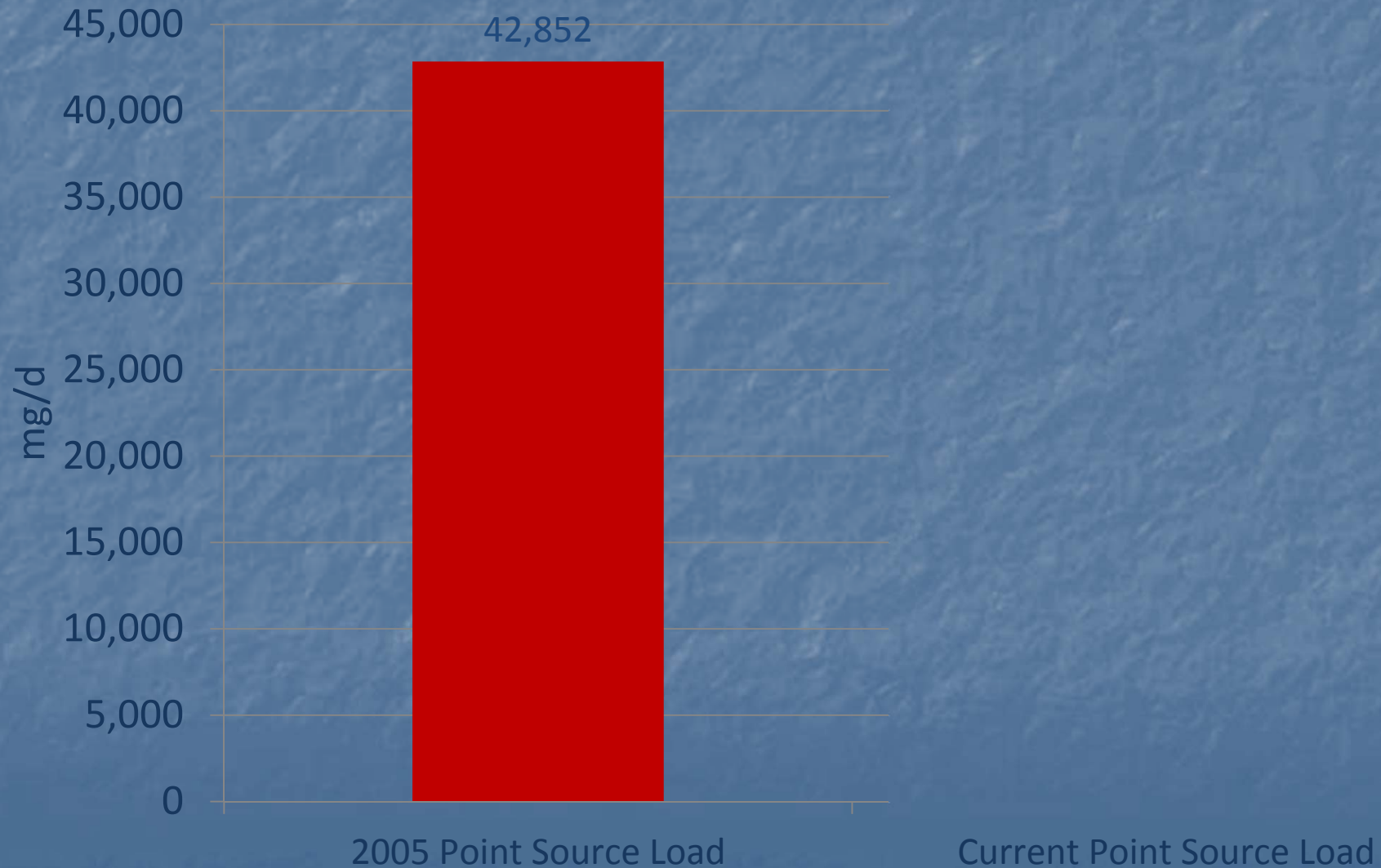
Ranked Point Source PCB Concentrations in Ind. Discharges



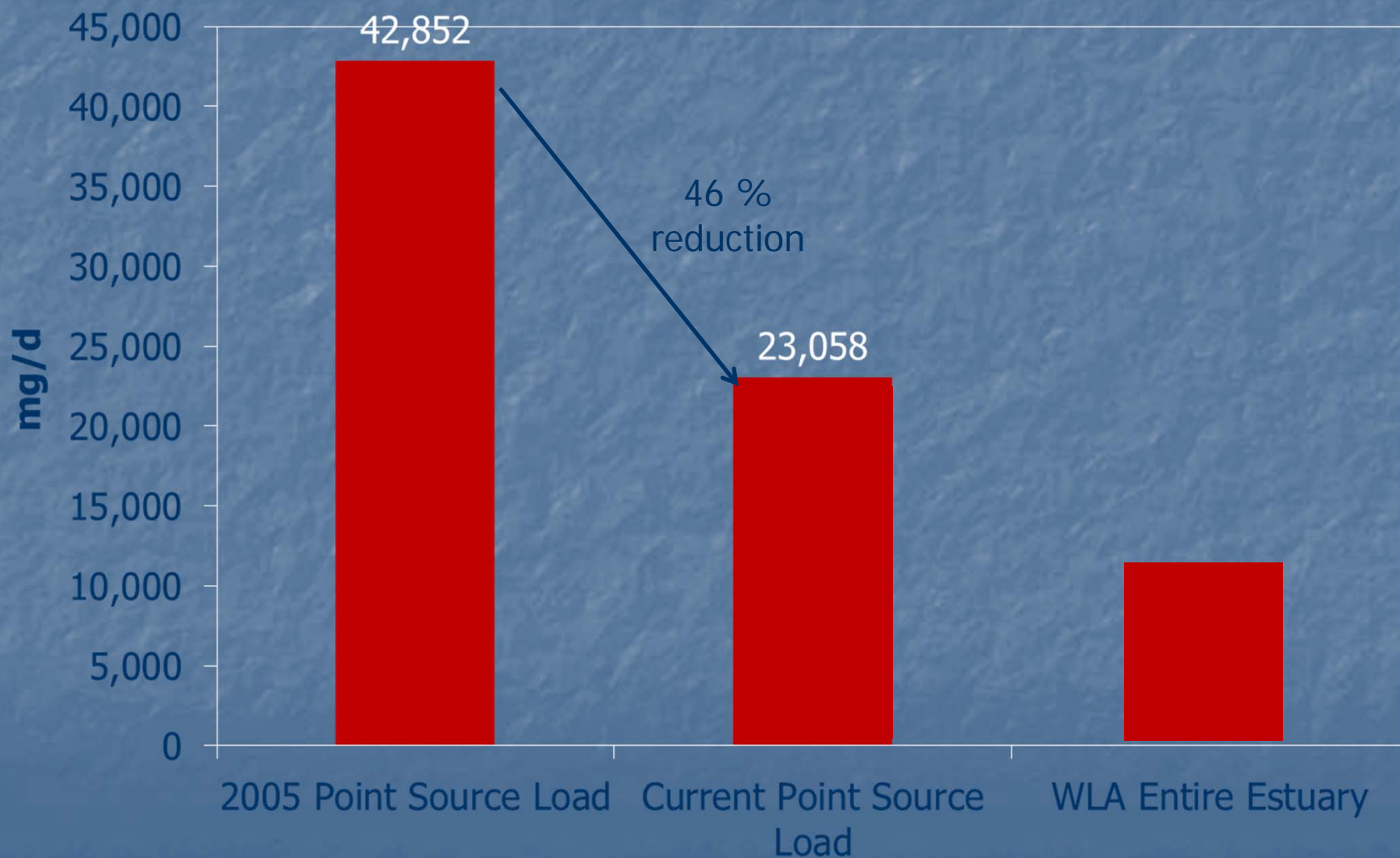
Ranked Point Source PCB Concentrations in Municipal Discharges



10 Dischargers Representing 90% of Point Source PCB Loadings in the Estuary



10 Dischargers Representing 90% of Point Source PCB Loadings in the Estuary



Non-Point Sources

- Exxon Mobil, Paulsboro NJ
 - 16 acre tidal wetland containing contaminated PCB aluminosilicate pellets
 - Excavated 120,000 tons of material
 - Estimated 30-40,000 lbs. of PCBs removed
- Metal Bank, Philadelphia PA
 - 10 acre industrial site (NPL listed)
 - Excavated 1,500 tons of material
 - Approximately 800 lbs. of PCBs removed

Lessons Learned

“Common Misconceptions”

- We do not have any PCBs in our facility
 - PCBs can be found in many different matrixes besides transformers and capacitors; paint, caulk, light ballasts or inadvertently produced
- Its all from air deposition
 - Air deposition does occur, however the homolog signature in the air does not typically match that found in the effluent . Furthermore, as loading and sources are reduced air concentrations will be diminished
- There is no more that we can do to reduce PCBs
 - If standard treatment technologies have been applied then innovative technologies should be explored

Innovative Technologies

❑ Aluminum Smelter

- Black Walnut Shell Filters. Installed in 2003
- Capacity of 11 million gallons per day
- Filter media is ground up black walnut shells
- Castor seed oil and polymer pretreatment
- Removal efficiency ~ *75% to 80%*



Source: Spokane River Toxics Workshop, June 2012 Bud Leber, Kaiser Aluminum
http://srrttf.org/?page_id=533

Municipal Utility Treatment Technology Evaluation

- ❑ Technologies evaluated:
 - Electrocoagulation
 - Chitosan-enhanced sand filtration
 - Chemically-enhanced primary treatment
 - Ballasted sedimentation
- ❑ All use some form of chemical addition (Al⁺⁺⁺ or Fe⁺⁺⁺)
- ❑ Polymer used as flocculant aid

Future Considerations

- The purpose of the PMP requirements is to achieve WLAs established under the TMDLs.
- Much of the initial success in removing PCBs has been attained through traceback studies, treatment technologies and best management practices.
- Additional efforts and approaches will be necessary to achieve the TMDL including:
 - More extensive identification and removal of PCB sources
 - Sequestration of PCBs through the use of active carbon
 - Implementation of innovative source identification and treatment technologies

Summary

- Commission, States, and EPA have coordinated efforts to require point source dischargers to develop and implement PMPs, a key component of the PCB TMDLs.
- The majority of facilities that are implementing a PMP are reporting lower concentrations of total PCBs in their discharges.
- The top ten dischargers that contribute 90% of the point source PCB loading have reduced their loadings by 46% since 2005.
- The PMP approach is demonstrating progress in reducing PCB loadings from point source discharges.
- Continuation of this cooperative approach is an essential component of a long-term strategy to achieve the PCB TMDLs.