

Delaware River Basin Commission

PCB Data Management for Informed Decision Making

Water Resources Association
of the Delaware River Basin

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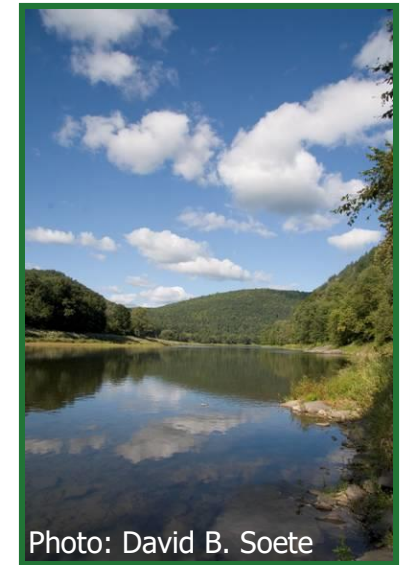


Photo: David B. Soete



Delaware River Basin Commission

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

Delaware River Basin

- Commission Founded in 1961
 - Interstate Agency
 - Four States
 - Federal Government
 - Regulatory Authority
- Reasons
 - Water supply shortages
 - Severe pollution
- Mission
 - Manage water resources without regard for political boundaries
 - Regulate water quantity and quality
 - Coordinate between federal, state & local governments and private entities

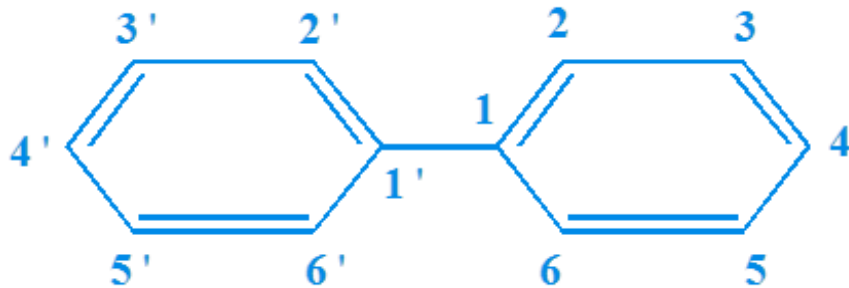


Outline



- Background
- Management and Data Quality Objectives
 - TAC and Data Quality Management Subcommittee
- Stage 1 Requirements and Objectives
- Results
- Moving forward

PCB Chemistry



- Polychlorinated biphenyls (PCBs) are man-made organic chemicals with a biphenyl base structure and 209 possible chlorine substitution patterns.
- Terminology: Aroclor's, congeners, homologs.
- Properties: Hydrophobic, tend to accumulate in sediments and bioaccumulate in fish tissue
- Issues: carcinogenic, and non-carcinogenic effects

PCBs production in the United States from 1930 to 1975 was 1.5 billion lbs.

Stage 1 PCB TMDLs



Delaware Estuary
303d listed as
impaired for PCBs

- Stage 1 PCB TMDLs established for:
- *Zones 2-5 in 2003*
- *Zone 6 in 2006*



Data Issues



- Differences in analytical methodologies
- Variations in reporting conventions
- Subset of PCBs congeners were analyzed
- Reporting criteria loosely defined

Stage 1 PCB TMDL Requirements

- Monitoring using 1668 Revision A (with DRBC project specific modifications)
- Inclusion of a non-numeric adaptive management approach requiring the development and implementation of Pollutant Minimization Plans (PMPs)
 - Commission lead effort requiring dischargers to develop PMP beginning in 2005

PCB TMDL Management Objectives



- Better quantification of the loadings from the various PCB source categories
- Measuring effectiveness of PMP efforts
- Simplify data management efforts

Data Quality Objectives



- Reduce analytical uncertainty and improve comparability between samples:
 - Standardizing sample collection and identification protocols
 - Specifying analytical and reporting protocols
 - Achieve detection limits in the single pg/L range
 - Setting data acceptance criteria
- Incorporation of all data into an Access database

Benefits



- Reduced analytical uncertainty
- Greater accuracy in estimated loadings
- Increased modeling accuracy
- More accurate long-term trends analysis
- Data reliability and transferability
- Better temporal and spatial evaluation of data

How was it Done?



- Through collaboration between:
 - Dischargers (industrial and municipal), State and EPA representatives, Environmental groups and Academicians
- This effort was orchestrated by the Data Quality Subcommittee as part of the Commission's standing Toxics Advisory Committee

DRBC's Role in Implementing the PCB TMDLs



- Commission held workshops and provided support by:
 - Clarifying sample collection techniques
 - Highlighting successful PMP approaches
 - Providing PMP technical review and feedback
 - Disseminating knowledge (lessons learned)

<https://www.nj.gov/drbc/quality/toxics/pcb.html>

Key Support



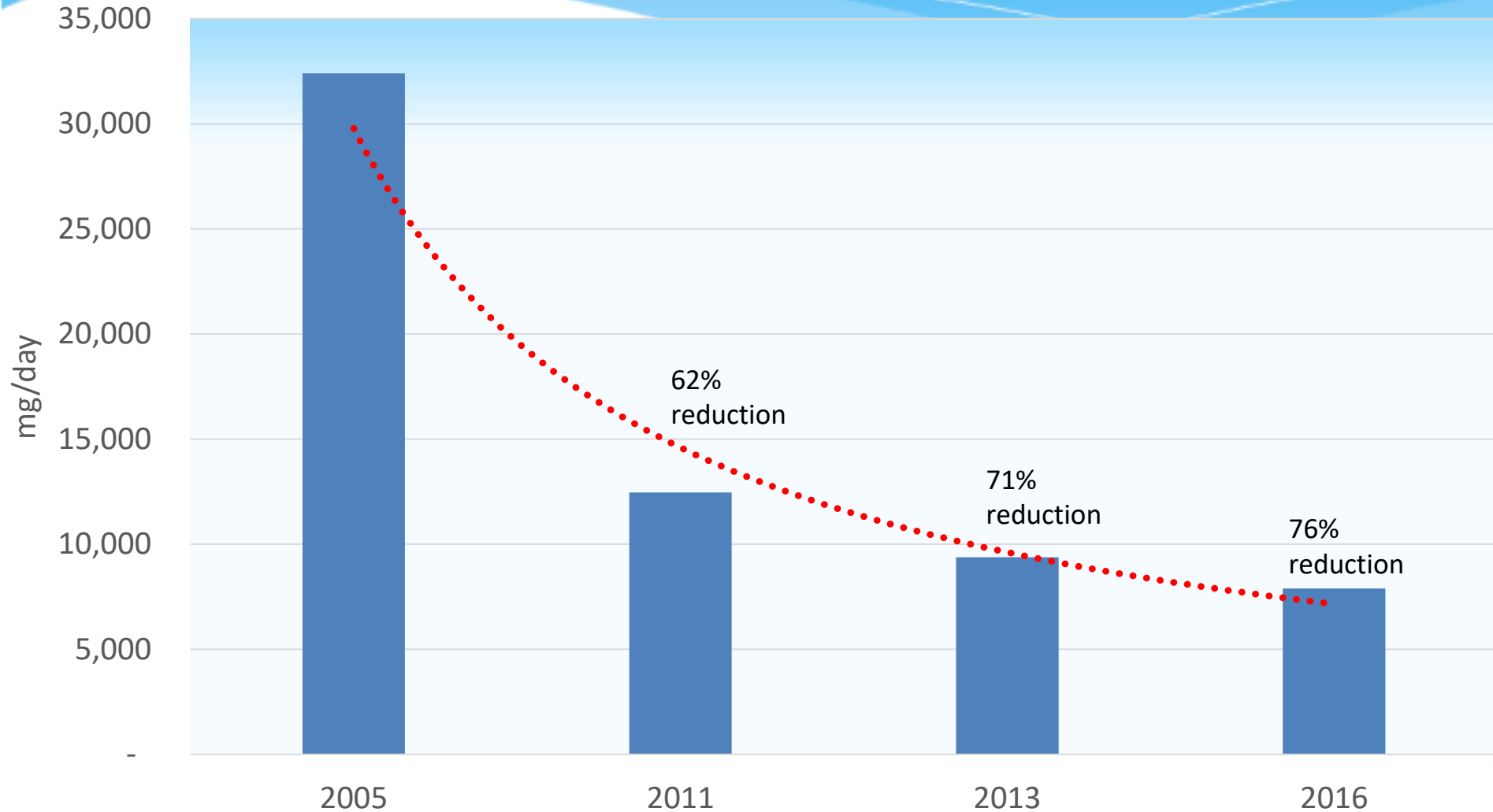
- Was provided by:

The Delaware Estuary Coalition, who funded the development of the PCB database by CDM Smith's Rao Sankarmanchi and PMP workshops

EPA whose funding for monitoring and modeling efforts was integral to development of the TMDL

State permitting agencies for coordinating PCB monitoring and PMP inclusion in NPDES permits

Results: PCB Loadings Top Ten Point Source Dischargers mg/day



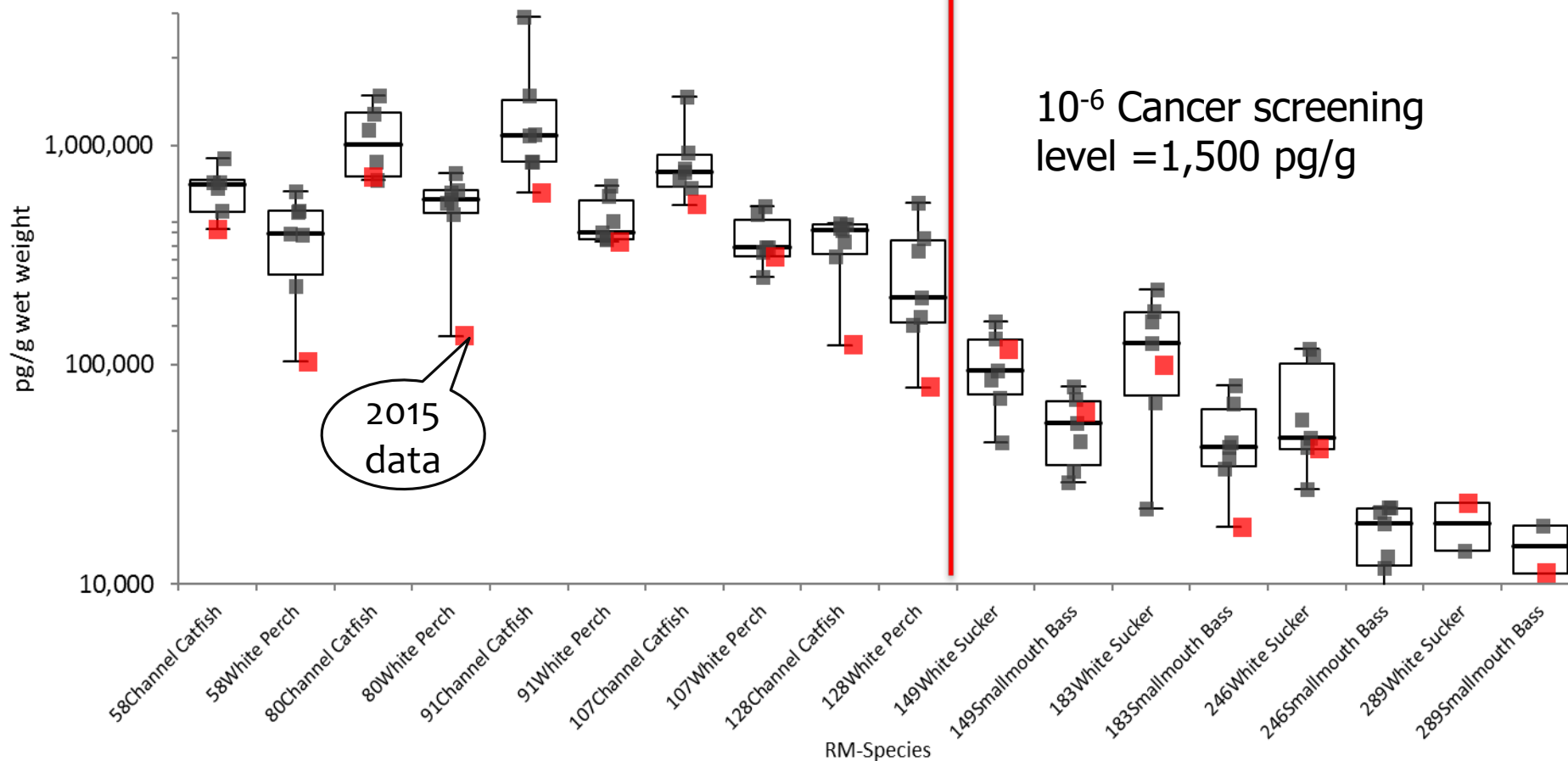
tPCB Concentrations in Fish Tissue

2004-2015
(n=7)



Tidal

Non-Tidal



Ongoing/Future Efforts



- Continue database management efforts
- Coordination amongst coregulators
- Continue to provide technical reviews of PMP annual reports
- Continue monitoring efforts for ambient water, sediment and fish tissue
- Finalize Stage 2 PCB TMDLs based on revised uniform PCB criterion

Questions?



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