

**IMPLEMENTATION STRATEGY FOR
POLYCHLORINATED BIPHENYLS
FOR ZONES 2 – 6 OF THE
DELAWARE RIVER ESTUARY**



**DELAWARE RIVER BASIN COMMISSION
WEST TRENTON, NEW JERSEY
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Acknowledgments

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Background

PCBs. Polychlorinated biphenyls (“PCBs”) are a class of man-made chemical compounds that were manufactured and used extensively in industrial and commercial applications, including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; and in pigments, dyes and carbonless copy paper before their manufacture and general use, with exceptions, was banned by the U.S. Environmental Protection Agency (“EPA”) in 1978. Equipment and products commonly containing PCBs include transformers, capacitors, paints, printing inks, pesticides, hydraulic fluids and lubricants. Although their manufacture and use were generally banned by federal regulations, existing uses in electrical equipment were allowed and equipment containing PCBs is still in use. In addition, PCBs may also be created as a by-product in certain manufacturing processes such as dye and pigment production. The EPA has determined that PCBs are probable human carcinogens, and that PCBs also have non-cancer health effects. Individual PCB compounds, called “congeners,” consist of between one and ten chlorine atoms attached to a biphenyl molecule. There are 209 possible patterns in which chlorine atoms may be attached to the biphenyl ring structure. PCBs are hydrophobic, sorbing to organic carbon in soils and sediments, and concentrating in the tissues of aquatic biota either directly or indirectly through the food chain.

Impairment. Due to elevated concentrations of PCBs in the tissues of fish caught in the Delaware Estuary, the states of Delaware, New Jersey, and Pennsylvania (“Estuary States”) have issued fish consumption advisories. Advisories are currently in effect from Trenton, New Jersey to the mouth of the Delaware Bay, an area designated as Water Quality Management Zones (“Zones”) 2 through 6 (Figure 1). Because fish tissue contamination impairs the Estuary’s designated use – fishable waters – during the 1990s all three states also listed the Estuary as “impaired” in accordance with Section 303(d) of the Federal Clean Water Act (CWA). In accordance with the CWA, the states and EPA share responsibility for establishing total maximum daily loads, or “TMDLs,” for each pollutant contributing to the impairment. A TMDL is defined as the maximum amount of a pollutant that can be assimilated by a water body without causing the applicable water quality criterion to be exceeded. TMDLs for PCBs for Zones 2 through 5 were established jointly by EPA Regions II and III on December 15, 2003. (*See* http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/DelawareRiver/index.htm). A TMDL for Delaware Bay (Zone 6) was established by EPA Regions II and III on December 14, 2006 (*See* http://www.epa.gov/reg3wapd/pdf/pdf_tmdl/Zone6AL_Report.pdf).

Current Water Quality Criteria. The 1986 amendments to the Clean Water Act required states to establish water quality criteria for certain toxic substances, including PCBs, at levels sufficient to protect the designated uses of the waters in the state. EPA issues guidance and regulations that establish recommended criteria for consideration by states in their development of water quality standards. In 2000, EPA issued a revised methodology for establishing ambient water quality criteria for the protection of human health. Two significant changes recommended in this guidance were the recommendations to use site-specific values for fish consumption for the water body covered by the criteria, and to use a bioaccumulation factor or BAF rather than a BCF. The states have adopted water quality criteria for PCBs. However, regulations adopted by Delaware and New Jersey either defer to or incorporate by reference the Commission’s criteria. Pennsylvania’s rules provide that the more stringent of the Commission’s or the Commonwealth’s criteria apply. In 1996, the Commission adopted water quality criteria for toxic pollutants

including PCBs for Zones 2 through 5 of the Delaware River. In 2010, DRBC extended these water quality criteria to Zone 6. Current DRBC criteria for PCBs vary by Zone. They are: 44.4 pg/l for Zones 2 and 3 for exposure through drinking water and fish consumption; 44.8 pg/l for Zones 4 and the upper portion of Zone 5 for exposure through fish consumption only; and 7.9 pg/l for the lower portion of Zone 5 and Zone 6 for exposure through fish consumption only. The criterion in the lower portion of Zone 5 and in Zone 6 is attributable to the use of a higher fish consumption rate.



Figure 1: Water quality management zones established by the Delaware River Basin Commission for the tidal Delaware River and Delaware Bay.

Proposed Criterion. The Commission is proposing a revised water quality criterion of 16 pg/l for Zones 2 through 6. The criterion was developed under the guidance of the Commission’s Toxics Advisory Committee (“TAC”) and its Toxics Criteria Subcommittee. The TAC is a standing

committee of stakeholders, including regulators, municipal and industrial dischargers and environmental organizations that advises the Commission on technical matters relating to the control of toxic contaminants in shared waters of the Basin. The methodology, assumptions, and data sets used to develop the proposed criterion are set forth in detail in the accompanying *Basis and Background Document: Revised Human Health Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects* (http://www.nj.gov/drbc/library/documents/basis-bkgd_revPCBcriterion0713.pdf).

We note that the Commission published a notice in August 2009 proposing to adopt 16 pg/l as the revised, uniform water quality criterion for PCBs for the protection of human health from carcinogenic effects in Zones 2 through 6. (See 13 Delaware Register of Regulations, p. 313 (Aug. 1, 2009); 74 FR 41100 (Aug. 14, 2009); 41 N.J.R. 3050 (Aug. 17, 2009); NYS Register, Aug. 19, 2009, p. 3; and 39 Pa. B. 4892 (Aug. 15, 2009)). At that time, DRBC solicited comment on the proposed criterion and on a TMDL Implementation Plan that had been developed by DRBC and the federal and state agencies responsible for regulating point and non-point sources of pollution. The Commission deferred action on the 2009 proposal, however, to allow additional time for refinement of the portion of the implementation plan applicable to point sources. Comment is now solicited for a second time on both the criterion and the portion of the implementation plan applicable to non-point sources. For the first time, comment is requested on a new draft implementation strategy for point sources.

Implementation Strategy. For PCBs and other legacy pollutants that are hydrophobic and bioaccumulative, several factors make the attainment of water quality criteria especially challenging. First, PCB sources and pathways include non-point sources such as contaminated soils, contaminated sediment, and air deposition not subject to control under the National Pollutant Discharge Elimination System (“NPDES”) program. Second, data are limited for many sources due to the historical and current use of less sensitive analytical methodologies compared to more sensitive analytical methods capable of detecting PCBs at extremely low concentrations. Third, insufficient experience exists regarding the extent to which wastewater treatment technologies can remove PCBs in a waste stream, and in particular, the extent to which such technologies can achieve effluent concentrations that would satisfy anticipated permit limits, to make end-of-pipe treatments a viable reduction approach for all point source discharges at this time. Fourth, a large reservoir of PCBs from historical point and non-point source loadings persists in sediments. Because PCBs would continue to be released from sediments into the water column even if loadings from all other sources were eliminated, the Estuary and Bay will remain impaired for many years.

Notwithstanding these challenges, the regulatory program instituted by the Clean Water Act requires that the total maximum daily load of any pollutant resulting in a water quality impairment be allocated among individual point and categorical non-point sources of the pollutant to the water body. The NPDES program for point sources has traditionally been understood to require that discharges be reduced to their allocated loads within a single five-year permit cycle. If the likelihood of achieving this objective is remote, the fact remains that containing or removing sources of PCBs can accelerate water quality improvements, whereas continuing releases of PCBs can only aggravate and prolong water quality impairments. With ambient PCB levels in Estuary surface water orders of magnitude above the water quality

criteria, and consumption advisories in effect recommending little or no consumption of many species of Estuary fish due to PCBs, regulators and other stakeholders believe that additional measures to reduce PCB loadings are needed and can be implemented. Measures to reduce PCB loadings to the Estuary are well underway, and the results have been impressive.

To help address gaps in the regulation of PCB discharges and to speed implementation of the Estuary TMDLs for PCBs issued by EPA in 2003 (“Stage 1 TMDLs”), DRBC approved a rule in May of 2005 authorizing the Commission to require Pollutant Minimization Plans (“PMPs”) for point or non-point discharges of a toxic pollutant following the issuance of a TMDL for the pollutant by a state or EPA or the issuance of an assimilative capacity determination (similar to a TMDL) for the pollutant by the DRBC. The Stage 1 TMDLs have been implemented for point sources through (1) the development and implementation of PMPs, including implementation of appropriate PCB minimization measures; and (2) monitoring with Method 1668A, a highly sensitive analytical method capable of detecting PCB congeners at concentrations below water quality criteria for PCBs. Similar or other innovative approaches could be used for certain non-point sources, including contaminated sites and metal recycling facilities. Significant loading reductions have been achieved with this strategy, as demonstrated by the staff presentation at the May 10, 2012 Commission meeting entitled “Implementing PCB TMDLs: Pollutant Minimization Plan (PMP) Status” (http://www.state.nj.us/drbc/library/documents/Cavallo_PCB-PMPupdate051012.pdf).

The Commission in partnership with the environmental agencies of the Estuary States, EPA Regions II and III, and EPA Headquarters have developed a revised point source implementation strategy to accompany the updated human health water quality criterion for PCBs and the Stage 2 TMDLs when established by EPA. A key objective of this strategy is to provide for uniform treatment by the three Estuary States of all point source PCB dischargers to this shared water body. Strategies for reducing loadings from non-point sources, including tributaries, boundaries (defined as the mouth of Delaware Bay and the C&D Canal), contaminated sites covered under federal and state hazardous wastes regulations, air sources and sediments, are those proposed in 2009, some of which have been applied to significant effect since then including proactive identification and removal of PCB-containing equipment.

Highlights of the implementation strategy for point and non-point sources are set forth below:

Point Sources

Key components of the point source permitting strategy are as follows:

1. The permit must include the more stringent of (a) any technology based requirements for TSS in compliance with 40 CFR Parts 122.44(a)(1) and 125.3, or (b) the DRBC effluent quality requirements at Section 3.10.4D.1.a. of the DRBC Water Quality Regulations (WQR).
2. Provisions to ensure that each discharger attains its Stage 2 TMDL wasteload allocation (WLA) as quickly as possible through:

- a. A requirement that the permittee develop a Pollutant Minimization Plan (PMP) conforming to the provisions of Section 4.30.9 of the DRBC's Water Quality Regulations (WQR) including a set of best management practices (BMPs) intended to achieve "maximum practicable reduction" of PCB loadings to the Estuary, and
 - b. A requirement that the permittee submit a PMP Annual Report reporting the success of measures implemented, the PCB loadings reductions achieved, and any revisions to the PMP for the coming year.
 - c. A provision that the permitting agency will establish elements of the PMP as enforceable requirements of the permit (e.g., milestones and key actions).
 - d. A requirement that the permittee submit a PMP Progress Report to accompany an updated PMP as part of the 5-year permit renewal application.
 - e. A requirement that the permittee submit a revised PMP if the permitting agency determines that the PMP will not likely achieve the maximum practicable reduction of PCB discharges. This revised PMP would be implemented during the permit cycle to ensure progress in reducing PCB loads.
3. A requirement for monitoring and reporting using a sensitive sampling and analytical method for PCB congeners – i.e., Method 1668A or the latest subsequent revision thereof.
 4. An Action Level based upon Existing Effluent Quality (EEQ) to ensure that reductions achieved through implementation of a PMP are maintained. EEQ will be developed from monitoring data collected prior to reissuance of a discharge permit. If the Action Level is exceeded, the permittee becomes subject to additional specified actions which may include monitoring, trackdown studies and/or BMP requirements to reduce loadings.
 5. A requirement that monitoring, reporting, PMP requirements, and the Action Level remain in place until the discharger's wasteload allocation (WLA) is achieved, after which monitoring, reporting and a numeric effluent limit (consistent with the permittee's WLA and the policies of the permitting authority) will apply.

Non-Point Sources

The plan also contains PCB load reduction strategies for each non-point source category identified in the TMDLs for Zones 2 through 6. The key elements of the non-point source strategy are similar to those described in the TMDL Implementation Plan that was published for comment in August 2009.

http://www.state.nj.us/drbc/library/documents/TMDL_Implementation_Plan081709.pdf

Addressing non-point sources of PCBs is particularly challenging due to the lack of

comprehensive regulatory program comparable to the NPDES permitting program. The strategies focus on identifying and prioritizing sources of PCBs in each non-point source category and then utilizing existing authorities to focus on water quality impacts and achieve the load allocations assigned to these sources. The plan specifically addresses the categories of non-point sources consisting of tributaries and boundaries, contaminated sites and air sources. Applications of the 2009 strategies since that year demonstrate that substantial reductions in PCB loads from these sources are achievable.

The strategy for tributaries and boundaries builds upon the TMDL approach utilized for Zones 2 through 6. Loadings are assigned to each tributary and boundary to ensure that the water quality criterion for PCBs is not exceeded in the mainstem Delaware River. Assigned loadings usually are based upon the water quality criterion adopted by the state agency for that water body. All three states bordering the Estuary, however, have criteria that are less stringent than either the current DRBC criterion or the proposed DRBC criterion of 16 picograms per liter. Section 4.20.4, "Tributaries to Interstate Waters", of the DRBC regulations provides that wastewater discharged into an intrastate tributary of interstate waters be treated so that the assimilation of such wastes by the interstate waters will not result in a violation of the water quality criterion of the receiving interstate water. Accordingly, the assigned loadings will generally be based upon the applicable DRBC criterion for the Estuary (i.e., 16 pg/L). The assigned loading should be included in any TMDL for PCBs that is established for the tributary by the state permitting authority or the U.S. EPA. The two largest tributaries to the Estuary, the mainstem Delaware River above the head of the tide and the Schuylkill River, have both been listed by PADEP and NJDEP, respectively, as impaired by PCBs. A TMDL for the Schuylkill River was established by U.S. EPA Region III on April 7, 2007. NJDEP listed the non-tidal Delaware River from Easton, PA to Trenton, NJ (DRBC Management Zone 1E) as impaired by PCBs in 2004. The Commission will coordinate with state agencies regarding the listing and development of TMDLs for those minor tributaries that have been shown to have loadings greater than their load allocations.

Contaminated sites are the fifth highest non-point source category of PCB loadings. Factors contributing to the assessment of loadings from sites in this category include a lack of focus on PCBs in developing site remediation alternatives, and the lack of assessment of water quality impacts from a site including the identification of pathways for pollutants to the Estuary. Recognizing the importance of this source category, the Commission initiated the Delaware Toxics Reduction Program or DelTRiP following the establishment of the Stage 1 TMDLs in 2004 (<http://www.state.nj.us/drbc/DelTRiP/index.htm>). This program is a cooperative effort of the Commission, the states bordering the Estuary and the U.S. EPA to identify, prioritize, track the progress in reducing PCB loadings, and report the status of sites contributing toxic pollutants to the Delaware River Basin. A high degree of uncertainty was associated with the loading estimate for this source category in the Stage 1 TMDLs. This can be attributed to the lack of congener-specific data on PCB concentrations and site-specific information on soil and slope characteristics of the sites. The strategy for contaminated sites consists of three components: 1) continued revision of loadings from contaminated sites with direct pathways to the Estuary (i.e., those located on or near the Estuary or below the head of tide on tributaries), 2) prioritization of the sites based upon the revised loadings, and 3) coordination with the lead federal or state agencies responsible for overseeing the remediation of a site.

Air sources of PCBs influence PCB concentrations through wet and dry deposition, and through the exchange of PCBs between the gaseous component of PCBs in the atmosphere and the dissolved fraction of PCBs in the estuarine waters. This latter exchange, called a flux, is bidirectional with the direction of the flux determined by the relative concentrations of PCBs in each medium. At this time, the ambient waters are a source of PCBs to the atmosphere. This is significant since reductions in the ambient water concentrations in the absence of reductions in the gaseous air concentrations will eventually result in a net influx of PCBs to estuarine waters. One finding during development of the Stage 1 TMDLs was that the exchange due to the flux of PCBs was more important than the wet and dry deposition of PCBs. The strategy for air sources of PCBs consists of three components: 1) identification of air sources of PCBs; 2) prioritization of the sources based upon their relative concentrations of PCB homologs bioaccumulated by aquatic biota; and 3) application of applicable federal and state regulations for controlling emissions. The Commission initiated monitoring to identify and prioritize air sources in 2001 when it established three long-term monitoring sites in Northeast Philadelphia; Swarthmore, PA; and at Lums Pond State Park in Delaware. These sites complemented an ongoing monitoring network in New Jersey operated by Rutgers University for the NJDEP. The results of this monitoring effort indicated that air concentrations of PCBs reflected local influences rather than a regional signature. In 2005 and 2008, the Commission and Rutgers University conducted passive air sampling studies involving deployment of passive monitoring devices for 90 days. These studies indicated that elevated concentrations of gaseous PCBs were very localized with locations in Camden, NJ and Swarthmore, PA showing the highest concentrations. This technique shows great promise in identifying sources on large to small spatial scales.

Reporting of Progress

The final component of this implementation plan is the evaluation and reporting of progress in achieving the necessary reductions in PCB loadings to attain the applicable DRBC water quality criterion. Under the strategy, an assessment will be performed at the close of each 10-year reporting period and issued by the Commission in consultation with the states and U.S. EPA Regions II & III. The Commission is planning to complete the first progress report by December 31, 2013.

A reporting period of 10 years was chosen to encompass the 5-year permit cycle that is typical of NPDES permits for discharges to Zones 2 through 6, and acknowledge the staggered effective dates of these permits. A 10-year reporting period will thus capture between one and two complete permit cycles for all of the NPDES discharges identified in the Stage 2 TMDLs.

An assessment report will document the ambient concentrations and reductions of PCBs achieved in the water column, air, sediment and in the tissues of resident and anadromous fishes for each water quality zone covered by the TMDLs. For the point source category, the report will contain the PCB concentrations and loadings for each point source discharge (and for CSOs and MS4s respectively, in the aggregate) that has been assigned a WLA in the TMDLs. For the non-point source categories, the report will contain concentrations and loadings of PCBs for individual non-point sources (where available) and/or for categories of non-point sources by water quality management zone. Reductions in PCB loadings for individual and categorical non-point sources will be included. The daily cumulative point and non-point source loading of PCBs

for each water quality management zone achieved at the close of the reporting period will also be reported.

Since ambient concentrations will be moderated by the sediment concentrations of PCBs, a useful measure of the progress achieved is a projection of the concentration of PCBs in ambient waters for each water quality management zone at the point when Estuary waters are at equilibrium with sediments and air under the PCB loads achieved for each individual and categorical source by the close of each reporting period. The projected concentrations in each water quality management zone can be obtained using the PCB water quality models developed by the Commission. Additionally, where feasible, the report will include the projected date of attainment of the water quality criterion and designated use for each water quality management zone. Subsequent assessments of progress will be issued until the designated uses and water quality criteria are attained, or the Commission concludes that the water quality criterion and its associated designated use is not attainable, and modifies the designated use and water quality criterion and its water quality regulations accordingly.

Summary

The implementation strategy is intended to provide the detailed requirements and strategies for point and non-point sources that will be employed over the next few decades to reduce PCB loadings to the Delaware Estuary and Bay to acceptable levels. A key objective of this strategy is to provide uniformity and a degree of certainty to NPDES permits that will be issued by the Estuary States for the next several permit cycles. EPA Regions II & III have proposed to evaluate the approach no less frequently than every ten years to determine whether the results in their view support continuing, modifying or discontinuing the approach.

The proposed approach was specifically developed for the Delaware Estuary because an established interstate agency with authority to manage shared water resources will lead implementation of the strategy by working with the individual states to establish monitoring protocols and evaluate results of PMP implementation; and by recommending appropriate revisions to the strategy if necessary to achieve reductions in pollutant loadings. Importantly, the strategy builds upon the approach that is being used to implement the Stage 1 TMDLs, which has achieved significant load reductions to date, including a recently documented 46 percent reduction in point source loadings between 2005 and 2011.

APPENDIX A

**DELAWARE ESTUARY PCB IMPLEMENTATION STRATEGY:
APPROACH FOR NPDES PERMITTING**

Developed by

Delaware River Basin Commission
U.S. Environmental Protection Agency, Office of Water
U.S. Environmental Protection Agency, Regions II and III
Delaware Department of Natural Resources and Environmental Control
New Jersey Department of Environmental Protection
Pennsylvania Department of Environmental Protection

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**DELAWARE ESTUARY PCB IMPLEMENTATION STRATEGY:
APPROACH FOR NPDES PERMITTING**

For nearly eight years, with financial and technical backing from EPA and the States bordering the Delaware Estuary, DRBC, the States, EPA Headquarters, EPA Regions 2 and 3 and other stakeholders have worked to develop a uniform, updated numeric water quality criterion for PCBs in the Estuary, corresponding Stage 2 PCB TMDLs, and an overall implementation strategy that will ensure continued PCB loading reductions and ambient water quality improvements. An important component of that overall strategy is an approach for issuing NPDES permits to point sources discharging PCBs to the Estuary. DRBC and the States have reached agreement on the proposed permitting approach set forth below.

Proposed NPDES Permitting Requirements for PCB Dischargers

Each NPDES permit for dischargers of PCBs to the Delaware Estuary is proposed to contain:

1. Provisions to ensure that each discharger attains its Stage 2 TMDL wasteload allocation (WLA) as soon as possible:
 - a. A requirement that the permittee develop a Pollutant Minimization Plan (PMP) conforming to the provisions of Section 4.30.9 of the DRBC's *Water Quality Regulations* (WQR). Such a PMP will include among other elements:
 - a set of best management practices (BMPs) intended to achieve "maximum practicable reduction" of PCB loadings to the Estuary; and
 - a requirement that the permittee submit a PMP Annual Report reporting the success of measures implemented, the PCB loadings reductions achieved, and any revisions to the PMP for the coming year.
 - b. A provision that the Permitting Agency will establish elements of the PMP as enforceable requirements of the permit (e.g., milestones and key actions).
 - c. An Action Level based upon Existing Effluent Quality (EEQ) to ensure that reductions achieved through implementation of a PMP are maintained.
 - If the EEQ Action Level is exceeded, the permittee becomes subject to additional specified monitoring, trackdown and/or BMP requirements to reduce loadings.
 - The EEQ Action Level is re-evaluated prior to every permit renewal on the basis of monitoring data for the previous permit cycle. If the data show a reduction in PCB loadings, EEQ may be reduced. If the data fail to show a reduction by the end of a five-year permit term, the discharger's PMP will be re-evaluated by DRBC and/or the permitting agency and amended to require actions or impose controls designed to

achieve further reductions or more aggressive implementation of BMPs already included in the PMP.

2. Permitting authorities must document in the NPDES permit fact sheets that the implementation of the PMP approach to achieve compliance with the TMDL WLAs is more stringent than the application of a technology based effluent limit for PCBs or other proposed surrogate pollutant (e.g. TSS). The permit must also include the more stringent of any technology based requirements for TSS in compliance with 40 CFR Parts 122.44(a)(1) and 125.3, or the DRBC effluent quality requirements at Section 3.10.4D.1.a.
3. A requirement for monitoring and reporting to calculate effluent concentrations and loadings, using a sensitive sampling and analytical method – Method 1668A or the latest subsequent revision thereof for PCBs in the Estuary.
4. A requirement to submit a revised PMP if the permitting agency determines that the PMP will not likely achieve the maximum practicable reduction of pollutant discharges. This revised PMP would be implemented during the permit cycle to ensure progress in reducing PCB loads.
5. A requirement that the permit holder submit a PMP Progress Report to accompany an updated PMP as part of the 5-year permit renewal application. This report, summarizing progress achieved and any changes made to the PMP over the preceding permit cycle, will supply context to help the permit authority determine the need for additional requirements in the permit renewal.
6. A requirement that monitoring, reporting, PMP requirements, and the EEQ Action Level remain in place until the discharger's wasteload allocation (WLA) is achieved, after which monitoring, reporting and a numeric effluent limit (consistent with the permittee's WLA and the policies of the permitting authority) will apply. Selected PMP action items may be continued to ensure ongoing attainment of the effluent limit.

Other Proposed Elements of the Implementation Strategy and Permitting Approach

1. Under the circumstances presented for PCBs in the Delaware Estuary, it is appropriate to adopt an implementation program that allows for the use of adaptive approaches – i.e., approaches entailing the application of a variety of techniques, measurement of their effects, and further application of the most effective techniques in an iterative fashion until the protected use(s) is (are) attained or the program is modified or discontinued. Such an approach both preserves the designated use of fishable waters and ensures it is attained as soon as possible.
2. A staged approach is proposed for Municipal Separate Storm Sewer Systems (MS4s). In the Stage 1 TMDLs, a categorical wasteload allocation (WLA) was assigned to MS4s for each Water Quality Zone (Estuary Zones 2-5).

In Stage 2 of the TMDLs, the following approach to MS4s is recommended: (a) for Phase I MS4s, imposition of a requirement for a PMP and monitoring using Method 1668A; and (b) for Phase II MS4s, formation of a work group comprised of federal and state regulators, to be tasked with (i) developing a procedure for prioritizing individual Phase II MS4 discharges; (ii) identifying the types of requirements that might appropriately be applied to these discharges (e.g., system mapping, source identification, BMP requirements, etc.); and (iii) determining the type of NPDES permit – individual NPDES permit or General Permit – in which such requirements should be established.

3. DRBC in consultation with the States and EPA Regions 2 and 3 will perform zone-wide and estuary-wide assessments of cumulative changes in ambient and effluent PCB levels periodically (every 5-10 years) to measure cumulative progress and adjust the projected water quality attainment date for PCBs in the Delaware Estuary as set forth in the TMDL.
4. EPA will evaluate the approach no less frequently than every ten years to determine whether the results in its view support continuing, modifying or discontinuing the approach.
5. The proposed permitting approach is appropriate for the Delaware Estuary because an established interstate agency with authority to manage the estuary's water resources will lead implementation of the strategy by working with individual states to establish monitoring protocols and evaluate results of PMP implementation, and by recommending appropriate revisions to the strategy if necessary to achieve reductions in pollutant loadings. Moreover, the approach as applied to implement a Stage 1 TMDL has resulted in significant load reductions to date. Application of the program in other contexts can be limited by the following:
 - (a) candidate pollutants may be limited to those hydrophobic pollutants for which (i) a sediment reservoir is present to attenuate the effect of load reductions on ambient water quality (as is the case with PCBs in the Delaware Estuary), or (ii) treatment technologies to achieve WLAs and LAs are unknown or have not been demonstrated on a large scale (also true for PCBs in the Estuary); and
 - (b) certain factors, including for example one or more of those listed at 40 CFR 131.10(g),¹ preclude attainment of one or more designated uses of the water

¹ This section of EPA's regulations implementing the Clean Water Act establishes the allowable bases for a state's removal of a designated use or adoption of subcategories of a use. Removal of the use "fish maintenance and migration" is not proposed in the Delaware Estuary, where fishing is an existing use. *See* 40 CFR § 131.10(h) (providing that a state may not remove a designated use that is an existing use as defined at 40 CFR § 131.3, unless a use requiring more stringent criteria is added.) Instead, the criteria set forth at 40 CFR § 131.10(g) should be among those used as bases for instituting a long-term restoration program where, as in the case of PCBs in the Delaware Estuary, science and data suggest that restoration may be achieved. We note that although the §131.10(g) factors have been used in some contexts as the basis for granting a variance rather than removing a use, no "variance" mechanism is proposed here. Our approach is for instituting a long-term restoration program where as in the case of PCBs in the Delaware Estuary, science and data suggest that restoration may be achieved.

body and the corresponding water quality criteria for a period of five or more years (also true for PCBs in the Estuary); and

- (c) a TMDL has been established for the pollutant(s) and water body (bodies) to be restored (as has been done for PCBs in the Delaware Estuary); and
- (d) data and/or science indicate that increasingly protective levels of the pollutant(s) can be achieved over time with the implementation of feasible controls, including regulatory and non-regulatory means (as has been demonstrated for PCBs in the Delaware Estuary).

Conclusion

We believe this proposed approach is the simplest and most effective path forward to the next phase of permitting for PCBs in the Delaware Estuary, and in turn, to implementation of a comprehensive strategy for restoring the Estuary. Adopting this approach will allow DRBC to proceed with adoption of an updated, uniform PCB criterion, EPA to establish the Stage 2 TMDLs, and co-regulators to advance coordinated non-point source controls, all of which, in combination with permitting, can eventually in our view put fish from the Delaware Estuary back on local menus and among the many features that contribute to the quality of life in our region.