Polychlorinated Biphenyl (PCB) Total Maximum Daily Load (TMDL) Handbook

EPA United States Environmental Protection Agency

http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/pcb_tmdl_handbook.pdf

What are PCBs?

Polychlorinated biphenyls (PCBs) belong to a broad family of organic chemicals. PCBs were manufactured in the U.S. from 1929 until their manufacture was banned in 1979. Although their uses in capacitors and transformers for energy transmission are well known, PCBs were also used in a wide variety of applications such as paints, sealants, and building materials. PCBs vary markedly in their chemical and physical properties, and have a range of toxicity. Properties such as non-flammability, low electrical conductivity, high thermal stability, and high boiling point make PCBs highly stable and persistent in the environment. PCBs tend to bioaccumulate in living organisms.

Structure of Polychlorinated Biphenyl (PCB) Molecule
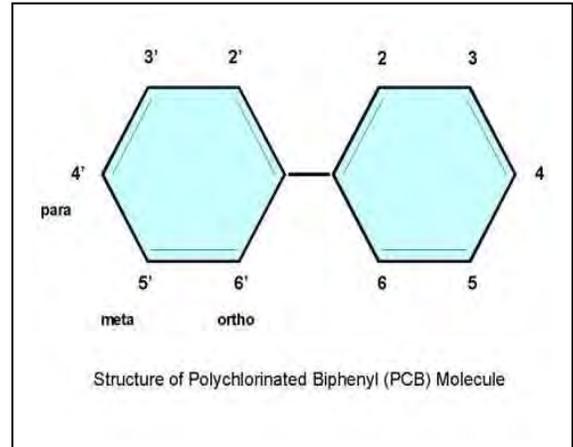
What is the purpose of the PCB TMDL Handbook?

The purpose of the handbook is to provide EPA Regions, states, and other stakeholders with a compendium of updated information for addressing Clean Water Act (CWA) section 303(d) waters (http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/intro.cfm#section303) impaired by PCBs. This handbook identifies various approaches to developing PCB total maximum daily loads (TMDLs) and provides examples of TMDLs from around the country, complete with Web references. It aims to help states complete more PCB TMDLs, and ultimately restore those waters impaired by PCBs.

How do PCBs rank nationally as a cause of water quality impairment?

PCBs rank sixth among the national causes of water quality impairment in the country. PCBs represent about eight percent of all causes of impairment nationally on CWA section 303(d) lists (that is, of the more than 71,000 causes of impairment nationally, over 5,000 are PCB-related). Of the more than 46,000 TMDLs in place nationally, about one percent (about 400 TMDLs) address PCBs as a pollutant.

Causes of Impairment for 303(d) Listed Waters
Description of this table

NOTE: Click on a cause of impairment (e.g. pathogens) to see the specific state-reported causes that are grouped to make up this category. Click on the "Number of Causes of Impairment Reported" to see a list of waters with that cause of impairment.

Cause of Impairment Group Name	Number of Causes of Impairment Reported
Pathogens	10,704
Metals (other than Mercury)	7,621
Nutrients	6,919
Organic Enrichment/Oxygen Depletion	6,368
Sediment	6,199
Polychlorinated Biphenyls (PCBs)	5,455
Mercury	4,747
pH/Acidity/Caustic Conditions	4,093

Causes of impairment are shown above in the Assessment, TMDL Tracking and Implementation System (ATTAINS) (http://iaspub.epa.gov/waters10/attains_nation_cy.control?p_report_type=T) November 18, 2011; this information is based on the most recent CWA section 303(d) and 305(b) data reported to the EPA by states and available in ATTAINS.

What is the scope of the handbook?

The handbook provides an overview of PCBs and water quality, factors to consider in early stages of TMDL development, elements of a TMDL, and an appendix which includes general PCB sources and databases in which to find information about PCB sources. Each section of the handbook is complete with Web references.

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For more information:

- Read the PCB TMDL Handbook at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/pcb_tmdl_handbook.pdf.

- Visit the Total Maximum Daily Loads (303d) Technical Support Documents website at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/techsupp.cfm, which houses the PCB TMDL Handbook and PCB TMDL fact sheets summarizing the elements of several PCB TMDLs.

- Visit the Impaired Waters and Total Maximum Daily Loads Home Page at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/index.cfm.

- Contact
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