

Comment Response Document for the Chlordane TMDL for Baltimore Harbor, Baltimore City, MD

Introduction

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) for Chlordane in Baltimore Harbor. The public comment period was open from October 25, 2000 through November 27, 2000. MDE received one set of written comments.

Below is a list of commenters, their affiliation, and the date they submitted comments. In the pages that follow, comments are summarized in conjunction with MDE's responses.

List of Commenters

Author	Affiliation	Date
James Stuhltrager, and Susan Mack	Widener University Environmental and Natural Resources Law Clinic, on behalf of the Sierra Club and the American Littoral Society; Earthjustice Legal Foundation on behalf of the Chesapeake Bay Foundation	11/27/00

Comments and Responses

1. The commenter indicated that the TMDL utilizes the wrong fish consumption value. They cite new EPA recommendations which place default fish consumption rate for recreational fisherman at 18 grams per day, which is greater than the 6.5 grams U.S. average fish consumption rate used in the TMDL.

Response: The Maryland Department of the Environment (MDE) used the 6.5 gram U.S. average value as per current EPA guidance on Ambient Water Quality Criteria Derivation Methodology for Human Health. The 18-gram recreational fisherman value mentioned has not yet been formally adopted by EPA in their Water Quality Standards. MDE will revisit their default consumption rates in the event that EPA formally revises its water quality standards.

2. The commenter states that the TMDL does not meet requirements of the Clean Water Act (CWA) and implementing regulation, 40 CFR 130.2(i), because it is not stated in terms of a load (mass per unit time).

Response: Under the particular circumstances of this TMDL, a water column concentration is an “appropriate measure” within the meaning of 40 CFR 130.2(i), which states that a total maximum load may be expressed as either a mass per time, toxicity (e.g., fish tissue concentration), or other appropriate measure. The Fish tissue concentration of chlordane serves as the water quality standard endpoint, and a water column concentration threshold has been set as the TMDL to be protective of bioaccumulation in fish tissue. Using this measure for the proposed TMDL is appropriate, particularly in view of Baltimore Harbor having been placed on Maryland’s 303(d) list on the basis of fish tissue data. EPA concurs with this interpretation, as evidenced by their approval of the Back River and Lake Roland chlordane TMDLs, which were based on the method being applied to Baltimore Harbor.

3. The commenter concluded that the TMDL did not have enough data to make an accurate assessment of chlordane loading to the Harbor, particularly with respect to industrial point sources.

Response: As per EPA requirements, MDE developed the Harbor chlordane TMDL utilizing all "readily available" data. Water quality and sediment data were used in concert to provide a weight of evidence approach in light of no continuing, active sources of chlordane in the Harbor watershed. Both sediment and fish tissue went further by integrating all sources of pollution entering the Harbor (i.e., Harbor sediments are a conglomeration of all sediment sources entering the estuary from tributaries and fish are mobile species which integrate contaminants over a broad area).

As for the issue of industrial point sources, the National Pollutant Discharge Elimination System (NPDES) survey data used in the Harbor TMDL include data from residential, commercial, and industrial sources in order to analyze run-off characteristics by land use category. No chlordane was detected in samples from this NPDES study. Since all sales of chlordane were banned in 1988, the only remaining sources of chlordane to the Harbor are likely residual amounts contained in previously contaminated sediments.

4. The commenters indicate that the TMDL does not include an implementation plan to ensure that the water quality standards will be met.

Response: Neither the Clean Water Act nor current EPA regulations direct states to develop a detailed implementation plan as part of the TMDL development and approval process. Implementation measures, therefore, are beyond the scope of this process. However, a few points are worthy to note regarding Maryland’s approach to this matter.

Aside from the processes of natural recovery, physical removal of the bottom sediments from this impoundment would be the only other means of removing the chlordane-contaminated sediments. Environmental concerns, coupled with the high costs associated with dredging and dredged material disposal, classify the chlordane impairment in Baltimore Harbor in the category of “Extremely Difficult

Problems” as defined in Chapter 6 of the Report of the Federal Advisory Committee on the TMDL Program, July, 1998.

Biologically available chlordane levels in Harbor sediments are expected to decline over time due to natural processes including biodegradation, redistribution, and natural burial by sedimentation. Maryland has a fish tissue monitoring program in place that collects and analyzes samples for contamination in Baltimore Harbor. Maryland is proposing triennial monitoring of the fish in the estuary to track the natural attenuation of chlordane. An evaluation of the required sampling frequency will be considered each year as information from the statewide monitoring network is developed. As contamination levels decline, and appear low enough to protect human health and the environment, these data and results from additional samples will be evaluated to determine if the consumption advisory should be modified or withdrawn.

5. The commenters suggest that the estimate of chlordane concentrations in the water column should be based upon the maximum sediment concentration sampled.

Response: The water column values calculated from sediments, using equilibrium partitioning methods described in Section 5.0 of the Harbor TMDL, estimate pore water concentrations. Pore water is the water contained in the voids between sediment particles, which does not undergo the same degree of mixing as the overlying water column and typically has higher contaminant concentrations. Consequently, the pore water concentration derived in Section 5.0 is even more protective of the 0.00059 :g/l water column value given in the TMDL.

6. The commenters suggested that the TMDL includes a deficient monitoring program.

Response: In the early days of its implementation, MDE's fish tissue monitoring program was indeed conducted on an annual basis. Due to inter-annual variability in the data, however, it was discovered that tissue sampling on an annual basis did not help in determining longer-term trends in tissue burdens. The three-year sampling interval utilized under Maryland's current fish tissue monitoring program increases the likelihood of sampling different cohorts of individuals from a population so that the trends through time are more readily apparent. Significant changes won't be detected on an annual basis, so MDE feels the triennial sampling regime is more than adequate to assess long term contamination trends.

References

Baker, J., Mason, R., Cornwell, J., Ashley, J., Halka, J., Hill, J., “Spatial mapping of Sedimentary Contaminants in the Baltimore Harbor/Patapsco River/Back River System.” Report to the Maryland Department of the Environment, 1997.

Eskin, R.A., Rowland, K.H., Alegre, D.Y. “Contaminants in Chesapeake Bay Sediments 1984-1991”, Chesapeake Bay Program, CBP/TRS 145/96, 1996.

MDE. 1997. Maryland’s National Pollutant Discharge Elimination System Municipal Stormwater Monitoring.

U.S. Environmental Protection Agency, Ambient Water Quality Criteria Derivation Methodology Human Health, Office of Water Final Draft Technical Support Document, section 2.3.2.3, p. 122. EPA 822-B-98-005, July 1998.

U.S. Environmental Protection Agency, Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, The National Advisory Council for Environmental Policy and Technology (NACEPT). EPA 100-R-98-006, July 1998.