

January 2013

Project Update for the Upper Yakima River Basin Suspended Sediment, Turbidity, and Organochlorine Pesticide Total Maximum Daily Load (TMDL)

Introduction

Stakeholders have made good progress under this TMDL project, but have not yet met all TMDL targets. Ecology feels that by implementing additional best management practices (BMPs), adding performance standards, and enhancing a compliance strategy, the targets of this TMDL will be met by October 2016.

Background

In 1999, the Washington State Department of Ecology (Ecology) began development of a total maximum daily load (TMDL) (also called water quality improvement project) to clean up suspended sediment, turbidity, and organochlorine pesticides (OCPs) in the upper Yakima River watershed. After extensive public outreach, Ecology completed a technical assessment report (Joy, 2002), a data summary (Joy and Madrone, 2002), a TMDL report (Creech and Joy, 2002), and a detailed implementation plan (Creech, 2003). The United States Environmental Protection Agency (EPA) approved this TMDL in 2002.

The TMDL report contains specific compliance targets for (1) DDT and metabolites, and dieldrin, in the water column and in fish tissue, and for (2) turbidity. Targets are included for both the mainstem Yakima River, within Cherry Creek and Wipple Wasteway, and at the mouths of certain tributaries. Specific nonpoint TMDL targets are not included within tributaries other than Cherry Creek and Wipple Wasteway.

Overview of TMDL compliance targets and schedule

Completion date

The original date for achievement of the final TMDL targets was the end of October 2011.

Water column targets

- *Pesticides*: The TMDL set concentration targets for individual DDT compounds, total DDT, and dieldrin in Cherry Creek and Wipple Wasteway. The interim target for both was aquatic toxicity criteria (0.001 ug/L for DDT compounds, or total DDT, and 0.0019 ug/L dieldrin). The final target for both was human health criteria (0.00059 ug/L for DDT or DDE compounds, or total DDT, 0.00083 ug/L DDD, and 0.00014 ug/L dieldrin).
- *Turbidity*: The TMDL set the following final turbidity targets.
 - Tributaries: The 90th percentile of the turbidity values collected at the mouths of certain tributaries (Teaway River, Manastash Creek, Sorenson Creek at Fogerty Ditch, Wilson Creek below Cherry Creek, Taneum Creek, and Wenas Creek) will not exceed 5 NTU over the 90th percentile background value. The geometric mean turbidity at the mouth of Packwood Ditch will not exceed 5 NTU over the geometric mean turbidity of the background site.
 - Mainstem river: The 90th percentile of the turbidity values collected at the Yakima River at Umtanum Creek (RM 139.8) and the Yakima River at Harrison Bridge (RM 121.7) will not exceed 5 NTU over the 90th percentile turbidity value of samples collected from the Yakima River at Nelson (RM 191).

Fish tissue targets

- *DDT and metabolites*: Concentrations of total DDT or individual DDT compounds will not exceed 32 ug/Kg wet weight in fish fillet samples collected from the upper Yakima River (both interim and final target).
- *Dieldrin*: Dieldrin concentrations in fish fillet samples will make substantial progress toward meeting a compliance target of 0.65 ug/Kg wet weight in the upper Yakima basin. If progress has not been made relative to samples collected in 1999, studies will be undertaken to determine additional sources, transport, mechanisms, and uptake of dieldrin in the basin.

Subsequent findings

Water column and fish tissue samples were collected by Ecology and partner organizations following the final target date of the TMDL. Some of this data was used to evaluate compliance with interim and final TMDL targets.

Organochlorine Pesticides

In 2007, water samples were collected in Cherry Creek and Wipple Wasteway that met most of the interim targets for dieldrin, DDT, and DDT metabolites. Testing found one exceedence of the interim target for dieldrin in Cherry Creek, and a single exceedence of the total DDT target in both Cherry and Wipple.

Ecology has not yet collected organochlorine pesticide data from these creeks to compare with final TMDL targets.

Turbidity

In 2006, Ecology and partner organizations (the Kittitas County Conservation District and the Kittitas County Water Purveyors [KCWP]) conducted water sampling at the TMDL's interim compliance points and background sites. Laboratory analysis showed that most of the interim turbidity targets were met, most of the time.

In 2011, the KCWP again conducted follow-up monitoring for suspended sediment and turbidity. The KCWP collected and analyzed samples under an Ecology-approved quality assurance project plan, and the sample data was verified via split sampling with Ecology staff and analysis at an Ecology laboratory. This data was then compared with the final TMDL targets. Results indicated that many, *but not all*, of the final TMDL targets for turbidity were being met.

New strategy

Based on the subsequent data findings, Ecology determined that while good progress has been made in this TMDL, all TMDL targets have not yet been met. Therefore, Ecology is adding these measures to the TMDL:

1. The final target date for the TMDL will be extended for five years (from October 2011 to October 2016), with the same targets.
2. Additional specific required actions have been identified as necessary to implement to meet the TMDL targets. These actions will be added as an addendum to the detailed implementation plan for the TMDL (Creech, 2003).

Failure to meet targets by 2016

If the targets are not met in October of 2016, it will be necessary for Ecology to produce a new TMDL. This will include another round of data collection by Ecology, and the establishment of new TMDL targets. Additionally, Ecology will document the primary causes for the failure to meet the earlier TMDL targets; this documentation will include specific locations that appear to be major contributors to the sediment deposition in the watershed.

References

Creech, J. 2013. Addendum to Upper Yakima River Basin Suspended Sediment, Turbidity and Organochlorine Pesticide Total Maximum Daily Load: Detailed Implementation Plan. Washington State Department of Ecology, Water Quality Program. Publication No. 03-10-058 Addendum 1.

Creech, J. 2003. *Upper Yakima River Basin Suspended Sediment, Turbidity and Organochlorine Pesticide Total Maximum Daily Load: Detailed Implementation Plan*. Washington State Department of Ecology, Water Quality Program. Publication No. 03-10-058. 59 pp. <https://fortress.wa.gov/ecy/publications/SummaryPages/0310058.html>

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