Upper Yakima River Basin Suspended Sediment, Turbidity, and Organochlorine Pesticide Total Maximum Daily Load

Addendum #1: August 2017

Development of Reserve Capacity for Suspended Sediment

Background

The *Upper Yakima Suspended Sediment, Turbidity and Organochlorine Pesticide Total Maximum Daily Load* ("the TMDL") was approved by the U.S. Environmental Protection Agency (EPA) in 2002. At that time, Washington State Department of Ecology (Ecology) did not set a reserve capacity for the TMDL.

This TMDL addendum presents justification for establishing a reserve capacity of 10 tons/day of suspended sediment (as total suspended solids (TSS)), by reclaiming some of the unused loading capacity assigned to the TMDL's load allocations (LAs).

A small portion of the reserve capacity will be used to develop a wasteload allocation (WLA) for the proposed Melvin R. Sampson coho salmon hatchery, owned by the Yakama Nation and located upriver from the City of Ellensburg. The reserve capacity may also be applied to additional future permitted discharges.

TMDL Requirements

The loading capacity for the mainstem Yakima River requires meeting a turbidity target of 5 nephelometric turbidity units (NTU) over background at Harrison Bridge (river mile 121.5), when using a site at Nelson Siding (river mile 191) as background. The loading capacity at Umtanum (river mile 140.4) used the same approach. These loading capacities were set at 87 tons/day of suspended sediment and 140 tons/day of suspended sediment, respectively. The Umtanum site is used most often for assessing compliance with the TMDL, because this site has the most stringent reduction requirements.

The LAs for seven tributaries to the upper Yakima River were also required to meet the 5 NTU over background standard at the mouth of the tributary, using an upper tributary site as background in each case. The combination of all of the LAs was set at 120 tons/day at Umtanum.

Reduction in Mainstem Suspended Sediment Makes Room for Reserve Capacity

A 2006 TMDL effectiveness monitoring study (Ecology, 2009) found that the mainstem river sediment loads had already been reduced by 112 tons at Umtanum, thus far surpassing reductions required by the final TMDL allocations. See Table 1.

Table 1: Suspended sediment loads (tons/day) during the critical season (April-October) for the mainstem Yakima River.

Site	1999 Mainstem Load	TMDL Loading Capacity *	Total Load Allocations #	2006 Mainstem Load
Yakima R. at Umtanum	215	140	120	103
Yakima R. at Harrison Br.	131	87	75	46
Reductions at Umtanum, compared to the 1999 mainstem load	--	75	95	112

* TMDL loading capacity = "Mainstem only/Background+5NTU" from Table 10 of the TMDL submittal document.
# Total load allocations = tributary based on final load capacity at Yakima River at Umtanum. From Table 10 of the TMDL submittal document.

At the Umtanum site, the 2006 mainstem sediment load (103 tons/day) was found to be 17 tons less than the total LAs (120 tons/day). This difference represents the unused LA for suspended sediment in the mainstem Yakima River, and it establishes adequate unused load capacity to allow development of a reserve capacity of 10 tons/day. Table 2 shows how the breakdown of the TMDL loading capacity will change following approval of this reserve capacity.

Table 2: Breakdown of the TMDL loading capacity for suspended sediment, in tons per day. All figures are for mainstem Yakima River at Umtanum, only.

	TMDL Loading Capacity	Total Load Allocations	Waste Load Allocations$^{\Delta}$	Reserve Capacity	Margin of Safety
Original TMDL	140	120	0.60	0	19.4
Changes to TMDL provided in this addendum	140	110	0.60	10	19.4

$^{\Delta}$ Total of the existing wasteload allocations from Table 11 of the TMDL submittal document. Wasteload allocations are based on NPDES permit effluent limitations.

New Hatchery Not Expected to Release DDT (and Metabolites) or Dieldrin

Ecology does not anticipate any DDT (and metabolites) or dieldrin discharges from the new tribal hatchery. Therefore, a new WLA for these compounds is not needed.

DDT (and metabolites) and dieldrin are not found in fish hatchery effluent and are not suspected to be discharged to receiving waters (Ecology, 2016). Additionally, EPA declined to include DDT (and metabolites) or dieldrin in their extensive list of toxicity limits for chemical

compounds expected to be found in effluent from Washington State tribal hatcheries (EPA, 2015). Therefore, EPA's understanding that DDT (and metabolites) and dieldrin are not a concern in hatchery effluent is reinforced.

While not shown to be a source of water-column effluent pollution, some studies indicated that 4,4'-DDT and dieldrin may occasionally contaminate fish food used in state- and federally-owned hatcheries (Ecology, 2006; Maule, 2007). Other studies have shown that concerns about contaminated fish food can be largely eliminated with the use of higher quality fish food (Lie, 2008).

Additional Data Collection Regarding Suspended Sediment and Turbidity Levels in the Upper Yakima River Watershed

Ecology plans to collect additional sediment and turbidity data in the Upper Yakima watershed within the next few years, to further assess compliance with the TMDL. If the new data shows that TMDL compliance has not been achieved, and is not expected to be achieved in the near future, then Ecology will revisit the TMDL at that time and revise the TMDL to ensure compliance.

References

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