

## MEMORANDUM

From: Daniel Steenson and Andrew Waldera, LBWC Directors  
To: Lance Holloway, Idaho Department of Environmental Quality  
Re: Draft TP TMDL Addendum  
Date: February 18, 2015

Thank you for the opportunity to submit the following comments on the January, 2015 Draft TP TMDL Addendum. This opportunity helps fulfill the consultation requirements of I.C. § 39-3611(8), under which consultation includes:

(b) Utilizing the knowledge, expertise, experience and information of the watershed advisory group in assessing the status, attainability or appropriateness of water quality standards, and in developing a TMDL and any supporting subbasin assessment; and

(c) Providing the watershed advisory group with an adequate opportunity to participate in drafting the documents for the TMDL and any supporting subbasin assessment and to suggest changes to the documents.

In addition to these comments, textual changes to the Draft TP TMDL are proposed in the revision draft which accompanies this memorandum.

### **1. The purpose of the TP TMDL as an “addendum” should be clarified.**

The explanation of the purpose of the TP TMDL as an “addendum” and its relationship to prior LBR water quality-related documents is vague and confusing. At page 2, the Draft states that it is an addendum to six documents, including the original 1999 LBR TMDL, two implementation plans, two addendums, and the LBR TMDL Five-Year Review. The Draft further explains that an addendum either (1) establishes a new TMDL for a pollutant or (2) updates an existing, EPA-approved TMDL for a pollutant. Though the TP TMDL Draft does not say so, the Draft is within the first category, establishing a new TMDL for TP for certain AU’s within the LBR HUC.

The Draft “2014 Addendum of the Sediment and E. Coli TMDLs,” is also within the first category of addendums, establishing new sediment and bacteria TMDL’s for AU’s within the LBR HUC. In contrast to the Draft TP TMDL, the sediment and E. Coli addendum clearly and concisely states: “This document is an addendum to the 1999 Lower Boise TMDL.” (2014 Addendum at 20.) The same statement applies to the TP TMDL Draft: it is an addendum to the 1999 Lower Boise TMDL, establishing a new TMDL for TP for AU’s within the LBR HUC.

Accordingly, clarifying revisions to the title and description the Draft TP TMDL are proposed in the attached revision draft.

2. **The TP TMDL contains no data or analysis demonstrating that TP is causing or contributing to use impairment in Mason Creek or Sand Hollow Creek.**

Idaho Code section 36-3911(6) provides: “No instream target for a pollutant shall be set as part of a TMDL process unless the data and analysis in the subbasin assessment demonstrate that the pollutant is causing or contributing to a violation of a water quality standard in the stream for which the TMDL is being developed.”

The Draft TP TMDL incorrectly asserts that cold water aquatic life and contact recreation uses are impaired by TP in Mason Creek and Sand Hollow Creek. *Draft* at xix, 33. No data reported in the Draft, and no assessment referenced in the draft, documents nuisance aquatic growth in either Mason Creek or Sand Hollow Creek. Section 2.3 of the Draft contains a summary and analysis of existing water quality data. While section 2.3 contains a robust summary and analysis of periphytic algae in the Lower Boise River (*see* pp. 25-27), there is no reference to any aquatic growth in either Mason Creek or Sand Hollow Creek. Indeed the Mason Creek and Sand Hollow Creek Subbasin Assessments (referenced at p. 19 of the Draft), demonstrate that benthic chlorophyll-a levels are “well below the minimum nuisance threshold.” The Subbasin Assessments documented normal DO and pH conditions in these tributaries, and concluded that “nutrients are not impairing aquatic life beneficial uses.” Mason Creek Subbasin Assessment at 26-27; Sand Hollow Creek Subbasin Assessment at 26-27.

The Draft TP TMDL cites the 2004 SR-HC TMDL and EPA’s 2009 disapproval of Idaho’s 2008 303(d) list as a basis for the conclusion that beneficial uses in Mason Creek and Sand Hollow Creek are impaired by nutrients, but there is no discussion, data or analysis whatsoever pertaining to Mason Creek or Sand Hollow Creek in either of those documents.

The only apparent basis for the assertion that beneficial uses in Mason Creek and Sand Hollow Creek are impaired by TP is the cryptic reference “cause unknown - nutrients suspected impairment” in the §303(d) listings of these tributaries in the 2012 Integrated Report. Clearly, such statements cannot be the basis for the finding required by Idaho Code section 36-3911(6), particularly when the Mason Creek and Sand Hollow Creek Subbasin Assessments specifically determined that periphytic algae are *well below* the nuisance threshold.

There has been no discussion between the LBWC and DEQ to determine an appropriate nuisance threshold for benthic chlorophyll-a in Mason Creek or Sand Hollow Creek. In fact, the WAG’s choice of the benthic chlorophyll-a target of 150 mg/m<sup>2</sup> for the Boise River was made with the express understanding that this target would not apply to the tributaries. (*See* DEQ February 12, 2013 letter to the WAG.) Recreational uses and aesthetic expectations for the Boise River and for these tributaries are not comparable. While the Boise River is designated for primary contact recreation, Mason Creek and Sand Hollow Creek have been designated only for secondary contact recreation in recognition of the dangers of recreating in irrigation drainages such as these. In its 2004 approval of the DEQ’s proposal to revise the recreational use designations for Mason Creek, Sand Hollow Creek and several other irrigation drainages, EPA wrote:

Thus, although it is not clear that the existing use in this water body is SCR, the State has clearly indicated that there are safety concerns with respect to contact recreation in this water body. As discussed in more detail in section 4.1(d), the State has elsewhere documented drowning fatalities in the lower Boise Valley which have occurred in irrigation waterways, as well as public education and outreach efforts regarding safety hazards of swimming in such waterways (see Appendix 8 of Ringert and Clark, 2001). Since there is a safety concern with PCR in this water body, and since Idaho regulations establish that the bacteriological criterion used for compliance purposes is the same for both PCR and SCR, given the policy option explained in section 4.1(d) above, designating SCR in this case is reasonable. (EPA, 2004 use revision justification at 32 and 51.)

The secondary contact recreational use designation for Mason Creek and Sand Hollow Creek maintains the bacteria standard to protect human health in the event of incidental contact. It does not reflect recreational use or aesthetic expectations. Since there has been no discussion of the existence, extent or propriety of such expectations in these drainages, there can be no assertion at this point that such expectations are not being met.

Moreover, the Draft TP TMDL states that the “target selection for Mason Creek is developed in the same manner as load allocations for the other major tributaries to the Boise River” in order to reach the TP target set from the lower Boise River. Draft at 67. Similarly, the target selection for Sand Hollow Creek is developed to achieve the TP target established for the Snake River in the SR-HC TMDL. *Id.* The result is that Mason Creek and Sand Hollow Creek are in fact treated as nonpoint sources, rather than as receiving waters for which the TP TMDL sets allocations.

Finally, the Draft TP TMDL, in sections 5.1.3 and 5.1.4 (*see p. 67*), states that the load reductions in Mason Creek and Sand Hollow Creek are consistent with the “...EPA Gold Book recommended TP value of 0.1 mg/L (EPA 1986), and should translate in nuisance aquatic growth reductions sufficient to support beneficial uses.” The EPA Gold Book value of 0.1 mg/L is not actually justified in the 1986 criteria document, it is simply referenced as a desired goal for streams or other flowing waters not discharging directly to lakes or impoundments. The only basis for this goal is a citation to a document that traces through EPA’s 1976 “Red Book” (Quality Criteria for Water). The only basis for 0.1 mg/L actually stated in the Red Book is “Total phosphate phosphorus concentrations in excess of 100 ug/l P may interfere with coagulation in water treatment plants.” The prevention of plant nuisance in streams or other flowing waters is supported in the Gold Book and Red Book only by a citation to a 1973 document (“Toward a Cleaner Aquatic Environment,” Mackenthum, EPA, 1973). This 1973 document does not provide any basis for this suggested value in terms of technical data from actual streams and rivers or any other empirical evidence. Thus, the Gold Book citation should not be used as a legitimate indicator for support of beneficial uses.

Accordingly, assertions that beneficial uses of Mason Creek and Sand Hollow Creek are impaired by TP, and that the TP TMDL addresses such impairment, should be removed, as proposed in the attached revision draft.

**3. The TP TMDL contains no data or analysis demonstrating that TP is causing or contributing to impairment of cold water aquatic life in the Boise River.**

The Draft TP TMDL does not contain data and analysis to support the assertion that cold water aquatic life in the lower Boise River are impaired by TP. (*See* Draft, section 2.3, pp. 18-33.) Without explanation, the Draft cites EPA's 2009 disapproval of Idaho's 2008 303(d) list as a basis for the conclusion that cold water aquatic life are impaired by TP concentrations. However, while EPA's letter states that DEQ did not present sufficient evidence to delist the lower Boise River for nutrient impairment, that letter did not provide data or analysis demonstrating that cold water aquatic life are impaired by nuisance aquatic growth caused by TP concentrations.

**4. The benthic chlorophyll-a target was chosen to address perceived impairment of recreational use and aesthetics, not impairment of cold water aquatic life.**

DEQ proposed the 150 mg/m<sup>2</sup> benthic chlorophyll-a target to the WAG in January of 2013. DEQ identified the source of the target as a public opinion survey by a researcher named Suplee, reported in a paper called "How Green is too Green? Public Opinion of What Constitutes Undesireable levels of algae in Streams." The paper included photographs which DEQ showed to the WAG's Technical Advisory Committee ("TAC"). The TAC and the WAG chose the target based on the Montana survey and the photographs. The survey study stated, in part:

What exactly constitutes an undesirable or nuisance level of aquatic life in a water body can be a subjective matter, especially when it comes to protecting beneficial water uses such as recreation and aesthetics. Although algae of 100 to 150 mg Chl a/m<sup>2</sup> may impact recreation and aesthetics, impacts by such algae levels on aquatic life is unclear. (Suplee, 2009 at 124.)

The Draft TP TMDL cites other scientific literature as supporting a 150 mg/m<sup>2</sup> target to support cold water aquatic life uses. *See* Draft at 17. However, none of the literature cited supports the target for that purpose. The abstract from Welch et al., 1988, for example, states: "A biomass range of 100-150 mg chl a mW<sup>2</sup> may represent a critical level for an aesthetic nuisance; below those levels, filamentous coverage was less than 20%." Other indices of water quality (dissolved oxygen content and measures of benthic macroinvertebrate diversity) were apparently unaffected by periphytic biomass or filamentous coverage in these streams.

Dodds and Welch (2000) discussed impacts to aquatic life from algal levels in terms of deficits in dissolved oxygen and pH concentrations, not in terms of any particular concentration of benthic chlorophyll-a. Dodds and Welch at 190. The Biggs (2000) reference does not

indicate impacts to human recreational uses, nor any physiological or other impact to aquatic life. Miltner (1998) found no correlation between biotic integrity or invertebrate communities in large rivers such as the Boise River ( $\geq 2590.7 \text{ km}^2$ ).

Accordingly, assertions that the referenced literature supports the use of benthic chlorophyll-a target for protection of cold water aquatic life, or that the target has been chosen for this TP TMDL to protect cold water aquatic life, should be removed, as proposed in the attached revision draft.

**5. NSCC and Boise Valley irrigation system operations are not comparable.**

In section 5.4.7, the Draft TP TMDL refers to the Northside Canal Company's "elimination of 100's of return drains," and construction of wetlands and detention basins, to suggest that irrigation systems in the Boise Valley could achieve "similar significant reductions in tributary/drain flows and TP loads to the lower Boise River." NSCC drains were constructed and operated to collect only surface water return flows from irrigated lands to which NSCC delivers water. NSCC drains were not constructed or operated to collect subsurface seepage or ground water. Unlike NSCC drains, most of the drainage systems in the Boise Valley were constructed primarily to collect seepage and subsurface return flows and shallow ground water that would otherwise render lands waterlogged and unproductive. (Stevens 2014, unpublished.)

Approximately 3% of the water NSCC delivers returns to the Snake River due to the widespread use of sprinkler irrigation on NSCC lands. Reducing return flows within the Boise Valley to such levels would dry up drainages, some of which are 303(d) listed tributaries to the Boise River, would lower or eliminate the shallow aquifer in the Boise Valley, and would decimate Boise River flows below Middleton. In comparison to the land areas served by the NSCC, there is a shortage of land within the Boise Valley that could be dedicated to use for wetlands and detention basins. Unlike the NSCC, the irrigation systems in the Boise Valley are highly varied in structure, size, ownership, management and the location and nature of the lands to which they deliver water. Consequently, neither the NSCC system nor its reductions in return flows and TP reduction provide a reliable basis for projecting results in the Boise Valley.

Accordingly, the discussion of the NSCC system should be removed from the discussion of reasonable assurance in section 5.4.7, as proposed in the attached revision draft.

**6. Existing agricultural implementation plans are adequate.**

In section 5.5, the Draft TP TMDL fails to mention the comprehensive November, 2003 Agricultural Implementation Plan under which agricultural BMPS have been effectively implemented for over a decade, and asserts that "a new implementation plan should be developed." We do not agree that the TP TMDL requires development of an entirely new implementation plan for agriculture, though the LBWC may decide it is beneficial to update the existing implementation plan. Changes to section 5.5 that consistent with this comment are proposed in the attached revision draft.