

# Memo

Date: February 6, 2015

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Project: Lower Boise River Subbasin Assessment and Total Maximum Daily Load

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To: Lance Holloway, Watershed Manager, Department of Environmental Quality

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From: Tom Dupuis, HDR on behalf of local government, industry and agricultural stakeholders

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Subject: Review Comments and Requested Revisions

## Introduction

Local government and industry stakeholders have been participating in the Idaho Department of Environmental Quality's (DEQ's) process for the development of a phosphorus total maximum daily load (TMDL) for the Boise River. These stakeholders have been discussing the implications of this TMDL on its constituents, the economy and environment of the valley, and the citizenry of the region. This TMDL will impose regulatory and permitting changes that will have significant costs and changes to water management in the valley and therefore requires upmost accuracy in the scientific processes used. It is equally important that the scientific processes be documented with clarity in the written reporting of the TMDL and supporting materials.

These stakeholders have reviewed DEQ pre-draft release of "Lower Boise River Subbasin Assessment and Total Maximum Daily Load: 2014 Total Phosphorus TMDL Addendum for the Lower Boise River, Mason Creek, and Sand Hollow Creek, Hydrologic Unit Code 17050114, January 2015" (draft TMDL). While each entity reserves the right to provide additional individual comments, the following comments are supported as consensus recommendations. These stakeholders ask that DEQ carefully consider reviewing and implementing these requests to improve the TMDL and reduce unintended consequences resulting from the TMDL as it is currently drafted.

These stakeholders appreciate DEQ's efforts over the last three years, including the AQUATOX modeling, TAC, and WAG meetings to facilitate a transparent and inclusive process. The draft TMDL has been a significant effort by DEQ and for an initial draft is generally well constructed. The following comments are intended to improve the draft TMDL and move the document to the point that it is ready for submission to EPA for review and approval.

*{Comments are not provided on the Executive Summary as it is assumed the Executive Summary will be appropriately updated based on revisions to the core document.}*

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*In the text that follows, text from the TMDL report is that within quotations, and suggested added text is in **yellow highlight**. In some cases, existing text that is requested to be deleted or replaced is shown as crossed out.*

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Stakeholders in support of the concepts presented within the this memorandum of Review Comments and Requested Revisions regarding the Lower Boise River Subbasin Assessment and Total Maximum Daily Load include the following:

**Local Government**

City of Boise

City of Caldwell

City of Greenleaf

City of Meridian

City of Nampa

**Industry**

J.R. Simplot

The Amalgamated Sugar Company

**Agricultural**

Nampa & Meridian Irrigation District

Pioneer Irrigation District

## 1. Comment: Emphasize Unique Flow Characteristics

Page 2. The flow management aspects of the lower Boise River are not sufficiently explained to the reader to understand the complexity of flow within the valley and therefore the fate and transport of phosphorus. It is overly simplistic and not accurate to characterize the modified hydrology of the river as impairing or always negatively impacting the river uses. For example, the release of cold water from Lucky Peak Reservoir in summer greatly enhances summer recreation uses and cold water biota uses for tens of river miles.

### Request

Page 2. Considering inserting additional information, such as excerpts from ERO's reports, and providing greater emphasis on how important the modified hydrology is in the lower Boise River valley. The length of this discussion is not as important as the emphasis, such that bullets, bold text, call out box or other methods can be used so the message clearly stands out.

## 2. Comment: Expansion of 150 mg/m<sup>2</sup> Target

Page 17. DEQ should be clear in the text regarding the target supported by the LBWC and DEQ's independent decision to expand the target. DEQ expanded the target both in terms of the season and the applicable beneficial uses. If the literature to be cited regarding aquatic life uses is primarily from research in Montana, and primarily during the peak algae growth period (such as July through September), this should be carefully noted in the document and regarded as a data gap for the lower Boise River, especially as potentially applicable during the October through April season.

### Request

Page 17. Revise text as follows.

"In consultation with the LBWC, DEQ has identified and refined a numeric target to describe nuisance aquatic growth that may impair AUs of the lower Boise River: mean monthly benthic (periphyton) chlorophyll a < 150 mg/m<sup>2</sup>." To date, the LBWC has supported this target only for season May 1 through September 30 and for recreational beneficial uses. DEQ expanded the target to annual. "The target was based...."

"Additional scientific findings" as researched by DEQ "support the use of a benthic chlorophyll a target of <150 mg/m<sup>2</sup> as appropriate for recreation and cold water aquatic life beneficial uses." The original development of the target in Montana was only for recreation and the LBWC supported this target only in terms of recreation. DEQ expanded the target to include cold water aquatic life beneficial uses. "For example, literature suggests..." {and provide additional justification for applicability of the literature for the May through September and the October through April time periods if it exists, and if not, include data gap and adaptive management discussion.}

### 3. Comment: Background Load

Page 63. DEQ recognizes that “Watershed hydrologic dynamics are not simple” and this is one of the simplifying assumptions for the analysis. DEQ additionally recognized this as a data gap (Page 32 Table 14) and an assumption “Lower Boise River TP inputs do not translate directly into TP loads at Parma. Instead, TP inputs relative to TP loadings at Parma were calculated over various flow scenarios to develop delivery ratios” (Page 78). However, this has implications as the background load may potentially be labeled inaccurately and/or allocated inappropriately since the flow out of Lucky Peak Reservoir does not simply flow down the Boise River channel but rather follows a circuitous pathway. DEQ should further explain this assumption.

The process used to calculate the background load is not clearly presented. The background numbers should be reviewed and revised in the draft TMDL before the public comment period. If DEQ concludes the background load is overestimated and loads are available to be re-allocated, the methodology for this re-allocation should follow EPA and state guidance regarding technical feasibility, cost effectiveness, affordability, relative contributions, equity, trading, and the likelihood of success. An analysis of an alternative analysis and allocation of those loads is being developed and may be presented in [Attachment A](#) either with this document or at a later date.

### Request

Page 64. Add text as follows after bullet #12.

For the purposes of this analysis DEQ has not attempted to evaluate the fate and transport of phosphorus from upstream through the complex flow network of the valley. DEQ’s simplified approach is thought to be conservative and protective of water quality. It is likely that background phosphorus loads arriving at Parma are highly variable. For example,

May through September: Due to the complicated plumbing and more than fully appropriated water rights in the lower Boise River at extreme low flows (e.g. 90% flow background of 37 lb/d TP) the water released from Lucky Peak in the May through September timeframe is diverted, used, reused, and returned to the river. Or more simply at extreme low flow events the upstream river flow likely reaches Parma as tributary, drain, or groundwater flow rather than through the Boise River channel; and the quantity of phosphorus originating from Lucky Peak and delivered back to the Boise River via these other sources is unknown.

October through April: Winter release water rights are subject to refill and at maximum are 240 cfs, which is unlikely to be achievable during a low flow period (e.g. 1992 Lucky Peak release was 80 cfs or one third of the maximum allowable release).

If DEQ concludes the existing allocation is overestimated and loads are available to be re-allocated, the method should employ ratios to provide greater allocations to sources with higher control costs and smaller allocations to sources with lower control costs.

#### 4. Comment: Inclusion of Adaptive Management

Page 68. “DEQ expects the TP allocations in this TMDL addendum will support beneficial uses, while acknowledging that adaptive management adjustments may be necessary as additional information is obtained through monitoring.” While DEQ recognizes the benefits of adaptive management as has been discussed during many meetings, additional information about the actual execution of adaptive management is necessary.

##### Request

Page 68. Add text as follows. “...is obtained through monitoring.” **DEQ hereby tasks the LBWC with writing an Adaptive Management Plan document to provide guidance for both allocation and implementation approaches of this TMDL.** “TP concentrations that support...”

#### 5. Comment: Allocations for Fish Hatcheries

Pages 104-136. Table 40, Table 41, Table 50, Table 52

The fish hatcheries did not request an increase in TP allocations and therefore a net positive percent reduction is not appropriate. The fish hatcheries can maintain current concentrations (as shown in Table 25, Table 29, and Table 30) rather than be increased. Their load allocation should be portrayed as a no net increase over current conditions. If DEQ concludes the fish hatchery load is overestimated and loads are available to be re-allocated, see the comment and request in comment number 3.

##### Request

Update all information relating to fish hatcheries to maintain current TP loads rather than allowing an increase.

Page 98. Add text as follows. “...this sector received wasteload allocations of 73 lbs/day (0.1 mg/L) TP for all flow conditions (95% reduction)”, **except for the fish hatchery facilities which received wasteload allocations based on current conditions for all flow conditions because these facilities already functionally operate at or below the point source allocations.**

Page 107 Table 41. Fish Hatchery TP, 110% to **0%**

Page 133 Table 50. Fish Hatchery TP, +50% to **0%**

Page 136 Table 52 IDFG Eagle +714% to **0%**, IDFG Nampa +27% to **0%**, footnote 3 “Due to their operations it is unlikely that the IDFG Eagle and Nampa fish hatcheries will discharge or need to discharge above current TP concentrations of  $\theta\text{-}4$ ” **current concentration of 0.07** “mg/L. As a result, their wasteload allocation is set for  $\theta\text{-}4$ ”mg/L year-round.”

#### 6. Comment: Daily or Monthly Phosphorus Allocations

Pages 104-116. Table 40, Table 41, Table 42, Table 43, Table 44, Table 45 (tables for May 1 – Sept. 30)

Pages 133-140. Table 50, Table 52, Table 53, Table 54, Table 55 (tables for Oct. 1 – April 30)

Pages 141-142. Table 56, Table 57 (tables for Sand Hollow)

While the table titles indicate the allocations are presented per day as monthly averages, the labels within the tables are (lbs/day). This connotation indicates the loads are daily limits instead of monthly limits. The presentation of daily allocations (lbs/day) should be revised to correspond with monthly loads as stated in the table title. This is critically important to the point sources as has been described in many meetings that monthly or even better seasonal loads address the variability in treatment performance with equal protection of water quality. Daily loads are overly prescriptive and challenging to meet with existing technologies. Clarity must be provided to direct the permit writer to the intended averaging period and avoid misinterpretation and potential appeals and lawsuits. The stakeholders appreciate the table title text but look for additional emphasis that monthly is the only timeframe necessary.

## Request

For all tables cited above, add the following to the column headers with *allocation*, "...allocation (lbs/day" **as a monthly average**)".

## 7. Comment: Selection of Point Source Concentrations

Page 116. "DEQ reduced the number TP reduction scenarios through consultation with the Lower Boise Watershed Council, EPA and other interested stakeholders to the following." DEQ should provide documentation of other considered concentrations and DEQ's basis for the final selected value.

## Request

Page 116. Revise and add to the text as follows. "The final AQUATOX model scenario (Scenario 3) and TMDL allocation resulted from hundreds of model scenario runs and analyses to identify TP allocations that would help achieve the mean monthly periphyton target and support beneficial uses, while also being technically, socially, and economically viable options." **These analyses included the evaluation of point sources at 0.5 and 1.0 mg/L both annually and seasonal (May-September) and (October-April) as requested by interested stakeholders {if a true statement}. DEQ's determination was these concentrations did not result in meeting the SR-HC TMDL target and/or mean benthic chlorophyll-a target {insert DEQ's basis for not selecting as the final concentrations}.**

## 8. Comment: Reserve for Growth

Page 147. "In the case of the lower Boise River TP TMDL addendum, an allowance for future growth is not recommended until such time as reductions indicate that beneficial uses have been restored or state water quality standards have been met." While there may not be quantified allowance for future growth, DEQ has implicitly incorporated growth in various ways and should disclose those concepts to explain that the TMDL is not intended to inhibit growth and multiple pathways are available to accommodate growth. One of several ways to include growth is for NPDES permit limits for future growth to be set at the target concentration, which would be 0.07 mg/L at Parma for the May through September period.

The target concentration for the October to April period is identified as 0.11 mg/L at Parma in Table 5 of the Executive Summary, but this is not reiterated as an explicit TP target in the main report.

## Request

Page 138. Add text as follows.

Future growth is anticipated to impact future flows and phosphorus loadings; however, the use of design flows for wastewater treatment facilities, the margin of safety, water quality trading, the implementation plan, and an adaptive management approach are anticipated to address future growth issues and the objectives of the TMDL.

Page 147. Add and revise text as follows.

“...unless new or expansion of existing point sources discharging directly or indirectly to the lower Boise River, Mason Creek, or Sand Hollow Creek: (1) receive a mean monthly NPDES permit limit for TP of  $\leq 0.07$  mg/L”  $\leq 0.07$  mg/L May through September and  $\leq 0.11$  mg/L October through April” {if it is DEQ’s determination that 0.11 mg/L is the TP target for this season}, (2) a DEQ 5-year review identifies a growth reserve calculated as the difference between current TP loads and TP allocations, where the difference is divided among new/existing point sources, (3) implement approved water quality offsets or trading, ~~or~~ (4) no discharge”, or (5) a technical study demonstrating the proposal to discharge meets the TMDL targets is provided to and approved by DEQ.

Pending DEQ’s response to modify allocations, those loads subtracted from other sectors should be put into an explicit reserve for growth allocation.

## 9. Comment: Unquantified Sources

Page 48. “Septic systems, runoff from paved and unpaved road surfaces, and other unquantified sources contribute TP, directly and indirectly, to surface water in the lower Boise River, Mason Creek, and Sand Hollow Creek. Contributions from these nonpoint sources are acknowledged data gaps, and implementation plans could include details regarding future data collection from these sources.” Unquantified sources could affect the progress of the TMDL reductions and should be recognized and addressed within the implementation strategies.

## Request

Page 138. “Activities addressed in a new implementation plan should include.” Add the following additional activities within the bulleted list.

- Permitting of new septic systems, including examining and considering limiting the use of old technology and promoting the use of new technology for septic systems
- Measure and quantify the loading of existing septic systems and estimate the additional loading from future septic systems based on growth patterns and development policies
- Offset credit for reducing non point sources loads (i.e., sewerage of septic systems)
- Growth and development (i.e., paving of new road surfaces)
- Other non point sources

## 10. Comment: Baseline for Water Quality Trading

Page 149. “If trading exists in the area covered by this TMDL, any phased implementation of load allocations may be used to derive trading baseline requirements.” Early adopters of phosphorus reductions should not be penalized by the long process of developing this TMDL. A baseline year of 1996 was established in the 2001 TMDL report.

### Request

Page 149. Add text as follows. “...trading baseline requirements.” Offset and water quality credits are based on additional guidance but should not penalize adopters of reductions prior to this TMDL, therefore either the difference of actual conditions or representative typical conditions as existed at the time of this TMDL, less the achieved reduction, less the allocation, are provided a means to calculate these credits.

## 11. Comment: Compliance Monitoring and Assessment

Page 151. Provide additional clarity as to where the TMDL targets and allocations apply.

### Request

Page 151. Add text as follows. “...other scientifically-defensible and approved protocols.” Compliance is considered at TP monitoring at Parma and benthic chlorophyll-a monitoring within the lower Boise River AUs. The targets within this TMDL do not apply anywhere else within the watershed for the purposes of compliance, implementation effectiveness or measurement of success of this TMDL. Water quality data collected from other areas of the watershed will be used to inform and improve upon water quality analyses. Allocations for tributaries and groundwater in tributaries apply only at the mouth of the tributary.

## 12. Comment: Stormwater – Existing Loads Process Issue

Page 77. The stormwater load estimates provided in the TMDL, specifically described in Appendix E, are based on a number of inherent assumptions. With these assumptions, it is unclear if the stormwater loads presented over- or under-estimate the actual wet-weather stormwater loads to the Lower Boise River, although they appear to be over-estimated. There are several alternative approaches that could be used to better estimate the wet-weather stormwater loads during the modeled period. These approaches focus on separating baseflow from wet-weather flows so that these flows are better understood. The loadings from stormwater could then be estimated using a simple pollutant loading model based on readily available land-use information.

### Request

Because of the concerns with the stormwater load development, the stormwater baseline load development approach should be revised to improve the accuracy of the stormwater loads in the TMDL. These loads would be better estimated with a more rigorous technical review utilizing a pollutant loading model. If the DEQ elects to use the currently proposed approach, it is requested that the large degree of uncertainty in these loads be clearly noted in the TMDL. Furthermore, the need for adaptive management and the improved understanding of this load

should be highlighted in the TMDL. Should the allocations be lowered, the additional load should be allocated as described in Comment 3.

### 13. Comment: Stormwater – Other Factual Corrections

- (1) Page 36. It is unclear who is being referred to as “Other agencies and stakeholders...” and does not fit within the discussion regarding MS4s.
- (2) Page 37. Table 16. Values are incorrect. Current allocations based on urbanized areas according to the 2010 census data. Permits are issued for entire geographic areas and the allocations should reflect the permits. Meridian is called out with ITD District #3 (ROW 5) under their NPDES MS4 Phase II Permit (#IDS-028177) which is not correct as they are not part of this permit.
- (3) Page 36-37 In the last paragraphs, much of the information is unclear and its source should be cited.
- (4) Page 81 and 90. Table 26 and 31. The source of the flow values are not presented and do not match to the flow values in Table 2 of Appendix E.
- (5) Appendix E estimates of dry and wet flows, concentrations, and loads are greatly overestimated:
  - a. Walnut data excluded because the watershed contained stormwater controls, low concentration groundwater (30 ug/l) and low concentration irrigation water from Boise City Canal.
  - b. Nampa sites selected that have no or limited BMPs (p. 208)
  - c. Caldwell estimate based on average of high, medium, and low control sites, not on mix of land area with each type of control. Overestimate because most of the area has developed with high level of controls.
  - d. Caldwell Dry estimate for flow and concentration from ~1960 vintage development with no stormwater controls (appendix C)
  - e. High biased estimates of flow, concentration, and load from lands with minimal or no controls applied to entire 2010 Census data geographic area for urbanized lands (e.g. Meridian, Eagle, Kuna, Caldwell, Nampa, Boise), many of which have developed since 1980 with significant retain on site controls of insufficient quality for use in the TMDL.
- (6) Page 98. The technical basis for the proposed MS4 42% reduction goal needs to be revisited given the extreme unrepresentativeness of the data used to estimate stormwater loads
- (6) Page 99. Recognition of stormwater programs and polices throughout the lower Boise River watershed should be included and pointed out the main mechanism for management. Also, little more than stock language is provide for MSGP and CGP stormwater. Clarity should be provided that those allocations are not zero and that maximum extent practicable standards for applying BMPs will be allowed.
- (7) Page 100. The portrayal of non-permittees within regulated area is inaccurate and a double counting of sources. These sources are addressed by the permittees of those areas as they exist within the greater area of the permittees.

- (8) If DEQ concludes the stormwater load is overestimated and loads are available to be re-allocated, see the comment and request in comment number 3.

## Request

- (1) Page 36. Delete the following paragraph. “Other agencies and stakeholders in the subbasin are in the process of applying for stormwater NPDES permits and have yet to develop or implement the voluntary stormwater activities.”
- (2) Page 37. Table 16. Replace with the following table. (If this table is not replaced, Meridian should be deleted from the existing table).

Table 16. MS4 Permits in the lower Boise River watershed

Permittee (Source)	NPDES Permit No.	Area (square miles)
Ada County Highway District MS4	IDS028185	1,060
Boise, Idaho Transportation Dept. #3, Garden City, Ada County Highway District, Drainage District #3, Boise State University MS4s	IDS027561	120
Caldwell MS4	IDS028118	12.5
Canyon Highway District #4 MS4	IDS028134	8
Idaho Transportation Department District #3 MS4	IDS028177	112 (linear miles)
Middleton MS4	IDS028100	5
Nampa Highway District #1 MS4	IDS028142	8.5
Nampa MS4	IDS028126	30.3
Notus-Parma Highway District #2 MS4	IDS028151	2

Area as presented under either Permit Area and Applicant or Description of the MS4 and Discharge Locations within the Fact Sheet of the permits.

- (3) Page 36. Revise the paragraphs as follows.

“Stormwater management areas for lower Boise River watershed area ~~have been updated~~ based on 2010 census (US Census Bureau) and current GIS mapping information” ~~were~~ estimated by ACHD. This information does not present entities with active stormwater management programs and policies, such as retention on-site, within or outside of permitted areas but are not under the regulations of the MS4 permits. “The MS4s addressed in this TMDL addendum are located within 2010 Census urbanized areas and city boundaries (incorporated areas) of Ada and Canyon County based on available GIS information (Figure 31 and Figure 32). Cities in urbanized areas include Boise, Eagle, Meridian, Middleton, Nampa, and Caldwell. Within the urbanized areas are also unincorporated areas of Ada County and Canyon County. Additionally, there are areas in each county that are incorporated, but not included in the permitted urbanized areas. These areas include the Ada County cities of Kuna and Star, and Canyon County cities of Greenleaf, Notus, Parma, and Wilder. Table 17 includes a breakdown of permitted and non-permitted areas based on:

- City limits data from 7/29/14 (Ada County Assessor) and 5/28/14 (Canyon County Assessor);
- Urbanized Area based on 2010 Census;

- Area data from NPDES Permit Factsheets (2000 Census);

Impervious areas for each of the cities are located in Table 18. The impervious data includes roads, buildings, and parking lots and was developed as part of the Treasure Valley Urban Tree Canopy project funded by a grant from the U.S Forest Service (2011 NAIP-UTC Canopy Assessment-PlanItGeo).”

- (4) Page 81 and 90. Correct the names of permits and areas to match with new Table 16 as presented in these comments. Review, revise, and provide complete and transparent documentation for the development of stormwater and non-stormwater flows and loads for both May through September and October through April. Neither the flow or load estimates for stormwater are properly documented and explained. There are factual errors in assumptions and data.
- (5) Page 98. Provide a basis for the wet weather stormwater reduction of 42% TP load reduction and revise as necessary. Recommendation. Replace numeric allocations and reductions with the maximum extent practicable standard for applying BMPs based on EPA guidance. Delete Appendix E which lack clarity, does not appear to have been QC'd and is not a DEQ document; therefore, cite the document as a reference but not include in the TMDL.
- (6) Page 99. Add the following text.
  - **Stormwater Management**
    - Many entities in the lower Boise River watershed, both with and without permits, have active stormwater management programs and policies, such as retention on-site, which are the primary mechanisms for managing stormwater and reducing pollutant loadings from both commercial and residential developments. Additionally, the maximum extent practicable (MEP) standard for applying BMPs in regards to MSGP and CGP stormwater meets the objects of this TMDL.
- (7) Current non-permittees within regulated areas (e.g. Meridian, Eagle, unincorporated urbanized Ada County, and Southwest Boise) are already covered by the permittees of those regulated areas and therefore are not assigned additional allocations. Unregulated areas are included as load allocations in the TMDL because these jurisdictions have regulatory authority over private and municipal properties that are potential sources of stormwater runoff.

## 14. Comment: Authorization for Trading in Point Source Allocations

The draft TMDL proposes municipal future growth through trading and one municipal WWTF has been authorized to implement an offset. The draft TMDL anticipates trading as a tool for compliance for point sources throughout the TMDL. Water quality trading also could be used to meet some or all of a point source reduction obligation (e.g. small municipalities or MS4s) instead of requiring substantially more expensive treatment. The draft and final TMDL should authorize offsets and trading within the Lower Boise Watershed as a means to comply with phosphorus reduction allocations and for future growth for all point sources.

## Request

Add a footnote to the point source allocation tables (page 110 Table 42, page 135 Table 52) that states: **Point source allocations can be met through trading or offsets as detailed in regulations and guidance documents, such as the revised DEQ Water Quality Trading Guidance Document and the Lower Boise Trading Framework.**

### 15. Comment: Typographical Errors

Page 51. *“Information concerning pollution control efforts for WWTFs, urban and suburban storm drainage, agricultural and other nonpoint sources (including rural roads, septic systems, leaky and sewer lines) can be found in the Implementation Plan for the Lower Boise River TMDL (DEQ 2003).”*

Page 65. *“Achieving the target and the mouths of the lower Boise River and Sand Hollow Creek near Parma is expected to be protective of cold water aquatic life and contact recreation in the Snake River.”*

Page 65. *“Therefore, load and wasteload allocations in this TMDL addendum will support the SR-HC TMDL target of less than or equal to 0.07 mg/l TP, which in turn should result in < 14 µg/L chlorophyll a as a mean growing season limit with a nuisance threshold of 30 µg/L with exceedance threshold of no greater than 25 percent for the Snake River.”*

## Request

Page 51. The phrase, leaky and, seems incomplete. Delete text in parentheses.

Page 65. The first “and” may have intended to be **at**.

Page 65. Achieving the LBR TMDL alone will not achieve the SR-HC TMDL; modify “which in turn should result in”, to **which in turn should support the**.