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February 6, 2015

Idaho Department of Environmental Quality
Attn: Lance Holloway, Watershed Manager
1445 N. Orchard St.
Boise, ID 83706
Sent via email to lance.holloway@deq.idaho.gov

RE: Lower Boise Total Phosphorus TMDL

Dear Mr. Holloway,

In reviewing the January 2015 draft of the Lower Boise River Subbasin Assessment and Total Maximum Daily Load for Total Phosphorus ("draft Lower Boise Phosphorus TMDL"), The Freshwater Trust submits the following informal comments for your consideration.

The Freshwater Trust is a 501(c)(3) conservation nonprofit that preserves and restores freshwater ecosystems in Oregon and nationally in part through water quality trading programs that accelerate the pace and scale of high-quality river restoration. Over the last several years we have helped regulated entities plan for and implement water quality trading programs than can be used to meet permit limits. We have also provided our legal, policy, analytical, and on-the-ground experience to support the development of the Draft Regional Recommendations for the Pacific Northwest on Water Quality Trading (Draft Recommendations document) with the states of Oregon, Washington and Idaho, U.S. Environmental Protection Agency Region 10, and Willamette Partnership. These experiences provide us a valuable perspective on how to improve the draft Lower Boise Phosphorus TMDL.

In this informal comment letter, The Freshwater Trust applies the recommendations from the JRR and its experience with how TMDLs and trading can best interact. These comments are listed below in order of where they appear in the draft Lower Boise Phosphorus TMDL. The comments are a mix of suggested language changes, provided in track changes, and comments that seek further clarification.

Comments & Suggested Changes:

Executive Summary

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The federal Clean Water Act requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section 303 of the Clean Water Act, are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the nation's waters. Section 303(d) of the Clean Water Act establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards).

States and tribes must periodically publish a priority list (a "§303(d) list") of impaired waters. Currently, this list is published every 2 years as the list of Category 5 water bodies in Idaho's Integrated Report. For waters identified on this list, states and tribes must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards. This document addresses 3 water bodies (5 assessment units) in the lower Boise River subbasin that have been placed in Category 5 of Idaho's most recent federally approved 2012 Integrated Report (DEQ 2014c).

This addendum describes the key physical and biological characteristics of the subbasin; water quality concerns and status; pollutant sources; and recent pollution control actions in the lower Boise River subbasin, located in southwest Idaho. For more detailed information about the subbasin and previous TMDLs, see the lower Boise River Subbasin Assessment, TMDLs, Addendums, and Five-Year Review (DEQ 1999, 2008, 2009, 2010b).

The TMDL analysis establishes water quality targets and load capacities, estimates existing pollutant loads, and allocates responsibility for load reductions needed to return listed waters to a condition meeting water quality standards. It also identifies implementation strategies—including reasonable time frames, approach, responsible parties, and monitoring strategies—necessary to achieve load reductions and meet water quality standards [in the future](#).

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This TMDL addendum, however, does not define an implementation time frame for agricultural and other nonpoint sources; rather, implementation would begin as soon as possible and continue until the load allocation targets are met. This acknowledges that successfully achieving the TMDL targets and nonpoint source allocations will depend on voluntary measures, including but not limited to, available funding, cost-sharing, willing partners, and opportunities for water quality trading.

DEQ, through the lower Boise River TP TMDL addendum, encourages water quality trading to the extent possible and practicable. [Upon completion of the TMDL addendum](#), water quality trading implementation and details specific to the lower Boise River subbasin will be subsequently developed in an updated water quality trading framework [\(see Water Quality](#)

Commented [TFT1]: Suggest adding a time element to this piece. This is an important clarification b/c it helps to establish that the TMDL is not expected to be successfully implemented now, and so therefore, that LAs are not equal to baseline for WQT.

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Trading, section 5.5.5), which will update the existing water quality trading guidance (DEQ 2012).

Additionally, an updated implementation plan will be developed by designated management agencies, including the Idaho Soil and Water Conservation Commission (SWCC), to address load reductions.

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The final TMDL model scenario (Scenario 3) and TMDL allocation described above reduces the predicted year-round periphyton growth, and TP concentrations and loads in the lower Boise River. Specifically, the final TMDL model scenario (Scenario 3) and TP allocation structure:

- Achieves the mean monthly benthic chlorophyll a target of < 150 mg/m² in the impaired AUs of the lower Boise River. Multiple lines of evidence indicate that the TMDL phosphorus reductions are sufficient to achieve the mean monthly periphyton target on an AU basis, as well as achieve TP concentrations at or near the EPA Gold Book recommended value of 0.1 mg/L (EPA 1986). Although brief periods of elevated periphyton may occur during August in model segment 10 and September in segment 11, these are likely due to growth of low nutrient diatoms which can proliferate under low nutrient and other habitat conditions. These rationales are further discussed in the Model Report (DEQ 2014a).
- Includes the TP allocations necessary to achieve the May 1 – September 30 target of < 0.07 mg/L TP in the lower Boise River near Parma based on long-term load duration data.

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It is clear that the TMDL analysis illustrates a point of diminishing returns, beyond which further TP reductions do not result in significant reductions in periphyton, likely due to other environmental factors and organic enrichment in the system. That is, TP reductions beyond those modeled in the final TMDL model scenario (Scenario 3) do not yield measureable improvements in periphyton reductions. Figure 15 further represents the annual average periphyton in segments 9-13 (the impaired AUs of the lower Boise River) under the various model scenarios. This illustrates, again, that large reductions in periphyton growth are expected to occur under the final model scenario, but additional TP reductions would result in only slight periphyton reductions.

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2.2.6 Criteria to Support Beneficial Uses

Beneficial uses are protected by a set of water quality criteria, which include *numeric* criteria for pollutants such as bacteria, dissolved oxygen, pH, ammonia, temperature, and turbidity, and *narrative* criteria for pollutants such as sediment and nutrients (IDAPA 58.01.02.250–251) (Table 10).

Commented [TFT2]: The order of actions here was a little unclear as drafted so I've provided some suggested edits that would clarify. Also, will the framework update the guidance? If so, the sentence is ok. If not, we suggest revising the last clause.

Commented [TFT3]: How does this square with the conclusion that there are some small times of the year during which the monthly target is not met in all reaches? See Figure 14 (Oct – Feb seems close, and March appears to exceed the 0.1 mg/L line).

Commented [TFT4]: Suggest briefly explaining why DEQ thinks this is the case. Our understanding is that TP loading is just one driver of excess periphyton growth. Unless you improve water depth and block more solar loading, there is only so far that TP reductions can go, and the level in Scenario 3 seems to be the point at which changes to the TP loading variable stop being marginally effective.

Narrative criteria for excess nutrients are described in the water quality standards:

Surface waters of the state shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses. (IDAPA 58.01.02.200.06)

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/m². The target was based largely on work conducted in Montana, in which 70% of the public identified periphyton of < 150 mg/m² as acceptable for recreation during the growing season from July 1 – September 30 (Suplee et al. 2008, 2009). In contrast, less than 30% of the public identified periphyton of > 200 mg/m² as acceptable for recreation. The target is similar to other locations, including Montana, Minnesota, Colorado, and the Clark Fork River, for which the maximum summer periphyton target is 150 mg/m² (TSIC 1998, MDEQ 2008, CDPHE 2013, MPAC 2013).

Additional scientific findings support the use of a benthic chlorophyll a target of <150 mg/m² as appropriate for recreation and cold water aquatic life beneficial uses. For example, literature suggests nuisance aquatic algae become apparent between 100 and 200 mg/m² and enriched waters often have benthic chlorophyll a concentrations > 150 mg/m² (Welch et al. 1988, Dodds and Welch 2000). Biggs (2000) asserted that chlorophyll-a levels > 150-200 mg/m² are very conspicuous in streams, are probably unnaturally high, and can compromise the use of rivers for contact recreation and productive sports fisheries (Welch et al. 1988, Dodds et al. 1998). Some of the management problems caused by enrichment, and associated benthic algal proliferations, include aesthetic degradation, alteration of fish and invertebrate communities nutrient enrichment and algae proliferation, and degradation of water quality (particularly dissolved oxygen and pH) (e.g. Miltner and Rankin 1998, Welch et al. 1988, Biggs 2000, Miltner 2010).

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5.1 Instream Water Quality Targets

Instream water quality targets are selected for the purpose of restoring “full support of designated beneficial uses” (Idaho Code 39-3611, 39-3615). The state’s water quality standards for nutrients and nuisance aquatic growth are narrative rather than numerical. In this TMDL addendum, DEQ selected two surrogate targets for attaining this narrative standard in the lower Boise River: 1) a daily concentration target to specifically achieve the SR-HC TMDL allocation target for the lower Boise River (which is set at different levels for two distinct seasonal periods), and 2) a more stringent nuisance aquatic growth target specific to supporting beneficial uses in the lower Boise River.

The Mason Creek TP allocations were developed to help achieve the lower Boise River targets, which DEQ believes are sufficiently stringent to result in full beneficial use support in the creek. The Sand Hollow Creek TP allocations were developed to help achieve the SR-HC target, and to be commensurate with other lower Boise River tributaries, which DEQ believes are sufficiently stringent result in full beneficial support in the creek.

Commented [TFT5]: Suggest adding a notation about how and why you opted to use the Montana/Colorado method for periphyton surrogate (i.e. recent nature of study, similar river system and ecology, etc).

Commented [TFT6]: Did DEQ base the use of 150 mg surrogate primarily to support the recreational use or to support cold water aquatic life, or both?

Commented [TFT7]: As a general comment, it would be helpful to note that when you select a target, it is a surrogate for a narrative water quality criteria.

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5.1.1 Projected Conditions

The TMDL targets are designed to achieve full support of designated or existing beneficial uses in the lower Boise River, Mason Creek, and Sand Hollow Creek. Because identifying the impairment or support of beneficial uses is based on multiple lines of evidence, it is difficult to directly measure or compare to the narrative water quality standards. The daily concentration limits were set in accord with the SR-HC TMDL. Additional water quality targets were selected based on scientific literature for river conditions representing a variety of water quality systems, including levels of phosphorus and benthic chlorophyll a representative of unimpaired and impaired streams and rivers. This information was then used to help determine load capacity, existing pollutant loads, wasteload allocations, and load allocations.

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The projected conditions are anticipated to improve water quality by reducing periphyton growth, phytoplankton and sestonic algae delivery, and other potential impacts such as low dissolved oxygen, in order to support beneficial uses of contact recreation and aesthetics, aquatic life, and wildlife habitats. At the same the time targets are structured to support existing beneficial uses of domestic, agricultural, and industrial water supply, which are significant economic and sociopolitical drivers in the watershed.

The water quality targets are structured to recognize multiple factors within the watershed:

1. The lower Boise River, Mason Creek, and Sand Hollow Creek have some finite ability to process and transport TP at concentrations greater than background values without impairing beneficial uses, but will respond positively to TP target concentrations.
2. Watershed hydrology dynamics are not simple (e.g., upstream reservoirs, irrigation diversions, return flows and drains).
 - a. Flow is highly managed throughout the watershed.
 - b. Water quality conditions vary seasonally.
 - c. Water quality conditions vary with spatial extent (e.g., location in the watershed).
3. Phosphorus sources have different locational impacts.
4. Phosphorus is moving through the watershed; it may take years before nonpoint source phosphorus load reductions are observed downstream.
5. Phosphorus and benthic algae are not toxics and should not be managed as such.
6. Limited exceedances (depending on magnitude, duration, and frequency) may be acceptable so long as they do not impair beneficial uses.
7. TP has multiple components, including labile and refractory, and may not be equally bioavailable for algal growth.
8. Algal biomass may be influenced by human and environmental factors other than TP, alone (e.g., flow, water temperature, other nutrients).
9. Algal species composition is variable.
10. Supporting reuse, offsets, trading, and other innovative approaches may further improve water quality over meeting the targets, alone.
11. A balanced approach is necessary. Using simple assumptions about the fate and transport of TP throughout the watershed may be too conservative; whereas, developing a detailed approach to track phosphorus as it moves through the intricate maze of channels for irrigation may be currently unattainable.

Commented [TFT8]: When you speak of limited exceedances, what % of the time is this for (are you referring to 10% departure from the standard that may be acceptable)? Perhaps reference to the fact that these are targets for meeting a narrative standard.

12. The concepts of seasonal conditions and limited exceedances are supported by a number of references including EPA guidance, use in other TMDLs including the SR-HC TMDL, the fact that the phosphorus and periphyton are not toxic, and responses vary with conditions and time.

Commented [TFT9]: Which documents?

5.1.2 Target Selection (Lower Boise River)

These surrogate targets are intended to protect beneficial uses and are translated into other forms for setting allocations and limits in permits. The TMDL strives to be clear in how allocations were developed and in how NPDES permits should interpret the allocations. However, it is important to be clear that the surrogate target selection informs analyses but is a site-specific interpretation of a narrative standard and is not a standard itself that is necessarily applicable to any other watershed.

Snake River-Hells Canyon TMDL Target Compliance

- *May 1 – September 30: TP concentrations (or TP load equivalent) < 0.07 mg/L in the lower Boise River near Parma to comply with the 2004 Snake River-Hells Canyon TMDL*

The final SR-HC TMDL was approved by EPA in September 2004 (DEQ 2004). The TMDL addressed point and nonpoint sources that discharge or drain directly to that reach of the Snake River. Five major tributaries received gross phosphorus allocations at their mouths, including the lower Boise River. Load allocations in the SR-HC TMDL were developed to achieve TP concentrations of < 0.07 mg/L in the Snake River and Brownlee Reservoir from May 1 – September 30 (IDEQ and ODEQ 2004; p. ii):

“Site-specific chlorophyll a and total phosphorus targets (less than 14 ug/L and less than or equal to 0.07 mg/L respectively) were identified by the TMDL. These targets are seasonal in nature and apply from May through September. ... Inflowing tributaries have been assigned load allocations to meet the 0.07 mg/L total phosphorus target at their inflow to the Snake River.”

Therefore, consistency with the SR-HC TMDL requires achieving the seasonal 0.07 mg/L TP target at the mouths of the lower Boise River and Sand Hollow Creek near Parma (although not explicitly stated; Figure 33).

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[FIGURE 33]

Achieving this concentration target at 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. Reducing the phosphorus load is anticipated to reduce the phytoplankton, measured as chlorophyll a, in the Snake River and reservoirs. 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.

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Commented [TFT10]: What is this, where does it come from, and why is it relevant?

Also, the loading analysis for this TP TMDL addendum, results in TP concentrations and loading that achieve the mean monthly periphyton (nuisance algae) target in the lower Boise River. The

May 1 – September 30 TP concentration and load equivalent targets correspond to the 90th percentile low flows in the lower Boise River near Parma. Achieving the TP target near Parma will help reduce the frequency, magnitude, and duration of algal blooms and their associated aesthetic, ecological, and physical impacts on contact recreation and cold water aquatic life, in the Snake River, the lower Boise River, Sand Mason Creek, and Sand Hollow Creek.

Nuisance Algae Target

Through the TMDL process, DEQ, in consultation with the LBWC, identified a further set of surrogate metrics that relate nuisance algae growth with the impairment of beneficial uses in the lower Boise River (see Section 2.2.5), and for remaining consistent with the concentration limits in the SR-HC TMDL. The following metrics and rationale were selected as appropriate TP allocation periods for the lower Boise River:

- **Mean Monthly Benthic Chlorophyll a Target**
 - **Magnitude** - Mean monthly benthic chlorophyll a of < 150 mg/m².
 - **Location** – Within impaired AUs of the main stem lower Boise River.
 - **Duration**
 - May 1 – September 30
 - May 1 – September 30 aligns with the SR-HC TMDL target dates and can include primary growing periods for benthic algae within the river given favorable conditions such as light, temperature, and hydrology.
 - October 1 – April 30
 - October 1 – April 30 incorporates the early fall period that historically appears to coincide with elevated periphyton, but also when a majority of the historical periphyton data has been collected in the lower Boise River. It also incorporates the winter and spring conditions during which very little historical periphyton data have been collected in the lower Boise River. Nonetheless, the limited data illustrate that periphyton has exceeded 200 mg/m² during this time period at multiple sampling locations.
 - **Frequency** – For TMDL implementation, DEQ recommends that an allowable exceedance frequency of 1 in 10 years is sufficient to maintain full support of beneficial uses.
 - The allowable exceedance frequency is set at once in 10 years based on mean monthly values observed over a rolling 10-year period.

These target criteria are similar to those developed and implemented for waters in Montana (MDEQ 2008), Minnesota (MPCA 2013) and Colorado (CDPHE 2013), and corresponds with scientific literature values that support contact recreation and cold water aquatic life (see Section 2.2.5).

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5.4 Load and Wasteload Allocations

The load and wasteload allocations include a margin of safety to take into account seasonal variability and uncertainty. Uncertainty arises in selection of water quality targets, load capacity, and estimates of existing loads, and may be attributed to incomplete knowledge or understanding of the lower Boise River managed system, such as assimilation, data gaps, or variability. A detailed approach was used for the analysis and selection of the allocations, which include implicit and explicit margins of safety and take into account seasonal variability and uncertainty with the conservative assumptions built into the methodology (Section 5.4.4).⁴ Considerations included equitable cost, cost effectiveness, and credit for prior efforts, but all within the ceiling of remaining available load to fully support existing beneficial uses. Each point source receives a wasteload allocation, whereas nonpoint source load allocation responsibilities are often varied (e.g. tributaries vs. ground water and unmeasured). The projected implementation timeframes are identified in section 5.5.1, and will be further evaluated in the subsequent implementation plan.

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5.4.2 Boise River and Mason Creek TP Allocations to Achieve the Mean Benthic Chlorophyll-a Target

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Lower instream TP concentrations can be realized with further TP load reductions, but these reductions would not likely to improve ecological conditions or further support beneficial uses in the river. Additionally, as shown in Table 47, mean and median TP concentrations in the lower Boise River near Parma are less than the May – September 0.07 mg/L target, and less than the EPA Gold Gook recommended value of 0.1 mg/L for the remainder of the year.

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5.4.5 Margin of Safety

This TMDL addendum and the SR-HC TMDL include several conservative implicit and explicit margins of safety (MOS). Therefore, this TMDL addendum does not require additional modification:

1. An explicit 13% MOS was applied to the SR-HC TMDL 0.07 mg/L TP target, and was incorporated into the TP load capacity and allocations. The MOS was determined by the accuracy, representativeness of sampling techniques, and analytical methods. Applying this MOS to the initial 16 µg/L threshold value yielded a target of 14 µg/L chlorophyll a.
2. This TMDL addendum, complies with the target TP allocations identified in the SR-HC TMDL and sets load and wasteload allocations that achieve 0.07 mg/L TP for 90th percentile low flow conditions, and maintains those same concentrations and loads under higher flows in order to comply with the lower Boise River mean monthly periphyton target (Section 5.2.2). Essentially, this TMDL TP allocation structure provides an explicit margin of safety for all flows greater than the 90th percentile.
3. The USGS mass balance model and long-term flow, load, and concentration data sets (1987-2012) were used to help develop the load and wasteload allocations in a conservative mass balance approach to account for nutrients.
4. This TMDL assumes that orthophosphorus from all sources is completely bioavailable and was modeled as such for a conservative approach. Additional research shows that the

Commented [TFT11]: The ecological considerations seem sufficient

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Commented [TFT12]: Can you please explain this a bit more, and provide an example to help illustrate? We do not fully understand.

Commented [TFT13]: No description as to how the mass balance approach is conservative. We suggest describing briefly here how it is conservative.

assumption that all orthophosphorus may not be equally bioavailable for algal and plant uptake and growth. However, more data and analysis would be necessary to further categorize the orthophosphorus sources throughout the watershed.

5. The AQUATOX model was used to simulate long-term TP loads, concentrations, and periphyton biomass relationships to help develop the load and wasteload allocations that achieve the mean monthly periphyton target in a conservative manner.
6. The margin of safety accounts for uncertainty about assimilative capacity, the relationship between the selected target and support of beneficial uses, and includes variability in target measurement.

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5.4.7 Reasonable Assurance

The point source WLAs and nonpoint source LAs are complementary toward effectively achieving the TP load capacity for the lower Boise River. DEQ has reasonable assurance that point source wasteload allocations will be implemented effectively through the NPDES permit program. Because point source contributions are regulated by the EPA through NPDES permits, the reasonable assurances for this TMDL apply almost exclusively toward nonpoint source load reductions.

TP loading from agricultural and other nonpoint sources that are measured through tributaries and ground water are anticipated to decline due to a combination of ripple effects from point source TP reductions, BMPs, nutrient management, and land conversion. Achieving such loading reductions will require time and resources beyond what point source regulation can provide. However, based on the USGS mass balance model and other data and reports (e.g. Etheridge 2013; Fox et al. 2002; Ferguson 1999), DEQ believes that TP concentrations and loads from nonpoint tributary and ground water sources can be effectively reduced to achieve the TMDL targets in the lower Boise River. The necessary reductions will result from the combination of regulated point source reductions (which inherently influence the amount of TP moving through the system and are subsequently used by nonpoint sources), along with concerted voluntary nonpoint source reductions, which will depend on funding, cost-sharing, willing partners, and effective BMP implementation to achieve the target.

For example, the DEQ's 2008 Lower Boise River Implementation Plan Total Phosphorus (DEQ 2008) asserts:

"2. BMP Effectiveness. The Rock Creek watershed drains to the Snake River upstream from the SR-HC reach. With very little existing infrastructure, a 68% reduction in the discharge of TP from the watershed was achieved. Despite this improvement, TP concentrations from the watershed remained above 0.1 mg/l. (After project funding declined, the range of improvement also declined to approximately 40% due to the inability to fund the recurring annual BMP costs.)

3. Prioritizing Lands for Treatment. It is not necessary to treat all agricultural lands to substantially reduce the discharge of pollutants. BMP implementation should focus on priority lands where treatment will be most effective. Lands can be prioritized in three tiers as described earlier. To the maximum extent possible, treatment should focus on Tier 1 and Tier 2 lands with little or no existing BMPs. Prioritizing lands for treatment will increase BMP effectiveness and the probability of meeting allocation objectives within predictable timeframes...

7. Existing Implementation Levels. ...The greatest water quality benefits from BMP implementation will be realized where there has been little or no BMP implementation, on "high

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Commented [TFT14]: What is this ripple effect? It doesn't appear to have been explained elsewhere, or perhaps it was but with different terminology. Suggest an internal cross reference to where this has been explained (if it has been). Also suggest adding in a sentence to the last paragraph we added to this section.

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Commented [TFT15]: On what basis does DEQ "believe that TP concentration and loads from nonpoint tributary and ground water sources can be effectively reduced to achieve the TMDL targets..."? Right now, 5.4.7 seems to state: A) the model says these NPS reductions are possible, B) some pilots/studies show that meaningful reductions can occur (especially where prioritized to most impactful areas), but C) NPSs are not required to install anything under ID law (i.e., it will only happen through voluntary measures or measures imposed by TMDL implementation DMAs)... Suggest talking about the voluntary measures that give DEQ reasonable assurances that these targets can be met: WQT (plus the net envtl gains that will accrue), 319 implementation, USDA NRCS program participation, etc.

priority” lands. Experience in the Rock Creek watershed has demonstrated that, in such areas, implementation of lower per-acre cost BMPs can result in substantial load reductions from irrigated lands. Implementation efforts should therefore be focused in these areas...”

Further examination of data from an Idaho surface-irrigated system directly addresses important Reasonable Assurance questions for future nonpoint source ground water and tributary concentrations. The Northside Canal Company (NSCC) case study is a reasonable application to consider in the LBR TP TMDL as the climate and soils and trend for irrigation efficiency/yield using sprinkler and drip are similar. NSCC TP data (Table 58) show an average of 54 ug/l TP over the last 12 years with a decreasing trend (last 8 year average TP = 49 and OP=20 ug/l).

The NSCC was 100% furrow irrigation in the early 1950’s (similar to the lower Boise River) and today is 95% sprinkler, which has resulted in the elimination of 100’s of return drains to the Snake River. NSCC has also constructed wetlands and detention basins within the system to provide water quality treatment. NSCC’s goal is to have zero returns to the Snake River. This suggests that widespread conversion of sprinkler could result in similar significant reductions in tributary/drain flows and TP loads to the lower Boise River.

Idaho water quality standards assign specific agencies responsibility for implementing, evaluating, and modifying BMPs to restore and protect impaired water bodies. The State of Idaho is committed to developing implementation plans within 18 months of EPA TMDL approval. DEQ, and the LBWC, will assist designated management agencies (e.g. SWCC) to develop an implementation plan, and DEQ will periodically reassess the beneficial use support status. BMP implementation and revision will continue until full beneficial use support status is documented and the TMDL target is achieved.

Nonpoint sources (e.g. agricultural) achieve their water quality obligations under the Clean Water Act through voluntary implementation of BMPs typically identified by the SWCC Conservation Commission. Idaho water quality standards, IDAPA 58.01.02.055, identify that water bodies not fully supporting beneficial uses:

“...shall require the development of TMDLs or other equivalent processes, as described under Section 303(d)(1) of the Clean Water Act.”

Whereas Idaho Statute 39-3610(1) states:

“...nothing in this section shall be interpreted as requiring best management practices for agricultural operations which are not adopted on a voluntary basis.”

Whereas Idaho Statute 39-3611(10) states:

“Nothing in this section shall be interpreted as requiring best management practices for agricultural nonpoint source activities which are not adopted on a voluntary basis...”

DEQ is confident that the implementation of voluntary measures is reasonably likely to reduce TP concentrations and loads from nonpoint tributary and ground water sources so as to achieve water quality standards and fully support beneficial uses. Through targeted restoration action on priority lands and investment in high impact pollutant reduction actions, DEQ reasonably expects that progress toward these water quality standards will occur, especially as supplemented by the “ripple effect” described above. DEQ expects that significant voluntary investment in

water quality trading—which is expected to achieve net environmental gain—may occur. Further, DEQ expects that continued investment will occur through the CWA 319 grant program. Since 1997, DEQ has allocated approximately 1.4 million dollars toward 319 grants in the lower Boise River subbasin for the implementation of BMPs to reduce and prevent pollutant runoff (e.g. sediment and nutrients) from reaching surface waters (see Section 4, Table 22). In addition to 319 grants, numerous projects have been completed within the lower Boise River subbasin through federal programs, such as the Conservation Stewardship Program, Environmental Quality Incentives Program, and Wildlife Habitat Incentives Program (see Section 4, Table 23). DEQ expects to see continued strong investment in these programs over the coming years.

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5.5.1 Time Frame

The targets established for point and nonpoint sources in this TMDL may take decades to be achieved. The lower Boise River TP TMDL addendum relies on a staged implementation strategy as referenced in EPA’s Phased TMDL Clarification memo (EPA 2006). The staged implementation strategy for the lower Boise River acknowledges that NPDES-permitted point sources will strive to achieve the TMDL target as soon as possible. DEQ anticipates that 2 permit cycles (10 years from the approval of the TMDL) will be provided via 401 certification and justification to achieve their wasteload allocations. However, in consultation with DEQ, appropriate compliance schedules may be considered on a case-by-case basis for point source permits. This TMDL addendum, however, does not define an implementation time frame for nonpoint sources; rather, implementation would begin as soon as possible and continue as quickly as possible until the load allocation targets are met. This acknowledges that successfully achieving the TMDL target and allocations will depend in part on the installation of voluntary measures, including but not limited to available funding, cost-sharing, willing partners, and opportunities for water quality trading.

Commented [TFT16]: Might be helpful to identify the range of timing for achieving NPS reductions.

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5.5.2 Approach

Point source contributions will be determined and regulated by EPA and NPDES permitting, whereas, funding provided under section 319, water quality trading, and other funds, will be used to encourage voluntary projects to reduce nonpoint source pollution. Upon the development of the TMDL, it is expected that a lower Boise River trading framework will be updated, and that trading may be utilized to achieve the pollutant targets in the subbasin (see Section 5.5.5).

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DEQ does not expect that load allocations will be met immediately. Load allocations will be met over a reasonable period of time based on current pollution conditions in the watershed, current land management practices, and other relevant factors, as appropriate. DEQ may provide further guidance on the phased implementation of load allocations and will provide oversight to ensure that appropriate water quality milestones and targets are being achieved. If trading has been authorized in the area covered by this TMDL, any phased implementation plan targets for meeting, load allocations may be used to derive trading baseline requirements for individual landowners wishing to sell water quality trading credits.

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5.5.3 Responsible Parties

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In Idaho, these agencies, and their federal and state partners, are charged by the Clean Water Act to lend available technical assistance and other appropriate support to local efforts for water quality improvements.

The designated management agencies, LBWC, and other appropriate public process participants are expected to:

- Develop BMPs to achieve load allocations [including incorporation of relevant trading baseline requirements from the Lower Boise Trading Framework](#).
- Provide reasonable assurance that management measures will achieve load allocations through both quantitative and qualitative analysis of management measures.
- Adhere to measurable milestones for progress.
- Develop a timeline for implementation, with reference to costs and funding.
- Develop a monitoring plan to determine if BMPs are being implemented, individual BMPs are effective, load allocations and wasteload allocations are being met, and water quality standards are being met.

...

5.5.5 Water Quality Trading

Water quality trading (also known as pollutant trading) is a contractual agreement to exchange pollution reductions between two parties. Water quality trading is a business-like way of helping to solve water quality problems by focusing on cost-effective, local solutions to problems caused by pollutant discharges to surface waters. Water quality trading is one of the tools available to meet reductions called for in a TMDL where point and nonpoint sources both exist in a watershed.

The appeal of trading [to pollutant sources](#) emerges when pollutant sources face substantially different pollutant reduction costs. Typically, a party facing relatively high pollutant reduction costs compensates another party to achieve an equivalent, though less costly, pollutant reduction.

Water quality trading is voluntary. Parties trade only if both are better off because of the trade, and trading allows parties to decide how to best reduce pollutant loadings within the limits of certain requirements.

Water quality trading is recognized in Idaho's water quality standards at IDAPA 58.01.02.055.06. DEQ allows for water quality trading as a means to meet TMDLs, thus restoring water quality limited water bodies to compliance with water quality standards. DEQ's *Water Quality Pollutant Trading Guidance* sets forth the procedures to be followed for water quality trading (DEQ 2010).

5.5.5.1 Trading Components

The major components of water quality trading are trading parties (buyers and sellers) and credits (the commodity being bought and sold). Ratios are used to ensure environmental equivalency of trades on water bodies covered by a TMDL. All trading activity must be recorded in the trading database by DEQ or its designated party.

Both point and nonpoint sources may create marketable credits, which are a reduction of pollutant loading beyond a level required by existing federal, state, local and tribal regulations, and TMDL implementation plan documents:

- Point sources create credits by reducing pollutant discharges below NPDES effluent limits set consistent with the assumptions and requirements of the TMDL's wasteload allocations.
- Nonpoint sources create credits by implementing approved BMPs that reduce the amount of pollutant runoff below current loading levels. Nonpoint sources must follow the specific design, maintenance, and monitoring requirements for that BMP, as established in relevant trading guidance and trading framework documents; apply discounts to credits generated, if required (i.e., attenuation or uncertainty ratios); meet trading baseline requirements (i.e., existing federal, state, tribal and local regulations, and any requirements established via TMDL implementation plans); and provide a water quality contribution to ensure a net environmental benefit. The water quality contribution also ensures the reduction (the marketable credit) is surplus to the reductions the TMDL assumes the nonpoint source is achieving to meet the water quality goals of the TMDL. This last step is important because it helps to demonstrate reasonable assurance toward meeting TMDL goals, and not just pollutant offsetting between point and nonpoint sources.

5.5.5.2 Watershed-Specific Environmental Protection

Trades must be implemented so that the overall water quality of the water bodies covered by the TMDL is protected. To do this, hydrologically-based ratios are developed to ensure trades between sources distributed throughout TMDL water bodies result in environmentally better outcomes at the point of environmental concern. Moreover, localized adverse impacts to water quality are not allowed.

5.5.5.3 Trading Authorization

Water quality trading is authorized in Idaho regulation. Trading should be implemented consistent with the Clean Water Act and other existing regulations, U.S. EPA's water quality trading policy (EPA 2003), DEQ's water quality trading guidance, and the Lower Boise Trading Framework. After adoption of an EPA-approved TMDL, DEQ, in concert with the WAG, must develop a water quality trading framework document. The Lower Boise has an existing Trading Framework that DEQ is currently evaluating to revise ratios and policies consistent with this Lower Boise TP TMDL assumptions, and the Joint Regional Recommendations (JRR) for water quality trading. The JRR were developed pursuant to a joint effort between Idaho, Oregon and Washington, with technical oversight from EPA Region 10, facilitated through a USDA-NRCS Conservation Innovation Grant awarded to the Willamette Partnership. The framework would mesh with the implementation plan for the watershed that is the subject of the TMDL. The elements of a trading document are described in DEQ's water quality trading guidance (DEQ 2010).

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Commented [TFT17]: Suggested edit based on JRR definition of baseline requirements. Not just a TMDL (although an important part); also must be beyond existing regulations

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Commented [TFT18]: This language is more consistent with language in 40 CFR 122.44(d)(1)(vii)(B)

Commented [TFT19]: Saying "environmentally equivalent" seems inconsistent with "net environmental benefit" (as described in 5.5.5.1). If net benefit is a goal, we suggest editing this sentence here to clarify

Deleted: equivalent or

Commented [TFT20]: Think it is confusing to call this the "framework" section when framework is being used generally here, and in other places, has been used as a term of art (i.e., the Lower Boise Trading Framework)

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Commented [TFT21]: Add the EPA WQT Policy to the reference section. U.S. EPA, Water Quality Trading Policy, 68 Fed. Reg. 1608 (Jan. 13, 2003), available at <http://www.gpo.gov/fdsys/pkg/FR-2003-01-13/pdf/03-620.pdf>.

Commented [TFT22]: WQT is authorized by the IDAPA regulation, and must be implemented consistent with existing regs, and should be consistent with the TMDL. The TMDL can describe how it may be part of the implementation strategy, but the authorization comes from the IDAPA rule, as implemented through permits and other documents.

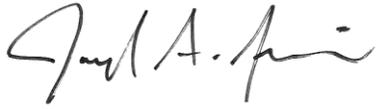
Deleted: For water quality trading to be authorized, it must be specifically mentioned within a TMDL document.

Deleted: are the outcome

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Yours in conservation,

Joe Furia

A handwritten signature in black ink, appearing to read "Joe A. Furia". The signature is fluid and cursive, with a prominent initial "J" and a long, sweeping tail.

Senior Policy Director & General Counsel