***Public Comment Document***

# ***The Upper Snake Rock TMDL Modification***

Upper Snake Rock Watershed Management Plan – Modification -
A Modification of Mid-Snake TMDL and Upper Snake Rock TMDL
To Account for the Aquaculture Wasteload Allocation
Part 1

Prepared for

U. S. Environmental Protection Agency – Region 10
U. S. EPA Idaho Operations Office – Boise, Idaho
Idaho Department of Environmental Quality – State Office
Middle Snake River Watershed Advisory Group

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# Table of Contents

# Tables and Figures

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# *A Modification of Mid-Snake and Upper Snake Rock TMDLs To Account for the Aquaculture Wasteload Allocation Part 1*

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## 1.0 INTRODUCTION

This public comment document describes the modification of two total maximum daily loads (TMDLs) – the *Middle Snake River Watershed Management Plan* (or Mid-Snake TMDL) and the *Upper Snake Rock Watershed Management Plan* (or Upper Snake Rock TMDL). This modification is due to the final development of the aquaculture wasteload allocation for 81 fish hatcheries and the effect that these wasteload allocations will have on various tributaries and the Middle Snake River on their respective beneficial uses or water quality standards. Setting wasteload allocations based upon seasonality is also being proposed. The base wasteload allocations used in the development of this document, except as noted, were developed by the Aquaculture Industry Wasteload Allocation Sub Committee. The Idaho Department of Environmental Quality (DEQ) has previously provided notice and an opportunity for comment on these wasteload allocations. Based upon comments received by the public and further analysis, DEQ in this document proposes to make certain changes to the base wasteload allocations. The wasteload allocations along with the proposed changes will be submitted to the U.S. Environmental Protection Agency (EPA) for their final review and approval as a modification to both TMDLs. This document will hereinafter be referred to as *The Upper Snake Rock TMDL Modification*.

The pollutants of concern are total phosphorus (TP) and total suspended solids (TSS). Bacteria are not considered because aquaculture fish hatcheries are not known to discharge *Escherichia coli* from their facilities since the pollutant-generating species are cold-blooded fish. Appendix A provides a summary for calculations relative to TP and TSS wasteload allocations.

In July 2004, DEQ published an earlier version of this document. The DEQ accepted comments under a 30-day public comment period (August 1, 2004 – August 30, 2004). Public comment regarding the proposed changes in the wasteload allocations was sought and received from the following:

- Aquaculture facilities and what consideration should be given for a seasonal wasteload allocation.
- Other point sources relative to their wasteload allocations.
- Nonpoint source industries relative to their load allocations.
- Public and any industry, organization, group, or agency on the overall nature of this multi-TMDL modification.

Based upon the information and comments received, DEQ has modified this document and again seeks public comment regarding the modifications prior to submission to EPA. Particular attention should be given to the following:

(1) DEQ has provided seasonal wasteload allocations based upon the information received from certain facilities;

(2) DEQ has clarified that pollutant trading is available for both seasonal and non-seasonal facilities;

(3) In response to complaints from Pristine Springs and SeaPac of Idaho, DEQ has adjusted the TP concentration limit used to determine Pristine Springs' WLA so that it is consistent with the concentration limit used for the other Tier I facilities. This has resulted in DEQ increasing Pristine Springs' WLA to 52.59 lb/day, and decreasing the nonpoint source LA for Warm Creek;

(4) DEQ has made adjustments to the wasteload allocations between facilities with the same owner; and

(5) DEQ has corrected mistakes in the allocations, clarified language, and provided further explanations for its decisions with respect to the wasteload allocations.

After reviewing the public comments, DEQ intends to publish notice of its final decision in the Idaho Administrative Bulletin and provide written notice to members of the applicable Watershed Advisory Groups. Then the document will be submitted to EPA for approval.

As described further in this document, Part 1 of this TMDL process involves those aquaculture facilities that were initially found in the Mid-Snake TMDL and the Upper Snake Rock TMDL. Part 2 involves the fish processors. And Part 3 involves the aquaculture facilities on Billingsley Creek. A 30-day preparation period before submission for public comment will be utilized between Part 1 and Part 2, and Part 2 and Part 3.

## 2.0 HISTORICAL PERSPECTIVE

Relative to the *Middle Snake River Watershed Management Plan* (Mid-Snake TMDL) and the *Upper Snake Rock Watershed Management Plan* (Upper Snake Rock TMDL), the following is a historical perspective.

February 10, 1995: *The Middle Snake River Nutrient Management Plan* goes out for a 60-day public comment period. The aquaculture component included an estimate of phosphorus concentration and an over-estimate of flow. Unknowns included off-line settling basins, fish processors, and 19 permit-pending facilities.

March 25, 1997: The *Middle Snake River Watershed Management Plan* (Mid-Snake TMDL) was prepared by the Idaho Department of Environmental Quality (DEQ) and submitted to the U. S. Environmental Protection Agency (EPA). Public comment occurred from October 23, 1996 to November 22, 1996.

April 1, 1997: The EPA and DEQ along with the aquaculture industry began deliberations relative to the development of a general NPDES permit for aquaculture. Through this permit, data collection from all aquaculture facilities became important in order to answer the large data gap in the Mid-Snake TMDL. Data collection commenced in year 2000 and proceeded into year 2002.

April 3, 1997: The Idaho TMDL schedule is developed as a result of a lawsuit filed in 1993. This schedule called for all Idaho TMDLs to be completed by DEQ in an 8-year time period ending in year 2005.

April 25, 1997: Mid-Snake TMDL approved by EPA.

September 10, 1999: The General Aquaculture NPDES Permit becomes effective. The permit requires data to be collected in 2000-2002 to establish an aquaculture database. The permit also requires that permittees achieve compliance with TMDL-based TP limitations on or before the day the permit expires. Consistent with the Mid-Snake TMDL, the TMDL-based TP limitations are to be re-evaluated by DEQ based upon the data collected during the term of the permit. Public comment on the permit occurred from April 21, 1998 to July 13, 1998.

December 20, 1999: *The Upper Snake Rock Watershed Management Plan* (or Upper Snake Rock TMDL) is submitted to EPA. Mid-Snake TMDL timeline is modified in conjunction with Upper Snake Rock TMDL and the general aquaculture permit to commence in year 2000. Public comment occurred twice: (1) June 17, 1998 – September 17, 1998, and (2) November 1, 1999 – December 1, 1999.

January – December 2000: Data collection by aquaculture industry.

August 25, 2000: The Upper Snake Rock TMDL is approved by EPA.

January – December 2001: Data collection by aquaculture industry.

September 4, 2001: Lawsuit filed by Idaho Conservation League and the Lands Council in federal district court regarding DEQ's compliance with the TMDL schedule. DEQ and EPA began a period of negotiations with the plaintiffs.

January – June 2002: Data collection by aquaculture industry.

June 2002: Version 13 aquaculture database was finalized.

July 2002: DEQ and EPA settle the TMDL schedule lawsuit with a Settlement Agreement that provides that TMDLs submitted to EPA by DEQ will include implementation strategies.

September 2002: Aquaculture Sub Committee presents to DEQ their wasteload allocation for review.

November 15, 2002: Aquaculture Sub Committee makes presentation of their proposed wasteload allocation to EPA at DEQ-State Office.

December 13, 2002 – January 13, 2003: Public comment period for the proposed aquaculture wasteload allocation.

August 1 –August 30, 2004: TMDL modification first public comment period.

September 10, 2004: The General Aquaculture NPDES Permit expires.

September 16, 2004: Pristine Springs Inc. files a law suit against DEQ in state civil court on their wasteload allocation.

September 16 – December 10, 2004: Ongoing negotiation discussions between DEQ and Pristine Springs over their wasteload allocation.

December 10, 2004: Pristine Springs Inc. decides to rescind their lawsuit against DEQ based on the negotiations with DEQ.

January 01, 2005: TMDL modification second and final public comment period.

January 31, 2005: Submission of TMDL modification document to EPA.

> December 31, 2005: Year 5 mid-course assessment year for ascertaining if reductions are heading in the proper direction for beneficial use attainment.
>
> December 31, 2010: Year 10 critical assessment year for ascertaining if agreed-to reductions by the stakeholders have been achieved. Year 10 is also the year where beneficial uses attainment will be assessed for the Middle Snake River and all its tributaries.

Eighty-one (81) aquaculture facilities are listed in the Mid-Snake TMDL. As a whole, the total wasteload allocation for aquaculture cannot exceed 970.2-lb/day total phosphorus and 12,209.9 ton/year TSS. On pages 58-63 of the Mid-Snake TMDL, the aquaculture industry's wasteload allocation was preliminarily divided into two groups. The first group consisted of thirteen (13) facilities and represented in general the larger flow facilities. This group had wasteload allocations defined that eventually would become a part of their NPDES permits. The second group consisted of 68 facilities and represented in general the smaller flow facilities. These facilities were given a wasteload allocation of TBD. According to Table 23 notes of the Mid-Snake TMDL (page 61), TBD means, and "To Be Determined at year 3 based on monitoring data from individual facilities." In addition, on September 10, 2004, the aquaculture general permit expired at midnight. This means that permittees must be in compliance with the wasteload allocation values found in the permit for the 13 listed facilities. This will continue until such time as the EPA approves of the wasteload allocations that are contained in this document (Part 1) and other documents (Part 2 and Part 3) and the NPDES permit is modified.

## 3.0 VERSION 13 DATABASE AND ADJUDICATED FLOWS

In order to meet the timeline for data acquisition from the aquaculture industry, the DEQ developed an aquaculture database that summarized the flow, total phosphorus, and total suspended solids information from the discharge monitoring reports (DMRs) reported by the facilities under the EPA's NPDES program. A number of versions (e.g., 1 through 13) of the database were developed and submitted to the aquaculture industry for their review and comment. Part of the comments involved facilities visiting with DEQ and reviewing their records, thus bringing their records up-to-date, and correcting any mistakes. DEQ encouraged this in order to answer any pertinent questions that pertained to their individual facility and at the same time clarify any information that might be confusing in nature or difficult to understand.

Version 13 was the final version of the aquaculture database. It included only the first 30 months of years 2000-2002. Version 13 is the basis of the wasteload allocation that is presently under public comment for flow, total phosphorus, and total suspended solids. As described in the Mid-Snake TMDL:

> "The monitoring data collected in years 1 through 3 will be used to give a wasteload allocation to individual facilities at the end of Year 3. A re-evaluation of the Mid-Snake TMDL [*and the Upper Snake Rock TMDL*] for all industries will occur after Year 10 to determine if water quality standards and the beneficial uses have been met, and, if necessary, wasteload allocations will be adjusted." (Mid-Snake TMDL, Table 23, p 58)

Since Version 13 database was used as the basis for developing the wasteload allocation for aquaculture, the industry was obligated by DEQ to use only Version 13 data. However, upon review of the final wasteload allocation table for TP that was submitted by the aquaculture industry subcommittee, it was discovered that two facilities (Rim View GAP-010 and Clear Springs Middle Hatchery GAP-007) used adjudicated water rights. When DEQ put the wasteload allocations out for public comment, DEQ received comments complaining that these adjudicated flows were not part of the Version 13 database and consequently should not be accepted for

inclusion in the development of their individual wasteload allocations. DEQ agreed with these comments. Therefore, in this document the adjudicated flows were modified to reflect only Version 13 flows. Consequently, GAP-010 flow was modified from the adjudicated flow of 150.0 cfs to 140.4 cfs or a modification in 66.3 lb/day TP to 62.1 lb/day TP in its wasteload allocation. Likewise, GAP-007 flow was modified from the adjudicated flow of 200.0 cfs to 181.5 cfs or a modification in 86.2 lb/day TP to 80.2 lb/day TP in its wasteload allocation.

The overall TP load by rolling back from the adjudicated flow is 4.2 lb/day and 6.0 lb/day or 10.2 lb/day TP. For now, the 10.2 lb/day along with any other unused TP or TSS wasteload allocation will be held by DEQ as a growth component for future use. DEQ has not attempted to make any decisions or act on this unused TP or TSS load, with the exception that it will hold the unused load for future growth. Certainly, any actions or decisions that DEQ takes will involve input from the aquaculture industry.

In addition, one of the facilities (GAP-133) was under a consent order with DEQ and was not part of the Mid-Snake facilities or their original Version 13 database. The Aquaculture Sub Committee in its deliberations chose to include this facility to the 970.2-lb/day total wasteload allocation.

Finally, one technical aspect of the tables that are in this Part 1 document deals with the Microsoft program, Excel. This program was used for all calculations for all the tables in this document. Truncation of repeating or ratio values was selected at the centidecimal place (0.01 or two-decimal places to the right of the zero) and incorporated the Rule of Rounding before truncation. Therefore, although mathematically a rounded or truncated value may actually represent a range of numbers (such as 12.235-12.239 ≈ 12.24); the values found in the tables are the exact values at the second decimal place (i.e., 12.24) without any "hanging" rounding or truncation residual. This was done to eliminate any rounding errors or mis-calculations within the tables.

## 4.0 ADJUSMENTS TO WLAs AND LAs FOR WARM CREEK

Pristine Springs and SeaPac of Idaho have both complained on a number of occasions that DEQ has used a different concentration limit to determine Pristine Springs' wasteload allocation than DEQ used for the other Tier 1 facilities. On September 16, 2004 Pristine Springs filed a lawsuit in state district court alleging that DEQ's action in proposing the wasteload allocation for Pristine Springs was arbitrary and capricious, violated Pristine Springs' equal protection rights and would result in irreparable injury to Pristine Springs.

The wasteload allocations for the Tier 1 facilities were initially determined by the Aquaculture Industry Wasteload Allocation Subcommittee of the Mid-Snake WAG by multiplying the concentration limit of 0.086 mg/L by the Version 13 Database average flow for each facility and multiplying this figure by 5.39. When added to the wasteload allocations for the other Tier facilities, this resulted in the total industry allocation exceeding 970.2 lb/day. The initial Tier 1 wasteload allocations were then reduced by an additional 5%, which is equivalent to using a 0.082 mg/L concentration limit in the wasteload allocation calculation.

0.086 mg/L TP x 5% = 0.0043mg/L TP
0.086 mg/L TP – 0.0043 mg/L TP = 0.0817 mg/L TP = 0.082 mg/L TP

Clear Springs agreed to an additional reduction (or a total of 6.98% reduction) so that a concentration limit of 0.080 was applied to its wasteload allocation calculation.

0.086 mg/L TP x 6.98% = 0.006 mg/L TP
0.086 mg/L TP – 0.006 mg/L TP = 0.080 mg/L TP

Using this formula for Pristine Springs results in a wasteload allocation of 52.59 lb/day (0.082 mg/L TP x 119 cfs x 5.39= 52.59 lb/day TP). This number greatly exceeded the average TP levels Pristine Springs had historically discharged, and also far exceeded the wasteload allocation set forth in the then existing NPDES permit. In order to avoid phosphorus speculation, or giving a facility more of a wasteload allocation then it needed, and in order to stay within a reasonable range of the wasteload allocation in the NPDES permit, Pristine Springs' wasteload allocation was reduced by the Subcommittee to 26.8 lb/day, which is the same wasteload allocation in the NPDES permit. Using 26.8 lb/day and an average flow of 119 cfs results in a concentration limit of 0.042 mg/L, compared to 0.082 mg/L that was used for the other Tier 1 facilities.

While DEQ believes there was a legitimate reason for treating Pristine Springs differently, DEQ agrees that the concentration limit used for Pristine Springs was different then the concentration limit used for the majority of the other Tier 1 facilities and results in a much smaller wasteload allocation than the wasteload allocation that would result if the 0.082 concentration is used. In order to be as consistent as possible in the manner in which it makes the final wasteload allocations, DEQ has determined to use the same formula, including the 0.082 concentration limit, for Pristine Springs' wasteload allocation that was used for other Tier 1 facilities. This means Pristine Springs' wasteload allocation would be increased to 52.59 lb/day.

Pristine Springs has also commented that it has a warm water fish component to its facility, and that DEQ's wasteload allocation does not take into consideration this aspect of the facility. The wasteload allocations for warm water fish facilities generally were calculated using a 0.200 mg/L TP concentration. DEQ agrees that Pristine Springs produces warm water fish, and that the wasteload allocation should reflect this fact. The wasteload allocations, however, are based on the information in the Version 13 database. Since Pristine Springs has only one combined discharge and does not report flow data separately for its warm water facility, there is little confirmed data for DEQ to use as the basis for a warm water allocation. Pristine Springs has a water right that allows for the use of 4.5 cfs from a geothermal well for fish propagation. Without any reliable data, it is reasonable to use this as the basis for a warm water allocation. Using the warm water concentration of 0.200 mg/L TP, the wasteload allocation for warm water would be 0.200 mg/L TP x 4.5 cfs x 5.39 = 4.85 lb/day TP.

The warm water flow, however, is part of the total flow number reported on the Pristine Springs DMRs. To avoid double counting the warm water flow, the 4.5 cfs, must be subtracted from the cold water allocation calculation. This results in 119.0 cfs – 4.5 cfs = 114.5 cfs. Therefore, 114.5 cfs x 0.082 mg/L TP x 5.39 = 50.61 lb/day TP, which is the cold water wasteload allocation. This, then, must be added to the warm water allocation to give Pristine Springs a total wasteload allocation of 50.61 lb/days TP (cold water) + 4.85 lb/day TP (warm water) = 55.46 lb/day (combined).

Pristine Springs discharges its wastewater to Warm Creek, which in turn discharges to the Snake River. The TMDL sets a load capacity for Warm Creek calculated by multiplying the mean flow by 0.100 mg/L TP and multiplying this number by 5.39. The load capacity for Warm Creek is 126.02 lb/day (233.8 cfs x 0.100 mg/L TP x 5.39 = 126.02). DEQ cannot increase the wasteload allocation for Pristine Springs and still meet the load capacity set for Warm Creek unless the allocation of TP for other sources is reduced. Nonpoint sources of phosphorus are also located on Warm Creek, and initially DEQ allocated 29.42 lb/day TP to these nonpoint sources. In order to meet the load capacity for Warm Creek and since Warm Creek resides on Pristine Springs property, DEQ has determined to reduce the load allocation for these nonpoint sources from 29.42 lb/day to 1.33 lb/day.

Of course, DEQ must look at the TP allocations and the load capacity of both Warm Creek and the Snake River. By shifting the TP allocation to Pristine Springs' point source, the total aquaculture industry allocation will be more than 970.2 lbs/day but under the 10% allowable variance as discussed in Section 7.6.a of this document. While the aquaculture allocation has been slightly increased, DEQ has made a commensurate decrease in the total nonpoint source allocation. Therefore, the TMDL will still meet the load capacity for the Snake River and Warm Creek and thereby attain compliance with state water quality standards.

Shifting the TP allocation from the nonpoint sources to Pristine Springs' point source is reasonable and appropriate for several reasons:

- First, the nonpoint sources on Warm Creek are almost exclusively controlled by Pristine Springs, and therefore Pristine Springs is in a position to reduce the TP from these sources. This means that Pristine Springs will gain the benefit of the increased wasteload allocation, but the additional TP will not have to come from reductions from other aquaculture facilities.

- Second, DEQ believes there is a reasonable assurance that, through the application of appropriate and reasonable best management practices, the nonpoint sources on Warm Creek can meet the lower load allocation of 1.33 lb/day.

- Third, the shift still results in Warm Creek and the Snake River meeting their load capacity, and therefore, there will be no detriment to the environment from this decision. Essentially, no localized impacts to the environment will result in this shift of TP, either to Warm Creek or to the Snake River.

- Finally, shifting the allocation in this manner ensures the most consistent and defensible allocation for the aquaculture facilities.

## 5.0 EXCEPTIONS TO THE WASTELOAD ALLOCATION

As previously noted, two additional portions to the aquaculture wasteload allocation are not incorporated in the 970.2 lb/day TP target. First, the fish processors have a separate wasteload allocation that is not included in the 970.2-lb/day TP wasteload allocation. And, second, the Billingsley Creek facilities are on a separate TMDL (the Billingsley Creek TMDL). The Billingsley Creek facilities are also outside of the 970.2-lb/day TP wasteload allocation.

Relative to the fish processors, their wasteload allocations are not included in this public comment document because these have not been finalized. Their wasteload allocation constitutes Part 2 of the TMDL submission process and will occur immediately after the submission of Part 1. A proposal has been submitted to DEQ from the four- (4) fish processors (GAP-125, GAP-011, GAP-028, and GAP-046), and DEQ is presently reviewing the proposal. In this Part 1 document, Table 3-B (Cedar Draw TMDL) and Table 3-D (Clear Lakes TMDL) identify the fish processors as additional point source components of the overall allocation. Within these TMDLs (Cedar Draw and Clear Lakes) the overall allocation for TP and TSS cannot exceed the waterbody's instream targets, which have been defined as surrogates for beneficial uses and water quality standards attainment.

Relative to the Billingsley Creek facilities, their wasteload allocations are also not included in this document. These will be finalized as Part 3 immediately after submission of Part 2 to the EPA. Under the present scenario, little discharge is occurring from Billingsley Creek into the Middle

Snake River to affect the river's water quality. Billingsley Creek is also 303(d) listed and is defined as special resource water and drinking water supply with its own TMDL.

## 6.0 BENEFICIAL USE ATTAINMENT

Relative to compliance with water quality standards, the Upper Snake Rock TMDL (Buhidar 1999) defined tributaries as natural or manmade waterbodies that discharged into larger waterbodies. For example, a natural waterbody would be Cedar Draw discharging into the Middle Snake River. A manmade waterbody would be a canalway, drain, or coulee that drains in the Middle Snake River. A stream, on the on the other hand, means flowing water and includes creeks, rivers, and canals. Water quality standard limitations are set on tributaries and may be set throughout the entire length of the natural waterbody. Water quality standard limitations on canalways, however, are set at the point where the canalway discharges into a natural waterbody and not throughout the entire length of the canalway.

Relative to meeting beneficial uses, the Mid-Snake TMDL and the Upper Snake Rock TMDL identify nuisance aquatic plant growths as impairments to the beneficial uses of the Middle Snake River and of many tributaries. This nuisance macrophyte argument grew out of the original *The Middle Snake River Nutrient Management Plan* (IDEQ-TFRO 1995 [p 68]) effort. The DEQ determined under the *Nutrient Management Plan* that a 30% reduction in the nuisance aquatic plant growths (or macrophytes) in the Middle Snake River (as an average value and specifically in the Crystal Springs reach) was needed in order to restore the beneficial uses and comply with the water quality standards. The water quality standards prohibit excess nutrients that result in nuisance aquatic growths that impair beneficial uses of the river (IDAPA 58.01.02.200.06). The surrogate for the 30% reduction and compliance with the water quality standards narrative criteria regarding excess nutrients was defined with TP as an instream targets that must be met by year 2010. Consequently, the Mid-Snake TMDL defines beneficial use attainment at 0.075-mg/L TP for the Snake River and is a surrogate for a 30% reduction in nuisance plant growths in the river. Attainment of water quality standards in the Mid-Snake TMDL is based on a single-compliance point correlation at Gridley Bridge. The Upper Snake Rock TMDL expands on the Mid-Snake TMDL and defines beneficial use attainment at seven (7) compliance points with the following instream surrogate targets:

1. Tributaries

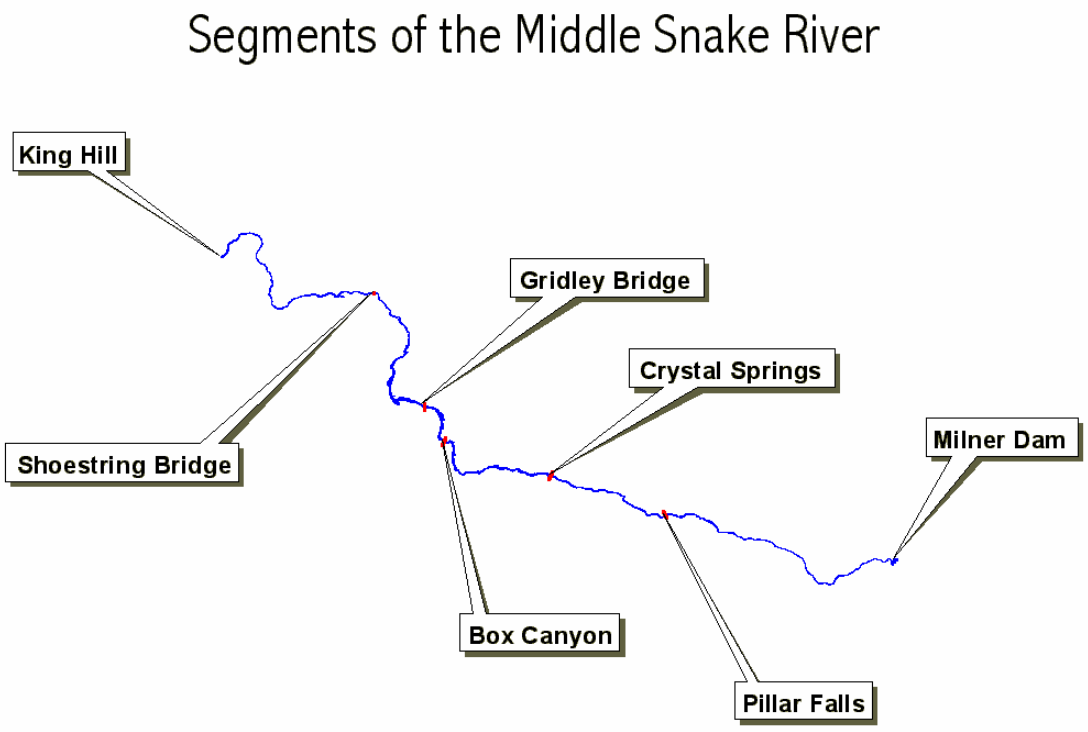
The TMDL TP target is 0.100-mg/L TP for tributaries (natural and manmade) whether they discharge directly or indirectly to the Middle Snake River. The TMDL TSS target is 52.0-mg/L for tributaries (natural and manmade) whether they discharge directly or indirectly to the Middle Snake River. The compliance point for all natural tributaries is throughout the length of their system. In the case of manmade systems, their compliance point is where their discharge occurs into natural systems. Manmade systems include canals, drains (surface and subsurface as defined in the Upper Snake Rock TMDL), septic systems, subdivisions, construction activities, etc.

Relative to manmade systems with point source discharges, it is important to note that the point source discharger must meet water quality standards at the point where they discharge into the manmade system and not where the manmade system discharges into a natural waterbody. The water quality of the manmade system must be protected for the use for which it was intended. Thus, point source dischargers must comply with protection of that use in their discharges into the manmade system.

Special resource waters coupled with domestic water supply as an additional beneficial use have been set at instream standards of 0.100 mg/L TP and 25.0 mg/L TSS. This describes systems like Billingsley Creek and Riley Creek.

2. Middle Snake River

The TMDL TP target is 0.075-mg/L TP for all six segments of the Middle Snake River. The 0.075-mg/L TP target is for the entire river from Milner Dam to King Hill. The TMDL TSS target is 52.0-mg/L TSS for the Middle Snake River. Figure 1 illustrates the six segments of the Middle Snake River with its accompanying compliance points (7).




A summary of projected target concentrations and loads based on proposed TMDL reductions that will aid in beneficial use attainment is summarized. Net Load for the Middle Snake is calculated as the difference between the King Hill "output" and the Milner Dam "input." The TMDL Modification was compared to the previous versions of the Upper Snake Rock TMDL (Buhidar 1999), the Mid-Snake TMDL (Buhidar 1997), and the Nutrient Management Plan (IDEQ-TFRO 1995). For each parameter-of-concern (TSS and TP) the net value under the TMDL Modification is much less than those reported in the Upper Snake Rock TMDL or the Mid-Snake TMDL. This was done by recalculating the anticipated reductions against the expected loadings and projecting what the actual instream concentrations and loads would be under average conditions. As shown, targets in the river will be attained in all river segments.

**Expected TP & TSS Concentration and Load**
**For TMDL Modification (Net)**

| | ----------Instream Standards---------- | |
|---|---|---|
| Compliance Location | TP, mg/L | TP, lb/day |
| Instream Target: | 0.075 | ____. |
| Milner Dam ("Input") | 0.075 | 1,560.41 |
| Pillar Falls | 0.075 | 1,912.52 |
| Crystal Springs | 0.075 | 2,222.10 |
| Box Canyon | 0.075 | 2,914.77 |
| Gridley Bridge | 0.075 | 3,684.91 |
| Shoestring Bridge | 0.075 | 4,490.13 |
| King Hill ("Output") | 0.075 | 4,606.66 |

**Comparison of Various TMDLs Involved**

| Name of TMDL | TP, mg/L | TP, lb/day |
|---|---|---|
| TMDL Modification (Net) | 0.075 | 3,046.25 = 0.075 mg/L |
| Upper Snake Rock TMDL | 0.075 | 3,480.00 = 0.075 mg/L |
| Mid-Snake TMDL | 0.075 | 3,559.60 = 0.075 mg/L |
| Nutrient Management Plan | 0.075 | 3,559.60 = 0.075 mg/L |

| | ----------Instream Standards---------- | |
|---|---|---|
| | TSS, mg/L | TSS, ton/year |
| Instream Target: | 52.0 | _____. |
| Milner Dam ("Input") | 52.0 | 197,443.25 |
| Pillar Falls | 46.7 | 217,817.06 |
| Crystal Springs | 50.3 | 272,025.87 |
| Box Canyon | 48.9 | 346,693.52 |
| Gridley Bridge | 49.9 | 446,976.62 |
| Shoestring Bridge | 49.3 | 538,905.47 |
| King Hill ("Output") | 48.7 | 546,079.50 |

**Comparison of Various TMDLs Involved**

| Name of TMDL | TSS, mg/L | TSS, ton/year |
|---|---|---|
| TMDL Modification (Net) | 52.0 | 348,636.25 = 49.4 mg/L |
| Upper Snake Rock TMDL | 52.0 | 466,139.97 = 51.9 mg/L |
| Mid-Snake TMDL | 54.8 | 474,491.00 = 54.8 mg/L |
| Nutrient Management Plan | 54.8 | 474,491.00 = 54.8 mg/L |

What is demonstrated in the TP and TSS summary of the various TMDLs involved is that the Nutrient Management Plan (IDEQ-TFRO1995) and the Mid-Snake TMDL (Buhidar 1997) only took into account Gridley Bridge as a single compliance point. During the process of working the Upper Snake Rock TMDL (Buhidar 1999), it became obvious that not all inputs had been accounted for in the first TMDLs. Therefore, it became necessary to subdivide the Middle Snake River into decision units or segments and account for all nonpoint source inputs that included unnamed streams and canalways plus the entrained pollutants already existing in the Middle Snake River corridor. In so doing, it was also necessary to make the entire stretch of the Middle Snake River meet the 0.075 mg/L TP standard and the 52.0 mg/L TSS standard at seven (7) compliance points or six (6) stream segments. This required more significant monitoring of

various existing tributaries, as well as the determination of flow for the various unaccounted for tributaries and streams. The outcome is that the Upper Snake Rock TMDL (Buhidar 1999) and the TMDL Modification (Buhidar 2000) loads for TP and TSS are substantially less than those cited in the first two TMDLs or plans. Instream targets for TP and TSS can be met, but these translate to reduced loads for both TP and TSS.

3. Springs and Seeps

The TMDL TP target is 0.020-mg/L TP for all groundwater sources that discharge as springs into natural systems and is the surrogate for achievement of beneficial uses relative to nuisance plant growth in the river and tributaries. Groundwater sources that exceed the 0.020-mg/L TP threshold are indicative of eutrophication. For TSS, a value of 1.3-mg/L is used as defined in the Upper Snake Rock TMDL. It is highly possible that this value is relatively high when compared to single springs or seeps that may have TSS values which are much less than 1.3 mg/L. Seeps, which have evolved as a consequence of irrigation, are defined in the Upper Snake Rock TMDL, along with tile drains and tunnel drains, as having instream targets of 0.100 mg/L TP and a 1.3 mg/L TSS.

### *Stormwater Runoff and Construction Activities*

Relative to nonpoint source stormwater runoff and construction activities that may potentially impact natural systems within the stream corridor, 2% of the nonpoint source load allocation was defined as a "reserve" for TSS and TP. As a reserve, it will revert to the nonpoint source category when stormwater runoff and construction activities are not occurring. These activities must comply with the limitations imposed by the TSS and TP reserve.

### *Future Growth Potential*

Nonpoint source future growth potential such as subdivision development or similar ventures within the stream corridors must provide sufficient protection of nutrient (TP and nitrogen), sediment (TSS), and bacteria pollutants so that TMDL targets and goals are maintained. Subdivisions, although defined as a nonpoint source, have the tendency with septic systems to produce more TP than what would be allocated to straight agricultural lands. This assumes that the septic discharge enters the associated waterbody. Consequently, the TP loading limit for subsurface sewage disposal (IDAPA §58.01.03) or wastewater land application (IDAPA §58.01.17) is contained in the TMDL as part of the nonpoint source load allocation. Point source wasteload allocations are enforceable under NPDES permits. Nonpoint source load allocations are implemented by designated agencies under Idaho Code §39-3612 and IDAPA §58.01.02.350. In addition, DEQ policy relative to subdivision development within stream corridors should be reviewed in consultation with local planning and zoning restrictions for appropriate consideration.

## 7.0 AQUACULTURE SEASONALITY COMPONENT

The DEQ addresses a seasonality component for aquaculture in this document as part of the wasteload allocations. Seasonality is a characteristic of a time series that represents the variability in the data due to seasonal influences such that a repeating pattern occurs that is generally less than one year in duration. Therefore, a seasonal wasteload allocation implies periodicity or a cyclic reoccurrence of a repeating pattern of highs and lows during a one-year period. These periodic fluctuations (highs and lows) can be averaged within the one-year

duration and are similar to a stationary time series that has no seasonal pattern. For example, seasonality could be applicable to the fall and winter months when more water is available to fish hatcheries versus the spring and summer months when less water is available. The fall and winter months might have a higher wasteload allocation while the spring and summer months would have lower wasteload allocations. The seasonal wasteload allocations presented in this document are based on the responses from 11 facilities during the August 2004 public comment period. These facilities complied with the following format:

1. The individual facility (as represented by the owner, operator, or legal representative) disclosed to DEQ in writing during the public comment period that it operates its facility seasonally and must provide the basis for the assertion of seasonality.

2. The individual facility (as represented by the owner, operator, or legal representative) requested of DEQ in writing during the public comment period that it receive a seasonal wasteload allocation.

3. The individual facility (as represented by the owner, operator, or legal representative) provided to DEQ in writing during the public comment period a proposed seasonal wasteload allocations.

The 11 facilities that requested seasonality include the following:

| Name of Facility | NPDES No. | Seasonality Type | Waterbody |
|---|---|---|---|
| 1. Hagerman National USFWS FH | GAP-004 | Trimester | Riley Creek |
| 2. Hagerman State IDFG FH | GAP-003 | Semiannual | Riley Creek |
| 3. Niagara Springs/IPC FH | GAP-013 | Trimester | Niagara Springs |
| 4. Magic Valley Steelhead FH | GAP-016 | Trimester | Segment 3 |
| 5. FBI/Catfish FH | GAP-041 | Semiannual | Segment 3 |
| 6. FBI/Smith FH | GAP-090 | Quarterly | Segment 5 |
| 7. FBI/Gibbs-Baker FH | GAP-133 | Quarterly | Deep Creek |
| 8. Deep Creek FH | GAP-077 | Semiannual | Deep Creek |
| 9. Jack's Ponds FH | GAP-053 | Quarterly | Deep Creek |
| 10. CSI FH | GAP-124 | Trimester | Rock Creek |
| 11. White Water Ranch FH | GAP-026 | Quarterly | Stoddard Springs |

Two additional facilities were considered, but they preferred to go with the stationary base wasteload allocations. The two facilities were Blue Lakes Trout Farm (GAP-008) who discharges into Warm Creek and the John Fleming Fish Farm (GAP-119) who discharges into Segment 5. Of the 11 facilities that requested seasonality, the GAP-026 facility requested a base wasteload allocation that was equal to 6.1 lb/day TP or 1.8 lb/day TP **more** than the base wasteload allocation of 4.3 lb/day TP. The 4.3 lb/day TP base wasteload allocation was originally assigned by the aquaculture subcommittee based on Version 13 Database. DEQ cannot support a higher wasteload allocation that is not based on the Version 13 database.

Relative to seasonality the wasteload allocations must support the beneficial uses of the receiving stream. If they do not, then seasonal wasteload allocations are unacceptable. Therefore, allowance for seasonality is a special consideration for fish hatcheries that demonstrate seasonality characteristics. If it proves successful in meeting the beneficial use attainment for the receiving stream, then its application for other point sources may be considered if a general permit is applied to the other point sources. Seasonality allows these facilities to allocate their wasteload allocation according to their seasonal nature and distribute their wasteload allocations in a seasonal manner. The limitations to seasonality are strictly dependent on the individual

TMDL of the receiving stream as defined by the instream TP and TSS targets and wasteload allocations. Those limitations are defined as follows:

1. Seasonality by Quarters. Seasonality may be defined by quarters unless otherwise specified (i.e., trimester, semiannual, etc). Conservation hatcheries, for example, rely on 4-month (trimester) and 6-month (semiannual) seasonality for their operations and don't normally follow a quarterly calendar. Seasonality based on the quarterly calendar is defined according to the following scenario:

| Quarter | Specific Months | Seasonal Months | Traits |
|---|---|---|---|
| Qtr 1 | December, January, February | Winter Months | Cold |
| Qtr 2 | March, April, May | Spring Months | Cool |
| 7Qtr 3 | June, July, August | Summer Months | Warm |
| Qtr 4 | September, October, November | Fall Months | Cold |

   Note that in general for Quarter 1 (December, January, and February), irrigation is not necessarily occurring for irrigated agriculture. Therefore, the load allocations for certain drains during this quarter are not required, because they are not in operation during this time of year. The same is true for certain ephemeral streams that run only during fall and winter months and not during the spring and summer months.

2. Tributaries. All natural tributaries to the Middle Snake River, whether they discharge directly or not, shall meet an instream concentration target of 0.100-mg/L TP or less. The compliance point will be along their entire length, from their headwaters to their mouth. All manmade conveyances (canals, ditches, laterals, drains, etc.) shall comply with 0.100-mg/L TP target at the discharge of the conveyance into a natural waterbody.

3. Middle Snake River. The main stem of the Middle Snake River shall meet an instream concentration target of 0.075-mg/L TP or less at seven compliance points as defined in the Upper Snake Rock TMDL. The compliance point of 0.075-mg/L TP shall be along the entire length, from Milner Dam to King Hill.

4. Groundwater. All groundwater flows into any tributary of the Middle Snake River or the river itself shall meet an instream concentration of 0.020-mg/L TP or less. The compliance point is at the point where the groundwater becomes surface water. As defined in the Upper Snake Rock TMDL, irrigation seeps, tile drainage, and tunnel drains are subject to the 0.100-mg/L TP standard at the point of discharge into a natural or manmade water body.

5. Full Disclosure. Seasonality was considered on aquaculture facilities (as previously described) that fully disclosed to DEQ in writing (see Appendix A) during the public comment period:

   a. Their seasonal nature.
   b. A formal request for seasonality.
   c. The proposed wasteload allocations for their facility.

6. Limitations on Periodicity. Because seasonality implies periodicity, the periodicity must have its own limitations, otherwise the TMDL would not

provide reasonable assurance that it would meet beneficial uses and water quality standards of the receiving stream as defined in the TMDL. Therefore,

a. Absolute Maximum Threshold. It is expected that the fall and winter months will have as a whole for each individual TMDL wasteload allocation values that are greater than those during the spring and summer months. A value 10% greater than the base wasteload allocation threshold will be applied such that 10% of the measurements are the absolute maximum above the numeric threshold for the industry.

b. Alignment to Specific TMDL. Each individual facility must be aligned to a specific TMDL within the Upper Snake Rock subbasin. Each TMDL is aligned to a specific waterbody that has defined load allocations and wasteload allocations that meet beneficial uses and water quality standards.

c. Applicable Industry TP Target. The aquaculture industry must meet the total industry TP target and the targets set for the individual stream segments.

d. Fish Processors: The fish processors are not included in the 970.2 lb/day TP instream target. They will have their own wasteload allocations, but they must meet the beneficial uses of the stream through which their discharges will be assimilated.

e. Billingsley Creek Facilities. The fish facilities on Billingsley Creek are not included in the 970.2 lb/day TP instream target. They will have their own wasteload allocations, but they must meet the beneficial uses of Billingsley Creek through which their discharges will be assimilated.

f. Seasonal Load Capacity. For each seasonal quarter, the total load for all sources will need to meet the load capacity. This implies that an adjustment in loads must occur for either the wasteload allocations or the load allocations. The stream TMDLs will account for that adjustment in the load allocations so that the load capacity is not exceeded seasonally.

7. Seasonal Wasteload Allocations. This document includes a wasteload allocation that has a seasonal component for those aquaculture facilities that requested it. DEQ believes these wasteload allocations, together with other point and nonpoint controls, will meet water quality standards to support beneficial uses.

## 8.0 LOSS AND ATTENUATION

This component of the water quality assessment was the most difficult portion to determine. The DEQ has reviewed all data that was used to develop the various TMDL tables in this document. The river tables were especially reviewed for consistency and content along with public comment considerations. The Middle Snake River is a modified river system that is approximately 25.7% reservoir-like due to six major impoundments (Buhidar 1999A [p 20]). Within this system there is “loss” (downstream transport) and “attenuation” (localized placement) of sediment and total phosphorus. TP and TSS act differently within each of the river segments. From the standpoint of

a simple mass-balance model, a number of assumptions are necessary. These assumptions include:

1. Major Inputs and Major Outputs. The assumption is made that from a comparison standpoint, major inputs are only compared with major outputs. The output for TP is the percentage of TP exported from the segment downstream into the next segment. River monitoring data indicates that instream TP values at the compliance points do indeed transport downstream into the next segment, especially Segment 2. No distinction is made between organic phosphorus and inorganic phosphorus. The major inputs are point sources, spring sources, surface waterbodies (natural and manmade), and the Middle Snake River corridor within the segment.

2. Total Losses. The assumption is made that total losses to volatilization, soil adsorption, sedimentation, groundwater storage, and denitrification equal the difference between the total inputs and the output. Relative to TP in an aquatic system, volatilization and denitrification do not apply. Phosphorus is present in several forms in an aquatic system, and not all forms are readily available for uptake by phytoplankton (Thomann and Mueller 1987 [p 390]). On the other hand, sediment deposits may be organic–rich (Hauer and Lamberti 1996 [p 124]), thus being affected by volatilization and denitrification. Therefore, TP attenuation may be a combination of substrate sedimentation as well as plant uptake.

3. Processes Operate Equally. The assumption is made that processes operate equally on all sources and that the relative contribution of sources to watershed export is proportional to the inputs.

4. Applicable Instream Targets. The beneficial use instream targets must be applicable. The TMDL instream targets have been defined as surrogates for beneficial use attainment. Therefore, TSS is 52.0-mg/L for tributaries (natural and manmade) and the Middle Snake River. The TP is 0.075-mg/L for the Middle Snake River, 0.100-mg/L for tributaries, and 0.020-mg/L for groundwater sources linked to an aquifer.

Relative to TP, the Middle Snake River has an organic component that averages 52.1% of the TP. This is based on N=259 samples collected with an average range from 39.9% to 72.7% as soluble reactive phosphate. This greater level of organic phosphorus implies that greater losses of TP are possible (as described in item 1 above) if the soluble component remains suspended in the instream column and it is transported downstream in the water column. Research in the Pacific Northwest indicates that the average range for % TP Export is 9.1 – 37.3% for all major sources based on quartile analysis of the data (Smith and Alexander 2000). The Middle Snake River has phosphorus export losses that range from 4.2 – 36.5% (Buhidar 1999A [Technical Support Document, Section VII] based on instream column monitoring data at the various compliance points. This range supports the research of Smith and Alexander (2000). It is assumed that the export TP export loss includes some level of attenuation to substrate sediments. Both TP export (transport loss) and attenuation (localized placement) are highly dependent on the amount of concentration present in the water column, the stream slope, the organic component, and the modified hydrologic regime of the Snake River system relative to reservoir-like versus riverine conditions. Tributaries at present are defined without a loss or attenuation value, but there is no doubt that one exists.

In addition, there is emerging data from the Idaho Power Company that appears to indicate that biomass (as aquatic plant growths) are being cleaned out of the river system due to trash racks that are being added for aquatic plant removal at their hydropower stations as a condition of their FERC license. Interestingly, the amount of biomass being collected appears to follow a pattern similar to the loss/attenuation percentage being applied to TP. This information is still unexplored and Idaho Power Company intends to look into it. Obviously, this data gap will need to be researched at a future date based on available resources. Instream estimate TP export loss/attenuation values at the compliance points per segment are as follows:

| | ==========TP Loss/Attenuation========= | | |
|---|---|---|---|
| Compliance Point | Sub Total | % Loss/Attenuation | Total |
| Milner Dam | - | - | 0.075-mg/L |
| Pillar Falls | 0.077-mg/L | 2.8% | 0.075-mg/L |
| Crystal Springs | 0.111-mg/L | 32.4% | 0.075-mg/L |
| Box Canyon | 0.084-mg/L | 18.3% | 0.075-mg/L |
| Gridley Bridge | 0.090-mg/L | 17.0% | 0.075-mg/L |
| Shoestring Bridge | 0.083-mg/L | 9.8% | 0.075-mg/L |
| King Hill | 0.077-mg/L | 2.0% | 0.075-mg/L |

Relative to TSS, the range of values for percentage TSS export loss was 0.2-48.0%. These values fall in the same category of ranges for large river systems that are modified due to impoundments. A conservative value of 16.7% (or 0.167 as a ratio) was initially considered for TSS export loss. But after review of the existing data, DEQ modified the 16.7% to 10.0%, since the Sub Total load at the downstream compliance point (per segment) was always less than 52.0-mg/L TSS. It is assumed the TSS export loss includes some level of attenuation to substrate sediments. Instream estimate TSS export loss/attenuation values at the compliance points per segment are as follows:

| | ==========TSS Loss/Attenuation======= | | |
|---|---|---|---|
| Compliance Point | Sub Total | % Loss/Attenuation | Total |
| Milner Dam | - | - | 52.0-mg/L |
| Pillar Falls | 46.7-mg/L | 10.0% | 42.1-mg/L |
| Crystal Springs | 50.3-mg/L | 10.0% | 45.3-mg/L |
| Box Canyon | 48.9-mg/L | 10.0% | 44.0-mg/L |
| Gridley Bridge | 49.9-mg/L | 10.0% | 44.9-mg/L |
| Shoestring Bridge | 49.3-mg/L | 10.0% | 44.4-mg/L |
| King Hill | 48.7-mg/L | 10.0% | 43.8-mg/L |

Both TP and TSS export (loss) and attenuation (localized placement) needs to be studied more intimately within the Middle Snake River system to ascertain more directly the applicable coefficients for each segment. For the present, the TP and TSS export and attenuation models are the same as used in the Upper Snake Rock TMDL.

## 9.0 TOTAL PHOSPHORUS POLLUTANT TRADING

Total phosphorus pollutant trading is presently described under a trading guidance that was developed by EPA and DEQ. Pollutant trading is a contractual agreement to exchange pollutant reductions between two partners. It is a voluntary way to help meet TMDLs. Trading is allowed on the Middle Snake River as described in the guidance. Trading into the tributaries will be allowed once DEQ establishes equivalency ratios. Any seasonal or non-seasonal facility is eligible to participate in pollutant trading.

Pollutant trading is a tool that can be used to help a point source meet its NPDES phosphorus limits. Typically, a discharger facing relatively high pollutant reduction costs compensates another party to achieve an equivalent, though less costly, pollutant reduction. Trading is voluntary, takes place through private contracts, and is regulated through compliance with NPDES permit requirements.

A point source may voluntarily reduce its phosphorus discharge below its NPDES permit limit by a particular amount for a particular time-period. This creates a credit that may be sold to another point source. The transfer of credits reduces the seller's permit limit by the amount of the credits. The buyer may increase its discharge limit by the amount of credits it purchases. Credits are characterized by an amount of a pollutant per unit of time. Each point source is responsible for meeting its individual permit limit for phosphorus, adjusted by traded credits. Credits must be generated and purchased during the same time-period. In other words, if a discharger exceeds a permit limit in January it must purchase credits generated in January.

As an example, if facility X has an NPDES permit allowing for the discharge of 100 lb/day of phosphorus and is able, through technology, to reduce its discharge to 75 lb/day, it has 25 credits to sell. If facility Y has an NPDES permit allowing for the discharge of 100 lb/day phosphorus, but is currently discharging 125 lb/day, it is exceeding its permit limit by 25 lb/day phosphorus. Facility Y may either find a way to reduce an additional 25 lb/day of phosphorus in order to meet its permit limit or it may purchase 25 lb/day of phosphorus credits from facility X. At this point, the same amount of phosphorus is discharged into the river, 200 lb/day, but through a different distribution between facilities X and Y. Each point source must reflect the actual discharge amount of phosphorus in their Discharge Monitoring Reports and also show the purchase of credits in a Trade Summary report in accordance with DEQ's trading guidance.

## 10.0 ALLOCATIONS ACCORDING TO RIVER SEGMENT AND TRIBUTARY

The Middle Snake River was divided into six (6) decision units or segments based on seven (7) compliance points, as defined in the Upper Snake Rock TMDL. The method of allocation took into account the allocations given in the Mid-Snake TMDL and the Upper Snake Rock TMDL. Because the receiving stream is the Middle Snake River, each river segment indirectly describes all tributaries. Consequently, all tributaries (natural and manmade), all direct point source dischargers, and all nonpoint sources are linked to the six river segments. These river segments with their natural tributaries are defined as follows:

| Segment | Input Source | Output Discharge | Tributary with TMDL |
|---|---|---|---|
| 1 | Milner Dam | Pillar Falls | Vinyard Creek |
| | | | Devils Corral Springs |
| | | | Dry Creek + West Fork |
| 2 | Pillar Falls | Crystal Springs | Warm Creek |
| | | | Rock Creek |
| | | | Crystal Springs |
| | | | Alpheus Creek |
| | | | Ellison Springs |
| 3 | Crystal Springs | Box Canyon | Cedar Draw |
| | | | Niagara Springs |
| | | | Clear Lakes |
| | | | Mud Creek |
| | | | Deep Creek |
| | | | Briggs Creek |
| | | | Blind Canyon |
| | | | Banbury Springs |
| | | | Box Canyon |

| | | | |
|---|---|---|---|
| 4 | Box Canyon | Gridley Bridge | Blue Heart Springs<br>McMullen Creek<br>Cottonwood Creek<br>Ritter Creek<br>Riley Creek<br>Sand Springs<br>Salmon Falls Creek |
| 5 | Gridley Bridge | Shoestring Bridge | Billingsley Creek<br>Birch Springs<br>Stoddard Springs<br>Decker Springs<br>Malad River & Power Flume |
| 6 | Shoestring Bridge | King Hill | Clover Creek<br>Pioneer Reservoir |

All mean flows per river segment and per natural tributary were obtained from the EPA-approved Upper Snake Rock TMDL in order to maintain consistency between the TMDL and this TMDL modification.

As described by Buhidar and Sharpnack (2003), some of the Snake River segments and some of the tributaries have aquaculture facilities aligned with them. As part of a DEQ staff analysis (draft) on localized impacts, DEQ previously determined the loading capacity for each river segment and tributary (Buhidar and Sharpnack 2003). As part of that analysis, each aquaculture facility was assessed per tributary (or per river segment) to determine if localized impacts and accumulative impacts were present relative to TP, TSS, and *Escherichia coli*. A summary of this staff analysis follows:

1. Total Phosphorus (TP). The loading capacity for each tributary was based on 0.100 mg/L TP. The loading capacity for each segment of the Snake River was based on 0.075 mg/L TP. Spring sources where no development had occurred had loading capacities based on 0.020 mg/L TP.

   The wasteload allocation for each aquaculture facility was based on the industry's aquaculture sub committee recommendation, which were accepted by DEQ after public comment was received.

2. Total Suspended Solids (TSS). The loading capacity for each tributary was based on 52.0 mg/L. Initially, the value of 50.0 mg/L was used incorrectly, but this was corrected in the present document to reflect 52.0 mg/L.

   The wasteload allocation for each aquaculture facility was based on their current 5.0 mg/L TSS concentration limit. The "beneficial uses and water quality standards of the receiving stream(s) is (are) fully protected at 5.0 mg/L TSS, and consequently are at significantly safe levels for protection of the resource" (Buhidar and Sharpnack 2003 [p 9]).

3. *Escherichia coli*. The loading capacity of each tributary was based on 235 cfu/100 mL for primary contact recreation/single sample. At all times a geometric mean of 126 cfu/100 mL was used based on five samples taken every 3 to 5 days over a 30-day period.

   The "*E. coli* criteria are not indigenous to cold water fish hatcheries or warm water fish hatcheries. Fish, whether raised in cold water or warm water are cold-blooded animals and do not generate *E. coli* in their intestines" (Buhidar

and Sharpnack 2003 [pp11-12]). Therefore, each fish hatchery received a wasteload allocation of zero for a load of *E. coli*.

What follows in the following subsections is a summary of each river segment and tributary relative to its specific TMDL. An Input section and an Output section describe fully the load considerations for each river segment. Each tributary has its load capacities for TP and TSS fully described. Point and nonpoint sources are described within each table.

## 10.1 SEGMENT 1 – MIDDLE SNAKE RIVER - Milner Dam to Pillar Falls

The load allocations for Segment 1 of the Middle Snake River are defined as follows based on mean flows. These loads represent input loads to Segment 1 at Milner Dam. The equivalent pollutant concentrations are 0.075-mg/L TP and 52.0-mg/L TSS.

Milner Dam Load Considerations: Input to Segment 1
TP = 3,860.0 cfs x 0.075-mg/L TP x 5.39 = 1,560.41-lb/day
TSS = 3,860.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 197,443.25-ton/year

The following export loads at Pillar Falls are output loads from Segment 1. Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.077-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 1. Similarly, the TSS concentration shows a decrease to 46.7-mg/L TSS with a reduction to 42.1-mg/L TSS due to export loss/attenuation within Segment 1.

Pillar Falls Load Considerations: Output from Segment 1
TP = 4,737.0 cfs x 0.077-mg/L TP x 5.39 = 1,967.61-lb/day
TP Export Loss/Attenuation = 2.8%
TP = 4,737.0 cfs x 0.075-mg/L TP x 5.39 = 1,912.52-lb/day

TSS = 4,737.0 cfs x 46.7-mg/L TSS x 5.39 x 0.1825 = 217,817.06-ton/year
TSS Export Loss/Attenuation = 10.0%
TSS = 4,737.0 cfs x 42.1-mg/L TSS x 5.39 x 0.1825 = 196,035.35-ton/year

In the pollutant transport from Segment 1 to Segment 2, the TP load used for input into Segment 2 was 1,912.52-lb/day TP as 0.075-mg/L TP. The TSS load used for input into Segment 2 was 217,817.06-ton/year TSS as 46.7-mg/L TSS. Table 1-A summarizes the Segment 1 tributaries and the direct dischargers to the Middle Snake River and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 1-A. Segment 1 Allocations for TP and TSS

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Milner Dam | 1,560.41 | 1,560.41 | 1,560.41 | 1,560.41 | 1,560.41 |
| NPS (Ag, Graze, Private, Corridor) | 169.60 | 169.60 | 169.60 | 169.60 | 169.60 |
| FERC, LAFs, CFOs | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Stormwater – Construction Activities | 3.46 | 3.46 | 3.46 | 3.46 | 3.46 |
| Vinyard Creek TMDL | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 |
| Devils Corral Spring TMDL | 4.55 | 4.55 | 4.55 | 4.55 | 4.55 |
| Dry Creek (Murtaugh Lake) TMDL | 7.65 | 7.65 | 7.65 | 7.65 | 7.65 |

| | | | | | |
|---|---|---|---|---|---|
| Northside A Drain | 4.70 | 0.00 | 4.70 | 4.70 | 4.70 |
| Southside A-10 Drain | 2.60 | 0.00 | 2.60 | 2.60 | 2.60 |
| Northside C-55 Drain | 4.00 | 0.00 | 4.00 | 4.00 | 4.00 |
| Southside Twin Falls Coulee | 4.70 | 0.00 | 4.70 | 4.70 | 4.70 |
| City of Hansen | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 |
| Unaccounted Springs and Seeps | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 |
| Unaccounted Surface Waters | 146.20 | 146.20 | 146.20 | 146.20 | 146.20 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Pillar Falls | 1,967.61 | 1,951.61 | 1,967.61 | 1,967.61 | 1,967.61 |
| TP Export Loss + Attenuation | -55.09 | -54.65 | -55.09 | -55.09 | -55.09 |
| Total Load at Pillar Falls | 1,912.52 | 1,896.96 | 1,912.52 | 1,912.52 | 1,912.52 |
| Total Load as mg/L TP | 0.075 | 0.074 | 0.075 | 0.075 | 0.075 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Milner Dam | 197,443. | 197,443. | 197,443. | 197,443. | 197,443. |
| NPS (Ag, Graze, Private, Corridor) | 3,461.12 | 3,461.12 | 3,461.12 | 3,461.12 | 3,461.12 |
| FERC, LAFs, CFOs | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Stormwater – Construction Activities | 70.64 | 70.64 | 70.64 | 70.64 | 70.64 |
| Vinyard Creek TMDL | 17.14 | 17.14 | 17.14 | 17.14 | 17.14 |
| Devils Corral Spring TMDL | 53.96 | 53.96 | 53.96 | 53.96 | 53.96 |
| Dry Creek (Murtaugh Lake) TMDL | 726.35 | 726.35 | 726.35 | 726.35 | 726.35 |
| Northside A Drain | 450.10 | 0.00 | 450.10 | 450.10 | 450.10 |
| Southside A-10 Drain | 245.50 | 0.00 | 245.50 | 245.50 | 245.50 |
| Northside C-55 Drain | 378.50 | 0.00 | 378.50 | 378.50 | 378.50 |
| Southside Twin Falls Coulee | 444.30 | 0.00 | 444.30 | 444.30 | 444.30 |
| City of Hansen | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| Unaccounted Springs and Seeps | 652.70 | 652.70 | 652.70 | 652.70 | 652.70 |
| Unaccounted Surface Waters | 13,872.20 | 13,872.20 | 13,872.20 | 13,872.20 | 13,872.20 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Pillar Falls | 217,817.06 | 216,298.66 | 217,817.06 | 217,817.06 | 217,817.06 |
| Sub Total Load as mg/L TSS | 46.7 | 46.4 | 46.7 | 46.7 | 46.7 |
| TSS Export Loss + Attenuation | -21,781.71 | -21,629.87 | -21,781.71 | -21,781.71 | -21,781.71 |
| Total Load at Pillar Falls | 196,035.35 | 194,668.79 | 196,035.35 | 196,035.35 | 196,035.35 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *VINYARD CREEK TMDL*
## *Segment 1 – Middle Snake River*

Vinyard Creek is a springfed system with nonpoint sources but no point sources. Vinyard Creek was delisted from the 1998 303(d) list in the Upper Snake Rock TMDL due to the change in drain flow from Vinyard Creek to the Snake River. Part of that delisting includes maintaining Vinyard Creek at existing water quality conditions in order to help achieve the targets for the Snake River. Existing conditions for Vinyard Creek if maintained will meet beneficial uses and/or water quality standards.

The load allocations for Vinyard Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.020-mg/L TP and 1.3-mg/L TSS.

Vinyard Creek: Load Capacities for TP and TSS
TP = 13.4 cfs x 0.020-mg/L TP x 5.39 = 1.44-lb/day

TSS = 13.4 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 17.14-ton/year

Table 1-B summarizes the tributaries and the direct dischargers to Vinyard Creek. Table 1-B indicates that the beneficial uses for Vinyard Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 1-B. Vinyard Creek TMDL – Delisted

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 16.80 | 16.80 | 16.80 | 16.80 | 16.80 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 17.14 | 17.14 | 17.14 | 17.14 | 17.14 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *DEVILS CORRAL SPRING TMDL*
## *Segment 1 – Middle Snake River*

Devils Corral Spring is a springfed system with nonpoint sources and no point sources. Devils Corral Spring was not listed in the 1998 303(d) list but was assessed as part of the Upper Snake Rock TMDL assessment process. Part of that assessment demonstrated that Devils Corral Spring was meeting its beneficial uses and/or water quality standards. Consequently, Devils Corral Spring is maintained at existing water quality conditions in order to help achieve the targets for the Snake River. Existing conditions for Devils Corral Spring meet beneficial uses and/or water quality standards.

The load allocations for Devils Corral Spring are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.020-mg/L TP and 1.3-mg/L TSS.

Devils Corral Spring: Load Capacities for TP and TSS
TP = 42.2 cfs x 0.020-mg/L TP x 5.39 = 4.55-lb/day
TSS = 42.2 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 53.96-ton/year

Table 1-C summarizes the tributaries and the direct dischargers to Devils Corral Spring. Table 1-C indicates that the beneficial uses for Devils Corral Spring will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 1-C. Devils Corral Spring TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 4.46 | 4.46 | 4.46 | 4.46 | 4.46 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 4.55 | 4.55 | 4.55 | 4.55 | 4.55 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 52.88 | 52.88 | 52.88 | 52.88 | 52.88 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 53.96 | 53.96 | 53.96 | 53.96 | 53.96 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *DRY CREEK TMDL*
## *Segment 1 – Middle Snake River*

Murtaugh Lake is a manmade reservoir constructed for water storage and delivery for the Twin Falls Canal Company system. The West Fork Dry Creek discharges into the main stem of Dry Creek. The main stem of Dry Creek discharges into Murtaugh Lake, which from the Murtaugh Lake spillway discharges into the main stem of Dry Creek, which in turn discharges into the Middle Snake River.

The load allocations for Dry Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Dry Creek: Load Capacities for TP and TSS
TP = 14.2 cfs x 0.100-mg/L TP x 5.39 = 7.65-lb/day
TSS = 14.2 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 726.35-ton/year

Table 1-D summarizes the tributaries and the direct dischargers to Dry Creek and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 1-D. Dry Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 5.28 | 5.28 | 5.28 | 5.28 | 5.28 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| West Fork Dry Creek TMDL | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 7.65 | 7.65 | 7.65 | 7.65 | 7.65 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 501.29 | 501.29 | 501.29 | 501.29 | 501.29 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 10.23 | 10.23 | 10.23 | 10.23 | 10.23 |
| West Fork Dry Creek TMDL | 214.83 | 214.83 | 214.83 | 214.83 | 214.83 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 726.35 | 726.35 | 726.35 | 726.35 | 726.35 |
| NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. | | | | | |

## *WEST FORK DRY CREEK TMDL*
## *Segment 1 – Middle Snake River*

As previously stated in the Dry Creek TMDL, the West Fork Dry Creek "discharges" into the main stem of Dry Creek prior to discharge into Murtaugh Lake.
The load allocations for West Fork Dry Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

West Fork Dry Creek: Load Capacities for TP and TSS
TP = 4.2 cfs x 0.100-mg/L TP x 5.39 = 2.26-lb/day
TSS = 4.2 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 214.83-ton/year

Table 1-E summarizes the tributaries and the direct dischargers to Dry Creek and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 1-E. West Fork Dry Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 2.21 | 2.21 | 2.21 | 2.21 | 2.21 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 2.26 | 2.26 | 2.26 | 2.26 | 2.26 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 210.53 | 210.53 | 210.53 | 210.53 | 210.53 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 4.30 | 4.30 | 4.30 | 4.30 | 4.30 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 214.83 | 214.83 | 214.83 | 214.83 | 214.83 |
| NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. | | | | | |

## 10.2 SEGMENT 2 – MIDDLE SNAKE RIVER - Pillar Falls to Crystal Springs

The load allocations for Segment 2 of the Middle Snake River are defined as follows based on mean flows. These loads represent input loads to Segment 2 at Pillar Falls. The equivalent pollutant concentrations are 0.075-mg/L TP and 46.7-mg/L TSS.

Pillar Falls Load Considerations: Input to Segment 2
TP = 4,737 cfs x 0.075-mg/L TP x 5.39 = 1,912.52-lb/day
TSS = 4,737 cfs x 46.7-mg/L TSS x 5.39 x 0.1825 = 217,817.06-ton/year

The following export loads at Crystal Springs are output loads from Segment 2. Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.111-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 2. Similarly, the TSS concentration shows an increase to 50.3-mg/L TSS with a reduction to 45.3-mg/L TSS due to export loss/attenuation within Segment 2.

Crystal Springs Load Considerations: Output from Segment 2
TP = 5,498.0 cfs x 0.111-mg/L TP x 5.39 = 3,287.13-lb/day
TP Export Loss/Attenuation = 32.4%
TP = 5,498.0 cfs x 0.075-mg/L TP x 5.39 = 2,222.10-lb/day

TSS = 5,498.0 cfs x 50.3-mg/L TSS x 5.39 x 0.1825 = 272,025.87-ton/year
TSS Export Loss/Attenuation = 10.0%
TSS = 5,498.0 cfs x 45.3-mg/L TSS x 5.39 x 0.1825 = 244,823.28-ton/year

In the pollutant transport from Segment 1 to Segment 2, the TP load used for input into Segment 2 was 1,912.52-lb/day TP as 0.075-mg/L TP. The TSS load used for input into Segment 2 was 217,817.06-ton/year TSS as 46.7-mg/L TSS. Table 2-A summarizes the Segment 2 tributaries and the direct dischargers to the Middle Snake River and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 2-A. Segment 2 Allocations for TP and TSS

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Pillar Falls | 1,912.52 | 1,896.96 | 1,912.52 | 1,912.52 | 1,912.52 |
| NPS (Ag, Graze, Private, Corridor) | 86.13 | 86.13 | 86.13 | 86.13 | 86.13 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.76 | 1.76 | 1.76 | 1.76 | 1.76 |
| Warm Creek TMDL (See bottom) | 126.02 | 126.02 | 126.02 | 126.02 | 126.02 |
| Rock Creek TMDL (See bottom) | 118.53 | 118.53 | 118.53 | 118.53 | 118.53 |
| Crystal Springs TMDL (See bottom) | 197.92 | 197.92 | 197.92 | 197.92 | 197.92 |
| Alpheus Creek TMDL | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| Ellison Springs TMDL | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| East Perrine Coulee | 15.80 | 15.80 | 15.80 | 15.80 | 15.80 |
| Main Perrine Coulee | 5.90 | 5.90 | 5.90 | 5.90 | 5.90 |
| West Perrine Coulee | 1.40 | 0.00 | 1.40 | 1.40 | 1.40 |
| 43 Drain | 0.20 | 0.00 | 0.20 | 0.20 | 0.20 |
| Jerome Golf Course Drain | 4.20 | 0.00 | 4.20 | 4.20 | 4.20 |
| 30 Drain | 3.30 | 0.00 | 3.30 | 3.30 | 3.30 |
| LQ/LS Drain | 16.30 | 16.30 | 16.30 | 16.30 | 16.30 |
| LS2/39A Drain | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 |
| N42 Drain | 4.80 | 0.00 | 4.80 | 4.80 | 4.80 |
| N42 Drain (Rim) | 5.40 | 0.00 | 5.40 | 5.40 | 5.40 |
| 39 Drain | 2.60 | 0.00 | 2.60 | 2.60 | 2.60 |

| | | | | | |
|---|---|---|---|---|---|
| GAP-104 Canyon Springs FH | 12.10 | 12.10 | 12.10 | 12.10 | 12.10 |
| City of Twin Falls POTW | 710.00 | 710.00 | 710.00 | 710.00 | 710.00 |
| Unaccounted Springs and Seeps | 16.20 | 16.20 | 16.20 | 16.20 | 16.20 |
| Unaccounted Surface Waters | 43.00 | 43.00 | 43.00 | 43.00 | 43.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Crystal Springs | 3,287.13 | 3,252.27 | 3,287.13 | 3,287.13 | 3,287.13 |
| TP Export Loss + Attenuation | -1,065.03 | -1,053.74 | -1,065.03 | -1,065.03 | -1,065.03 |
| Total Load at Crystal Springs | 2,222.10 | 2,198.54 | 2,222.10 | 2,222.10 | 2,222.10 |
| Total Load as mg/L TP | 0.075 | 0.074 | 0.075 | 0.075 | 0.075 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Pillar Falls | 217,817.06 | 216,298.66 | 217,817.06 | 217,817.06 | 217,817.06 |
| NPS (Ag, Graze, Private, Corridor) | 1,757.75 | 1,757.75 | 1,757.75 | 1,757.75 | 1,757.75 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 35.87 | 35.87 | 35.87 | 35.87 | 35.87 |
| Warm Creek TMDL (See bottom) | 11,959.13 | 11,959.13 | 11,959.13 | 11,959.13 | 11,959.13 |
| Rock Creek TMDL (See bottom) | 11,248.64 | 11,248.64 | 11,248.64 | 11,248.64 | 11,248.64 |
| Crystal Springs TMDL (See bottom) | 18,782.68 | 18,782.68 | 18,782.68 | 18,782.68 | 18,782.68 |
| Alpheus Creek TMDL | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 |
| Ellison Springs TMDL | 1.66 | 1.66 | 1.66 | 1.66 | 1.66 |
| East Perrine Coulee | 1,497.20 | 1,497.20 | 1,497.20 | 1,497.20 | 1,497.20 |
| Main Perrine Coulee | 560.10 | 560.10 | 560.10 | 560.10 | 560.10 |
| West Perrine Coulee | 129.40 | 0.00 | 129.40 | 129.40 | 129.40 |
| 43 Drain | 16.40 | 0.00 | 16.40 | 16.40 | 16.40 |
| Jerome Golf Course Drain | 398.00 | 0.00 | 398.00 | 398.00 | 398.00 |
| 30 Drain | 312.00 | 0.00 | 312.00 | 312.00 | 312.00 |
| LQ/LS Drain | 1,550.90 | 1,550.90 | 1,550.90 | 1,550.90 | 1,550.90 |
| LS2/39A Drain | 270.10 | 270.10 | 270.10 | 270.10 | 270.10 |
| N42 Drain | 452.20 | 0.00 | 452.20 | 452.20 | 452.20 |
| N42 Drain (Rim) | 518.70 | 0.00 | 518.70 | 518.70 | 518.70 |
| 39 Drain | 244.00 | 244.00 | 244.00 | 244.00 | 244.00 |
| GAP-104 Canyon Springs FH | 58.00 | 58.00 | 58.00 | 58.00 | 58.00 |
| City of Twin Falls POTW | 146.40 | 146.40 | 146.40 | 146.40 | 146.40 |
| Unaccounted Springs and Seeps | 191.70 | 191.70 | 191.70 | 191.70 | 191.70 |
| Unaccounted Surface Waters | 4,076.70 | 4,076.70 | 4,076.70 | 4,076.70 | 4,076.70 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Crystal Springs | 272,025.87 | 268,680.77 | 272,025.87 | 272,025.87 | 272,025.87 |
| Sub Total Load as mg/L TSS | 50.3 | 49.7 | 50.3 | 50.3 | 50.3 |
| TSS Export Loss + Attenuation | -27,202.59 | -26,868.08 | -27,202.59 | -27,202.59 | -27,202.59 |
| Total Load at Crystal Springs | 244,823.28 | 241,812.69 | 244,823.28 | 244,823.28 | 244,823.28 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *WARM CREEK TMDL*
## *(Segment 2 of Middle Snake River)*

Warm Creek is a springfed system with nonpoint sources and point sources. Warm Creek was not listed in the 1998 303(d) list but was assessed as part of the Upper Snake Rock TMDL assessment process. Part of that assessment demonstrated that Warm Creek was being fed from Warm Springs, Alpheus Creek, Sunnybrook Springs, Blue Lakes Springs, and groundwater wells.

The load allocations for Warm Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Warm Creek: Load Capacities for TP and TSS
TP = 233.8 cfs x 0.100-mg/L TP x 5.39 = 126.02-lb/day
TSS = 233.8 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 11,959.13-ton/year

Table 2-B summarizes the tributaries and the direct dischargers to Warm Creek. Table 2-B indicates that the beneficial uses for Warm Creek will be met if the point source and nonpoint source allocations are met by Year 2010. It is noted that in the Upper Snake Rock TMDL, the allocations described in Table 108 (pp 220-221) do not combine the various sources into one discharge, as they are presently constituted. This is due to modifications done on the facility over the last 5 years. See Section 4.0 in this document for a discussion on the adjustments made to the load allocations on the Warm Creek TMDL. Warm Creek resides strictly on Pristine Springs' property. Therefore, its nonpoint source component was adjusted between the point source and nonpoint source portions.

Table 2-B. Warm Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| GAP-008 Blue Lakes FH | 69.20 | 69.20 | 69.20 | 69.20 | 69.20 |
| GAP-018 Pristine Springs FH (CW) | 50.61 | 50.61 | 50.61 | 50.61 | 52.59 |
| GAP-018 Pristine Springs FH (WW) | 4.85 | 4.85 | 4.85 | 4.85 | 4.85 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 126.02 | 126.02 | 126.02 | 126.02 | 126.02 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 10,391.07 | 10,391.07 | 10,391.07 | 10,391.07 | 10,391.07 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 212.06 | 212.06 | 212.06 | 212.06 | 212.06 |
| GAP-008 Blue Lakes FH | 770.70 | 770.70 | 770.70 | 770.70 | 770.70 |
| GAP-018 Pristine Springs FH (Comb) | 585.30 | 585.30 | 585.30 | 585.30 | 585.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 11,959.13 | 11,959.13 | 11,959.13 | 11,959.13 | 11,959.13 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. CW = Cold water. WW = Warm water. Comb = Combined.

## *ROCK CREEK TMDL*
## *(Segment 2 of Middle Snake River)*

Rock Creek is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. Part of the Upper Snake Rock TMDL assessment indicates that Rock Creek is fed from springs, seeps, tailwater runoff, and its own tributaries. During certain times of the year, normally August through September, the water in Rock Creek is completely diverted by irrigation water users by the time it reaches Rock Creek town behind the Rock Creek General Store. The load allocations for Rock Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Rock Creek: Load Capacities for TP and TSS
TP = 219.91 cfs x 0.100-mg/L TP x 5.39 = 118.53-lb/day
TSS = 219.91 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 11,248.64-ton/year

Table 2-C summarizes the tributaries and the direct dischargers to Rock Creek and indicates that the beneficial uses for Rock Creek will be met if the point source and nonpoint source allocations are met by Year 2010. In the Upper Snake Rock TMDL, the allocations described in Table 108 (pp 220-221) indicate a reduction in TP from 184.9 lb/day as the 1990-1991 baseline years to 118.5 lb/day as the year 10 target. In the TMDL Executive Summary (Table 5a, p A-14), it incorrectly shows the Rock Creek TMDL as 169.8 lb/day TP. This is also incorrectly noted in Table 8a, p A-23.

Table 2-C. Rock Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 99.89 | 99.89 | 100.29 | 100.29 | 99.49 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 |
| GAP-036 Canyon Trout FH | 4.70 | 4.70 | 4.70 | 4.70 | 4.70 |
| GAP-036 Canyon Trout FP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GAP-084 Daydream Ranch FH | 4.20 | 4.20 | 4.20 | 4.20 | 4.20 |
| GAP-091 Deadman Gulch FH | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| GAP-124 CSI FH | 2.20 | 2.20 | 1.80 | 1.80 | 2.60 |
| GAP-097 C&M FH | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 |
| Silver Creek FP (Non-permitted) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 118.53 | 118.53 | 118.53 | 118.53 | 118.53 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 10,795.23 | 10,795.23 | 10,798.23 | 10,798.23 | 10,792.13 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 220.31 | 220.31 | 220.31 | 220.31 | 220.31 |
| GAP-036 Canyon Trout FH | 44.80 | 44.80 | 44.80 | 44.80 | 44.80 |
| GAP-036 Canyon Trout FP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GAP-084 Daydream Ranch FH | 58.50 | 58.50 | 58.50 | 58.50 | 58.50 |
| GAP-091 Deadman Gulch FH | 46.20 | 46.20 | 46.20 | 46.20 | 46.20 |
| GAP-124 CSI FH | 15.20 | 15.20 | 12.20 | 12.20 | 18.30 |
| GAP-097 C&M FH | 68.40 | 68.40 | 68.40 | 68.40 | 68.40 |
| Silver Creek FP (Non-permitted) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 11,248.64 | 11,248.64 | 11,248.64 | 11,248.64 | 11,248.64 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. Relative to GAP-036, the owner claims that the facility does not discharge to Rock Creek. Relative to the Silver Creek FP, the facility discharges into the City of Twin Falls wastewater treatment plant and is under a pretreatment agreement with the City of Twin Falls.

## *CRYSTAL SPRINGS TMDL*
## *Segment 2 – Middle Snake River*

Crystal Springs is a natural springfed tributary to the Snake River with nonpoint sources and point sources discharging to it. Part of the Upper Snake Rock TMDL assessment indicates that Crystal

Springs is fed from springs and seeps. The load allocations for Crystal Springs are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Crystal Springs: Load Capacities for TP and TSS
TP = 367.2 cfs x 0.100-mg/L TP x 5.39 = 197.92-lb/day
TSS = 367.2 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 18,782.68-ton/year

Table 2-D summarizes the tributaries and the direct dischargers to Crystal Springs and indicates that the beneficial uses for Crystal Springs will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 2-D. Crystal Springs TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 113.20 | 113.20 | 113.20 | 113.20 | 113.20 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 2.22 | 2.22 | 2.22 | 2.22 | 2.22 |
| GAP-006 Crystal Springs FH | 82.50 | 82.50 | 82.50 | 82.50 | 82.50 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 197.92 | 197.92 | 197.92 | 197.92 | 197.92 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 17,416.54 | 17,416.54 | 17,416.54 | 17,416.54 | 17,416.54 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 355.44 | 355.44 | 355.44 | 355.44 | 355.44 |
| GAP-006 Crystal Springs FH | 1,010.70 | 1,010.70 | 1,010.70 | 1,010.70 | 1,010.70 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 18,782.68 | 18,782.68 | 18,782.68 | 18,782.68 | 18,782.68 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *ALPHEUS CREEK TMDL*
## *Segment 2 – Middle Snake River*

Alpheus Creek is a natural springfed tributary to the Snake River with nonpoint sources discharging to it. Adjacent to Alpheus Creek is the Blue Lakes Country Club, the Blue Lakes Road, and private ground that is under development. Part of the Upper Snake Rock TMDL assessment indicates that Alpheus Creek is fed from springs and seeps that are found in the Blue Lakes Springs complex and the Alpheus Springs. The load allocations for Alpheus Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Alpheus Creek: Load Capacities for TP and TSS
TP = 1.0 cfs x 0.020-mg/L TP x 5.39 = 0.110-lb/day
TSS = 1.0 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 1.280-ton/year

Table 2-E summarizes the tributaries and the direct dischargers to Alpheus Creek and indicates that the beneficial uses for Alpheus Creek are being met and was thus delisted from the 1998 303(d) list. Part of that delisting is maintaining Alpheus Creek at existing water quality conditions in order to help achieve the targets for the Snake River. Existing conditions for Alpheus Creek meet beneficial uses and/or water quality standards. Regardless of the "headwaters" flow,

Alpheus Creek discharges less than 1.0 cfs if any to the Middle Snake River. It is highly unlikely that Alpheus Creek discharges to the river anymore due to present diversions of the water.

Table 2-E. Alpheus Creek TMDL – Delisted

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 0.108 | 0.108 | 0.108 | 0.108 | 0.108 |
| FERC, LAFs, CFOs | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Stormwater – Construction Activities | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 |
| Point Sources | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 0.110 | 0.110 | 0.110 | 0.110 | 0.110 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 1.254 | 1.254 | 1.254 | 1.254 | 1.254 |
| FERC, LAFs, CFOs | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Stormwater – Construction Activities | 0.026 | 0.026 | 0.026 | 0.026 | 0.026 |
| Point Sources | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 1.280 | 1.280 | 1.280 | 1.280 | 1.280 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *ELLISON CREEK TMDL*
## *Segment 2 – Middle Snake River*

Ellison Creek is a natural springfed tributary to the Snake River with nonpoint sources discharging to it. The load allocations for Alpheus Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Ellison Creek: Load Capacities for TP and TSS
TP = 1.3 cfs x 0.020-mg/L TP x 5.39 = 0.140-lb/day
TSS = 1.3 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 1.660-ton/year

Table 2-F summarizes the tributaries and the direct dischargers to Ellison Creek and indicates that the beneficial uses for Ellison Creek are being met and was thus delisted from the 1998 303(d) list. Part of that delisting is maintaining Ellison Creek at existing water quality conditions in order to help achieve the targets for the Snake River. Existing conditions for Ellison Creek meet beneficial uses and/or water quality standards.

Table 2-F. Ellison Springs TMDL – Delisted

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 0.137 | 0.137 | 0.137 | 0.137 | 0.137 |
| FERC, LAFs, CFOs | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Stormwater – Construction Activities | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| Point Sources | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 0.140 | 0.140 | 0.140 | 0.140 | 0.140 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 1.627 | 1.627 | 1.627 | 1.627 | 1.627 |
| FERC, LAFs, CFOs | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Stormwater – Construction Activities | 0.033 | 0.033 | 0.033 | 0.033 | 0.033 |
| Point Sources | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 1.660 | 1.660 | 1.660 | 1.660 | 1.660 |
| NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. | | | | | |

## 10.3 SEGMENT 3 – MIDDLE SNAKE RIVER – Crystal Springs to Box Canyon

The load allocations for Segment 3 of the Middle Snake River are defined as follows based on mean flows. These loads represent input loads to Segment 3 at Crystal Springs. The equivalent pollutant concentrations are 0.075-mg/L TP and 50.3-mg/L TSS.

Crystal Springs Load Considerations: Input to Segment 3
TP = 5,498.0 cfs x 0.075-mg/L TP x 5.39 = 2,222.10-lb/day
TSS = 5,498.0 cfs x 50.3-mg/L TSS x 5.39 x 0.1825 = 272,025.87-ton/year

The following export loads at Box Canyon are output loads from Segment 3. Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.084-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 3. Similarly, the TSS concentration shows a decrease to 48.9-mg/L TSS with a reduction to 44.0-mg/L TSS due to export loss/attenuation within Segment 3.

Box Canyon Load Considerations: Output from Segment 3
TP = 7,212.0 cfs x 0.084-mg/L TP x 5.39 = 3,567.65-lb/day
TP Export Loss/Attenuation = 18.3%
TP = 7,212.0 cfs x 0.075-mg/L TP x 5.39 = 2,914.77-lb/day

TSS = 7,212.0 cfs x 48.9-mg/L TSS x 5.39 x 0.1825 = 346,693.52-ton/year
TSS Export Loss/Attenuation = 10.0%
TSS = 7,212.0 cfs x 44.0-mg/L TSS x 5.39 x 0.1825 = 312,024.17-ton/year

In the pollutant transport from Segment 2 to Segment 3, the TP load used for input into Segment 3 was 2,222.10-lb/day TP as 0.075-mg/L TP. The TSS load used for input into Segment 3 was 272,025.87-ton/year TSS as 50.3-mg/L TSS. Table 3-A summarizes the Segment 3 tributaries and the direct dischargers to the Middle Snake River and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 3-A. Segment 3 Allocations for TP and TSS

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Crystal Springs | 2,222.10 | 2,198.54 | 2,222.10 | 2,222.10 | 2,222.10 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 100.04 | 100.04 | 100.04 | 100.04 | 100.04 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 |
| Cedar Draw TMDL | 77.77 | 77.77 | 77.77 | 77.77 | 77.77 |
| Niagara Springs TMDL | 60.37 | 60.37 | 60.37 | 60.37 | 60.37 |
| Clear Lake TMDL | 266.67 | 266.67 | 266.67 | 266.67 | 266.67 |
| Mud Creek TMDL | 52.42 | 52.42 | 52.42 | 52.42 | 52.42 |
| Deep Creek TMDL | 51.68 | 51.68 | 51.68 | 51.68 | 51.68 |
| Briggs Creek TMDL | 57.94 | 57.94 | 57.94 | 57.94 | 57.94 |
| Blind Canyon TMDL | 56.34 | 56.34 | 56.34 | 56.34 | 56.34 |
| Banbury Springs TMDL | 13.01 | 13.01 | 13.01 | 13.01 | 13.01 |
| Box Canyon Springs TMDL | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| Blue Heart TMDL | 6.47 | 6.47 | 6.47 | 6.47 | 6.47 |
| McMullen Creek TMDL | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 |
| Cottonwood Creek TMDL | 1.24 | 1.24 | 1.24 | 1.24 | 1.24 |
| I Drain | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 |
| J8 Drain | 4.90 | 0.00 | 4.90 | 4.90 | 4.90 |
| N Drain | 2.40 | 2.40 | 2.40 | 2.40 | 2.40 |
| S29 Drain | 1.40 | 0.00 | 1.40 | 1.40 | 1.40 |
| S19/S Drain | 28.60 | 28.60 | 28.60 | 28.60 | 28.60 |
| GAP-016 Magic Valley Steelhead | 15.20 | 21.70 | 7.70 | 16.20 | **[15.20]** |
| GAP-100 Gary Wright FH | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |
| GAP-041 FBI/Catfish FH | 16.30 | 19.60 | 13.00 | 13.00 | 19.60 |
| GAP-054 Kaster FH | 31.00 | 31.00 | 31.00 | 31.00 | 31.00 |
| GAP-014 Box Canyon FH | 141.00 | 141.00 | 141.00 | 141.00 | 141.00 |
| GAP-010 Rim View FH | 62.10 | 62.10 | 62.10 | 62.10 | 62.10 |
| City of Jerome POTW | 205.00 | 205.00 | 205.00 | 205.00 | 205.00 |
| Unaccounted Springs and Seeps | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Unaccounted Surface Waters | 53.00 | 53.00 | 53.00 | 53.00 | 53.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Box Canyon | 3,567.65 | 3,547.59 | 3,556.85 | 3,565.35 | 3,570.95 |
| TP Export Loss + Attenuation | -652.88 | -649.21 | -650.90 | -652.46 | -653.48 |
| Total Load at Box Canyon | 2,914.77 | 2,898.38 | 2,905.94 | 2,912.89 | 2,917.46 |
| Total Load as mg/L TP | 0.075 | 0.075 | 0.075 | 0.075 | 0.075 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Crystal Springs | 272,025.87 | 268,680.77 | 272,025.87 | 272,025.87 | 272,025.87 |
| NPS (Ag, Graze, Private, Corridor) | 2,041.59 | 2,041.59 | 2,041.59 | 2,041.59 | 2,041.59 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 41.67 | 41.67 | 41.67 | 41.67 | 41.67 |
| Cedar Draw TMDL | 7,380.59 | 7,380.59 | 7,380.59 | 7,380.59 | 7,380.59 |
| Niagara Springs TMDL | 5,728.92 | 5,728.92 | 5,728.92 | 5,728.92 | 5,728.92 |
| Clear Lake TMDL | 25,268.64 | 25,268.64 | 25,268.64 | 25,268.64 | 25,268.64 |
| Mud Creek TMDL | 4,974.96 | 4,974.96 | 4,974.96 | 4,974.96 | 4,974.96 |
| Deep Creek TMDL | 4,904.88 | 4,904.88 | 4,904.88 | 4,904.88 | 4,904.88 |
| Briggs Creek TMDL | 5,498.74 | 5,498.74 | 5,498.74 | 5,498.74 | 5,498.74 |
| Blind Canyon TMDL | 5,349.89 | 5,349.89 | 5,349.89 | 5,349.89 | 5,349.89 |
| Banbury Springs TMDL | 154.31 | 154.31 | 154.31 | 154.31 | 154.31 |
| Box Canyon Springs TMDL | 83.08 | 83.08 | 83.08 | 83.08 | 83.08 |
| Blue Heart TMDL | 76.73 | 76.73 | 76.73 | 76.73 | 76.73 |
| McMullen Creek TMDL | 204.60 | 204.60 | 204.60 | 204.60 | 204.60 |
| Cottonwood Creek TMDL | 117.65 | 117.65 | 117.65 | 117.65 | 117.65 |

| | | | | | |
|---|---|---|---|---|---|
| I Drain | 584.10 | 584.10 | 584.10 | 584.10 | 584.10 |
| J8 Drain | 461.90 | 0.00 | 461.90 | 461.90 | 461.90 |
| N Drain | 223.00 | 223.00 | 223.00 | 223.00 | 223.00 |
| S29 Drain | 135.00 | 0.00 | 135.00 | 135.00 | 135.00 |
| S19/S Drain | 2,710.50 | 2,710.50 | 2,710.50 | 2,710.50 | 2,710.50 |
| GAP-016 Magic Valley Steelhead | 495.00 | 495.00 | 175.60 | 369.50 | **[495.00]** |
| GAP-100 Gary Wright FH | 29.50 | 29.50 | 29.50 | 29.50 | 29.50 |
| GAP-041 FBI/Catfish FH | 55.60 | 61.10 | 61.10 | 50.00 | 50.00 |
| GAP-054 Kaster FH | 345.30 | 345.30 | 345.30 | 345.30 | 345.30 |
| GAP-014 Box Canyon FH | 1,471.10 | 1,471.10 | 1,471.10 | 1,471.10 | 1,471.10 |
| GAP-010 Rim View FH | 690.50 | 690.50 | 690.50 | 690.50 | 690.50 |
| City of Jerome POTW | 375.00 | 375.00 | 375.00 | 375.00 | 375.00 |
| Unaccounted Springs and Seeps | 236.70 | 236.70 | 236.70 | 236.70 | 236.70 |
| Unaccounted Surface Waters | 5,028.20 | 5,028.20 | 5,028.20 | 5,028.20 | 5,028.20 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Box Canyon | 346,693.52 | 342,757.02 | 346,379.62 | 346,562.42 | 346,687.92 |
| Sub Total Load as mg/L TSS | 48.9 | 48.3 | 48.8 | 48.9 | 48.9 |
| TSS Export Loss + Attenuation | -34,669.35 | -34,275.70 | -34,637.96 | -34656.24 | -34,668.79 |
| Total Load at Box Canyon | 312,024.17 | 308,481.32 | 311,741.66 | 311,906.18 | 312,019.13 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

The wasteload allocation for GAP-016 is based on a 4-month grouping three times a year. Therefore, the number in brackets [ ] represents the general wasteload allocation value and not the true wasteload allocation., because GAP-004 requests a seasonal wasteload allocation based on 4-month intervals.

## *CEDAR DRAW TMDL*
## *Segment 3 – Middle Snake River*

Cedar Draw is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Cedar Draw are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Cedar Draw: Load Capacities for TP and TSS
TP = 144.29 cfs x 0.100-mg/L TP x 5.39 = 77.77-lb/day
TSS = 144.29 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 7,380.59-ton/year

Table 3-B summarizes the tributaries and the direct dischargers to Cedar Draw and indicates that the beneficial uses for Cedar Draw will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 3-B. Cedar Draw TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 37.99 | 37.99 | 37.99 | 37.99 | 37.99 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |

| | | | | | |
|---|---|---|---|---|---|
| GAP-028 Rainbow Trout/Filer FH | 5.30 | 5.30 | 5.30 | 5.30 | 5.30 |
| GAP-028 Rainbow Trout/Filer FP | TBD | TBD | TBD | TBD | TBD |
| GAP-059 Olson Ponds FH | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| GAP-046 SeaPac of Idaho/Yoder | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 |
| GAP-046 SeaPac of Idaho FP | TBD | TBD | TBD | TBD | TBD |
| GAP-103 Stutzman Farm FH | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| GAP-019 Cedar Draw FH | 5.70 | 5.70 | 5.70 | 5.70 | 5.70 |
| GAP-115 Leo Martins FH | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| GAP-040 Tunnel Creek FH | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 |
| City of Filer POTW | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 77.77 | 77.77 | 77.77 | 77.77 | 77.77 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 6,845.09 | 6,845.09 | 6,845.09 | 6,845.09 | 6,845.09 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 139.70 | 139.70 | 139.70 | 139.70 | 139.70 |
| GAP-028 Rainbow Trout/Filer FH | 55.60 | 55.60 | 55.60 | 55.60 | 55.60 |
| GAP-028 Rainbow Trout/Filer FP | TBD | TBD | TBD | TBD | TBD |
| GAP-059 Olson Ponds FH | 16.70 | 16.70 | 16.70 | 16.70 | 16.70 |
| GAP-046 SeaPac of Idaho/Yoder | 33.40 | 33.40 | 33.40 | 33.40 | 33.40 |
| GAP-046 SeaPac of Idaho FP | TBD | TBD | TBD | TBD | TBD |
| GAP-103 Stutzman Farm FH | 8.40 | 8.40 | 8.40 | 8.40 | 8.40 |
| GAP-019 Cedar Draw FH | 132.30 | 132.30 | 132.30 | 132.30 | 132.30 |
| GAP-115 Leo Martins FH | 45.70 | 45.70 | 45.70 | 45.70 | 45.70 |
| GAP-040 Tunnel Creek FH | 45.70 | 45.70 | 45.70 | 45.70 | 45.70 |
| City of Filer POTW | 58.00 | 58.00 | 58.00 | 58.00 | 58.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 7,380.59 | 7,380.59 | 7,380.59 | 7,380.59 | 7,380.6 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. TBD = To Be Determined.

## *NIAGARA SPRINGS TMDL*
## *Segment 3 – Middle Snake River*

Niagara Springs is a natural springfed tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Niagara Springs are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Niagara Springs: Load Capacities for TP and TSS
TP = 112.0 cfs x 0.100-mg/L TP x 5.39 = 60.37-lb/day
TSS = 112.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 5,728.92-ton/year

Table 3-C summarizes the tributaries and the direct dischargers to Niagara Springs and indicates that the beneficial uses for Niagara Springs will be met if the point source and nonpoint source allocations are met by Year 2010. It should be noted that total mean flow discharging to the Middle Snake River is 252.8 cfs if the two aquaculture facilities discharged through Niagara Springs "Creek". However, the 252.8 cfs is split between the Rim View Fish Hatchery (FH), which discharges 140.4 cfs directly to the Middle Snake River, and the Niagara Springs/IPC FH, which discharges 112.0 cfs in combination with Niagara Springs through Niagara Springs "Creek". Only

the Niagara Springs/IPC FH discharges to Niagara Springs "Creek". The Rim View FH discharges to the Middle Snake River and is shown in Table 3-A as a discharger to the river.

Table 3-C. Niagara Springs TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 45.05 | 37.45 | 53.15 | 44.55 | 45.05 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| GAP-013 Niagara Springs/IPC FH | 14.40 | 22.00 | 6.30 | 14.90 | **[14.40]** |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 60.37 | 60.37 | 60.37 | 60.37 | 60.37 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 5,265.36 | 5,077.46 | 5,465.66 | 5,252.96 | 5,265.36 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 107.46 | 107.46 | 107.46 | 107.46 | 107.46 |
| GAP-013 Niagara Springs/IPC FH | 356.10 | 544.00 | 155.80 | 368.50 | **[356.10]** |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 5,728.92 | 5,728.92 | 5,728.92 | 5,728.92 | 5,728.92 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

The wasteload allocation for GAP-013 is based on a 4-month grouping three times a year. Therefore, the number in brackets [ ] represents the general wasteload allocation value and not the true wasteload allocation., because GAP-004 requests a seasonal wasteload allocation based on 4-month intervals.

## *CLEAR LAKES TMDL*
## *Segment 3 – Middle Snake River*

Clear Lakes is a natural springfed tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Clear Lakes are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Clear Lakes: Load Capacities for TP and TSS
TP = 494.0 cfs x 0.100-mg/L TP x 5.39 = 266.27-lb/day
TSS = 494.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 25,268.64-ton/year

Table 3-D summarizes the tributaries and the direct dischargers to Clear Lakes and indicates that the beneficial uses for Clear Lakes will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 3-D. Clear Lakes TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 71.92 | 71.92 | 71.92 | 71.92 | 71.92 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 |

| | | | | | |
|---|---|---|---|---|---|
| GAP-007 Middle Hatchery | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| GAP-125 Clear Springs FP | TBD | TBD | TBD | TBD | TBD |
| GAP-011 Clear Lakes Trout FH | 70.90 | 70.90 | 70.90 | 70.90 | 70.90 |
| GAP-011 Clear Lakes Trout FP | TBD | TBD | TBD | TBD | TBD |
| GAP-002 Snake River FH | 47.00 | 47.00 | 47.00 | 47.00 | 47.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 266.27 | 266.27 | 266.27 | 266.27 | 266.27 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 22,564.34 | 22,564.34 | 22,564.34 | 22,564.34 | 22,564.34 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 460.50 | 460.50 | 460.50 | 460.50 | 460.50 |
| GAP-007 Middle Hatchery | 983.70 | 983.70 | 983.70 | 983.70 | 983.70 |
| GAP-125 Clear Springs FP | TBD | TBD | TBD | TBD | TBD |
| GAP-011 Clear Lakes Trout FH | 788.90 | 788.90 | 788.90 | 788.90 | 788.90 |
| GAP-011 Clear Lakes Trout FP | TBD | TBD | TBD | TBD | TBD |
| GAP-002 Snake River FH | 471.20 | 471.20 | 471.20 | 471.20 | 471.20 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 25,268.64 | 25,268.64 | 25,268.64 | 25,268.64 | 25,268.64 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. TBD = To Be Determined.

## *MUD CREEK TMDL*
## *Segment 3 – Middle Snake River*

Mud Creek is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Mud Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Mud Creek: Load Capacities for TP and TSS
TP = 97.26 cfs x 0.100-mg/L TP x 5.39 = 52.42-lb/day
TSS = 97.26 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 4,974.96-ton/year

Table 3-E summarizes the tributaries and the direct dischargers to Mud Creek and indicates that the beneficial uses for Mud Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 3-E. Mud Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 12.56 | 12.56 | 12.56 | 12.56 | 12.56 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |

| | | | | | |
|---|---|---|---|---|---|
| GAP-102 Rocky Ridge Ranch FH | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| GAP-063 White's Trout FH | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 |
| GAP-064 W&W Trout FH | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| GAP-116 First Ascent FH | 7.20 | 7.20 | 7.20 | 7.20 | 7.20 |
| GAP-079 Blau FH | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| GAP-029 Rainbow Trout/Buhl FH | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 |
| GAP-070 Juker Ponds FH | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| GAP-109 RCP FH | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 |
| City of Buhl POTW | 17.40 | 17.40 | 17.40 | 17.40 | 17.40 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 52.42 | 52.42 | 52.42 | 52.42 | 52.42 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 4,595.18 | 4,595.18 | 4,595.18 | 4,595.18 | 4,595.18 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 |
| Stormwater – Construction Activities | 93.78 | 93.78 | 93.78 | 93.78 | 93.78 |
| GAP-102 Rocky Ridge Ranch FH | 8.40 | 8.40 | 8.40 | 8.40 | 8.40 |
| GAP-063 White's Trout FH | 16.20 | 16.20 | 16.20 | 16.20 | 16.20 |
| GAP-064 W&W Trout FH | 67.40 | 67.40 | 67.40 | 67.40 | 67.40 |
| GAP-116 First Ascent FH | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 |
| GAP-079 Blau FH | 27.50 | 27.50 | 27.50 | 27.50 | 27.50 |
| GAP-029 Rainbow Trout/Buhl FH | 32.00 | 32.00 | 32.00 | 32.00 | 32.00 |
| GAP-070 Juker Ponds FH | 17.70 | 17.70 | 17.70 | 17.70 | 17.70 |
| GAP-109 RCP FH | 13.80 | 13.80 | 13.80 | 13.80 | 13.80 |
| City of Buhl POTW | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 4,974.96 | 4,974.96 | 4,974.96 | 4,975.0 | 4,975.0 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *DEEP CREEK TMDL*
## *Segment 3 – Middle Snake River*

Deep Creek is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Deep Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Deep Creek: Load Capacities for TP and TSS
TP = 95.89 cfs x 0.100-mg/L TP x 5.39 = 51.68-lb/day
TSS = 95.89 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 4,904.88-ton/year

Table 3-F summarizes the tributaries and the direct dischargers to Deep Creek and indicates that the beneficial uses for Deep Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Of note, Deep Creek has eight (8) aquaculture fish hatcheries discharging to it. Several of these hatcheries have seep tunnels and springs as their water source. Others use diversion water from Deep Creek. Still others use water that is coming from laterals and canalways. The High Line Canal acts as the "headwaters" into the lower Deep Creek segment. In addition, any excess flow from the Low Line Canal also discharges into Deep Creek. Thus, Deep Creek acts as an irrigation conveyance during the irrigation season, thus impacting the water quality of Deep Creek. The mean flow from Deep Creek into the Middle Snake River is 95.89 cfs. The overall total effluent

water from the 8 fish hatcheries into Deep Creek is 118.60 cfs. The difference of 22.71 cfs between the mean flow of Deep Creek and the effluent fish hatchery water represents the diversion water that is used for irrigation and reused for aquaculture. This is estimated as 88.3% of the effluent water. A certain portion of the irrigation water is consumptive water and this is estimated as 19.15% or 22.71 cfs. Therefore, 118.60 cfs – 22.71 cfs = 95.89 cfs that is returned to Deep Creek for discharge into the Middle Snake River.

Table 3-F. Deep Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 14.97 | 13.17 | 8.27 | 16.87 | 21.57 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
| McMullen Creek TMDL (Table 3-L) | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| Cottonwood Creek TMDL (Tab. 3-L) | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| GAP-069 Dolana FH | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| GAP-047 Peter's FH | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| GAP-080 Buhl/Fulmer FH | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 |
| GAP-077 Kippes FH | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 |
| GAP-112 Howell FH | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 |
| GAP-053 Jack's FH | 6.70 | 4.20 | 9.30 | 9.00 | 4.30 |
| GAP-057 Cox FH | 6.60 | 6.60 | 6.60 | 6.60 | 6.60 |
| GAP-133 FBI/Gibbs Baker Place | 4.60 | 4.00 | 3.80 | 5.30 | 5.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 51.68 | 51.68 | 51.68 | 51.68 | 51.68 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 3,901.82 | 3,906.12 | 3,911.02 | 3.892.62 | 3,897.52 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 97.36 | 97.36 | 97.36 | 97.36 | 97.36 |
| McMullen Creek TMDL (Table 3-L) | 204.60 | 204.60 | 204.60 | 204.60 | 204.60 |
| Cottonwood Creek TMDL (Tab. 3-L) | 117.70 | 117.70 | 117.70 | 117.70 | 117.70 |
| GAP-069 Dolana FH | 19.20 | 19.20 | 19.20 | 19.20 | 19.20 |
| GAP-047 Peter's FH | 36.40 | 36.40 | 36.40 | 36.40 | 36.40 |
| GAP-080 Buhl/Fulmer FH | 48.70 | 48.70 | 48.70 | 48.70 | 48.70 |
| GAP-077 Kippes FH | 123.00 | 123.00 | 123.00 | 123.00 | 123.00 |
| GAP-112 Howell FH | 24.10 | 24.10 | 24.10 | 24.10 | 24.10 |
| GAP-053 Jack's FH | 142.10 | 142.10 | 142.10 | 142.10 | 142.10 |
| GAP-057 Cox FH | 140.70 | 140.70 | 140.70 | 140.70 | 140.70 |
| GAP-133 FBI/Gibbs Baker Place | 49.20 | 44.90 | 40.00 | 58.40 | 53.50 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 4,904.88 | 4,904.88 | 4,904.88 | 4,904.88 | 4,904.88 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *BRIGGS CREEK TMDL*
## *Segment 3 – Middle Snake River*

Briggs Creek is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Briggs Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Briggs Creek: Load Capacities for TP and TSS
TP = 107.5 cfs x 0.100-mg/L TP x 5.39 = 57.94-lb/day
TSS = 107.5 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 5,498.74-ton/year

Table 3-G summarizes the tributaries and the direct dischargers to Briggs Creek and indicates that the beneficial uses for Briggs Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 3-G. Briggs Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 46.88 | 46.88 | 46.88 | 46.88 | 46.88 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| GAP-088 Briggs Creek FH | 10.10 | 10.10 | 10.10 | 10.10 | 10.10 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 57.94 | 57.94 | 57.94 | 57.94 | 57.94 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 5,278.91 | 5,278.91 | 5,278.91 | 5,278.91 | 5,278.91 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 107.73 | 107.73 | 107.73 | 107.73 | 107.73 |
| GAP-088 Briggs Creek FH | 112.10 | 112.10 | 112.10 | 112.10 | 112.10 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 5,498.74 | 5,498.74 | 5,498.74 | 5,498.74 | 5,498.74 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *BLIND CANYON TMDL*
## *Segment 3 – Middle Snake River*

Blind Canyon is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Blind Canyon are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Blind Canyon: Load Capacities for TP and TSS
TP = 104.59 cfs x 0.100-mg/L TP x 5.39 = 56.34-lb/day
TSS = 104.59 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 5,349.89-ton/year

Table 3-H summarizes the tributaries and the direct dischargers to Blind Canyon and indicates that the beneficial uses for Blind Canyon will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 3-H. Blind Canyon TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 51.70 | 51.70 | 51.70 | 51.70 | 51.70 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| GAP-060 Blind Canyon FH | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 |

| | | | | | |
|---|---|---|---|---|---|
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 56.34 | 56.34 | 56.34 | 56.34 | 56.34 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 5,205.37 | 5,205.37 | 5,205.37 | 5,205.37 | 5,205.37 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 104.72 | 104.72 | 104.72 | 104.72 | 104.72 |
| GAP-060 Blind Canyon FH | 39.80 | 39.80 | 39.80 | 39.80 | 39.80 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 5,349.89 | 5,349.89 | 5,349.89 | 5,349.89 | 5,349.89 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *BANBURY SPRINGS TMDL*
## *Segment 3 – Middle Snake River*

Banbury Springs is a natural springfed tributary to the Snake River with nonpoint sources discharging to it. The load allocations for Banbury Springs are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.020-mg/L TP and 1.3-mg/L TSS. Banbury Springs "Creek" was not listed in the 1998 303(d) lit but was assessed as part of the Upper Snake Rock TMDL assessment process. Part of that assessment demonstrated that Banbury Springs "Creek" was meetings its beneficial uses and/or water quality standards. Consequently, Banbury Springs "Creek" is maintained at existing water quality conditions in order to help achieve the goals for the Snake River. Existing water quality conditions for Banbury Springs "Creek" meet beneficial uses and/or water quality standards.

Banbury Springs: Load Capacities for TP and TSS
TP = 120.67 cfs x 0.020-mg/L TP x 5.39 = 13.01-lb/day
TSS = 120.67 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 154.31-ton/year

Table 3-I summarizes the tributaries and the direct dischargers to Banbury Springs and indicates that the existing beneficial uses for Banbury Springs are being met. Point source and nonpoint source allocations are also shown as part of the existing beneficial uses.

Table 3-I. Banbury Springs TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 12.75 | 12.75 | 12.75 | 12.75 | 12.75 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 13.01 | 13.01 | 13.01 | 13.01 | 13.01 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 151.22 | 151.22 | 151.22 | 151.22 | 151.22 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 154.31 | 154.31 | 154.31 | 154.31 | 154.31 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *BOX CANYON TMDL*
## *Segment 3 – Middle Snake River*

Box Canyon is a natural springfed tributary to the Snake River with nonpoint sources discharging to it. The load allocations for Box Canyon are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.020-mg/L TP and 1.3-mg/L TSS. Box Canyon "Creek" was not listed in the 1998 303(d) lit but was assessed as part of the Upper Snake Rock TMDL assessment process. Part of that assessment demonstrated that Box Canyon "Creek" was meetings its beneficial uses and/or water quality standards. Consequently, Box Canyon "Creek" is maintained at existing water quality conditions in order to help achieve the goals for the Snake River. Existing water quality conditions for Box Canyon "Creek" meet beneficial uses and/or water quality standards.

Box Canyon: Load Capacities for TP and TSS
TP = 64.97 cfs x 0.020-mg/L TP x 5.39 = 7.00-lb/day
TSS = 64.97 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 83.08-ton/year

Table 3-J summarizes the tributaries and the direct dischargers to Box Canyon and indicates that the existing beneficial uses for Box Canyon are being met. Point source and nonpoint source allocations are also shown as part of the existing beneficial uses.

Table 3-J. Box Canyon TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 6.86 | 6.86 | 6.86 | 6.86 | 6.86 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 81.42 | 81.42 | 81.42 | 81.42 | 81.42 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.66 | 1.66 | 1.66 | 1.66 | 1.66 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 83.08 | 83.08 | 83.08 | 83.08 | 83.08 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *BLUE HEART SPRING TMDL*
## *Segment 3 – Middle Snake River*

Blue Heart Springs is a natural springfed tributary to the Snake River with nonpoint sources discharging to it. The load allocations for Blue Heart Springs are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.020-mg/L TP and 1.3-mg/L TSS. Box

Canyon "Creek" was not listed in the 1998 303(d) lit but was assessed as part of the Upper Snake Rock TMDL assessment process. Part of that assessment demonstrated that Box Canyon "Creek" was meetings its beneficial uses and/or water quality standards. Consequently, Box Canyon "Creek" is maintained at existing water quality conditions in order to help achieve the goals for the Snake River. Existing water quality conditions for Box Canyon "Creek" meet beneficial uses and/or water quality standards. It is noted that Blue Heart Springs' flow comes as an underground outflow from the associated aquifer. The Blue Heart Springs' system is shaped as a horseshoe and has an outlet that feeds directly its spring water into the Middle Snake River. When the river's flow is high, backwater from the river can flow into the Blue Heart Springs area.

Blue Heart Springs: Load Capacities for TP and TSS
TP = 60.0 cfs x 0.020-mg/L TP x 5.39 = 6.47-lb/day
TSS = 60.0 cfs x 1.3-mg/L TSS x 5.39 x 0.1825 = 76.73-ton/year

Table 3-K summarizes the tributaries and the direct dischargers to Blue Heart Springs and indicates that the existing beneficial uses for Blue Heart Springs are being met. Point source and nonpoint source allocations are also shown as part of the existing beneficial uses.

Table 3-K. Blue Heart Springs TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 6.34 | 6.34 | 6.34 | 6.34 | 6.34 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.020 mg/L TP) | 6.47 | 6.47 | 6.47 | 6.47 | 6.47 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 75.20 | 75.20 | 75.20 | 75.20 | 75.20 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 |
| Point Sources | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 1.3 mg/L TSS) | 76.73 | 76.73 | 76.73 | 76.73 | 76.73 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *MCMULLEN CREEK TMDL and COTTONWOOD CREEK TMDL*
## *Segment 3 – Middle Snake River*
## *Discharge into Deep Creek*

McMullen Creek and Cottonwood Creek are natural tributaries to the Rock Creek system with nonpoint sources discharging to it. The load allocations for McMullen Creek and Cottonwood Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS. It is noted that the High Line Canal intercepts McMullen Creek and Cottonwood Creek except in those years when heavy snow creates high flow conditions. The High Line Canal eventually discharges to Deep Creek. Since there is a hydrologic connection between Deep Creek and these two creeks, the overall loading to Deep Creek includes these two creeks.

McMullen Creek: Load Capacities for TP and TSS
TP = 4.0 cfs x 0.100-mg/L TP x 5.39 = 2.16-lb/day
TSS = 4.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 204.60-ton/year
Cottonwood Creek: Load Capacities for TP and TSS
TP = 2.3 cfs x 0.100-mg/L TP x 5.39 = 1.24-lb/day
TSS = 2.3 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 117.65-ton/year

Table 3-L summarizes the tributaries and the direct dischargers to McMullen Creek and Cottonwood Creek and indicates that the beneficial uses for McMullen Creek and Cottonwood Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 3-L. McMullen Creek TMDL and Cottonwood Creek TMDL (Discharges into Deep Creek)

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Deep Creek (Table 3-F) | 48.28 | 48.28 | 48.28 | 48.28 | 48.28 |
| McMullen Creek TMDL | | | | | |
| NPS (Ag, Graze, Private, Corridor) | 2.12 | 2.12 | 2.12 | 2.12 | 2.12 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 |
| Cottonwood Creek TMDL | | | | | |
| NPS (Ag, Graze, Private, Corridor) | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 1.24 | 1.24 | 1.24 | 1.24 | 1.24 |
| Deep Creek + McMullen Creek + Cottonwood Creek | | | | | |
| Deep Creek + McMullen Creek + Cottonwood Creek Total Load | 51.68 | 51.68 | 51.68 | 51.68 | 51.68 |

| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Deep Creek (Table 3-F) | 4,904.88 | 4,904.88 | 4,904.88 | 4,904.88 | 4,904.88 |
| McMullen Creek | | | | | |
| NPS (Ag, Graze, Private, Corridor) | 200.51 | 200.51 | 200.51 | 200.51 | 200.51 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 4.09 | 4.09 | 4.09 | 4.09 | 4.09 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 204.60 | 204.60 | 204.60 | 204.60 | 204.60 |
| Cottonwood Creek TMDL | | | | | |
| NPS (Ag, Graze, Private, Corridor) | 115.30 | 115.30 | 115.30 | 115.30 | 115.30 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 2.35 | 2.35 | 2.35 | 2.35 | 2.35 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 117.65 | 117.65 | 117.65 | 117.65 | 117.65 |
| Deep Creek + McMullen Creek + Cottonwood Creek | | | | | |
| Deep Creek + McMullen Creek + | 4,904.83 | 4,904.83 | 4,904.83 | 4,904.83 | 4,904.83 |

| | | | | | |
|---|---|---|---|---|---|
| Cottonwood Creek Total Load | | | | | |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## 10.4 SEGMENT 4 – MIDDLE SNAKE RIVER – Box Canyon to Gridley Bridge

The load allocations for Segment 4 of the Middle Snake River are defined as follows based on mean flows. These loads represent input loads to Segment 4 at Box Canyon. The equivalent pollutant concentrations are 0.075-mg/L TP and 48.9-mg/L TSS.

Box Canyon Load Considerations: Input to Segment 4
TP = 7,212.0 cfs x 0.075-mg/L TP x 5.39 = 2,914.77-lb/day
TSS = 7,212.0 cfs x 48.9-mg/L TSS x 5.39 x 0.1825 = 346,693.52-ton/year

The following export loads at Gridley Bridge are output loads from Segment 4. Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.090-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 4. Similarly, the TSS concentration shows an increase to 49.9-mg/L TSS with a reduction to 44.9-mg/L TSS due to export loss/attenuation within Segment 4.

Gridley Bridge Load Considerations: Output from Segment 4
TP = 9,113.0 cfs x 0.090-mg/L TP x 5.39 = 4,439.65-lb/day
TP Export Loss/Attenuation = 17.0%
TP = 9,113.0 cfs x 0.075-mg/L TP x 5.39 = 3,684.91-lb/day

TSS = 9,113.0 cfs x 49.9-mg/L TSS x 5.39 x 0.1825 = 446,976.62-ton/year
TSS Export Loss/Attenuation = 10.0%
TSS = 9,113.0 cfs x 44.0-mg/L TSS x 5.39 x 0.1825 = 402,278.96-ton/year

In the pollutant transport from Segment 3 to Segment 4, the TP load used for input into Segment 4 was 2,914.77-lb/day TP as 0.075-mg/L TP. The TSS load used for input into Segment 4 was 346,693.52-ton/year TSS as 48.9-mg/L TSS. Table 4-A summarizes the Segment 4 tributaries and the direct dischargers to the Middle Snake River and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 4-A. Segment 4 Allocations for TP and TSS

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Box Canyon | 2,914.77 | 2,898.38 | 2,905.94 | 2,912.89 | 2,917.46 |
| NPS (Ag, Graze, Private, Corridor) | 447.38 | 447.38 | 447.38 | 447.38 | 447.38 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 9.13 | 9.13 | 9.13 | 9.13 | 9.13 |
| Ritter Creek TMDL | 736.76 | 736.76 | 736.76 | 736.76 | 736.76 |
| Riley Creek TMDL | 113.18 | 113.18 | 113.18 | 113.18 | 113.18 |
| Sand Springs TMDL | 49.40 | 49.40 | 49.40 | 49.40 | 49.40 |
| Salmon Falls Creek TMDL | 80.53 | 80.53 | 80.53 | 80.53 | 80.53 |
| W-26 Drain | 9.80 | 0.00 | 9.80 | 9.80 | 9.80 |
| GAP-009 Pisces/Magic Springs | 50.10 | 50.10 | 50.10 | 50.10 | 50.10 |
| U of I Research Center Lab | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| Unaccounted Springs and Seeps | 7.80 | 7.80 | 7.80 | 7.80 | 7.80 |
| Unaccounted Surface Waters | 20.80 | 20.80 | 20.80 | 20.80 | 20.80 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Gridley Bridge | 4,439.65 | 4,413.46 | 4,430.82 | 4,437.77 | 4,442.34 |
| TP Export Loss + Attenuation | -754.74 | -750.29 | -753.24 | -754.42 | -755.20 |
| Total Load at Gridley Bridge | 3,684.91 | 3,663.17 | 3,677.58 | 3,683.35 | 3,687.15 |
| Total Load as mg/L TP | 0.075 | 0.075 | 0.075 | 0.075 | 0.075 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Box Canyon | 346,693.52 | 342,757.02 | 346,379.62 | 346,562.42 | 346,687.92 |
| NPS (Ag, Graze, Private, Corridor) | 9,130.26 | 9,130.26 | 9,130.26 | 9,130.26 | 9,130.26 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 186.33 | 186.33 | 186.33 | 186.33 | 186.33 |
| Ritter Creek TMDL | 69,918.44 | 69,918.44 | 69,918.44 | 69,918.44 | 69,918.44 |
| Riley Creek TMDL | 5,163.80 | 5,163.80 | 5,168.80 | 5,168.80 | 5,168.80 |
| Sand Springs TMDL | 4,688.00 | 4,688.00 | 4,688.00 | 4,688.00 | 4,688.00 |
| Salmon Falls Creek TMDL | 7,641.97 | 7,641.97 | 7,641.97 | 7,641.97 | 7,641.97 |
| W-26 Drain | 928.90 | 0.00 | 928.90 | 928.90 | 928.90 |
| GAP-009 Pisces/Magic Springs | 557.30 | 557.30 | 557.30 | 557.30 | 557.30 |
| U of I Research Center Lab | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Unaccounted Springs and Seeps | 92.80 | 92.80 | 92.80 | 92.80 | 92.80 |
| Unaccounted Surface Waters | 1,974.40 | 1,974.40 | 1,974.40 | 1,974.40 | 1,974.40 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Gridley Bridge | 446,976.62 | 442,110.32 | 446,661.82 | 446,844.62 | 446,970.12 |
| Sub Total Load at mg/L TSS | 49.9 | 49.3 | 49.8 | 49.8 | 49.9 |
| TSS Export Loss + Attenuation | -44,697.66 | -44,211.03 | -44,666.18 | -44,684.46 | -44,697.01 |
| Total Load at Gridley Bridge | 402,278.96 | 397,899.29 | 401,995.64 | 402,160.16 | 402,273.11 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *RITTER CREEK TMDL (THOUSAND SPRINGS TMDL)*
## *Segment 4 – Middle Snake River*

Ritter Creek (or Thousand Springs "Creek") is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Ritter Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Ritter Creek: Load Capacities for TP and TSS
TP = 1,366.9 cfs x 0.100-mg/L TP x 5.39 = 736.76-lb/day
TSS = 1,366.9 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 69,918.44-ton/year

Table 4-B summarizes the tributaries and the direct dischargers to Ritter Creek and indicates that the beneficial uses for Ritter Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 4-B. Ritter Creek TMDL (Thousand Springs TMDL)

| /TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 708.50 | 708.50 | 708.50 | 708.50 | 708.50 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 14.46 | 14.46 | 14.46 | 14.46 | 14.46 |
| GAP-061 Ten Springs | 13.80 | 13.80 | 13.80 | 13.80 | 13.80 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 736.76 | 736.76 | 736.76 | 736.76 | 736.76 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 68,369.64 | 68,369.64 | 68,369.64 | 68,369.64 | 68,369.64 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1,395.30 | 1,395.30 | 1,395.30 | 1,395.30 | 1,395.30 |
| GAP-061 Ten Springs | 153.50 | 153.50 | 153.50 | 153.50 | 153.50 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 69,918.44 | 69,918.44 | 69,918.44 | 69,918.44 | 69,918.44 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *RILEY CREEK TMDL*
## *Segment 4 – Middle Snake River*

Riley Creek is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Riley Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 25.0-mg/L TSS. The 25.0-mg/L TSS is because of the special resource water designation and beneficial use for domestic water supply.

Riley Creek: Load Capacities for TP and TSS
TP = 209.98 cfs x 0.100-mg/L TP x 5.39 = 113.18-lb/day
TSS = 209.98 cfs x 25.0-mg/L TSS x 5.39 x 0.1825 = 5,163.80-ton/year

Table 4-C summarizes the tributaries and the direct dischargers to Riley Creek and indicates that the beneficial uses for Riley Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 4-C. Riley Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 98.96 | 93.36 | 105.16 | 98.36 | 98.96 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 2.02 | 2.02 | 2.02 | 2.02 | 2.02 |
| GAP-004 USFWS FH (Federal) | 12.20 | 17.80 | 6.00 | 12.80 | **[12.20]** |
| GAP-003 IDFG FH (State) | 17.20 | 23.10 | 23.10 | 11.30 | 11.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 113.18 | 113.18 | 113.18 | 113.18 | 113.18 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 4,807.00 | 4,715.80 | 4,906.70 | 4,798.50 | 4,807.00 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 98.10 | 98.10 | 98.10 | 98.10 | 98.10 |

| | | | | | |
|---|---|---|---|---|---|
| GAP-004 USFWS FH (Federal) | 258.70 | 349.90 | 159.00 | 267.20 | **[258.70]** |
| GAP-003 IDFG FH (State) | 435.80 | 585.30 | 585.30 | 286.30 | 286.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 25.0 mg/L TSS) | 5,163.80 | 5,163.80 | 5,163.80 | 5,163.80 | 5,163.80 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

The wasteload allocation for GAP-004 is based on a 4-month grouping three times a year. Therefore, the number in brackets [ ] represents the general wasteload allocation value and not the true wasteload allocation., because GAP-004 requests a seasonal wasteload allocation based on 4-month intervals.

## *SAND SPRINGS CREEK TMDL*
## *Segment 4 – Middle Snake River*

Sand Springs "Creek" is a natural tributary to the Snake River with nonpoint sources discharging to it. The load allocations for Sand Springs are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Sand Springs: Load Capacities for TP and TSS
TP = 91.65 cfs x 0.100-mg/L TP x 5.39 = 49.40-lb/day
TSS = 91.65 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 4,688.00-ton/year

Table 4-D summarizes the tributaries and the direct dischargers to Sand Springs and indicates that the beneficial uses for Sand Springs will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 4-D. Sand Springs TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 48.41 | 48.41 | 48.41 | 48.41 | 48.41 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 49.40 | 49.40 | 49.40 | 49.40 | 49.40 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 4,594.2 | 4,594.2 | 4,594.2 | 4,594.2 | 4,594.2 |
| FERC, LAFs, CFOs | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Stormwater – Construction Activities | 93.8 | 93.8 | 93.8 | 93.8 | 93.8 |
| Point Sources | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 4,688.0 | 4,688.0 | 4,688.0 | 4,688.0 | 4,688.0 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *SALMON FALLS CREEK TMDL*
## *Segment 4 – Middle Snake River*

Salmon Falls Creek is a natural tributary to the Snake River with nonpoint sources discharging to it. The load allocations for Salmon Falls Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Salmon Falls Creek: Load Capacities for TP and TSS
TP = 149.4 cfs x 0.100-mg/L TP x 5.39 = 80.53-lb/day
TSS = 149.4 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 7,641.97-ton/year

Table 4-E summarizes the tributaries and the direct dischargers to Salmon Falls Creek and indicates that the beneficial uses for Salmon Falls Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 4-E. Salmon Falls Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 78.92 | 78.92 | 78.92 | 78.92 | 78.92 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 80.53 | 80.53 | 80.53 | 80.53 | 80.53 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 7,489.13 | 7,489.13 | 7,489.13 | 7,489.13 | 7,489.13 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 152.84 | 152.84 | 152.84 | 152.84 | 152.84 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 7,641.97 | 7,641.97 | 7,641.97 | 7,641.97 | 7,641.97 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## 10.5 SEGMENT 5 – MIDDLE SNAKE RIVER – Gridley Bridge to Shoestring Bridge

The load allocations for Segment 5 of the Middle Snake River are defined as follows based on mean flows. These loads represent input loads to Segment 5 at Gridley Bridge. The equivalent pollutant concentrations are 0.075-mg/L TP and 49.9-mg/L TSS.

Gridley Bridge Load Considerations: Input to Segment 5
TP = 9,113.0 cfs x 0.075-mg/L TP x 5.39 = 3,684.91-lb/day
TSS = 9,113.0 cfs x 49.9-mg/L TSS x 5.39 x 0.1825 = 446,975.72-ton/year

The following export loads at Shoestring Bridge are output loads from Segment 5. Export loss/attenuation are estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.083-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 5. Similarly, the TSS concentration shows a decrease to 49.3-mg/L TSS with a reduction to 44.4-mg/L TSS due to export loss/attenuation within Segment 5.

Shoestring Bridge Load Considerations: Output from Segment 5
TP = 11,108.0 cfs x 0.083-mg/L TP x 5.39 = 4,977.97-lb/day
TP Export Loss/Attenuation = 9.8%
TP = 11,108.0 cfs x 0.075-mg/L TP x 5.39 = 4,490.13-lb/day

TSS = 11,108.0 cfs x 49.3-mg/L TSS x 5.39 x 0.1825 = 538,878.12-ton/year
TSS Export Loss/Attenuation = 10.0%
TSS = 11,108.0 cfs x 44.4-mg/L TSS x 5.39 x 0.1825 = 484,990.31-ton/year

In the pollutant transport from Segment 4 to Segment 5, the TP load used for input into Segment 5 was 3,684.91-lb/day TP as 0.075-mg/L TP. The TSS load used for input into Segment 5 was 446,975.72-ton/year TSS as 49.9-mg/L TSS. Table 5-A summarizes the Segment 5 tributaries and the direct dischargers to the Middle Snake River and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 5-A. Segment 5 Allocations for TP and TSS

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Gridley Bridge | 3,684.91 | 3,663.17 | 3,677.58 | 3,683.35 | 3,687.15 |
| NPS (Ag, Graze, Private, Corridor) | 95.24 | 95.24 | 95.24 | 95.24 | 95.24 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 1.94 | 1.94 | 1.94 | 1.94 | 1.94 |
| Billingsley Creek TMDL | 325.66 | 325.66 | 325.66 | 325.66 | 325.66 |
| Birch Creek TMDL | 10.08 | 10.08 | 10.08 | 10.08 | 10.08 |
| Stoddard Creek TMDL | 9.16 | 9.16 | 9.16 | 9.16 | 9.16 |
| Decker Springs Creek TMDL | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 |
| Malad River TMDL | 97.02 | 97.02 | 97.02 | 97.02 | 97.02 |
| Malad River Power Flume TMDL | 610.15 | 610.15 | 610.15 | 610.15 | 610.15 |
| GAP-111 FBI/Hensley FH | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 |
| GAP-065 Buckeye Ranch FH | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 |
| GAP-056 Big Bend Trout FH | 13.60 | 13.60 | 13.60 | 13.60 | 13.60 |
| GAP-082 Billingsley Bay FH | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 |
| GAP-098 Lyn Clif Farms FH | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 |
| GAP-020 White Springs FH | 13.50 | 13.50 | 13.50 | 13.50 | 13.50 |
| GAP-090 Smith FH | 6.20 | 7.80 | 5.00 | 5.00 | 7.00 |
| GAP-118 Slane FH | 1.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| GAP-119 John Fleming FH | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 |
| GAP-120 Stevenson FH | 2.40 | 2.40 | 2.40 | 2.40 | 2.40 |
| GAP-076 Lemmon Ponds | 1.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| City of Hagerman POTW | 5.70 | 5.70 | 5.70 | 5.70 | 5.70 |
| Unaccounted Springs and Seeps | 17.60 | 17.60 | 17.60 | 17.60 | 17.60 |
| Unaccounted Surface Waters | 46.70 | 46.70 | 46.70 | 46.70 | 46.70 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Shoestring | 4,978.51 | 4,958.37 | 4,969.98 | 4,975.75 | 4,981.55 |
| TP Export Loss | -487.89 | -485.92 | -487.06 | -487.62 | -488.19 |
| Total Load at Shoestring Bridge | 4,490.61 | 4,472.45 | 4,482.93 | 4,488.13 | 4,493.35 |
| Total Load as mg/L TP | 0.075 | 0.075 | 0.075 | 0.075 | 0.075 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Gridley Bridge | 446,975.72 | 442,110.32 | 446,661.82 | 446,844.62 | 446,970.12 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 1,943.64 | 1,943.64 | 1,943.64 | 1,943.64 | 1,943.64 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 39.67 | 39.67 | 39.67 | 39.67 | 39.67 |
| Billingsley Creek TMDL | 14,855.95 | 14,855.95 | 14,855.95 | 14,855.95 | 14,855.95 |
| Birch Creek TMDL | 956.53 | 956.53 | 956.53 | 956.53 | 956.53 |
| Stoddard Creek TMDL | 869.57 | 869.57 | 869.57 | 869.57 | 869.57 |
| Decker Springs Creek TMDL | 608.70 | 608.70 | 608.70 | 608.70 | 608.70 |
| Malad River TMDL | 9,207.20 | 9,207.20 | 9,207.20 | 9,207.20 | 9,207.20 |
| Malad River Power Flume TMDL | 57,803.04 | 57,803.04 | 57,803.04 | 57,803.04 | 57,803.04 |
| GAP-111 FBI/Hensley FH | 40.30 | 40.30 | 40.30 | 40.30 | 40.30 |
| GAP-065 Buckeye Ranch FH | 127.90 | 127.90 | 127.90 | 127.90 | 127.90 |
| GAP-056 Big Bend Trout FH | 190.80 | 190.80 | 190.80 | 190.80 | 190.80 |
| GAP-082 Billingsley Bay FH | 233.10 | 233.10 | 233.10 | 233.10 | 233.10 |
| GAP-098 Lyn Clif Farms FH | 53.60 | 53.60 | 53.60 | 53.60 | 53.60 |
| GAP-020 White Springs FH | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 |
| GAP-090 Smith FH | 66.40 | 82.90 | 82.90 | 50.00 | 50.00 |
| GAP-118 Slane FH | 20.20 | 20.20 | 20.20 | 20.20 | 20.20 |
| GAP-119 John Fleming FH | 27.50 | 27.50 | 27.50 | 27.50 | 27.50 |
| GAP-120 Stevenson FH | 25.10 | 25.10 | 25.10 | 25.10 | 25.10 |
| GAP-076 Lemmon Ponds | 20.20 | 20.20 | 20.20 | 20.20 | 20.20 |
| City of Hagerman POTW | 18.60 | 18.60 | 18.60 | 18.60 | 18.60 |
| Unaccounted Springs and Seeps | 208.70 | 208.70 | 208.70 | 208.70 | 208.70 |
| Unaccounted Surface Waters | 4,434.80 | 4,434.80 | 4,434.80 | 4,434.80 | 4,434.80 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at Shoestring | 538,905.47 | 534,056.57 | 538,608.07 | 538,757.97 | 538,883.47 |
| Sub Total Load as mg/L TSS | 49.3 | 48.9 | 49.3 | 49.3 | 49.3 |
| TSS Export Loss | -53,890.55 | -53,405.66 | -53,860.81 | -53,875.80 | -53,888.35 |
| Total Load at Shoestring Bridge | 485,014.92 | 480,650.91 | 484,747.26 | 484,882.17 | 484,995.12 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *BILLINGSLEY CREEK TMDL*
## *Segment 5 – Middle Snake River*

The Billingsley Creek stream is a springfed system that is utilized for aquaculture fish hatcheries, agriculture, domestic water supply, and recreation. This stream has been suffering from reductions in water volume as a consequence of diversions and upstream groundwater users who pump directly from the aquifer. Because of these water volume reductions, it is difficult to ascertain the amount of water that discharges to the Middle Snake River on an annual basis from year-to-year. The evidence indicates that water flows to the Middle Snake River have been decreasing for over 15 years. Presently (2004), the discharge is less than 20 cfs. The Billingsley Creek TMDL is presently under review by DEQ and will be finalized as Part 3 immediately after the submission of Part 2.

Presently, the Billingsley Creek TMDL is included for informational purposes only to the public. It is subdivided into 12 TMDLs based on segmentation of Billingsley Creek. Some portions of Billingsley Creek allow for diversion to occur from the creek itself to aquaculture facilities. Table 5-B describes the overall Billingsley Creek TMDL and provisionally demonstrates that beneficial uses are met. However, the total flow utilized is 604.20 cfs, which is an over estimate, is the result of summing up all of the flows in the 12 reaches being considered on Billingsley Creek.

There is probably doubling up of some of the flows, thus making it appear as if the flows are large when in fact they are not.

Table 5-B. Billingsley Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 230.20 | 230.20 | 230.20 | 230.20 | 230.20 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 4.70 | 4.70 | 4.70 | 4.70 | 4.70 |
| 1. Curren Springs TMDL | 7.90 | 7.90 | 7.90 | 7.90 | 7.90 |
| 2. Spring Creek TMDL | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 |
| 3. Weatherby Springs TMDL | 18.30 | 18.30 | 18.30 | 18.30 | 18.30 |
| 4. Potter Springs TMDL | 2.30 | 2.30 | 2.30 | 2.30 | 2.30 |
| 5. Tupper Springs TMDL | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| 6. Fisher Lake TMDL | 19.90 | 19.90 | 19.90 | 19.90 | 19.90 |
| 7. Hidden Springs TMDL | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| 8. Ruby Springs TMDL | 32.70 | 32.70 | 32.70 | 32.70 | 32.70 |
| 9. Florence Springs TMDL | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 10. Billingsley Creek TMDL | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| 11. South Lateral BC TMDL | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 326.20 | 326.20 | 326.20 | 326.20 | 326.20 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 13,168.75 | 13,168.75 | 13,168.75 | 13,168.75 | 13,168.75 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 268.75 | 268.75 | 268.75 | 268.75 | 268.75 |
| 1. Curren Springs TMDL | 101.00 | 101.00 | 101.00 | 101.00 | 101.00 |
| 2. Spring Creek TMDL | 30.60 | 30.60 | 30.60 | 30.60 | 30.60 |
| 3. Weatherby Springs TMDL | 186.30 | 186.30 | 186.30 | 186.30 | 186.30 |
| 4. Potter Springs TMDL | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 |
| 5. Tupper Springs TMDL | 6.40 | 6.40 | 6.40 | 6.40 | 6.40 |
| 6. Fisher Lake TMDL | 473.50 | 473.50 | 473.50 | 473.50 | 473.50 |
| 7. Hidden Springs TMDL | 48.80 | 48.80 | 48.80 | 48.80 | 48.80 |
| 8. Ruby Springs TMDL | 459.30 | 459.30 | 459.30 | 459.30 | 459.30 |
| 9. Florence Springs TMDL | 18.20 | 18.20 | 18.20 | 18.20 | 18.20 |
| 10. Billingsley Creek TMDL | 52.70 | 52.70 | 52.70 | 52.70 | 52.70 |
| 11. South Lateral BC TMDL | 34.70 | 34.70 | 34.70 | 34.70 | 34.70 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 25.0 mg/L TSS) | 14,884.20 | 14,884.20 | 14,884.20 | 14,884.20 | 14,884.20 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor. BC = Billingsley Creek.

## *BIRCH SPRINGS "CREEK" TMDL*
## *Segment 5 – Middle Snake River*

Birch Springs "Creek" is a natural springfed tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Birch Springs "Creek" are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Birch Springs "Creek": Load Capacities for TP and TSS
TP = 18.7 cfs x 0.100-mg/L TP x 5.39 = 10.08-lb/day
TSS = 18.7 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 956.53-ton/year

It is noted that the full flow of Birch Springs "Creek" is captured and utilized for the aquaculture fish hatcheries and agriculture. A number of input seeps and smaller springs discharge into the "creek". Because reuse of the effluent is occurring through the facilities, and because some of the effluent is used as irrigation, double counting of the flow is possible. This TMDL modification will need to be assessed more fully prior to the 5-year milestone (2005) to determine a more accurate flow value. Table 5-C summarizes the tributaries and the direct dischargers to Birch Springs "Creek" and indicates that the beneficial uses for Birch Springs "Creek" will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 5-C. Birch Springs "Creek" TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| GAP-087 C. J. Simms FH | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 |
| GAP-105 Mike Fleming FH | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| GAP-062 Birch Creek FH | 4.30 | 4.30 | 4.30 | 4.30 | 4.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 10.08 | 10.08 | 10.08 | 10.08 | 10.08 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 837.05 | 837.05 | 837.05 | 837.05 | 837.05 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 17.08 | 17.08 | 17.08 | 17.08 | 17.08 |
| GAP-087 C. J. Simms FH | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 |
| GAP-105 Mike Fleming FH | 26.60 | 26.60 | 26.60 | 26.60 | 26.60 |
| GAP-062 Birch Creek FH | 44.30 | 44.30 | 44.30 | 44.30 | 44.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 956.53 | 956.53 | 956.53 | 956.53 | 956.53 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *STODDARD SPRINGS "CREEK" TMDL*
## *Segment 5 – Middle Snake River*

Stoddard Springs "Creek" is a natural springfed tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Stoddard Springs "Creek" are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Stoddard Springs "Creek": Load Capacities for TP and TSS
TP = 17.0 cfs x 0.100-mg/L TP x 5.39 = 9.16-lb/day
TSS = 17.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 869.57-ton/year

It is noted that the full flow of Stoddard Springs "Creek" is captured and utilized for the aquaculture fish hatcheries and agriculture. A number of input seeps and smaller springs

discharge into the "creek". Because reuse of the effluent is occurring through the facilities, double counting of the flow is possible. This TMDL will need to be assessed more fully prior to the 5-year milestone (2005) to determine a more accurate flow value. Table 5-D summarizes the tributaries and the direct dischargers to Stoddard Springs "Creek" and indicates that the beneficial uses for Stoddard Springs "Creek" will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 5-D. Stoddard Springs "Creek" TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 1.92 | 1.92 | 1.92 | 1.92 | 1.92 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| GAP-049 Bell Ponds FH | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| GAP-117 Standal Ponds FH | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 |
| GAP-026 White Water Ranch FH | 4.30 | 4.30 | 4.30 | 4.30 | 4.30 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 9.16 | 9.16 | 9.16 | 9.16 | 9.16 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 768.39 | 768.39 | 768.39 | 768.39 | 768.39 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 15.68 | 15.68 | 15.68 | 15.68 | 15.68 |
| GAP-049 Bell Ponds FH | 16.70 | 16.70 | 16.70 | 16.70 | 16.70 |
| GAP-117 Standal Ponds FH | 23.60 | 23.60 | 23.60 | 23.60 | 23.60 |
| GAP-026 White Water Ranch FH | 45.20 | 45.20 | 45.20 | 45.20 | 45.20 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 869.57 | 869.57 | 869.57 | 869.57 | 869.57 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *DECKER SPRINGS "CREEK" TMDL*
## *Segment 5 – Middle Snake River*

Decker Springs "Creek" is a natural springfed tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Decker Springs "Creek" are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Decker Springs "Creek": Load Capacities for TP and TSS
TP = 11.9 cfs x 0.100-mg/L TP x 5.39 6.41-lb/day
TSS = 11.9 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 608.70-ton/year

It is noted that the full flow of Decker Springs "Creek" is captured and utilized for the aquaculture fish hatcheries. Table 5-E summarizes the tributaries and the direct dischargers to Decker Springs "Creek" and indicates that the beneficial uses for Decker Springs "Creek" will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 5-E. Decker Springs "Creek" TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |

| | | | | | |
|---|---|---|---|---|---|
| NPS (Ag, Graze, Private, Corridor) | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| GAP-107 Decker FH | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| GAP-106 Woods FH | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 |
| TSS SOURCES | TSS ton/year | SEASONALITY LOADS, ton/year TSS | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 497.25 | 497.25 | 497.25 | 497.25 | 497.25 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 10.15 | 10.15 | 10.15 | 10.15 | 10.15 |
| GAP-107 Decker FH | 52.10 | 52.10 | 52.10 | 52.10 | 52.10 |
| GAP-106 Woods FH | 49.20 | 49.20 | 49.20 | 49.20 | 49.20 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 608.70 | 608.70 | 608.70 | 608.70 | 608.70 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *MALAD RIVER and POWER FLUME TMDL*
## *Segment 5 – Middle Snake River*
## *Discharges into Middle Snake River*

The Malad River is formed from the combination of the Little Wood River discharging into the Big Wood River. At the confluence of these two river systems, the Malad River is formed, and it eventually discharges into the Middle Snake River. The water quality of the Malad River is influenced from the Little Wood River and the Big Wood River systems, as well as from the Malad River springs complex. Consequently, the Malad River is a combination of a natural tributary with the addition of the Malad River spring complex water.

Two miles upstream of the Malad River's confluence with the Middle Snake River, is found the Malad Hydroelectric Project (FERC No. 2726-012 Idaho). The hydroelectric project is divided into two components – an upper development site and a lower development site. The maximum hydraulic capacity of the upper site is 950 cfs, whereas the maximum hydraulic capacity of the lower site is 1400 cfs. Both sites contain concrete diversion dams.

The Malad River has nonpoint sources discharging to it. The load allocations for the Malad River are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Malad River: Load Capacities for TP and TSS
Total TP = 1,312.0 cfs x 0.100 mg/L TP x 5.39 = 707.17 lb/day
Malad River T7P = 180.0 cfs x 0.100-mg/L TP x 5.39 = 97.02-lb/day
Power Flume TP = 1,132.0 cfs x 0.100-mg/L TP x 5.39 = 610.15 lb/day

Total TSS = 1,312.0 cfs x 52.0 mg/L x 5.39 x 0.1825 = 67,110.24 ton/year
Malad River TSS = 180.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 9,207.20-ton/year
Power Flume TSS = 1,132.0 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 57,903.05 ton/year

It is noted that the full flow of Malad River and the Power Flume is captured and utilized for the aquaculture fish hatcheries. Table 5-F summarizes the tributaries and the direct dischargers to

Malad River system (inclusive of the Power Flume). Table 5-F indicates that the beneficial uses for the Malad River system will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 5-F. Malad River and Power Flume TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor): | | | | | |
| Malad River TMDL | 97.02 | 97.02 | 97.02 | 97.02 | 97.02 |
| Power Flume TMDL | 597.95 | 597.95 | 597.95 | 597.95 | 597.95 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 12.20 | 12.20 | 12.20 | 12.20 | 12.20 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 707.17 | 707.17 | 707.17 | 707.17 | 707.17 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor): | | | | | |
| Malad River TMDL | 9,207.20 | 9,207.20 | 9,207.20 | 9,207.20 | 9,207.20 |
| Power Flume TMDL | 57,784.98 | 57,784.98 | 57,784.98 | 57,784.98 | 57,784.98 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 118.06 | 118.06 | 118.06 | 118.06 | 118.06 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 67,110.24 | 67,110.24 | 67,110.24 | 67,110.24 | 67,110.24 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## 10.6 SEGMENT 6 – MIDDLE SNAKE RIVER – Shoestring Bridge to King Hill Bridge

The load allocations for Segment 6 of the Middle Snake River are defined as follows based on mean flows. These loads represent input loads to Segment 6 at Shoestring Bridge. The equivalent pollutant concentrations are 0.075-mg/L TP and 49.3-mg/L TSS.

Shoestring Bridge Load Considerations: Input to Segment 6
TP = 11,108.0 cfs x 0.075-mg/L TP x 5.39 = 4,490.13-lb/day
TSS = 11,108.0 cfs x 49.3-mg/L TSS x 5.39 x 0.1825 = 538,877.22-ton/year

The following export loads at King Hill Bridge are output loads from Segment 6. Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.077-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 6. Similarly, the TSS concentration shows a decrease to 48.7-mg/L TSS with a reduction to 43.8-mg/L TSS due to export loss/attenuation within Segment 6.

King Hill Bridge Load Considerations: Output from Segment 6
TP = 11,398.0 cfs x 0.077-mg/L TP x 5.39 = 4,700.68-lb/day
TP Export Loss/Attenuation = 2.0%
TP = 11,398.0 cfs x 0.075-mg/L TP x 5.39 = 4,606.66-lb/day

TSS = 11,398.0 cfs x 48.7-mg/L TSS x 5.39 x 0.1825 = 546,079.50-ton/year
TSS Export Loss/Attenuation = 10.0%
TSS = 11,398.0 cfs x 43.8-mg/L TSS x 5.39 x 0.1825 = 491,471.55-ton/year

In the pollutant transport from Segment 5 to Segment 6, the TP load used for input into Segment 6 was 4,490.13-lb/day TP as 0.075-mg/L TP. The TSS load used for input into Segment 6 was 538,877.62-ton/year TSS as 49.3-mg/L TSS. Table 6-A summarizes the Segment 6 tributaries and the direct dischargers to the Middle Snake River and demonstrates that beneficial uses will be met if point source and nonpoint source allocations are met by Year 2010.

Table 6-A. Segment 6 Allocations for TP and TSS

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Shoestring Bridge | 4,490.13 | 4,471.96 | 4,482.44 | 4,487.64 | 4,493.35 |
| NPS (Ag, Graze, Private, Corridor) | 103.22 | 103.22 | 103.22 | 103.22 | 103.22 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| Clover Creek TMDL | 21.96 | 21.96 | 21.96 | 21.96 | 21.96 |
| Pioneer Reservoir TMDL | 21.96 | 21.96 | 21.96 | 21.96 | 21.96 |
| Black Mesa Pump – Diversion | -28.10 | -28.10 | -28.10 | -28.10 | -28.10 |
| Wiley Pumps - Diversion | -8.50 | -8.50 | -8.50 | -8.50 | -8.50 |
| Unaccounted Springs and Seeps | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 |
| Unaccounted Surface Waters | 71.10 | 71.10 | 71.10 | 71.10 | 71.10 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at King Hill | 4,700.68 | 4,682.51 | 4,692.99 | 4,698.19 | 4,703.90 |
| TP Export Loss | -94.01 | -93.65 | -93.86 | -93.96 | -94.08 |
| Total Load at King Hill | 4,606.66 | 4,588.86 | 4,599.13 | 4,604.22 | 4,609.82 |
| Total Load as mg/L TP | 0.075 | 0.075 | 0.075 | 0.075 | 0.075 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| Total Load at Shoestring Bridge | 538,905.47 | 534,056.57 | 538,608.07 | 538,757.97 | 538,883.47 |
| NPS (Ag, Graze, Private, Corridor) | 2,277.38 | 2,277.38 | 2,277.38 | 2,277.38 | 2,277.38 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 46.48 | 46.48 | 46.48 | 46.48 | 46.48 |
| Clover Creek TMDL | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 |
| Pioneer Reservoir TMDL | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 |
| Black Mesa Pump – Diversion | -3,252.70 | -3,252.70 | -3,252.70 | -3,252.70 | -3,252.70 |
| Wiley Pumps - Diversion | -987.20 | -987.20 | -987.20 | -987.20 | -987.20 |
| Unaccounted Springs and Seeps | 317.50 | 317.50 | 317.50 | 317.50 | 317.50 |
| Unaccounted Surface Waters | 4,632.00 | 4,632.00 | 4,632.00 | 4,632.00 | 4,632.00 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Sub Total Load at King Hill | 546,107.75 | 541,258.85 | 545,810.35 | 545,960.25 | 546,085.75 |
| Sub Total Load as mg/L TSS | 48.7 | 48.3 | 48.7 | 48.7 | 48.7 |
| TSS Export Loss | -54,610.78 | -54,125.89 | -54,581.04 | -54,596.03 | -54,608.58 |
| Total Load at King Hill | 491,496.98 | 487,132.97 | 491,229.32 | 491,364.23 | 491,477.18 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *CLOVER CREEK TMDL*
## *Segment 6 – Middle Snake River*

Clover Creek is a natural tributary to the Snake River with nonpoint sources and point sources discharging to it. The load allocations for Clover Creek are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS.

Clover Creek: Load Capacities for TP and TSS
TP = 40.75 cfs x 0.100-mg/L TP x 5.39 = 21.96-lb/day
TSS = 40.75 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 2,084.41-ton/year

It is noted that the full flow of Clover Creek is captured and utilized for the aquaculture fish hatcheries. Table 6-B summarizes the tributaries and the direct dischargers to Clover Creek and indicates that the beneficial uses for Clover Creek will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 6-B. Clover Creek TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 21.52 | 21.52 | 21.52 | 21.52 | 21.52 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 21.96 | 21.96 | 21.96 | 21.96 | 21.96 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 2,042.72 | 2,042.72 | 2,042.72 | 2,042.72 | 2,042.72 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 41.69 | 41.69 | 41.69 | 41.69 | 41.69 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## *PIONEER RESERVOIR TMDL*
## *Segment 6 – Middle Snake River*

Pioneer Reservoir is a manmade reservoir on the Clover Creek drainage with nonpoint sources discharging to it. The load allocations for Pioneer Reservoir are defined as follows based on mean flows. The equivalent pollutant concentrations are 0.100-mg/L TP and 52.0-mg/L TSS. It is noted that in the Upper Snake Rock TMDL, the allocations described in Table 105 (p 214) indicate a reduction TSS target of 388.8 ton/year as the year 10 target. This is calculated incorrectly because it is based on the mean TSS value and not the 52.0 mg/L TSS target. In the TMDL Executive Summary (Table 4a, p A-12), it also shows incorrectly the Pioneer Reservoir TMDL as 388.0 ton/year TSS. This is also incorrectly noted in Table 8f, p A-29.

Pioneer Reservoir: Load Capacities for TP and TSS
TP = 40.75 cfs x 0.100-mg/L TP x 5.39 = 21.96-lb/day

TSS = 40.75 cfs x 52.0-mg/L TSS x 5.39 x 0.1825 = 2,084.41-ton/year

Table 6-C summarizes the tributaries and the direct dischargers to Pioneer Reservoir and indicates that the beneficial uses for Pioneer Reservoir will be met if the point source and nonpoint source allocations are met by Year 2010.

Table 6-C. Pioneer Reservoir TMDL

| TP SOURCES | TP lb/day | SEASONALITY LOADS, lb/day TP | | | |
|---|---|---|---|---|---|
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 21.52 | 21.52 | 21.52 | 21.52 | 21.52 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 0.100 mg/L TP) | 21.96 | 21.96 | 21.96 | 21.96 | 21.96 |
| **TSS SOURCES** | **TSS ton/year** | **SEASONALITY LOADS, ton/year TSS** | | | |
| | | Qtr 1 | Qtr 2 | Qtr 3 | Qtr 4 |
| NPS (Ag, Graze, Private, Corridor) | 2,042.72 | 2,042.72 | 2,042.72 | 2,042.72 | 2,042.72 |
| FERC, LAFs, CFOs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stormwater – Construction Activities | 41.69 | 41.69 | 41.69 | 41.69 | 41.69 |
| Point Sources | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Margin of Safety | Implicit | Implicit | Implicit | Implicit | Implicit |
| Total Load (at 52.0 mg/L TSS) | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 | 2,084.41 |

NPS = Nonpoint sources for agriculture, grazing, and private ground. TP = Total phosphorus. TSS = Total suspended solids. Qtr = Quarter. FERC = Hydropower facilities. LAFs = Land application facilities. CFOs = Confined feeding operations. FH = Fish hatchery. FP = Fish processor.

## 11.0 REASONABLE ASSURANCE IN BENEFICIAL USE ATTAINMENT

This section will summarize in succinct fashion how the DEQ will reasonably assure that beneficial use attainment will be achieved in the Middle Snake River and on the various tributaries with the inputs from the aquaculture wasteload allocations. All reasonable assurance discussions are specifically linked to the various TMDLs that are defined within the Upper Snake Rock TMDL.

### *Middle Snake River Beneficial Use Attainment*

This section provides a general summary of the Middle Snake River segments for TP and TSS. All tributaries, whether direct or indirect, are set specifically to assist in meeting the targets in the Middle Snake River as well as in the tributary itself. The net flow for the entire river is the difference between the flow at King Hill (11,398.0 cfs) and the flow at Milner Dam (3,860.0 cfs), which is 7,538.0 cfs. As described in the Upper Snake Rock TMDL (1999) and the Executive Summary (2000), this net flow is translated as average flow.

| | ----------TP Load, lb/day---------- | | |
|---|---|---|---|
| Segment | Output Load | Input Load | Net Load |
| 1 | 1,912.52 | 1,560.41 | 352.11 |
| 2 | 2,222.10 | 1,912.52 | 309.58 |
| 3 | 2,914.77 | 2,222.10 | 692.67 |
| 4 | 3,684.91 | 2,914.77 | 770.14 |
| 5 | 4,490.61 | 3,684.91 | 805.70 |
| 6 | 4,606.66 | 4,490.13 | 116.53 |
| Total Net | 2,694.14 | 2,929.72 | 3,046.73 lb/day TP = 0.075 mg/L TP |

| | (Net) | (Net) | (Summation) |
|---|---|---|---|
| | ----------TSS Load, ton/year---------- | | |
| Segment | Output Load | Input Load | Net Load |
| 1 | 217,817.06 | 197,443.25 | 20,373.81 |
| 2 | 272,025.87 | 217,817.06 | 54,208.81 |
| 3 | 346,693.52 | 272,025.87 | 74,667.65 |
| 4 | 446,975.72 | 346,693.52 | 100,282.20 |
| 5 | 538,905.47 | 446,975.72 | 91,929.75 |
| 6 | 546,079.50 | 538,905.47 | 7,174.03 |
| Total Net | 328,262.44 | 341,622.22 | 348,636.25 ton/year TSS = 47.0 mg/L TSS |
| | (Net) | (Net) | (Summation) |

Bear in mind that within the Middle Snake River, six segments have been designated under the Upper Snake Rock TMDL (1999) to meet water quality standards (0.075 mg/L TP and 52.0 mg/L TSS) as surrogates for beneficial use attainment by Year 2010. That means that seven (7) compliance locations (or six segments) have to meet the water quality surrogate targets. Under the Mid-Snake TMDL (1997) only one compliance point was designated at the Gridley Bridge station. No consideration was given for any of the other compliance location under the Mid-Snake TMDL (1997).

## *Reasonable Assurance in Beneficial Use Attainment*

Reasonable assurance is a component of TMDL development that applies specifically to point sources that have requested a modification in their NPDES permit limits based on promised load allocation components and reductions from the nonpoint source community. Therefore,

1. Point Source Reasonable Assurance. There is a reasonable assurance that point sources will meet their wasteload allocations because the Clean Water Act requires NPDES permits contain limits consistent with approved wasteload allocations. Each TMDL that has a point source has the point source wasteload allocation intended to achieve, in conjunction with reductions from nonpoint sources, compliance with Water Quality Standards and beneficial use attainment. Within the body of the Upper Snake Rock TMDL Modification, there exist 22 streams or stream segments that contain point sources – 5 Middle Snake River segments and 17 tributaries that are specifically structured to meet the surrogate water quality targets for beneficial use attainment.

2. Nonpoint Source Reasonable Assurance. There is a reasonable assurance that nonpoint sources will meet their wasteload allocations and thereby help achieve compliance with Water Quality Standards. Nonpoint source load allocations will be implemented by designated agencies pursuant to Idaho Code §39-3612 and the Water Quality Standards. Within the body of the Upper Snake Rock TMDL Modification, there exist 17 streams or stream segments that contain nonpoint sources – 1 Middle Snake River comprised of six (6) segments and 16 tributaries that are specifically structured to meet the surrogate water quality targets for beneficial use attainment. Presently, there are implementation projects ongoing in several of these nonpoint source streams.

3. Tributaries' Load Capacity. The load capacity of all tributaries is subject to instream water quality targets of 0.100 mg/L TP and 52.0 mg/L TSS or 25.0

mg/L TSS. The water quality targets of 0.100 mg/L TP and 52.0 mg/L TSS are based on free-flowing streams discharging into other free-flowing streams. In streams where the designation is special resource water or drinking water supply, a 25.0 mg/L TSS water quality target has been used with a 0.100 mg/L TP target. All point sources and nonpoint sources have been assigned wasteload and load allocations to meet the water quality targets for beneficial use attainment. No aquaculture facility caused any tributary to exceed the TMDL instream targets. We can thus assume that if these targets are indeed met by the Year 2010, the beneficial uses of the tributaries will be met.

4. Middle Snake River Load Capacity. The Middle Snake River is subject to instream water quality targets of 0.075 mg/L TP and 52.0 mg/L TSS. All point sources and nonpoint sources have been assigned wasteload and load allocations to meet the water quality targets for beneficial use attainment. No aquaculture facility caused any segment of the Middle Snake River to exceed the TMDL instream targets. We can thus assume that if these targets are indeed met by the Year 2010, the beneficial uses of the tributaries will be met in the Middle Snake River.

5. Groundwater Load Capacity. All springs that are discharging into the river or an associated tributary have been set to an instream water quality target surrogate of 0.020 mg/L TP and 1.3 mg/L TSS. In the event that the water quality for TP or TSS elevates statistically to a significant level, then DEQ with the Mid-Snake WAG will re-evaluate the entire TMDL for additional reduction goals. The main premise of the present Upper Snake Rock TMDL is based on groundwater water quality not elevating to significant levels above 0.020 mg/L TP or 1.3 mg/L TSS.

6. Stationary and Seasonal TP Pollutant Concentrations: Relative to the stationary wasteload allocations for TP of the aquaculture facilities, the overall TP total (as wasteload allocations) is 985.66 lb/day TP. That translates to 1.6% above the 970.2 lb/day, which falls within the 10% maximum threshold as described in Section 7.0, subsection 6a. From a concentration perspective, the TP (in mg/L) is the equivalent of 0.075 mg/L TP, which falls within the instream water quality target of 0.075 mg/L TP, thus meeting the instream water quality standard for TP in the Middle Snake River.

   Relative to the seasonal wasteload allocations for TP of the aquaculture facilities, the following list summarizes the seasonal responses:

| Season | Wasteload Allocation | % of 970.2 | Concentration |
|---|---|---|---|
| Winter | 1,017.96 lb/day TP | 4.7% above | 0.077 mg/L TP |
| Spring | 971.56 lb/day TP | 0.1% below | 0.074 mg/L TP |
| Summer | 975.06 lb/day TP | 0.5% above | 0.074 mg/L TP |
| Fall | 977.66 lb/day TP | 0.8% above | 0.074 mg/L TP |

   The highest overage of TP occurred during the winter quarter, followed by fall and summer. As in all cases the overage falls within the 10% maximum threshold as described in Section 7.0, subsection 6a. From a concentration perspective, the TP (in mg/L) is the equivalent of 0.077, 0.074, 0.074, and 0.074 mg/L TP. Only the winter quarter showed the higher increase in TP,

and this was during the coldest months of the year when macrophyte growth is not critical as in the summer. However, the spring, summer, and fall months indicate that the TP concentration is well below the concentration for the instream water quality surrogate target.

7. Stationary and Seasonal TSS Pollutant Concentrations: Relative to the stationary wasteload allocations for TSS of the aquaculture facilities, the overall TSS total (as wasteload allocations) is 12,044.1 ton/year TSS. That translates to 1.4% below the 12,209.9 ton/year, which falls within the 10% maximum threshold as described in Section 7.0, subsection 6a. From a concentration perspective, the TSS (in mg/L) is the equivalent of 5.0 mg/L TP, which falls within the instream water quality target of 5.0 mg/L TSS, thus meeting the instream water quality standard for TSS for aquaculture facilities in the Middle Snake River.

   Relative to the seasonal wasteload allocations for TSS of the aquaculture facilities, the following list summarizes the seasonal responses:

| Season | Wasteload Allocation | % of 970.2 | Concentration |
|---|---|---|---|
| Winter | 12,638.7 ton/year TSS | 3.4% above | 5.2 mg/L TSS |
| Spring | 11,732.3 ton/year TSS | 4.1% below | 4.9 mg/L TSS |
| Summer | 11,922.5 ton/year TSS | 2.4% below | 4.9 mg/L TSS |
| Fall | 12,028.3 ton/year TSS | 1.5% below | 5.0 mg/L TSS |

   The highest overage of TP occurred during the winter months followed by spring, spring, and summer. The overage falls within the 10% maximum threshold as described in Section 7.0, subsection 6a. From a concentration perspective, the TSS (in mg/L) is the equivalent of 5.2, 4.9, 4.9, and 5.0 mg/L TSS. Only the winter quarter showed the higher increase in TSS, and this was during the coldest months of the year when macrophyte growth is not critical as in the summer. However, the spring, summer, and fall months indicate that the TP concentration was well below the concentration for the instream water quality surrogate target.

Based on the foregoing, there is a reasonable assurance that water quality standards and beneficial use support will be reached for TP and TSS as a consequence of the wasteload allocations for the various aquaculture facilities and load allocations for nonpoint sources. In those instances where overages of TP or TSS occurred, such overages occurred during the winter months of the year or at those times when critical flow was not important. A preliminary mid-course assessment is scheduled for Year 2005 with a final assessment in the Year 2010.

## 12.0 REFERENCES

The following references are cited within this TMDL modification document.

Buhidar B. B. 1997. The Middle Snake River Watershed Management Plan – Phase I. [*Also referred to as the Mid-Snake TMDL*.] Twin Falls (ID): IDEQ-TFRO.

Buhidar B. B. 1999A. The Upper Snake Rock Watershed Management Plan. [*Also referred to as the Upper Snake Rock TMDL*.] Twin Falls (ID): IDEQ-TFRO.

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# Appendix A
# Disclosure and Request for Seasonal Wasteload Allocations

The Idaho Department of Environmental Quality requires the individual seasonal quarterly wasteload allocations for each facility that operates seasonally. The seasonal wasteload allocations will be assigned to their respective NPDES permit. Seasonal facilities that do not submit this information to DEQ during the public comment period will not be eligible to receive a seasonal wasteload allocation but will receive the standard wasteload allocation for the entire year. Seasonal wasteload allocations must be determined individually for each facility for total phosphorus and total suspended solids. DEQ has the option to deny or modify the seasonal wasteload allocations if they do not meet beneficial uses and/or water quality standards.

| Quarter | Months | Characteristics |
|---|---|---|
| Qtr 1 | December, January, February | Winter Months |
| Qtr 2 | March, April, May | Spring Months |
| Qtr 3 | June, July, August | Summer Months |
| Qtr 4 | September, October, November | Fall Months |

**Facility Name:** _____
**NPDES No.:** _____

**Check One:** ☐ We desire a seasonal wasteload allocation.
☐ We do not desire a seasonal wasteload allocation.

**Present Wasteload Allocations:** See the appropriate tributary or river segment in the body of the public comment document.

**TOTAL PHOSPHORUS:** _____ **LB/DAY = A**
**TOTAL SUSPENDED SOLIDS:** _____ **TON/YEAR = B**

| | QTR 1 lb/day | QTR 2 lb/day | QTR 3 lb/day | QTR 4 lb/day | Sum of 4 QTRs |
|---|---|---|---|---|---|
| A =___lb/day | | | | | |
| Sum of 4 QTRs divided by 4 = _____ = A (lb/day TP) = TP Base Wasteload Allocation | | | | | |

| | QTR 1 ton/year | QTR 2 ton/year | QTR 3 ton/year | QTR 4 ton/year | Sum of 4 QTRs |
|---|---|---|---|---|---|
| B =___ton/yr | | | | | |
| Sum of 4 QTRs divided by 4 = _____ = B (ton/year TSS) = TSS Base Wasteload Allocation | | | | | |

Signature_____
Date_____
Owner, Operator or Legal Representative

# Appendix B
# Table of Aquaculture Facilities and Their Wasteload Allocations

Appendix B summarizes the aquaculture facilities and their wasteload allocations.

Table Appendix B-1. Stationary Wasteload Allocations for TP and TSS

| GENERAL AQUACULTURE PERMIT | NAME OF FACILITY | VERSION 13 CLASS | SUB COMMITTEE TIER LEVEL | SUB COMMITTEE FLOW, cfs | TP lb/day | TSS ton/year |
|---|---|---|---|---|---|---|
| CLASSIFICATION 1 FACILITIES | | | | | | |
| 002 | Snake River Hatchery | 1 | 1 | 95.8 | 47.00 | 471.2 |
| 006 | Crystal Springs Trout Farm | 1 | 1 | 205.5 | 82.50 | 1,010.7 |
| 007 | Clear Springs/ Middle Hatchery | 1 | 1 | 181.5 | 75.00 | 892.7 |
| 008 | Blue Lakes Trout Farm | 1 | 1 | 156.7 | 69.20 | 770.7 |
| 009 | Magic Springs Hatchery | 1 | 1 | 113.3 | 50.10 | 557.3 |
| 010 | Rim View Trout Co. | 1 | 1 | 140.4 | 62.10 | 690.5 |
| 011 | Clear Lakes/ Middle Hatchery | 1 | 1 | 160.4 | 70.90 | 788.9 |
| 014 | Box Canyon Trout Farm | 1 | 1 | 299.1 | 141.00 | 1,471.1 |
| 018 | Pristine Springs FH – Cold Water | 1 | 1 | 114.5 | 50.61 | 585.3 |
| 018 | Pristine Springs FH – Warm Water | 1 | 1 | 4.5 | 4.85 | |
| Sub Total | | - | - | 1,471.7 | 653.26 | 7,238.4 |
| % of Total | | - | - | 60.1% | 66.3% | 60.1% |
| CLASSIFICATION 2 FACILITIES | | | | | | |
| 020 | White Springs Trout Farm | 2 | 1 | 30.5 | 13.50 | 150.0 |
| 041 | FBI/ Catfish Farm | 2 | W | 11.3 | 16.30 | 55.6 |
| 054 | Kaster Trout Farm/ Briggs West | 2 | 1 | 70.2 | 31.00 | 345.3 |
| 061 | Blind Canyon Aqua Ranch/ Ten | 2 | 1 | 31.2 | 13.80 | 153.5 |
| 088 | Briggs Creek Fisheries | 2 | 1 | 22.8 | 10.10 | 112.1 |
| Sub Total | | - | - | 166.0 | 84.70 | 816.5 |
| % of Total | | - | - | 6.8% | 8.6% | 6.8% |
| CLASSIFICATION 3 FACILITIES | | | | | | |
| 003 | Hagerman IDFG | 3 | 3 | 88.6 | 17.20 | 435.8 |
| 004 | Hagerman USFWS | 3 | 3 | 52.6 | 12.20 | 258.7 |
| 013 | Niagara Springs Hatchery | 3 | 3 | 72.4 | 14.40 | 356.1 |
| 016 | Magic Valley Steelhead Hatchery | 3 | 3 | 70.5 | 15.20 | 346.7 |
| 019 | Cedar Draw Hatchery | 3 | 3 | 26.9 | 5.70 | 132.3 |
| 026 | White Water Ranch | 3 | 1 | 9.2 | 4.30 | 45.2 |
| 028 | Rainbow Trout Farm/ Filer | 3 | 1 | 11.3 | 5.30 | 55.6 |
| 029 | Rainbow Trout Farm/ Buhl | 3 | 1 | 6.5 | 3.80 | 32.0 |
| 036 | Canyon Trout Farm | 3 | 1 | 9.1 | 4.70 | 44.8 |
| 040 | Tunnel Creek Hatchery | 3 | 2 | 9.3 | 3.30 | 45.7 |
| 046 | Yoder Farm Ponds/ SeaPac | 3 | 2 | 6.8 | 3.70 | 33.4 |
| 047 | Peter's Farm Pond | 3 | 3 | 7.4 | 2.00 | 36.4 |
| 053 | Deep Creek Trout Farm | 3 | 3 | 28.9 | 6.70 | 142.1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 056 | Big Bend Trout Farm | 3 | 2 | 38.8 | 13.60 | 190.8 |
| 057 | Cox Farm Ponds | 3 | 3 | 28.6 | 6.60 | 140.7 |
| 059 | Olson Ponds | 3 | 2 | 3.4 | 1.20 | 16.7 |
| 060 | Blind Canyon Hatchery | 3 | 1 | 8.1 | 3.80 | 39.8 |
| 062 | Birch Creek Trout | 3 | 2 | 9.0 | 4.30 | 44.3 |
| 064 | W & W Trout Farm | 3 | 2 | 13.7 | 4.80 | 67.4 |
| 065 | Buckeye Ranch | 3 | 3 | 26.0 | 7.50 | 127.9 |
| 070 | Juker Ponds | 3 | 2 | 3.6 | 1.30 | 17.7 |
| 077 | Boswell Trout Farm | 3 | 3 | 25.0 | 6.10 | 123.0 |
| 082 | Billingsley Bay/ Eckles Fish Farm | 3 | 3 | 47.4 | 11.00 | 233.1 |
| 084 | Daydream Ranch Facility | 3 | 2 | 11.9 | 4.20 | 58.5 |
| 090 | Smith Farm Ponds | 3 | 1 | 13.5 | 6.20 | 66.4 |
| 097 | C & M Fish Farm | 3 | 3 | 13.9 | 3.30 | 68.4 |
| 104 | Canyon Springs | 3 | W | 11.8 | 12.10 | 58.0 |
| 106 | Woods | 3 | 2 | 10.0 | 3.50 | 49.2 |
| 107 | Decker Springs | 3 | 3 | 10.6 | 2.50 | 52.1 |
| 109 | RCP | 3 | 3 | 2.8 | 1.40 | 13.8 |
| 116 | First Ascent/ Don Campbell | 3 | W | 6.7 | 7.20 | 33.0 |
| 119 | John Fleming Ponds | 3 | 1 | 5.6 | 2.70 | 27.5 |
| 120 | Stevenson Ponds | 3 | 1 | 5.1 | 2.40 | 25.1 |
| 133 | FBI, Baker Place | 3 | 1 | 10.0 | 4.60 | 49.2 |
| Sub Total | | - | - | 705.0 | 208.80 | 3,467.4 |
| % of Total | | - | - | 28.8% | 21.2% | 28.8% |
| CLASSIFICATION 4 FACILITIES | | | | | | |
| 027 | Greene's Trout FH | 4 | 2 | 0.0 | 0.00 | 0.0 |
| 049 | Bell Fish Pond FH | 4 | 2 | 3.4 | 1.20 | 16.7 |
| 063 | White's Trout Farm FH | 4 | 2 | 3.3 | 1.60 | 16.2 |
| 069 | Dolana Farm Ponds FH | 4 | 1 | 3.9 | 1.80 | 19.2 |
| 076 | Lemmon Ponds FH | 4 | 1 | 4.1 | 1.90 | 20.2 |
| 079 | Blau Farm Pond FH | 4 | 3 | 5.6 | 1.30 | 27.5 |
| 080 | Buhl Trout Rearing Facility | 4 | 3 | 9.9 | 3.50 | 48.7 |
| 087 | C. J. Simms Farm Ponds FH | 4 | 1 | 6.4 | 2.90 | 31.5 |
| 091 | Deadman Hatchery | 4 | 3 | 9.4 | 2.20 | 46.2 |
| 098 | Lyn Cliff Fish Farm | 4 | 2 | 10.9 | 3.80 | 53.6 |
| 100 | Gary Wright Farm Ponds | 4 | 2 | 6.0 | 3.40 | 29.5 |
| 102 | Rock Ridge Ranch FH | 4 | 1 | 1.7 | 0.80 | 8.4 |
| 103 | Stutzman Farm Ponds | 4 | 3 | 1.7 | 0.60 | 8.4 |
| 105 | Mike Fleming FH | 4 | 3 | 5.4 | 1.30 | 26.6 |
| 111 | Fish Breeders of Idaho / Henslee | 4 | 2 | 8.2 | 2.90 | 40.3 |
| 112 | Howell Farm Ponds | 4 | 2 | 4.9 | 1.70 | 24.1 |
| 115 | Leo Martins FH | 4 | 3 | 9.3 | 2.20 | 45.7 |
| 117 | Standal Ponds FH | 4 | 2 | 4.8 | 1.70 | 23.6 |
| 118 | Slane Ponds FH | 4 | 2 | 4.1 | 1.90 | 20.2 |
| 124 | CSI Fish Hatchery | 4 | 1 | 3.1 | 2.20 | 15.2 |
| Sub Total | | - | - | 106.1 | 38.90 | 521.8 |
| % of Total | | - | - | 4.3% | 4.0% | 4.3% |
| Overall Total | | - | - | 2,448.8 | 985.66 | 12,044.1 |
| Overall % | | - | - | 100.0% | 100.0% | 100.0% |

Table Appendix B-2. Seasonality Wasteload Allocations for TP

| GENERAL AQUACULTURE PERMIT | NAME OF FACILITY | TP STATIONARY WLA, lb/day | TP SEASONAL WLA, lb/day | | | |
|---|---|---|---|---|---|---|
| | | | QTR1 Winter Dec-Feb | QTR2 Spring Mar-May | QTR3 Summer Jun-Aug | QTR4 Fall Sep-Nov |
| CLASSIFICATION 1 FACILITIES | | | | | | |
| 002 | Snake River Hatchery | 47.00 | 47.00 | 47.00 | 47.00 | 47.00 |
| 006 | Crystal Springs Trout Farm | 82.50 | 82.50 | 82.50 | 82.50 | 82.50 |
| 007 | Clear Springs/ Middle Hatchery | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| 008 | Blue Lakes Trout Farm | 69.20 | 69.20 | 69.20 | 69.20 | 69.20 |
| 009 | Magic Springs Hatchery | 50.10 | 50.10 | 50.10 | 50.10 | 50.10 |
| 010 | Rim View Trout Co. | 62.10 | 62.10 | 62.10 | 62.10 | 62.10 |
| 011 | Clear Lakes/ Middle Hatchery | 70.90 | 70.90 | 70.90 | 70.90 | 70.90 |
| 014 | Box Canyon Trout Farm | 141.00 | 141.00 | 141.00 | 141.00 | 141.00 |
| 018 | Pristine Springs FH – Cold Water | 50.61 | 50.61 | 50.61 | 50.61 | 50.61 |
| 018 | Pristine Springs FH –Warm Water | 4.85 | 4.85 | 4.85 | 4.85 | 4.85 |
| Sub Total | | 653.26 | 653.26 | 653.26 | 653.26 | 653.26 |
| % of Total | | 66.3% | 64.2% | 67.2% | 67.0% | 66.8% |
| CLASSIFICATION 2 FACILITIES | | | | | | |
| 020 | White Springs Trout Farm | 13.50 | 13.50 | 13.50 | 13.50 | 13.50 |
| 041 | FBI/ Catfish Farm | 16.30 | 19.60 | 13.00 | 13.00 | 19.60 |
| 054 | Kaster Trout Farm/ Briggs West | 31.00 | 31.00 | 31.00 | 31.00 | 31.00 |
| 061 | Blind Canyon Aqua Ranch/ Ten | 13.80 | 13.80 | 13.80 | 13.80 | 13.80 |
| 088 | Briggs Creek Fisheries | 10.10 | 10.10 | 10.10 | 10.10 | 10.10 |
| Sub Total | | 84.70 | 88.00 | 81.40 | 81.40 | 88.00 |
| % of Total | | 8.6% | 8.6% | 8.4% | 8.3% | 9.0% |
| CLASSIFICATION 3 FACILITIES | | | | | | |
| 003 | Hagerman IDFG | 17.20 | 23.10 | 23.10 | 11.30 | 11.30 |
| 004 | Hagerman USFWS | 12.20 | 17.80 | 6.00 | 12.80 | (12.20) |
| 013 | Niagara Springs Hatchery | 14.40 | 22.00 | 6.30 | 14.90 | (14.40) |
| 016 | Magic Valley Steelhead Hatchery | 15.20 | 21.70 | 7.70 | 16.20 | (15.20) |
| 019 | Cedar Draw Hatchery | 5.70 | 5.70 | 5.70 | 5.70 | 5.70 |
| 026 | White Water Ranch | 4.30 | 4.30 | 4.30 | 4.30 | 4.30 |
| 028 | Rainbow Trout Farm/ Filer | 5.30 | 5.30 | 5.30 | 5.30 | 5.30 |
| 029 | Rainbow Trout Farm/ Buhl | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 |
| 036 | Canyon Trout Farm | 4.70 | 4.70 | 4.70 | 4.70 | 4.70 |
| 040 | Tunnel Creek Hatchery | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 |
| 046 | Yoder Farm Ponds/ SeaPac | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 |
| 047 | Peter's Farm Pond | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| 053 | Deep Creek Trout Farm | 6.70 | 4.20 | 9.30 | 9.00 | 4.30 |
| 056 | Big Bend Trout Farm | 13.60 | 13.60 | 13.60 | 13.60 | 13.60 |
| 057 | Cox Farm Ponds | 6.60 | 6.60 | 6.60 | 6.60 | 6.60 |
| 059 | Olson Ponds | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| 060 | Blind Canyon Hatchery | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 |
| 062 | Birch Creek Trout | 4.30 | 4.30 | 4.30 | 4.30 | 4.30 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 064 | W & W Trout Farm | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 |
| 065 | Buckeye Ranch | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 |
| 070 | Juker Ponds | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| 077 | Boswell Trout Farm | 6.10 | 11.00 | 11.00 | 1.20 | 1.20 |
| 082 | Billingsley Bay/ Eckles Fish Farm | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 |
| 084 | Daydream Ranch Facility | 4.20 | 4.20 | 4.20 | 4.20 | 4.20 |
| 090 | Smith Farm Ponds | 6.20 | 7.80 | 5.00 | 5.00 | 7.00 |
| 097 | C & M Fish Farm | 3.30 | 3.30 | 3.30 | 3.30 | 3.30 |
| 104 | Canyon Springs | 12.10 | 12.10 | 12.10 | 12.10 | 12.10 |
| 106 | Woods | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 |
| 107 | Decker Springs | 2.50 | 250 | 2.50 | 2.50 | 2.50 |
| 109 | RCP | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 |
| 116 | First Ascent/ Don Campbell | 7.20 | 7.20 | 7.20 | 7.20 | 7.20 |
| 119 | John Fleming Ponds | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 |
| 120 | Stevenson Ponds | 2.40 | 2.40 | 2.40 | 2.40 | 2.40 |
| 133 | FBI, Baker Place | 4.60 | 4.00 | 3.80 | 5.30 | 5.30 |
| Sub Total | | 208.80 | 237.80 | 198.40 | 201.90 | 197.10 |
| % of Total | | 21.2% | 23.4% | 20.4% | 20.7% | 20.2% |
| CLASSIFICATION 4 FACILITIES | | | | | | |
| 027 | Greene's Trout FH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 049 | Bell Fish Pond FH | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| 063 | White's Trout Farm FH | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 |
| 069 | Dolana Farm Ponds FH | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| 076 | Lemmon Ponds FH | 1.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| 079 | Blau Farm Pond FH | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| 080 | Buhl Trout Rearing Facility | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 |
| 087 | C. J. Simms Farm Ponds FH | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 |
| 091 | Deadman Hatchery | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| 098 | Lyn Cliff Fish Farm | 3.80 | 3.80 | 3.80 | 3.80 | 3.80 |
| 100 | Gary Wright Farm Ponds | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |
| 102 | Rock Ridge Ranch FH | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 103 | Stutzman Farm Ponds | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 105 | Mike Fleming FH | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| 111 | Fish Breeders of Idaho / Henslee | 2.90 | 2.90 | 2.90 | 2.90 | 2.90 |
| 112 | Howell Farm Ponds | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 |
| 115 | Leo Martins FH | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| 117 | Standal Ponds FH | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 |
| 118 | Slane Ponds FH | 1.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| 124 | CSI Fish Hatchery | 2.20 | 2.20 | 1.80 | 1.80 | 2.60 |
| Sub Total | | 38.90 | 38.90 | 38.50 | 38.50 | 39.30 |
| % of Total | | 4.0% | 3.8% | 4.0% | 3.9% | 4.0% |
| Overall Total | | 985.66 | | | | |
| Overall % | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Table Appendix B-2 indicates that seasonality was requested for TSS for the following facilities: GAP-041, 003, 004, 013, 016, 053, 077, 090, 133, and 124.

Table Appendix B-3. Seasonality Wasteload Allocations for TSS

| GENERAL AQUACULTURE PERMIT | NAME OF FACILITY | TSS STATIONARY WLA, ton/year | TSS SEASONAL WLA, ton/year | | | |
|---|---|---|---|---|---|---|
| | | | QTR1 Winter Dec-Feb | QTR2 Spring Mar-May | QTR3 Summer Jun-Aug | QTR4 Fall Sep-Nov |
| CLASSIFICATION 1 FACILITIES | | | | | | |
| 002 | Snake River Hatchery | 471.20 | 471.20 | 471.20 | 471.20 | 471.20 |
| 006 | Crystal Springs Trout Farm | 1,010.70 | 1,010.70 | 1,010.70 | 1,010.70 | 1,010.70 |
| 007 | Clear Springs/ Middle Hatchery | 892.70 | 892.70 | 892.70 | 892.70 | 892.70 |
| 008 | Blue Lakes Trout Farm | 770.70 | 770.70 | 770.70 | 770.70 | 770.70 |
| 009 | Magic Springs Hatchery | 557.30 | 557.30 | 557.30 | 557.30 | 557.30 |
| 010 | Rim View Trout Co. | 690.50 | 690.50 | 690.50 | 690.50 | 690.50 |
| 011 | Clear Lakes/ Middle Hatchery | 788.90 | 788.90 | 788.90 | 788.90 | 788.90 |
| 014 | Box Canyon Trout Farm | 1,471.10 | 1,471.10 | 1,471.10 | 1,471.10 | 1,471.10 |
| 018 | Pristine Springs Fish Hatchery | 585.30 | 585.30 | 585.30 | 585.30 | 585.30 |
| Sub Total | | 7,238.40 | 7,238.40 | 7,238.40 | 7,238.40 | 7,238.40 |
| % of Total | | 59.4% | 57.3% | 61.7% | 60.7% | 60.2% |
| CLASSIFICATION 2 FACILITIES | | | | | | |
| 020 | White Springs Trout Farm | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 |
| 041 | FBI/ Catfish Farm | 55.60 | 61.10 | 61.10 | 50.00 | 50.00 |
| 054 | Kaster Trout Farm/ Briggs West | 345.30 | 345.30 | 345.30 | 345.30 | 345.30 |
| 061 | Blind Canyon Aqua Ranch/ Ten | 153.50 | 153.50 | 153.50 | 153.50 | 153.50 |
| 088 | Briggs Creek Fisheries | 112.10 | 112.10 | 112.10 | 112.10 | 112.10 |
| Sub Total | | 816.50 | 822.00 | 822.00 | 810.90 | 810.90 |
| % of Total | | 6.7% | 6.5% | 7.0% | 6.8% | 6.7% |
| CLASSIFICATION 3 FACILITIES | | | | | | |
| 003 | Hagerman IDFG | 435.80 | 585.30 | 585.30 | 286.30 | 286.30 |
| 004 | Hagerman USFWS | 258.70 | 349.90 | 159.00 | 267.20 | (258.70) |
| 013 | Niagara Springs Hatchery | 356.10 | 544.00 | 155.80 | 368.50 | (356.10) |
| 016 | Magic Valley Steelhead Hatchery | 346.70 | 495.00 | 175.60 | 369.50 | (495.00) |
| 019 | Cedar Draw Hatchery | 132.30 | 132.30 | 132.30 | 132.30 | 132.30 |
| 026 | White Water Ranch | 45.20 | 45.20 | 45.20 | 45.20 | 45.20 |
| 028 | Rainbow Trout Farm/ Filer | 55.60 | 55.60 | 55.60 | 55.60 | 55.60 |
| 029 | Rainbow Trout Farm/ Buhl | 32.00 | 32.00 | 32.00 | 32.00 | 32.00 |
| 036 | Canyon Trout Farm | 44.80 | 44.80 | 44.80 | 44.80 | 44.80 |
| 040 | Tunnel Creek Hatchery | 45.70 | 45.70 | 45.70 | 45.70 | 45.70 |
| 046 | Yoder Farm Ponds/ SeaPac | 33.40 | 33.40 | 33.40 | 33.40 | 33.40 |
| 047 | Peter's Farm Pond | 36.40 | 36.40 | 36.40 | 36.40 | 36.40 |
| 053 | Deep Creek Trout Farm | 142.10 | 142.10 | 142.10 | 142.10 | 142.10 |
| 056 | Big Bend Trout Farm | 190.80 | 190.80 | 190.80 | 190.80 | 190.80 |
| 057 | Cox Farm Ponds | 140.70 | 140.70 | 140.70 | 140.70 | 140.70 |
| 059 | Olson Ponds | 16.70 | 16.70 | 16.70 | 16.70 | 16.70 |
| 060 | Blind Canyon Hatchery | 39.80 | 39.80 | 39.80 | 39.80 | 39.80 |
| 062 | Birch Creek Trout | 44.30 | 44.30 | 44.30 | 44.30 | 44.30 |
| 064 | W & W Trout Farm | 67.40 | 67.40 | 67.40 | 67.40 | 67.40 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 065 | Buckeye Ranch | 127.90 | 127.90 | 127.90 | 127.90 | 127.90 |
| 070 | Juker Ponds | 17.70 | 17.70 | 17.70 | 17.70 | 17.70 |
| 077 | Boswell Trout Farm | 123.00 | 123.00 | 123.00 | 123.00 | 123.00 |
| 082 | Billingsley Bay/ Eckles Fish Farm | 233.10 | 233.10 | 233.10 | 233.10 | 233.10 |
| 084 | Daydream Ranch Facility | 58.50 | 58.50 | 58.50 | 58.50 | 58.50 |
| 090 | Smith Farm Ponds | 66.40 | 82.90 | 82.90 | 50.00 | 50.00 |
| 097 | C & M Fish Farm | 68.40 | 68.40 | 68.40 | 68.40 | 68.40 |
| 104 | Canyon Springs | 58.00 | 58.00 | 58.00 | 58.00 | 58.00 |
| 106 | Woods | 49.20 | 49.20 | 49.20 | 49.20 | 49.20 |
| 107 | Decker Springs | 52.10 | 52.10 | 52.10 | 52.10 | 52.10 |
| 109 | RCP | 13.80 | 13.80 | 13.80 | 13.80 | 13.80 |
| 116 | First Ascent/ Don Campbell | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 |
| 119 | John Fleming Ponds | 27.50 | 27.50 | 27.50 | 27.50 | 27.50 |
| 120 | Stevenson Ponds | 25.10 | 25.10 | 25.10 | 25.10 | 25.10 |
| 133 | FBI, Baker Place | 49.20 | 44.90 | 40.00 | 58.40 | 53.50 |
| Sub Total | | 3,615.70 | 4,056.50 | 3,153.60 | 3,354.40 | 3,454.10 |
| % of Total | | 29.7% | 32.1% | 26.9% | 28.1% | 28.7% |
| CLASSIFICATION 4 FACILITIES | | | | | | |
| 027 | Greene's Trout FH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 049 | Bell Fish Pond FH | 16.70 | 16.70 | 16.70 | 16.70 | 16.70 |
| 063 | White's Trout Farm FH | 16.20 | 16.20 | 16.20 | 16.20 | 16.20 |
| 069 | Dolana Farm Ponds FH | 19.20 | 19.20 | 19.20 | 19.20 | 19.20 |
| 076 | Lemmon Ponds FH | 20.20 | 20.20 | 20.20 | 20.20 | 20.20 |
| 079 | Blau Farm Pond FH | 27.50 | 27.50 | 27.50 | 27.50 | 27.50 |
| 080 | Buhl Trout Rearing Facility | 48.70 | 48.70 | 48.70 | 48.70 | 48.70 |
| 087 | C. J. Simms Farm Ponds FH | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 |
| 091 | Deadman Hatchery | 46.20 | 46.20 | 46.20 | 46.20 | 46.20 |
| 098 | Lyn Cliff Fish Farm | 53.60 | 53.60 | 53.60 | 53.60 | 53.60 |
| 100 | Gary Wright Farm Ponds | 29.50 | 29.50 | 29.50 | 29.50 | 29.50 |
| 102 | Rock Ridge Ranch FH | 8.40 | 8.40 | 8.40 | 8.40 | 8.40 |
| 103 | Stutzman Farm Ponds | 8.40 | 8.40 | 8.40 | 8.40 | 8.40 |
| 105 | Mike Fleming FH | 26.60 | 26.60 | 26.60 | 26.60 | 26.60 |
| 111 | Fish Breeders of Idaho / Henslee | 40.30 | 40.30 | 40.30 | 40.30 | 40.30 |
| 112 | Howell Farm Ponds | 24.10 | 24.10 | 24.10 | 24.10 | 24.10 |
| 115 | Leo Martins FH | 45.70 | 45.70 | 45.70 | 45.70 | 45.70 |
| 117 | Standal Ponds FH | 23.60 | 23.60 | 23.60 | 23.60 | 23.60 |
| 118 | Slane Ponds FH | 20.20 | 20.20 | 20.20 | 20.20 | 20.20 |
| 124 | CSI Fish Hatchery | 15.20 | 15.20 | 12.20 | 12.20 | 18.30 |
| Sub Total | | 521.80 | 521.80 | 518.80 | 518.80 | 524.90 |
| % of Total | | 4.3% | 4.1% | 4.4% | 4.4% | 4.4% |
| Overall Total | | 12,044.10 | 12,638.70 | 11,732.30 | 11,922.50 | 12,028.30 |
| Overall % | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Table Appendix B-3 indicates that seasonality was requested for TSS with the following facilities: GAP-041, 003, 004, 013, 016, 090, 133, and 124. Seasonality was not requested for TSS for the following facilities: GAP-053 and 077,