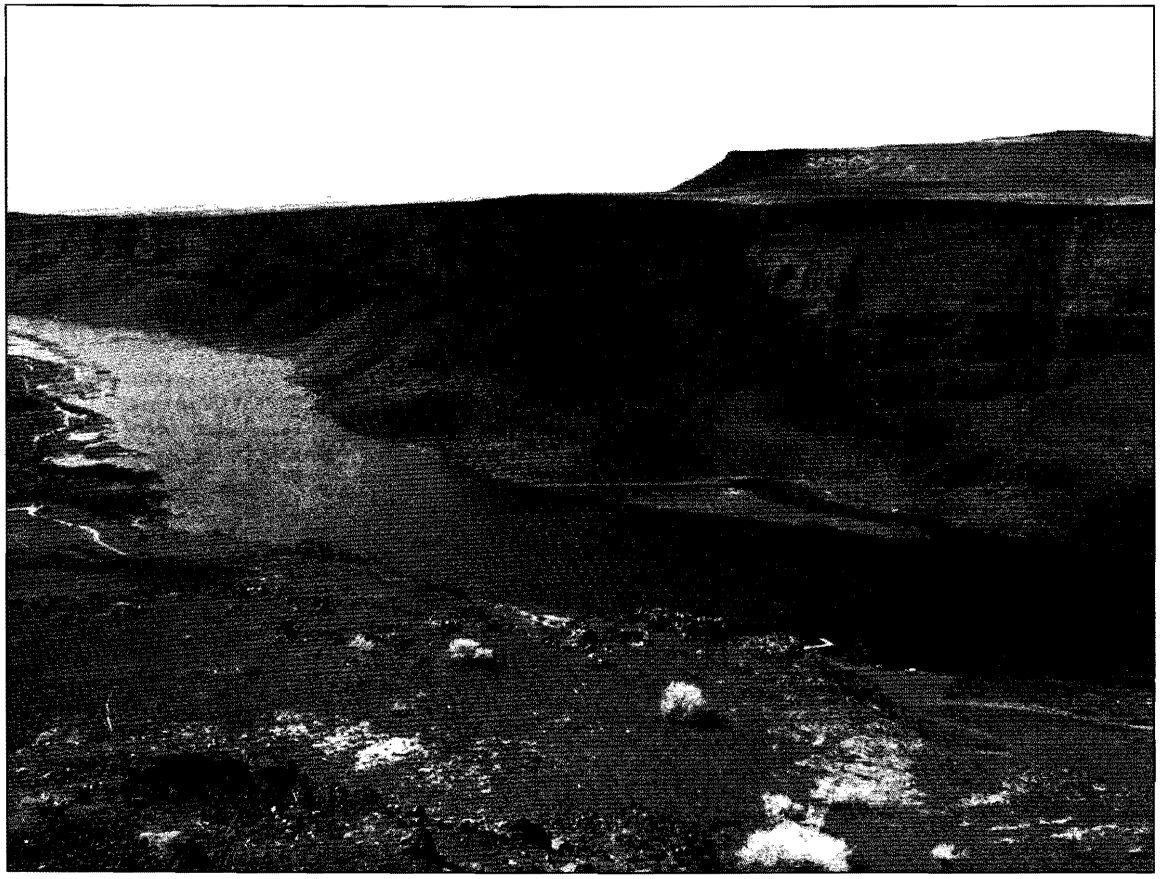
Excerpted portions
attachment #4

Mid Snake River/Succor Creek Subbasin Assessment and Total Maximum Daily Load



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constitute a violation of the allocation; compliance is determined when a tributary does not cause exceedances of the seasonally applicable criteria in Succor Creek.
While only the sources listed in Table 47 received explicit LAs for bacteria, other nonpoint sources of bacteria loading to the stream, such as pasture lands in the floodplain, wild horses (to the extent possible) and feeding operations, should be managed to prevent the movement of bacteria into the stream.

An implicit MOS is built into the bacteria TMDL for Succor Creek. The analysis assumes no dilution is available to the tributaries in Idaho, when in fact, if the state of Oregon discharges according to the Oregon criteria (126/100 mL), dilution would be available. Since the input flows to the stream are greater than the withdrawals, there is a net gain in volume as the stream flows toward the Snake River. As a result, dilution becomes available every time water enters the stream. Thus, if the sources meet their load allocations, the net bacteria concentration in the stream should consistently decrease in the downstream direction.

Nutrient Allocations

The allocation strategy used for the nutrient TMDL is "equal concentration," meaning that all sources must discharge at a concentration of 0.07 mg/L TP or less where they enter the river. This allocation applies to the Snake River from Swan Falls Dam to the Oregon line. Seasonal variation and critical conditions were accounted for in this allocation and the target applies from May-September. The instream seasonal concentration at River Mile 449.3 (Murphy) is 0.071 mg/L. An allocation for the sections of the river from CJ Strike Reservoir to Castle Creek and from Castle Creek to Swan Falls Dam may be necessary in the future. However, at this time a further delineation of tributary sources and instream concentrations above Swan Falls is necessary to determine where these allocations might need to occur. In addition, the Snake River where it exits CJ Strike Dam must meet the 0.07 mg/L target. Using 1999 and 2000 data, the Snake River below CJ Strike Dam discharges at 0.07 mg/L, meeting the target.

Table 48. Instream Total Phosphorus Average Concentrations

Location	May-September Average Concentration (mg/L)
Snake River below CJ Strike Dam	0.07
Snake River at river mile 449.3	0.071
Snake River at Marsing (river mile 425)	0.082
Snake River at Homedale (river mile 417)	0.087

The Mid Snake River/Succor Creek WAG felt that equal concentration was the most equitable allocation scenario because this method does not require any sources to discharge below the 0.07 mg/L target and it does not penalize those sources that have already implemented best management practices.

Table 49 shows the nonpoint source load allocations but does not specifically distribute them to the individual tributaries. This load was determined using an overall water budget for the Snake River. The flows and the load allocation were calibrated against the existing drain nutrient and flow data.

DEQ was able to delineate the nonpoint source loads from point source wasteloads, but tributary specific information was not available for an entire year for all the tributaries. Pollutant loads vary between years due to cropping patterns, water availability etc., and to use data from 1992, 1995, 1999, and 2000 for tributary/drain specific allocations could potentially overestimate an individual tributary's load.

The 1995 and 2000 flow data and 1999/2000 nutrient data were used to determine loads for the mainstem Snake River. The data were provided by both Idaho Power and USGS (IPC 2002, USGS 2000). These water years were used because they represented average flow years. The 1999 and 2000 nutrient data were used because they represented the most recent data available. The 2001 nutrient data was not used for these calculations because 2001 was an extremely low water year and was not considered representative of average conditions.

The point source wasteloads for the two WWTPs are based on a discharge of 3.5 mg/L of TP (average discharge for unmonitored facilities as determined by SR-HC TMDL) at design capacity. Table 50 shows the current wasteloads not the WLA at design capacity. These current loads are lower than the allocated loads because both of these facilities are currently operating well below design capacity. If the facility expands beyond its design capacity then phosphorus discharge limits will be incorporated into its permit, meaning that the facility must either land apply, upgrade to biological nutrient removal or integrate another phosphorus removal process, and/or engage in pollutant trading as part of expansion in order to meet the TMDL target.

As part of the implementation plan, the wastewater treatment facilities will be required to write a nutrient reduction plan. This allocation does not preclude these facilities from incorporating effluent trading into their nutrient management plans. The wasteload allocations and load allocations presented in this TMDL may be adjusted under a state-approved effluent trading program as long as the loading capacity is not exceeded

Based on the current loads and wasteloads shown in Tables 49 and 50, the LAs and WLAs necessary to meet and maintain 0.07 mg/L TP in the river are shown in Table 51.

Table 49. Loads from nonpoint sources to the Snake River in the Mid Snake River/Succor Creek Subbasin.

Wasteload Type	Location	Load	Estimation Method
Total Phosphorus	Drain and Tributaries	381 kg/day	Direct Load Average

Table 50. Waste loads from point sources to the Snake River in the Mid Snake River/Succor Creek Subbasin.

Wasteload Type	Location	Current Load (kg/day)	Load Allocation (kg/day)	NPDES[1] Permit Number
Total Phosphorus	Marsing WWTP	2 kg/day	4 kg/day	Permit # ID0021202
Total Phosphorus	Homedale WWTP	3 kg/day	5 kg/day	Permit # ID0020427

[1]National Pollutant Discharge Elimination System
[2]Wastewater treatment plant

Table 51. Total Phosphorus load and wasteload non point source allocations based on average water year (Snake River from Swan Falls Dam to Oregon Line).

Water Body	Current Load (kg/day)	Seasonal Load Capacity (kg/day)	Seasonal Background Load (kg/day)	Load Allocation (kg/day)	Reduction Required (%)
Snake River at Homedale	2071	1667	453	1205	19.5
Drains, Tributaries and unidentified sources[2]	381	84	0	84	78

[1]Wastewater treatment plant
[2]Total phosphorus background not determined for drains and tributaries, estimated to be negligible
[3]Seasonal background accounted for in the load capacity

The load allocations can be summarized by the following load allocation equation:

LC (1667)= NB(453)+LA (1205)+WLA(9)
(the MOS is accounted for in the target concentration used to calculate the LC)

Sources of unmeasured load may include nonpoint source runoff from anthropogenic sources and precipitation events, unidentified small tributaries and drains, errors in gauged flow measurements, and ground water sources. Monitoring of both point source discharge loads and instream water column concentrations will be undertaken as part of the implementation process. Instream monitoring will be described in more detail in the site-specific

implementation plans that will be completed 18 months following the approval of this TMDL. It is expected that at a minimum such monitoring will include the measurement of water column TP, chlorophyll-a and DO within each segment during time frames that represent high, low, and average flow conditions.

Future Growth

Where applicable, states must include an allowance for future loading in their TMDL that accounts for reasonably foreseeable increases in pollutant loads with careful documentation of the decision-making process. This allowance is based on existing and readily available data at the time the TMDL is established. In the case of the Mid Snake River/Succor Creek TMDL, an allowance for future growth is not recommended until such time as reductions indicate that beneficial uses or state water quality standards have been restored. Therefore, the allowance for future growth is zero. Growth can occur under the following auspices: 1) pollutant trading, 2) no net increase above the instream target parameters, and 3) no discharge where land application is the preferred option.

In regards to the point sources in the watershed, since their current allocation is based on their operation at design capacity, any growth that requires expansion of the existing facility triggers phosphorus removal requirements. A reserve capacity allocation is initially implicit since these facilities are not operating at design capacity. The reserve capacity allocation is therefore the difference between the current discharge and design flow discharge. This allows for expansion of existing sources or addition of new point sources discharge through trading or demonstration of an offset within the system. Above and beyond their capacity, a future growth allowance is not calculated since these facilities will have to implement phosphorus removal strategies that typically decrease phosphorus loads by 80% (DEQ 2002).

Any future point sources will receive a wasteload allocation of zero. A discussion of reasonable assurance can be found in Chapter 4.

Temperature Allocations

Succor Creek and Sinker Creek require temperature TMDLs. The TMDLs for these streams are premised on meeting the state of Idaho water temperature criteria for cold water aquatic life and salmonid spawning. Table 52 shows the criteria and the time of year when the criteria apply.

Table 52. State of Idaho water temperature criteria.

Temperature Criteria	Cold Water Aquatic Life (June 22-Sept 21)	Salmonid Spawning (March 1-June 15)
Instantaneous Maximum	22 °C., 71.6 °F.	13 °C., 55.4 °F.
Maximum Daily Average	19 °C., 66.2 °F.	9 °C., 48.2 °F.