Spokane River Modeling Final Scenarios Report 2010

Water Quality Research Group
Department of Civil and Environmental Engineering
Maseeh College of Engineering and Computer Science

Technical Report EWR-01-10
January 29, 2010

Portland State
UNIVERSITY

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Environmental Protection Agency

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Introduction

Spokane River Total Maximum Daily Load (TMDL) final scenarios were simulated using the CE-QUAL-W2 models developed for the Washington Department of Ecology and the Environmental Protection Agency. The scenarios were run with varying concentrations for tributaries and point sources. The four scenarios simulated were:

- No Source Scenario
- TMDL Scenario
- Idaho Only Scenario
- March Test Scenario

The Upper Spokane River system is located in the Northeastern part of Washington State and flows from Coeur d'Alene Lake, Idaho at RM (River Mile) 111.3 downstream to Long Lake dam at RM 32.5. The Washington Department of Ecology will issue a dissolved oxygen TMDL for the Spokane River from the Idaho border to Long Lake Dam. EPA will issue NPDES permits to wastewater treatment plants on the Idaho portion of the Spokane River, and the Idaho Department of Environmental Quality will issue 401 certifications for those permits. The Spokane Tribe developed a model of Spokane Arm, downstream of the project area, to assess water quality impacts in its jurisdictional waters. The TMDL, along with a 401 certification for the FERC relicensing of Spokane River dams, will reduce phosphorus loadings and affect minimum in-stream flows in the Spokane River.

Existing CE-QUAL-W2 water quality models (Washington and Idaho) of Upper Spokane River were updated to the more recent version 3.6 (Berger et al.,2009). These models were used to help determine the impact of the TMDL and the FERC relicensing on the Spokane River water quality. The models were originally developed by Portland State University for the Washington Department of Ecology and EPA to simulate temperature, dissolved oxygen, nutrients, algae, and organic matter. The updated model simulates the year 2001, and the calibration has also been checked for the year 2000.

Prior reports prepared for the Spokane River modeling in Washington and Idaho include:

- Annear et al. (2001) - Upper Spokane River Model: Boundary Conditions and Model Setup for 1991 and 2000
- Berger et al. (2002) - Upper Spokane River Model: Calibration for 1991 and 2000
- Slominski et al. (2002) - Upper Spokane River Model: Boundary Conditions and Model Setup for 2001 where information such as the following were detailed:
    1. Inflows, temperatures, and water quality
    2. Meteorological conditions
    3. Bathymetry of the Spokane River and Long Lake and the model grid
    4. Reservoir operations and structure information
- Berger et al. (2003) - Upper Spokane River Model: Calibration for 2001
- Annear et al. (2005)- Upper Spokane River Model in Idaho: Boundary Conditions and Model Setup for 2001 and 2004.
- Wells and Berger (2009)- Spokane River in Idaho and Washington TMDL Water Quality and Hydrodynamic Modeling, Quality Assurance Project Plan.
- Berger et al. (2009)- Spokane River Modeling Report 2009, Model Update and Calibration Check.

- Water Quality Research Group (2009) - Spokane River Modeling Scenarios Report 2009

The focus of this present study was to perform the following tasks:

- Converting the Upper Spokane River CE-QUAL-W2 models (Washington and Idaho) to version 3.6
- Reviewing and updating model boundary conditions
- Check model calibration
- Meet with stakeholders
- Develop and Run Modeling Scenarios
- Create reports on calibration and scenario runs

In this study Portland State University was responsible for updating the model, checking model calibration, applying the model to the scenarios runs, and writing a final report. This report documents the final aspect of this scope of work –the final modeling scenarios.

Modeling Scenarios

Description

Four modeling scenarios were simulated. These included a no source scenario, a TMDL scenario, a Idaho only scenario, and a March test scenario. The no source scenario technical specifications were listed in Table 1. Technical specification for the TMDL scenario was listed in Table 2. Constituent concentrations apply for March 1 through October 31. Year 2001 concentrations were applied for the rest of the year. The Idaho only scenario used TMDL conditions in Idaho and no source conditions in Washington. The March test scenario used Year 2001 conditions during March 1-31 and no source conditions for the rest of the year.

Hangman Creek and Little Spokane River constituent concentrations for the no source scenario and the TMDL scenario were listed in
Table 3 through Table 6. Coulee Creek concentrations were assumed to the same as those for Hangman Creek. For constituent not specified (DO, alkalinity, etc.), the concentrations were assumed to be equal to 2001 concentrations.

For the TMDL scenario storm water inflows were included for Idaho and Washington. The Idaho storm water flows were placed in model segment 4 (Idaho model). The Washington storm water flows were placed in model segment 114 (Washington model). Combined sewer overflows (CSOs) were also included in the Washington model at segment 114. The constituent concentrations used for storm water and CSOs in the TMDL scenario were listed in Table 2.

Changes to these scenarios with respect to the scenarios completed in December, 2009 (Water Quality Research Group, 2009) include:

- No source scenario ground water ortho-phosphate (PO4P) set to 0.004 mg/l
- TMDL scenario ground water ammonia-nitrogen set to 0.005 mg/l uniformly
- Corrected tributary CBODP concentrations
- Inland Empire Paper and Kaiser Aluminum discharge corrected in TMDL scenario
- Inland Empire Paper PO4P to Total P ratio changed to 0.25
- Start and end dates of low TMDL concentrations set to 3/1/2001 and 11/1/2001, respectively
- Semi-monthly averages of the daily minimum, volume-averaged DO calculated for full water column in addition to hypolimnion

Table 1. Technical specifications for no source scenario (EPA, WA Department of Ecology).

	MUNICIPAL AND INDUSTRIAL POINT SOURCES									SW & CSO		NONPOINT SOURCES			
Parameter	Descriptor for NPDES sources	Coeur d' Alene	HARSB	Post Falls	Liberty Lake	Inland Empire Paper	Kaiser Aluminum	Spokane	Spokane County	Storm Water	CSO	Ground Water	Little Spokane River	Hangman/Coulee Creek	Upstream Boundary
Shaded cells are user-input values that are used to calculate other values in this table															
	Design Flow and Maximum Monthly Average Discharge									*WLAs*		*Nonpoint Source Load Allocations*			
Discharge (MGD) F2	design flow	0 F1	0 F1	0 F1	0 F1	0 F1	0 F1	0 F1	0 F1	0.0	0.0	2001 F1	2001	2001	2001
Maximum Monthly Average TP (mg/l)	na	na	na	na	na	na	na	na	na	na	na	Natural	Natural	Natural	2001
Maximum Monthly Average CBOD5 (mg/l)	na	na	na	na	na	na	na	na	na	na	na	Natural	Natural	Natural	2001
Maximum Monthly Average NH4N (mg/l)	na	na	na	na	na	na	na	na	na	na	na	Natural	Natural	Natural	2001
	Model Input Values = Wasteload Allocations = Long Term Average Discharge									*Model Inputs*		*Model Inputs*			
TP WLA (mg/l)	na	na	na	na	na	na	na	na	na	na	na	**0.004**	See spread-sheets	See spread-sheets	2001
PO4P (mg/L) F4	na	na	na	na	na	na	na	na	na	na	na	**0.004**	See spread-sheets	See spread-sheets	2001
CBODult WLA (mg/L)	na	na	na	na	na	na	na	na	na	na	na	0.000	See spread-sheets	See spread-sheets	2001
NH4N WLA (mg/l)	na	na	na	na	na	na	na	na	na	na	na	0.005	See spread-sheets	See spread-sheets	2001
Water and Wastewater Characteristic Ratios															
KBOD (/day) F3	na	na	na	na	na	na	na	na	na	na	na	na	2001	2001	2001
PO4P ratio	na	na	na	na	na	na	na	na	na	na	na	**0.5**	See spread-sheets	See spread-sheets	2001
BODP F5	calculated from TP and PO4P	na	na	na	na	na	na	na	na	na	na	**0.000**	See spread-sheets	See spread-sheets	2001
Estimated Limit Factor	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

NOTES

hydrologic setting:	River flows are 2001 conditions (critical TMDL design year). They are characteristic of a 1-in-10 low flow year.
Other	SOD set to improved level = 0.25 g DO/m2-day
Nonpoint characteristics	Tributaries are set to 2001 flows and estimated natural pollutant concentrations based on headwater concentrations. Separate spreadsheets provide estimated natural conditions concentrations of all parameters of interest for each month.
F1	Mean 2001 flow from each WWTP is re-located to groundwater, specifically to the nearest, downstream, gaining groundwater reach
F2	
F3	
F4	PO4P = TP * (% PO4P)
F5	PO4P+BODP = TP (Equation corrected after public comment period)
F6	CBODult = CBOD5/(1-e^(-5*KBOD))
F7	
F8	
F9	

Table 2. Technical specifications for the TMDL Scenario (EPA, WA Department of Ecology).

	Name	**Final TMDL Scenario (December 2009)**													
Description:	This is the final TMDL scenario for comparison to the NO SOURCE baseline. Orange cells denote changes in values or corrections made after the public comment period.														
	MUNICIPAL AND INDUSTRIAL POINT SOURCES									**SW & CSO**		**NONPOINT SOURCES**			
Parameter	**Descriptor for NPDES sources**	**Coeur d' Alene**	**HARSB**	**Post Falls**	**Liberty Lake**	**Inland Empire Paper**	**Kaiser Aluminum**	**Spokane**	**Spokane County**	**Storm Water**	**CSO**	**Ground Water**	**Little Spokane River**	**Hangman/Coulee Creek**	**Upstream Boundary**
Shaded cells are user-input values that are used to calculate other values in this table															
	Design Flow and Maximum Monthly Average Discharge									***WLAs***		***Nonpoint Source Load Allocations***			
Discharge (MGD) F2	design flow	7.6	3.2	5.0	1.5	**4.1**	**15.4**	50.8	8.0	WA 2.36 / ID 0.93	0.12	2001	2001	2001	2001
Maximum Monthly Average TP (mg/l)	**F8**	0.050	0.050	0.050	0.050	0.050	0.035	0.050	0.050	0.310	0.950	2001	% reduction	% reduction	2001
Maximum Monthly Average CBOD5 (mg/l)	**F8**	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	30.0	2001	% reduction	% reduction	2001
Maximum Monthly Average (Spring) NH4N (mg/l)	**March-May; Oct. F8**	1.00	1.00	1.00	1.00	1.00	0.10	1.00	1.00	0.05	1.0	2001	% reduction	% reduction	2001
Maximum Monthly Average (Summer) NH4N (mg/l)	**June-Sept. F8**	1.00	1.00	1.00	0.25	1.00	0.10	0.25	0.25	0.05	1.0	2001	% reduction	% reduction	2001
	Model Input Values = Wasteload Allocations = Seasonal Average Discharge									***Model Inputs***		***Model Inputs***			
TP WLA (mg/l)	Avg Performance	0.036	0.036	0.036	0.036	0.036	0.025	0.042	0.042	0.310	0.950	2001	See spread-sheets	See spread-sheets	2001
PO4P (mg/L) F4	calculated	0.013	0.013	0.013	0.013	0.009	0.005	0.015	0.015	0.062	0.190	2001	See spread-sheets	See spread-sheets	2001
CBODult WLA (mg/L) F6	Avg Performance	16.1	16.1	16.1	16.1	37.5	7.5	18.8	12.6	13.6	47.5	2001	See spread-sheets	See spread-sheets	2001
NH4N WLA Spring (mg/l) F1	March-May; Oct.	0.71	0.71	0.71	0.71	0.71	0.07	0.83	0.83	0.05	1.00	2001	See spread-sheets	See spread-sheets	2001
NH4N WLA Summer (mg/l) F1	June-Sept.	0.71	0.71	0.71	0.18	0.71	0.07	0.21	0.21	0.05	1.00	2001	See spread-sheets	See spread-sheets	2001
	Water and Wastewater Characteristic Ratios														
KBOD (/day) F3	available data	0.05	0.05	0.05	0.05	0.02	0.13	0.05	0.08	0.05	0.20	2001	2001	2001	2001
PO4P ratio	available data	0.35	0.35	0.35	0.35	**0.25**	0.2	0.35	0.35	0.2	0.2	2001	See spread-sheets	See spread-sheets	2001
BODP F5	**calculated from TP and OP**	**0.0234**	**0.0234**	**0.0234**	**0.0234**	**0.0270**	**0.0200**	**0.0273**	**0.0273**	**0.2480**	**0.7600**	2001	See spread-sheets	See spread-sheets	2001
Estimated Limit Factor F7	TSD method; CV=0.6	1.4	1.4	1.4	1.4	1.4	1.4	1.2	1.2	1.0	1.0	na	na	na	na

NOTES

hydrologic setting:	River flows are 2001 conditions (critical TMDL design year). They are characteristic of a 1-in-10 low flow year. WWTF flows are set to design flows.
Other	SOD set to improved level = 0.25 g DO/m2-day. Identical to No Source assumption.
Nonpoint characteristics	Time series concentrations for TP, NH4N, and CBOD5 are found in separate spreadsheet documents. NPS % reductions applied to the difference between 2001 and natural conditions: Hangman and Coulee: 20% (Mar-May, Nov-Dec), 40% (June), 50% (Jul - Oct) // Little Spokane: 36% (Mar - Dec).
F1	Seasonal-varying WLAs for Municipal WWTPs in Washington
F2	Municipal WWTP design flows are projected flows for 2027
F3	KBOD rates are based on lowest current municipal rate, data/analysis submitted by HDR for Spokane County, and 2001 rate for industrials
F4	PO4P = TP * (% PO4P)
F5	PO4P+BODP = TP (Equation corrected after public comment period)
F6	CBODult = CBOD5/(1-e^(-5*KBOD))
F7	Factors are from EPA's Tech Support Doc (TSD) for translation of seasonal average WLAs to monthly average permit limits. Pg. 103, Table 5-2. Spokane factors lower due to more frequent monitoring (daily).
F8	The listed concentration is multiplied by the flow and a units conversion factor (8.34) to obtain the estimated loading limit

Table 3. Hangman and Coulee Creek concentrations for the no source scenario (EPA, WA Department of Ecology).

Month	Mid-month Julian Day	PO4-P (mg/l)	Total P (mg/l)	CBOD ultimate (mg/l)	CBODP (mg/l)	Ammonia Nitrogen (mg/l)	Algae Group 1 (mg/l)	Algae Group 2 (mg/l)	Algae Group 3 (mg/l)
Jan	14	0.013	0.021	1.4	0.0063	0.010	0.081	0.081	0.081
Feb	44	0.017	0.037	1.4	0.0194	0.013	0.041	0.041	0.041
Mar	74	0.024	0.075	1.4	0.0503	0.010	0.069	0.069	0.069
Apr	105	0.013	0.035	1.4	0.0207	0.005	0.073	0.073	0.073
May	135	0.022	0.041	1.4	0.0180	0.012	0.073	0.073	0.073
Jun	166	0.013	0.023	1.4	0.0086	0.006	0.101	0.101	0.101
Jul	197	0.013	0.021	1.4	0.0056	0.009	0.147	0.147	0.147
Aug	227	0.013	0.021	1.4	0.0061	0.005	0.095	0.095	0.095
Sep	258	0.013	0.021	1.4	0.0065	0.005	0.068	0.068	0.068
Oct	288	0.016	0.023	1.4	0.0060	0.010	0.071	0.071	0.071
Nov	319	0.015	0.022	1.4	0.0061	0.010	0.066	0.066	0.066
Dec	350	0.024	0.034	1.4	0.0093	0.010	0.084	0.084	0.084
Mean		0.016	0.031	1.4	0.014	0.009	0.081	0.081	0.081

Table 4. Hangman and Coulee Creek concentrations for the TMDL scenario (EPA, WA Department of Ecology).

Month	Mid-month Julian Day	PO4-P (mg/l)	Total P (mg/l)	CBOD ultimate (mg/l)	CBODP (mg/l)	Ammonia Nitrogen (mg/l)	Algae Group 1 (mg/l)	Algae Group 2 (mg/l)	Algae Group 3 (mg/l)
Jan	14	0.023	0.041	3.320	0.0157	0.010	0.162	0.162	0.162
Feb	44	0.056	0.136	3.320	0.0775	0.044	0.154	0.154	0.154
Mar	74	0.077	0.173	3.320	0.0941	0.066	0.159	0.159	0.159
Apr	105	0.029	0.077	3.320	0.0457	0.010	0.160	0.160	0.160
May	135	0.048	0.090	3.320	0.0396	0.026	0.160	0.160	0.160
Jun	166	0.020	0.044	2.840	0.0221	0.012	0.192	0.192	0.192
Jul	197	0.018	0.037	2.408	0.0148	0.015	0.258	0.258	0.258
Aug	227	0.013	0.027	2.071	0.0117	0.005	0.123	0.123	0.123
Sep	258	0.013	0.026	2.343	0.0117	0.005	0.086	0.086	0.086
Oct	288	0.016	0.028	2.300	0.0110	0.010	0.088	0.088	0.088
Nov	319	0.015	0.028	2.300	0.0120	0.010	0.085	0.085	0.085
Dec	350	0.024	0.038	2.300	0.0132	0.010	0.094	0.094	0.094
Mean		0.029	0.062	2.8	0.031	0.019	0.143	0.143	0.143

Table 5. Little Spokane River concentrations for the no source scenario (EPA, WA Department of Ecology).

Month	Mid-month Julian Day	PO4-P (mg/l)	Total P (mg/l)	CBOD ultimate (mg/l)	CBODP (mg/l)	Ammonia Nitrogen (mg/l)	Algae Group 1 (mg/l)	Algae Group 2 (mg/l)	Algae Group 3 (mg/l)
Jan	14	0.012	0.015	1.4	0.0009	0.012	0.137	0.137	0.137
Feb	44	0.010	0.016	1.4	0.0042	0.010	0.120	0.120	0.120
Mar	74	0.011	0.014	1.4	0.0018	0.012	0.077	0.077	0.077
Apr	105	0.009	0.011	1.4	0.0010	0.005	0.076	0.076	0.076
May	135	0.008	0.011	1.4	0.0018	0.005	0.078	0.078	0.078
Jun	166	0.006	0.008	1.4	0.0008	0.005	0.073	0.073	0.073
Jul	197	0.006	0.009	1.3	0.0025	0.005	0.043	0.043	0.043
Aug	227	0.006	0.009	1.3	0.0019	0.005	0.032	0.032	0.032
Sep	258	0.006	0.009	1.4	0.0030	0.005	0.037	0.037	0.037
Oct	288	0.006	0.006	1.4	0.0001	0.005	0.018	0.018	0.018
Nov	319	0.005	0.008	1.4	0.0025	0.005	0.021	0.021	0.021
Dec	350	0.009	0.012	1.4	0.0023	0.005	0.024	0.024	0.024
Mean		0.008	0.011	1.4	0.002	0.007	0.061	0.061	0.061

Table 6. Little Spokane River concentrations for the TMDL scenario (EPA, WA Department of Ecology).

Month	Mid-month Julian Day	PO4-P (mg/l)	Total P (mg/l)	CBOD ultimate (mg/l)	CBODP (mg/l)	Ammonia Nitrogen (mg/l)	Algae Group 1 (mg/l)	Algae Group 2 (mg/l)	Algae Group 3 (mg/l)
Jan	14	0.013	0.026	2.104	0.0099	0.012	0.241	0.241	0.241
Feb	44	0.013	0.031	2.104	0.0149	0.011	0.235	0.235	0.235
Mar	74	0.015	0.040	2.104	0.0211	0.051	0.219	0.219	0.219
Apr	105	0.014	0.032	2.104	0.0144	0.042	0.219	0.219	0.219
May	135	0.012	0.030	2.104	0.0141	0.011	0.219	0.219	0.219
Jun	166	0.007	0.023	2.104	0.0131	0.005	0.218	0.218	0.218
Jul	197	0.009	0.016	1.300	0.0064	0.005	0.078	0.078	0.078
Aug	227	0.009	0.015	1.300	0.0053	0.007	0.056	0.056	0.056
Sep	258	0.007	0.015	1.660	0.0075	0.005	0.061	0.061	0.061
Oct	288	0.007	0.019	1.592	0.0115	0.005	0.054	0.054	0.054
Nov	319	0.009	0.021	1.592	0.0111	0.005	0.055	0.055	0.055
Dec	350	0.015	0.027	1.592	0.0117	0.009	0.056	0.056	0.056
Mean		0.011	0.025	1.8	0.012	0.014	0.142	0.142	0.142

Results

River

Total phosphorus concentrations for the scenarios were plotted for the Idaho-Washington state line, segment 154 in Long Lake, and segment 157 in Long Lake. The total phosphorus concentrations plotted were a 30 day running average. Figure 1 shows the predicted total phosphorus concentrations for the state line.

Figure 2 and Figure 3 show the total phosphorus concentrations for segments 154 and 157 in Long Lake. CBOD ultimate for segment 154 was plotted in Figure 4. Segment 154 dissolved oxygen and ammonia nitrogen were shown in Figure 5 and Figure 6, respectively.

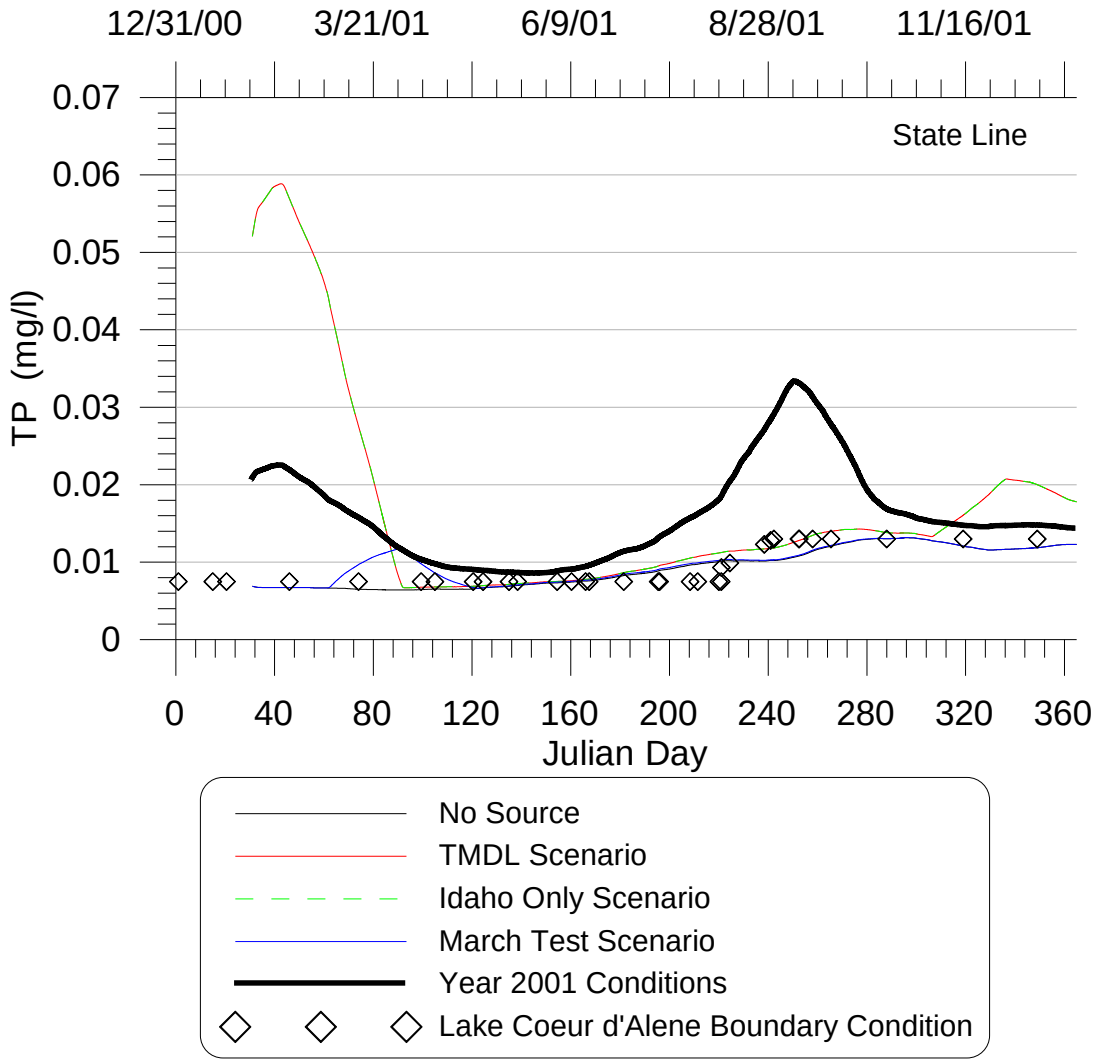

Figure 1. 30-day running average total phosphorus concentrations at the state line of the no source scenario, the TMDL scenario, Idaho only scenario, March test scenario and for year 2001 conditions.

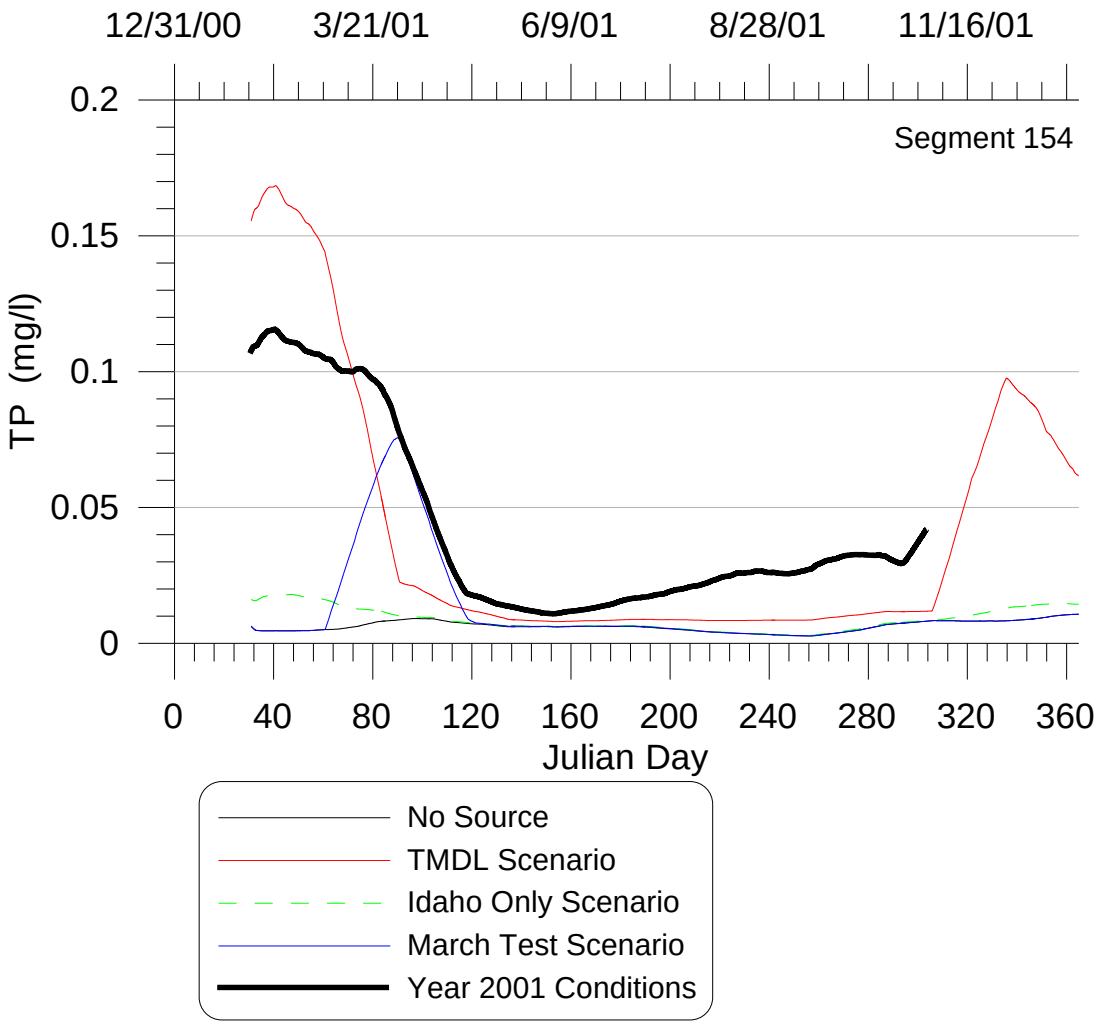

Figure 2. 30-day running average total phosphorus concentrations at segment 154 in Long Lake of the no source scenario, the TMDL scenario, Idaho only scenario, March test scenario and for year 2001 conditions.

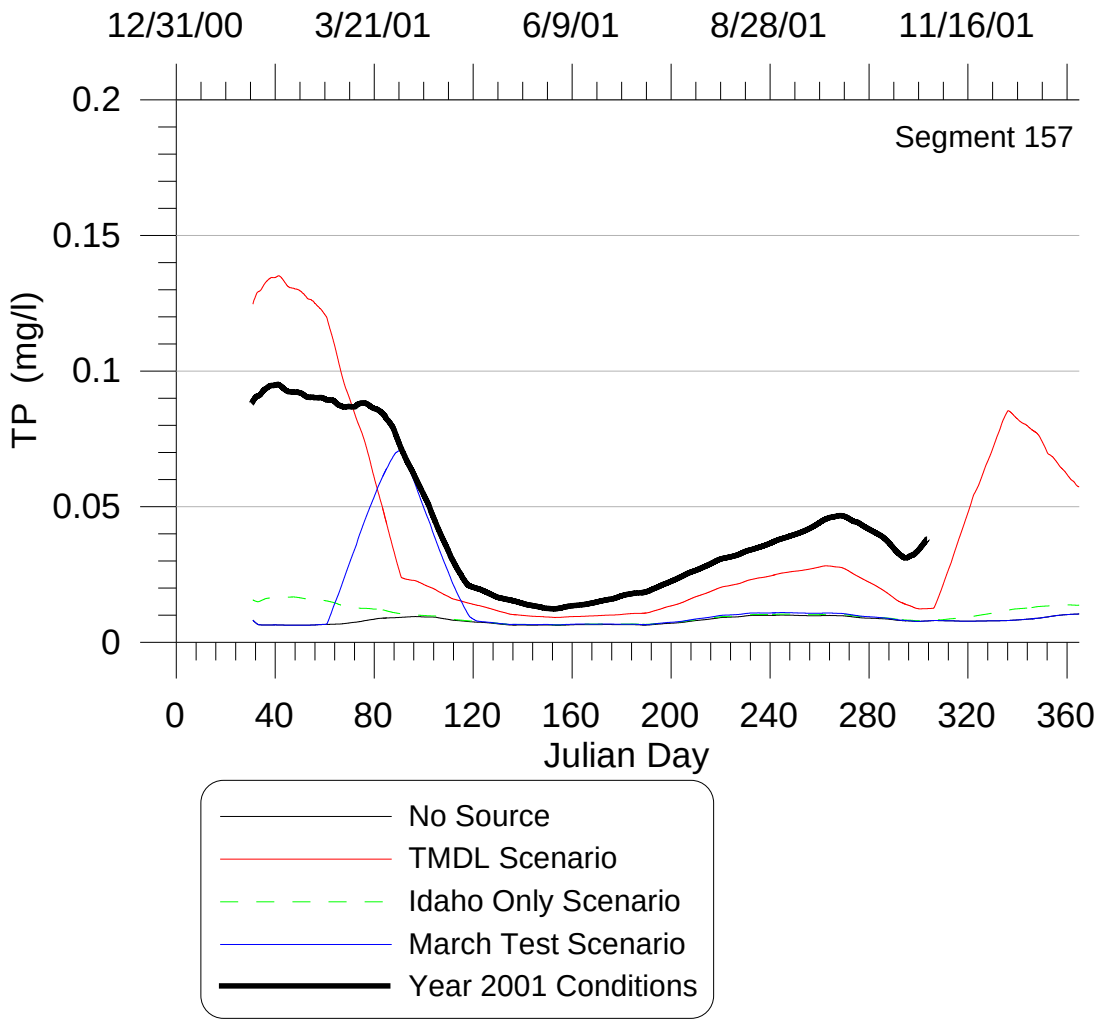

Figure 3. 30-day running average total phosphorus concentrations at segment 157 in Long Lake of the no source scenario, the TMDL scenario, Idaho only scenario, March test scenario and for year 2001 conditions.

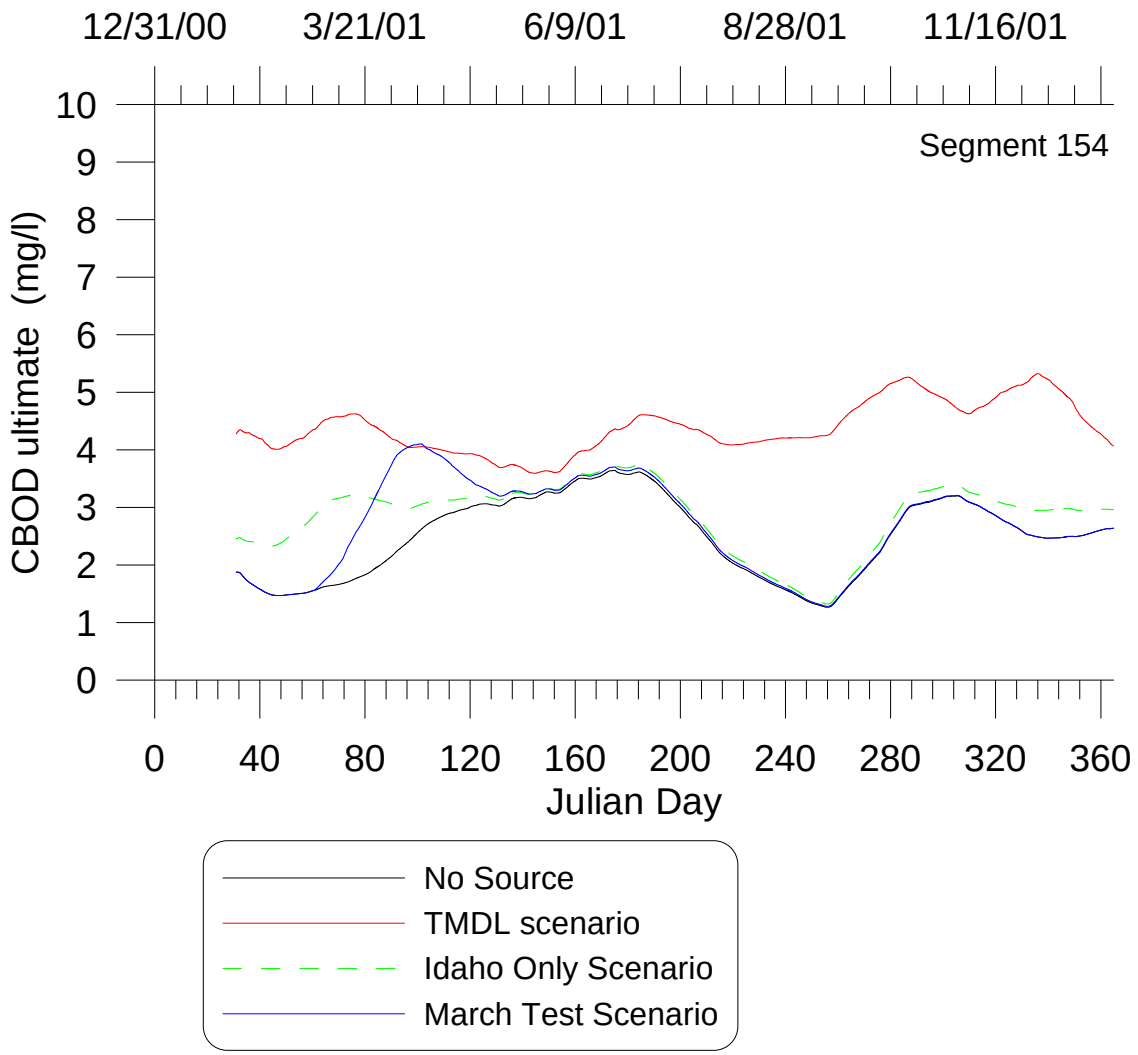

Figure 4. 30-day running average total CBOD ultimate concentrations at segment 154 in Long Lake of the no source scenario, the TMDL scenario, Idaho only scenario, and March test scenario.

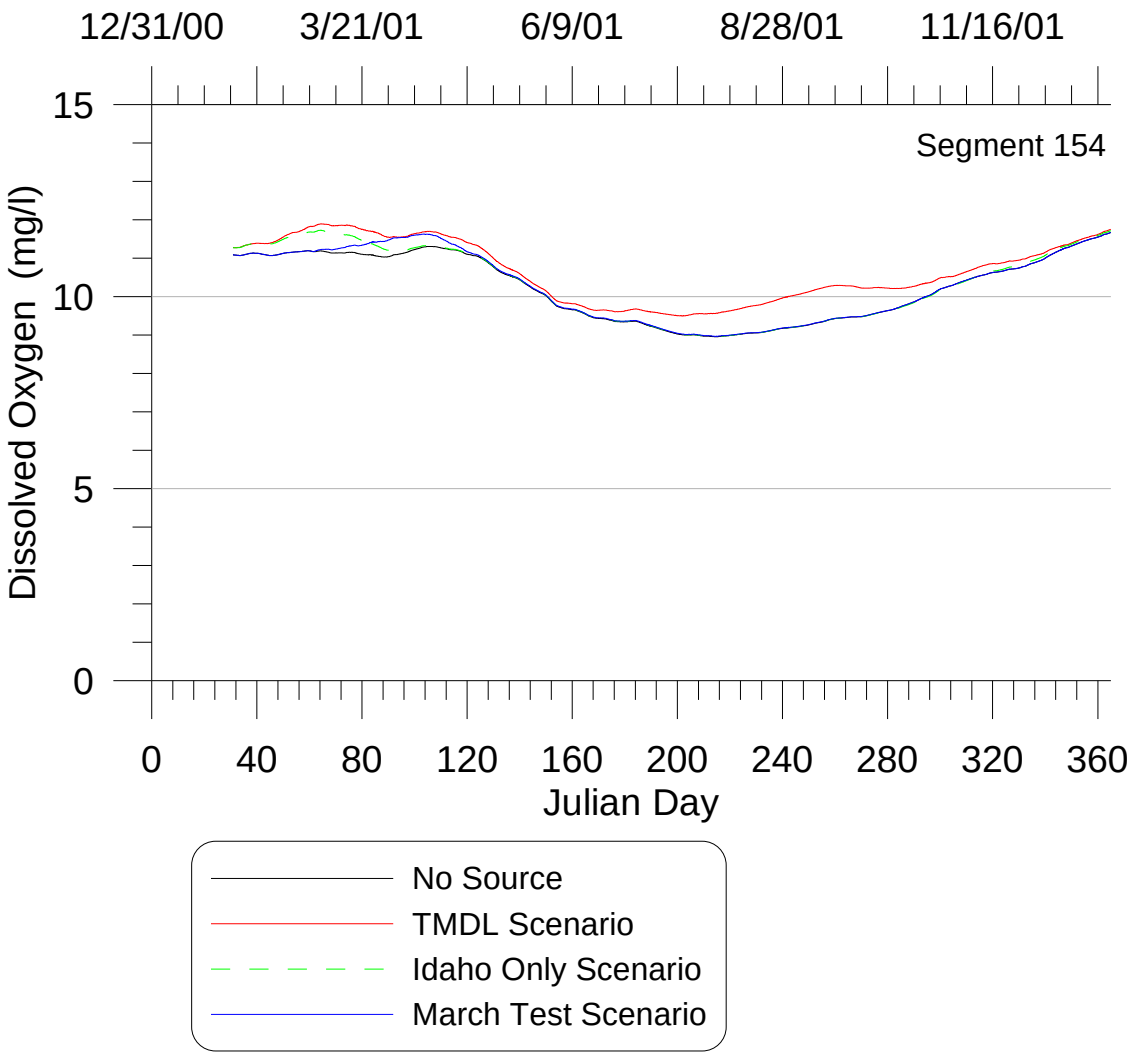

Figure 5. 30-day running average dissolved oxygen concentrations at segment 154 in Long Lake of the no source scenario, the TMDL scenario, Idaho only scenario, and March test scenario.

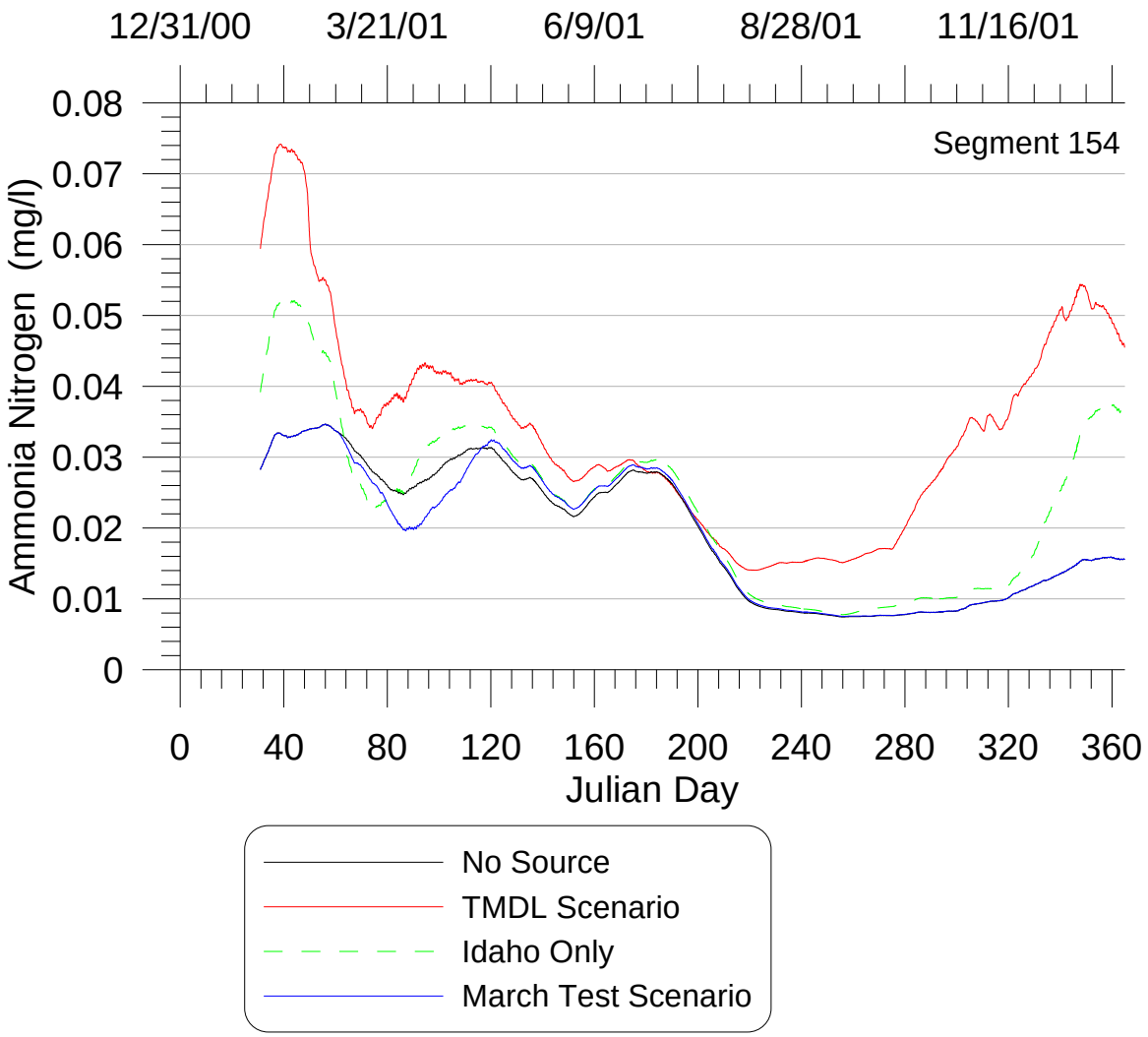

Figure 6. 30-day running average ammonia nitrogen concentrations at segment 154 in Long Lake of the no source scenario, the TMDL scenario, Idaho only scenario, and March test scenario.

Reservoir

The semi-monthly averages of the daily minimum, volume-averaged DO in the hypolimnion (greater than 8 m depth) of each Long Lake segment (158-188) for the scenarios were listed in Table 7 through Table 12. Long Lake segments 154, 155, and 156 were shallower than 8 m and not included in the tables. Long Lake segment 157 was also not included because the segment satisfies the greater than 8 m depth criterion barely for only part of the time period. The water level difference between the scenarios was small but not zero, and the middle of the bottom most active cell may be greater than greater than 8 m for one scenario while the other was less than 8 m. For comparison the no source concentrations were also listed along with the difference in dissolved oxygen concentration between the TMDL, Idaho only, and March test and the no source scenario. The greatest DO difference of the TMDL scenario with respect to the no source scenario was 1.22 mg/l, which occurred during the August 16-31 time period in model segment 187, one segment upstream from Long Lake dam. The Idaho only scenario differed from the no source at a maximum of 0.17 mg/l during August 1-15 at the dam segment (segment 188).

The semi-monthly averages of the daily minimum, volume-averaged DO for the full water column of all Long Lake segments (154-188) were listed in Table 13 through Table 18. The greatest difference between the no source and the TMDL scenario was 0.78 mg/l and occurred at the dam segment (segment 188) during the August 16-31 time period.

Table 7. TMDL scenario average dissolved oxygen concentrations at greater than 8 m depth for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the TMDL predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*June 1-15*			*June 15-30*			*July 1-15*			*July 16-31*			*Aug 1-15*			*Aug 16-31*			*Sept 1-15*		
158	**9.42**	*9.66*	-0.24	**9.42**	*9.79*	-0.36	**9.06**	*9.49*	-0.43	**9.11**	*9.60*	-0.49	**9.14**	*9.65*	-0.50	**9.31**	*9.84*	-0.54	**9.46**	*9.99*	-0.52
159	**9.54**	*9.84*	-0.31	**9.46**	*9.86*	-0.41	**9.13**	*9.53*	-0.40	**9.19**	*9.62*	-0.43	**9.19**	*9.63*	-0.44	**9.32**	*9.78*	-0.46	**9.47**	*9.93*	-0.47
160	**9.57**	*9.88*	-0.32	**9.45**	*9.85*	-0.40	**9.12**	*9.47*	-0.35	**9.19**	*9.58*	-0.39	**9.18**	*9.56*	-0.38	**9.30**	*9.70*	-0.41	**9.44**	*9.87*	-0.43
161	**9.56**	*9.87*	-0.31	**9.51**	*9.94*	-0.43	**9.16**	*9.52*	-0.36	**9.19**	*9.57*	-0.38	**9.19**	*9.55*	-0.36	**9.30**	*9.68*	-0.38	**9.45**	*9.84*	-0.40
162	**9.56**	*9.89*	-0.33	**9.55**	*10.01*	-0.46	**9.16**	*9.53*	-0.36	**9.18**	*9.59*	-0.40	**9.18**	*9.53*	-0.35	**9.26**	*9.61*	-0.36	**9.41**	*9.79*	-0.38
163	**9.58**	*9.96*	-0.38	**9.59**	*10.06*	-0.47	**9.18**	*9.56*	-0.38	**9.17**	*9.63*	-0.46	**9.17**	*9.53*	-0.36	**9.18**	*9.52*	-0.34	**9.31**	*9.73*	-0.42
164	**9.61**	*10.03*	-0.42	**9.58**	*10.08*	-0.50	**9.15**	*9.52*	-0.36	**9.14**	*9.62*	-0.48	**9.13**	*9.47*	-0.34	**9.10**	*9.37*	-0.27	**9.20**	*9.62*	-0.42
165	**9.62**	*10.05*	-0.43	**9.57**	*10.10*	-0.53	**9.06**	*9.38*	-0.31	**9.09**	*9.53*	-0.44	**9.07**	*9.36*	-0.29	**8.96**	*9.12*	-0.15	**9.11**	*9.50*	-0.39
166	**9.59**	*10.03*	-0.43	**9.51**	*10.03*	-0.51	**8.87**	*9.07*	-0.20	**8.98**	*9.30*	-0.32	**8.97**	*9.15*	-0.19	**8.82**	*8.85*	-0.03	**9.07**	*9.38*	-0.31
167	**9.59**	*10.03*	-0.44	**9.48**	*9.98*	-0.50	**8.73**	*8.87*	-0.14	**8.84**	*9.07*	-0.23	**8.87**	*8.97*	-0.10	**8.69**	*8.63*	0.06	**9.01**	*9.27*	-0.26
168	**9.61**	*10.10*	-0.49	**9.43**	*9.91*	-0.48	**8.52**	*8.58*	-0.06	**8.55**	*8.63*	-0.08	**8.66**	*8.57*	0.09	**8.44**	*8.20*	0.25	**8.95**	*9.11*	-0.17
169	**9.62**	*10.16*	-0.54	**9.37**	*9.82*	-0.45	**8.41**	*8.41*	0.00	**8.36**	*8.37*	-0.01	**8.47**	*8.31*	0.16	**8.25**	*7.92*	0.33	**8.85**	*8.91*	-0.06
170	**9.60**	*10.18*	-0.57	**9.28**	*9.72*	-0.43	**8.37**	*8.36*	0.00	**8.27**	*8.23*	0.04	**8.37**	*8.17*	0.20	**8.13**	*7.71*	0.41	**8.69**	*8.66*	0.04
171	**9.58**	*10.17*	-0.59	**9.23**	*9.66*	-0.42	**8.40**	*8.39*	0.01	**8.23**	*8.17*	0.06	**8.31**	*8.07*	0.23	**8.04**	*7.55*	0.49	**8.57**	*8.43*	0.14
172	**9.50**	*10.08*	-0.58	**9.08**	*9.46*	-0.38	**8.23**	*8.17*	0.06	**7.96**	*7.80*	0.15	**7.98**	*7.63*	0.35	**7.70**	*7.07*	0.63	**8.35**	*8.06*	0.29
173	**9.40**	*9.96*	-0.56	**8.96**	*9.31*	-0.35	**8.12**	*8.00*	0.12	**7.80**	*7.55*	0.24	**7.80**	*7.36*	0.44	**7.51**	*6.78*	0.73	**8.15**	*7.75*	0.40
174	**9.29**	*9.80*	-0.51	**8.81**	*9.12*	-0.31	**7.96**	*7.79*	0.18	**7.59**	*7.27*	0.33	**7.56**	*7.05*	0.51	**7.26**	*6.42*	0.84	**7.85**	*7.34*	0.51
175	**9.20**	*9.68*	-0.48	**8.69**	*8.99*	-0.30	**7.86**	*7.66*	0.19	**7.46**	*7.09*	0.37	**7.40**	*6.84*	0.56	**7.09**	*6.21*	0.87	**7.62**	*7.04*	0.58
176	**9.12**	*9.59*	-0.47	**8.63**	*8.91*	-0.29	**7.83**	*7.60*	0.22	**7.41**	*6.99*	0.42	**7.39**	*6.79*	0.60	**7.06**	*6.13*	0.93	**7.55**	*6.91*	0.64
177	**8.93**	*9.31*	-0.38	**8.35**	*8.54*	-0.19	**7.50**	*7.19*	0.31	**6.99**	*6.46*	0.53	**6.92**	*6.22*	0.70	**6.56**	*5.54*	1.03	**7.01**	*6.24*	0.77
178	**8.85**	*9.21*	-0.36	**8.27**	*8.42*	-0.15	**7.44**	*7.10*	0.33	**6.92**	*6.34*	0.58	**6.88**	*6.15*	0.73	**6.51**	*5.47*	1.05	**6.89**	*6.06*	0.82
179	**8.79**	*9.14*	-0.35	**8.24**	*8.37*	-0.13	**7.42**	*7.07*	0.35	**6.88**	*6.27*	0.61	**6.86**	*6.11*	0.76	**6.51**	*5.44*	1.07	**6.81**	*5.92*	0.89
180	**8.73**	*9.05*	-0.32	**8.19**	*8.30*	-0.10	**7.38**	*7.02*	0.36	**6.83**	*6.19*	0.64	**6.81**	*6.03*	0.79	**6.49**	*5.42*	1.07	**6.67**	*5.75*	0.92
181	**8.66**	*8.95*	-0.29	**8.15**	*8.21*	-0.06	**7.36**	*6.97*	0.39	**6.78**	*6.08*	0.70	**6.74**	*5.89*	0.85	**6.47**	*5.36*	1.12	**6.52**	*5.53*	0.99
182	**8.67**	*8.95*	-0.28	**8.16**	*8.21*	-0.05	**7.41**	*7.01*	0.39	**6.84**	*6.13*	0.71	**6.78**	*5.92*	0.86	**6.56**	*5.46*	1.10	**6.53**	*5.52*	1.01
183	**8.55**	*8.78*	-0.23	**8.00**	*7.98*	0.02	**7.26**	*6.85*	0.42	**6.70**	*5.97*	0.73	**6.58**	*5.69*	0.89	**6.37**	*5.29*	1.08	**6.29**	*5.27*	1.02
184	**8.54**	*8.75*	-0.21	**7.98**	*7.94*	0.04	**7.30**	*6.88*	0.42	**6.77**	*6.01*	0.76	**6.63**	*5.71*	0.92	**6.43**	*5.33*	1.10	**6.30**	*5.34*	0.96
185	**8.47**	*8.63*	-0.16	**7.94**	*7.87*	0.07	**7.29**	*6.88*	0.41	**6.78**	*6.00*	0.78	**6.58**	*5.64*	0.94	**6.42**	*5.29*	1.12	**6.23**	*5.27*	0.95
186	**8.34**	*8.44*	-0.10	**7.84**	*7.74*	0.10	**7.18**	*6.76*	0.42	**6.63**	*5.84*	0.79	**6.37**	*5.41*	0.96	**6.24**	*5.08*	1.16	**5.96**	*4.93*	1.03
187	**8.31**	*8.40*	-0.09	**7.85**	*7.75*	0.09	**7.23**	*6.79*	0.44	**6.66**	*5.83*	0.83	**6.36**	*5.35*	1.01	**6.27**	*5.05*	1.22	**5.96**	*4.90*	1.07
188	**8.20**	*8.25*	-0.05	**7.67**	*7.56*	0.11	**7.10**	*6.65*	0.45	**6.53**	*5.71*	0.83	**6.15**	*5.17*	0.98	**6.07**	*4.88*	1.19	**5.73**	*4.68*	1.05

Table 8. TMDL scenario average dissolved oxygen concentrations at greater than 8 m depth for September 16 to December 31 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the TMDL predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*Sept 16-30*			*Oct 1-15*			*Oct 16-31*			*Nov 1-15*			*Nov 16-30*			*Dec 1-15*			*Dec 16-31*		
158	**9.63**	*9.91*	-0.28	**9.99**	*10.08*	-0.08	**10.49**	*10.55*	-0.05	**10.67**	*10.85*	-0.19	**10.80**	*10.80*	0.00	**11.43**	*11.49*	-0.06	**11.50**	*11.54*	-0.05
159	**9.62**	*9.85*	-0.23	**10.01**	*10.09*	-0.09	**10.51**	*10.56*	-0.05	**10.70**	*10.89*	-0.19	**10.83**	*10.81*	0.01	**11.43**	*11.49*	-0.06	**11.51**	*11.58*	-0.07
160	**9.60**	*9.79*	-0.19	**10.01**	*10.10*	-0.09	**10.52**	*10.56*	-0.04	**10.69**	*10.90*	-0.21	**10.82**	*10.78*	0.04	**11.43**	*11.48*	-0.05	**11.50**	*11.59*	-0.09
161	**9.60**	*9.77*	-0.18	**10.02**	*10.10*	-0.08	**10.52**	*10.54*	-0.03	**10.69**	*10.88*	-0.19	**10.83**	*10.77*	0.06	**11.43**	*11.48*	-0.05	**11.49**	*11.57*	-0.08
162	**9.58**	*9.74*	-0.16	**10.04**	*10.12*	-0.08	**10.55**	*10.57*	-0.03	**10.67**	*10.83*	-0.16	**10.82**	*10.73*	0.09	**11.43**	*11.46*	-0.04	**11.49**	*11.57*	-0.07
163	**9.52**	*9.72*	-0.20	**10.01**	*10.12*	-0.10	**10.57**	*10.60*	-0.04	**10.66**	*10.80*	-0.15	**10.81**	*10.70*	0.11	**11.42**	*11.45*	-0.02	**11.49**	*11.56*	-0.07
164	**9.41**	*9.66*	-0.25	**9.91**	*10.06*	-0.16	**10.55**	*10.60*	-0.04	**10.65**	*10.79*	-0.13	**10.80**	*10.66*	0.14	**11.40**	*11.41*	-0.01	**11.48**	*11.54*	-0.06
165	**9.30**	*9.59*	-0.29	**9.77**	*10.00*	-0.23	**10.47**	*10.54*	-0.07	**10.65**	*10.79*	-0.14	**10.81**	*10.64*	0.17	**11.39**	*11.38*	0.01	**11.47**	*11.53*	-0.06
166	**9.26**	*9.47*	-0.21	**9.70**	*9.91*	-0.22	**10.42**	*10.48*	-0.06	**10.60**	*10.70*	-0.10	**10.78**	*10.59*	0.20	**11.37**	*11.33*	0.04	**11.45**	*11.49*	-0.04
167	**9.20**	*9.36*	-0.16	**9.63**	*9.85*	-0.22	**10.37**	*10.42*	-0.05	**10.59**	*10.67*	-0.08	**10.79**	*10.58*	0.21	**11.36**	*11.30*	0.06	**11.43**	*11.48*	-0.05
168	**9.15**	*9.23*	-0.09	**9.56**	*9.78*	-0.22	**10.28**	*10.36*	-0.08	**10.59**	*10.64*	-0.05	**10.80**	*10.57*	0.23	**11.34**	*11.27*	0.08	**11.43**	*11.47*	-0.04
169	**9.10**	*9.13*	-0.03	**9.49**	*9.70*	-0.21	**10.17**	*10.28*	-0.11	**10.61**	*10.66*	-0.05	**10.79**	*10.55*	0.25	**11.27**	*11.11*	0.16	**11.41**	*11.43*	-0.03
170	**9.03**	*9.01*	0.02	**9.40**	*9.60*	-0.20	**10.04**	*10.17*	-0.13	**10.56**	*10.63*	-0.07	**10.79**	*10.51*	0.28	**11.20**	*10.92*	0.28	**11.38**	*11.37*	0.01
171	**8.96**	*8.86*	0.10	**9.31**	*9.48*	-0.17	**9.91**	*10.06*	-0.15	**10.48**	*10.54*	-0.06	**10.75**	*10.44*	0.31	**11.20**	*10.92*	0.28	**11.36**	*11.31*	0.05
172	**8.86**	*8.65*	0.21	**9.26**	*9.40*	-0.13	**9.82**	*9.99*	-0.16	**10.37**	*10.41*	-0.04	**10.72**	*10.40*	0.32	**11.29**	*11.06*	0.23	**11.43**	*11.39*	0.04
173	**8.75**	*8.46*	0.30	**9.21**	*9.31*	-0.09	**9.77**	*9.91*	-0.14	**10.29**	*10.29*	0.01	**10.68**	*10.35*	0.33	**11.29**	*11.03*	0.26	**11.46**	*11.41*	0.05
174	**8.56**	*8.16*	0.40	**9.17**	*9.18*	-0.01	**9.75**	*9.85*	-0.09	**10.27**	*10.24*	0.03	**10.66**	*10.33*	0.33	**11.27**	*10.97*	0.30	**11.45**	*11.38*	0.07
175	**8.37**	*7.92*	0.45	**9.09**	*9.06*	0.02	**9.73**	*9.80*	-0.07	**10.24**	*10.19*	0.05	**10.64**	*10.32*	0.32	**11.26**	*10.95*	0.32	**11.46**	*11.37*	0.08
176	**8.27**	*7.77*	0.50	**8.95**	*8.87*	0.08	**9.67**	*9.72*	-0.05	**10.16**	*10.08*	0.08	**10.60**	*10.30*	0.29	**11.24**	*10.90*	0.34	**11.50**	*11.39*	0.11
177	**7.79**	*7.15*	0.64	**8.66**	*8.46*	0.21	**9.69**	*9.70*	-0.01	**10.15**	*10.05*	0.10	**10.58**	*10.29*	0.29	**11.21**	*10.86*	0.36	**11.50**	*11.37*	0.13
178	**7.60**	*6.88*	0.71	**8.50**	*8.23*	0.26	**9.68**	*9.67*	0.01	**10.12**	*10.00*	0.12	**10.55**	*10.27*	0.28	**11.19**	*10.83*	0.37	**11.52**	*11.37*	0.15
179	**7.53**	*6.75*	0.78	**8.44**	*8.13*	0.31	**9.65**	*9.63*	0.02	**10.08**	*9.93*	0.15	**10.52**	*10.25*	0.27	**11.18**	*10.80*	0.38	**11.58**	*11.40*	0.18
180	**7.36**	*6.51*	0.85	**8.30**	*7.92*	0.38	**9.62**	*9.57*	0.05	**10.06**	*9.88*	0.17	**10.50**	*10.23*	0.28	**11.17**	*10.78*	0.39	**11.61**	*11.40*	0.21
181	**7.18**	*6.24*	0.94	**8.12**	*7.64*	0.49	**9.54**	*9.43*	0.11	**10.04**	*9.84*	0.20	**10.48**	*10.20*	0.28	**11.16**	*10.76*	0.40	**11.59**	*11.35*	0.24
182	**7.03**	*6.04*	0.98	**7.97**	*7.47*	0.49	**9.41**	*9.25*	0.16	**10.04**	*9.83*	0.21	**10.48**	*10.19*	0.29	**11.15**	*10.74*	0.41	**11.56**	*11.31*	0.25
183	**6.66**	*5.63*	1.03	**7.59**	*7.01*	0.58	**9.28**	*9.09*	0.19	**10.02**	*9.79*	0.23	**10.47**	*10.17*	0.30	**11.15**	*10.74*	0.41	**11.59**	*11.30*	0.29
184	**6.50**	*5.50*	1.01	**7.29**	*6.69*	0.61	**9.14**	*8.88*	0.25	**10.01**	*9.76*	0.25	**10.46**	*10.16*	0.31	**11.14**	*10.73*	0.41	**11.59**	*11.29*	0.31
185	**6.31**	*5.29*	1.01	**7.02**	*6.35*	0.67	**8.90**	*8.56*	0.34	**10.00**	*9.74*	0.26	**10.46**	*10.16*	0.31	**11.13**	*10.71*	0.42	**11.59**	*11.26*	0.33
186	**5.94**	*4.89*	1.05	**6.66**	*5.82*	0.84	**8.64**	*8.26*	0.38	**9.96**	*9.68*	0.29	**10.46**	*10.15*	0.31	**11.11**	*10.67*	0.44	**11.55**	*11.21*	0.34
187	**5.88**	*4.81*	1.08	**6.39**	*5.52*	0.87	**8.51**	*8.14*	0.37	**9.94**	*9.63*	0.31	**10.44**	*10.12*	0.32	**11.09**	*10.64*	0.45	**11.52**	*11.18*	0.34
188	**5.57**	*4.52*	1.04	**5.88**	*5.12*	0.76	**7.96**	*7.52*	0.44	**9.91**	*9.52*	0.39	**10.40**	*10.08*	0.32	**11.07**	*10.61*	0.46	**11.55**	*11.19*	0.36

Table 9. Idaho only scenario average dissolved oxygen concentrations at greater than 8 m depth for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the Idaho only scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*June 1-15*			*June 15-30*			*July 1-15*			*July 16-31*			*Aug 1-15*			*Aug 16-31*			*Sept 1-15*		
158	**9.42**	*9.41*	0.01	**9.42**	*9.43*	0.00	**9.06**	*9.06*	0.00	**9.11**	*9.10*	0.01	**9.14**	*9.13*	0.01	**9.31**	*9.30*	0.01	**9.46**	*9.46*	0.01
159	**9.54**	*9.52*	0.02	**9.46**	*9.47*	-0.01	**9.13**	*9.12*	0.01	**9.19**	*9.18*	0.01	**9.19**	*9.17*	0.02	**9.32**	*9.31*	0.01	**9.47**	*9.45*	0.01
160	**9.57**	*9.56*	0.01	**9.45**	*9.46*	-0.01	**9.12**	*9.11*	0.01	**9.19**	*9.17*	0.01	**9.18**	*9.16*	0.02	**9.30**	*9.28*	0.01	**9.44**	*9.43*	0.01
161	**9.56**	*9.56*	0.00	**9.51**	*9.52*	-0.01	**9.16**	*9.15*	0.01	**9.19**	*9.18*	0.01	**9.19**	*9.17*	0.02	**9.30**	*9.29*	0.01	**9.45**	*9.44*	0.01
162	**9.56**	*9.58*	-0.02	**9.55**	*9.56*	-0.01	**9.16**	*9.15*	0.01	**9.18**	*9.17*	0.01	**9.18**	*9.16*	0.02	**9.26**	*9.25*	0.01	**9.41**	*9.41*	0.01
163	**9.58**	*9.60*	-0.02	**9.59**	*9.59*	-0.01	**9.18**	*9.17*	0.01	**9.17**	*9.17*	0.00	**9.17**	*9.16*	0.01	**9.18**	*9.18*	0.00	**9.31**	*9.31*	0.00
164	**9.61**	*9.63*	-0.02	**9.58**	*9.58*	0.00	**9.15**	*9.14*	0.01	**9.14**	*9.14*	0.00	**9.13**	*9.12*	0.01	**9.10**	*9.10*	0.00	**9.20**	*9.20*	-0.01
165	**9.62**	*9.65*	-0.02	**9.57**	*9.57*	0.00	**9.06**	*9.04*	0.02	**9.09**	*9.08*	0.00	**9.07**	*9.06*	0.01	**8.96**	*8.96*	0.01	**9.11**	*9.12*	-0.01
166	**9.59**	*9.61*	-0.02	**9.51**	*9.52*	0.00	**8.87**	*8.83*	0.04	**8.98**	*8.96*	0.01	**8.97**	*8.95*	0.02	**8.82**	*8.80*	0.02	**9.07**	*9.08*	0.00
167	**9.59**	*9.61*	-0.02	**9.48**	*9.49*	-0.01	**8.73**	*8.68*	0.05	**8.84**	*8.82*	0.02	**8.87**	*8.85*	0.02	**8.69**	*8.66*	0.03	**9.01**	*9.01*	0.00
168	**9.61**	*9.63*	-0.02	**9.43**	*9.44*	-0.01	**8.52**	*8.46*	0.05	**8.55**	*8.51*	0.04	**8.66**	*8.63*	0.03	**8.44**	*8.41*	0.04	**8.95**	*8.95*	0.00
169	**9.62**	*9.65*	-0.03	**9.37**	*9.37*	0.00	**8.41**	*8.35*	0.06	**8.36**	*8.32*	0.04	**8.47**	*8.44*	0.04	**8.25**	*8.21*	0.04	**8.85**	*8.84*	0.01
170	**9.60**	*9.63*	-0.03	**9.28**	*9.28*	0.00	**8.37**	*8.31*	0.06	**8.27**	*8.22*	0.05	**8.37**	*8.32*	0.04	**8.13**	*8.08*	0.05	**8.69**	*8.69*	0.01
171	**9.58**	*9.61*	-0.03	**9.23**	*9.23*	0.01	**8.40**	*8.33*	0.07	**8.23**	*8.18*	0.05	**8.31**	*8.26*	0.05	**8.04**	*7.99*	0.05	**8.57**	*8.56*	0.01
172	**9.50**	*9.53*	-0.03	**9.08**	*9.07*	0.01	**8.23**	*8.16*	0.07	**7.96**	*7.90*	0.06	**7.98**	*7.92*	0.06	**7.70**	*7.64*	0.06	**8.35**	*8.33*	0.02
173	**9.40**	*9.43*	-0.03	**8.96**	*8.95*	0.01	**8.12**	*8.04*	0.08	**7.80**	*7.72*	0.07	**7.80**	*7.72*	0.07	**7.51**	*7.44*	0.07	**8.15**	*8.13*	0.02
174	**9.29**	*9.31*	-0.02	**8.81**	*8.79*	0.02	**7.96**	*7.88*	0.08	**7.59**	*7.51*	0.09	**7.56**	*7.47*	0.08	**7.26**	*7.17*	0.08	**7.85**	*7.81*	0.03
175	**9.20**	*9.23*	-0.02	**8.69**	*8.67*	0.02	**7.86**	*7.77*	0.08	**7.46**	*7.37*	0.09	**7.40**	*7.31*	0.09	**7.09**	*7.00*	0.09	**7.62**	*7.58*	0.04
176	**9.12**	*9.14*	-0.02	**8.63**	*8.61*	0.02	**7.83**	*7.74*	0.09	**7.41**	*7.31*	0.10	**7.39**	*7.30*	0.09	**7.06**	*6.96*	0.09	**7.55**	*7.50*	0.05
177	**8.93**	*8.94*	-0.01	**8.35**	*8.32*	0.03	**7.50**	*7.41*	0.09	**6.99**	*6.88*	0.11	**6.92**	*6.81*	0.11	**6.56**	*6.45*	0.11	**7.01**	*6.94*	0.07
178	**8.85**	*8.86*	-0.01	**8.27**	*8.24*	0.03	**7.44**	*7.34*	0.10	**6.92**	*6.80*	0.12	**6.88**	*6.77*	0.11	**6.51**	*6.39*	0.12	**6.89**	*6.81*	0.08
179	**8.79**	*8.80*	-0.01	**8.24**	*8.20*	0.04	**7.42**	*7.32*	0.10	**6.88**	*6.75*	0.12	**6.86**	*6.75*	0.12	**6.51**	*6.39*	0.12	**6.81**	*6.72*	0.09
180	**8.73**	*8.73*	-0.01	**8.19**	*8.16*	0.03	**7.38**	*7.28*	0.10	**6.83**	*6.71*	0.13	**6.81**	*6.70*	0.12	**6.49**	*6.37*	0.12	**6.67**	*6.58*	0.09
181	**8.66**	*8.66*	0.00	**8.15**	*8.11*	0.03	**7.36**	*7.26*	0.10	**6.78**	*6.64*	0.13	**6.74**	*6.61*	0.12	**6.47**	*6.34*	0.13	**6.52**	*6.42*	0.11
182	**8.67**	*8.67*	0.00	**8.16**	*8.13*	0.03	**7.41**	*7.31*	0.10	**6.84**	*6.71*	0.13	**6.78**	*6.66*	0.12	**6.56**	*6.44*	0.13	**6.53**	*6.42*	0.11
183	**8.55**	*8.55*	0.01	**8.00**	*7.96*	0.04	**7.26**	*7.15*	0.11	**6.70**	*6.56*	0.14	**6.58**	*6.45*	0.13	**6.37**	*6.23*	0.13	**6.29**	*6.17*	0.12
184	**8.54**	*8.53*	0.01	**7.98**	*7.95*	0.04	**7.30**	*7.19*	0.11	**6.77**	*6.62*	0.14	**6.63**	*6.50*	0.14	**6.43**	*6.30*	0.13	**6.30**	*6.18*	0.12
185	**8.47**	*8.45*	0.02	**7.94**	*7.90*	0.04	**7.29**	*7.18*	0.11	**6.78**	*6.63*	0.14	**6.58**	*6.44*	0.14	**6.42**	*6.28*	0.14	**6.23**	*6.10*	0.13
186	**8.34**	*8.31*	0.03	**7.84**	*7.79*	0.05	**7.18**	*7.07*	0.11	**6.63**	*6.48*	0.15	**6.37**	*6.22*	0.15	**6.24**	*6.09*	0.15	**5.96**	*5.82*	0.15
187	**8.31**	*8.28*	0.03	**7.85**	*7.80*	0.05	**7.23**	*7.12*	0.11	**6.66**	*6.51*	0.15	**6.36**	*6.19*	0.16	**6.27**	*6.11*	0.16	**5.96**	*5.81*	0.15
188	**8.20**	*8.15*	0.05	**7.67**	*7.62*	0.05	**7.10**	*6.99*	0.11	**6.53**	*6.38*	0.16	**6.15**	*5.98*	0.17	**6.07**	*5.91*	0.16	**5.73**	*5.57*	0.16

Table 10. **Idaho only scenario average dissolved oxygen concentrations at greater than 8 m depth for September 16 to December 31 compared with no source scenario concentrations.**

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the Idaho only scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*Sept 16-30*			*Oct 1-15*			*Oct 16-31*			*Nov 1-15*			*Nov 16-30*			*Dec 1-15*			*Dec 16-31*		
158	**9.63**	*9.61*	0.02	**9.99**	*9.95*	0.04	**10.49**	*10.46*	0.03	**10.67**	*10.74*	-0.07	**10.80**	*10.84*	-0.04	**11.43**	*11.48*	-0.05	**11.50**	*11.53*	-0.03
159	**9.62**	*9.59*	0.03	**10.01**	*9.96*	0.04	**10.51**	*10.48*	0.03	**10.70**	*10.78*	-0.08	**10.83**	*10.87*	-0.04	**11.43**	*11.48*	-0.05	**11.51**	*11.55*	-0.04
160	**9.60**	*9.57*	0.03	**10.01**	*9.97*	0.04	**10.52**	*10.48*	0.04	**10.69**	*10.78*	-0.09	**10.82**	*10.86*	-0.04	**11.43**	*11.48*	-0.05	**11.50**	*11.54*	-0.04
161	**9.60**	*9.57*	0.03	**10.02**	*9.98*	0.04	**10.52**	*10.48*	0.04	**10.69**	*10.77*	-0.09	**10.83**	*10.87*	-0.04	**11.43**	*11.48*	-0.05	**11.49**	*11.54*	-0.05
162	**9.58**	*9.55*	0.03	**10.04**	*10.00*	0.04	**10.55**	*10.51*	0.04	**10.67**	*10.75*	-0.08	**10.82**	*10.87*	-0.05	**11.43**	*11.48*	-0.06	**11.49**	*11.55*	-0.05
163	**9.52**	*9.50*	0.02	**10.01**	*9.97*	0.04	**10.57**	*10.52*	0.04	**10.66**	*10.74*	-0.08	**10.81**	*10.86*	-0.05	**11.42**	*11.48*	-0.05	**11.49**	*11.54*	-0.05
164	**9.41**	*9.39*	0.02	**9.91**	*9.87*	0.03	**10.55**	*10.51*	0.04	**10.65**	*10.73*	-0.07	**10.80**	*10.86*	-0.06	**11.40**	*11.45*	-0.05	**11.48**	*11.53*	-0.05
165	**9.30**	*9.29*	0.02	**9.77**	*9.74*	0.03	**10.47**	*10.43*	0.04	**10.65**	*10.72*	-0.07	**10.81**	*10.86*	-0.05	**11.39**	*11.44*	-0.05	**11.47**	*11.51*	-0.05
166	**9.26**	*9.25*	0.02	**9.70**	*9.67*	0.03	**10.42**	*10.38*	0.04	**10.60**	*10.65*	-0.05	**10.78**	*10.84*	-0.06	**11.37**	*11.42*	-0.05	**11.45**	*11.50*	-0.05
167	**9.20**	*9.18*	0.02	**9.63**	*9.60*	0.02	**10.37**	*10.33*	0.04	**10.59**	*10.64*	-0.04	**10.79**	*10.85*	-0.06	**11.36**	*11.41*	-0.05	**11.43**	*11.48*	-0.05
168	**9.15**	*9.12*	0.03	**9.56**	*9.53*	0.02	**10.28**	*10.24*	0.04	**10.59**	*10.63*	-0.03	**10.80**	*10.86*	-0.06	**11.34**	*11.39*	-0.04	**11.43**	*11.48*	-0.05
169	**9.10**	*9.07*	0.03	**9.49**	*9.46*	0.02	**10.17**	*10.14*	0.03	**10.61**	*10.64*	-0.02	**10.79**	*10.86*	-0.07	**11.27**	*11.31*	-0.03	**11.41**	*11.46*	-0.05
170	**9.03**	*9.00*	0.03	**9.40**	*9.37*	0.02	**10.04**	*10.01*	0.03	**10.56**	*10.58*	-0.02	**10.79**	*10.85*	-0.06	**11.20**	*11.21*	-0.01	**11.38**	*11.42*	-0.05
171	**8.96**	*8.93*	0.03	**9.31**	*9.29*	0.02	**9.91**	*9.89*	0.03	**10.48**	*10.49*	0.00	**10.75**	*10.81*	-0.05	**11.20**	*11.21*	-0.01	**11.36**	*11.40*	-0.04
172	**8.86**	*8.82*	0.04	**9.26**	*9.24*	0.03	**9.82**	*9.80*	0.02	**10.37**	*10.36*	0.01	**10.72**	*10.75*	-0.03	**11.29**	*11.31*	-0.02	**11.43**	*11.47*	-0.04
173	**8.75**	*8.71*	0.04	**9.21**	*9.19*	0.03	**9.77**	*9.75*	0.02	**10.29**	*10.28*	0.02	**10.68**	*10.70*	-0.02	**11.29**	*11.31*	-0.02	**11.46**	*11.49*	-0.04
174	**8.56**	*8.52*	0.04	**9.17**	*9.13*	0.03	**9.75**	*9.73*	0.03	**10.27**	*10.25*	0.02	**10.66**	*10.68*	-0.02	**11.27**	*11.28*	-0.01	**11.45**	*11.48*	-0.03
175	**8.37**	*8.33*	0.04	**9.09**	*9.05*	0.04	**9.73**	*9.71*	0.03	**10.24**	*10.22*	0.02	**10.64**	*10.66*	-0.02	**11.26**	*11.27*	-0.01	**11.46**	*11.48*	-0.03
176	**8.27**	*8.23*	0.04	**8.95**	*8.91*	0.04	**9.67**	*9.64*	0.03	**10.16**	*10.14*	0.03	**10.60**	*10.60*	-0.01	**11.24**	*11.24*	0.00	**11.50**	*11.52*	-0.02
177	**7.79**	*7.73*	0.05	**8.66**	*8.61*	0.05	**9.69**	*9.66*	0.03	**10.15**	*10.12*	0.03	**10.58**	*10.58*	0.00	**11.21**	*11.21*	0.01	**11.50**	*11.52*	-0.02
178	**7.60**	*7.54*	0.06	**8.50**	*8.44*	0.06	**9.68**	*9.64*	0.03	**10.12**	*10.09*	0.03	**10.55**	*10.55*	0.00	**11.19**	*11.18*	0.01	**11.52**	*11.54*	-0.02
179	**7.53**	*7.47*	0.06	**8.44**	*8.38*	0.06	**9.65**	*9.62*	0.03	**10.08**	*10.05*	0.03	**10.52**	*10.52*	0.00	**11.18**	*11.16*	0.02	**11.58**	*11.59*	-0.01
180	**7.36**	*7.29*	0.07	**8.30**	*8.24*	0.07	**9.62**	*9.59*	0.04	**10.06**	*10.02*	0.03	**10.50**	*10.49*	0.01	**11.17**	*11.15*	0.02	**11.61**	*11.62*	-0.01
181	**7.18**	*7.11*	0.07	**8.12**	*8.05*	0.08	**9.54**	*9.49*	0.04	**10.04**	*10.00*	0.04	**10.48**	*10.47*	0.01	**11.16**	*11.13*	0.03	**11.59**	*11.60*	0.00
182	**7.03**	*6.95*	0.08	**7.97**	*7.89*	0.08	**9.41**	*9.36*	0.05	**10.04**	*10.00*	0.04	**10.48**	*10.47*	0.01	**11.15**	*11.12*	0.03	**11.56**	*11.56*	0.00
183	**6.66**	*6.57*	0.09	**7.59**	*7.50*	0.09	**9.28**	*9.23*	0.05	**10.02**	*9.98*	0.04	**10.47**	*10.45*	0.02	**11.15**	*11.12*	0.03	**11.59**	*11.58*	0.00
184	**6.50**	*6.40*	0.10	**7.29**	*7.20*	0.10	**9.14**	*9.08*	0.06	**10.01**	*9.96*	0.05	**10.46**	*10.44*	0.02	**11.14**	*11.11*	0.03	**11.59**	*11.58*	0.01
185	**6.31**	*6.20*	0.11	**7.02**	*6.91*	0.11	**8.90**	*8.83*	0.07	**10.00**	*9.95*	0.05	**10.46**	*10.45*	0.02	**11.13**	*11.10*	0.03	**11.59**	*11.57*	0.02
186	**5.94**	*5.81*	0.13	**6.66**	*6.54*	0.12	**8.64**	*8.56*	0.08	**9.96**	*9.90*	0.06	**10.46**	*10.44*	0.01	**11.11**	*11.08*	0.03	**11.55**	*11.53*	0.02
187	**5.88**	*5.75*	0.14	**6.39**	*6.26*	0.13	**8.51**	*8.43*	0.08	**9.94**	*9.87*	0.06	**10.44**	*10.43*	0.01	**11.09**	*11.06*	0.03	**11.52**	*11.50*	0.02
188	**5.57**	*5.42*	0.15	**5.88**	*5.75*	0.13	**7.96**	*7.88*	0.09	**9.91**	*9.84*	0.07	**10.40**	*10.40*	0.00	**11.07**	*11.04*	0.03	**11.55**	*11.53*	0.03

Table 11. March test scenario average dissolved oxygen concentrations at greater than 8 m depth for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the March test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*June 1-15*			*June 15-30*			*July 1-15*			*July 16-31*			*Aug 1-15*			*Aug 16-31*			*Sept 1-15*		
158	**9.42**	*9.43*	-0.01	**9.42**	*9.43*	0.00	**9.06**	*9.06*	-0.01	**9.11**	*9.10*	0.01	**9.14**	*9.13*	0.01	**9.31**	*9.30*	0.01	**9.46**	*9.45*	0.01
159	**9.54**	*9.55*	-0.01	**9.46**	*9.48*	-0.02	**9.13**	*9.13*	0.00	**9.19**	*9.18*	0.01	**9.19**	*9.17*	0.02	**9.32**	*9.30*	0.02	**9.47**	*9.44*	0.02
160	**9.57**	*9.58*	-0.01	**9.45**	*9.48*	-0.02	**9.12**	*9.12*	0.00	**9.19**	*9.18*	0.01	**9.18**	*9.15*	0.02	**9.30**	*9.28*	0.02	**9.44**	*9.42*	0.02
161	**9.56**	*9.57*	-0.01	**9.51**	*9.54*	-0.03	**9.16**	*9.16*	0.00	**9.19**	*9.19*	0.01	**9.19**	*9.16*	0.02	**9.30**	*9.28*	0.02	**9.45**	*9.43*	0.02
162	**9.56**	*9.57*	-0.01	**9.55**	*9.58*	-0.03	**9.16**	*9.16*	0.00	**9.18**	*9.18*	0.00	**9.18**	*9.16*	0.02	**9.26**	*9.24*	0.01	**9.41**	*9.40*	0.01
163	**9.58**	*9.61*	-0.02	**9.59**	*9.62*	-0.03	**9.18**	*9.18*	-0.01	**9.17**	*9.19*	-0.01	**9.17**	*9.16*	0.01	**9.18**	*9.18*	0.00	**9.31**	*9.32*	-0.01
164	**9.61**	*9.65*	-0.04	**9.58**	*9.61*	-0.03	**9.15**	*9.16*	-0.01	**9.14**	*9.17*	-0.02	**9.13**	*9.13*	0.00	**9.10**	*9.10*	0.00	**9.20**	*9.21*	-0.02
165	**9.62**	*9.66*	-0.04	**9.57**	*9.61*	-0.04	**9.06**	*9.06*	0.00	**9.09**	*9.11*	-0.02	**9.07**	*9.07*	0.00	**8.96**	*8.96*	0.01	**9.11**	*9.13*	-0.02
166	**9.59**	*9.64*	-0.04	**9.51**	*9.56*	-0.05	**8.87**	*8.86*	0.01	**8.98**	*8.99*	-0.01	**8.97**	*8.96*	0.01	**8.82**	*8.81*	0.02	**9.07**	*9.08*	-0.01
167	**9.59**	*9.64*	-0.05	**9.48**	*9.53*	-0.05	**8.73**	*8.71*	0.02	**8.84**	*8.85*	0.00	**8.87**	*8.86*	0.01	**8.69**	*8.67*	0.02	**9.01**	*9.02*	-0.01
168	**9.61**	*9.67*	-0.06	**9.43**	*9.48*	-0.05	**8.52**	*8.50*	0.02	**8.55**	*8.54*	0.01	**8.66**	*8.64*	0.02	**8.44**	*8.41*	0.04	**8.95**	*8.95*	0.00
169	**9.62**	*9.69*	-0.07	**9.37**	*9.40*	-0.03	**8.41**	*8.38*	0.03	**8.36**	*8.35*	0.01	**8.47**	*8.44*	0.03	**8.25**	*8.21*	0.04	**8.85**	*8.85*	0.00
170	**9.60**	*9.69*	-0.09	**9.28**	*9.32*	-0.04	**8.37**	*8.34*	0.03	**8.27**	*8.25*	0.01	**8.37**	*8.34*	0.03	**8.13**	*8.08*	0.04	**8.69**	*8.69*	0.00
171	**9.58**	*9.68*	-0.10	**9.23**	*9.27*	-0.04	**8.40**	*8.37*	0.03	**8.23**	*8.21*	0.01	**8.31**	*8.27*	0.03	**8.04**	*8.00*	0.04	**8.57**	*8.57*	0.01
172	**9.50**	*9.60*	-0.11	**9.08**	*9.12*	-0.04	**8.23**	*8.19*	0.04	**7.96**	*7.93*	0.02	**7.98**	*7.94*	0.04	**7.70**	*7.65*	0.05	**8.35**	*8.34*	0.01
173	**9.40**	*9.50*	-0.10	**8.96**	*9.00*	-0.04	**8.12**	*8.07*	0.04	**7.80**	*7.76*	0.03	**7.80**	*7.75*	0.05	**7.51**	*7.46*	0.06	**8.15**	*8.14*	0.02
174	**9.29**	*9.38*	-0.09	**8.81**	*8.84*	-0.03	**7.96**	*7.92*	0.05	**7.59**	*7.55*	0.04	**7.56**	*7.50*	0.05	**7.26**	*7.19*	0.06	**7.85**	*7.82*	0.02
175	**9.20**	*9.28*	-0.08	**8.69**	*8.72*	-0.03	**7.86**	*7.81*	0.05	**7.46**	*7.41*	0.05	**7.40**	*7.34*	0.06	**7.09**	*7.02*	0.06	**7.62**	*7.59*	0.03
176	**9.12**	*9.20*	-0.08	**8.63**	*8.67*	-0.04	**7.83**	*7.78*	0.05	**7.41**	*7.36*	0.05	**7.39**	*7.33*	0.06	**7.06**	*6.99*	0.06	**7.55**	*7.52*	0.04
177	**8.93**	*8.99*	-0.06	**8.35**	*8.38*	-0.03	**7.50**	*7.44*	0.06	**6.99**	*6.92*	0.07	**6.92**	*6.85*	0.07	**6.56**	*6.48*	0.08	**7.01**	*6.96*	0.05
178	**8.85**	*8.91*	-0.05	**8.27**	*8.29*	-0.02	**7.44**	*7.38*	0.06	**6.92**	*6.84*	0.08	**6.88**	*6.81*	0.07	**6.51**	*6.43*	0.08	**6.89**	*6.83*	0.06
179	**8.79**	*8.84*	-0.05	**8.24**	*8.25*	-0.01	**7.42**	*7.35*	0.06	**6.88**	*6.80*	0.08	**6.86**	*6.80*	0.07	**6.51**	*6.43*	0.08	**6.81**	*6.74*	0.06
180	**8.73**	*8.77*	-0.05	**8.19**	*8.21*	-0.02	**7.38**	*7.32*	0.06	**6.83**	*6.75*	0.08	**6.81**	*6.75*	0.07	**6.49**	*6.42*	0.08	**6.67**	*6.61*	0.06
181	**8.66**	*8.70*	-0.04	**8.15**	*8.16*	-0.02	**7.36**	*7.30*	0.06	**6.78**	*6.69*	0.08	**6.74**	*6.67*	0.07	**6.47**	*6.40*	0.08	**6.52**	*6.45*	0.07
182	**8.67**	*8.71*	-0.04	**8.16**	*8.18*	-0.02	**7.41**	*7.35*	0.06	**6.84**	*6.76*	0.08	**6.78**	*6.72*	0.07	**6.56**	*6.49*	0.07	**6.53**	*6.47*	0.07
183	**8.55**	*8.58*	-0.03	**8.00**	*8.01*	-0.02	**7.26**	*7.20*	0.06	**6.70**	*6.62*	0.08	**6.58**	*6.51*	0.07	**6.37**	*6.30*	0.07	**6.29**	*6.22*	0.07
184	**8.54**	*8.57*	-0.04	**7.98**	*8.01*	-0.03	**7.30**	*7.26*	0.04	**6.77**	*6.70*	0.07	**6.63**	*6.58*	0.06	**6.43**	*6.37*	0.06	**6.30**	*6.25*	0.05
185	**8.47**	*8.52*	-0.05	**7.94**	*7.98*	-0.04	**7.29**	*7.27*	0.02	**6.78**	*6.72*	0.05	**6.58**	*6.53*	0.05	**6.42**	*6.37*	0.05	**6.23**	*6.18*	0.04
186	**8.34**	*8.38*	-0.04	**7.84**	*7.87*	-0.03	**7.18**	*7.16*	0.02	**6.63**	*6.57*	0.06	**6.37**	*6.31*	0.06	**6.24**	*6.18*	0.06	**5.96**	*5.90*	0.06
187	**8.31**	*8.34*	-0.03	**7.85**	*7.88*	-0.03	**7.23**	*7.21*	0.02	**6.66**	*6.59*	0.07	**6.36**	*6.29*	0.07	**6.27**	*6.20*	0.07	**5.96**	*5.90*	0.06
188	**8.20**	*8.31*	-0.11	**7.67**	*7.79*	-0.12	**7.10**	*7.15*	-0.05	**6.53**	*6.52*	0.01	**6.15**	*6.15*	0.01	**6.07**	*6.06*	0.01	**5.73**	*5.72*	0.02

Table 12. **March test scenario average dissolved oxygen concentrations at greater than 8 m depth for September 16 to December 31 compared with no source scenario concentrations.**

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the March test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*Sept 16-30*			*Oct 1-15*			*Oct 16-31*			*Nov 1-15*			*Nov 16-30*			*Dec 1-15*			*Dec 16-31*		
158	**9.63**	*9.62*	0.01	**9.99**	*9.98*	0.01	**10.49**	*10.49*	0.00	**10.67**	*10.67*	0.00	**10.80**	*10.81*	0.00	**11.43**	*11.43*	0.00	**11.50**	*11.50*	0.00
159	**9.62**	*9.60*	0.02	**10.01**	*10.00*	0.01	**10.51**	*10.50*	0.01	**10.70**	*10.70*	0.00	**10.83**	*10.83*	0.00	**11.43**	*11.43*	0.00	**11.51**	*11.51*	0.00
160	**9.60**	*9.58*	0.02	**10.01**	*10.00*	0.01	**10.52**	*10.51*	0.00	**10.69**	*10.69*	0.00	**10.82**	*10.82*	0.00	**11.43**	*11.43*	0.00	**11.50**	*11.50*	0.00
161	**9.60**	*9.58*	0.02	**10.02**	*10.01*	0.01	**10.52**	*10.51*	0.00	**10.69**	*10.69*	0.00	**10.83**	*10.83*	0.00	**11.43**	*11.43*	0.00	**11.49**	*11.49*	0.00
162	**9.58**	*9.56*	0.02	**10.04**	*10.03*	0.01	**10.55**	*10.54*	0.00	**10.67**	*10.67*	0.00	**10.82**	*10.83*	0.00	**11.43**	*11.43*	0.00	**11.49**	*11.49*	0.00
163	**9.52**	*9.52*	0.01	**10.01**	*10.01*	0.00	**10.57**	*10.56*	0.00	**10.66**	*10.66*	0.00	**10.81**	*10.81*	0.00	**11.42**	*11.42*	0.00	**11.49**	*11.49*	0.00
164	**9.41**	*9.42*	0.00	**9.91**	*9.91*	0.00	**10.55**	*10.55*	0.00	**10.65**	*10.65*	0.00	**10.80**	*10.80*	0.00	**11.40**	*11.40*	0.00	**11.48**	*11.48*	0.00
165	**9.30**	*9.32*	-0.01	**9.77**	*9.77*	-0.01	**10.47**	*10.47*	0.00	**10.65**	*10.65*	0.00	**10.81**	*10.81*	0.00	**11.39**	*11.39*	0.00	**11.47**	*11.47*	0.00
166	**9.26**	*9.27*	-0.01	**9.70**	*9.71*	-0.01	**10.42**	*10.42*	0.00	**10.60**	*10.60*	0.00	**10.78**	*10.79*	0.00	**11.37**	*11.38*	0.00	**11.45**	*11.45*	0.00
167	**9.20**	*9.21*	-0.01	**9.63**	*9.63*	-0.01	**10.37**	*10.37*	0.00	**10.59**	*10.59*	0.00	**10.79**	*10.80*	0.00	**11.36**	*11.36*	0.00	**11.43**	*11.43*	0.00
168	**9.15**	*9.15*	0.00	**9.56**	*9.56*	-0.01	**10.28**	*10.28*	0.00	**10.59**	*10.59*	0.00	**10.80**	*10.80*	0.00	**11.34**	*11.34*	0.00	**11.43**	*11.43*	0.00
169	**9.10**	*9.10*	0.00	**9.49**	*9.50*	-0.01	**10.17**	*10.17*	0.00	**10.61**	*10.61*	0.00	**10.79**	*10.80*	0.00	**11.27**	*11.28*	0.00	**11.41**	*11.41*	0.00
170	**9.03**	*9.03*	0.00	**9.40**	*9.41*	-0.01	**10.04**	*10.04*	0.00	**10.56**	*10.56*	0.00	**10.79**	*10.79*	0.00	**11.20**	*11.20*	0.00	**11.38**	*11.38*	0.00
171	**8.96**	*8.96*	0.00	**9.31**	*9.32*	-0.01	**9.91**	*9.91*	0.00	**10.48**	*10.48*	0.00	**10.75**	*10.76*	0.00	**11.20**	*11.20*	0.00	**11.36**	*11.36*	0.00
172	**8.86**	*8.86*	0.00	**9.26**	*9.27*	-0.01	**9.82**	*9.83*	0.00	**10.37**	*10.37*	0.00	**10.72**	*10.72*	0.00	**11.29**	*11.29*	0.00	**11.43**	*11.43*	0.00
173	**8.75**	*8.75*	0.00	**9.21**	*9.22*	0.00	**9.77**	*9.77*	0.00	**10.29**	*10.29*	0.00	**10.68**	*10.68*	0.00	**11.29**	*11.29*	0.00	**11.46**	*11.46*	0.00
174	**8.56**	*8.56*	0.00	**9.17**	*9.17*	0.00	**9.75**	*9.76*	0.00	**10.27**	*10.27*	0.00	**10.66**	*10.66*	0.00	**11.27**	*11.27*	0.00	**11.45**	*11.45*	0.00
175	**8.37**	*8.37*	0.00	**9.09**	*9.09*	0.00	**9.73**	*9.73*	0.00	**10.24**	*10.24*	0.00	**10.64**	*10.64*	0.00	**11.26**	*11.26*	0.00	**11.46**	*11.46*	0.00
176	**8.27**	*8.26*	0.01	**8.95**	*8.95*	0.00	**9.67**	*9.67*	0.00	**10.16**	*10.16*	0.00	**10.60**	*10.60*	0.00	**11.24**	*11.24*	0.00	**11.50**	*11.50*	0.00
177	**7.79**	*7.77*	0.01	**8.66**	*8.66*	0.00	**9.69**	*9.69*	0.00	**10.15**	*10.15*	0.00	**10.58**	*10.58*	0.00	**11.21**	*11.22*	0.00	**11.50**	*11.50*	0.00
178	**7.60**	*7.58*	0.02	**8.50**	*8.49*	0.00	**9.68**	*9.67*	0.00	**10.12**	*10.12*	0.00	**10.55**	*10.55*	0.00	**11.19**	*11.20*	0.00	**11.52**	*11.52*	0.00
179	**7.53**	*7.51*	0.02	**8.44**	*8.44*	0.00	**9.65**	*9.65*	0.00	**10.08**	*10.08*	0.00	**10.52**	*10.52*	0.00	**11.18**	*11.18*	0.00	**11.58**	*11.58*	0.00
180	**7.36**	*7.33*	0.03	**8.30**	*8.30*	0.01	**9.62**	*9.63*	0.00	**10.06**	*10.05*	0.00	**10.50**	*10.50*	0.00	**11.17**	*11.17*	0.00	**11.61**	*11.61*	0.00
181	**7.18**	*7.14*	0.04	**8.12**	*8.12*	0.00	**9.54**	*9.53*	0.01	**10.04**	*10.03*	0.01	**10.48**	*10.48*	0.00	**11.16**	*11.16*	0.00	**11.59**	*11.59*	0.00
182	**7.03**	*6.98*	0.05	**7.97**	*7.96*	0.00	**9.41**	*9.39*	0.02	**10.04**	*10.03*	0.00	**10.48**	*10.48*	0.00	**11.15**	*11.15*	0.00	**11.56**	*11.57*	0.00
183	**6.66**	*6.61*	0.06	**7.59**	*7.58*	0.01	**9.28**	*9.28*	0.00	**10.02**	*10.02*	0.00	**10.47**	*10.47*	0.00	**11.15**	*11.15*	0.00	**11.59**	*11.59*	0.00
184	**6.50**	*6.46*	0.05	**7.29**	*7.29*	0.01	**9.14**	*9.13*	0.01	**10.01**	*10.01*	0.00	**10.46**	*10.46*	0.00	**11.14**	*11.14*	0.00	**11.59**	*11.60*	0.00
185	**6.31**	*6.26*	0.05	**7.02**	*7.00*	0.02	**8.90**	*8.88*	0.02	**10.00**	*10.00*	0.00	**10.46**	*10.46*	0.00	**11.13**	*11.13*	0.00	**11.59**	*11.59*	0.00
186	**5.94**	*5.88*	0.06	**6.66**	*6.63*	0.03	**8.64**	*8.65*	-0.01	**9.96**	*9.96*	0.01	**10.46**	*10.45*	0.00	**11.11**	*11.11*	0.00	**11.55**	*11.55*	0.00
187	**5.88**	*5.81*	0.07	**6.39**	*6.35*	0.04	**8.51**	*8.52*	-0.01	**9.94**	*9.92*	0.01	**10.44**	*10.44*	0.00	**11.09**	*11.09*	0.00	**11.52**	*11.52*	0.00
188	**5.57**	*5.54*	0.03	**5.88**	*5.86*	0.01	**7.96**	*7.94*	0.02	**9.91**	*9.84*	0.07	**10.40**	*10.40*	0.00	**11.07**	*11.07*	0.00	**11.55**	*11.55*	0.00

Table 13. TMDL scenario average dissolved oxygen concentrations for full water column for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the TMDL predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*June 1-15*			*June 15-30*			*July 1-15*			*July 16-31*			*Aug 1-15*			*Aug 16-31*			*Sept 1-15*		
154	**9.27**	*9.32*	-0.05	**8.84**	*9.00*	-0.16	**8.75**	*9.24*	-0.49	**8.85**	*9.37*	-0.51	**8.84**	*9.39*	-0.55	**9.11**	*9.75*	-0.64	**9.29**	*9.89*	-0.61
155	**9.20**	*9.28*	-0.08	**8.84**	*9.01*	-0.17	**8.79**	*9.24*	-0.45	**8.78**	*9.23*	-0.45	**8.81**	*9.29*	-0.47	**9.03**	*9.61*	-0.57	**9.13**	*9.67*	-0.54
156	**9.18**	*9.29*	-0.10	**8.86**	*9.05*	-0.18	**8.81**	*9.25*	-0.43	**8.88**	*9.33*	-0.45	**8.90**	*9.42*	-0.53	**9.07**	*9.70*	-0.63	**9.25**	*9.86*	-0.61
157	**9.21**	*9.35*	-0.14	**9.10**	*9.40*	-0.30	**8.93**	*9.39*	-0.46	**8.94**	*9.55*	-0.61	**8.82**	*9.41*	-0.59	**8.81**	*9.43*	-0.61	**9.11**	*9.72*	-0.60
158	**9.31**	*9.55*	-0.24	**9.40**	*9.84*	-0.44	**8.99**	*9.53*	-0.54	**8.96**	*9.67*	-0.71	**8.90**	*9.52*	-0.63	**8.87**	*9.49*	-0.62	**9.12**	*9.77*	-0.65
159	**9.45**	*9.80*	-0.35	**9.51**	*10.03*	-0.52	**9.07**	*9.67*	-0.60	**9.01**	*9.75*	-0.74	**8.94**	*9.58*	-0.63	**8.88**	*9.47*	-0.58	**9.12**	*9.76*	-0.63
160	**9.57**	*9.98*	-0.41	**9.52**	*10.05*	-0.53	**9.08**	*9.72*	-0.65	**8.99**	*9.72*	-0.73	**8.92**	*9.53*	-0.60	**8.84**	*9.38*	-0.54	**9.08**	*9.67*	-0.59
161	**9.66**	*10.09*	-0.43	**9.49**	*10.07*	-0.58	**9.05**	*9.78*	-0.73	**8.92**	*9.70*	-0.78	**8.82**	*9.42*	-0.60	**8.71**	*9.22*	-0.52	**8.97**	*9.56*	-0.59
162	**9.67**	*10.09*	-0.42	**9.48**	*10.15*	-0.67	**9.07**	*9.84*	-0.77	**8.83**	*9.55*	-0.72	**8.77**	*9.31*	-0.54	**8.64**	*9.10*	-0.46	**8.89**	*9.47*	-0.58
163	**9.66**	*10.10*	-0.44	**9.50**	*10.32*	-0.82	**9.10**	*9.91*	-0.81	**8.83**	*9.53*	-0.70	**8.79**	*9.32*	-0.53	**8.62**	*9.03*	-0.42	**8.84**	*9.43*	-0.59
164	**9.67**	*10.17*	-0.49	**9.53**	*10.43*	-0.90	**9.12**	*9.91*	-0.78	**8.85**	*9.53*	-0.68	**8.80**	*9.30*	-0.50	**8.63**	*9.00*	-0.37	**8.85**	*9.41*	-0.56
165	**9.72**	*10.32*	-0.60	**9.55**	*10.56*	-1.02	**9.13**	*10.00*	-0.88	**8.80**	*9.51*	-0.71	**8.72**	*9.21*	-0.49	**8.54**	*8.88*	-0.34	**8.77**	*9.33*	-0.56
166	**9.73**	*10.37*	-0.64	**9.56**	*10.52*	-0.96	**9.11**	*9.97*	-0.86	**8.83**	*9.52*	-0.69	**8.74**	*9.18*	-0.44	**8.57**	*8.85*	-0.28	**8.82**	*9.34*	-0.52
167	**9.77**	*10.52*	-0.75	**9.55**	*10.58*	-1.03	**9.04**	*9.87*	-0.83	**8.75**	*9.43*	-0.68	**8.66**	*9.08*	-0.41	**8.49**	*8.74*	-0.25	**8.77**	*9.27*	-0.50
168	**9.73**	*10.51*	-0.78	**9.48**	*10.41*	-0.93	**8.86**	*9.52*	-0.66	**8.60**	*9.11*	-0.51	**8.57**	*8.84*	-0.27	**8.37**	*8.45*	-0.08	**8.74**	*9.13*	-0.39
169	**9.66**	*10.49*	-0.82	**9.41**	*10.27*	-0.86	**8.74**	*9.30*	-0.56	**8.46**	*8.88*	-0.42	**8.46**	*8.65*	-0.19	**8.26**	*8.27*	0.00	**8.69**	*8.99*	-0.31
170	**9.60**	*10.45*	-0.84	**9.33**	*10.13*	-0.80	**8.69**	*9.21*	-0.52	**8.37**	*8.75*	-0.38	**8.38**	*8.55*	-0.17	**8.18**	*8.14*	0.04	**8.60**	*8.83*	-0.23
171	**9.56**	*10.42*	-0.86	**9.26**	*10.03*	-0.77	**8.66**	*9.17*	-0.51	**8.32**	*8.65*	-0.33	**8.34**	*8.50*	-0.16	**8.12**	*8.07*	0.05	**8.53**	*8.71*	-0.18
172	**9.50**	*10.34*	-0.83	**9.15**	*9.88*	-0.73	**8.56**	*9.02*	-0.46	**8.17**	*8.42*	-0.25	**8.19**	*8.30*	-0.10	**7.97**	*7.89*	0.08	**8.44**	*8.55*	-0.11
173	**9.46**	*10.25*	-0.79	**9.10**	*9.75*	-0.66	**8.47**	*8.81*	-0.34	**8.06**	*8.19*	-0.14	**8.07**	*8.04*	0.03	**7.84**	*7.61*	0.22	**8.34**	*8.33*	0.01
174	**9.39**	*10.11*	-0.73	**9.01**	*9.60*	-0.59	**8.37**	*8.64*	-0.27	**7.93**	*8.00*	-0.06	**7.92**	*7.81*	0.12	**7.68**	*7.38*	0.30	**8.17**	*8.07*	0.10
175	**9.33**	*10.02*	-0.69	**8.94**	*9.49*	-0.55	**8.30**	*8.54*	-0.24	**7.87**	*7.90*	-0.03	**7.84**	*7.68*	0.15	**7.60**	*7.28*	0.32	**8.04**	*7.90*	0.14
176	**9.26**	*9.91*	-0.65	**8.88**	*9.38*	-0.50	**8.26**	*8.44*	-0.19	**7.82**	*7.79*	0.04	**7.80**	*7.60*	0.21	**7.56**	*7.17*	0.39	**7.98**	*7.75*	0.22
177	**9.12**	*9.67*	-0.56	**8.67**	*9.08*	-0.41	**8.00**	*8.08*	-0.09	**7.50**	*7.34*	0.16	**7.46**	*7.13*	0.33	**7.19**	*6.68*	0.51	**7.58**	*7.21*	0.36
178	**9.06**	*9.59*	-0.53	**8.61**	*8.98*	-0.37	**7.95**	*8.00*	-0.05	**7.45**	*7.24*	0.20	**7.43**	*7.07*	0.36	**7.15**	*6.61*	0.54	**7.49**	*7.07*	0.42
179	**9.01**	*9.52*	-0.50	**8.58**	*8.92*	-0.34	**7.92**	*7.94*	-0.02	**7.42**	*7.17*	0.24	**7.41**	*7.03*	0.39	**7.15**	*6.59*	0.56	**7.43**	*6.95*	0.48
180	**8.97**	*9.45*	-0.48	**8.56**	*8.88*	-0.32	**7.91**	*7.91*	0.00	**7.40**	*7.14*	0.26	**7.39**	*6.99*	0.40	**7.15**	*6.60*	0.56	**7.35**	*6.84*	0.51
181	**8.91**	*9.36*	-0.45	**8.51**	*8.79*	-0.28	**7.87**	*7.84*	0.04	**7.34**	*7.02*	0.32	**7.32**	*6.86*	0.46	**7.11**	*6.51*	0.61	**7.22**	*6.65*	0.57
182	**8.93**	*9.38*	-0.45	**8.55**	*8.84*	-0.29	**7.96**	*7.95*	0.00	**7.44**	*7.15*	0.29	**7.42**	*6.98*	0.44	**7.24**	*6.68*	0.56	**7.29**	*6.76*	0.53
183	**8.82**	*9.21*	-0.39	**8.40**	*8.62*	-0.22	**7.79**	*7.72*	0.07	**7.28**	*6.93*	0.35	**7.21**	*6.70*	0.51	**7.04**	*6.43*	0.61	**7.03**	*6.44*	0.59
184	**8.82**	*9.20*	-0.38	**8.41**	*8.62*	-0.21	**7.86**	*7.81*	0.05	**7.37**	*7.01*	0.36	**7.29**	*6.78*	0.51	**7.13**	*6.53*	0.60	**7.09**	*6.54*	0.54
185	**8.78**	*9.12*	-0.34	**8.41**	*8.61*	-0.20	**7.90**	*7.88*	0.02	**7.42**	*7.05*	0.37	**7.31**	*6.84*	0.48	**7.19**	*6.61*	0.58	**7.10**	*6.57*	0.53
186	**8.63**	*8.89*	-0.26	**8.28**	*8.41*	-0.13	**7.75**	*7.67*	0.08	**7.23**	*6.78*	0.45	**7.08**	*6.55*	0.53	**6.98**	*6.27*	0.70	**6.79**	*6.11*	0.68
187	**8.60**	*8.85*	-0.24	**8.31**	*8.46*	-0.16	**7.80**	*7.74*	0.06	**7.27**	*6.81*	0.46	**7.10**	*6.57*	0.53	**7.03**	*6.29*	0.74	**6.82**	*6.12*	0.71
188	**8.52**	*8.74*	-0.22	**8.16**	*8.29*	-0.12	**7.66**	*7.56*	0.11	**7.14**	*6.67*	0.48	**6.92**	*6.36*	0.55	**6.84**	*6.06*	0.78	**6.62**	*5.90*	0.72

Table 14. TMDL scenario average dissolved oxygen concentrations for full water column for September 16 to December 31 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the TMDL predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*Sept 16-30*			*Oct 1-15*			*Oct 16-31*			*Nov 1-15*			*Nov 16-30*			*Dec 1-15*			*Dec 16-31*		
154	**9.37**	*9.71*	-0.34	**9.89**	*10.10*	-0.21	**10.32**	*10.43*	-0.11	**10.59**	*10.81*	-0.23	**10.83**	*10.83*	0.00	**11.53**	*11.52*	0.01	**11.58**	*11.58*	0.00
155	**9.29**	*9.58*	-0.29	**9.74**	*9.93*	-0.18	**10.29**	*10.39*	-0.10	**10.59**	*10.78*	-0.19	**10.74**	*10.73*	0.01	**11.38**	*11.43*	-0.05	**11.48**	*11.49*	-0.01
156	**9.38**	*9.74*	-0.36	**9.72**	*9.89*	-0.17	**10.27**	*10.35*	-0.08	**10.55**	*10.72*	-0.17	**10.72**	*10.70*	0.01	**11.39**	*11.45*	-0.05	**11.48**	*11.47*	0.00
157	**9.50**	*9.94*	-0.45	**9.86**	*10.07*	-0.22	**10.37**	*10.47*	-0.11	**10.61**	*10.78*	-0.18	**10.78**	*10.76*	0.02	**11.42**	*11.49*	-0.06	**11.49**	*11.52*	-0.02
158	**9.46**	*9.95*	-0.50	**10.06**	*10.32*	-0.26	**10.54**	*10.67*	-0.13	**10.69**	*10.94*	-0.26	**10.81**	*10.83*	-0.02	**11.44**	*11.50*	-0.06	**11.52**	*11.59*	-0.07
159	**9.42**	*9.91*	-0.49	**10.06**	*10.31*	-0.25	**10.58**	*10.71*	-0.13	**10.76**	*11.05*	-0.30	**10.84**	*10.85*	-0.01	**11.44**	*11.51*	-0.06	**11.53**	*11.62*	-0.09
160	**9.34**	*9.82*	-0.47	**10.01**	*10.23*	-0.22	**10.57**	*10.67*	-0.10	**10.75**	*11.02*	-0.26	**10.82**	*10.80*	0.03	**11.44**	*11.50*	-0.06	**11.53**	*11.62*	-0.09
161	**9.20**	*9.73*	-0.53	**9.94**	*10.17*	-0.23	**10.58**	*10.66*	-0.08	**10.75**	*11.00*	-0.25	**10.84**	*10.79*	0.05	**11.43**	*11.48*	-0.05	**11.52**	*11.60*	-0.08
162	**9.13**	*9.66*	-0.52	**9.85**	*10.14*	-0.28	**10.59**	*10.67*	-0.07	**10.74**	*10.98*	-0.23	**10.84**	*10.77*	0.07	**11.44**	*11.47*	-0.03	**11.52**	*11.59*	-0.08
163	**9.07**	*9.62*	-0.55	**9.64**	*10.05*	-0.41	**10.57**	*10.66*	-0.09	**10.74**	*10.96*	-0.22	**10.84**	*10.74*	0.10	**11.44**	*11.47*	-0.03	**11.52**	*11.60*	-0.07
164	**9.06**	*9.60*	-0.54	**9.54**	*9.99*	-0.45	**10.44**	*10.59*	-0.15	**10.72**	*10.92*	-0.20	**10.83**	*10.70*	0.13	**11.42**	*11.43*	-0.01	**11.52**	*11.59*	-0.07
165	**8.96**	*9.52*	-0.56	**9.41**	*9.91*	-0.51	**10.26**	*10.49*	-0.23	**10.72**	*10.90*	-0.18	**10.84**	*10.67*	0.16	**11.42**	*11.39*	0.03	**11.54**	*11.60*	-0.06
166	**9.00**	*9.48*	-0.48	**9.40**	*9.86*	-0.46	**10.22**	*10.43*	-0.21	**10.67**	*10.80*	-0.14	**10.82**	*10.62*	0.19	**11.40**	*11.34*	0.06	**11.51**	*11.56*	-0.05
167	**8.95**	*9.40*	-0.45	**9.33**	*9.78*	-0.45	**10.15**	*10.38*	-0.22	**10.65**	*10.77*	-0.11	**10.82**	*10.62*	0.20	**11.39**	*11.32*	0.07	**11.50**	*11.54*	-0.04
168	**8.94**	*9.29*	-0.35	**9.32**	*9.71*	-0.39	**10.07**	*10.31*	-0.24	**10.64**	*10.73*	-0.09	**10.82**	*10.59*	0.23	**11.38**	*11.29*	0.09	**11.49**	*11.52*	-0.04
169	**8.91**	*9.21*	-0.30	**9.28**	*9.64*	-0.37	**9.95**	*10.18*	-0.23	**10.64**	*10.72*	-0.09	**10.81**	*10.57*	0.24	**11.34**	*11.21*	0.13	**11.47**	*11.50*	-0.03
170	**8.86**	*9.12*	-0.25	**9.22**	*9.58*	-0.35	**9.85**	*10.08*	-0.23	**10.52**	*10.65*	-0.12	**10.79**	*10.52*	0.28	**11.29**	*11.09*	0.20	**11.44**	*11.45*	-0.01
171	**8.81**	*9.04*	-0.23	**9.17**	*9.51*	-0.34	**9.76**	*10.00*	-0.24	**10.40**	*10.50*	-0.09	**10.76**	*10.45*	0.31	**11.28**	*11.06*	0.22	**11.43**	*11.42*	0.02
172	**8.76**	*8.95*	-0.19	**9.14**	*9.46*	-0.32	**9.71**	*9.93*	-0.22	**10.29**	*10.34*	-0.05	**10.69**	*10.39*	0.31	**11.34**	*11.12*	0.22	**11.57**	*11.53*	0.04
173	**8.74**	*8.82*	-0.09	**9.13**	*9.40*	-0.26	**9.68**	*9.85*	-0.17	**10.22**	*10.20*	0.02	**10.65**	*10.34*	0.31	**11.33**	*11.07*	0.26	**11.64**	*11.58*	0.06
174	**8.64**	*8.64*	0.00	**9.11**	*9.31*	-0.20	**9.67**	*9.79*	-0.12	**10.19**	*10.14*	0.05	**10.63**	*10.31*	0.32	**11.29**	*10.99*	0.30	**11.61**	*11.53*	0.09
175	**8.54**	*8.50*	0.04	**9.07**	*9.24*	-0.17	**9.65**	*9.75*	-0.09	**10.16**	*10.09*	0.07	**10.61**	*10.30*	0.31	**11.28**	*10.97*	0.31	**11.66**	*11.55*	0.12
176	**8.47**	*8.35*	0.12	**9.00**	*9.11*	-0.11	**9.61**	*9.68*	-0.07	**10.11**	*10.01*	0.10	**10.57**	*10.29*	0.28	**11.25**	*10.92*	0.33	**11.70**	*11.55*	0.15
177	**8.14**	*7.88*	0.27	**8.81**	*8.81*	0.01	**9.63**	*9.66*	-0.03	**10.10**	*9.98*	0.12	**10.55**	*10.29*	0.26	**11.22**	*10.87*	0.34	**11.66**	*11.50*	0.16
178	**8.02**	*7.68*	0.33	**8.71**	*8.65*	0.06	**9.63**	*9.64*	-0.01	**10.08**	*9.94*	0.14	**10.53**	*10.27*	0.26	**11.19**	*10.84*	0.36	**11.68**	*11.50*	0.18
179	**7.97**	*7.58*	0.39	**8.67**	*8.57*	0.10	**9.61**	*9.61*	0.01	**10.05**	*9.89*	0.16	**10.51**	*10.25*	0.26	**11.18**	*10.81*	0.37	**11.71**	*11.50*	0.21
180	**7.86**	*7.43*	0.43	**8.59**	*8.43*	0.16	**9.60**	*9.57*	0.03	**10.03**	*9.84*	0.18	**10.49**	*10.22*	0.27	**11.17**	*10.78*	0.39	**11.71**	*11.47*	0.24
181	**7.72**	*7.19*	0.53	**8.45**	*8.19*	0.26	**9.53**	*9.45*	0.08	**10.01**	*9.81*	0.20	**10.47**	*10.19*	0.28	**11.16**	*10.76*	0.40	**11.67**	*11.41*	0.26
182	**7.68**	*7.16*	0.52	**8.37**	*8.11*	0.25	**9.45**	*9.33*	0.12	**10.01**	*9.79*	0.21	**10.47**	*10.18*	0.29	**11.15**	*10.75*	0.40	**11.65**	*11.37*	0.27
183	**7.36**	*6.74*	0.61	**8.06**	*7.70*	0.36	**9.35**	*9.19*	0.15	**10.00**	*9.76*	0.24	**10.46**	*10.16*	0.30	**11.15**	*10.74*	0.41	**11.66**	*11.36*	0.30
184	**7.29**	*6.70*	0.59	**7.88**	*7.50*	0.37	**9.24**	*9.03*	0.21	**9.99**	*9.74*	0.25	**10.46**	*10.15*	0.31	**11.14**	*10.73*	0.41	**11.65**	*11.33*	0.32
185	**7.22**	*6.65*	0.58	**7.72**	*7.29*	0.43	**9.06**	*8.78*	0.28	**9.99**	*9.72*	0.27	**10.46**	*10.15*	0.31	**11.13**	*10.71*	0.42	**11.64**	*11.31*	0.33
186	**6.83**	*6.10*	0.72	**7.35**	*6.74*	0.61	**8.84**	*8.51*	0.33	**9.96**	*9.67*	0.29	**10.45**	*10.14*	0.31	**11.11**	*10.68*	0.43	**11.60**	*11.26*	0.34
187	**6.80**	*6.04*	0.76	**7.16**	*6.53*	0.63	**8.73**	*8.40*	0.33	**9.94**	*9.63*	0.30	**10.44**	*10.13*	0.32	**11.10**	*10.65*	0.45	**11.56**	*11.22*	0.34
188	**6.52**	*5.77*	0.75	**6.75**	*6.20*	0.55	**8.33**	*7.94*	0.39	**9.92**	*9.56*	0.36	**10.41**	*10.09*	0.32	**11.07**	*10.61*	0.46	**11.61**	*11.26*	0.35

Table 15. Idaho only scenario average dissolved oxygen concentrations for full water column for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the Idaho only scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*June 1-15*			*June 15-30*			*July 1-15*			*July 16-31*			*Aug 1-15*			*Aug 16-31*			*Sept 1-15*		
154	**9.27**	*9.28*	-0.01	**8.84**	*8.85*	0.00	**8.75**	*8.75*	0.00	**8.85**	*8.86*	0.00	**8.84**	*8.83*	0.00	**9.11**	*9.12*	0.00	**9.29**	*9.29*	0.00
155	**9.20**	*9.21*	-0.01	**8.84**	*8.85*	0.00	**8.79**	*8.80*	-0.01	**8.78**	*8.78*	0.00	**8.81**	*8.81*	0.00	**9.03**	*9.03*	0.00	**9.13**	*9.13*	0.00
156	**9.18**	*9.19*	-0.01	**8.86**	*8.85*	0.02	**8.81**	*8.82*	0.00	**8.88**	*8.87*	0.00	**8.90**	*8.89*	0.00	**9.07**	*9.08*	0.00	**9.25**	*9.25*	0.00
157	**9.21**	*9.21*	0.00	**9.10**	*9.09*	0.01	**8.93**	*8.93*	0.00	**8.94**	*8.95*	-0.01	**8.82**	*8.83*	-0.01	**8.81**	*8.83*	-0.01	**9.11**	*9.13*	-0.01
158	**9.31**	*9.31*	0.00	**9.40**	*9.40*	0.00	**8.99**	*9.00*	0.00	**8.96**	*8.97*	-0.01	**8.90**	*8.91*	-0.01	**8.87**	*8.88*	-0.01	**9.12**	*9.14*	-0.01
159	**9.45**	*9.45*	0.00	**9.51**	*9.52*	-0.01	**9.07**	*9.08*	-0.01	**9.01**	*9.03*	-0.01	**8.94**	*8.96*	-0.01	**8.88**	*8.90*	-0.01	**9.12**	*9.14*	-0.01
160	**9.57**	*9.58*	0.00	**9.52**	*9.53*	0.00	**9.08**	*9.09*	-0.01	**8.99**	*9.01*	-0.02	**8.92**	*8.94*	-0.01	**8.84**	*8.85*	-0.01	**9.08**	*9.09*	-0.01
161	**9.66**	*9.68*	-0.02	**9.49**	*9.49*	0.00	**9.05**	*9.07*	-0.02	**8.92**	*8.94*	-0.02	**8.82**	*8.84*	-0.02	**8.71**	*8.73*	-0.02	**8.97**	*8.98*	-0.02
162	**9.67**	*9.68*	-0.01	**9.48**	*9.49*	-0.01	**9.07**	*9.10*	-0.03	**8.83**	*8.86*	-0.02	**8.77**	*8.79*	-0.02	**8.64**	*8.66*	-0.02	**8.89**	*8.91*	-0.02
163	**9.66**	*9.67*	-0.01	**9.50**	*9.53*	-0.03	**9.10**	*9.14*	-0.03	**8.83**	*8.85*	-0.02	**8.79**	*8.81*	-0.02	**8.62**	*8.63*	-0.02	**8.84**	*8.86*	-0.02
164	**9.67**	*9.69*	-0.02	**9.53**	*9.57*	-0.04	**9.12**	*9.15*	-0.03	**8.85**	*8.87*	-0.02	**8.80**	*8.82*	-0.02	**8.63**	*8.65*	-0.02	**8.85**	*8.87*	-0.02
165	**9.72**	*9.75*	-0.03	**9.55**	*9.60*	-0.05	**9.13**	*9.16*	-0.04	**8.80**	*8.82*	-0.03	**8.72**	*8.74*	-0.02	**8.54**	*8.55*	-0.01	**8.77**	*8.79*	-0.02
166	**9.73**	*9.76*	-0.04	**9.56**	*9.61*	-0.05	**9.11**	*9.14*	-0.03	**8.83**	*8.85*	-0.02	**8.74**	*8.75*	-0.01	**8.57**	*8.57*	-0.01	**8.82**	*8.83*	-0.02
167	**9.77**	*9.82*	-0.05	**9.55**	*9.60*	-0.06	**9.04**	*9.06*	-0.02	**8.75**	*8.77*	-0.02	**8.66**	*8.68*	-0.01	**8.49**	*8.50*	0.00	**8.77**	*8.79*	-0.01
168	**9.73**	*9.78*	-0.05	**9.48**	*9.52*	-0.04	**8.86**	*8.87*	-0.01	**8.60**	*8.60*	0.00	**8.57**	*8.57*	0.00	**8.37**	*8.36*	0.01	**8.74**	*8.75*	-0.01
169	**9.66**	*9.72*	-0.05	**9.41**	*9.45*	-0.03	**8.74**	*8.74*	0.00	**8.46**	*8.45*	0.01	**8.46**	*8.45*	0.01	**8.26**	*8.24*	0.02	**8.69**	*8.69*	-0.01
170	**9.60**	*9.65*	-0.05	**9.33**	*9.36*	-0.03	**8.69**	*8.68*	0.01	**8.37**	*8.36*	0.01	**8.38**	*8.37*	0.01	**8.18**	*8.16*	0.02	**8.60**	*8.60*	0.00
171	**9.56**	*9.61*	-0.05	**9.26**	*9.28*	-0.02	**8.66**	*8.66*	0.01	**8.32**	*8.31*	0.01	**8.34**	*8.33*	0.01	**8.12**	*8.10*	0.02	**8.53**	*8.53*	0.00
172	**9.50**	*9.55*	-0.04	**9.15**	*9.18*	-0.02	**8.56**	*8.55*	0.01	**8.17**	*8.15*	0.02	**8.19**	*8.17*	0.02	**7.97**	*7.95*	0.02	**8.44**	*8.44*	0.00
173	**9.46**	*9.50*	-0.04	**9.10**	*9.11*	-0.01	**8.47**	*8.44*	0.03	**8.06**	*8.02*	0.03	**8.07**	*8.04*	0.03	**7.84**	*7.80*	0.03	**8.34**	*8.33*	0.01
174	**9.39**	*9.42*	-0.04	**9.01**	*9.01*	0.00	**8.37**	*8.34*	0.03	**7.93**	*7.89*	0.04	**7.92**	*7.88*	0.04	**7.68**	*7.64*	0.04	**8.17**	*8.15*	0.01
175	**9.33**	*9.36*	-0.03	**8.94**	*8.94*	0.00	**8.30**	*8.27*	0.04	**7.87**	*7.82*	0.05	**7.84**	*7.79*	0.05	**7.60**	*7.55*	0.05	**8.04**	*8.02*	0.02
176	**9.26**	*9.29*	-0.03	**8.88**	*8.88*	0.00	**8.26**	*8.21*	0.04	**7.82**	*7.77*	0.05	**7.80**	*7.75*	0.05	**7.56**	*7.50*	0.05	**7.98**	*7.95*	0.03
177	**9.12**	*9.14*	-0.02	**8.67**	*8.66*	0.01	**8.00**	*7.94*	0.05	**7.50**	*7.43*	0.07	**7.46**	*7.39*	0.07	**7.19**	*7.12*	0.07	**7.58**	*7.53*	0.04
178	**9.06**	*9.08*	-0.02	**8.61**	*8.59*	0.02	**7.95**	*7.89*	0.06	**7.45**	*7.37*	0.08	**7.43**	*7.35*	0.07	**7.15**	*7.08*	0.07	**7.49**	*7.44*	0.05
179	**9.01**	*9.03*	-0.02	**8.58**	*8.56*	0.02	**7.92**	*7.86*	0.06	**7.42**	*7.33*	0.08	**7.41**	*7.34*	0.07	**7.15**	*7.07*	0.08	**7.43**	*7.37*	0.06
180	**8.97**	*8.98*	-0.01	**8.56**	*8.53*	0.02	**7.91**	*7.85*	0.06	**7.40**	*7.32*	0.08	**7.39**	*7.32*	0.08	**7.15**	*7.07*	0.08	**7.35**	*7.29*	0.06
181	**8.91**	*8.92*	-0.01	**8.51**	*8.48*	0.02	**7.87**	*7.81*	0.07	**7.34**	*7.25*	0.09	**7.32**	*7.24*	0.08	**7.11**	*7.03*	0.09	**7.22**	*7.15*	0.07
182	**8.93**	*8.94*	-0.01	**8.55**	*8.53*	0.02	**7.96**	*7.89*	0.06	**7.44**	*7.36*	0.09	**7.42**	*7.34*	0.08	**7.24**	*7.16*	0.08	**7.29**	*7.22*	0.07
183	**8.82**	*8.82*	0.00	**8.40**	*8.37*	0.03	**7.79**	*7.72*	0.07	**7.28**	*7.19*	0.09	**7.21**	*7.12*	0.09	**7.04**	*6.95*	0.09	**7.03**	*6.95*	0.08
184	**8.82**	*8.82*	0.00	**8.41**	*8.38*	0.03	**7.86**	*7.79*	0.07	**7.37**	*7.27*	0.10	**7.29**	*7.20*	0.09	**7.13**	*7.04*	0.09	**7.09**	*7.01*	0.08
185	**8.78**	*8.78*	0.00	**8.41**	*8.38*	0.03	**7.90**	*7.83*	0.07	**7.42**	*7.33*	0.10	**7.31**	*7.22*	0.09	**7.19**	*7.10*	0.09	**7.10**	*7.01*	0.09
186	**8.63**	*8.62*	0.01	**8.28**	*8.24*	0.04	**7.75**	*7.67*	0.07	**7.23**	*7.12*	0.11	**7.08**	*6.98*	0.11	**6.98**	*6.87*	0.10	**6.79**	*6.69*	0.10
187	**8.60**	*8.59*	0.01	**8.31**	*8.28*	0.03	**7.80**	*7.73*	0.07	**7.27**	*7.16*	0.11	**7.10**	*7.00*	0.11	**7.03**	*6.92*	0.11	**6.82**	*6.72*	0.11
188	**8.52**	*8.49*	0.03	**8.16**	*8.12*	0.04	**7.66**	*7.59*	0.08	**7.14**	*7.03*	0.12	**6.92**	*6.80*	0.12	**6.84**	*6.72*	0.12	**6.62**	*6.50*	0.12

Table 16. Idaho only scenario average dissolved oxygen concentrations for full water column for September 16 to December 31 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the Idaho only scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*Sept 16-30*			*Oct 1-15*			*Oct 16-31*			*Nov 1-15*			*Nov 16-30*			*Dec 1-15*			*Dec 16-31*		
154	**9.37**	*9.36*	0.01	**9.89**	*9.87*	0.02	**10.32**	*10.30*	0.02	**10.59**	*10.66*	-0.07	**10.83**	*10.86*	-0.03	**11.53**	*11.54*	-0.01	**11.58**	*11.58*	0.00
155	**9.29**	*9.28*	0.01	**9.74**	*9.72*	0.02	**10.29**	*10.28*	0.02	**10.59**	*10.64*	-0.04	**10.74**	*10.75*	-0.01	**11.38**	*11.42*	-0.04	**11.48**	*11.49*	-0.01
156	**9.38**	*9.36*	0.01	**9.72**	*9.70*	0.02	**10.27**	*10.25*	0.02	**10.55**	*10.59*	-0.04	**10.72**	*10.72*	-0.01	**11.39**	*11.44*	-0.04	**11.48**	*11.48*	-0.01
157	**9.50**	*9.49*	0.01	**9.86**	*9.83*	0.02	**10.37**	*10.35*	0.02	**10.61**	*10.66*	-0.05	**10.78**	*10.80*	-0.02	**11.42**	*11.47*	-0.05	**11.49**	*11.51*	-0.02
158	**9.46**	*9.45*	0.00	**10.06**	*10.03*	0.03	**10.54**	*10.51*	0.02	**10.69**	*10.77*	-0.08	**10.81**	*10.85*	-0.04	**11.44**	*11.48*	-0.04	**11.52**	*11.57*	-0.05
159	**9.42**	*9.42*	0.00	**10.06**	*10.03*	0.03	**10.58**	*10.56*	0.03	**10.76**	*10.86*	-0.10	**10.84**	*10.89*	-0.05	**11.44**	*11.50*	-0.05	**11.53**	*11.58*	-0.05
160	**9.34**	*9.34*	0.00	**10.01**	*9.98*	0.03	**10.57**	*10.54*	0.03	**10.75**	*10.85*	-0.09	**10.82**	*10.87*	-0.04	**11.44**	*11.49*	-0.06	**11.53**	*11.58*	-0.05
161	**9.20**	*9.21*	-0.01	**9.94**	*9.91*	0.03	**10.58**	*10.55*	0.03	**10.75**	*10.84*	-0.09	**10.84**	*10.88*	-0.04	**11.43**	*11.49*	-0.06	**11.52**	*11.57*	-0.05
162	**9.13**	*9.14*	-0.01	**9.85**	*9.83*	0.02	**10.59**	*10.56*	0.04	**10.74**	*10.83*	-0.09	**10.84**	*10.89*	-0.05	**11.44**	*11.49*	-0.05	**11.52**	*11.57*	-0.05
163	**9.07**	*9.08*	-0.01	**9.64**	*9.63*	0.01	**10.57**	*10.53*	0.03	**10.74**	*10.83*	-0.09	**10.84**	*10.89*	-0.05	**11.44**	*11.50*	-0.06	**11.52**	*11.58*	-0.05
164	**9.06**	*9.06*	-0.01	**9.54**	*9.54*	0.01	**10.44**	*10.41*	0.03	**10.72**	*10.80*	-0.08	**10.83**	*10.88*	-0.05	**11.42**	*11.47*	-0.05	**11.52**	*11.57*	-0.05
165	**8.96**	*8.98*	-0.01	**9.41**	*9.41*	0.00	**10.26**	*10.24*	0.02	**10.72**	*10.79*	-0.07	**10.84**	*10.89*	-0.05	**11.42**	*11.47*	-0.05	**11.54**	*11.59*	-0.05
166	**9.00**	*9.00*	-0.01	**9.40**	*9.40*	0.01	**10.22**	*10.20*	0.02	**10.67**	*10.72*	-0.05	**10.82**	*10.87*	-0.05	**11.40**	*11.44*	-0.04	**11.51**	*11.56*	-0.05
167	**8.95**	*8.95*	0.00	**9.33**	*9.33*	0.01	**10.15**	*10.13*	0.02	**10.65**	*10.70*	-0.04	**10.82**	*10.88*	-0.06	**11.39**	*11.44*	-0.04	**11.50**	*11.55*	-0.05
168	**8.94**	*8.93*	0.00	**9.32**	*9.31*	0.01	**10.07**	*10.05*	0.02	**10.64**	*10.67*	-0.03	**10.82**	*10.88*	-0.06	**11.38**	*11.42*	-0.04	**11.49**	*11.54*	-0.05
169	**8.91**	*8.90*	0.01	**9.28**	*9.27*	0.01	**9.95**	*9.93*	0.02	**10.64**	*10.66*	-0.03	**10.81**	*10.87*	-0.06	**11.34**	*11.38*	-0.04	**11.47**	*11.52*	-0.05
170	**8.86**	*8.85*	0.01	**9.22**	*9.21*	0.01	**9.85**	*9.83*	0.02	**10.52**	*10.55*	-0.02	**10.79**	*10.85*	-0.06	**11.29**	*11.31*	-0.03	**11.44**	*11.49*	-0.05
171	**8.81**	*8.80*	0.01	**9.17**	*9.16*	0.01	**9.76**	*9.75*	0.02	**10.40**	*10.41*	-0.01	**10.76**	*10.81*	-0.05	**11.28**	*11.30*	-0.02	**11.43**	*11.48*	-0.04
172	**8.76**	*8.75*	0.01	**9.14**	*9.13*	0.01	**9.71**	*9.69*	0.01	**10.29**	*10.28*	0.01	**10.69**	*10.71*	-0.02	**11.34**	*11.37*	-0.02	**11.57**	*11.60*	-0.04
173	**8.74**	*8.72*	0.02	**9.13**	*9.12*	0.02	**9.68**	*9.66*	0.02	**10.22**	*10.20*	0.02	**10.65**	*10.66*	-0.01	**11.33**	*11.34*	-0.02	**11.64**	*11.67*	-0.03
174	**8.64**	*8.62*	0.02	**9.11**	*9.09*	0.02	**9.67**	*9.65*	0.02	**10.19**	*10.17*	0.02	**10.63**	*10.64*	-0.01	**11.29**	*11.30*	-0.01	**11.61**	*11.64*	-0.03
175	**8.54**	*8.52*	0.02	**9.07**	*9.05*	0.02	**9.65**	*9.63*	0.02	**10.16**	*10.14*	0.02	**10.61**	*10.61*	0.00	**11.28**	*11.28*	0.00	**11.66**	*11.68*	-0.02
176	**8.47**	*8.45*	0.03	**9.00**	*8.97*	0.03	**9.61**	*9.59*	0.02	**10.11**	*10.09*	0.02	**10.57**	*10.57*	0.00	**11.25**	*11.24*	0.01	**11.70**	*11.71*	-0.02
177	**8.14**	*8.11*	0.04	**8.81**	*8.78*	0.04	**9.63**	*9.60*	0.03	**10.10**	*10.07*	0.03	**10.55**	*10.55*	0.00	**11.22**	*11.21*	0.01	**11.66**	*11.67*	-0.02
178	**8.02**	*7.97*	0.04	**8.71**	*8.67*	0.04	**9.63**	*9.60*	0.03	**10.08**	*10.05*	0.03	**10.53**	*10.53*	0.01	**11.19**	*11.18*	0.01	**11.68**	*11.69*	-0.01
179	**7.97**	*7.92*	0.04	**8.67**	*8.62*	0.05	**9.61**	*9.59*	0.03	**10.05**	*10.02*	0.03	**10.51**	*10.50*	0.01	**11.18**	*11.16*	0.02	**11.71**	*11.71*	-0.01
180	**7.86**	*7.82*	0.05	**8.59**	*8.54*	0.05	**9.60**	*9.57*	0.03	**10.03**	*9.99*	0.03	**10.49**	*10.47*	0.02	**11.17**	*11.15*	0.02	**11.71**	*11.71*	0.00
181	**7.72**	*7.67*	0.05	**8.45**	*8.39*	0.06	**9.53**	*9.50*	0.04	**10.01**	*9.97*	0.04	**10.47**	*10.45*	0.02	**11.16**	*11.13*	0.03	**11.67**	*11.67*	0.00
182	**7.68**	*7.63*	0.05	**8.37**	*8.31*	0.06	**9.45**	*9.40*	0.04	**10.01**	*9.97*	0.04	**10.47**	*10.45*	0.02	**11.15**	*11.13*	0.03	**11.65**	*11.64*	0.00
183	**7.36**	*7.30*	0.06	**8.06**	*7.99*	0.07	**9.35**	*9.30*	0.05	**10.00**	*9.96*	0.04	**10.46**	*10.44*	0.02	**11.15**	*11.12*	0.03	**11.66**	*11.65*	0.01
184	**7.29**	*7.22*	0.07	**7.88**	*7.80*	0.07	**9.24**	*9.18*	0.05	**9.99**	*9.95*	0.05	**10.46**	*10.44*	0.03	**11.14**	*11.11*	0.03	**11.65**	*11.64*	0.01
185	**7.22**	*7.15*	0.07	**7.72**	*7.64*	0.08	**9.06**	*9.00*	0.06	**9.99**	*9.94*	0.05	**10.46**	*10.44*	0.02	**11.13**	*11.10*	0.03	**11.64**	*11.62*	0.02
186	**6.83**	*6.74*	0.09	**7.35**	*7.25*	0.10	**8.84**	*8.77*	0.07	**9.96**	*9.90*	0.06	**10.45**	*10.44*	0.01	**11.11**	*11.08*	0.03	**11.60**	*11.58*	0.02
187	**6.80**	*6.70*	0.10	**7.16**	*7.06*	0.10	**8.73**	*8.66*	0.07	**9.94**	*9.88*	0.06	**10.44**	*10.43*	0.01	**11.10**	*11.06*	0.03	**11.56**	*11.54*	0.02
188	**6.52**	*6.41*	0.11	**6.75**	*6.65*	0.10	**8.33**	*8.25*	0.08	**9.92**	*9.86*	0.06	**10.41**	*10.40*	0.01	**11.07**	*11.04*	0.03	**11.61**	*11.59*	0.02

Table 17. March test scenario average dissolved oxygen concentrations for full water column for June 1 to September 15 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the March test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*June 1-15*			*June 15-30*			*July 1-15*			*July 16-31*			*Aug 1-15*			*Aug 16-31*			*Sept 1-15*		
154	**9.27**	*9.28*	-0.01	**8.84**	*8.85*	-0.01	**8.75**	*8.76*	-0.01	**8.85**	*8.86*	-0.01	**8.84**	*8.84*	0.00	**9.11**	*9.12*	-0.01	**9.29**	*9.29*	0.00
155	**9.20**	*9.21*	-0.01	**8.84**	*8.85*	-0.01	**8.79**	*8.81*	-0.01	**8.78**	*8.79*	-0.01	**8.81**	*8.81*	0.00	**9.03**	*9.03*	0.00	**9.13**	*9.13*	0.00
156	**9.18**	*9.19*	-0.01	**8.86**	*8.86*	0.00	**8.81**	*8.82*	-0.01	**8.88**	*8.88*	0.00	**8.90**	*8.90*	0.00	**9.07**	*9.08*	-0.01	**9.25**	*9.25*	0.00
157	**9.21**	*9.22*	-0.01	**9.10**	*9.11*	-0.01	**8.93**	*8.94*	-0.02	**8.94**	*8.97*	-0.03	**8.82**	*8.86*	-0.03	**8.81**	*8.84*	-0.03	**9.11**	*9.14*	-0.02
158	**9.31**	*9.32*	-0.01	**9.40**	*9.43*	-0.03	**8.99**	*9.02*	-0.03	**8.96**	*9.00*	-0.04	**8.90**	*8.93*	-0.04	**8.87**	*8.90*	-0.03	**9.12**	*9.15*	-0.03
159	**9.45**	*9.47*	-0.02	**9.51**	*9.54*	-0.03	**9.07**	*9.11*	-0.04	**9.01**	*9.06*	-0.05	**8.94**	*8.98*	-0.04	**8.88**	*8.92*	-0.04	**9.12**	*9.16*	-0.03
160	**9.57**	*9.60*	-0.02	**9.52**	*9.56*	-0.03	**9.08**	*9.13*	-0.05	**8.99**	*9.05*	-0.06	**8.92**	*8.97*	-0.04	**8.84**	*8.87*	-0.04	**9.08**	*9.11*	-0.03
161	**9.66**	*9.70*	-0.04	**9.49**	*9.54*	-0.05	**9.05**	*9.13*	-0.08	**8.92**	*9.00*	-0.08	**8.82**	*8.88*	-0.06	**8.71**	*8.76*	-0.05	**8.97**	*9.01*	-0.05
162	**9.67**	*9.70*	-0.03	**9.48**	*9.55*	-0.08	**9.07**	*9.16*	-0.09	**8.83**	*8.91*	-0.08	**8.77**	*8.83*	-0.06	**8.64**	*8.69*	-0.05	**8.89**	*8.94*	-0.05
163	**9.66**	*9.69*	-0.03	**9.50**	*9.62*	-0.12	**9.10**	*9.21*	-0.11	**8.83**	*8.91*	-0.08	**8.79**	*8.85*	-0.06	**8.62**	*8.66*	-0.05	**8.84**	*8.89*	-0.05
164	**9.67**	*9.72*	-0.05	**9.53**	*9.68*	-0.15	**9.12**	*9.23*	-0.11	**8.85**	*8.93*	-0.08	**8.80**	*8.86*	-0.06	**8.63**	*8.67*	-0.04	**8.85**	*8.90*	-0.05
165	**9.72**	*9.80*	-0.08	**9.55**	*9.74*	-0.19	**9.13**	*9.26*	-0.14	**8.80**	*8.89*	-0.09	**8.72**	*8.78*	-0.06	**8.54**	*8.58*	-0.04	**8.77**	*8.82*	-0.05
166	**9.73**	*9.82*	-0.09	**9.56**	*9.73*	-0.18	**9.11**	*9.24*	-0.13	**8.83**	*8.91*	-0.09	**8.74**	*8.79*	-0.05	**8.57**	*8.60*	-0.03	**8.82**	*8.86*	-0.04
167	**9.77**	*9.90*	-0.13	**9.55**	*9.75*	-0.20	**9.04**	*9.17*	-0.13	**8.75**	*8.83*	-0.09	**8.66**	*8.71*	-0.05	**8.49**	*8.52*	-0.02	**8.77**	*8.81*	-0.04
168	**9.73**	*9.87*	-0.14	**9.48**	*9.64*	-0.16	**8.86**	*8.96*	-0.10	**8.60**	*8.66*	-0.06	**8.57**	*8.60*	-0.03	**8.37**	*8.37*	0.00	**8.74**	*8.76*	-0.02
169	**9.66**	*9.82*	-0.16	**9.41**	*9.56*	-0.15	**8.74**	*8.82*	-0.08	**8.46**	*8.51*	-0.05	**8.46**	*8.47*	-0.02	**8.26**	*8.26*	0.00	**8.69**	*8.71*	-0.02
170	**9.60**	*9.78*	-0.17	**9.33**	*9.46*	-0.14	**8.69**	*8.76*	-0.07	**8.37**	*8.41*	-0.04	**8.38**	*8.40*	-0.02	**8.18**	*8.17*	0.00	**8.60**	*8.62*	-0.02
171	**9.56**	*9.75*	-0.18	**9.26**	*9.39*	-0.13	**8.66**	*8.73*	-0.07	**8.32**	*8.36*	-0.04	**8.34**	*8.36*	-0.02	**8.12**	*8.12*	0.00	**8.53**	*8.54*	-0.01
172	**9.50**	*9.68*	-0.18	**9.15**	*9.28*	-0.12	**8.56**	*8.62*	-0.06	**8.17**	*8.20*	-0.03	**8.19**	*8.20*	-0.01	**7.97**	*7.97*	0.00	**8.44**	*8.45*	-0.01
173	**9.46**	*9.62*	-0.16	**9.10**	*9.20*	-0.11	**8.47**	*8.51*	-0.04	**8.06**	*8.07*	-0.01	**8.07**	*8.07*	0.00	**7.84**	*7.82*	0.01	**8.34**	*8.34*	-0.01
174	**9.39**	*9.54*	-0.15	**9.01**	*9.10*	-0.09	**8.37**	*8.40*	-0.03	**7.93**	*7.94*	0.00	**7.92**	*7.91*	0.01	**7.68**	*7.66*	0.02	**8.17**	*8.17*	0.00
175	**9.33**	*9.47*	-0.14	**8.94**	*9.03*	-0.09	**8.30**	*8.32*	-0.02	**7.87**	*7.87*	0.00	**7.84**	*7.82*	0.01	**7.60**	*7.58*	0.02	**8.04**	*8.04*	0.01
176	**9.26**	*9.39*	-0.13	**8.88**	*8.96*	-0.08	**8.26**	*8.27*	-0.01	**7.82**	*7.81*	0.01	**7.80**	*7.79*	0.02	**7.56**	*7.53*	0.03	**7.98**	*7.96*	0.01
177	**9.12**	*9.22*	-0.10	**8.67**	*8.73*	-0.06	**8.00**	*7.99*	0.00	**7.50**	*7.47*	0.03	**7.46**	*7.43*	0.03	**7.19**	*7.15*	0.04	**7.58**	*7.55*	0.03
178	**9.06**	*9.16*	-0.10	**8.61**	*8.66*	-0.06	**7.95**	*7.94*	0.01	**7.45**	*7.41*	0.03	**7.43**	*7.39*	0.03	**7.15**	*7.11*	0.04	**7.49**	*7.45*	0.03
179	**9.01**	*9.10*	-0.09	**8.58**	*8.63*	-0.05	**7.92**	*7.91*	0.01	**7.42**	*7.38*	0.04	**7.41**	*7.38*	0.03	**7.15**	*7.11*	0.04	**7.43**	*7.39*	0.04
180	**8.97**	*9.05*	-0.09	**8.56**	*8.61*	-0.05	**7.91**	*7.90*	0.01	**7.40**	*7.36*	0.04	**7.39**	*7.36*	0.03	**7.15**	*7.11*	0.04	**7.35**	*7.31*	0.04
181	**8.91**	*8.98*	-0.08	**8.51**	*8.55*	-0.04	**7.87**	*7.86*	0.01	**7.34**	*7.30*	0.04	**7.32**	*7.28*	0.04	**7.11**	*7.07*	0.04	**7.22**	*7.18*	0.04
182	**8.93**	*9.01*	-0.08	**8.55**	*8.60*	-0.05	**7.96**	*7.95*	0.00	**7.44**	*7.41*	0.04	**7.42**	*7.39*	0.03	**7.24**	*7.21*	0.04	**7.29**	*7.25*	0.04
183	**8.82**	*8.89*	-0.07	**8.40**	*8.44*	-0.04	**7.79**	*7.78*	0.01	**7.28**	*7.24*	0.04	**7.21**	*7.17*	0.04	**7.04**	*7.00*	0.04	**7.03**	*6.99*	0.04
184	**8.82**	*8.89*	-0.07	**8.41**	*8.46*	-0.05	**7.86**	*7.86*	0.00	**7.37**	*7.33*	0.03	**7.29**	*7.26*	0.03	**7.13**	*7.10*	0.03	**7.09**	*7.06*	0.03
185	**8.78**	*8.86*	-0.08	**8.41**	*8.47*	-0.06	**7.90**	*7.92*	-0.02	**7.42**	*7.40*	0.02	**7.31**	*7.30*	0.02	**7.19**	*7.17*	0.02	**7.10**	*7.08*	0.02
186	**8.63**	*8.69*	-0.06	**8.28**	*8.33*	-0.05	**7.75**	*7.76*	-0.01	**7.23**	*7.20*	0.03	**7.08**	*7.05*	0.03	**6.98**	*6.94*	0.03	**6.79**	*6.76*	0.04
187	**8.60**	*8.66*	-0.05	**8.31**	*8.36*	-0.05	**7.80**	*7.82*	-0.02	**7.27**	*7.23*	0.04	**7.10**	*7.07*	0.04	**7.03**	*6.99*	0.04	**6.82**	*6.78*	0.04
188	**8.52**	*8.63*	-0.11	**8.16**	*8.27*	-0.11	**7.66**	*7.73*	-0.06	**7.14**	*7.14*	0.00	**6.92**	*6.92*	-0.01	**6.84**	*6.84*	0.00	**6.62**	*6.61*	0.01

Table 18. March test scenario average dissolved oxygen concentrations for full water column for September 16 to December 31 compared with no source scenario concentrations.

The results were reported for a semi-monthly time periods and Long Lake model segment numbers 158-188. The no source scenario predictions were in bold and the March test scenario predictions were italicized. The difference in DO predictions between the scenarios were underlined.

Segment	*Sept 16-30*			*Oct 1-15*			*Oct 16-31*			*Nov 1-15*			*Nov 16-30*			*Dec 1-15*			*Dec 16-31*		
154	**9.37**	*9.37*	0.00	**9.89**	*9.89*	0.00	**10.32**	*10.32*	0.00	**10.59**	*10.59*	0.00	**10.83**	*10.83*	0.00	**11.53**	*11.53*	0.00	**11.58**	*11.58*	0.00
155	**9.29**	*9.29*	0.00	**9.74**	*9.74*	0.00	**10.29**	*10.29*	0.00	**10.59**	*10.59*	0.00	**10.74**	*10.74*	0.00	**11.38**	*11.38*	0.00	**11.48**	*11.48*	0.00
156	**9.38**	*9.38*	0.00	**9.72**	*9.72*	0.00	**10.27**	*10.27*	0.00	**10.55**	*10.55*	0.00	**10.72**	*10.72*	0.00	**11.39**	*11.39*	0.00	**11.48**	*11.48*	0.00
157	**9.50**	*9.50*	0.00	**9.86**	*9.86*	0.00	**10.37**	*10.37*	0.00	**10.61**	*10.61*	0.00	**10.78**	*10.78*	0.00	**11.42**	*11.42*	0.00	**11.49**	*11.49*	0.00
158	**9.46**	*9.47*	-0.01	**10.06**	*10.06*	0.00	**10.54**	*10.54*	0.00	**10.69**	*10.69*	0.00	**10.81**	*10.81*	0.00	**11.44**	*11.44*	0.00	**11.52**	*11.52*	0.00
159	**9.42**	*9.44*	-0.01	**10.06**	*10.06*	0.00	**10.58**	*10.58*	0.00	**10.76**	*10.76*	0.00	**10.84**	*10.84*	0.00	**11.44**	*11.44*	0.00	**11.53**	*11.53*	0.00
160	**9.34**	*9.36*	-0.02	**10.01**	*10.01*	0.00	**10.57**	*10.57*	0.00	**10.75**	*10.75*	0.00	**10.82**	*10.82*	0.00	**11.44**	*11.44*	0.00	**11.53**	*11.53*	0.00
161	**9.20**	*9.23*	-0.03	**9.94**	*9.94*	0.00	**10.58**	*10.58*	0.00	**10.75**	*10.75*	0.00	**10.84**	*10.84*	0.00	**11.43**	*11.44*	0.00	**11.52**	*11.52*	0.00
162	**9.13**	*9.17*	-0.03	**9.85**	*9.86*	-0.01	**10.59**	*10.59*	0.00	**10.74**	*10.74*	0.00	**10.84**	*10.84*	0.00	**11.44**	*11.44*	0.00	**11.52**	*11.52*	0.00
163	**9.07**	*9.11*	-0.04	**9.64**	*9.66*	-0.02	**10.57**	*10.56*	0.00	**10.74**	*10.74*	0.00	**10.84**	*10.84*	0.00	**11.44**	*11.44*	0.00	**11.52**	*11.52*	0.00
164	**9.06**	*9.09*	-0.04	**9.54**	*9.56*	-0.02	**10.44**	*10.44*	0.00	**10.72**	*10.72*	0.00	**10.83**	*10.83*	0.00	**11.42**	*11.42*	0.00	**11.52**	*11.52*	0.00
165	**8.96**	*9.00*	-0.04	**9.41**	*9.43*	-0.03	**10.26**	*10.27*	0.00	**10.72**	*10.72*	0.00	**10.84**	*10.84*	0.00	**11.42**	*11.42*	0.00	**11.54**	*11.54*	0.00
166	**9.00**	*9.03*	-0.03	**9.40**	*9.42*	-0.02	**10.22**	*10.22*	0.00	**10.67**	*10.67*	0.00	**10.82**	*10.82*	0.00	**11.40**	*11.40*	0.00	**11.51**	*11.51*	0.00
167	**8.95**	*8.98*	-0.03	**9.33**	*9.36*	-0.02	**10.15**	*10.16*	-0.01	**10.65**	*10.65*	0.00	**10.82**	*10.82*	0.00	**11.39**	*11.39*	0.00	**11.50**	*11.50*	0.00
168	**8.94**	*8.96*	-0.02	**9.32**	*9.33*	-0.02	**10.07**	*10.08*	-0.01	**10.64**	*10.64*	0.00	**10.82**	*10.82*	0.00	**11.38**	*11.38*	0.00	**11.49**	*11.49*	0.00
169	**8.91**	*8.93*	-0.02	**9.28**	*9.29*	-0.02	**9.95**	*9.95*	-0.01	**10.64**	*10.64*	0.00	**10.81**	*10.81*	0.00	**11.34**	*11.34*	0.00	**11.47**	*11.47*	0.00
170	**8.86**	*8.88*	-0.02	**9.22**	*9.24*	-0.02	**9.85**	*9.85*	-0.01	**10.52**	*10.52*	0.00	**10.79**	*10.79*	0.00	**11.29**	*11.29*	0.00	**11.44**	*11.44*	0.00
171	**8.81**	*8.83*	-0.01	**9.17**	*9.19*	-0.01	**9.76**	*9.77*	-0.01	**10.40**	*10.40*	0.00	**10.76**	*10.76*	0.00	**11.28**	*11.28*	0.00	**11.43**	*11.44*	0.00
172	**8.76**	*8.77*	-0.01	**9.14**	*9.15*	-0.01	**9.71**	*9.71*	-0.01	**10.29**	*10.29*	0.00	**10.69**	*10.69*	0.00	**11.34**	*11.35*	0.00	**11.57**	*11.57*	0.00
173	**8.74**	*8.74*	-0.01	**9.13**	*9.14*	-0.01	**9.68**	*9.68*	0.00	**10.22**	*10.22*	0.00	**10.65**	*10.65*	0.00	**11.33**	*11.33*	0.00	**11.64**	*11.64*	0.00
174	**8.64**	*8.65*	-0.01	**9.11**	*9.12*	-0.01	**9.67**	*9.67*	0.00	**10.19**	*10.19*	0.00	**10.63**	*10.63*	0.00	**11.29**	*11.29*	0.00	**11.61**	*11.62*	0.00
175	**8.54**	*8.55*	-0.01	**9.07**	*9.08*	-0.01	**9.65**	*9.66*	0.00	**10.16**	*10.16*	0.00	**10.61**	*10.61*	0.00	**11.28**	*11.28*	0.00	**11.66**	*11.66*	0.00
176	**8.47**	*8.48*	0.00	**9.00**	*9.01*	-0.01	**9.61**	*9.61*	0.00	**10.11**	*10.11*	0.00	**10.57**	*10.57*	0.00	**11.25**	*11.25*	0.00	**11.70**	*11.70*	0.00
177	**8.14**	*8.14*	0.00	**8.81**	*8.82*	0.00	**9.63**	*9.63*	0.00	**10.10**	*10.10*	0.01	**10.55**	*10.55*	0.00	**11.22**	*11.22*	0.00	**11.66**	*11.66*	0.00
178	**8.02**	*8.01*	0.01	**8.71**	*8.71*	0.00	**9.63**	*9.63*	0.00	**10.08**	*10.08*	0.00	**10.53**	*10.53*	0.00	**11.19**	*11.20*	0.00	**11.68**	*11.68*	0.00
179	**7.97**	*7.96*	0.01	**8.67**	*8.67*	0.00	**9.61**	*9.61*	0.00	**10.05**	*10.04*	0.00	**10.51**	*10.51*	0.00	**11.18**	*11.18*	0.00	**11.71**	*11.71*	0.00
180	**7.86**	*7.85*	0.02	**8.59**	*8.58*	0.00	**9.60**	*9.60*	0.00	**10.03**	*10.02*	0.00	**10.49**	*10.48*	0.00	**11.17**	*11.17*	0.00	**11.71**	*11.71*	0.00
181	**7.72**	*7.70*	0.02	**8.45**	*8.45*	0.00	**9.53**	*9.53*	0.00	**10.01**	*10.01*	0.00	**10.47**	*10.47*	0.00	**11.16**	*11.16*	0.00	**11.67**	*11.67*	0.00
182	**7.68**	*7.65*	0.03	**8.37**	*8.37*	0.00	**9.45**	*9.43*	0.01	**10.01**	*10.00*	0.00	**10.47**	*10.47*	0.00	**11.15**	*11.15*	0.00	**11.65**	*11.65*	0.00
183	**7.36**	*7.32*	0.03	**8.06**	*8.05*	0.01	**9.35**	*9.34*	0.00	**10.00**	*10.00*	0.00	**10.46**	*10.46*	0.00	**11.15**	*11.15*	0.00	**11.66**	*11.66*	0.00
184	**7.29**	*7.26*	0.03	**7.88**	*7.87*	0.01	**9.24**	*9.23*	0.01	**9.99**	*9.99*	0.00	**10.46**	*10.46*	0.00	**11.14**	*11.14*	0.00	**11.65**	*11.65*	0.00
185	**7.22**	*7.19*	0.03	**7.72**	*7.71*	0.01	**9.06**	*9.05*	0.01	**9.99**	*9.98*	0.00	**10.46**	*10.46*	0.00	**11.13**	*11.13*	0.00	**11.64**	*11.64*	0.00
186	**6.83**	*6.79*	0.04	**7.35**	*7.33*	0.02	**8.84**	*8.85*	-0.01	**9.96**	*9.95*	0.01	**10.45**	*10.45*	0.00	**11.11**	*11.11*	0.00	**11.60**	*11.60*	0.00
187	**6.80**	*6.75*	0.05	**7.16**	*7.13*	0.03	**8.73**	*8.74*	-0.01	**9.94**	*9.93*	0.01	**10.44**	*10.44*	0.00	**11.10**	*11.09*	0.00	**11.56**	*11.56*	0.00
188	**6.52**	*6.50*	0.02	**6.75**	*6.74*	0.01	**8.33**	*8.32*	0.01	**9.92**	*9.87*	0.06	**10.41**	*10.41*	0.00	**11.07**	*11.07*	0.00	**11.61**	*11.61*	0.00

Summary

A water quality and hydrodynamic model, CE-QUAL-W2 Version 3.6 (Cole and Wells, 2008), was used to simulate modeling scenarios for the Spokane River from the outlet of Lake Coeur d'Alene, Idaho to the outlet of Long Lake in Washington. Four model scenario were simulated: a no source scenario, a TMDL scenario, a Idaho Only Scenario, and a March test scenario.

The semi-monthly averages of the daily minimum, volume-averaged DO in the hypolimnion (greater than 8 m depth) and the full water column of each Long Lake segment (157-188) for the scenarios were tabulated. The greatest difference in average dissolved oxygen concentration in the hypolimnion between the no source and the TMDL scenario was 1.22 mg/l, which occurred in the August 16-31 time period. For the full water column the largest difference was 0.78 mg/l.

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