



Town of Mahone Bay  
2019 Water Withdrawal Report  
Approval No. 2008-061974-02



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## Introduction

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In accordance with the Town of Mahone Bay Water Approval – Water Withdrawal No.2008-061974-02 Section 7, the following report demonstrates compliance with Approval conditions. The reporting period discussed is from January 1<sup>st</sup>, 2019 through December 31<sup>st</sup>, 2019. The report contains the following information:

- Daily withdrawal volumes
- Daily withdrawal volumes averaged over each month
- Daily withdrawal volumes averaged for the year
- Ecological maintenance flow monitoring
- Water level monitoring
- Complaints received and effects of site activities

## Water Supply Overview

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Oakland Lake pumping station supplies the Town of Mahone Bay drinking water system. The lake is located approximately 1 km northeast of the Town, off Highway 3. The surface area of the lake is 0.65 km<sup>2</sup> with a maximum depth of 15 m and a water yield of 5,000 m<sup>3</sup>/day. The Oakland Lake Watershed has an area of 4.05 km<sup>2</sup>. In July 2007, under section 106 of the Environment Act, the Province of Nova Scotia enacted the Oakland Lake Watershed Protected Water Area Designation, which describes the watershed area, as well as, applicable regulations and restrictions.

## Operation Limits

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Section 5.b & 5.c of the Approval permits an average rate of withdrawal of 710,000 litres per day (L/d) averaged over 30 days and a maximum rate of withdrawal of 960,000 L/day averaged over 3 days. Section 5.d of the Approval states that an ecological maintenance flow of 0.01 cubic meters per sec (m<sup>3</sup>/s) is required from July to September and 0.06 (m<sup>3</sup>/s) is required October to June in the watercourse immediately downstream of the Oakland Lake outlet.

## Withdrawal Volume Summary & Discussion

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The total volume of water withdrawn from Oakland Lake during the reporting period was 223.261 million litres which is an average daily withdrawal volume of 611,674 L for the calendar year. A summary of daily withdrawal volumes is found in Appendix A. In 2019, the month of July had the maximum total monthly withdrawal rate and the month of February had the minimum total monthly withdrawal rate; 21,196,500 L and 16,457,000 L respectively. Compared with 2018, there was an increase of 18.041 million litres in the total annual water withdrawn from Oakland Lake. Water withdrawal rates remained within prescribed Approval limits, as seen in Figures 1 and 2. Table 1 displays the total monthly withdrawal volume, the averaged daily monthly withdrawal volume, the averaged maximum withdrawal volume, and the total annual withdrawal volume from Oakland Lake in 2019.

## 2019 Averaged Daily Withdrawal Rate by Month

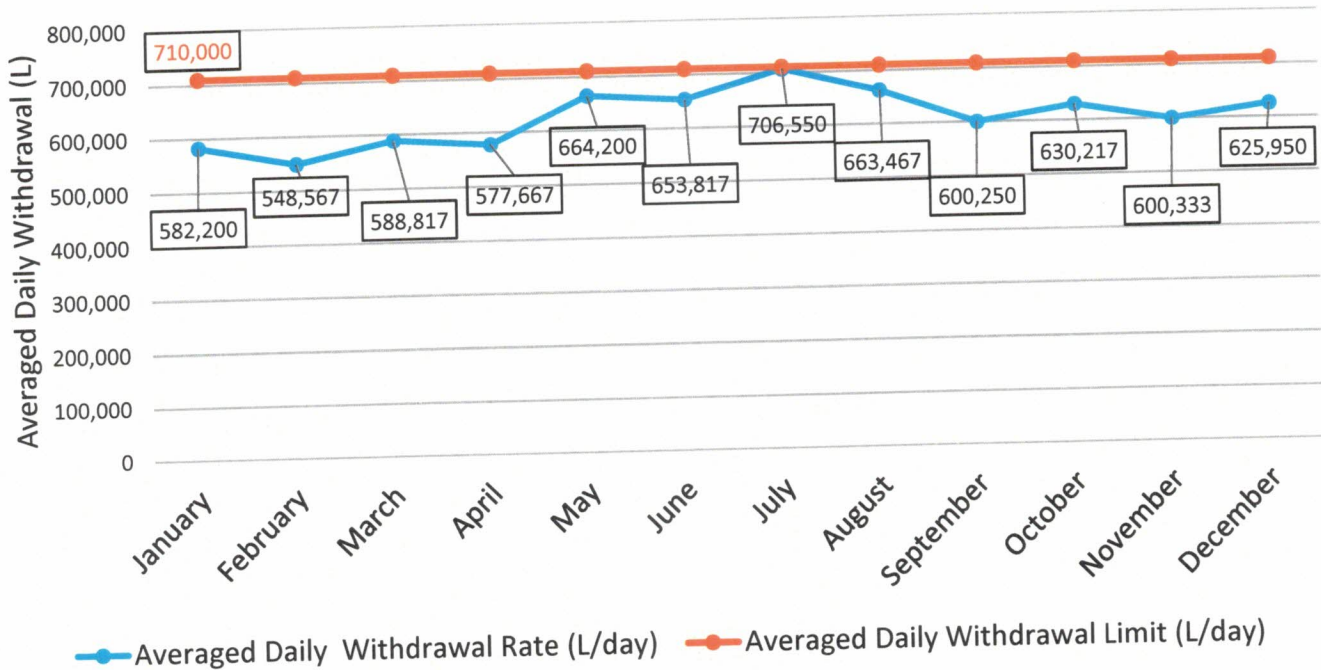


Figure 1: Comparison of 2019 Averaged Daily Withdrawal Rate by Month with Withdrawal Limit.

## 2019 Averaged Maximum Withdrawal Rate by Month

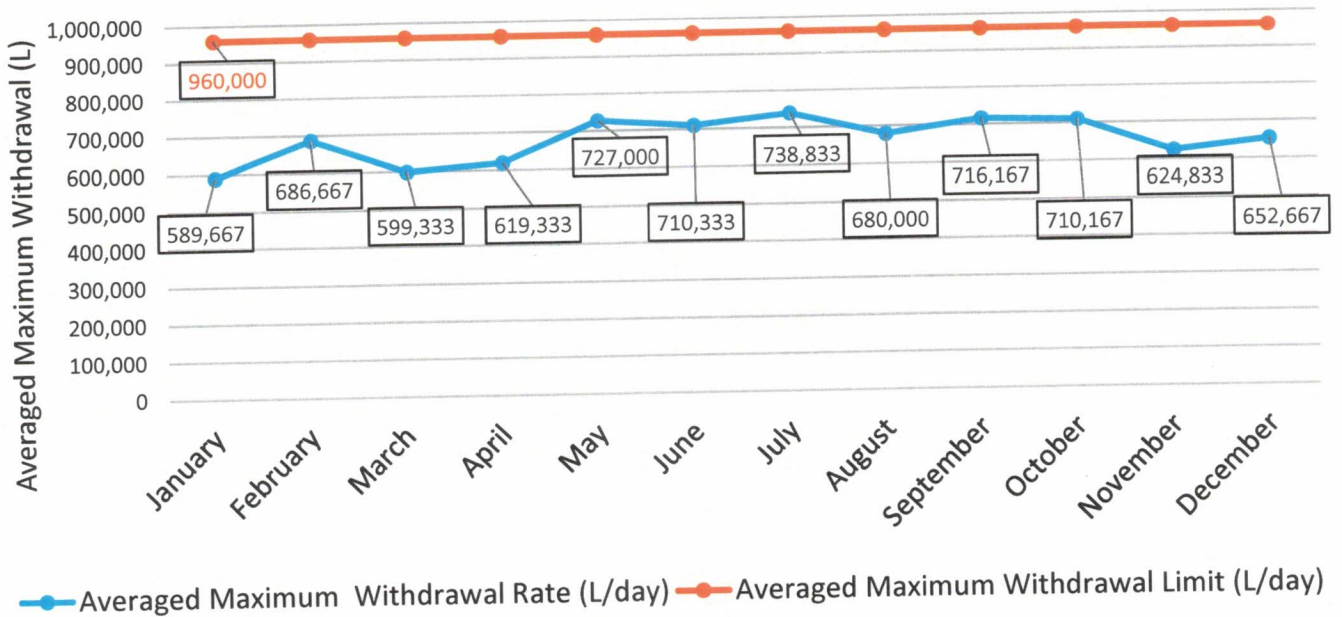


Figure 2: Comparison of 2019 Averaged Maximum Withdrawal Rate by Month with Withdrawal Limit.



2019	Total Withdrawal Volume per Month (L)	Averaged Daily Withdrawal Rate (L/day)	Averaged Maximum Withdrawal Rate (L/day)	Total Withdrawal Volume per Year (L)
January	17,466,000	582,200	589,667	223,261,000
February	16,457,000	548,567	686,667	
March	17,664,500	588,817	599,333	
April	17,330,000	577,667	619,333	
May	19,926,000	664,200	727,000	
June	19,614,500	653,817	710,333	
July	21,196,500	706,550	738,833	
August	19,904,000	663,467	680,000	
September	18,007,500	600,250	716,167	
October	18,906,500	630,217	710,167	
November	18,010,000	600,333	624,833	
December	18,778,500	625,950	652,667	

Table 1: 2019 Water Withdrawal Volumes.

### Ecological Maintenance Flow Summary & Discussion

In accordance with Section 6.k & 6.l of the Approval, Operators with the Town of Mahone Bay conducted regular monitoring of the watercourse immediately downstream of Oakland Lake outlet. In 2015, the Town of Mahone Bay engaged CBCL Ltd. to complete a stage discharge curve which established watercourse level benchmarks to reflect the ecological maintenance flow requirements. The low flow period benchmark level is  $\geq 0.07$  m for July to September and the benchmark level for October to June is  $\geq 0.17$  m.

In 2019, the water level remained within the prescribed limits set forth in the Approval as seen in figure 3; tabulated data is found in Appendix B. Based on compliance with the prescribed ecological maintenance flow, it can be inferred that the downstream flow system was sufficient to sustain fisheries throughout the water withdrawal period.

2019 Ecological Maintenance Flow Monitoring

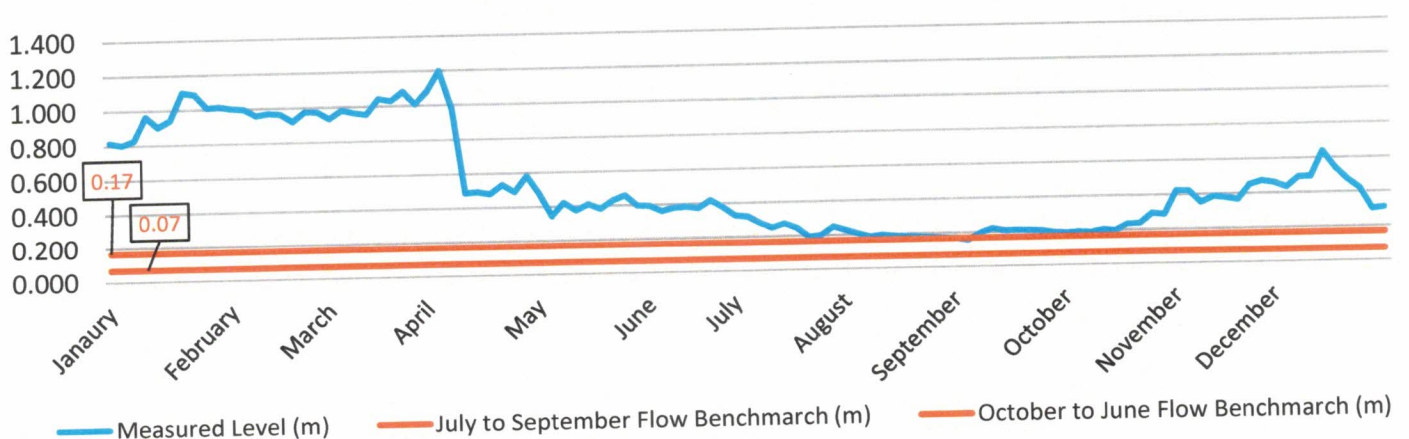


Figure 3: Comparison of 2019 Ecological Maintenance Flow Monitoring with Seasonal Limits.

## Water Level Monitoring Summary & Discussion

In accordance with Section 6.g & 6.i of the Approval, Operators with the Town of Mahone Bay conducted regular monitoring of lake level using the staff gauge located in the raw water pumphouse. In 2019, the water level remained within normal historical range as seen in figure 4; tabulated data is found in Appendix C.

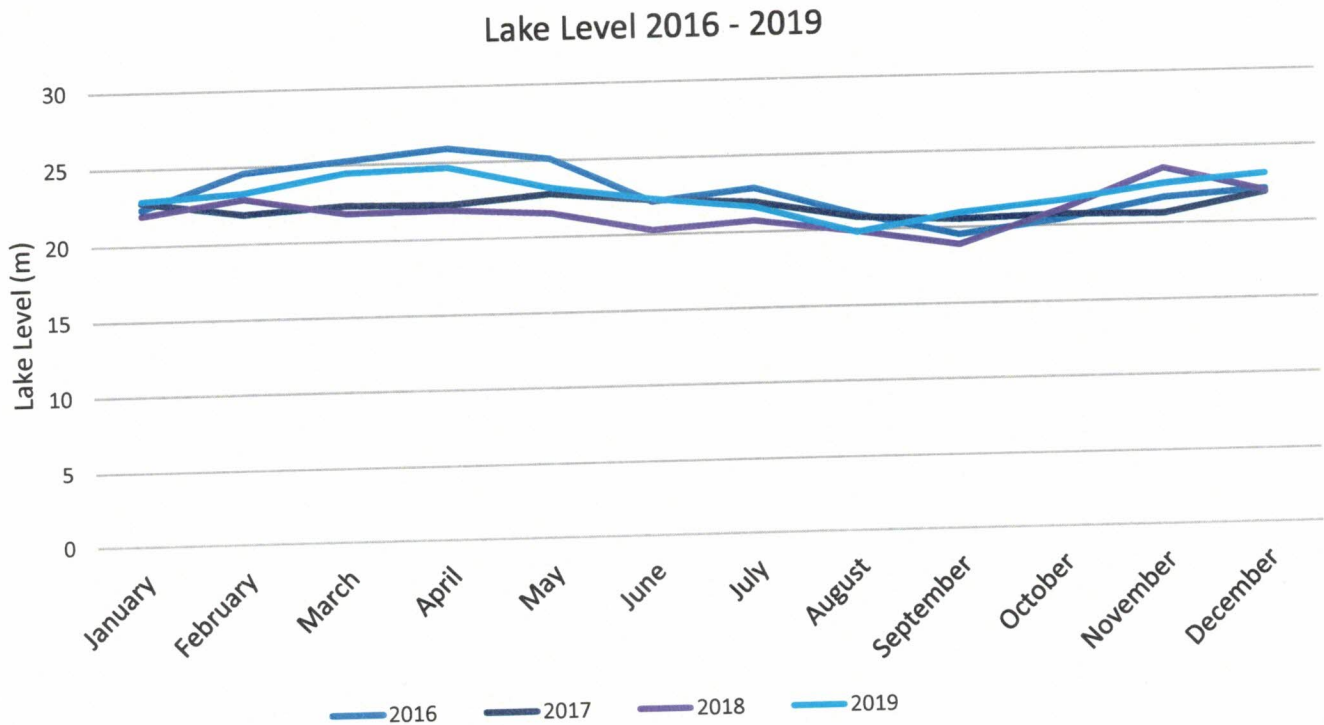


Figure 4: Comparison of 2019 Lake Level with Historical Levels.

## Complaints Summary

There were no complaints received during the 2019 calendar year and no changes to site activities.

## Conclusion

In 2019, the Town of Mahone Bay operated the Oakland Lake pumping station in accordance with Approval No.2008-061974-02. Withdrawal amounts and ecological maintenance flows remained within the limits established in the Approval.

Report Prepared By:

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Meghan Rafferty

Water / Wastewater Operator



Report Reviewed By:

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Derrick MacKenzie

Director of Operations

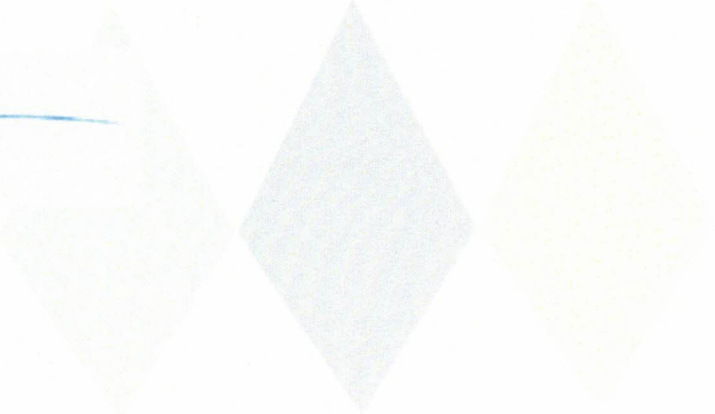


Report Reviewed By:

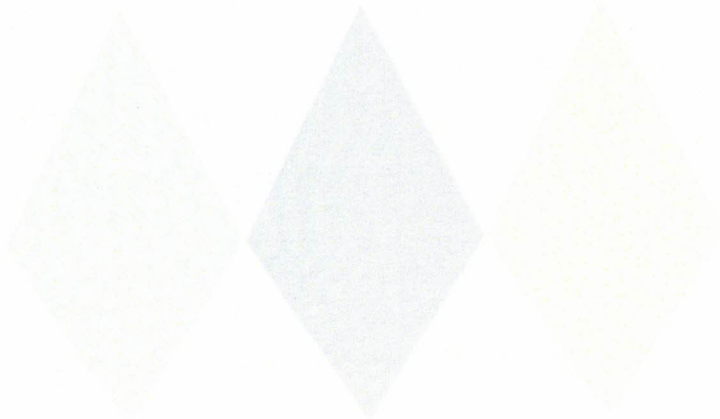
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Dylan Heide

CAO



**Appendix A**  
**Summary of Daily Withdrawal Volumes**





## January 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Jan-19		613,000
2-Jan-19		570,500
3-Jan-19	567,333	518,500
4-Jan-19		625,500
5-Jan-19		537,000
6-Jan-19	567,833	541,000
7-Jan-19		533,500
8-Jan-19		523,000
9-Jan-19	583,500	694,000
10-Jan-19		545,000
11-Jan-19		551,000
12-Jan-19	534,667	508,000
13-Jan-19		512,000
14-Jan-19		525,000
15-Jan-19	546,167	601,500
16-Jan-19		594,000
17-Jan-19		574,500
18-Jan-19	580,500	573,000
19-Jan-19		513,000
20-Jan-19		518,500
21-Jan-19	530,000	558,500
22-Jan-19		617,500
23-Jan-19		507,000
24-Jan-19	589,667	644,500
25-Jan-19		569,500
26-Jan-19		569,500
27-Jan-19	572,667	579,000
28-Jan-19		557,000
29-Jan-19		533,000
30-Jan-19	575,500	636,500
31-Jan-19		522,500
Total		17,466,000
Minimum		507,000
Maximum	589,667	694,000
Average		582,200

## February 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Feb-19		410,000
2-Feb-19		642,000
3-Feb-19	540,167	568,500
4-Feb-19		577,500
5-Feb-19		721,000
6-Feb-19	565,333	397,500
7-Feb-19		568,500
8-Feb-19		635,500
9-Feb-19	581,000	539,000
10-Feb-19		574,500
11-Feb-19		570,000
12-Feb-19	548,333	500,500
13-Feb-19		632,500
14-Feb-19		539,000
15-Feb-19	581,500	573,000
16-Feb-19		670,000
17-Feb-19		673,000
18-Feb-19	671,167	670,500
19-Feb-19		721,500
20-Feb-19		630,500
21-Feb-19	686,667	708,000
22-Feb-19		557,500
23-Feb-19		512,000
24-Feb-19	532,500	528,000
25-Feb-19		507,000
26-Feb-19		665,500
27-Feb-19	560,833	510,000
28-Feb-19		654,500
Total		16,457,000
Minimum		397,500
Maximum	686,667	721,500
Average		548,567

## March 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Mar-19		555,000
2-Mar-19		548,500
3-Mar-19	544,667	530,500
4-Mar-19		536,000
5-Mar-19		590,500
6-Mar-19	565,500	570,000
7-Mar-19		485,500
8-Mar-19		606,500
9-Mar-19	559,667	587,000
10-Mar-19		547,000
11-Mar-19		628,500
12-Mar-19	571,000	537,500
13-Mar-19		608,500
14-Mar-19		617,000
15-Mar-19	586,000	532,500
16-Mar-19		613,000
17-Mar-19		576,000
18-Mar-19	576,167	539,500
19-Mar-19		631,000
20-Mar-19		479,500
21-Mar-19	599,333	687,500
22-Mar-19		629,000
23-Mar-19		506,500
24-Mar-19	541,167	488,000
25-Mar-19		558,500
26-Mar-19		526,500
27-Mar-19	547,167	556,500
28-Mar-19		683,000
29-Mar-19		534,500
30-Mar-19	585,500	539,000
31-Mar-19		636,000
Total		17,664,500
Minimum		479,500
Maximum	599,333	687,500
Average		588,817



## April 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Apr-19		568,500
2-Apr-19		442,000
3-Apr-19	562,667	677,500
4-Apr-19		536,000
5-Apr-19		535,000
6-Apr-19	567,667	632,000
7-Apr-19		537,500
8-Apr-19		620,500
9-Apr-19	579,167	579,500
10-Apr-19		549,000
11-Apr-19		617,000
12-Apr-19	569,333	542,000
13-Apr-19		623,000
14-Apr-19		623,000
15-Apr-19	619,333	612,000
16-Apr-19		556,500
17-Apr-19		525,500
18-Apr-19	550,500	569,500
19-Apr-19		661,500
20-Apr-19		547,000
21-Apr-19	589,167	559,000
22-Apr-19		599,500
23-Apr-19		487,000
24-Apr-19	579,500	652,000
25-Apr-19		593,500
26-Apr-19		564,000
27-Apr-19	575,333	568,500
28-Apr-19		560,500
29-Apr-19		584,500
30-Apr-19	584,000	607,000
Total		17,330,000
Minimum		442,000
Maximum	619,333	677,500
Average		577,667



## May 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-May-19		653,500
2-May-19		595,000
3-May-19	611,500	586,000
4-May-19		590,000
5-May-19		584,000
6-May-19	590,000	596,000
7-May-19		530,500
8-May-19		721,500
9-May-19	609,167	575,500
10-May-19		714,000
11-May-19		734,000
12-May-19	727,000	733,000
13-May-19		733,500
14-May-19		677,500
15-May-19	685,167	644,500
16-May-19		719,500
17-May-19		499,000
18-May-19	628,833	668,000
19-May-19		606,500
20-May-19		669,000
21-May-19	629,500	613,000
22-May-19		793,500
23-May-19		736,500
24-May-19	682,167	516,500
25-May-19		606,500
26-May-19		681,000
27-May-19	628,667	598,500
28-May-19		740,500
29-May-19		551,500
30-May-19	655,500	674,500
31-May-19		583,500
Total		19,926,000
Minimum		499,000
Maximum	727,000	793,500
Average		664,200

## June 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Jun-19		677,500
2-Jun-19		552,000
3-Jun-19	632,333	667,500
4-Jun-19		562,500
5-Jun-19		781,500
6-Jun-19	634,000	558,000
7-Jun-19		552,000
8-Jun-19		725,500
9-Jun-19	637,500	635,000
10-Jun-19		724,000
11-Jun-19		565,000
12-Jun-19	660,000	691,000
13-Jun-19		698,500
14-Jun-19		591,500
15-Jun-19	635,667	617,000
16-Jun-19		659,500
17-Jun-19		603,000
18-Jun-19	630,833	630,000
19-Jun-19		792,500
20-Jun-19		549,500
21-Jun-19	694,833	742,500
22-Jun-19		695,500
23-Jun-19		637,000
24-Jun-19	650,167	618,000
25-Jun-19		745,500
26-Jun-19		667,500
27-Jun-19	710,333	718,000
28-Jun-19		759,000
29-Jun-19		595,000
30-Jun-19	652,500	603,500
Total		19,614,500
Minimum		549,500
Maximum	710,333	792,500
Average		653,817

## July 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Jul-19		589,000
2-Jul-19		741,500
3-Jul-19	637,000	580,500
4-Jul-19		717,500
5-Jul-19		735,000
6-Jul-19	722,000	713,500
7-Jul-19		645,000
8-Jul-19		712,500
9-Jul-19	687,500	705,000
10-Jul-19		755,500
11-Jul-19		669,500
12-Jul-19	705,000	690,000
13-Jul-19		674,000
14-Jul-19		735,000
15-Jul-19	710,667	723,000
16-Jul-19		700,000
17-Jul-19		621,000
18-Jul-19	683,667	730,000
19-Jul-19		707,500
20-Jul-19		667,500
21-Jul-19	663,833	616,500
22-Jul-19		608,500
23-Jul-19		765,500
24-Jul-19	663,333	616,000
25-Jul-19		772,000
26-Jul-19		685,000
27-Jul-19	722,167	709,500
28-Jul-19		627,000
29-Jul-19		702,000
30-Jul-19	639,667	590,000
31-Jul-19		692,000
Total		21,196,500
Minimum		580,500
Maximum	722,167	772,000
Average		706,550



## August 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Aug-19		620,000
2-Aug-19		742,000
3-Aug-19	680,000	678,000
4-Aug-19		588,500
5-Aug-19		674,000
6-Aug-19	669,333	745,500
7-Aug-19		741,500
8-Aug-19		671,000
9-Aug-19	663,500	578,000
10-Aug-19		626,500
11-Aug-19		629,000
12-Aug-19	627,667	627,500
13-Aug-19		713,500
14-Aug-19		534,000
15-Aug-19	650,500	704,000
16-Aug-19		588,000
17-Aug-19		635,500
18-Aug-19	602,833	585,000
19-Aug-19		696,000
20-Aug-19		597,000
21-Aug-19	663,167	696,500
22-Aug-19		749,500
23-Aug-19		494,000
24-Aug-19	629,167	644,000
25-Aug-19		627,000
26-Aug-19		688,000
27-Aug-19	653,000	644,000
28-Aug-19		671,500
29-Aug-19		465,000
30-Aug-19	612,500	701,000
31-Aug-19		549,000
Total		19,904,000
Minimum		465,000
Maximum	680,000	749,500
Average		663,467



## September 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Sep-19		558,500
2-Sep-19		571,500
3-Sep-19	605,500	686,500
4-Sep-19		558,500
5-Sep-19		637,000
6-Sep-19	637,833	718,000
7-Sep-19		314,000
8-Sep-19		203,000
9-Sep-19	360,333	564,000
10-Sep-19		615,500
11-Sep-19		802,500
12-Sep-19	716,167	730,500
13-Sep-19		688,000
14-Sep-19		687,000
15-Sep-19	658,167	599,500
16-Sep-19		612,500
17-Sep-19		636,500
18-Sep-19	618,167	605,500
19-Sep-19		564,500
20-Sep-19		606,000
21-Sep-19	589,500	598,000
22-Sep-19		622,000
23-Sep-19		668,000
24-Sep-19	582,000	456,000
25-Sep-19		540,500
26-Sep-19		645,500
27-Sep-19	572,667	532,000
28-Sep-19		692,000
29-Sep-19		616,500
30-Sep-19	662,167	678,000
Total		18,007,500
Minimum		203,000
Maximum	716,167	802,500
Average		600,250

## October 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Oct-19		549,000
2-Oct-19		596,500
3-Oct-19	557,833	528,000
4-Oct-19		652,500
5-Oct-19		546,000
6-Oct-19	624,500	675,000
7-Oct-19		662,000
8-Oct-19		573,000
9-Oct-19	597,833	558,500
10-Oct-19		555,000
11-Oct-19		710,500
12-Oct-19	602,667	542,500
13-Oct-19		629,000
14-Oct-19		541,500
15-Oct-19	603,000	638,500
16-Oct-19		586,500
17-Oct-19		620,000
18-Oct-19	585,167	549,000
19-Oct-19		585,000
20-Oct-19		622,500
21-Oct-19	621,500	657,000
22-Oct-19		518,000
23-Oct-19		684,500
24-Oct-19	592,333	574,500
25-Oct-19		705,500
26-Oct-19		722,000
27-Oct-19	710,167	703,000
28-Oct-19		634,500
29-Oct-19		617,500
30-Oct-19	657,667	721,000
31-Oct-19		448,500
Total		18,906,500
Minimum		448,500
Maximum	710,167	722,000
Average		630,217

## November 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Nov-19		668,000
2-Nov-19		569,500
3-Nov-19	619,667	621,500
4-Nov-19		602,500
5-Nov-19		599,000
6-Nov-19	584,500	552,000
7-Nov-19		670,000
8-Nov-19		508,500
9-Nov-19	601,167	625,000
10-Nov-19		620,000
11-Nov-19		552,500
12-Nov-19	624,833	702,000
13-Nov-19		367,000
14-Nov-19		765,500
15-Nov-19	585,667	624,500
16-Nov-19		567,000
17-Nov-19		616,500
18-Nov-19	584,500	570,000
19-Nov-19		701,500
20-Nov-19		636,000
21-Nov-19	611,667	497,500
22-Nov-19		648,500
23-Nov-19		539,000
24-Nov-19	602,000	618,500
25-Nov-19		539,500
26-Nov-19		674,500
27-Nov-19	595,667	573,000
28-Nov-19		519,500
29-Nov-19		566,500
30-Nov-19	593,667	695,000
Total		18,010,000
Minimum		367,000
Maximum	624,833	765,500
Average		600,333



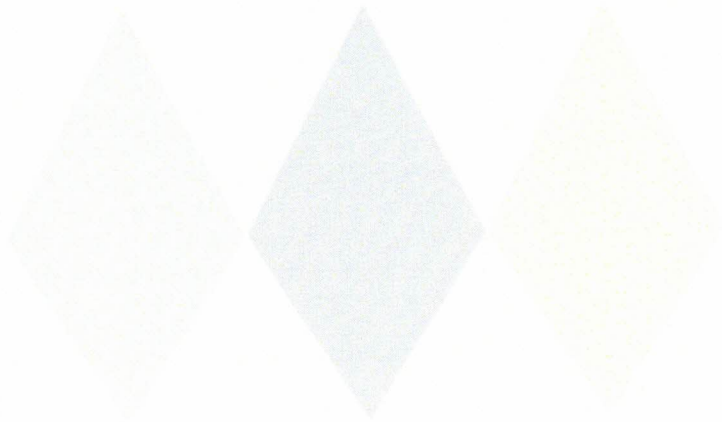
## December 2019

Date	Daily Maximum Average Withdrawal Rate (L/day)	Daily Water Withdrawal (L/day)
1-Dec-19		635,000
2-Dec-19		685,000
3-Dec-19	601,000	483,000
4-Dec-19		574,500
5-Dec-19		652,000
6-Dec-19	558,000	447,500
7-Dec-19		654,000
8-Dec-19		581,500
9-Dec-19	652,667	722,500
10-Dec-19		824,000
11-Dec-19		599,000
12-Dec-19	635,500	483,500
13-Dec-19		639,000
14-Dec-19		655,000
15-Dec-19	633,167	605,500
16-Dec-19		616,000
17-Dec-19		666,000
18-Dec-19	608,000	542,000
19-Dec-19		547,000
20-Dec-19		647,000
21-Dec-19	590,833	578,500
22-Dec-19		643,500
23-Dec-19		563,000
24-Dec-19	626,500	673,000
25-Dec-19		491,000
26-Dec-19		571,500
27-Dec-19	546,833	578,000
28-Dec-19		636,500
29-Dec-19		638,000
30-Dec-19	597,667	518,500
31-Dec-19		628,000
Total		18,778,500
Minimum		447,500
Maximum	652,667	824,000
Average		625,950



## Appendix B

### Tabulated Data: Ecological Maintenance Flows & Lake Level



**Town of Mahone Bay**  
**Source Water Protection Monitoring**

Approval #: 2008-061974-02

**Oakland Lake Ecological Maintenance Flow Monitoring**

<b>Date</b>	<b>Measured Water Level (m)</b>	<b>≥ 0.07 m Yes / No</b>	<b>≥ 0.17 m Yes / No</b>	<b>Compliance Reporting</b>	<b>Lake Level (m)</b>
1-Jan-19					22.0
2-Jan-19	0.819	Yes	Yes	No	21.9
3-Jan-19					21.8
4-Jan-19	0.805	Yes	Yes	No	21.8
5-Jan-19					
6-Jan-19					
7-Jan-19	0.830	Yes	Yes	No	22.0
8-Jan-19					22.0
9-Jan-19					22.8
10-Jan-19					23.5
11-Jan-19	0.965	Yes	Yes	No	23.6
12-Jan-19					
13-Jan-19					
14-Jan-19	0.905	Yes	Yes	No	23.2
15-Jan-19					23.0
16-Jan-19					22.8
17-Jan-19	0.943	Yes	Yes	No	22.7
18-Jan-19					22.6
19-Jan-19					
20-Jan-19					
21-Jan-19	1.102	Yes	Yes	No	23.6
22-Jan-19					23.6
23-Jan-19					23.4
24-Jan-19	1.090	Yes	Yes	No	23.3
25-Jan-19					23.6
26-Jan-19					
27-Jan-19					
28-Jan-19	1.011	Yes	Yes	No	23.5
29-Jan-19					23.3
30-Jan-19					23.5
31-Jan-19	1.015	Yes	Yes	No	23.4

1-Feb-19					23.5
2-Feb-19					
3-Feb-19					
4-Feb-19	1.005	Yes	Yes	No	23.0
5-Feb-19					23.0
6-Feb-19					22.8
7-Feb-19					22.8
8-Feb-19	0.999	Yes	Yes	No	22.8
9-Feb-19					
10-Feb-19					
11-Feb-19	0.961	Yes	Yes	No	23.0
12-Feb-19					23.0
13-Feb-19					
14-Feb-19	0.971	Yes	Yes	No	23.2
15-Feb-19					23.2
16-Feb-19					
17-Feb-19					
18-Feb-19					23.4
19-Feb-19	0.965	Yes	Yes	No	23.6
20-Feb-19					23.4
21-Feb-19					23.4
22-Feb-19	0.922	Yes	Yes	No	23.5
23-Feb-19					
24-Feb-19					
25-Feb-19	0.976	Yes	Yes	No	23.9
26-Feb-19					23.8
27-Feb-19	0.974	Yes	Yes	No	23.8
28-Feb-19					23.7
1-Mar-19					23.6
2-Mar-19					
3-Mar-19					
4-Mar-19					23.8
5-Mar-19	0.935	Yes	Yes	No	24.0
6-Mar-19					24.0
7-Mar-19	0.982	Yes	Yes	No	24.0
8-Mar-19					23.9
9-Mar-19					
10-Mar-19					
11-Mar-19	0.966	Yes	Yes	No	24.0
12-Mar-19					24.1
13-Mar-19	0.954	Yes	Yes	No	24.1
14-Mar-19					24.1
15-Mar-19					24.1



16-Mar-19					
17-Mar-19					
18-Mar-19					25.0
19-Mar-19	1.044	Yes	Yes	No	25.0
20-Mar-19					24.8
21-Mar-19	1.032	Yes	Yes	No	24.8
22-Mar-19					24.8
23-Mar-19					
24-Mar-19					
25-Mar-19	1.083	Yes	Yes	No	25.3
26-Mar-19					25.2
27-Mar-19					25.0
28-Mar-19	1.010	Yes	Yes	No	24.9
29-Mar-19					24.8
30-Mar-19					
31-Mar-19					
1-Apr-19					25.0
2-Apr-19	1.084	Yes	Yes	No	25.2
3-Apr-19					25.2
4-Apr-19	1.200	Yes	Yes	No	25.8
5-Apr-19					25.5
6-Apr-19					
7-Apr-19					
8-Apr-19	0.979	Yes	Yes	No	24.8
9-Apr-19					24.8
10-Apr-19					24.6
11-Apr-19	0.488	Yes	Yes	No	24.0
12-Apr-19					24.2
13-Apr-19					
14-Apr-19					
15-Apr-19	0.495	Yes	Yes	No	24.2
16-Apr-19					24.4
17-Apr-19					24.3
18-Apr-19	0.482	Yes	Yes	No	24.1
19-Apr-19					24.2
20-Apr-19					
21-Apr-19					
22-Apr-19					24.3
23-Apr-19	0.532	Yes	Yes	No	24.8
24-Apr-19					25.0
25-Apr-19	0.490	Yes	Yes	No	24.6
26-Apr-19					24.4
27-Apr-19					



28-Apr-19					
29-Apr-19	0.583	Yes	Yes	No	24.5
30-Apr-19					24.4
1-May-19					24.1
2-May-19	0.477	Yes	Yes	No	24.0
3-May-19					23.8
4-May-19					
5-May-19					
6-May-19	0.345	Yes	Yes	No	23.8
7-May-19					24.0
8-May-19	0.422	Yes	Yes	No	23.7
9-May-19					23.9
10-May-19					23.8
11-May-19					
12-May-19					
13-May-19	0.376	Yes	Yes	No	22.6
14-May-19					22.5
15-May-19	0.411	Yes	Yes	No	23.0
16-May-19					23.0
17-May-19					23.0
18-May-19					
19-May-19					
20-May-19					23.1
21-May-19	0.385	Yes	Yes	No	23.9
22-May-19					23.8
23-May-19	0.432	Yes	Yes	No	22.8
24-May-19					22.6
25-May-19					
26-May-19					
27-May-19					22.4
28-May-19	0.459	Yes	Yes	No	22.6
29-May-19					22.4
30-May-19					22.7
31-May-19	0.398	Yes	Yes	No	22.2
1-Jun-19					
2-Jun-19					
3-Jun-19	0.345	Yes	Yes	No	23.4
4-Jun-19					22.4
5-Jun-19	0.395	Yes	Yes	No	22.2
6-Jun-19					22.5
7-Jun-19					23.5
8-Jun-19					
9-Jun-19					

10-Jun-19	0.364	Yes	Yes	No	22.5
11-Jun-19					21.8
12-Jun-19					22.5
13-Jun-19	0.382	Yes	Yes	No	22.0
14-Jun-19					22.2
15-Jun-19					
16-Jun-19					
17-Jun-19	0.386	Yes	Yes	No	22.0
18-Jun-19					21.8
19-Jun-19	0.377	Yes	Yes	No	21.8
20-Jun-19					21.6
21-Jun-19					22.4
22-Jun-19					
23-Jun-19					
24-Jun-19	0.421	Yes	Yes	No	22.6
25-Jun-19					22.5
26-Jun-19					22.4
27-Jun-19	0.378	Yes	Yes	No	22.2
28-Jun-19					22.2
29-Jun-19					
30-Jun-19					
1-Jul-19					22.5
2-Jul-19					22.5
3-Jul-19	0.329	Yes	Yes	No	23.5
4-Jul-19					22.5
5-Jul-19	0.321	Yes	Yes	No	22.2
6-Jul-19					
7-Jul-19					
8-Jul-19	0.283	Yes	Yes	No	21.8
9-Jul-19					21.8
10-Jul-19					21.5
11-Jul-19	0.254	Yes	Yes	No	21.5
12-Jul-19					21.6
13-Jul-19					
14-Jul-19					
15-Jul-19	0.278	Yes	Yes	No	22.0
16-Jul-19	0.250	Yes	Yes	No	22.0
17-Jul-19					21.6
18-Jul-19					21.5
19-Jul-19					21.5
20-Jul-19					
21-Jul-19					
22-Jul-19	0.196	Yes	Yes	No	21.4

23-Jul-19					21.2
24-Jul-19					21.2
25-Jul-19	0.205	Yes	Yes	No	21.0
26-Jul-19					21.0
27-Jul-19					
28-Jul-19					
29-Jul-19					20.8
30-Jul-19	0.254	Yes	Yes	No	20.8
31-Jul-19					20.6
1-Aug-19	0.232	Yes	Yes	No	20.6
2-Aug-19					20.5
3-Aug-19					
4-Aug-19					
5-Aug-19					20.4
6-Aug-19	0.209	Yes	Yes	No	20.2
7-Aug-19					20.1
8-Aug-19	0.189	Yes	Yes	No	20.2
9-Aug-19					20.6
10-Aug-19					
11-Aug-19					
12-Aug-19	0.198	Yes	Yes	No	20.0
13-Aug-19					19.9
14-Aug-19					19.9
15-Aug-19	0.192	Yes	Yes	No	19.8
16-Aug-19					20.0
17-Aug-19					
18-Aug-19					
19-Aug-19	0.187	Yes	Yes	No	19.7
20-Aug-19					19.5
21-Aug-19					19.5
22-Aug-19	0.185	Yes	Yes	No	19.5
23-Aug-19					19.5
24-Aug-19					
25-Aug-19					
26-Aug-19					19.3
27-Aug-19	0.178	Yes	Yes	No	19.2
28-Aug-19					19.2
29-Aug-19	0.174	Yes	Yes	No	19.5
30-Aug-19					19.3
31-Aug-19					
1-Sep-19					
2-Sep-19					19.2
3-Sep-19	0.171	Yes	Yes	No	19.0



4-Sep-19					19.0
5-Sep-19	0.158	Yes	No	No	19.0
6-Sep-19					19.0
7-Sep-19					
8-Sep-19					
9-Sep-19	0.198	Yes	Yes	No	21.5
10-Sep-19					21.6
11-Sep-19					21.8
12-Sep-19	0.225	Yes	Yes	No	21.8
13-Sep-19					21.8
14-Sep-19					
15-Sep-19					
16-Sep-19	0.209	Yes	Yes	No	21.5
17-Sep-19					21.6
18-Sep-19					21.6
19-Sep-19	0.212	Yes	Yes	No	21.5
20-Sep-19					21.5
21-Sep-19					
22-Sep-19					
23-Sep-19					21.4
24-Sep-19	0.210	Yes	Yes	No	21.5
25-Sep-19					21.5
26-Sep-19	0.207	Yes	Yes	No	21.4
27-Sep-19					21.6
28-Sep-19					
29-Sep-19					
30-Sep-19	0.195	Yes	Yes	No	21.0
1-Oct-19					21.2
2-Oct-19					21.2
3-Oct-19	0.192	Yes	Yes	No	21.1
4-Oct-19					21.1
5-Oct-19					
6-Oct-19					
7-Oct-19					20.9
8-Oct-19	0.196	Yes	Yes	No	21.0
9-Oct-19					21.0
10-Oct-19	0.191	Yes	Yes	No	21.1
11-Oct-19					20.9
12-Oct-19					
13-Oct-19					
14-Oct-19					20.8
15-Oct-19	0.207	Yes	Yes	No	21.2
16-Oct-19					20.8



17-Oct-19	0.198	Yes	Yes	No	21.5
18-Oct-19					22.0
19-Oct-19					
20-Oct-19					
21-Oct-19	0.238	Yes	Yes	No	21.8
22-Oct-19					21.8
23-Oct-19	0.239	Yes	Yes	No	22.0
24-Oct-19					22.1
25-Oct-19					22.5
26-Oct-19					
27-Oct-19					
28-Oct-19	0.296	Yes	Yes	No	22.7
29-Oct-19					22.6
30-Oct-19	0.289	Yes	Yes	No	22.6
31-Oct-19					23.0
					22.7
1-Nov-19					
2-Nov-19					
3-Nov-19					
4-Nov-19					22.6
5-Nov-19	0.424	Yes	Yes	No	22.6
6-Nov-19					22.6
7-Nov-19	0.423	Yes	Yes	No	22.4
8-Nov-19					22.6
9-Nov-19					
10-Nov-19					
11-Nov-19					22.3
12-Nov-19					22.1
13-Nov-19	0.355	Yes	Yes	No	22.8
14-Nov-19	0.387	Yes	Yes	No	22.5
15-Nov-19					22.4
16-Nov-19					
17-Nov-19					
18-Nov-19	0.380	Yes	Yes	No	22.4
19-Nov-19					22.0
20-Nov-19	0.367	Yes	Yes	No	22.2
21-Nov-19					22.0
22-Nov-19					22.1
23-Nov-19					
24-Nov-19					
25-Nov-19					22.8
26-Nov-19	0.452	Yes	Yes	No	22.8
27-Nov-19					22.7
28-Nov-19	0.474	Yes	Yes	No	23.8

29-Nov-19					23.8
30-Nov-19					
1-Dec-19					
2-Dec-19	0.463	Yes	Yes	No	23.2
3-Dec-19					23.8
4-Dec-19	0.435	Yes	Yes	No	23.4
5-Dec-19					23.2
6-Dec-19					23.6
7-Dec-19					
8-Dec-19					
9-Dec-19					22.4
10-Dec-19	0.492	Yes	Yes	No	23.0
11-Dec-19	0.495	Yes	Yes	No	23.2
12-Dec-19					23.2
13-Dec-19					23.5
14-Dec-19					
15-Dec-19					
16-Dec-19	0.639	Yes	Yes	No	24.2
17-Dec-19					24.0
18-Dec-19					23.9
19-Dec-19	0.544	Yes	Yes	No	23.4
20-Dec-19					23.4
21-Dec-19					
22-Dec-19					
23-Dec-19	0.475	Yes	Yes	No	23.4
24-Dec-19					22.8
25-Dec-19					22.6
26-Dec-19					22.3
27-Dec-19	0.422	Yes	Yes	No	22.0
28-Dec-19					
29-Dec-19					
30-Dec-19	0.304	Yes	Yes	No	22.2
31-Dec-19	0.310	Yes	Yes	No	21.9