

**Cusheon Lake  
Hydrometric  
and  
Water Quality Data  
2017**

**Salt Spring I., B.C.**

**These reports were presented monthly  
at Salt Spring Island Watershed Protection Alliance  
regular meetings**

**by Doreen Hewitt, SSIWPA Steering Committee Member,  
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Committee President**

**Report re: Cusheon Lake for SSIWPA Jan 20, 2017**

1. The lake froze in early Dec. it started freezing at the east end on Dec. 5. no lake water monitoring could be done.

2. The corrected Lake gauge --- on Nov. 28 was 1.786 m. secchi -- 2.2 m.  
 on Dec. 3 was 1.47 m. secchi -- 2.5 m.  
 on Jan. 14 was 1.37 but lake is frozen water could actually be lower ; secchi -- 3.35 m

Rain received at Gulf Island Secondary School to:

Dec. 2016 - 81.5 mm    Jan 2017 - 34mm  
 Dec. 2015 - 205.2 mm    Jan 2016 -146.3 mm  
 Dec. 2014 - 107.9mm    Jan 2015 - 95.2 mm

3. The lake changed in Jan.

**Date/Time**

<b>Date/Time</b>		<b>0.5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
14-Jan	temp C	2.7	2.8	2.8	2.8	3	3.2	3.4	3.7	3.9	4.4
11:00 AM	Do mg/L	11.6	11.52	11.51	11.5	10.51	10.01	9.2	7.86	4.95	3.26
03-Dec	temp C	7.6	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.4	7.4
11:22 AM	Do mg/l	9.19	9.16	9.16	9.14	9.13	9.11	9.11	9.09	9.12	9.09

4. Flow gauge measurement in Cusheon Creek on Nov. 23 was 0.436 m. There was low flow from Tyler Brook and Stewart Road and this continued even in the cold weather. The flow gage Level on Jan 9 was 0.38 and dropped to a level of 0.325 on Jan.18 This shows that the lake has been steadily dropping though the cold weather. There was reduced flow into the lake from the upper watershed and ditches.

## Report re: Cusheon Lake for SSIWPA Feb.17, 2017

1. The lake is still frozen in the east end and at the lake level gage. No lake water monitoring has been done since Jan 14, 2017. A dead deer was observed on the ice on the lake on Feb.8 2017 the eagles and turkey vultures cleaned up everything but the bones and hide. The ice was too thin to remove the remains.

2. The corrected Lake gauge --- Jan. 31 1.246 m lake was frozen so not accurate

3. Rain/Snow received at Gulf Island Secondary School to:

Feb. 2017 - 99.0 mm	Jan 2017 - 42.5mm
Feb. 2016 - 106.2 mm	Jan 2016 -146.3 mm
Feb. 2015 - 88.1 mm	Jan 2015 - 95.2 mm

4. The flow gage Level on Jan 31 2017 was 0.38  
on Feb.9 2017 was 0.4  
on Feb.16 2017 was 0.73

This shows that the lake steadily rose with the melting snow. There is increased flow into the lake from the upper watershed and ditches.

5. It was reported to the Beddis Water Service that a large fir tree had fallen near the lake at #336 Cusheon Lake Road. The neighbours could smell diesel fuel so investigated. A sample of the exposed soil was collected from the area of the tree roots. Exposed pipes were also observed in this area. Dan Robson of the CRD was contacted and he called me to get more details and the exact location.

He planned to contact the Ministry of Environment, as he has no jurisdiction to investigate the property. The property has a domestic water licence C064040 (92.B.083.2.1 JJ ( PD 33753) was issued in 1986 but has no septic system. The house on the property has been vacant and for sale for nearly a year. It was built in 1930. I am not sure if this is the proper procedure to deal with this type of incident but this is what was done. I hope MoE investigates.

**Report re: Cusheon Lake for SSIWPA Mar.17, 2017**

1. The lake was still frozen in the east end and at the lake level gage until Mar.3. Too many meetings and appointments has not permitted taking the secchi disk or temperature /oxygen profiles.

2. Rain/Snow received at Gulf Island Secondary School to:  
Mar. 2017 - 61.0 mm  
Mar. 2016 - 159.8 mm  
Mar. 2015 - 85.3 mm

So far this 2017 winter Jan - Mar - 220 mm received  
2016 winter Jan - Mar - 412.3 mm received  
So we have only received about half as much precipitation

3. The flow gage Level has been fairly steady this past week. But it has dropped from what it was during the heavy rains.

4. The lake level has dropped.

5. A dead beaver was discovered on a property next to the lake. It was frozen and will be delivered to the MOE BC Wildlife veterinarian to find out why it died

## Report re: Cusheon Lake for SSIWPA April 21, 2017

1. The lake level and this is fairly normal for this time of year.
2. Precipitation received at Gulf Island Secondary School:  
Total Mar. 2017 - 131.8 mm and this is lower than 2015 reading of 254mm  
Comparison for April -  
April 2015- 35.3 mm.  
April 2016- 29.7 mm .  
April 2017- 72.1 **This is more than double what was received last year and there is still a week to go.**
3. Secchi disk was 4.5 m. and this indicates fairly clear lake water and is a similar reading to other years.
4. In mid April 2017, the annual maintenance and flushing of the water distribution system was done.
5. A dead beaver was delivered to the MOE BC Wildlife veterinarian to find out why it died but it has not been dealt with yet.
6. The sign re "no the dogs" has been installed at Cusheon Lake. This is a sign similar to the sign at St. Mary Lake. Thank you to CRD staff for doing this.



## **Report re: Cusheon Lake for SSIWPA May21, 2017**

1. The lake level on May 4 was 1.173 m; in 2016 it was 1.226 so May started with a lower lake level. The lake level yesterday May 18 was 1.224m; in 2016 it was 1.194m. This shows that the lake level has gone up just a little as it is controlled by the beaver dam even if it is just small right now.

2. The creek level out flow was 0.13 m on May 18. There is evidence that the beaver are slowly building a dam but the water is still flowing out. Tyler Brook is still flowing.

3. Precipitation received at Salt Spring Elementary:

Total April 2017 - 79.5 mm

Comparison for May -

May 2015- 5.3 mm.

May 2016- 6.3 mm.

May 2017- 31.5 mm

There has been considerable rain in May but this does not accumulate very much in the lake.

4. A report has been received about the dead beaver; it died of staphylococcus and pneumonia.

5. On May 1st, I met with Rosie Barlak who works for the Ministry of the Environment. She checked the meter that the CLSC uses. Rosie told me that for the next 18 months there would be no monitoring done on Salt Spring Lakes by the Ministry, as they have no staff. She was going on maternity leave for 18 months and would then return. A person has not been found to replace Michelle Hawryluk who left the Ministry of the Environment earlier in the year.

## Report re: Cusheon Lake for SSIWPA July 21, 2017

1. The lake level on July 20 was 1.33 m with a corrected level of 1.196 m for comparison purposes, the corrected level in 2016 was 1.008 m.

The lake level has gone up just a little from last month and is controlled by the beaver dam.

2. Secchi disk was 4.9 m on July 20, a little better than last month

Flow rate in creek 0.07m

Salmon Enhancement is pumping from their dug well to a fish tank and it empties into the creek.

The beaver dam was opened up at the top - about 15 cm wide and 5 cm deep

3. Precipitation received at GISS:

July 2015- 10.6 mm

July 2016- 16.5 mm

July 2017- .2 mm

4. Ministry of Environment has platforms to find nutria but none have been found to my knowledge.

5. Residents are concerned about large masses of a filament type of algae, lime green, floating and submerged.

## Report re: Cusheon Lake for SSIWPA Sept 22, 2017

1. The lake level on Sept 21 was 0.964 while the level in 2016 was considerably lower 0.782 m.
2. Secchi disk was 4.9 m on Sept 21, 2017, which is remarkably better than 2 m measured last year on Sept 20, 2016.

Flow rate in creek 0.07m

3. Precipitation received at GISS:

Aug 2015- 22.9 mm	Sept 2015 - 45.5 mm
Aug 2016- 6.1 mm	Sept 2016 - 35.6 mm
Aug 2017- 2.0 mm	Sept 2017 - 15 mm

4. Ministry of Environment platforms have been removed from Parcel D we have not learned any results re: nutria.

5. Results from the testing of the algae samples sent to Ontario were received. The lab can do much more in depth testing and discovered that there were two toxins entrained in the cells in the raw water sample. They are Microcystin RR -.06 and Anatoxin A - .4. These are below the allowed limit but you know this can change rapidly during the die off period of the algae.

The surface sample taken near the Beddis raw water intake did not show any toxins.

The Cusheon Lake Stewardship is paying for the air-freight shipping.

6. The aquatic weeds are extremely prolific. They are near the surface even in deeper water.



## Report re: Cusheon Lake for SSIWPA Oct 20, 2017

1. The lake level on Oct 19, 2017 was .966 m while the level on Oct 20, 2016 was higher at 1.164 m.
2. Secchi disk was 3.8 m on Oct 19, 2017, which is not as clear as last month.

Flow rate in creek 0.07m unchanged

3. Precipitation received at GISS:

Oct 2015 – 85.3 mm  
Oct 2016 – 183.4 mm  
Oct 2017 – 41.7 mm

4. The lake is the same temperature from top to bottom.
5. There is no flow from Blackburn Creek or any of the other streams or culverts into Cusheon lake
5. The aquatic weeds are still extremely prolific. When they die off and decay, they will use up a great deal of oxygen, which is not good for the health of the lake.