2019 LNID AGM Trustee Report/Water Overview

May 21/18 to May 2019

The LNID Board has had 12 Trustee Meetings & many other RDOS & Ministry meetings. What we realize is whether you are **up or down** off the lake, or have a **well or surface water lake intake, we all must consider that the Twin Lake is vulnerable** to both Flood & Drought. W**e must all take responsibility to protect this lake & our water in this very sensitive area. It is up to us, even though unfair - we have been protecting water for all on the aquifer. Government will not do it for us! How can we best protect the water in Twin Lake?**

The **2018 flood of Twin Lake** was a costly, stressful event and once over required hours of clean-up work for residents. The cost for the 2018 LNID pump maintenance & power was about **$16,000.00** and the Emergency Measures Operations (EMO) diesel pump fuel and rental was **$80,000.00** paid by the province EMO. The Province does not track the many emergency workers (wildfire staff and 100 Military personnel hours for several days) or the RDOS EMO communications or the 280 gravel truck loads hauled to a Lower Twin Lake driveway, or the personal manual work of sand bagging, lake and watershed monitoring. EMO tracks only the pump cost. As a guess, the total Twin Lake flood cost would likely be ¼ million in 2017 and near a million in 2018.
What happened in **2018** is unheard of. The Orofino Mt. ~206% of N. snow pack affected mainly the 5 creeks coming from 5 different faces of Orofino Mt. 4 of these creeks pass through Willowbrook and enter the wetland called Myers Flat. An EMO diesel pump was installed in Lower Twin Lake (LTL) May 19, 2018 and was monitored daily by a paid representative.
By May 24th 2 pumps had been running for 6 days and the upper & lower Lakes had become one lake with the LTL peak at 26.78 ft. with Upper Twin /Horn Lake (UTL) storage full at 5 ft. and a spill of 12 in. over the spillway sill (increased to 27 in. within 2 days). Horn Creek ran into UTL until June 21st and the Turtle Pond rose to 10 ft. over the original culvert at Eastview Rd. where a large 39 in. culvert was installed May 4th. The large culvert allowed 10 in. of water to flow into LTL to raise the lower lake level quickly. See the 2018 Twin Lake Monitoring attached. The diesel pump was turned off Nov. 16 and the LNID pump was off Dec. 18. The 2 pumps released about 1.5 in. of water in 24 hr. The LNID pump releases about 3/8 in. in 24 hr. The total freshet was ~ 17 ft. and the total amount of water pumped was ~ 14 vertical ft. over ~ 6 months.

April 1, 2019 the snow pack was only 71% of N. with lake ice out April 7. A small flow of water appeared in Horn Creek under the culverts on White Lake Rd. S. on Mar. 27 but after about 100 ft. water went to ground. May 1, 2019 no surface water was reaching Horn Lake.

The “Recommended LTL Levels”, $15,000.00 Study is not yet completed. The Park Rill & Twin Lake Catchment Flood Study written for the 1 in 200 year flood was presented to RDOS May 1/19. Another Study is pending for Park Rill Water Management by Area C.

Background:

There are only 2 **Land** Improvement Districts (IDs) in BC, but we are included in Provincial regulations with Irrigation Districts that provide water to 3 or more on one intake, such as a Community Well. The LNID is under the Ministry of Municipal Affairs & Housing (MoMAH). The LNID has specific regulations that must be followed and all By Laws (operating taxes, meeting procedures) must be approved. We are a form of Government but with a mandate for works/land improvement described as "drainage" in the 100 year old Water Act which still is our guide under the 2016 Water Sustainability Act. https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/local-governments/governance-powers/improvement_district_trustees_handbook.pdf

- Improvement Districts (IDs) are not eligible for Gov. Infrastructure Grants (generated from our taxes), but can apply for Conservation Project Grants or perhaps Gas Tax Grants (?) when approved by the Regional District (RD). This **lack of access to provincial funding** has been resisted by the 211 Improvement Districts, without success. Decreased access to funding has been an initiative to decrease IDs so that IDs will come under the RDs created in 1966.
- In rural areas residents must take responsibility for the protection of their land. Even though the water belongs to the Province it is our responsibility. We do have a right to water but no government agency oversees private water intakes water quality. Our 2011 Observation Wells #404 & 403 are found on the BC Water Atlas website. These wells give information on ground water levels to indicate aquifer health. Decreased water quantity increases mineral concentration and so affects water quality.
- We are fortunate to live over this sand & gravel aquifer which is a system of water storage. In 2010 the Twin Lake Aquifer Capacity Summit Study recommended that water use cannot be greater than 35% of the annual recharge. If water-use is greater than recharge over a time the aquifer content may compress and then would not store water. Bedrock has some capacity to hold limited water in crevasses but it is "not productive". In 2018 when the snow pack was very high at 206% of normal, several bedrock wells ran out of water by mid-summer.
- Lower Twin Lake is on a **waterway** and **does require** an overflow outlet for the wet years. The overflow outlet is shown on the old pre 1930 map as an **ephemeral** (flows in the spring) Lower Horn Creek.
- The Park Rill drainage has been improved through Willowbrook, but there is still damage to lands north & south of Willowbrook. Sportsman Bowl remains unstable and it is estimated it will take 2 years to repair the 2018 flood damage.
- Climate change seems real, and all municipalities are preparing for this. We may well have more years like 2018, but in average wet years, LTL still requires restoration of the overflow gravitational gate controlled pipe. Pumping is costly, and inefficient. During the previous wet year water cycle of 1996 to 1999 the LNID was able to divert ½ of the spring run- off water via a ditch to the next valley, but the hollow that stored the water was developed by 2010.

How Can We Best Protect the Water in Twin Lake?

The LNID Board recommends:

1. **Continue to work towards converting to RDOS with a larger Land Improvement Service Area for all drawing water from this aquifer.**
2. **Support a motion that the LNID Board focus on the installation of a gravitational, overflow gate controlled pipe from Lower Twin Lake to Lower Horn Creek, as was in place in 1951 – 1961.**

Respectfully Submitted by the May 2018 – May 2019 Board of the Lower Nipit (Twin Lake) Land Improvement District,

Trustees Glenda Stewart-Smith, Sandie Wilson, Coral Brown, Treasurer Pam Mann and Secretary George Windsor