

## Lake's outlet channel operating as it should, water level fluctuations natural

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The water level in Sylvan Lake reached its highest level in recorded history last August 11 with an average daily level at 937.308 metres above sea level. The previous high was recorded in July 1955 at 937.25 metres.

Concerns about the rising lake level prompted municipalities around the lake to raise concerns and request an assessment of the outlet channel which was conducted by Alberta Environment.

David Helmer presented the conclusions of that study and a variety of options to Sylvan Lake councillors last Tuesday night and to Lacombe County councillors last Thursday.

In a lengthy presentation filled with data and computer modelling charts, Helmer explained how the assessment was undertaken on about 1.1 kilometres of the channel from the lake to just before the culverts at Highway 11.

MPE Engineering was hired to assess and survey the channel and determine the hydrologic control point, the significant point where the channel is limited.

While they did find that one of the twin culverts under Erickson Drive was 80 per cent blocked (and subsequently unblocked by Alberta Transportation) that wasn't the choke point. "We're confident the control point is at the outlet from the lake," Helmer said. "We're also comfortable the natural outlet is performing as a natural outlet and hasn't been silted in."

The culvert under Highway 20 which "doesn't flow water through it we don't think has caused any problem," he added. In talking to Lacombe County councillors he said when Highway 20 was realigned in the 1980s "the culvert was inadvertently inverted". At that time the channel used to go under Highway 20 and meander down and then cross back under the highway again.

Helmer said they also assessed the impact of fill dumped in the area. "It doesn't show its significant in obstructing the water. Most of the flow is over the channel not over the edges. Alberta Environment now owns 20 metres on the south of the channel and 10 metres on the north side which is protected from filling.

"The bottom line," he said, "is the channel is functioning as it's intended to. The natural outlet is functioning as a natural outlet."

Sylvan Lake is a naturally fluctuating lake. In 2011 we had a cool, wet spring coupled with above normal snow melt creating lots more water coming in than leaving by evaporation and the outlet creek.

"Lake levels fluctuate naturally, mainly through evaporation, but also through the channel," he emphasized. "The primary mechanism for water leaving the lake is because of evaporation."

The outlet creek has a limited capacity and that's not because it is artificially blocked.

Helmer explained the sill at the lake outlet has not varied much from heights measured in a 1978 report or the AXYS report in 2005.

Another question he answered was 'Is Cygnet Lake causing water to back up?'

He said that's not the case. Its level is about five metres lower than Sylvan Lake and its several kilometres downstream. "It's too far downstream to have a significant impact."

"Our viewpoint is we don't think anything went wrong. It's more about what are the appropriate options that can be considered to try and manage the water."

He then discussed options pointing out pros and cons of such things as upgrading the outlet channel by reducing the outlet elevation, adding a control structure, maintaining the outlet by keeping it clear of debris and excessive weed growth, erosion protection around the lake's shore and creating natural buffers along the shores. The options concerned with changing the outlet channel would only have reduced the height of the lake water level by 1-1.6 inches if they'd been completed before last summer, he said.

Helmer promised to complete the options table and incorporate any additional comments into a frequently asked questions section before forwarding the final report to the municipalities around the lake and to Sylvan Lake Management Plan committee for its members to consider.

Either the committee itself or the municipalities around the lake would have to make a decision on how to proceed. If a decision is made, it would still have to be assessed by Alberta Environment and possibly the federal Fisheries and Oceans department.

Assessments would also have to be done on the impact of any changes on areas downstream.

At Lacombe County, councillor Rod McDermand said, "My speculation is by the time we get around to making decisions we'll be at the end of the cycle and be back into dry years."

Helmer agreed the cycle is up and down. It's roughly 10-15 years. "Statistically it will go down this year but we can't predict that."